New Shoes Dairy
Nutrient Management Plan

Owner/Operator Information:

Owner/Operator Name:	New Shoes Dairy
Address:	263 N 3350 East Rd. Sigel, IL 62462
Phone:	(217) 240-0681

Facility Information:

Facility Name:	New Shoes Dairy
Facility Manager:	Jacob Schumacher
License #:	LM17311783 – EXP: 2-5-2028
Address:	263 N 3350 East Rd. Sigel, IL 62462
Legal Description:	Section: 3, Township: 9N, Range: 6E Shelby County, Illinois

Livestock Facility ID Number:	LF1730160000
Animal Types and Numbers:	Dairy Lactating Cows – 635 head (EX & PR) Dairy Dry Cows – 125 head (EX & PR) Dairy Heifers – 145 head @ 1,000lb. (EX & PR) Dairy Heifers – 100 head @ 850lb. (EX & PR) Dairy Heifers – 10 head @ 600lb. (EX & PR)
Plan Publish Date:	May 7, 2025
Maurer-Stutz, Inc. Project:	23808034.11

Nutrient Management Plan Developer

Daniel N. Feucht, CCA
Registration # 641183
Expires: 12-31-2026

SIGNATURE: Daniel N Feucht

DATE : 7-30-25

MAURER-STUTZ
ENGINEERS SURVEYORS

Table of Contents

Waste Management Plan Review

Number of Animal Units IDA/IEPA:	**1,217**
Number of Animal Units NRCS:	**1,300**

Plan Based on:	
a) Nitrogen rate	X
b) Phosphorus rate	
c) Combination	

Section 900.802 SCOPE AND APPLICABILITY			
(b)	**Animal Units** <1000		Exempt
(c)	**Animal Units** 1000 to 4999		
	(1)	Prepared, maintained plan on file	X
	(2)	Submitted Certification to Department	X
	(3)	Plan and records of waste disposal on file at facility (On file for 3 years)	X
(d)	**Animal Units** 5000 or greater		
	(1)	Plan submitted to and approved by the Department	
	(3)	Plan and records of waste disposal on file at facility (On file for 3 years)	

Section 900.803 Waste Management Plan Contents			
(a)	Name, address and phone number of the owner(s)		Cover
(b)	Name, address and phone of manager or operator if different		Cover
(c)	Address, phone number, and plat location of the facility		Cover
(d)	Type of waste storage facility		Sec1/ Sec2
(e)	Species, general size, number of animals and number of animal units at the facility. (# of each species)		Sec1/ Sec2
(f)	Aerial photos and maps outlining fields available and intended for livestock waste applications with available acreage listed and with residences, non-farm business, common places of assembly, streams, wells, waterways, lakes, ponds, rivers, drainage ditches, other water sources indicated.		Sec 3/ App A
(g)	For application fields not owned or rented, copies of waste application agreements between the owner or operator of the livestock facility and the owner of the land where the livestock will be applied.		Sec 4.10
(h)	Cropping schedule for each field for the past year, anticipated crops for the current year, and anticipated crops for the next two years after the current year.		Sec 4
(i)	Targeted crop yield goal for each crop in each field.		Sec 4
(j)	Estimated nutrient content of the livestock waste.		Sec 4
(k)	Livestock waste application methods.		Sec 1.2/ Sec 4
(l)	Results of the Bray P1 or Mehlich test for soil phosphorus reported in pounds of elemental phosphorus per acre		Sec 4 / App. B
(m)	Calculations showing the following:		
	(1)	An estimate of the volume of livestock waste to be disposed of annually;	Sec 4
	(2)	Nitrogen loss due to method of storage, if applicable	Sec 4
	(3)	Amount of nitrogen available for application;	Sec 4
	(4)	Nitrogen loss due to method of application;	Sec 4
	(5)	Amount of plant-available nitrogen including 1st year mineralization of organic nitrogen;	Sec 4
	(6)	Amount of nitrogen required by each crop in each field based on targeted crop yield goal;	Sec 4
	(7)	Nitrogen credits from previous crops, from other sources of fertilizer applied for the growing season, and from any manure applications during the previous three years for each application field;	Sec 4

	(8) Livestock waste application rate based on nitrogen for each application field; and	Sec 4
	(9) Land area required for application.	Sec 4
(n)	A listing of fields and the planned livestock waste application amounts for each field;	Sec 4
(o)	A PROVISION THAT LIVESTOCK WASTE APPLIED WITHIN 1/4 MILE OF ANY RESIDENCE NOT PART OF THE FACILITY SHALL INJECTED OR INCORPORATED ON THE DAY OF APPLICATION. HOWEVER, LIVESTOCK MANAGEMENT FACILITIES AND LIVESTOCK WASTE HANDLING FACILITIES THAT HAVE IRRIGATION SYSTEMS IN OPERATION PRIOR TO May 21, 1996, OR EXISTING FACILITIES APPLYING WASTE TO FROZEN GROUND ARE NOT SUBJECT TO THE PROVISIONS OF THIS subsection(o) [510 ILCS 77/20 (f)(5)];	Sec 4.14
(p)	A PROVISION THAT LIVESTOCK WASTE MAY NOT BE APPLIED WITHIN 200 FEET OF SURFACE WATER UNLESS THE WATER IS UPGRADE OR THERE IS ADEQUATE DIKING AND WASTE WILL NOT BE APPLIED WITHIN 150 FEET OF POTABLE WATER SUPPLY WELLS [510 ILCS 77/20 (f)(6)];	Sec 4.14
(q)	A PROVISION THAT LIVESTOCK WASTE MAY NOT BE APPLIED IN A 10-YEAR FLOOD PLAIN UNLESS THE INJECTION OR INCORPORATION METHOD OF APPLICATION IS USED[510 ILCS 77/20 (f)(7)];	Sec 4.14
(r)	A PROVISION THAT LIVESTOCK WASTE MAY NOT BE APPLIED IN WATERWAYS. For the purposes of this Part, a grassed area serving as a waterway may receive livestock waste through an irrigation system if there is no runoff, the distance from applied livestock waste to surface water is greater than 200 feet, the distance from applied waste to potable water supply wells is greater than 150 feet; the distance from applied livestock waste to a non-potable, an abandoned or plugged well, a drainage well, or an injection well is greater that 100 feet; and precipitation is not expected within 24 hours [510 ILCS 77/20 (f)(8)];	Sec 4.14
(s)	A PROVISION THAT IF WASTE IS SPREAD ON FROZEN OR SNOW-COVERED LAND, THE APPLICATION WILL BE LIMITED TO LAND AREAS ON WHICH:	Sec 4.15
	(1) LAND SLOPES ARE 5% OR LESS; OR	Sec 4.15
	(2) ADEQUATE EROSION CONTROL PRACTICES EXIST [510 ILCS 77/20 (f)(9)];	Sec 4.15/3.3
(t)	For livestock facilities utilizing an earthen lagoon or other earthen waste storage structure, a provision that the owner, operator, or certified livestock manager shall inspect all berm tops, exterior berm sides, and non-submerged interior berm sides for evidence of erosion, burrowing animal activity, and other indications of berm degradation on a frequency of not less than once every two weeks; and	Sec 5.2
(u)	A provision that livestock waste may not be applied during a rainfall or to saturated soil and that conservative waste loading rates will be used in the case of high water table or shallow earth cover to fractured bedrock. Caution should be exercised in applying livestock wastes, particularly on porous soils, so as not to cause nitrate or bacteria contamination of groundwater.	Sec 4.14

Section 900.804 Livestock Waste Volumes
The volume of available livestock waste for application, as required in Section 900.803(m)(1) of this Part, shall be obtained by multiplying the number of animals constituting the maximum design capacity of the facility by the appropriate amount of waste generated by the animals. [510 ILCS 77/20(f)(1)] The following sources may be used to obtain the amount of waste generated: MidWest Plan Service, MWPS-18, Livestock Waste Facilities Handbook, Table-2-1, or 35 Ill. Adm. Code 560, Table 1.determined from site specific measurements of the waste storage structure.

Section 900.805	**Nutrient Content of Livestock Waste**
(a)	*The owner or operator may prepare a plan based on an average of the minimum and maximum numbers in the table values derived from MidWest Plan Service's MWPS-18, Livestock Waste Facilities Handbook* (Table 2-1, 10-6, or 10-7) or *the Agency's Agriculture Related Pollution regulations* (35 Ill. Adm. Code 560, Table 1 or Table 2), *or the results of analysis performed on*

	samples of waste. [510 ILCS 77/20(f)(3)] If "as produced" or "as excreted" nutrient values are used, the nitrogen value shall be adjusted to account for losses due to the type of storage system utilized using an average of the ranges in MidWest Plan Service, MWPS-18, Livestock Waste Facilities Handbook, Table 10-1. Other sources of nutrient values may be used if approved by the Department.		
(b)	If results of an analysis performed on samples of waste are used for the nutrient values in a plan, the following procedures shall be followed:		
	(1)	The livestock waste handling facility owner or operator shall annually obtain a laboratory analysis of the nutrient content of the livestock waste to be applied to land as provided within the waste management plan. Livestock waste shall be sampled during the application process. Multiple subsamples shall be obtained and may be combined into one sample for analysis so that a representative sample is used for preparation of the waste management plan. A sample taken during waste application the previous year can be used as a representative sample of the waste to be applied the following year unless there has been a change in the waste management practices.	Sec 4.13
	(2)	Livestock waste sampling shall be performed under the direction of a certified livestock manager to ensure a representative sample from the livestock waste storage facility and to preserve the integrity of the sample.	Sec 4.13
	(3)	The laboratory analysis of the livestock waste sample shall include, but not be limited to, total nitrogen, ammonium nitrogen, total phosphorous, and total potassium. Results of the analysis shall be included in the waste management plan.	Sec 4.13

Section 900.806	**Adjustments to Nitrogen Availability**	
Adjustments shall be made to nitrogen availability to account for the following:		
a)	Nitrogen loss from livestock waste due to method of application, as required in Section 900.803(m)(4) of this Part and obtained from an average of the ranges in MidWest Plan Service, MWPS-18, Livestock Waste Facilities Handbook, Table 10-2; and	Section 4
b)	The first-year mineralization of organic nitrogen into a plant available form, as required in Section 900.803(m)(5) of this Part and obtained from MidWest Plan Service, MWPS-18, Livestock Waste Facilities Handbook, Table 10-5.	Section 4

Section 900.807	**Targeted crop Yield Goal**		
(a)	The targeted crop yield goal, as required in Section 900.803(m)(6) of this Part, shall be determined for each field where the livestock waste is to be applied. The targeted crop yield goal shall be determined by obtaining an average yield over a five-year period from the field where livestock waste is to be applied. The following listing of sources of data shall be utilized to determine the targeted crop yield goal.		
	(1)	Proven yield. The proven yield shall be determined by obtaining an average yield over a five-year period from the field where livestock waste is to be applied. The owner or operator shall indicate the method used to determine the proven yield. Data from years with crop disasters may be discarded. Proven yields shall be used unless there is a sound agronomic basis for predicting a different targeted crop yield goal;	
	(2)	Crop insurance yields. A copy of the crop insurance yields shall be Included in the plan; or	Appendix E
	(3)	Farm Service Agency - United States Department of Agriculture yields. A copy of the assigned crop yields shall be included in the plan.	Appendix E
(b)	Soils based yield data from the Natural Resources Conservation Service of the United States Department of Agriculture shall be used if the owner or operator cannot obtain a targeted crop yield goal pursuant to subsection (a) of this Section. A soil map of the application areas shall be included in the plan. The targeted crop yield goal shall be determined by a weighted average of the soil interpretation yield estimates for the areas that will receive livestock waste.		

Section 900.808 Nitrogen Credits		
(a)	Nitrogen credits shall be calculated by the livestock facility owner or operator, pursuant to Section 506.303 (m)(6) of this Part, for nitrogen- producing crops grown the previous year, for other sources of nitrogen applied for the growing season, and for mineralized organic nitrogen in livestock waste applied during the previous three years.	Sec 4
(b)	Nitrogen credits shall be calculated by the livestock facility owner or operator for the mineralized organic nitrogen in livestock waste applied during the previous three years at the rate of 50%, 25%, and 12.5%, respectively, of that mineralized during the first year.	Sec 4

Section 900.809 Records of Waste Disposal		
Records of the livestock waste disposal shall include the following items:		
(a)	Date of livestock waste application;	Sec 5
(b)	The field where livestock application was made;	Sec 5
(c)	Method of livestock application rate;	Sec 5
(d)	Livestock waste application rate;	Sec 5
(e)	Number of acres receiving waste; and	Sec 5
(f)	Amount of livestock waste applied.	Sec 5

Permitted Large CAFO Requirements

NPDES permits issued to CAFOs must include:

Section 502.315 CAFO Permit Requirements	
a) Requirements to implement a nutrient management plan that meets the provisions of Subpart E.	See below
b) Requirements for the permittee to create, maintain for five years from creation on site, and make available to the Agency, upon request, a complete copy of the records required in Section 502.320.	Section 5
c) Annual reporting requirements for permitted CAFOs. The permittee must submit an annual report to the Agency. The annual report must include the information specified in Section 502.325.	See Section 5
d) Requirements to comply with the livestock waste discharge limitations in Subparts F, G and H, if applicable.	See Section 2.7

The CAFO owner or operator shall develop, submit and implement a site specific nutrient management plan. This plan shall specifically identify and describe practices that will be implemented to assure compliance with this Subpart and the livestock waste discharge limitations and technical standards of Subparts F, G, and H. The following items must be documented and recorded for Permitted CAFOs:

Section 502.510 (b) Nutrient Management Plan Requirements	
(a) The livestock waste application rate of nitrogen in a single year and phosphorus in a single year or multiple years, not to exceed the single year crop nitrogen and single year or multi-year phosphorus requirement for realistic crop yield goals in the rotation.	Section 4
(b) Adequate land application are for livestock waste application which may include: a. Land owned by the CAFO owner or operator b. Land rented or leased by the CAFO c. Land covered by a consent agreement between the CAFO owner or operator and the property owner d. Any combination of a through c	Section 4
(c) Adequate storage of livestock waste, including procedures to ensure proper operation and maintenance of the storage facilities	Section 2.2
(d) Proper management of mortalities to ensure that they are not disposed of in a liquid livestock waste or stormwater storage or treatment system that is not specifically design to treat animal mortalities	Section 2.3
(e) That clean water is diverted, as appropriate from the production area	Section 1.5
(f) Prevention of direct contact of confined animals with waters of the United States	Section 1.5
(g) That chemicals and other contaminants handled on-site are not disposed of in any livestock waste or stormwater storage or treatment system unless specifically designed to treat those chemicals and other contaminants	Section 6.5
(h) Appropriate site specific conservation practices to be implemented, including, as appropriate, buffers or equivalent practices, to control runoff of pollutants to waters of the United States	Section 3
(i) Protocols for appropriate testing of livestock waste and soil. Livestock waste must be analyzed a minimum of once annually for nitrogen and phosphorus content, and soil analyzed a minimum of twice every five years for phosphorus content. The results of these analyses are to be used in determining application rates for livestock wastes	Section 1.4, Section 4.13
(j) Protocols to land apply livestock waste in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the livestock waste	Section 4
(k) Livestock waste shall not be applied within the distance from residences provided in Section 502.645(a) and within the areas prohibited from land application by this Part	Section 4.14
(l) A winter time land application plan that meets the requirements of Section	Section 4.15

	502.630	
(m)	The plan for the inspection, monitoring, management and repair of subsurface drainage systems at the livestock waste application site. Inspection of subsurface drainage systems shall include visual inspection prior to land application to determine failures that may cause discharges and visual inspection during and after land application to identify discharges.	Section 4.18
(n)	A spill prevention and control plan	Section 6
(o)	Annual review of the nutrient management practices to be implemented and an update of the nutrient management plan when there is a change in the nutrient management practices	Section 5
(p)	Specific records that will be maintained to document the implementation and management	Section 5
(q)	A description of the storage provisions and schedules provided for livestock waste when cropping practices, soil conditions, weather conditions or other conditions prevent the application of livestock waste to land or prevent other methods of livestock waste disposal	Section 6.2.1

Section 1. Executive Summary

1.1 Plan Summary

The purpose of this nutrient management plan is to detail the procedures that will be followed in the operation of New Shoes Dairy of Shelby County, IL. This plan contains provisions for removal of livestock waste, and the application of these materials to crop land at agronomic rates. This plan is intended to meet or exceed the requirements of the Livestock Facilities Management Act Subpart H, Waste Management Plan and Title 35, Subtitle E, Chapter 1, Subpart E.

New Shoes Dairy is a large concentrated animal feeding operation (CAFO) dairy facility located in Shelby County, Illinois. The animals on site are calves from 10 – 12 months, heifers, close to calving, and lactating and dry cows. See section 2.4 for total animals and average weights.

The animals described above are housed in the following production facilities:

- Two (2) freestall barns – E2 & E4
- One (1) bred heifer barn – E11
- Three (3) bedpack heifer barns – E13, E14 & E19

Manure nutrient content is determined from laboratory analysis. Mineralization rates for organic nitrogen have been calculated according to MWPS-18 Table 10-5. See Section 4.6 for the selected volatilization and mineralization rates. Application rates will be based on the annual agronomic nitrogen of the crops to be grown.

Approximately 975 acres are available for use by this facility for land application of manure and wastewater. Based on facility manure and wastewater production volumes and planned crop rotations, approximately 500 acres are needed for land application based nitrogen.

1.2 Application Methods

Liquid manure from E5 holding will be subsurface injected or incorporated on all crop land (corn grain, soybeans, etc.). Liquid manure from E8 holding pond will be irrigated through a center pivot irrigator located at the Adkins Field. Solid manure will be land applied and incorporated on all crop land (corn grain, soybeans, etc.)

Sludge (solid residuals) in liquid manure storages should be removed before increased depth impacts storage volume that the storage period is less than the time between applications. When sludge is removed, it should be land applied and incorporated on crop land (corn grain, soybeans, etc.)

1.3 Odor Abatement Practices

- All manure/wastewater is applied to land growing crops capable of up taking manure nutrients.
- Manure/wastewater is not applied to saturated soils.
- Proper application setback distances are observed and a defined spill contingency plan is in place. See section 4.2 and 6.2.

1.4. Sampling, Calibration, and Other Statements

a Manure sampling frequency

- Manure shall be analyzed at least annually or before each land application event from each storage structure for: % Solids, Total N (TKN), Organic N, NH4 or NH3, P2O5, K2O.
- See Section 5.10 (Manure Analysis/Sampling Procedures) and Appendix C (Manure Test Results)

b. Soil testing frequency

- Soil test will be taken twice in a five year period on each field where manure is applied.
- Soil tests will be taken using University of Illinois Agronomy Handbook recommendations.
- See Section 5.9 (Soil Testing Procedures) and Appendix B (Soil Tests Results)

c. Equipment calibration method and frequency

a. See Section 5.11 (Application Equipment Calibration)

d. Clean water diversion strategies – all clean water is planned to be diverted where possible so it does not drain into or through the waste handling and storage system.

e. Measures to prevent direct contact of animals with water – all animals are housed in a manner that prevents their direct contact with surface water.

f. Measures taken to prevent watering and feed spillage – Automatic (float controlled) waterers are used. Silage is stored in bunkers where all stormwater, runoff and leachate is collected and transferred to the holding pond. The waterers and commodity storages along with care in mixing feed help prevent spillage.

g. Other similar statements as needed

1.5 Storm Water Pollution Prevention Plan

Storm Water Pollution Prevention Plan

Form 3-B

Y	N	NA	Map Legend*	Physical Structures
☐	☐	☒		**Collection basins**—Permanent structures in which large spills or contaminated storm water is contained and stored before cleanup or treatment. Collection basins are designed to receive spills, leaks, etc., and to prevent pollutants from being released into the environment. Collection basins can receive and contain materials from many locations across a facility.
☐	☐	☒		**Curbing**—A barrier that surrounds an area of concern. Unlike diking, curbing is unable to contain large spills and is usually implemented on a small-scale basis. However, curbing is common at many facilities and in small areas where liquids are handled and transferred.
☐	☐	☒		**Containment diking**—Containment dikes are temporary or permanent earth or concrete berms or retaining walls that are designed to hold spills. Diking can be used at any facility, but is most common for controlling large spills or releases from liquid storage and transfer areas. Diking can provide one of the best protective measures against the contamination of storm water because it surrounds the area of concern and keeps spilled materials separated from the storm water outside of the diked area.
☐	☐	☒		**Diversions**—A diversion is a channel constructed across the slope, generally with a supporting ridge on the lower side, for the purpose of changing the direction of flow of storm water.
☐	☐	☒		**Dry extended detention ponds**—Dry extended detention ponds (a.k.a. dry ponds, extended detention basins, detention ponds, extended detention ponds) are basins whose outlets have been designed to detain the storm water runoff from a water quality design storm for some minimum time (e.g., 24 hours) to allow particles and associated pollutants to settle. Unlike wet ponds, these facilities do not have a large permanent pool. However, they are often designed with small pools at the inlet and outlet of the basin. They can also be used to provide flood control by including additional flood detention storage.
☒	☐	☐	E28, E5 E8, E7 E9	**Wet ponds**—Wet ponds (a.k.a. storm water ponds, retention ponds, wet extended detention ponds) are constructed basins that have a permanent pool of water throughout the year (or at least throughout the wet season). Ponds treat incoming storm water runoff by settling and algal uptake. The primary removal mechanism is settling as storm water runoff resides in this pool, and pollutant uptake, particularly of nutrients, also occurs through biological activity in the pond.
☐	☐	☒		**Infiltration basin**—An infiltration basin is a shallow impoundment that is designed to infiltrate storm water into the ground water. This practice is believed to have a high pollutant removal efficiency and can help recharge the ground water, thus restoring low flows to stream systems.
☐	☐	☒		**Infiltration trench**—An infiltration trench (a.k.a. infiltration galley) is a rock-filled trench with no outlet that receives storm water runoff. Storm water runoff passes through some combination of pretreatment measures, such as a swale and detention basin, and into the trench. There, runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. The primary pollutant removal mechanism of this practice is filtering through the soil.
☐	☐	☒		**Storm water wetland**—Storm water wetlands (a.k.a. constructed wetlands) are structural practices similar to wet ponds that incorporate wetland plants into the design. As storm water runoff flows through the wetland, pollutant removal is achieved through settling and biological uptake within the practice. Storm water wetlands are designed specifically for the purpose of treating storm water runoff, and typically have less biodiversity than natural wetlands in terms of both plant and animal life.

☒	☐	☐	SW-1	**Grassed waterways/swales**—A series of vegetated, open channel management practices designed specifically to treat and attenuate storm water runoff for a specified water quality volume. As storm water runoff flows through these channels, it is treated through filtering by the vegetation in the channel, filtering through a subsoil matrix, and/or infiltration into the underlying soils. Variations of the grassed swale include the grassed channel, dry swale, and wet swale.
☐	☐	☒		**Grassed filter strip**—Grassed filter strips (vegetated filter strips, filter strips, and grassed filters) are vegetated surfaces that are designed to treat sheet flow from adjacent surfaces. Filter strips function by slowing runoff velocities and filtering out sediment and other pollutants, and by providing some infiltration into underlying soils.
☐	☐	☒		**Catch basin**—A catch basin (a.k.a. storm drain inlet, curb inlet) is an inlet to the storm drain system that typically includes a grate or curb inlet and a sump to capture sediment, debris, and associated pollutants. They are also used in combined sewer overflow (CSO) watersheds to capture floatables and settle some solids. Catch basins act as pretreatment for other treatment practices by capturing large sediments.
☐	☐	☒		**In-line storage**—In-line storage refers to a number of practices designed to use the storage within the storm drain system to detain flows. Storage is achieved by placing devices in the storm drain system to restrict the rate of flow. Devices can slow the rate of flow by backing up flow, as in the case of a dam or weir, or through the use of vortex valves, devices that reduce flow rates by creating a helical flow path in the structure.
☐	☐	☒		**Other practices**

* Mark the map legend codes on facility/production area maps where appropriate.

Facility/Production Area Storm Water Pollution Prevention Plan

Form 3-C

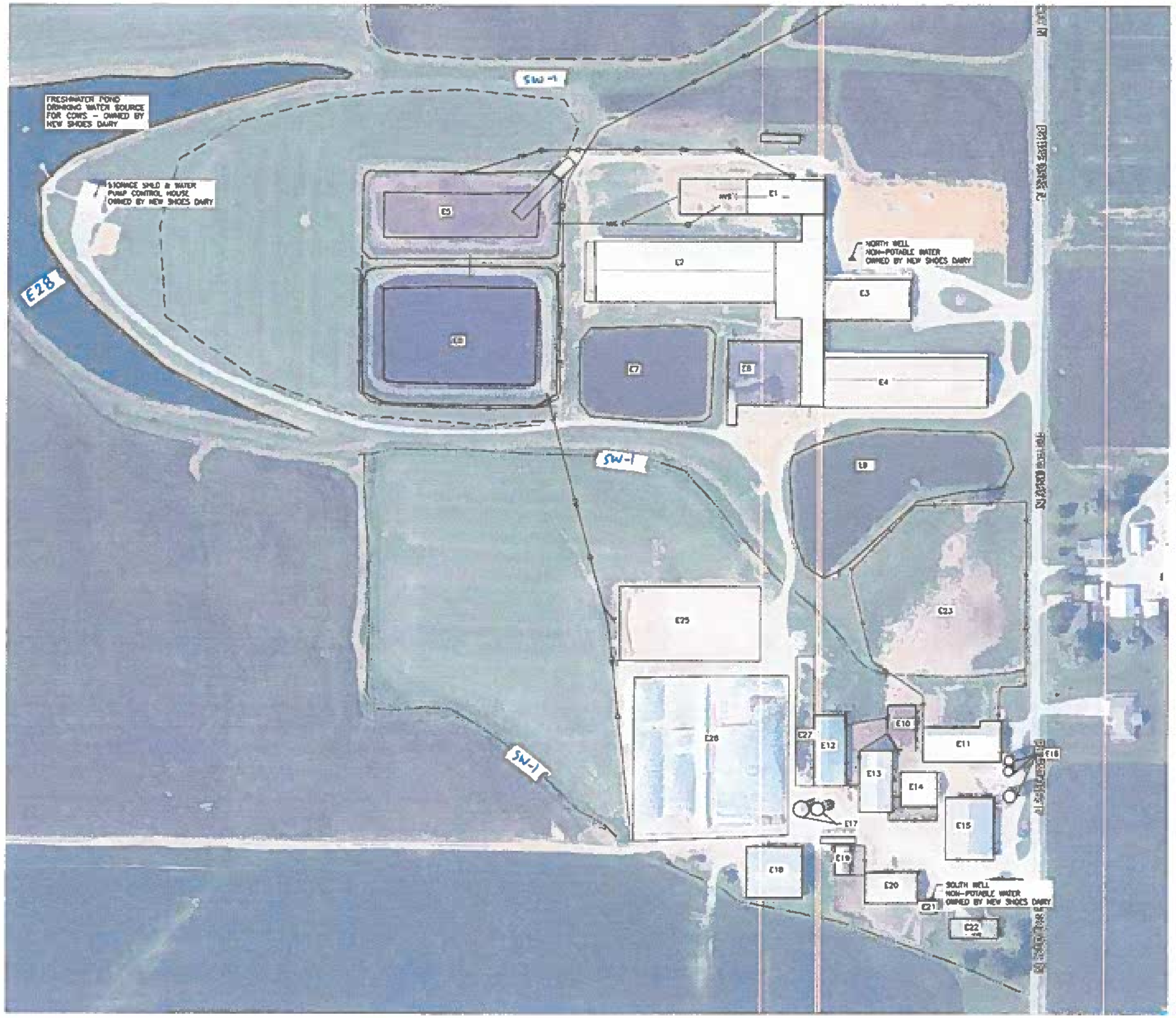
Mark those BMP's listed below that are applicable to any part of your operation.

Y	N	NA	Map Legend	Management/Operational Practices
				Diversions (Terrace–like structures can also function as diversions.)
☐	☐	☒		Temporary diversions are used only where the drainage area is less than 5 acres.
☐	☐	☒		Diversions that are part of a pollution abatement system have a minimum capacity for the peak discharge from a 10-year frequency, 24-hour duration storm.
☐	☐	☒		Diversions designed to protect areas such as buildings, roads, and animal waste management systems have a minimum capacity for the peak discharge from a storm frequency consistent with the hazard involved but not less than a 25-year frequency, 24-hour duration storm. Freeboard is not less than 0.3 ft.
☐	☐	☒		The location of a diversion and outlet is in compliance with applicable state drainage and water conveyance laws.** Diversions do not outlet on public roads, highways, or other public utility, or the written approval of the appropriate authorities has been obtained.
☐	☐	☒		Where movement of sediment into the channel can be a problem, the design includes extra capacity for sediment or periodic removal; and where applicable, such sediment removal is outlined in the operation and maintenance plan.
☐	☐	☒		The outlet conveys runoff to a point where outflow will not cause damage.
☐	☐	☒		Periodic inspections, especially immediately following significant storms, are performed. Damaged components of the diversion are promptly repaired or replaced as necessary.
☐	☐	☒		Diversion capacity, ridge height, and outlet elevations are maintained, especially where high sediment yielding areas are in the drainage area above the diversion.
☐	☐	☒		Each inlet for underground outlets is kept clean and sediment buildup redistributed so that the inlet is at the lowest point.
☐	☐	☒		Sediment is redistributed as necessary to maintain the capacity of the diversion.
☒	☐	☐		Vegetation on diversions is maintained and trees and brush controlled by hand, chemical and/or mechanical means.
☒	☐	☐		Machinery is kept away from steep sloped ridges. Equipment operators are informed of all potential hazards.
☐	☐	☒		**Hazardous materials storage**—Proper storage of hazardous materials. Practices such as covering hazardous materials, or even storing them properly, can have dramatic impacts.
☐	☐	☒		**Fueling areas**—Absorbent used for fueling areas will be packaged in small bags for convenient use and small drums will be available for storage. Absorbent materials will not be washed down the floor drain or into the storm sewer.

☐	☐	☒		**Chemical spills**—Emergency spill containment and cleanup kits will be located at the facility site. The contents of the kit will be appropriate to the type and quantities of chemical or goods stored at the facility.
☐	☐	☒		**Other practices** (describe)

** *See Illinois Drainage Law Part 1* on the Workbook CD for details on landowner rights and responsibilities regarding drainage.

Diversion - NRCS Practice Standard Code 362, Roof Runoff Structure - NRCS Practice Standard Code 558



EXISTING FACILITY	
E1	SAND SEPARATION BLDG
E2	FREE STALL BARN
E3	MILKING PARLOR - HOLDING PEN
E4	FREE STALL BARN
E5	1ST STAGE HOLDING POND WITH CONCRETE BOTTOM
E6	CONCRETE MANURE PIT
E7	FRESHWATER POND
E8	2ND STAGE EARTHEN HOLDING POND
E9	FRESHWATER POND
E10	SOLID MANURE STACK
E11	FREE STALL BARN
E12	COVERED FEED DRIVE
E13	FREE STALL BARN - FEED STORAGE
E14	BEDPACK BARN
E15	MACHINE SHED
E16	SILOS
E17	GRAIN BINS
E18	FEED STORAGE
E19	BEDPACK BARN
E20	MACHINE SHED
E21	STORAGE SHED
E22	FACILITY OWNED RESIDENCE
E23	HEAVY USE - VEGETATED LOT
E25	SILAGE - FEED STORAGE PAD
E26	SILAGE - FEED STORAGE PAD
E27	FEED STORAGE PAD - BAGGED FEED

LEGEND

- EXISTING WELL
- EXISTING GRAVITY MANURE PIPE
- EXISTING FORCE MAIN MANURE PIPE
- EXISTING FENCE
- CROP LINE
- INTERMITTENT STREAM

N

0 100' 200'

SCALE VALID ONLY ON 22"x34" SIZE PLANS

NEW SHOES DAIRY CAP-CNMP
PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N. FEUCHT
SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, ILLINOIS

MAURER-STUTZ
ENGINEERS SURVEYORS

EXISTING FARMSTEAD PLAN

DAIRY CNMP

NEW SHOES DAIRY

DESIGNED BY: LJR
REVIEWED BY: AKD
DATE: 10 - 2024
PROJECT NO.: 2380/834.11
SHEET: C100

Section 2 - Manure and Wastewater Handling and Storage

2.1. Map(s) of Production Area

See attached Farmstead Plan and plan view with contours at end of this Section.

EXISTING FACILITY	
E1	SAND SEPARATION BLDG
E2	FREE STALL BARN
E3	MILKING PARLOR – HOLDING PEN
E4	FREE STALL BARN
E5	1ST STAGE HOLDING POND WITH CONCRETE BOTTOM
E6	CONCRETE MANURE PIT
E7	FRESHWATER POND
E8	2ND STAGE EARTHEN HOLDING POND
E9	FRESHWATER POND
E10	SOLID MANURE STACK
E11	FREE STALL BARN
E12	COVERED FEED DRIVE
E13	FREE STALL BARN – FEED STORAGE
E14	BEDPACK BARN
E15	MACHINE SHED
E16	SILOS
E17	GRAIN BINS
E18	FEED STORAGE
E19	BEDPACK BARN
E20	MACHINE SHED
E21	STORAGE SHED
E22	FACILITY OWNED RESIDENCE
E23	HEAVY USE – VEGETATED LOT
E25	SILAGE – FEED STORAGE PAD
E26	SILAGE – FEED STORAGE PAD
E27	FEED STORAGE PAD – BAGGED FEED

LEGEND

EXISTING WELL

EXISTING GRAVITY MANURE PIPE

EXISTING FORCE MAIN MANURE PIPE

EXISTING FENCE

CROP LINE

INTERMITTENT STREAM

N

0 100' 200'

BAR SCALE IN FEET

PRELIMINARY

SCALE VALID ONLY ON 22"x34" SIZE PLANS

NEW SHOES DAIRY CAP-CNMP
PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N. FEUCHT
SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, ILLINOIS

MAURER-STUTZ
ENGINEERS SURVEYORS

EXISTING FARMSTEAD PLAN

DAIRY CNMP

NEW SHOES DAIRY

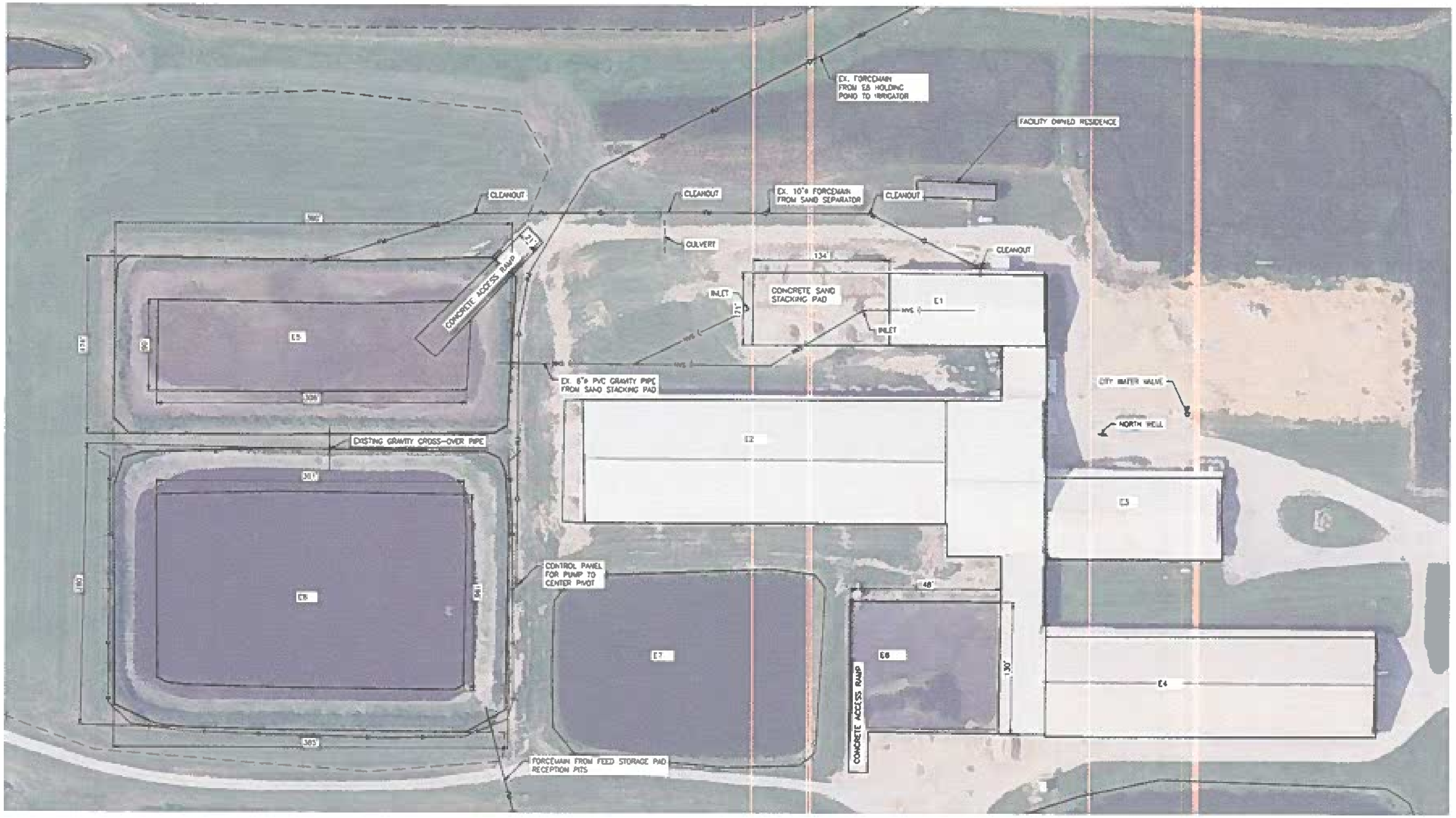
DESIGNED BY: LJR

REVIEWED BY: AKO

DATE: 10 – 2024

PROJECT NO.: 23808034.11

SHEET: C100



EXISTING FACILITY	
E1	SAND SEPARATION BLDG
E2	FREE STALL BARN
E3	MILKING PARLOR - HOLDING PEN
E4	FREE STALL BARN
E5	1ST STAGE HOLDING POND WITH CONCRETE BOTTOM
E6	CONCRETE MANURE PIT
E7	FRESHWATER POND
E8	2ND STAGE EARTHEN HOLDING POND
E9	FRESHWATER POND

ITEM	DESCRIPTION	CLOSEST WELL	DISTANCE
E5	1ST STAGE HOLDING POND WITH CONCRETE BOTTOM	NORTH	587'
E6	CONCRETE MANURE PIT	NORTH	197'
E8	2ND STAGE EARTHEN HOLDING POND	NORTH	593'

LEGEND

WELL	EXISTING WELL
	EXISTING GRAVITY MANURE PIPE
	EXISTING FORCE MAIN MANURE PIPE
	EXISTING FENCE
	CROP LINE

N

0 50' 100'

BAR SCALE IN FEET

PRELIMINARY

SCALE VALID ONLY ON 22"x34" SIZE PLANS

NEW SHOES DAIRY CAP-CNMP PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N. FEUCHT
SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, ILLINOIS

MAURER-STUTZ ENGINEERS SURVEYORS

SHEET TITLE: EXISTING FARMSTEAD PLAN - NORTH

PROJECT: DAIRY CNMP

CLIENT: NEW SHOES DAIRY

DESIGNED BY: LJR
REVIEWED BY: AKO
DATE: 10 - 2024
PROJECT NO.: 23808034.11
SHEET: C101N

EXISTING FACILITY	
E1	SAND SEPARATION BLDG
E2	FREE STALL BARN
E3	MILKING PARLOR – HOLDING PEN
E4	FREE STALL BARN
E5	1ST STAGE HOLDING POND WITH CONCRETE BOTTOM
E6	CONCRETE MANURE PIT
E7	FRESHWATER POND
E8	2ND STAGE EARTHEN HOLDING POND
E9	FRESHWATER POND
E10	SOLID MANURE STACK
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E13	FREE STALL BARN – FEED STORAGE
E14	BEDPACK BARN
E15	MACHINE SHED
E16	SILOS
E17	GRAIN BINS
E18	FEED STORAGE
E19	BEDPACK BARN
E20	MACHINE SHED
E21	STORAGE SHED
E22	FACILITY OWNED RESIDENCE
E23	HEAVY USE – VEGETATED LOT
E25	SILAGE – FEED STORAGE PAD
E26	SILAGE – FEED STORAGE PAD
E27	FEED STORAGE PAD – BAGGED FEED

ITEM	DESCRIPTION	CLOSEST WELL	DISTANCE
E5	1ST STAGE HOLDING POND WITH CONCRETE BOTTOM	NORTH	587'
E6	CONCRETE MANURE PIT	NORTH	197'
E8	2ND STAGE EARTHEN HOLDING POND	NORTH	593'
E10	SOLID MANURE STACK	SOUTH	296'
E14	BEDPACK BARN	SOUTH	181'
E19	BEDPACK BARN	SOUTH	170'

LEGEND

- EXISTING WELL
- EXISTING FORCE MAIN MANURE PIPE
- EXISTING FENCE
- INTERMITTENT STREAM

N

0 50' 100'

PRELIMINARY

SCALE VALID ONLY ON 22"x34" SIZE PLANS

NEW SHOES DAIRY CAP-CNMP PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N. FEUCHT
SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, ILLINOIS

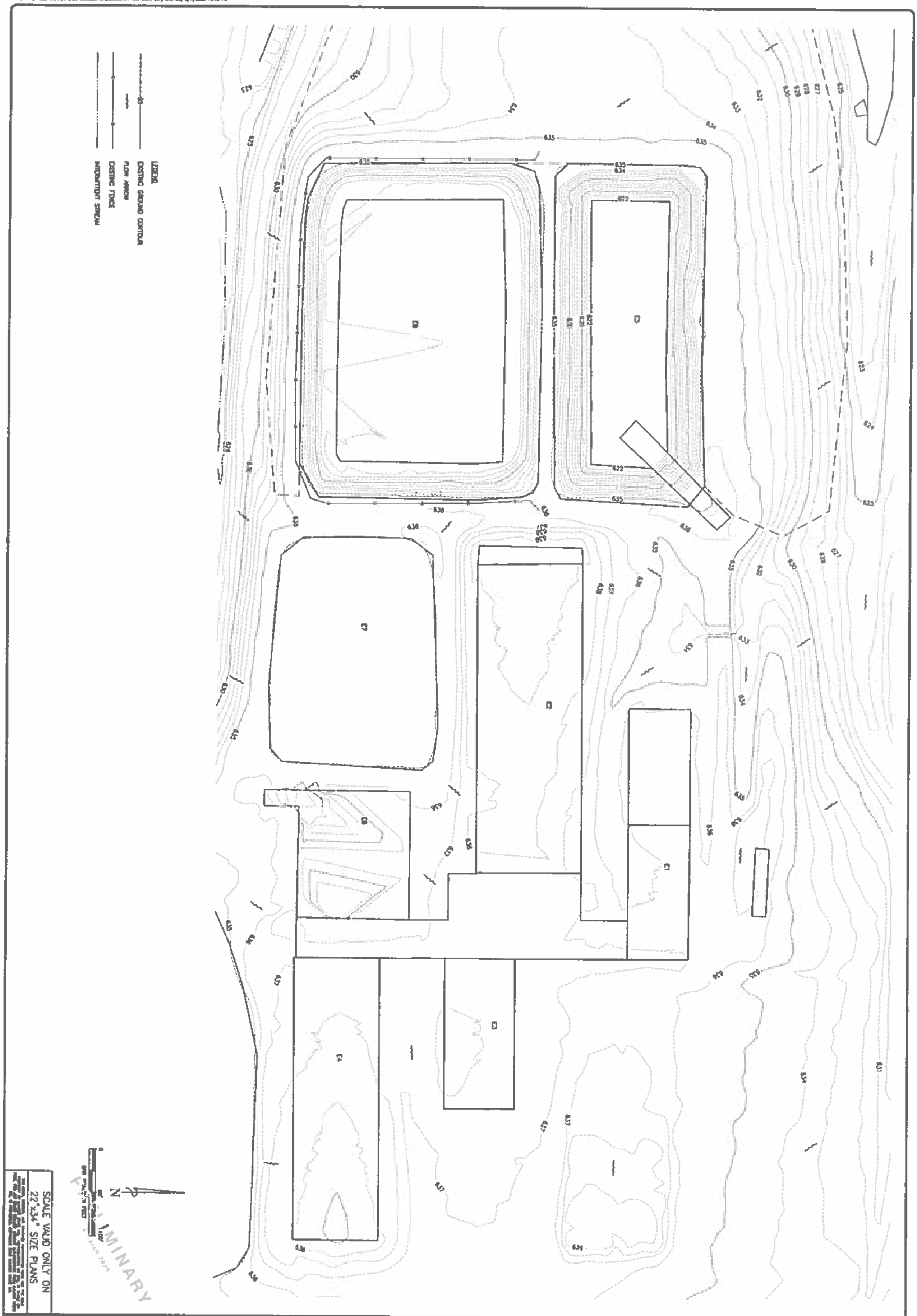
MAURER-STUTZ ENGINEERS SURVEYORS

SHEET TITLE: EXISTING FARMSTEAD PLAN - SOUTH

PROJECT: DAIRY CNMP

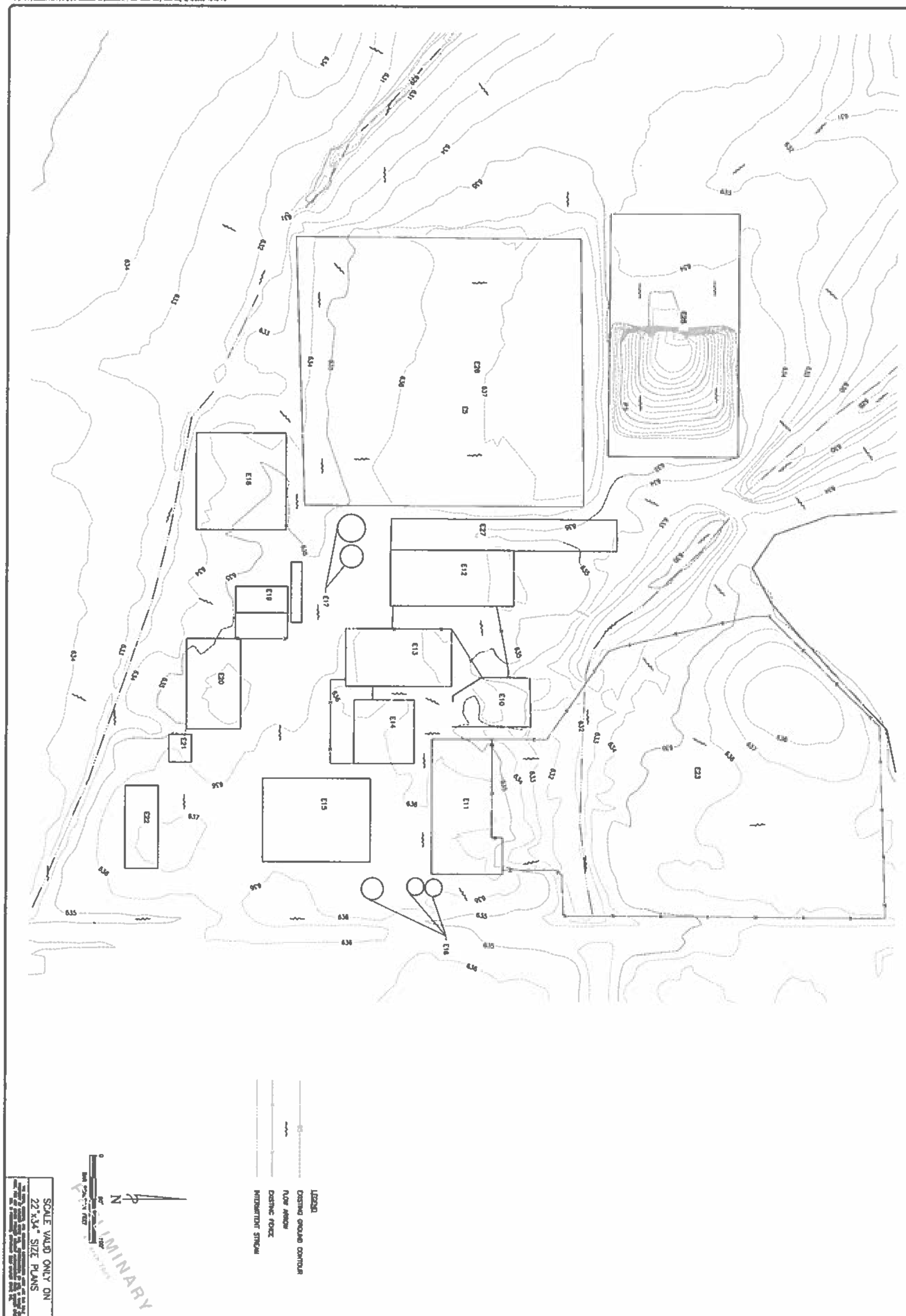
CLIENT: NEW SHOES DAIRY

DESIGNED BY: LJR
REVIEWED BY: AKQ
DATE: 10 - 2024
PROJECT NO.: 23808034.11
SHEET: C101S



C102N SHEET:	DESIGNED BY: LJR REVIEWED BY: AJO DATE: 10 - 2024 PROJECT NO.: 23080A.11	CLIENT NEW SHOES DAIRY	SHEET TITLE EXISTING GRADING PLAN - NORTH PROJECT DAIRY CNMP	MAURER-STUTZ ENGINEERS SURVEYORS

NEW SHOES DAIRY CAP-CNMP
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N. FEUCHT
SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, ILLINOIS



CLIENT
NEW SHOES DAIRY

SHEET TITLE
EXISTING GRADING
PLAN - SOUTH

PROJECT
DAIRY CNMP

MAURER-STUTZ
ENGINEERS SURVEYORS

NEW SHOES DAIRY CAP-CNMP
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N. FEUCHT
SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, ILLINOIS

DESIGNED BY: LJR
REVIEWED BY: AJD
DATE: 10 - 2024
PROJECT NO.: 23000XXX.11
SHEET:
C102S

2.2. General Description of Operation

Existing Livestock Management System

New Shoes Dairy is a dairy farm located in Shelby County, Illinois.

Currently, the dairy herd consists of 635 lactating cows and 125 dry cows. The lactating cows are housed in free stall barns E2 and E4. The free stall barns are bedded with sand bedding. The cows are milked three times per day in parlor (E3). Dry cows are housed in free stall barn E2. Following birth, calves are moved offsite and replacement heifers are brought back to the farm at around 8 months of age.

There are a total of 255 heifers in the dairy herd. Heifers aged 8-10 months are housed in barn E19. They are bedded using straw. Heifers that are 13 months are housed in barns E13 and E14. E13 is bedded using sand and E14 is bedded using straw. Pregnant heifers are housed in E11 and bedded using sand. Additional close-up heifers are housed in free stall barn E2. Heifers in E11 are given access to the heavy use vegetated lot (E23) occasionally during the growing season.

The operation uses a Mensch vacuum truck to collect manure from free stall barns E2 and E4 as well as transfer hallways connecting the free stall barns to parlor E3. The vacuum truck offloads into a reception pit as part of a McLanahan sand separation system located in building E1. After the sand is separated the waste is pumped from E1 to the first stage holding pond (E5). Reclaimed sand is stacked in E1 or on an outdoor sand stacking area west of E1. Runoff from the concrete outdoor sand stacking area flows into drains that outlet in E5. E5 has a concrete bottom and concrete access ramp for routine solids removal. The farm operates holding pond E8 as an overflow storage for E5 but primarily uses E8 to collect runoff from the silage pads (E25 & E26). Concrete tank E6 is where the parlor and holding pen wash water drains to. E6 is pumped to E8 using a stationary transfer pump. Additional details about inputs in the waste system can be found in the AWM calculations.

E8 is connected by a force main and manure transfer pump to a center pivot irrigator, which is used to land apply the manure/wastewater. E5 is pumped in the spring and fall by a custom applicator using a drag line. E5 is agitated while pumping. Solid manure is applied with a slinger spreader and incorporated with a disk. Manure is applied to land owned or operated by the farm.

Manure from heifers housed in barns E11 and E13 is scraped to the uncovered stack (E10). Sand is not reclaimed from these barns. Concrete lots 2 and 3 are also scraped daily to E10. Runoff from the concrete lot 3 flows into E10 and is absorbed in the manure or additional bedding is added. Barns E14 and E19 are bedpack barns. Manure from these barns is cleaned as needed and directly land applied or hauled to E10 and stockpiled.

The operation experiences minimal deaths each year. Currently mortalities are buried or rendered.

The operation has two wells on site, but they are not used for potable water for humans or animals. Municipal water is used in the parlor and a series of freshwater ponds (E7, E9, and

West Pond/E28) are used as the cow drinking water, sand separator, and sprinkler system water sources.

Runoff from open feed storage pads (E25 & E26) is collected in reception pits and pumped to holding pond E8. All other feed is stored in bags, bins or buildings.

Existing Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored	Housing Location
Dairy	Lact. Cow	635	1400	Jan. Early – Dec. Late	100	E5, E6, E8	E2, E4
Dairy	Dry Cow	125	1400	Jan Early – Dec. Late	100	E5, E6, E8	E2
Dairy	Heifers	10	600	Jan Early – Dec. Late	100	E19	E19, Lot 1
Dairy	Heifers	65	850	Jan Early – Dec. Late	100	E14	E14, Lot 3
Dairy	Heifers	35	850	Jan Early – Dec. Late	100	E10	E13, Lot 2
Dairy	Heifers	100	1000	Jan Early – Dec. Late	100	E10	E11
Dairy	Heifers	45	1000	Jan Early – Dec. Late	100	E5, E6, E8	E2
Total		1015					

Existing Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Amount Collected	Maximum Days of Storage
E5	Holding Pond	509,198 CF	1,125,589 CF	165
E6	Tank	62,820 CF	129,581 CF	177
E8	Holding Pond	884,213 CF	981,141 CF	237
E10	Manure Stack	45,789 CF	75,401 CF	222
E14	Bedpack Barn	14,783 CF	28,105 CF	192
E19	Bedpack Barn	5,130 CF	10,285 CF	182
Total Liquid		1,456,231 CF	2,239,311 CF	237
Total Solid		65,702 CF	113,790 CF	210
Total		1,521,933 CF	2,353,101 CF	236

MAURER-STUTZ

Waste Production and Storage Calculations

Project: New Shoes Dairy - EX

Project Number 23808034.11

Calcs By: LJR **Date** 9/30/2024

Checked by: AKO **Date**

INPUT PAGES

PRODUCTION INFO

WASHWATER	BEDDING
RUNOFF	PRECIPITATION
LEACHATE	SOLID SEPERATION
STORAGES	MANURE ALLOCATION

CALCULATIONS OUTPUTS

MANURE VOLUMES	HOLDING POND PRINTOUTS

The calculations are based on the Midwest Plan Service Livestock Waste Facilities Handbook and the NRCS Animal Wast Field Handbook.

It is the responsibility of the user to check the generated reports and tables for errors.

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX		
Project Number	23808034.11		
Calcs By:	LJR	Date	9/30/2024
Checked by:	AKO	Date	

Production Information

Animal Type	Number of Animals	Avg Weight Lbs	AU	Manure Quantity CF/day	Wash Water Rate Gal/hd/d	Wash Water CF/day	Bedding Rate lbs/hd/d	Bedding Rate CF/day	Total Quantity CF/day
Dairy Heifers	10	600	6	5.4			31.9	22.8	28.2
Dairy Heifers	65	850	55	49.6			5.9	27.4	77.0
Dairy Heifers	1	850	1	0.8			1254.4	52.3	53.0
Dairy Heifers	34	850	29	25.9			30.0	8.5	34.4
Dairy Heifers	100	1000	100	89.7			5.4	29.4	119.1
Dairy Heifers	45	1000	45	40.4			7.5	13.6	53.9
Dairy Dry Cows	125	1400	175	147.6			7.5	52.2	199.8
Dairy Lact. Cow	635	1400	889	1551.7			49.7	262.8	1814.5
TOTALS	**1,015**		**1,300**	**1,911**		**0**		**469.0**	**2379.9**

Animal Type	TS lbs/day	VS lbs/day	N lbs/day	P lbs/day	K lbs/day
Dairy Heifers	51	44	1.6	0.3	0.7
Dairy Heifers	470	403	14.9	2.8	6.6
Dairy Heifers	7	6	0.2	0.0	0.1
Dairy Heifers	246	211	7.8	1.4	3.5
Dairy Heifers	850	730	27	5	12
Dairy Heifers	383	329	12	2	5
Dairy Dry Cows	1155	980	53	7	18
Dairy Lact. Cow	12446	9779	631	107	293

MAURER-STUTZ
ENGINEERS SURVEYORS

Project: New Shoes Dairy - EX
Project Number 23808034.11
Calcs By: LJR **Date** 9/30/2024
Checked by: AKO **Date**

Washwater Production

Animal Type	Number of Animals	Waterer	Cleaning Interval	Presoak Time	Presoak Flow	Presoak Sprinklers	Total Presoak	Cleaning Flow	Cleaning Time	Total Cleaning	Total	Total	
		gpd//hd	weeks	hr	gph	#	gpd	gpm	hrs	gpd	gpd	gpd/hd	%
Dairy Heifers	10												
Dairy Heifers	65												
Dairy Heifers	1												
Dairy Heifers	34												
Dairy Heifers	100												
Dairy Heifers	45												
Dairy Dry Cows	125												
Dairy Lact. Cow	635												

Additional Washwater	Yearly gal/year	Daily gpd	Daily CF/Day
Sprinkler System		6737	901
Waterers	21840	60	8
Parlor		5040	674
Other		5760	770
		17597	**2353**

type	gpd/hd
cups	0.1
swinging nipples, Edstom	0.2
swinging nipples	0.3
regular nipples, Edstrom	0.4
regular nipples	0.6
wet/dry	0.1

Animal Type	Amount gal/sqf/d
Gest	0.002
Farr	0.03
Finish	0.004
W-Fin	0.003
Nursery	0.025

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX		
Project Number	23808034.11		
Calcs By: LJR		**Date**	9/30/2024
Checked by: AKO		**Date**	

Bedding Production

Reduction Factor 50% **Density of Manure** 63 lbs/cu ft

Animal Type	Number of Animals	Avg Weight	Bedding Type	DM Bedding	DM of Manure	Target DM	Density of Bedding	Density of Combo	Manure Prod. Overide	Bedding Rate	Runoff Vol	Runoff Bedding Rate	Total Bedding Rate	Total Bedding Rate	
		lbs		%	%	%	lbs/cu ft	lbs/cu ft	CF/day	lbs/day-a	CF/day	lbs/day-a	lbs/day-a	CF/day-a	%
Dairy Heifers	10	600	STRAW	90%	17%	25%	7	46		4.2	11.4	27.74	31.9	2.28	4.9%
Dairy Heifers	65	850	STRAW	90%	17%	25%	7	46		5.9			5.9	0.42	5.9%
Dairy Heifers	1	850	SAW DUST	90%	17%	25%	12	53		5.9	51.5264	1248.53	1254.4	52.27	11.1%
Dairy Heifers	34	850	SAND	95%	17%	47%	120	77		30.0			30.0	0.25	1.8%
Dairy Heifers	100	1000	SAND	95%	17%	47%	120	77		35.3			5.4	0.29	6.3%
Dairy Heifers	45	1000	SAND	95%	13%	45%	120	77		36.2			7.5	0.30	2.9%
Dairy Dry Cows	125	1400	SAND	95%	13%	46%	120	78		50.1			7.5	0.42	11.1%
Dairy Lact. Cow	635	1400	SAND	95%	13%	33%	120	71		49.7			49.7	0.41	56.0%
															100.0%

Bedding - AWMFH Reference	
Type	Density lb/CF
STRAW	7
SAND	120
STOVER	7
CORN COBS	7
SAW DUST	12
ORGANIC	7.5

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX
Project Number	23808034.11
Calcs By: LJR	Date 9/30/2024
Checked by: AKO	Date

Seperation Solids Removal

							Sand Seperator									Remaining		
Animal Type	Number of Animals	Manure Solids	Bedding Rate	Bedding Type	Bedding Density	Bedding Amount	Eff	Bedding	Bedding	Eff	Manure Solids	Bedding	Eff	Manure Solids	Bedding	Manure Solids	Bedding	Bedding
		CF/Day	lbs/day-a		lb/CF	CF/day	%	CF/day	lbs/day-a	%	CF/day	CF/day	%	CF/day	CF/day	CF/day	CF/day	lbs/day-a
Dairy Heifers	10	0.8																
Dairy Heifers	65	49.6																
Dairy Heifers	1	0.8																
Dairy Heifers	34	25.9																
Dairy Heifers	100	89.7	36.2	SAND	120	30	85%	25.6	5.4							89.7	4.5	5.4
Dairy Heifers	45	40.4	50.1	SAND	120	19	85%	16.0	7.5							40.4	2.8	7.5
Dairy Dry Cows	125	147.6	49.7	SAND	120	52	85%	44.0	7.5							147.6	7.8	7.5
Dairy Lact. Cow	635	1551.7																
							TOTALS	85.6			0.0	0.0		0.0	0.0			

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX
Project Number	23808034.11
Calcs By:	LJR Date 9/30/2024
Checked by:	AKO Date

PRECIP - EVAP Calculations

County:	Shelby, Illinois
Precip Location:	EFFINGHAM SE
Free Water Evaporation:	Urbana, IL
Annual Lake Evaporation:	35.5 inches

1 YR 2 Hr Storm Event	1.6	in
2 YR 24 Hr Storm Event	3.19	in
25 YR 24 Hr Storm Event	5.62	in
50 YR 24 hr Storm Event	6.53	in

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
Precip	2.70	2.50	3.47	3.85	5.08	4.23	4.18	3.01	3.08	3.56	4.06	3.14	43
Evap %	2%	3%	6%	9%	13%	15%	15%	14%	10%	7%	4%	2%	100%
Inches	0.71	1.07	2.13	3.20	4.62	5.33	5.33	4.97	3.55	2.49	1.42	0.71	36
Precip - Evap	1.99	1.44	1.34	0.66	0.47	(1.10)	(1.15)	(1.96)	(0.47)	1.08	2.64	2.43	7

ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	P - E
E5	x	x	x	x	x	x	x	x	x	x	x	x	7.4
E8	x	x	x	x	x	x	x	x	x	x	x	x	7.4
E6	x	x	x	x	x	x	x	x	x	x	x	x	7.4

PRECIPITATION

ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
E5	2.7	2.5	3.5	3.9	5.1	4.2	4.2	3.0	3.1	3.6	4.1	3.1	42.9
E8	2.7	2.5	3.5	3.9	5.1	4.2	4.2	3.0	3.1	3.6	4.1	3.1	42.9
E6	2.7	2.5	3.5	3.9	5.1	4.2	4.2	3.0	3.1	3.6	4.1	3.1	42.9

EVAPORATION

ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	EVAP
E5	0.7	1.1	2.1	3.2	4.6	5.3	5.3	5.0	3.6	2.5	1.4	0.7	35.5
E8	0.7	1.1	2.1	3.2	4.6	5.3	5.3	5.0	3.6	2.5	1.4	0.7	35.5
E6	0.7	1.1	2.1	3.2	4.6	5.3	5.3	5.0	3.6	2.5	1.4	0.7	35.5

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX
Project Number	23808034.11
Calcs By:	LJR **Date** 9/30/2024
Checked by:	AKO **Date**

Runoff Calculations

County:	Shelby, Illinois	**1 YR 2 Hr Storm Event**	1.6	in
Precip Location:	EFFINGHAM SE	**2 YR 24 Hr Storm Event**	3.19	in
Free Water Evaporation:	Urbana, IL	**25 YR 24 Hr Storm Event**	5.62	in
Annual Lake Evaporation:	35.5 inches	**50 YR 24 hr Storm Event**	6.53	in

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Concrete Runoff	52	48	53	53	56	60	62	59	61	57	55	48
Earth Runoff	25	15	20	23	23	27	30	28	28	25	23	18
Precip	2.70	2.50	3.47	3.85	5.08	4.23	4.18	3.01	3.08	3.56	4.06	3.14

ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
E25	x	x	x	x	x	x	x	x	x	x	x	x
E26	x	x	x	x	x	x	x	x	x	x	x	x
E10	X	X	X	x	x	x	x	x	x	X	X	X
E1 St.	x	x	x	x	x	x	x	x	x	x	x	x
E5 Run	X	X	X	X	X	X	X	X	X	X	X	X
E6 Run	X	X	X	X	X	X	X	X	X	X	X	X
E8 Run	X	X	X	X	X	X	X	X	X	X	X	X
E19 Run	X	X	X	X	X	X	X	X	X	X	X	X

ID	Concrete Area SF	Earth Area SF	Roof Area SF	Normal Runoff CF	%	25yr Runoff CF	%	50yr Runoff CF	%
E25	41,429			82,451	23%	18,178	23%	21,312	23%
E26	99,862			198,743	55%	43,816	56%	51,371	56%
E10	9,450			18,807	5%	4,146	5%	4,861	5%
E1 St.	10,337			20,572	6%	4,536	6%	5,318	6%
E5 Run	2,196	2,800		6,770	2%	2,008	3%	2,381	3%
E6 Run	760		5,700	21,871	6%	3,003	4%	3,493	4%
E8 Run	1,208	2,800		4,804	1%	1,574	2%	1,873	2%
E19 Run	2,100			4,179	1%	921	1%	1,080	1%
	167,341	5,600	5,700	358,198		78,182		91,687	

STORAGE RUNOFF

Concrete Runoff

ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
E25	4,847	4,143	6,349	7,045	9,821	8,762	8,947	6,131	6,486	7,006	7,709	5,203	82,451
E26	11,684	9,986	15,305	16,981	23,674	21,121	21,567	14,779	15,635	16,887	18,583	12,543	198,743
E10	1,106	945	1,448	1,607	2,240	1,999	2,041	1,399	1,480	1,598	1,758	1,187	18,807
E1 St.	1,209	1,034	1,584	1,758	2,451	2,186	2,232	1,530	1,618	1,748	1,924	1,298	20,572
E5 Run	257	220	336	373	520	464	474	325	344	371	409	276	4,369
E6 Run	89	76	116	129	180	161	164	112	119	129	141	95	1,513
E8 Run	141	121	185	205	286	255	261	179	189	204	225	152	2,403
E19 Run	246	210	322	357	498	444	454	311	329	355	391	264	4,179

Earthen Runoff

ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
E25	0	0	0	0	0	0	0	0	0	0	0	0	0
E26	0	0	0	0	0	0	0	0	0	0	0	0	0
E10	0	0	0	0	0	0	0	0	0	0	0	0	0
E1 St.	0	0	0	0	0	0	0	0	0	0	0	0	0
E5 Run	158	88	162	207	273	266	293	197	201	208	218	132	2,401
E6 Run	0	0	0	0	0	0	0	0	0	0	0	0	0
E8 Run	158	88	162	207	273	266	293	197	201	208	218	132	2,401
E19 Run	0	0	0	0	0	0	0	0	0	0	0	0	0

Roof Runoff

ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
E25	0	0	0	0	0	0	0	0	0	0	0	0	0
E26	0	0	0	0	0	0	0	0	0	0	0	0	0
E10	0	0	0	0	0	0	0	0	0	0	0	0	0

E1 St.	0	0	0	0	0	0	0	0	0	0	0	0	0
E5 Run	0	0	0	0	0	0	0	0	0	0	0	0	0

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX		
Project Number	23808034.11		
Calcs By:	LJR	Date	9/30/2024
Checked by:	AKO	Date	

TANK STORAGES

ID	Target Period Mo	TANK TYPE	COVERED	Width/ Diam ft	Length ft	Depth ft	FB ft	Sludge ft	Precip-Evap ft	25yr Storm ft	Ramp	Slope ft	Landing ft	Width ft	Ramp TVol CF	Total Vol CF	Runoff CF	P-E CF	25yr Storm CF	WASTE Vol CF	PUMP Vol CF
E6	12	RECTANGLE	UNCOVERED	148	130	8	2.00	0.50	0.61	0.47	OUTSIDE	5		19	3040	156,960	24,619	11,801	9,011	62,820	108,251

SOLID STACKS

ID	Target Period Mo	Storage	# Bunkers	Length ft	Width ft	T/Wall Height ft	Sump Depth ft	Ramp Slope :1	Stack Height ft	Stack Slope :1	Open Ends	Runoff CF	Top Volume CF	Bottom Volume CF	Ramp Volume CF	Total Volume CF
E10	6	UNCOVERED	1	90	55	8	1	50	9	1	1		4,374	37,840	3,575	45,789
E14	6	COVERED	1	69	73	4			3	1	1		0	14,783		14,783
E19	6	COVERED	1	30	60	4			3	1	1		0	5,130		5,130

EARTHEN STORAGES

ID	Target Period mo	Storage Type	BW ft	BL ft	Slope :1	Depth ft	Custom Storage	TW ft	TL ft	Total Vol CF	FB ft	FB VOL CF	SOLIDS ft	SOLIDS VOL CF	P-E CF	Runoff	25Y Runoff CF	25yr Storm CF	WASTE VOL CF	WORKING VOLUME CF
E5	12	HOLDING POND	90	306	3	14.0	NO	174	390	651,336	2.0	128,512	0.5	13,626	95,073	32,238	8,600	31,781	341,506	530,149
E8	12	HOLDING POND	196	301	3	14.0	NO	280	385	1,151,108	2.0	207,179	1.0	59,716	132,099	282,976	61,764	50,486	356,888	873,239

VS Loading Rate lb VS/1000 CF-day
ODOR Loading Rate lb VS/1000 CF-day

REF: Lagoons for Livestock Waste Treatment - OSU Ext

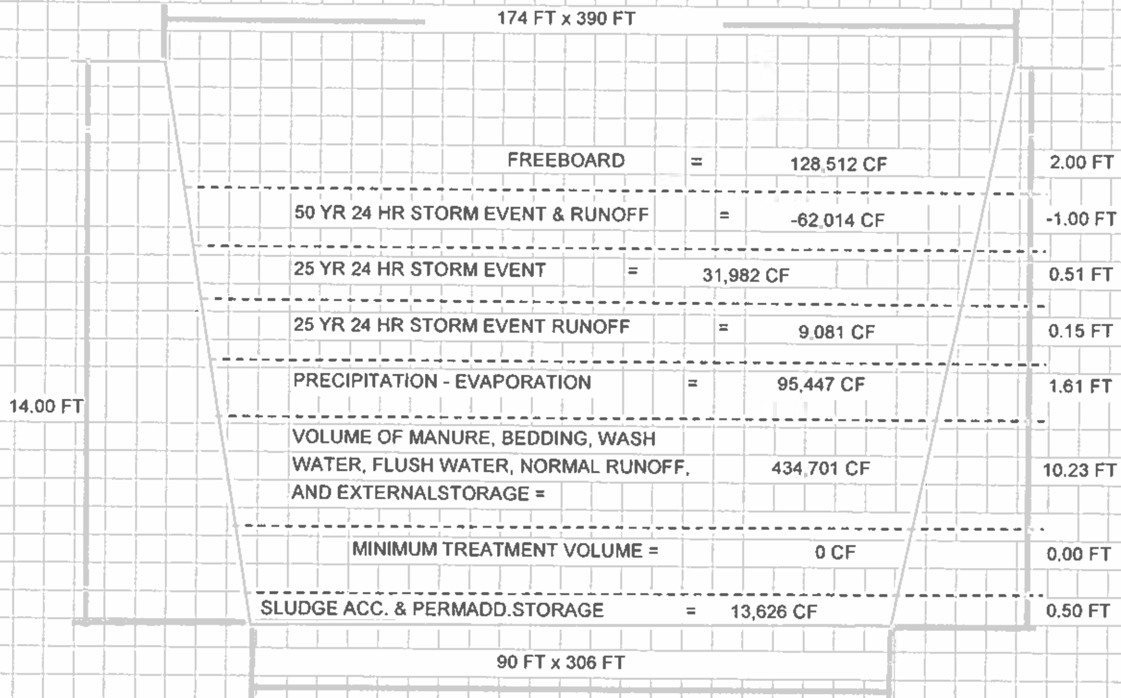
RAMP INPUTS / LAGOON INPUTS

ID	Ramp	Slope :1	Width ft	Ramp Vol CF	Animal Type	TS Ratio Factor	VS Ratio Factor	SYSTEM	ODOR	YEARS OF ACCUM	DAYS	TREAT VOL CF	50 YR	50Y Runoff CF	50yr Storm CF
E5															
E8															

MAURER-STUTZ

PROJECT: New Shoes Dairy - EX
PROJECT NO.: 23808034.11
COMPUTATION BY: LJR DATE: 9/30/2024
CHECKED BY: AKO DATE:

Subject: Earthen Storage, E5



HOLDING POND, E5

FREEBOARD	2.0 FT		
	128,512 CF	≈	0.96 MG
50YR 24 HR STORM & RUNOFF EVENT	-1.0 FT		
	-62,014 CF	≈	-0.46 MG
25YR 24 HR STORM EVENT	0.1 FT		
	31,982 CF	≈	0.24 MG
25YR 24 HR RUNOFF	0.1 FT		
	9,081 CF	≈	0.07 MG
PRECIP - EVAP	1.6 FT		
	95,447 CF	≈	0.71 MG
WORKING VOLUME	10.2 FT		
	434,701 CF	≈	3.25 MG
MINIMUM TREATMENT	0.0 FT		
	0 CF	≈	0.00 MG
RESIDUAL SOLIDS	0.5 FT		
	13,626 CF	≈	0.10 MG
TOTAL VOLUME	651,336 CF	≈	4.87 MG

Dimensions	
BOTTOM WIDTH	90 FT
BOTTOM LENGTH	306 FT
INSIDE SLOPE	3 FT
TOTAL DEPTH	14.0 FT
TOP WIDTH	174 FT
TOP LENGTH	390 FT
RAMP	
RAMP SLOPE	
RAMP WIDTH	

Lagoon Inputs	
TS Loading Factor	
VS Loading Factor	
VS Loading Rate	
ODOR Loading Rate	

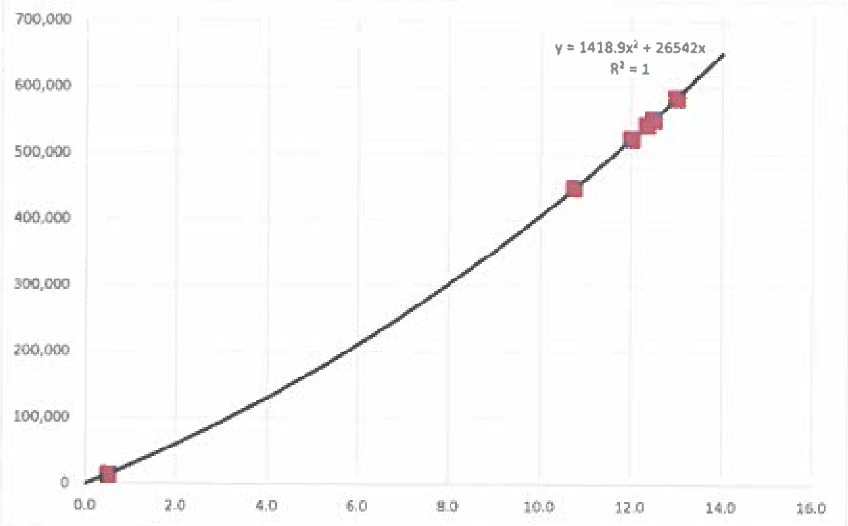
START PUMPING	12.7 FT
STOP PUMPING	0.5 FT

MAURER-STUTZ

Project: New Shoes Dairy - EX
Project Number 23808034 11
Calcs By: LJR Date 9/30/2024
Checked by: AKO Date

Subject: Earthen Storage, E5

DEPTH	AREA	TV
FT	SF	CF
0.0	27,540	0
1.0	29,952	29,058
2.0	32,436	59,928
3.0	34,992	93,636
4.0	37,620	129,936
5.0	40,320	168,900
6.0	43,092	210,600
7.0	45,936	255,108
8.0	48,852	302,496
9.0	51,840	352,836
10.0	54,900	406,200
11.0	58,032	462,660
12.0	61,236	522,288
13.0	64,512	585,156
14.0	67,860	651,336

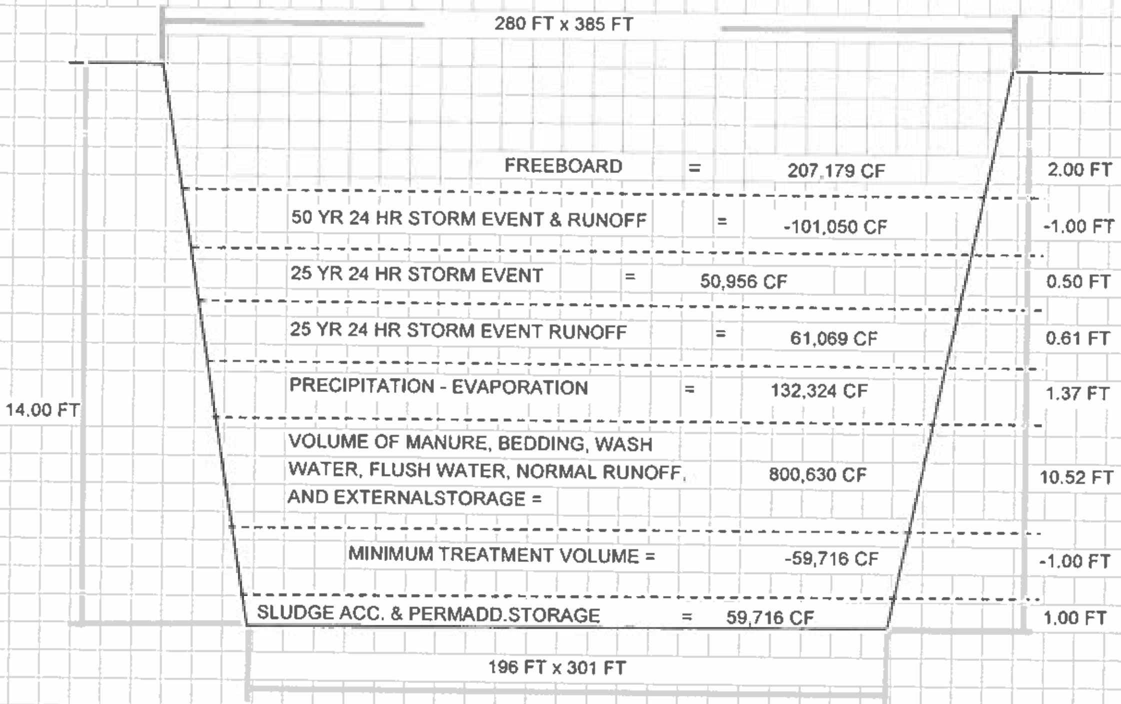


	Depth	TOT VOL	VOL
	FT	CF	CF
TOTAL VOLUME	14.0	651,336	
FREEBOARD	12.0	522,824	128,512
50 YR STORM	13.0	584,837	-62,014
50 YR RUNOFF	13.0	584,837	
25 YR STORM	12.5	552,856	31,982
25 YR RUNOFF	12.3	543,775	9,081
PRECIP-EVAP	10.7	448,327	95,447
WORKING VOLUME			434,701
MIN TREATMENT	0.5	13,626	
SLUDGE	0.5	13,626	13,626

MAURER-STUTZ

PROJECT: New Shoes Dairy - EX
PROJECT NO.: 23808034 11
COMPUTATION BY: LJR DATE: 9/30/2024
CHECKED BY: AKO DATE:

Subject: Earthen Storage, E8



HOLDING POND, E8

FREEBOARD	2.0 FT		
	207,179 CF	≈	1.55 MG
50YR 24 HR STORM & RUNOFF EVENT	-1.0 FT		
	-101,050 CF	≈	-0.76 MG
25YR 24 HR STORM EVENT	0.6 FT		
	50,956 CF	≈	0.38 MG
25YR 24 HR RUNOFF	0.6 FT		
	61,069 CF	≈	0.46 MG
PRECIP - EVAP	1.4 FT		
	132,324 CF	≈	0.99 MG
WORKING VOLUME	10.5 FT		
	800,630 CF	≈	5.99 MG
MINIMUM TREATMENT	-1.0 FT		
	-59,716 CF	≈	-0.45 MG
RESIDUAL SOLIDS	1.0 FT		
	59,716 CF	≈	0.45 MG
TOTAL VOLUME	1,151,108 CF	≈	8.61 MG

Dimensions	
BOTTOM WIDTH	196 FT
BOTTOM LENGTH	301 FT
INSIDE SLOPE	3 FT
TOTAL DEPTH	14.0 FT
TOP WIDTH	280 FT
TOP LENGTH	385 FT
RAMP	
RAMP SLOPE	
RAMP WIDTH	

Lagoon Inputs	
TSRF	
VSRF	
VS Loading Rate	
ODOR Loading Rate	

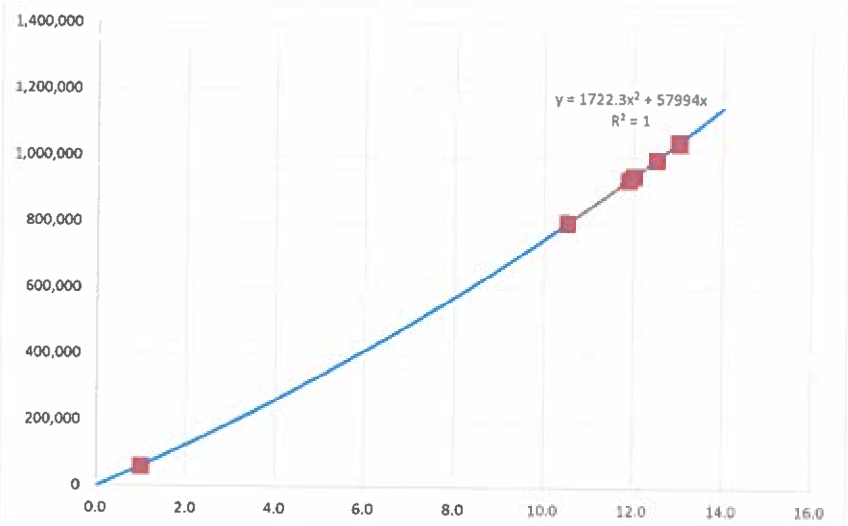
START PUMPING	11.8 FT
STOP PUMPING	0.0 FT

MAURER-STUTZ

Project: New Shoes Dairy - EX
Project Number 23808034.11
Calcs By: LJR Date 9/30/2024
Checked by: AKO Date

Subject: Earthen Storage, E8

DEPTH	AREA	TV
FT	SF	CF
0.0	58,996	0
1.0	62,014	60,499
2.0	65,104	124,052
3.0	68,266	190,731
4.0	71,500	260,608
5.0	74,806	333,755
6.0	78,184	410,244
7.0	81,634	490,147
8.0	85,156	573,536
9.0	88,750	660,483
10.0	92,416	751,060
11.0	96,154	845,339
12.0	99,964	943,392
13.0	103,846	1,045,291
14.0	107,800	1,151,108



	Depth	VOL	VOL
	FT	CF	CF
TOTAL VOLUME	14.0	1,151,108	
FREEBOARD	12.0	943,929	207,179
50 YR STORM & RUNOFF	13.0	1,044,979	-101,050
25 YR STORM	12.5	994,024	50,956
25 YR RUNOFF	11.9	932,955	61,069
PRECIP-EVAP	10.5	800,630	132,324
WORKING VOLUME			740,914
MIN TREATMENT	1.0	59,716	
SLUDGE	1.0	59,716	59,716

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX
Project Number	23808034.11
Calcs By: LJR	Date 9/30/2024
Checked by: AKO	Date

MANURE STORAGE ALLOCATION

Manure Storage	# head / Type of Storage	10 Dairy Heifers	65 Dairy Heifers	1 Dairy Heifers	34 Dairy Heifers	100 Dairy Heifers	45 Dairy Heifers	125 Dairy Dry Cows	635 Dairy Lact. Cow													Collection Period (%)
E6	RECT TANK																					100.0%
E10	UNCOV STACK			100.0%	100.0%	100.0%																100.0%
E5	HP						100.0%	100.0%	100.0%													100.0%
E8	HP																					100.0%
E14	COV STACK		100.0%																			100.0%
E19	COV STACK	100.0%																				100.0%
	Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

DAILY MANURE PRODUCTION (CF/DAY)

Manure Storage	Manure Storage	Dairy Heifers	Dairy Heifers	Dairy Heifers	Dairy Heifers	Dairy Heifers	Dairy Heifers	Dairy Dry Cows	Dairy Lact. Cow													Totals
E6	RECT TANK																					0.00
E10	UNCOV STACK			0.76	25.92	89.69																116.37
E5	HP						40.36	147.59	1,551.71													1,739.66
E8	HP																					0.00
E14	COV STACK		49.55																			49.55
E19	COV STACK	5.38																				5.38
	CF/DAY	5.4	49.6	0.8	25.9	89.7	40.4	147.6	1,551.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Manure Storage	Type of Storage	Silage Leachate	Wash Water	Add'l Wash Water	Flush Water	Bedding	Runoff	25Y Runoff	50Y Runoff
E6	RECT TANK			9.8%			6.0%	4.0%	
E10	UNCOV STACK					19.2%			
E5	HP			37.0%		3.0%	9.0%	11.0%	
E8	HP			53.2%			79.0%	79.0%	
E14	COV STACK					5.9%			
E19	COV STACK					4.9%			
	Totals	0.0%	0.0%	100.0%	0.0%	33.0%	94.0%	94.0%	0.0%

ADD WAST VOLUMES (CF/DAY)

Manure Storage	Silage Leachate	Wash Water	Add'l Wash Water	Flush Water	Bedding	TOTALS
E6			230.5			230.5
E10					90.2	90.2
E5			870.4		14.3	884.7
E8			1,251.6			1,251.6
E14					27.4	27.4
E19					22.8	22.8
	0.0	0.0	2,352.5	0.0	154.7	

STORM VOLUMES (CF)

Runoff	25Y Runoff	50Y Runoff	TOTALS
21,492	3,127		24,619
			0
32,238	8,600		40,838
282,976	61,764		344,740
			0
			0
336,706	73,491	0	

MAURER-STUTZ
ENGINEERS SURVEYORS

Project:	New Shoes Dairy - EX		
Project Number	23808034.11		
Calcs By:	LJR	**Date**	9/30/2024
Checked by:	AKO	**Date**	

VOLUMES

	Storage Type	Mo of Storage	Manure CF	Silage Leachate CF	Wash Water CF	Additional Wash Water CF	Bedding CF	Storms CF	Runoff CF	P-E CF
E6	RECTANGULAR TANK	12.0	0			84,160		9,011	24,619	11,801
E10	UNCOVERED STACK	6.0	21,241				16,464			0
E5	HOLDING POND	12.0	635,046			317,745	5,211	31,781	40,838	95,073
E8	HOLDING POND	12.0	0			456,866		50,486	344,740	132,099
E14	COVERED STACK	6.0	9,045				5,009			0
E19	COVERED STACK	6.0	982				4,161			0

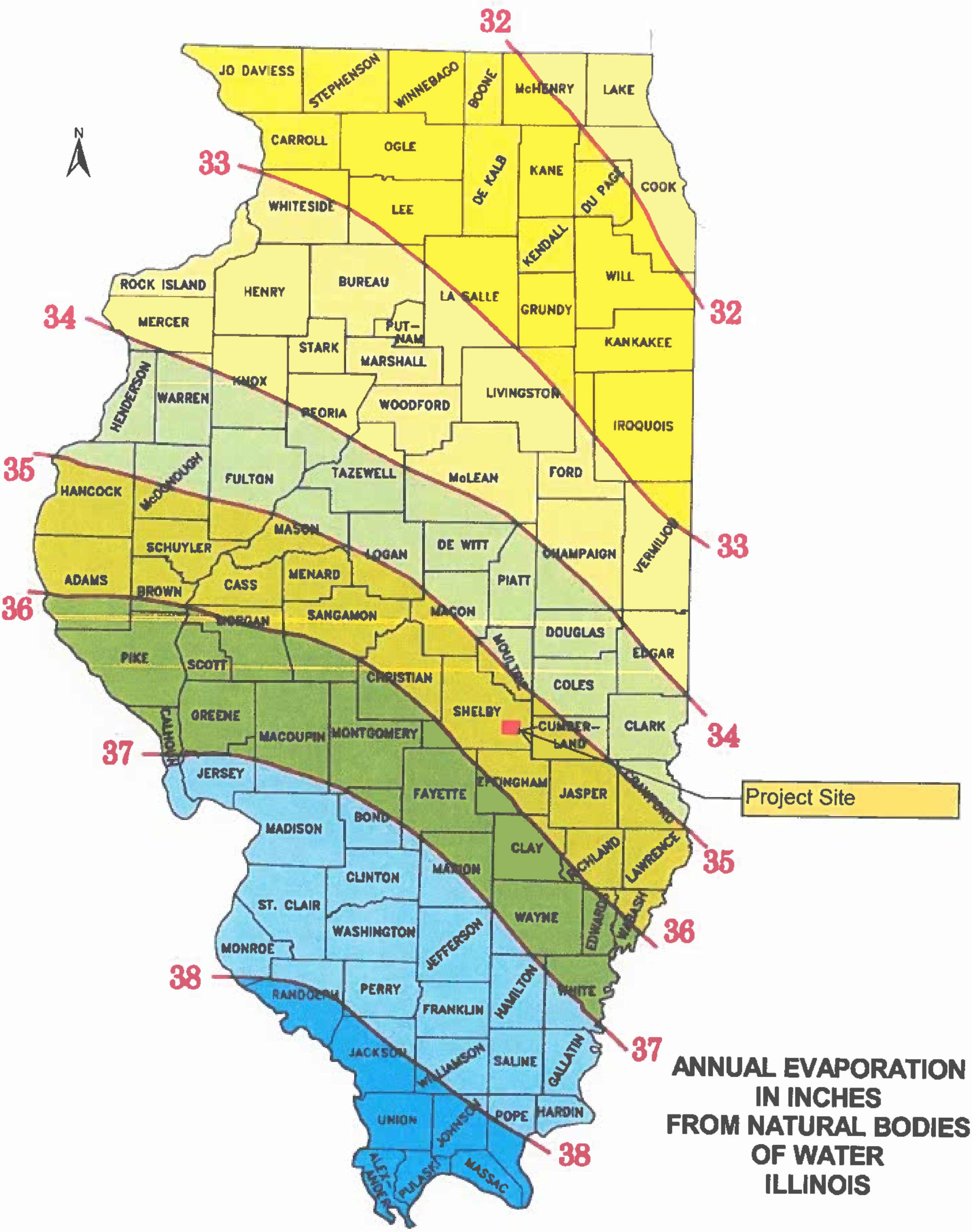
YEARLY VOLUMES

LIQUIDS	16,752,000	GALS
SOLIDS	3,750	TONS

ID	Type of Storage	Pumpable Storage Volume		Total Storage Volume		Annual Manure and Wastewater Production		Annual Precip, Runoff and Storm Volumes		Calculated Storage Period	
		CF	GAL/TONS	CF	GAL/TONS	CF	GAL/TONS	CF	GAL/TONS	Days	Months
E6	RECTANGULAR TANK	62,820	470,000	156,960	1,175,000	84,150	630,000	45,430	340,000	272	9.1
E10	UNCOVERED STACK	45,789	1,510	45,789	1,510	75,401	2,480	0	0	222	7.4
E5	HOLDING POND	509,198	3,809,000	651,336	4,872,000	957,897	7,166,000	167,691	1,255,000	130	4.3
E8	HOLDING POND	884,213	6,614,000	1,151,108	8,611,000	456,816	3,417,000	527,325	3,945,000	285	9.5
E14	COVERED STACK	14,783	490	14,783	490	28,105	930	0	0	192	6.4
E19	COVERED STACK	5,130	170	5,130	170	10,285	340	0	0	182	6.1
	Totals	1,521,933		2,025,106		1,612,654		740,447		344	11.5

U.S. DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE



ANNUAL EVAPORATION IN INCHES FROM NATURAL BODIES OF WATER ILLINOIS

SOURCE:
ILLINOIS STATE WATER SURVEY

ILLINOIS FIELD OFFICE TECHNICAL GUIDE
SECTION II - CLIMATIC DATA
JUNE 2002

MAURER-STUTZ
ENGINEERS SURVEYORS

PROJECT: New Shoes
PROJECT NO:
COMPUTATION BY: LJR DATE: 10-4-24 SH. NO. 1
CHECKED BY: DATE: OF

SUBJECT: New Shoes AWM

Washwater

Parlor

* using city water

* from city water bills Nov 2023 ⇒ 144 700 gal
Aug 2024 ⇒ 157 700 gal

$$Avg = 144700\ gal + 157\,700\ gal / 2 = 151\,200\ gal/month$$

$$GPD = \frac{151\,200\ gal}{month} \left| \frac{1\ mo}{30\ days} \right. = 5040\ gpd$$

Sprinklers - used on half of E2 + on all of E4

* nozzles ⇒ 8 ft O.C.
* 1 gpm flow rate
* assumed they run 8 hrs/day for 4 mo. of the year

$$E2 \Rightarrow 357\ ft / 8\ ft \approx 47\ nozzles$$

$$E4 \Rightarrow 2\left(325\ ft / 8\ ft\right) \approx 82\ nozzles$$

+

129 nozzles total

see volume calculations on next page

MAURER-STUTZ

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11
COMPUTATION BY: AKO DATE: 10/15/24 SH. NO.: 1
CHECKED BY: GCB DATE: OF: 1

Subject: Waste Water Produced

Sprinkler System Volumes

Temp Range	# of Days	Time On	Cycles/hr	Hr/yr	Nozzle #	# of Nozzles	Press (PSI)	Flow Rate (GPM)	Total Flow (GPM)
>70	120	1	6	2089	A17Q	129	30	1	129
									0

Temp Range	Annual Volume (gal)	Daily Water Volume (gal/day)	% Evap	Annual Volume (gal)	Daily Waste Volume (gal/day)
>70	######	8983	50%	808443	6737
0	######	0		######	0
Total Volumes		8983			6737

Waters #	Waters Size	Days Between Cleaning / Week Winter	Days Between Cleaning / Week Summer

Cattle Type	Head	Water Wash gal/hd	Water Feed gal/hd
Heifers			
Dry			
Milking			
Total	0		

Plate Cooler	
# milk	
Milk/Water	

Volume Calcs

		Volumes (gal/Day)	Waste (winter)	Waste (summer)	Water Usage
Facilities (gal/day)	Feed Mix	0	0	0	0
	Plate Cooler	0	0	0	0
	Cooling	8983	0	6737	8983
	Parlor	0	0	0	0
	Waterier Cleaning	0	0	0	0
Cows (gal/day)	Evap	0	0	0	0
	Milk	0	0	0	0
	Excreta	0	0	0	0
	Total (gal/day)		0	6737	8983
	Meter Reading				
	Total Spillage (gal/Day)				-

*Values calculated above are based on data from the Livestock Waste Facilities Handbook

S:\238\2004\23804058.22 (Loehmer Dairy - Planning)\Calculations - AG\Agricultral\MSI AWM v14.5.2.1 Loehmer Planning winter case

MAURER-STUTZ
ENGINEERS SURVEYORS

PROJECT: New Shoes
PROJECT NO:
COMPUTATION BY: LJR DATE: 10-4-24 SH. NO. 2
CHECKED BY: DATE: OF

SUBJECT: New Shoes AWM

Sand Seperator (other)
* uses water from fresh water ponds
* runs 12 hrs/day (from client)
* uses 6-8 gpm (from client confirmed w/ McLanahan)

$$\frac{8\ \text{gal}}{\text{min}} \cdot \frac{60\ \text{min}}{1\ \text{hr}} \cdot \frac{12\ \text{hr}}{\text{day}} = 5760\ \text{gpd}$$

Bedding Rates (Sand bedding)

* used 35 lb/day/1000 lb animal from NRCS AWMFH Table 4-4

ex. for 850 lb heifer

$$\frac{35\ \text{lb}}{\text{day}} \cdot \frac{850\ \text{lb heifer}}{1000\ \text{lb animal}} = 29.75\ \text{lbs/d/animal} \approx 30\ \text{lbs/day/animal}$$

2.3. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses.

GENERAL RECOMMENDATIONS

1. Dead animals should be removed from building perimeters and not be visible to the occasional viewer.
2. Pickup sites should be properly secured.
3. Dead animals should not remain in the pickup sites for more than 48 hours.
4. All dead animal facilities should be free of scavenger activity and insect infestations.
5. Disease and nuisance vectors are to be minimized and controlled.
6. The abdominal cavity of large carcasses shall be punctured to allow escape of putrefactive gasses.
7. Lime or other chemical agent shall not be used to prevent decomposition.
8. ***No evidence should be found of dead animals disposed of in manure storage containments.***

Plan for Proper Management of Dead Animals

The following table describes how you plan to manage normal animal mortality in a manner that protects surface and ground water quality.

BURIAL REQUIREMENTS – Section 90.110(b)

1. Burial site locations shall be available for inspection by Department of Agriculture personnel during normal working hours.
2. Burial shall be on the premises owned or operated by the owner of the dead animal in a location where runoff will not contaminate water supplies or allow leachate to discharge into streams, ponds or lakes.
3. **Setbacks:**
   i. Stream, Private Potable water supply well or other potable water supply source: 200 FT
   ii. Community water supply well: 200 to 400 FT (*Section 14.2 of the Illinois Environmental Protection Act)*
   iii. Residence: 200 feet
4. **Burial Requirements:**
   i. No more than a ratio of one pound of dead animals per one square foot of surface area shall be buried on an annual basis.
   ii. No more than 3,000 pounds of dead animals shall be buried in each site location, and the same site shall not be used more frequently than once every two years for burial purposes.
   iii. There shall be no more than three site locations within a radius of 120 feet.
   iv. Burial depth shall be sufficient to provide at least a six-inch compacted soil cover over the uppermost part of the carcass. Precautions shall be taken to minimize soil erosion.
5. Precautions shall be taken at the site of burial necessary to prevent any disturbance by animal or mechanical means.
6. Final cover or settling shall be limited to a 5% or less slope differential from the normal gradient of its general surroundings.

Mortality Disposal Operations

Form 3-D

[X] If a rendering service is used, completely describe how often they pick up, where mortalities are kept until pick up, security, etc. **Use Forms 3-F and 3-G** to record mortalities.

pick up is within 24 hours of notification.

[ ] If mortalities are composted, completely describe (how constructed - dimensions, roof, floor, material used, etc.) composting operation and the facilities operation and maintenance, including daily activities, temperature readings, approximate pounds of mortalities per month, location of compost site, carbon source, recipe, etc. **Use Forms 3-F and 3-G** to record mortalities.

[ ] If an incinerator is used, provide a complete description of the operation and maintenance of the incinerator, including approximate pounds per month incinerated and location of the incinerator. Also include a copy of the IEPA incinerator approval, etc. **Use Forms 3-F and 3-G** to record mortalities.

[X] If burial is used provide a complete description of procedures including location of past and current burial sites (map showing the sites should be included), how many pounds are buried at each site, field drainage, water table, etc. **Use Forms 3-F and 3-G** to record mortalities.

see map included. minimal mortalities occur on a regular basis. Burial pits typically include one animal avg weight +/- 1,000 lb. A new pit is dug each time

Mortality Discharge Prevention Best Management Practices

Form 3-E

Mark those BMP's listed below that are applicable to any part of your operation.

Y	N	NA	Map Legend*	Practices
☒	☐	☐	Burial locations	**Location**—The facility is down gradient (slope) from all springs and/or wells.
☒	☐	☐		**Location**—The animal mortality facility is located outside the 100-year floodplain.
☐	☐	☒		**Location**—Due to site restrictions, the facility is within a floodplain, and the facility is protected from inundation or damage.
☒	☐	☐		**Location**—The facility is located as close to the source of mortality as practical, considering bio-security issues and the need to keep the facility out of sight of the general public.
☐	☐	☒		**Liner**—Seepage from mortality facilities could create a potential water quality problem, and a clay liner or other acceptable liner technology is used beneath the facility to contain seepage.
☐	☐	☒		**Freezers**—Freezer units are sized to accommodate the normal maximum volume of mortality to be expected in the interval between emptying. Freezer volume includes the expected mortality rate of the animal, the period of time between emptying where mortality is given on a per day basis, the average weight of the animal between emptying, and a conversion factor for weight to volume. Capacity calculations are supported by a removal schedule supplied by an integrator or approved vendor.
☐	☐	☒		**Incinerators**—Incinerator is dual burning Type 4 (human and animal remains) approved for use within the state. Permit for operation (IEPA Bureau of Air) is on file at the site.
☐	☐	☒		**Incinerators**—Minimum incinerator capacity is based on the average daily weight of animal mortality and the length of time the incinerator will be operated each day.
☐	☐	☒		**Incinerators**—Incineration ash is properly handled so as not to cause pollution.
☐	☐	☒		**Incinerators**—Ground under incinerator is managed to prevent storm water runoff, either by berms or containment of that runoff.
☐	☐	☒		**Runoff**—All mortality areas are managed to prevent storm water runoff, either by using berms or containment of that runoff.
☐	☐	☒		**Roofs**—Facility has a roof to manage storm water and prevent storm water from entering mortality management area.
☒	☐	☐		**Inspection and maintenance**—At each operation or use, the animal mortality facility is inspected to note any maintenance needs or indicators of operation problems.
☒	☐	☐		**Biosecurity**—Biosecurity concerns are addressed in all aspects of planning, installation, and operation and maintenance of the animal mortality facility.
☒	☐	☐		**Visual screens**—Vegetative screens, topography, and buildings are used to shield the animal disposal facility from public view and to minimize visual impact.
☐	☐	☒		**Safety**—Safety devices such as fencing, warning signs, and freezer locks are in place where appropriate.
☐	☐	☒		**Other (list)**

* Mark the map legend codes on facility/production area maps where appropriate.

BURIAL LOCATOIN MAP

MAURER-STUTZ
ENGINEERS SURVEYORS
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NEW SHOES DAIRY

SHELBY COUNTY

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF

Legend

Burial Locations
Livestock Facilities

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer
200 ft Potable Water Supply Well
200 ft Stream
200 ft Subsurface Drain Intake
200 ft Surface Water

Point Practices

Tile Inlet

Line Practices

Existing Waterway

NHDWaterbody

LakePond

NHDFlowline

StreamRiver

Feet
0 420 840

N

Page of

2.4. Planned Annual Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
(None)				

2.5. Planned Manure Imports onto the Farm

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location
(None)				

2.6. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination
(None)			

2.7. Measures for Unpermitted CAFO Production Areas:

There must be no discharge of livestock wastes into waters of the United States from the CAFO production area. If a discharge does occur, the limitations of livestock waste are outlined in Section 502.605, and the discharge should be reported following the guidelines in Section 6.

Any livestock waste stored in excess of six months shall be contained in a manure storage structure.

Additional Measures for CAFO Production Areas (From 502.610)

1) The CAFO owner or operator must at all times properly operate and maintain all structural and operational aspects of the facilities, including all systems for livestock waste treatment, storage, management, monitoring and testing.
2) Livestock within a CAFO production area shall not come into contact with waters of the United States.
3) There must be routine visual inspections of the CAFO production area. See Section 5 for a list of inspections.
4) All open surface liquid livestock waste storage facilities must have a depth marker that clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event.
5) Any deficiencies found as a result of these inspections must be corrected as soon as possible. Deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction.
6) Discharge to waters of the United States of pollutants from dead livestock or dead animal disposal facilities is prohibited. See Section 2.3 and Section 6.3 for mortality management guidelines.
7) Chemicals and other contaminants shall not be disposed of in any livestock waste or stormwater storage or treatment system unless specifically designed to treat those chemicals and other contaminants. See section 6.4 for chemical waste disposal guidelines.
8) The CAFO owner or operator shall perform periodic removal of livestock waste solids from liquid manure storage areas and the waste containment area to maintain proper operation of the storage structures. Soils that are contaminated with livestock waste removed from earthen manure storage structures shall be considered livestock waste. See waste application information in Section 4.

Temporary Manure Stack Requirements (501.504b)

1) A temporary manure stack is a potential secondary source, as defined by the Act. As a potential secondary source, a temporary manure stack is subject to the following setbacks as outlined in 40 CFR Part 412.4
   a. Manure, litter and process wastewater may not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkhole, agricultural well heads, or other conduits to surface waters.
   b. As a compliance alternative, the CAFO may substitute the 100ft setback with a 35ft wide vegetated buffer where applications of manure, litter, and process wastewater are prohibited.

c. A vegetated buffer is a narrow, permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients of pollutants from leaving the field and reaching surface waters.

2) A temporary manure stack shall not be located within 75 feet from any water well, except monitoring wells.
3) A temporary manure stack shall be constructed or established and maintained in a manner to prevent runoff and leachate from entering surface waters or groundwaters. A cover and pad or other control must be provided to prevent runoff and leachate from entering surface waters and groundwater.

2.8 Air Quality AND Pathogen Management Considerations

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that effect odor are:

* Type of operation	* Building design
* Ventilation method	* Animal numbers
* Animal diets	* Manure treatment systems
* Season	* Topography
* Management skill or effort	*

1. **Animal Cleanliness**
   - Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.
   - Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.
2. **Minimize Dust**
   - It has been established that there is a correlation between dust and odor emission. Dust particles absorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.
   - Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and litter. Dust also comes from animal skin, insects, and other sources.
   - Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens.)
3. **Waste Storage Facility**
   To reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:
   - Consider alternatives and additional practices including covered anaerobic digesters (365), and composting facilities (317).
   - Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.
   - Consideration should be also given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.
4. **Animal diets**
   Rations can also be manipulated to produce less manure production and odors from the manure. Much of the odors from manure are from nitrogen, sulfur, and carbohydrate containing volatile compounds. Balancing the diet with proper amounts and forms of protein and reducing excess protein in the diet will reduce nitrogen excretion and odor emissions from the manure.

5. **Proper Disposal of Mortality**
   Normal mortality for the animal feeding operation *must* be properly handled for both odor control and biological security of the operation. Composting, incineration, and rendering are acceptable methods for mortality disposal.

6. **Good Fly and Rodent Control Programs**
   These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized.

7. **Utilize Trees**
   While trees should not grow directly adjacent to facilities, wind breaks of trees correctly positioned near the facility not only create a visual barrier but can also provide a large filtration surface for dust and odorous compound removal. Trees can absorb odorous compounds and create turbulence that enhances odor dispersion and dilution. Trees also can create a cooler microclimate around the facility, which can reduce odors.

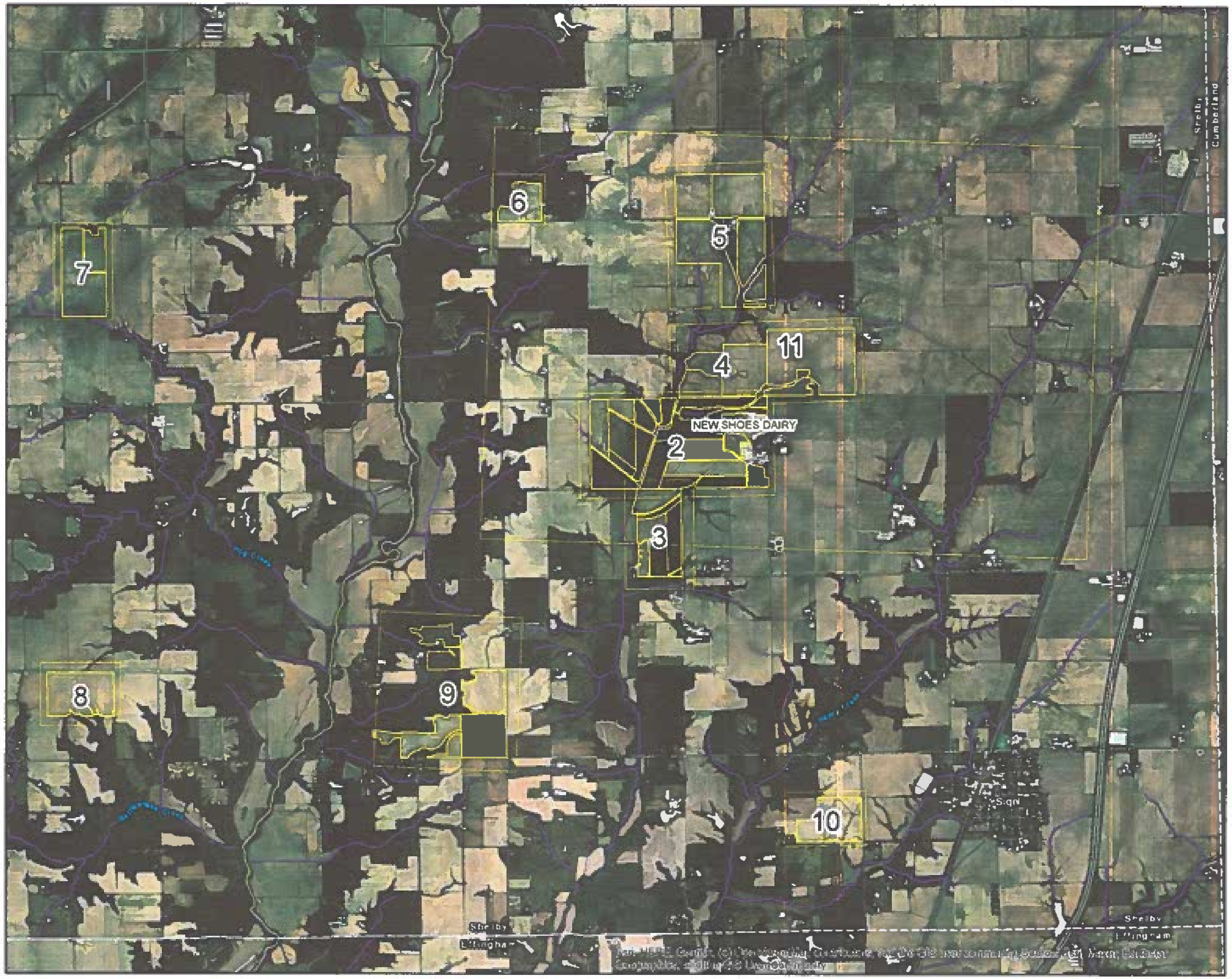
8. **Pathogen Management**
   Many of the same conservation practices used to prevent nutrient movement from this animal feeding operation, such as runoff and erosion control are likely to minimize the movement of pathogens. Pathogenic organisms occur naturally in animal wastes. Exposure to some pathogens can cause illness to humans and animals, especially for immune-deficient populations.

Section 3 - Land Treatment

3.1. Map(s) of Fields and Conservation Practices

Fields available for land application are attached.

LAND APPLICATION MAPS



MAURER-STUTZ

ENGINEERS SURVEYORS

mstutz.com

NEW SHOES DAIRY
SHEET NAME: Overall
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

Livestock Facilities

FSA CLU

NHDWaterbody

LakePond

Reservoir

NHDFlowline

ArtificialPath

CanalDitch

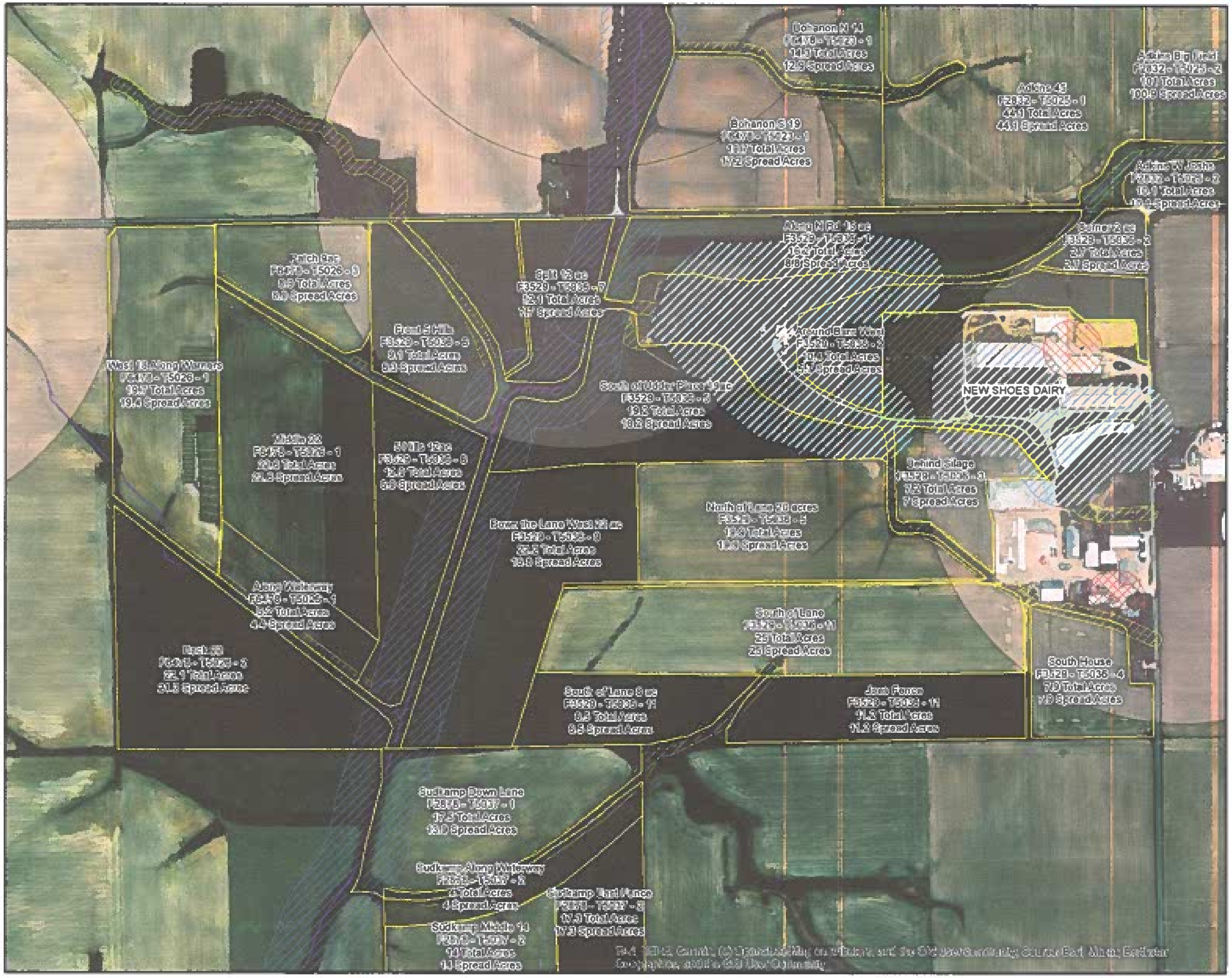
StreamRiver

Feet

0 2800 5600

N

LAND APPLICATION MAPS



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ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Dairy
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

- Livestock Facilities
- FSA CLU

Sensitive Areas
- 1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks
- 100 ft Waterway or 35 ft Veg. Buffer
- 200 ft Potable Water Supply Well
- 200 ft Stream
- 200 ft Subsurface Drain Intake
- 200 ft Surface Water

Point Practices
- Tile Inlet

Line Practices
- Existing Waterway

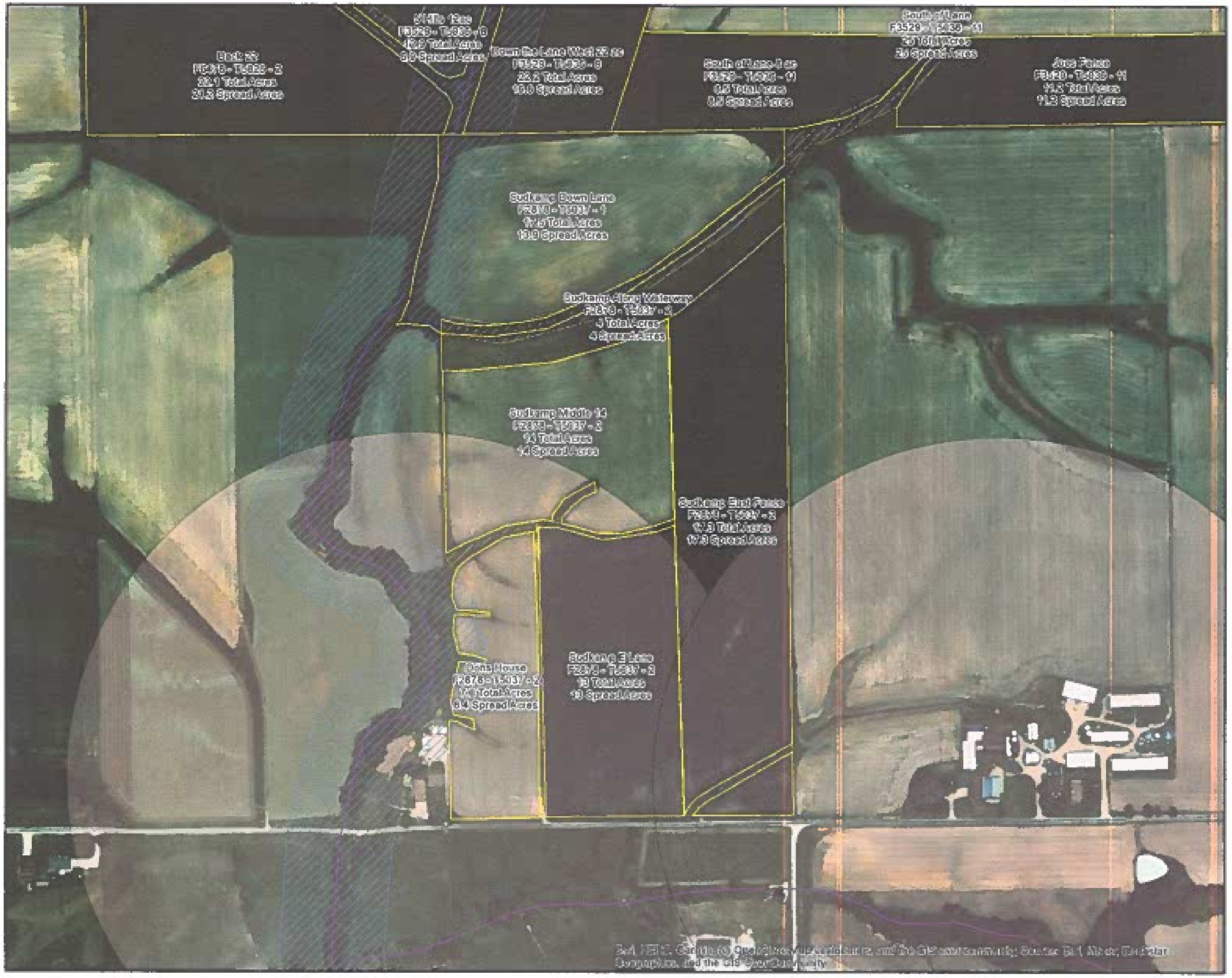
NHDWaterbody
- LakePond

NHDFlowline
- StreamRiver

Feet
0 500 1000

N

LAND APPLICATION MAPS



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ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Sudkamp
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

Sensitive Areas

1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer

200 ft Stream

Line Practices

Existing Waterway

NHDWaterbody

LakePond

NHDFlowline

StreamRiver

Feet
0 370 740

N

LAND APPLICATION MAPS

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NEW SHOES DAIRY
SHEET NAME: Adkins
PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

- Livestock Facilities
- FSA CLU

Sensitive Areas
- 1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks
- 100 ft Waterway or 35 ft Veg. Buffer
- 200 ft Potable Water Supply Well
- 200 ft Stream
- 200 ft Subsurface Drain Intake
- 200 ft Surface Water

Point Practices
- Tile Inlet

Line Practices
- Existing Waterway

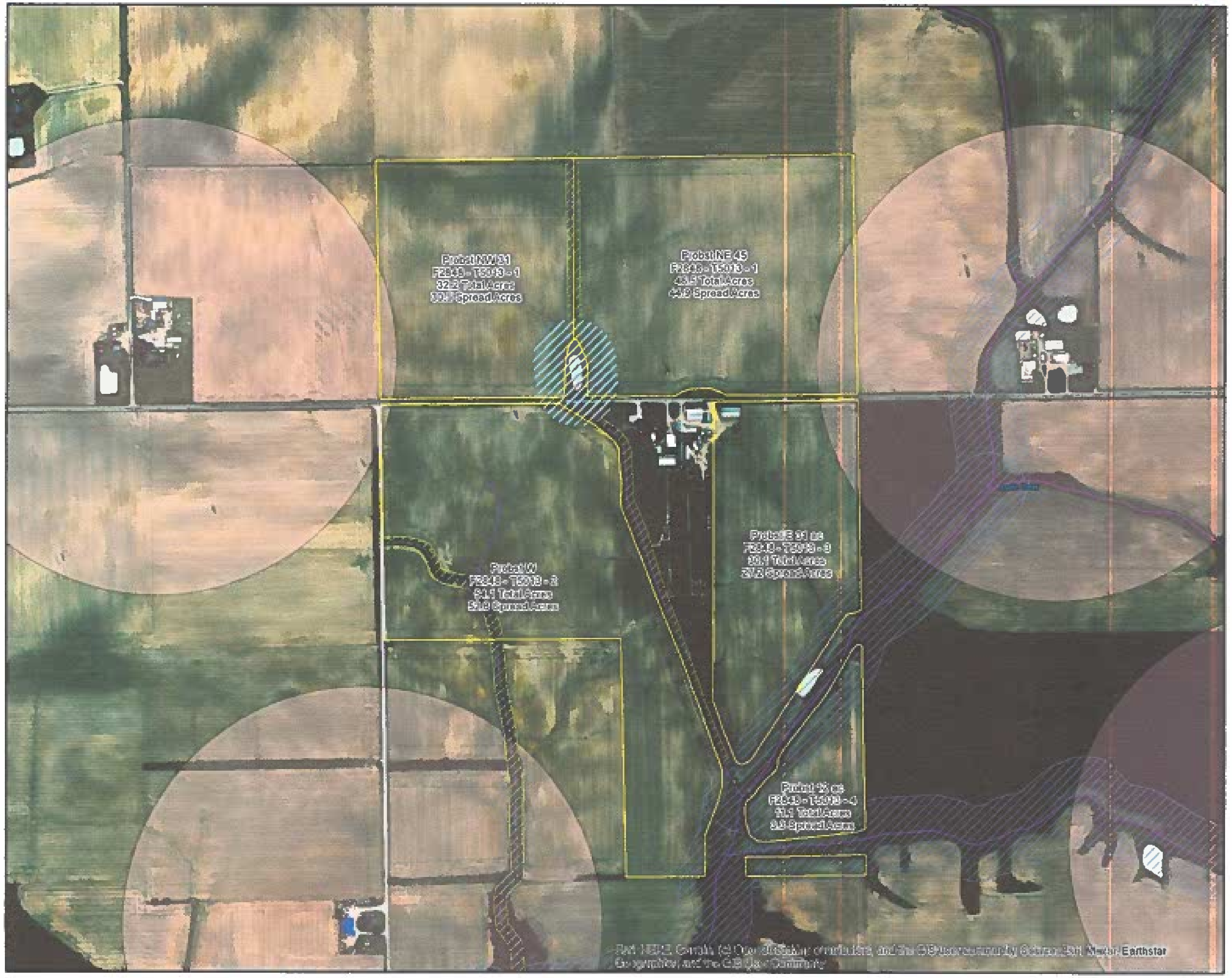
NHDWaterbody
- LakePond

NHDFlowline
- StreamRiver

Feet
0 525 1050

N

LAND APPLICATION MAPS



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NEW SHOES DAIRY
SHEET NAME: Probst
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

Sensitive Areas

1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer
200 ft Stream
200 ft Surface Water

Line Practices

Existing Waterway

NHDWaterbody

LakePond

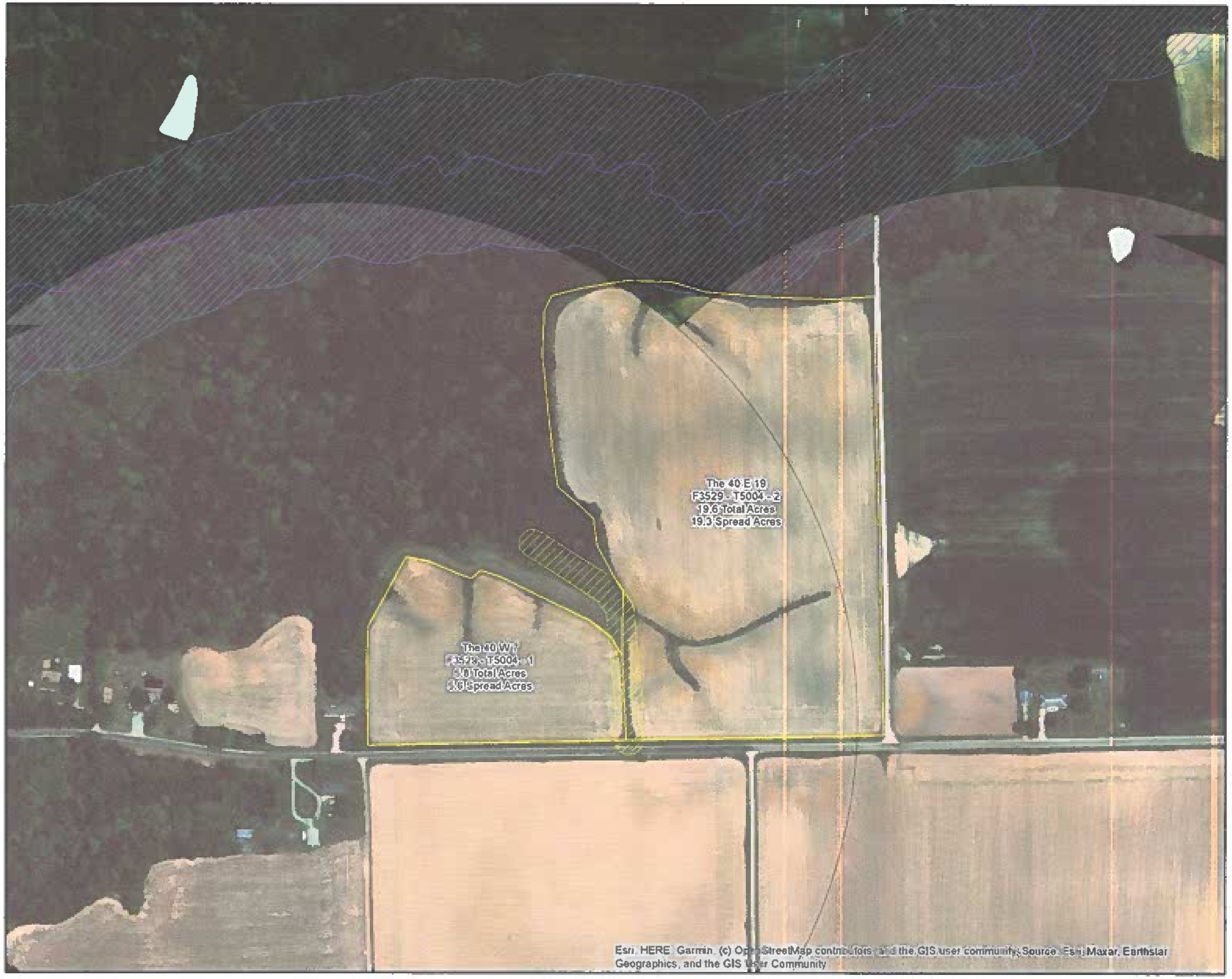
NHDFlowline

ArtificialPath
StreamRiver

N

Feet
0 525 1050

LAND APPLICATION MAPS



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ENGINEERS SURVEYORS
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NEW SHOES DAIRY
SHEET NAME: 40
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

Sensitive Areas

1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer

200 ft Stream

Line Practices

Existing Waterway

NHDWaterbody

LakePond

NHDFlowline

StreamRiver

N

Feet
0 240 480

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
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NEW SHOES DAIRY
SHEET NAME: Stewardson
PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

Sensitive Areas

1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer

Line Practices

Existing Waterway

NHDFlowline

StreamRiver

Feet
0 330 660

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
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NEW SHOES DAIRY
SHEET NAME: Deans
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer

NHDFlowline

StreamRiver

Feet
0 370 740

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Joshs
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT
SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

Sensitive Areas

1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer

200 ft Surface Water

Line Practices

Existing Waterway

NHDWaterbody

LakePond

NHDFlowline

StreamRiver

N

Feet

0 500 1000

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Birchtold
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT
SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

Sensitive Areas

1320 Residential 24 Hour Injection or Incorporation

Buffers and Setbacks

100 ft Waterway or 35 ft Veg. Buffer

Line Practices

Existing Waterway

NHDWaterbody

LakePond

NHDFlowline

StreamRiver

Feet
0 330 660

N

3.2. RUSLE2 Soil Loss Calculations

This section of the plan addresses all fields where manure is to be applied. These reports were prepared on RUSLE2 soil loss calculations which are based on soil type, slope and slope length, crop rotation, crop yield, tillage, and planned conservation practices. These calculations are included in this section.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Back 22	6478	5026	2
Along N Rd.	3529	5036	1
South Lane 8	3529	5036	11
Behind Silage	3529	5036	3
Bohanon N 14	6478	5023	1
The 40 E 19	3529	5001	2

File: Worksheet: Profile (Temp. scenario[1]) of NSD\7C2 Atlas

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\7C2 Atlas silt loam, 5 to 10 percent slopes, eroded\Atlas Silt loam eroded 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 7.0 %
Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 3.6 t/ac/yr
Detachment on slope: 3.6 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 3.6 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 9300 lb/ac

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Rye, winter, silage, SE	tons	4.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, spring seed	Tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa brome, spring seed regrowth after cut	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, spring seed regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 senes to yr3 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 senes to yr4 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	1.5

managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.0

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/1/2	Sprayer, pre-emergence		55
5/1/2	Cultivator, field 6-12 in sweeps, coil tine har		55
5/1/2	Planter, twin row, double disk opnr	Corn, grain	55
7/1/2	Sprayer, fungicide		40
10/15/2	Harvest, killing crop 50pct standing stubble		76
10/15/2	Bale corn stover		76
10/15/2	Manure injector, liquid high disturb.30 inch		76
10/17/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	83
5/15/3	Harvest, silage		73
5/15/3	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	73
6/5/3	Sprayer, post emergence		71
10/20/3	Harvest, killing crop 20pct standing stubble		80
10/20/3	Manure injector, liquid high disturb.30 inch		80
4/20/4	Fert applic. surface broadcast		55
4/25/4	Cultivator, field 6-12 in sweeps, coil tine har		31
4/25/4	Seeder, corrugated packer	Alfalfa, spring seed	31
7/25/4	Harvest, hay, legume	Alfalfa brome, spring seed regrowth after cut	26
9/26/4	Harvest, hay, legume	Alfalfa, spring seed regrowth after cutting	39
5/15/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	42
5/25/5	Fert applic. surface broadcast		39
6/10/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	51
7/1/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	53
7/25/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	55
8/15/5	Harvest, hay, legume	Alfalfa, yr2 senes to yr3 regrowth	57
5/15/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	47
5/25/6	Fert applic. surface broadcast		43
6/10/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	54
7/1/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	56
7/25/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	57
8/15/6	Harvest, hay, legume	Alfalfa, yr3 senes to yr4 regrowth	59
5/15/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	47
5/25/7	Fert applic. surface broadcast		43
6/10/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/1/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/25/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	51
8/10/7	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	51
5/15/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
5/25/8	Fert applic. surface broadcast		41
6/10/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/1/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/25/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
8/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	46
9/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	40
11/10/8	Manure injector, liquid high disturb.30 inch		32

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RUSLE2 Profile Erosion Calculation Record

Along WW	6478	5026	1
5 Hills	3529	5036	8
Front 5 Hills	3529	5036	6
Around Barn W	3529	5036	2
Down Lane W 22	3529	5036	9
Sudkamp Down Lane	2878	5037	1
Bohanon S 19	6478	5023	1

File: Worksheet: Profile (Temp. scenario[1]) of NSD\8D2 Hickory

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\8D2 Hickory silt loam, 10 to 18 percent slopes, eroded\Hickory Silt loam eroded 95%
Slope length (horiz): 120 ft
Avg. slope steepness: 12 %
Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 5.3 t/ac/yr
Detachment on slope: 5.3 t/ac/yr
Soil loss for cons. plan: 5 t/ac/yr
Sediment delivery: 5.3 t/ac/yr

Crit. slope length: 120 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 7800 lb/ac

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Rye, winter, silage, SE	tons	4.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, spring seed	Tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa brome, spring seed regrowth after cut	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, spring seed regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr2 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr2 senes to yr3 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr3 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr3 senes to yr4 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	1.5

managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S no bale	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.0

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/1/2	Sprayer, pre-emergence		55
5/1/2	Cultivator, field 6-12 in sweeps, coil tine har		55
5/1/2	Planter, twin row, double disk opnr	Corn, grain	55
7/1/2	Sprayer, fungicide		40
10/15/2	Harvest, killing crop 50pct standing stubble		93
10/15/2	Manure injector, liquid high disturb.30 inch		93
10/17/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	95
5/15/3	Harvest, silage		85
5/15/3	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	85
6/5/3	Sprayer, post emergence		82
10/20/3	Harvest, killing crop 20pct standing stubble		81
10/20/3	Manure injector, liquid high disturb.30 inch		81
4/20/4	Fert applic. surface broadcast		57
4/25/4	Cultivator, field 6-12 in sweeps, coil tine har		33
4/25/4	Seeder, corrugated packer	Alfalfa, spring seed	33
7/25/4	Harvest, hay, legume	Alfalfa brome, spring seed regrowth after cut	27
9/26/4	Harvest, hay, legume	Alfalfa, spring seed regrowth after cutting	39
5/15/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	42
5/25/5	Fert applic. surface broadcast		39
6/10/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	51
7/1/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	53
7/25/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	55
8/15/5	Harvest, hay, legume	Alfalfa, yr2 senes to yr3 regrowth	57
5/15/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	47
5/25/6	Fert applic. surface broadcast		43
6/10/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	54
7/1/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	56
7/25/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	57
8/15/6	Harvest, hay, legume	Alfalfa, yr3 senes to yr4 regrowth	59
5/15/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	47
5/25/7	Fert applic. surface broadcast		43
6/10/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/1/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/25/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	51
8/10/7	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	51
5/15/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
5/25/8	Fert applic. surface broadcast		41
6/10/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/1/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/25/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
8/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	46
9/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	40
11/10/8	Manure injector, liquid high disturb.30 inch		32

RUSLE2 Profile Erosion Calculation Record

Adkins Big Field	2832	5025	2

File: Worksheet: Profile (Temp. scenario[3]) of NSD\3A Hoyleton

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\3A Hoyleton silt loam, 0 to 2 percent slopes\Hoyleton Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Irrigation	vegetations\Corn, silage	tons	30

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 4.0 t/ac/yr
Detachment on slope: 4.0 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 4.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: 26 %
Avg. ann. total biomass removal: 18000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/16/2	Sprayer, pre-emergence		26
4/16/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		26
4/16/2	Planter, twin row, double disk opnr	Corn, silage	26
6/1/2	Fert. applic. anhyd knife 30 in		17
7/1/2	Sprayer, fungicide		12
9/28/2	Harvest, silage		33

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RUSLE2 Profile Erosion Calculation Record

Adkins 45	2832	5025	1
Adkins W Joshs	2832	5025	2

File: Worksheet: Profile (Temp. scenario[2]) of NSD\3A Hoyleton

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\3A Hoyleton silt loam, 0 to 2 percent slopes\Hoyleton Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - FLM	vegetations\Corn, silage	tons	30

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 4.0 t/ac/yr
Detachment on slope: 4.0 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 4.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: 19 %
Avg. ann. total biomass removal: 18000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/16/2	Sprayer, pre-emergence		19
4/16/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		19
4/16/2	Planter, twin row, double disk opnr	Corn, silage	19
7/1/2	Sprayer, fungicide		8.9
9/15/2	Harvest, silage		33
11/16/2	Manure injector, liquid high disturb.30 inch		31

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RUSLE2 Profile Erosion Calculation Record

Birchtold E 35	3621	5059	1

File: Worksheet: Profile (Temp. scenario[3]) of NSD\14B Ava

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\14B Ava silt loam, 2 to 5 percent slopes\Ava Silt loam 90%
Slope length (horiz): 300 ft
Avg. slope steepness: 4.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Wheat, winter 7in rows	bushels	78
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Soybean, mw 7in rows	bu	40
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Corn, grain	bushels	250

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 4.0 t/ac/yr
Soil loss erod. portion: 2.4 t/ac/yr
Detachment on slope: 2.4 t/ac/yr
Soil loss for cons. plan: 2 t/ac/yr
Sediment delivery: 2.4 t/ac/yr

Crit. slope length: 300 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 2500 lb/ac

Date	Operation	Vegetation	Surf. res. cov. after op, %
4/30/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		68
5/1/2	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	67
7/1/2	Sprayer, fungicide		43
10/7/2	Harvest, killing crop 20pct standing stubble		89
10/10/2	Drill or air seeder single disk openers 7-10 in spac.	Wheat, winter 7in rows	89
3/15/3	Fert applic. surface broadcast		72
6/30/3	Harvest, killing crop 50pct standing stubble		65
6/30/3	Bale straw or residue		65
6/30/3	Manure spreader, solid and semi-solid		65
6/30/3	Disk, tandem light finishing		65
6/30/3	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	65
10/15/3	Harvest, killing crop 20pct standing stubble		62
10/15/3	Manure spreader, solid and semi-solid		62
10/15/3	Disk, tandem light finishing		62
4/30/4	Seedbed conditioner, coulter caddy, spk har, rlng bskt		25
5/1/4	Planter, twin row, double disk opnr	Corn, grain	25
7/1/4	Sprayer, fungicide		14
10/15/4	Harvest, killing crop 50pct standing stubble		93
11/1/4	Manure spreader, solid and semi-solid		86
11/1/4	Disk, tandem light finishing		86

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RUSLE2 Profile Erosion Calculation Record

Birchtold W 12	3621	5059	1

File: Worksheet: Profile (Temp. scenario[3]) of NSD\13A Bluford

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Wheat, winter 7in rows	bushels	78
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Soybean, mw 7in rows	bu	40
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Grain - Soybean - Wheat DC SB Solids	vegetations\Corn, grain	bushels	250

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.2 t/ac/yr
Detachment on slope: 1.2 t/ac/yr
Soil loss for cons. plan: 1 t/ac/yr
Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 2500 lb/ac

Date	Operation	Vegetation	Surf. res. cov. after op, %
4/30/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		68
5/1/2	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	67
7/1/2	Sprayer, fungicide		43
10/7/2	Harvest, killing crop 20pct standing stubble		89
10/10/2	Drill or air seeder single disk openers 7-10 in spac.	Wheat, winter 7in rows	89
3/15/3	Fert applic. surface broadcast		72
6/30/3	Harvest, killing crop 50pct standing stubble		65
6/30/3	Bale straw or residue		65
6/30/3	Manure spreader, solid and semi-solid		65
6/30/3	Disk, tandem light finishing		65
6/30/3	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	65
10/15/3	Harvest, killing crop 20pct standing stubble		62
10/15/3	Manure spreader, solid and semi-solid		62
10/15/3	Disk, tandem light finishing		62
4/30/4	Seedbed conditioner, coulter caddy, spk har, rlng bskt		25
5/1/4	Planter, twin row, double disk opnr	Corn, grain	25
7/1/4	Sprayer, fungicide		14
10/15/4	Harvest, killing crop 50pct standing stubble		93
11/1/4	Manure spreader, solid and semi-solid		86
11/1/4	Disk, tandem light finishing		86

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RUSLE2 Profile Erosion Calculation Record

West 18 Along Warners	6478	5026	1
Patch 9	6478	5026	3
Probst E 31	2848	5013	3
Probst 12	2848	5013	4

File: Worksheet: Profile (Temp. scenario[1]) of NSD\6B2 Fishhook

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\6B2 Fishhook silt loam, 2 to 5 percent slopes, eroded\Fishhook Silt loam 100%
Slope length (horiz): 300 ft
Avg. slope steepness: 4.0 %
Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 2.1 t/ac/yr
Detachment on slope: 2.1 t/ac/yr
Soil loss for cons. plan: 2 t/ac/yr
Sediment delivery: 2.1 t/ac/yr

Crit. slope length: 300 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 9300 lb/ac

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Rye, winter, silage, SE	tons	4.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, spring seed	Tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa brome, spring seed regrowth after cut	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, spring seed regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 senes to yr3 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 senes to yr4 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	1.5

managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.0

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/1/2	Sprayer, pre-emergence		55
5/1/2	Cultivator, field 6-12 in sweeps, coil tine har		55
5/1/2	Planter, twin row, double disk opnr	Corn, grain	55
7/1/2	Sprayer, fungicide		40
10/15/2	Harvest, killing crop 50pct standing stubble		76
10/15/2	Bale corn stover		76
10/15/2	Manure injector, liquid high disturb.30 inch		76
10/17/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	83
5/15/3	Harvest, silage		73
5/15/3	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	73
6/5/3	Sprayer, post emergence		71
10/20/3	Harvest, killing crop 20pct standing stubble		80
10/20/3	Manure injector, liquid high disturb.30 inch		80
4/20/4	Fert applic. surface broadcast		55
4/25/4	Cultivator, field 6-12 in sweeps, coil tine har		31
4/25/4	Seeder, corrugated packer	Alfalfa, spring seed	31
7/25/4	Harvest, hay, legume	Alfalfa brome, spring seed regrowth after cut	26
9/26/4	Harvest, hay, legume	Alfalfa, spring seed regrowth after cutting	39
5/15/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	42
5/25/5	Fert applic. surface broadcast		39
6/10/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	51
7/1/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	53
7/25/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	55
8/15/5	Harvest, hay, legume	Alfalfa, yr2 senes to yr3 regrowth	57
5/15/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	47
5/25/6	Fert applic. surface broadcast		43
6/10/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	54
7/1/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	56
7/25/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	57
8/15/6	Harvest, hay, legume	Alfalfa, yr3 senes to yr4 regrowth	59
5/15/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	47
5/25/7	Fert applic. surface broadcast		43
6/10/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/1/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/25/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	51
8/10/7	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	51
5/15/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
5/25/8	Fert applic. surface broadcast		41
6/10/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/1/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/25/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
8/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	46
9/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	40
11/10/8	Manure injector, liquid high disturb.30 inch		32

RUSLE2 Profile Erosion Calculation Record

Grotz	6498	4792	3

File: Worksheet: Profile (Temp. scenario[4]) of NSD\7C2 Atlas
Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\7C2 Atlas silt loam, 5 to 10 percent slopes, eroded\Atlas Silt loam eroded 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 7.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB NT	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB NT	vegetations\Soybean, mw 7in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB NT	vegetations\Corn, grain	bushels	250

Contourig: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 5.5 t/ac/yr
Detachment on slope: 5.5 t/ac/yr
Soil loss for cons. plan: 6 t/ac/yr
Sediment delivery: 5.5 t/ac/yr
Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 4100 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/1/2	Planter, twin row, double disk opnr	Corn, grain	76
7/1/2	Sprayer, fungicide		55
9/15/2	Harvest, silage		45
11/1/2	Manure spreader, solid and semi-solid		35
11/1/2	Disk, tandem light finishing		35
5/1/3	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	18
10/15/3	Harvest, killing crop 20pct standing stubble		86
4/30/4	Manure spreader, solid and semi-solid		33
4/30/4	Disk, tandem light finishing		33
5/1/4	Planter, twin row, double disk opnr	Corn, grain	31
7/1/4	Sprayer, fungicide		8.4
10/15/4	Harvest, killing crop 50pct standing stubble		92
11/1/4	Manure spreader, solid and semi-solid		86
11/1/4	Disk, tandem light finishing		86

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RUSLE2 Profile Erosion Calculation Record

Hermon	6449	7590	5
Josh E	9240	8005	1

File: Worksheet: Profile (Temp. scenario[2]) of NSD\13A Bluford

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB T	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB T	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB T	vegetations\Corn, grain	bushels	250

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.7 t/ac/yr
Detachment on slope: 1.7 t/ac/yr
Soil loss for cons. plan: 2 t/ac/yr
Sediment delivery: 1.7 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 0 lb/ac

Date	Operation	Vegetation	Surf. res. cov. after op, %
4/30/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		69
5/1/2	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	68
7/1/2	Sprayer, fungicide		43
10/7/2	Harvest, killing crop 20pct standing stubble		89
10/15/2	Manure spreader, solid and semi-solid		54
10/15/2	Disk, tandem light finishing		54
4/30/3	Seedbed conditioner, coulter caddy, spk har, rlng bskt		16
5/1/3	Planter, twin row, double disk opnr	Corn, grain	16
7/1/3	Sprayer, fungicide		6.3
10/15/3	Harvest, killing crop 50pct standing stubble		92
11/1/3	Manure spreader, solid and semi-solid		86
11/1/3	Disk, tandem light finishing		86
4/30/4	Seedbed conditioner, coulter caddy, spk har, rlng bskt		67
5/1/4	Planter, twin row, double disk opnr	Corn, grain	66
7/1/4	Sprayer, fungicide		42
10/15/4	Harvest, killing crop 50pct standing stubble		93
11/1/4	Manure spreader, solid and semi-solid		87
11/1/4	Disk, tandem light finishing		87

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RUSLE2 Profile Erosion Calculation Record

Josh W	9241	8004	1

File: Worksheet: Profile (Temp. scenario[2]) of NSD\14B Ava

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\14B Ava silt loam, 2 to 5 percent slopes\Ava Silt loam 90%
Slope length (horiz): 300 ft
Avg. slope steepness: 4.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB T	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB T	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\CG (2) SB T	vegetations\Corn, grain	bushels	250

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 4.0 t/ac/yr
Soil loss erod. portion: 3.7 t/ac/yr
Detachment on slope: 3.7 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 3.7 t/ac/yr

Crit. slope length: 300 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 0 lb/ac

Date	Operation	Vegetation	Surf. res. cov. after op, %
4/30/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		69
5/1/2	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	68
7/1/2	Sprayer, fungicide		43
10/7/2	Harvest, killing crop 20pct standing stubble		89
10/15/2	Manure spreader, solid and semi-solid		54
10/15/2	Disk, tandem light finishing		54
4/30/3	Seedbed conditioner, coulter caddy, spk har, rlng bskt		16
5/1/3	Planter, twin row, double disk opnr	Corn, grain	16
7/1/3	Sprayer, fungicide		6.3
10/15/3	Harvest, killing crop 50pct standing stubble		92
11/1/3	Manure spreader, solid and semi-solid		86
11/1/3	Disk, tandem light finishing		86
4/30/4	Seedbed conditioner, coulter caddy, spk har, rlng bskt		67
5/1/4	Planter, twin row, double disk opnr	Corn, grain	66
7/1/4	Sprayer, fungicide		42
10/15/4	Harvest, killing crop 50pct standing stubble		93
11/1/4	Manure spreader, solid and semi-solid		87
11/1/4	Disk, tandem light finishing		87

RUSLE2 Profile Erosion Calculation Record

Middle 22	6478	5026	1
Probst W	2848	5013	2

File: Worksheet: Profile (Temp. scenario[3]) of NSD\6B2 Fishook

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\6B2 Fishhook silt loam, 2 to 5 percent slopes, eroded\Fishhook Silt loam 100%
Slope length (horiz): 300 ft
Avg. slope steepness: 4.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage (2) - Wheat DC SB	vegetations\Corn, silage	tons	30
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage (2) - Wheat DC SB	vegetations\Wheat, winter 7in rows	bushels	78
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage (2) - Wheat DC SB	vegetations\Soybean, mw 7in rows	bu	40
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage (2) - Wheat DC SB	vegetations\Rye, winter, silage, SE	tons	4.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage (2) - Wheat DC SB	vegetations\Corn, silage	tons	30
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage (2) - Wheat DC SB	vegetations\Rye, winter, silage, SE	tons	4.0

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 3.9 t/ac/yr
Detachment on slope: 3.9 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 3.9 t/ac/yr

Crit. slope length: 300 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 17000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/25/2	Harvest, small grain haylage 5 in ht		34
4/30/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		29
5/1/2	Planter, twin row, double disk opnr	Corn, silage	28
7/1/2	Sprayer, fungicide		16
9/15/2	Harvest, silage		36
9/16/2	Manure injector, liquid high disturb.30 inch		38
9/17/2	Drill or air seeder single disk openers 7-10 in spac.	Wheat, winter 7in rows	41
6/30/3	Harvest, killing crop 50pct standing stubble		70
6/30/3	Bale straw or residue		70
6/30/3	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	70
10/15/3	Harvest, killing crop 20pct standing stubble		89
10/15/3	Manure injector, liquid high disturb.30 inch		89
10/15/3	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	89
4/25/4	Harvest, small grain haylage 5 in ht		74
4/30/4	Seedbed conditioner, coulter caddy, spk har, rlng bskt		54
5/1/4	Planter, twin row, double disk opnr	Corn, silage	52
7/1/4	Sprayer, fungicide		34
9/15/4	Harvest, silage		45
9/16/4	Manure injector, liquid high disturb.30 inch		44
9/17/4	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	47

RUSLE2 Profile Erosion Calculation Record

North Lane 20	3529	5036	5

File: Worksheet: Profile (Temp. scenario[2]) of NSD\6B2 Fishook

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\6B2 Fishhook silt loam, 2 to 5 percent slopes, eroded\Fishhook Silt loam 100%
Slope length (horiz): 300 ft
Avg. slope steepness: 4.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn G Bale - Rye Silage	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn G Bale - Rye Silage	vegetations\Rye, winter, silage, SE	tons	4.0

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 2.1 t/ac/yr
Detachment on slope: 2.1 t/ac/yr
Soil loss for cons. plan: 2 t/ac/yr
Sediment delivery: 2.1 t/ac/yr

Crit. slope length: 300 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 13000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/16/2	Harvest, small grain haylage 5 in ht		68
4/16/2	Sprayer, pre-emergence		68
4/16/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		68
4/17/2	Planter, twin row, double disk opnr	Corn, grain	66
7/1/2	Sprayer, fungicide		39
10/3/2	Harvest, killing crop 50pct standing stubble		63
10/3/2	Bale corn stover		63
10/4/2	Manure injector, liquid high disturb.30 inch		76
10/5/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	83

RUSLE2 Profile Erosion Calculation Record

Probst NE 45	2848	5013	1

File: Worksheet: Profile (Temp. scenario[1]) of NSD\3A Hoyleton

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\3A Hoyleton silt loam, 0 to 2 percent slopes\Hoyleton Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Corn, silage	tons	30
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Wheat, winter 7in rows	bushels	78
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Soybean, mw 7in rows	bu	40
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Corn, silage	tons	30

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 2.0 t/ac/yr
Detachment on slope: 2.0 t/ac/yr
Soil loss for cons. plan: 2 t/ac/yr
Sediment delivery: 2.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 15000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/30/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		22
5/1/2	Planter, twin row, double disk opnr	Corn, silage	22
7/1/2	Sprayer, fungicide		13
9/15/2	Harvest, silage		35
9/16/2	Manure injector, liquid high disturb.30 inch		37
9/17/2	Drill or air seeder single disk openers 7-10 in spac.	Wheat, winter 7in rows	41
6/30/3	Harvest, killing crop 50pct standing stubble		70
6/30/3	Bale straw or residue		70
6/30/3	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	70
10/15/3	Harvest, killing crop 20pct standing stubble		89
10/15/3	Manure injector, liquid high disturb.30 inch		89
4/30/4	Seedbed conditioner, coulter caddy, spk har, rlng bskt		50
5/1/4	Planter, twin row, double disk opnr	Corn, silage	48
7/1/4	Sprayer, fungicide		32
9/15/4	Harvest, silage		44
11/16/4	Manure injector, liquid high disturb.30 inch		38

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RUSLE2 Profile Erosion Calculation Record

Probst NW 31	2848	5013	1

File: Worksheet: Profile (Temp. scenario[1]) of NSD\2A Cisne

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\2A Cisne silt loam, 0 to 2 percent slopes\Cisne Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Corn, silage	tons	30
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Wheat, winter 7in rows	bushels	78
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Soybean, mw 7in rows	bu	40
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - (2) - Wheat DC SB	vegetations\Corn, silage	tons	30

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 2.7 t/ac/yr
Detachment on slope: 2.7 t/ac/yr
Soil loss for cons. plan: 3 t/ac/yr
Sediment delivery: 2.7 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 15000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/30/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		22
5/1/2	Planter, twin row, double disk opnr	Corn, silage	22
7/1/2	Sprayer, fungicide		13
9/15/2	Harvest, silage		35
9/16/2	Manure injector, liquid high disturb.30 inch		37
9/17/2	Drill or air seeder single disk openers 7-10 in spac.	Wheat, winter 7in rows	41
6/30/3	Harvest, killing crop 50pct standing stubble		70
6/30/3	Bale straw or residue		70
6/30/3	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	70
10/15/3	Harvest, killing crop 20pct standing stubble		89
10/15/3	Manure injector, liquid high disturb.30 inch		89
4/30/4	Seedbed conditioner, coulter caddy, spk har, rlng bskt		50
5/1/4	Planter, twin row, double disk opnr	Corn, silage	48
7/1/4	Sprayer, fungicide		32
9/15/4	Harvest, silage		44
11/16/4	Manure injector, liquid high disturb.30 inch		38

RUSLE2 Profile Erosion Calculation Record

South of Udder Place 3529 5036 5

File: Worksheet: Profile (Temp. scenario[2]) of NSD\8D2 Hickory

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\8D2 Hickory silt loam, 10 to 18 percent slopes, eroded\Hickory Silt loam eroded 95%
Slope length (horiz): 120 ft
Avg. slope steepness: 12 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn G Bale - Rye Silage	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn G Bale - Rye Silage	vegetations\Rye, winter, silage, SE	tons	4.0

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 5.6 t/ac/yr
Detachment on slope: 5.6 t/ac/yr
Soil loss for cons. plan: 6 t/ac/yr
Sediment delivery: 5.6 t/ac/yr

Crit. slope length: 120 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 13000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/16/2	Harvest, small grain haylage 5 in ht		68
4/16/2	Sprayer, pre-emergence		68
4/16/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		68
4/17/2	Planter, twin row, double disk opnr	Corn, grain	66
7/1/2	Sprayer, fungicide		39
10/3/2	Harvest, killing crop 50pct standing stubble		63
10/3/2	Bale corn stover		63
10/4/2	Manure injector, liquid high disturb.30 inch		76
10/5/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	83

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RUSLE2 Profile Erosion Calculation Record

South Lane	3529	5036	11
South House	3529	5036	4

File: Worksheet: Profile (Temp. scenario[2]) of NSD\3A Hoyleton

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\3A Hoyleton silt loam, 0 to 2 percent slopes\Hoyleton Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage	vegetations\Corn, silage	tons	30
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn Silage - Rye Silage	vegetations\Rye, winter, silage, SE	tons	4.0

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 3.0 t/ac/yr
Detachment on slope: 3.0 t/ac/yr
Soil loss for cons. plan: 3 t/ac/yr
Sediment delivery: 3.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 21000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/16/2	Harvest, small grain haylage 5 in ht		26
4/16/2	Sprayer, pre-emergence		26
4/16/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		26
4/16/2	Planter, twin row, double disk opnr	Corn, silage	26
7/1/2	Sprayer, fungicide		13
9/15/2	Harvest, silage		34
9/16/2	Manure injector, liquid high disturb.30 inch		40
9/16/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	40

RUSLE2 Profile Erosion Calculation Record

Split 12 ac	3529	5036	7

File: Worksheet: Profile (Temp. scenario[2]) of NSD\7C2 Atlas

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\7C2 Atlas silt loam, 5 to 10 percent slopes, eroded\Atlas Silt loam eroded 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 7.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn G Bale - Rye Silage	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn G Bale - Rye Silage	vegetations\Rye, winter, silage, SE	tons	4.0

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 3.5 t/ac/yr
Detachment on slope: 3.5 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 3.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 13000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/16/2	Harvest, small grain haylage 5 in ht		68
4/16/2	Sprayer, pre-emergence		68
4/16/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		68
4/17/2	Planter, twin row, double disk opnr	Corn, grain	66
7/1/2	Sprayer, fungicide		39
10/3/2	Harvest, killing crop 50pct standing stubble		63
10/3/2	Bale corn stover		63
10/4/2	Manure injector, liquid high disturb.30 inch		76
10/5/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	83

RUSLE2 Profile Erosion Calculation Record

Stewardson	4832	5975	2

File: Worksheet: Profile (Temp. scenario[4]) of NSD\3A Hoyleton

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\3A Hoyleton silt loam, 0 to 2 percent slopes\Hoyleton Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Corn G Bale - ssm	vegetations\Corn, grain	bushels	250

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.2 t/ac/yr
Detachment on slope: 1.2 t/ac/yr
Soil loss for cons. plan: 1 t/ac/yr
Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: 27 %
Avg. ann. total biomass removal: 10000 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/1/2	Manure spreader, solid and semi-solid		37
4/1/2	Disk, tandem light finishing		37
4/16/2	Sprayer, pre-emergence		27
4/16/2	Seedbed conditioner, coulter caddy, spk har, rlng bskt		27
4/17/2	Planter, twin row, double disk opnr	Corn, grain	27
7/1/2	Sprayer, fungicide		11
10/14/2	Harvest, killing crop 50pct standing stubble		61
10/14/2	Bale corn stover		61
10/15/2	Chisel plow, coulter, st. pts., cover disks, rlng basket		59

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RUSLE2 Profile Erosion Calculation Record

The 40 W 7	3529	5001	1

File: Worksheet: Profile (Temp. scenario[1]) of NSD\14B Ava

Inputs:
Location: USA\Illinois\Shelby County
Soil: SSURGO\Shelby County, Illinois\14B Ava silt loam, 2 to 5 percent slopes\Ava Silt loam 90%
Slope length (horiz): 300 ft
Avg. slope steepness: 4.0 %
Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 4.0 t/ac/yr
Soil loss erod. portion: 2.5 t/ac/yr
Detachment on slope: 2.5 t/ac/yr
Soil loss for cons. plan: 3 t/ac/yr
Sediment delivery: 2.5 t/ac/yr

Crit. slope length: 300 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 9300 lb/ac

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Corn, grain	bushels	250
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Rye, winter, silage, SE	tons	4.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Soybean, mw 15 - 20 in rows	bu	63
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, spring seed	Tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa brome, spring seed regrowth after cut	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, spring seed regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr2 senes to yr3 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr3 senes to yr4 regrowth	tons	2.3
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.8
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	2.0
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 regrowth after cutting	tons	1.5
managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	1.5

managements\CMZ 16\c.Other Local Mgt Records\NSD\Alfalfa 5 yr - C S	vegetations\Alfalfa, yr4 senes to yr5 regrowth	tons	2.0

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/1/2	Sprayer, pre-emergence		55
5/1/2	Cultivator, field 6-12 in sweeps, coil tine har		55
5/1/2	Planter, twin row, double disk opnr	Corn, grain	55
7/1/2	Sprayer, fungicide		40
10/15/2	Harvest, killing crop 50pct standing stubble		76
10/15/2	Bale corn stover		76
10/15/2	Manure injector, liquid high disturb.30 inch		76
10/17/2	Drill or air seeder single disk openers 7-10 in spac.	Rye, winter, silage, SE	83
5/15/3	Harvest, silage		73
5/15/3	Planter, twin row, double disk opnr	Soybean, mw 15 - 20 in rows	73
6/5/3	Sprayer, post emergence		71
10/20/3	Harvest, killing crop 20pct standing stubble		80
10/20/3	Manure injector, liquid high disturb.30 inch		80
4/20/4	Fert applic. surface broadcast		55
4/25/4	Cultivator, field 6-12 in sweeps, coil tine har		31
4/25/4	Seeder, corrugated packer	Alfalfa, spring seed	31
7/25/4	Harvest, hay, legume	Alfalfa brome, spring seed regrowth after cut	26
9/26/4	Harvest, hay, legume	Alfalfa, spring seed regrowth after cutting	39
5/15/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	42
5/25/5	Fert applic. surface broadcast		39
6/10/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	51
7/1/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	53
7/25/5	Harvest, hay, legume	Alfalfa, yr2 regrowth after cutting	55
8/15/5	Harvest, hay, legume	Alfalfa, yr2 senes to yr3 regrowth	57
5/15/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	47
5/25/6	Fert applic. surface broadcast		43
6/10/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	54
7/1/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	56
7/25/6	Harvest, hay, legume	Alfalfa, yr3 regrowth after cutting	57
8/15/6	Harvest, hay, legume	Alfalfa, yr3 senes to yr4 regrowth	59
5/15/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	47
5/25/7	Fert applic. surface broadcast		43
6/10/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/1/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	53
7/25/7	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	51
8/10/7	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	51
5/15/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
5/25/8	Fert applic. surface broadcast		41
6/10/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/1/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	48
7/25/8	Harvest, hay, legume	Alfalfa, yr4 regrowth after cutting	46
8/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	46
9/10/8	Harvest, hay, legume	Alfalfa, yr4 senes to yr5 regrowth	40
11/10/8	Manure injector, liquid high disturb.30 inch		32

3.3 Land Treatment Conservation Practices

a. Existing Land Application Practices

Existing practices are called out on land application maps included in Section 3.A. Below is a table that outlines the existing structures and practices already implemented on the fields, as shown on the land application maps.

Field Name	F-T-ID	Practice
Along Waterway Back 22 West 18 Along Warners 5 Hills 12 ac Patch 9 ac Front 5 Hills Split 12 ac Along N Rd Corner Behind Silage South House North of Lane 20 South of Lane South of Lane 8 Sudkamp Down Lane	F6478 – T5026	412
Adkins 45 Adkins Big Field	F2832 – T5025	412
Bohanon N 14 Bohanon S 19	F6478 – T5023	412
Probst W Probst NW 31 Probst NE 45	F2848 – T5013	412
The 40 W 7 The 40 E19	F3529 – T5004	412
Birchtold W 12 Birchtold E 35	F3621 – T5059	412
Josh W	F9241 -T8001	412
Grotz	F6498 – T4792	412
Stewardson	F4832 – T5975	412

b. Proposed Land Application Practices

Proposed practices are called out on the land application maps included in Section 3.1. Below is a table that outlines the proposed structures and practices that are planned to be implemented at the facility, as shown on the land application maps.

Field Name	F-T-ID	Practice
(None)		

Section 4 - Nutrient Management

Methodology

The narrative rate approach is an approach that expresses rates of application as a narrative rate of application that results in the amount, in tons or gallons, of livestock waste to be land applied, according to the provisions of this subsection (e).

The terms include:

- Maximum amount of nitrogen and phosphorus derived from all sources of nutrients, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Agency, in pounds per acre, for each field, and certain factors necessary to determine those amounts.
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field.
- The crops to be planted in each field or any other uses such as pasture or fallow fields (including alternative crops identified in accordance with Title 35 Part 502.515(e)(1)(G).
- The realistic yield goal for each crop or use identified for each field.
- The nitrogen and phosphorus recommendations according to section 502.625 for each crop or use identified for each field.
- The methodology by which the NMP accounts for the following factors when calculating the amounts of livestock waste to be land applied:
  - Results of soil tests conducted in accordance with protocols identified in the NMP, as required by section 502.510(b)(9).
  - Credits for all nitrogen in the field that will be plant available.
  - The amount of nitrogen and phosphorus in the livestock waste to be applied.
  - Consideration of multiyear phosphorus application.
  - Accounting for all other additions of plant-available nitrogen and phosphorus to the field.
  - The form and source of livestock waste.
  - The timing and method of land application.
  - Volatilization of nitrogen and mineralization of organic nitrogen.
- Alternative crops identified in the CAFO's NMP that are not in the planned crop rotation
  - When a CAFO includes alternative crops in its nutrient management plan, the crops must be listed by field, in addition to the crops identified in the planned crop rotation for that field, and the nutrient management plan must include realistic crop yield goals and the nitrogen and phosphorus recommendations according to Section 502.625 for each crop.
  - Maximum amounts of nitrogen and phosphorus from all sources of nutrients and the amounts of livestock waste to be applied must be determined in accordance with the methodology described in subsections (e)(1)(A) through (F).

For CAFOs using this narrative approach, the following projections must be included in the nutrient management plan submitted to the Agency, but are not terms of the nutrient management plan:

- The planned crop rotations for each field for the period of permit coverage.
- The projected amount of Livestock waste to be applied.
- Projected credits for all nitrogen in the field that will be plant available.
- Consideration of multiyear phosphorus application.
- Accounting for all other additions of plant-available nitrogen and phosphorus to the field.
- The predicted form, source, and method of application of livestock waste for each crop.
- Timing of application for each field, insofar as it concerns the calculation of rates of application.

CAFOs that use this narrative rate approach must calculate maximum amounts of livestock waste to be land applied at least once each year using the methodology required in subsections (e)(1)(A) through (F) before land applying livestock waste and must rely on the following data:

- A field-specific determination of nitrogen that will be plant available consistent with the methodology required by subsections (e)(1)(A) through (F), and for phosphorus, the results of the most recent soil test conducted in accordance with soil testing requirements approved by the Agency; and
- The results of most recent representative livestock waste tests for nitrogen and phosphorus taken within 12 months prior to the date of land application, in order to determine the amount of nitrogen and phosphorus in the livestock waste to be applied.

Estimated Land Requirement

MAURER-STUTZ

COMPUTATION BY: DNF DATE: 3/3/25
CHECKED BY: DATE:

LAND APPLICATION REQUIREMENTS
FROM MANURE TESTS AND CALCULATED VOLUMES

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

SOURCES FROM TABLE 6.4 LAND APPLICATION REQUIREMENT CALCULATION

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	Application Losses: Ammonia N lb/unit	Application Losses: N ORG + CREDIT lb/unit	Application Losses: P2O5 lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	5.6	3.9	5.3
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16.0	5.6	9.0	3.8	5.0
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	0.1	0.9	0.1

PLANNED CROP	Year	N	P2O5
Corn Silage	1st year	223	81
Rye Silage	1st year	90	16

- Ammonia nitrogen losses, and organic nitrogen mineralization factors are taken from ASAE D384.2 MAR2005 table 1.b sec 3, MWPS 10-1, 10-2, and 10-5, respectively.
- Phosphorus & Potassium mineralization rates 210-AWMFH Chapter 11 Tables 11-5

MANURE SOURCE	Application Timing	Total Ammonia N (lbs N/yr)	Total NORG (lbs N/yr)	Total Plant Avail. Nitrogen (PAN) (lbs N/yr)	Land Required (Nitrogen Based)	Total P (lbs P2O5/yr)	Land Required (Phosphorous Based)	Land Required (Acres)
Solids	EVERY YEAR	22100	14600	36700	120	19900	210	210
E5	EVERY YEAR	75700	32300	108000	350	42300	440	440
E8 E6	EVERY YEAR	500	7600	8100	30	800	10	30

REQUIRED YEARLY LAND APPLICATION (ACRES) 680

Nutrient Management Plan

4.1 Field Information

Table 4.1 lists all the fields that are included in the Nutrient Management Plan. The fields are listed by common management unit. The common management unit takes into account the crop rotation and manure applications.

4.2 Manure Application Setback Distances

Setback Requirements		
Feature	Setback Criteria	Setback Distance (Feet)
Potable Water Supply Wells	No Application	150
Sinkholes	No Application	200
Surface waters**	No Application	200
Residence	Incorporation	1320
Vegetated waterway	No Application	50
Non-Vegetated waterway	No Application	100
Tile Inlet	No Application	150
10 year Floodplain	Incorporation	--
Source: CAFO Permit Requirements, Section 502.645		

For Nitrogen based plans:

- where surface waters are on the assessed field or within 200 feet of the field, the livestock waste applied to the field shall be injected or incorporated within 24 hours after the application or equivalent conservation practices must be installed and maintained on the field pursuant to USDA-NRCS practice standards; and
- if conduits on the field are less than 400 feet from surface waters, the setback requirements in Section 502.645(b)(2) do not apply. Instead the following setbacks apply:

  Livestock waste application shall be conducted no closer than:

  i. 150 feet from a tile inlet, agricultural well head, sinkhole, or edge of a ditch that has no vegetative buffer; or

  ii. 50 feet from a tile inlet, agricultural well head, sinkhole, or edge of a ditch that has a 50 foot vegetative buffer or 50 feet from the center of a grass waterway;

4.3 Soil Test Data

The soil tests can be found in Appendix B.

4.4 Manure Nutrient Analysis

a. Manure Nutrient Analysis used for this plan can be found in Table 4.4 of the attached Maurer-Stutz, Inc. Nutrient Management Calculations and manure tests results can be found Appendix B.
   - Existing waste storage facilities - manure nutrient values for this plan are based samples collected from this facility.

b. Manure testing frequency, timing, and content, including the following requirements: (See Section 5.10)
   1. Manure tests for liquid manure shall be taken before each major spreading time from each type of storage, until average nutrient values can be determined (minimum 3 years).
   2. Manure tests for solid manure shall be taken before each major spreading time such as spring and fall, until average nutrient values can be determined (minimum 3 years).
   3. Manure tests will include Total N, ammonium N, P2O5, and K2O.

4.5 Planned Crops and Fertilizer Recommendations

Table 4.5 of the attached Maurer-Stutz, Inc. Nutrient Management Calculations includes the following information:

a. Planned crops rotations and alternative crops
b. Realistic/actual crop yields
   a. Proven Yields – Crop Insurance Records, See Appendix E
   b. Bulletin No. 810/811
c. Fertilizer recommendations which are based on the crop nutrient fertilization rates
d. Crop nutrient fertilization rates:
   1. Nitrogen fertilization rates are for this plan are based on the Iowa State MRTN, USDA Plants Database, Illinois Agronomy Handbook, and *UC Davis Manure Technical Guide Series*
   2. Fertilization rates for P and K for this plan are based on the Illinois Agronomy Handbook or USDA Plant Database.

From UW Extension: For "normal" corn yielding more than 100 bushels per acre, about one ton of silage per acre can be expected for each 6 to 7 bushels of grain per acre. For example, if expected grain yield is 125 bushels per acre, corn silage yields will be about 18 to 20 tons per acre of 30% dry matter silage (5 to 6 tons per acre dry matter yield).

4.6 Calculating Manure Application Rates

Table 4.6 in the attached Maurer-Stutz, Inc. Nutrient Management Calculations includes the following information:

a. Method for calculating manure application rates
b. Example calculations for each manure source.

4.7 Projected Planned Nutrient Applications

(For all fields to be fertilized, including Manure spreadable & Non-Manure spreadable Area)

Table 4.7 in the attached Maurer-Stutz, Inc. Nutrient Management Calculations shows the timing, rate, and source of manure and commercial applications. The method of application is listed in Section 4.4.

METHODOLGY:

The plan takes into consideration multiyear phosphorous application. Volatilization and mineralization of nutrients are accounted for in the manure application rate calculation based on the timing and method of land application. Credits are given for all nitrogen in the field that will be plant available.

Fields with soil phosphorus levels below 70 lb/ac, are planned to receive manure based on crop nitrogen needs. Additional commercial fertilizer application is planned to meet crop phosphorous needs and build up phosphorous to a good level. For fields where phosphorous is built up, soil tests will be used to determine when to stop applying for build-up and apply only for maintenance. For fields where the phosphorous exceeds 70 lbs/ac, the application will accomplish a phosphorous drawdown, additional commercial fertilizer applications are planned to meet the crop nitrogen needs.

COMMERCIAL FERTILIZERS USED IN MNMP					
FERTILIZER SOURCE	ABBR	% N	% P2O5	% K2O	PHYSICAL STATE
ANHYDOUS AMMONIA	AA	82%	0%	0%	LBS
UREA	UREA	46%	0%	0%	LBS
AMMONIUM SULFATE	AS	21%	0%	0%	LBS
AMMONIUM NITRATE	AN	34%	0%	0%	LBS
DIAMMONIUM PHOSPHATE	DAP	18%	46%	0%	LBS
TRIPLE SUPER-PHOSPHATE	TSP	0%	46%	0%	LBS
POTASSIUM CHLORIDE	PC	0%	0%	60%	LBS
AMMONIUM PHOSPHATE-SULFATE	APS	13%	20%	0%	LBS
POTASSIUM SULFATE	PS	0%	0%	52%	LBS
UREA-AMMONIUM NITRATE 28	UAN 28	28%	0%	0%	GAL
UREA-AMMONIUM NITRATE 30	UAN 30	30%	0%	0%	GAL
UREA-AMMONIUM NITRATE 32	UAN 32	32%	0%	0%	GAL
MONOAMMONIUM PHOSOHATE	MAP	11%	37%	0%	GAL
AMMONIUM POLYPHOSPHATE	AP	10%	34%	0%	GAL
AQUA AMMONIA	AQA	24%	0%	0%	GAL

4.8 Projected Field Nutrient Balance

Table 4.8a and b. in the attached Maurer-Stutz, Inc. Nutrient Management Calculations include the following information:

a. A field nutrient balance for each field, spreadable and non-spreadable acres. The field nutrient balance includes:
   i. Recommended nutrient amounts based on the planned crop rotation
   ii. Manure and commercial nutrients applied
   iii. Soil balance after recommended rates are applied and crop removal

b. The projected Phosphorous levels for each field in each crop management unit and the number of years until the soil text Phosphorous would exceed 300 lbs per acre.
   a. **Phosphorous Drawdown Strategy:** It is recommended by the Illinois Agronomy handbook that soil tests be between 40-50 lbs P per acre and that there is no agronomic advantage in P when soil test levels are higher than 60-70 lbs P per acre.
      i. If your fields P soil tests are in the range of 40-70 lbs per acre, only apply P to replace the expected removal by the crop, which can be applied on a multiple year application.
      ii. If your soil tests are above 300 lbs per acre, applications should only be for the crop needs for the crop year. If your soil tests are above 400 lbs per acre, no phosphorous should be applied.
      iii. It is also recommended to test your soil every 4 years to monitor the levels of Phosphorous in the soil
      iv. If your soil test P is greater than 70 lbs per acre, drawdown strategies could include:
         1. changing crop rotation that would increase phosphorous needs (such as alfalfa or fall cover crop)
         2. reduce the manure application rate to reduce the phosphorous rate being applied to the fields
         3. add application fields to the plan to reduce the phosphorous rate being applied to the fields **(CHOSEN)**
         4. If additional fields are not available, consider exporting manure. **(CHOSEN)**
         5. Operate with less than maximum number of animals

4.9 Projected Manure Inventory Annual Summary

Table 4.9 in the attached Maurer-Stutz, Inc. Nutrient Management Calculations documents the annual manure production by source and storage facility. It also provides the amount that would be applied based on the possible manure application rate for each planned crop. This table will help the producer gauge if any additional acres will be required.

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Manure Nutrient Management Plan

PROJECT: New Shoes Dairy

PROJECT NO.: 23808034.11

COMPUTATION BY: DNF DATE: 3/3/25

CHECKED BY: AKO DATE: 3/3/25

Plan Start Year: 2026

Plan End Year: 2031

PHOSPHOURUS SUPPLYING POWER: MEDIUM

CATION EXCHANGE CAPACITY: HIGH

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Note to users and those reviewing this document:
All values in the shaded areas are inputs based on specific client information. Those values not in the shaded areas were calculated based on data from Mid West Plan Service - 18, NRCS Animal Waste Management Field Hand book part 651 Chapter 11, Illinois Agronomy Handbook, and/or Title 35 Subtitle E Chapter II Part 560 Appendix A.

v 19.2 by GCB

MAURER-STUTZ

PROJECT: New Shoes Dairy
PROJECT NO. 23808034.11

TABLE 4.1 - FIELD INFORMATION

COMMON MANAGEMENT UNIT #1: Alfalfa - Corn - Soybean

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
West 18 Along Warners (F6478-T5026-1)	19.7	19.4	0.3
Back 22 (F6478-T5026-2)	22.1	21.2	0.9
Patch 9 (F6478-T5026-3)	8.9	8.9	0
Along WW (F6478-T5026-1)	5.2	4.4	0.8
5 Hills (F3529-T5036-8)	12.9	6.9	6
From 5 Hills (F3529-T5036-6)	9.1	8.3	0.8
Along N Rd. (F3529-T5036-1)	16.2	8.8	7.4
Corner 2 (F3529-T5036-2)	2.7	2.7	0
Around Barn W (F3529-T5036-2)	10.4	5.7	4.7
Down Lane W 22 (F3529-T5036-9)	22.2	16.8	5.4
South Lane 8 (F3529-T5036-11)	8.5	8.5	0
Sudkamp Down Lane (F2878-T5037-1)	17.5	13.9	3.6
Behind Silage (F3529-T5036-3)	7.2	7	0.2
Bohanon N 14 (F6478-T5023-1)	14.3	12.9	1.4
Bohanon S 19 (F6478-T5023-1)	19.7	17.2	2.5
The 40 W 7 (F3529-T5001-1)	5.8	5.6	0.2
The 40 E 19 (F3529-T5001-2)	19.6	19.3	0.3
TOTAL:	*222*	*187.5*	*34.5*

COMMON MANAGEMENT UNIT #2: Corn Silage- Wheat

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Middle 22 (F6478-T5026-1)	22.6	22.6	0
Probst W (F2848-T5013-2)	54.1	52.6	1.5
TOTAL:	*76.7*	*75.2*	*1.5*

COMMON MANAGEMENT UNIT #3: Continuous Corn Silage

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Adkins 45 (F2832-T5025-1)	44.1	44.1	0
Adkins W Joshs (F2832-T5025-2)	10.1	9	1.1
Adkins Big Field (F2832-T5025-2)	101	100.9	0.1
TOTAL:	*155.2*	*154*	*1.2*

COMMON MANAGEMENT UNIT #4: Continuous Rye/Corn Silage

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Split 12 ac (F3529-T5036-7)	12.1	7.7	4.4
South of Udder Place (F3529-T5036-5)	19.2	10.2	9
North Lane 20 (F3529-T5036-5)	19.9	19.9	0
South Lane (F3529-T5036-11)	25	25	0
South House (F3529-T5036-4)	7.9	7.9	0
Joes Fence (F3529-T5036-11)	11.2	11.2	0
TOTAL:	*95.3*	*81.9*	*13.4*

COMMON MANAGEMENT UNIT #5: Corn Silage (2) Wheat DC SB

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Probst NW 31 (F2848-T5013-1)	32.2	30.5	1.7
Probst NE 45 (F2848-T5013-1)	46.5	44.9	1.6
TOTAL:	*78.7*	*75.4*	*3.3*

COMMON MANAGEMENT UNIT #6: Corn Grain - Soybean - Wheat

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Birchtold E 35 (F3621-T5059-1)	36.6	34.3	2.3
Birchtold W 12 (F3621-T5059-1)	11.9	11.5	0.4
TOTAL:	*48.5*	*45.8*	*2.7*

COMMON MANAGEMENT UNIT #7: Continous Corn

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Stewardson (F4832-T5975-2)	76.4	76.4	0
TOTAL:	*76.4*	*76.4*	*0*

COMMON MANAGEMENT UNIT #8: Corn Grain (2) Soybeans

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Gratz (F6498-T4792-3)	27	25.1	1.9
Harmons (F6449-T7590-5)	34.8	34.8	0
Josh E (F9240-T8005-1)	38.3	38.3	0
Josh W (F9241-T8004-1)	38.4	38.4	0
Deans (F2921-T4474-2)	58.2	57.9	0.3
TOTAL:	*196.7*	*194.5*	*2.2*

COMMON MANAGEMENT UNIT #9: Alfalfa - Corn - Soybean (2)

FIELD NAME	TOTAL ACRES	SPREAD ACRES	SETBACK ACRES
Probst E 31 (F2848-T5013-3)	30.1	27.2	2.9
Probst 12 (F2848-T5013-4)	11.1	3.3	7.8
Sudkamp Along WW (F2878-T5037-2)	4	4	0
Sudkamp Middle 14 (F2878-T5037-2)	14	14	0
Sudkamp E Fence (F2878-T5037-2)	17.3	17.3	0
Sudkamp E Lane (F2878-T5037-2)	13	13	0
Don's House (F2878-T5037-2)	7.6	6.4	1.2
TOTAL:	*97.1*	*85.2*	*11.9*
TOTAL:	*1046.6*	*975.9*	*70.7*

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TABLE 4.3 MEDIAN SOIL TESTS

PROJECT: New Shoes Dairy

	2020 SOIL TEST					2022 SOIL TEST					2024 SOIL TEST					SOIL TEST				
	% OM	P*	K	PH	BM/AM	% OM	P*	K	PH	BM/AM	% OM	P*	K	PH	BM/AM	% OM	P*	K	PH	BM/AM
FIELD NAME	%	LB/AC	LB/AC			%	LB/AC	LB/AC			%	LB/AC	LB/AC			%	LB/AC	LB/AC		
West 18 Along Warners (F6478-T5026-1)											2.6	168	144	7.1						
Back 22 (F6478-T5026-2)											2.6	134	217	7.1						
Patch 9 (F6478-T5026-3)											2.5	134	176	7.2						
Middle 22 (F6478-T5026-1)											2.3	96	282	7.6						
Along WW (F6478-T5026-1)											2.5	162	268	6.9						
5 Hills (F3529-T5036-8)											2.4	146	314	7.7						
From 5 Hills (F3529-T5036-6)											2.4	65	178	7.2						
Split 12 ac (F3529-T5036-7)											2.3	121	423	7.6						
Along N Rd. (F3529-T5036-1)											2.4	138	233	7.2						
Corner 2 (F3529-T5036-2)											2.5	176	289	7.7						
Around Barn W (F3529-T5036-2)											2.5	172	400	7.3						
South of Udder Place (F3529-T5036-5)											2.4	79	271	7.7						
Down Lane W 22 (F3529-T5036-9)											2.5	137	249	7.2						
North Lane 20 (F3529-T5036-5)											2.4	216	711	7.9						
South Lane 8 (F3529-T5036-11)											2.5	211	253	7.1						
Sudkamp Down Lane (F2878-T5037-1)											2.5	185	249	7.2						
South Lane (F3529-T5036-11)																				
South House (F3529-T5036-4)											2.3	252	428	7.3						
Behind Silage (F3529-T5036-3)																				
Bohanon N 14 (F6478-T5023-1)											2.5	111	163	7.1						
Bohanon S 19 (F6478-T5023-1)											2.5	126	172	7.2						
Adkins 45 (F2832-T5025-1)											2.3	186	495	7.7						
Adkins W Joshs (F2832-T5025-2)											2.6	275	437	7.7						
Adkins Big Field (F2832-T5025-2)											2.3	171	387	7.5						
The 40 W 7 (F3529-T5001-1)											2.5	183	221	7.1						
The 40 E 19 (F3529-T5001-2)											2.4	102	172	7.0						
Probst NW 31 (F2848-T5013-1)											2.5	87	263	7.3						
Probst NE 45 (F2848-T5013-1)											2.5	106	308	7.3						
Probst E 31 (F2848-T5013-3)											2.5	113	190	6.7						
Probst 12 (F2848-T5013-4)											2.6	76	154	6.3						
Probst W (F2848-T5013-2)											2.7	117	337	6.9						
Birchtold E 35 (F3621-T5059-1)						2.4	126	423	7.3											
Birchtold W 12 (F3621-T5059-1)											2.0	101	259	7.3						
Stewardson (F4832-T5975-2)	2.30	70	234	6.9																
Gratz (F6498-T4792-3)											2.4	56	351	7.2						
Harmons (F6449-T7590-5)											2.3	50	201	6.9						
Josh E (F9240-T8005-1)											2.2	70	302	7.4						
Josh W (F9241-T8004-1)											2.3	52	213	7.3						
Sudkamp Along WW (F2878-T5037-2)																				
Sudkamp Middle 14 (F2878-T5037-2)											2.6	190	401	7.4						
Sudkamp E Fence (F2878-T5037-2)											2.3	113	330	7.4						
Sudkamp E Lane (F2878-T5037-2)											2.4	195	574	7.5						
Don's House (F2878-T5037-2)											2.6	134	350	7.2						
Joes Fence (F3529-T5036-11)																				
Deans (F2921-T4474-2)						2.3	62	306	6.7											

** soil phosphorous test results above are the result of Bray P1 test*

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COMPUTATION BY: DNF DATE: 3/3/25
CHECKED BY: DATE:

Table 4.4 Manure Sources
Available Nutrients Calculations

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

LAND APPLICATION REQUIREMENT CALCULATION

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	K2O lb/unit	PAN lb/unit	N ORG CREDIT lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	13.5	7.7	1.8
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16	5.6	13.1	11.1	1.8
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	5.9	0.6	0.4

2026

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	K2O lb/unit	PAN lb/unit	N ORG CREDIT lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	13.5	7.7	1.8
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16	5.6	13.1	11.1	1.8
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	5.9	0.6	0.4

2027

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	K2O lb/unit	PAN lb/unit	N ORG CREDIT lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	13.5	7.7	1.8
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16	5.6	13.1	11.1	1.8
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	5.9	0.6	0.4

2028

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	K2O lb/unit	PAN lb/unit	N ORG CREDIT lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	13.5	7.7	1.8
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16	5.6	13.1	11.1	1.8
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	5.9	0.6	0.4

2029

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	K2O lb/unit	PAN lb/unit	N ORG CREDIT lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	13.5	7.7	1.8
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16	5.6	13.1	11.1	1.8
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	5.9	0.6	0.4

2030

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	K2O lb/unit	PAN lb/unit	N ORG CREDIT lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	13.5	7.7	1.8
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16	5.6	13.1	11.1	1.8
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	5.9	0.6	0.4

2031

MANURE SOURCE	ANIMAL TYPE	TYPE OF MANURE	STATE	APPLICATION METHOD	Units 1000 GAL / TON	AMOUNT 1,000 GAL / TON	NH3 lb/unit	ORG. N lb/unit	TKN lb/unit	P2O5 lb/unit	K2O lb/unit	PAN lb/unit	N ORG CREDIT lb/unit
Solids	DAIRY	SOLID W/ BED	SOLID	BROADCAST W/ INCORP	TON	3750	5.9	8.4	14.3	5.9	13.5	7.7	1.8
E5	DAIRY	ANAEROBIC	LIQUID	INJECTED	1000 GAL	8400	9.2	6.8	16	5.6	13.1	11.1	1.8
E8 E6	DAIRY	ANAEROBIC	LIQUID	IRRIGATION	1000 GAL	8350	0.1	1.7	1.8	0.1	5.9	0.6	0.4

TABLE 4.6A - CALCULATING MANURE APPLICATION RATES

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

EQUATIONS TO USE WHEN CALCULATING MANURE APPLICATION RATES

Manure sources should be sampled yearly and the application rates should be calculated before each application season.

Manure application rates and the amount of manure applied records should be kept (see record keeping forms in Section 5)

TERMS: **TOTAL PAN:** Plant Available Nitrogen comprises of organic and ammonium nitrogen.
Organic Nitrogen: Slow releasing N which must be release before plants can use it. It is released over three cropping years after initial application through mineralization. This plan takes into account application every other year.
Ammonium Nitrogen: Equivalent to commercial fertilizer and can be used by plants in the appliation year. Subject to volitization based on method of application.
Total P2O5: Phophorous available to the plant after mineralization based on the type of manure applied.
Total K2O: Potassium available to the plant afeter mineralization based on the type of manure applied.

Step 1: Estimate the Available Nutrients (N,P,K) from the manure source (liquid and solid):

EQN 1: Ammonium N = Manure NH3 x (1 - VOL %) = LBS NH3/UNIT
EQN 2: Organic N = Manure ORGN x MIN % = LBS NORG/UNIT
EQN 3: Organic N Credit = (NORG/UNIT x 1st Year Factor) + (NORG/UNIT x 2nd Year Factor) + (NORG/UNIT x 3rd Year Factor) = LBS NORG CREDIT/UNIT
EQN 4: Total PAN = EQN 1 + EQN 2 + EQN 3= LBS PAN/UNIT

EQN 5: Total P2O5 = Manure P2O5 x MIN % = LBS P2O5/UNIT
EQN 6: Total K2O = Manure K2O x MIN % = LBS K2O/UNIT

VOLITALIZATION (VOL %)		
APPLICATION TYPE	MANURE TYPE	AMMONIA LOSS
BROADCAST W/O INCORP	SOLID	30%
BROADCAST W/O INCORP	LIQUID	25%
BROADCAST W/ INCORP	SOLID	5%
BROADCAST W/ INCORP	LIQUID	5%
INJECTED	LIQUID	2%
IRRIGATION	LIQUID	40%

ORGANIC NITROGEN RELEASE	
CREDIT	FACTOR
1st Year after Application	50%
2nd Year after Application	25%
3rd Year After Application	12.5%

MINERALIZATION (MIN %)				
ANIMAL TYPE	MANURE TYPE	ORGANIC NITROGEN	P2O5	K2O
BEEF, DAIRY	SOLID W/O BED	35%	90%	93%
BEEF, DAIRY	SOLID W/ BED	25%	90%	93%
BEEF, DAIRY	ANAEROBIC	30%	90%	93%
BEEF, DAIRY	AEROBIC	25%	90%	93%
SWINE	FRESH	50%	90%	93%
SWINE	ANAEROBIC	35%	90%	93%
SWINE	AEROBIC	30%	90%	93%
POULTRY	DEEP PIT	60%	90%	93%
POULTRY	SOLID W/O BED	60%	90%	93%
POULTRY	SOLID W/ BED	60%	90%	93%

Step 2: Determine Required Nutrients for Planned Crop *(see section 6.5 for planned crops)*

Step 3: Estimate Manure Application Rate:

Nitrogen Based: $\frac{\text{Crop lb N/ac}}{\text{Available lb PAN/UNIT}}$ = Application Rate (UNIT/ac)

Phosphorous Based: $\frac{\text{Crop lb P2O5/ac}}{\text{Available lb P2O5/UNIT}}$ = Application Rate (UNIT/ac)

Potassium Based: $\frac{\text{Crop lb K2O/ac}}{\text{Available lb K2O/UNIT}}$ = Application Rate (UNIT/ac)

See Section 6.4 for Nutrient Analysis and Manure and Application Type
Use reference tables on this page for Mineralization and Volitalization Rates. Values were taken from MWPS and NRCS AWMFH.

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TABLE 4.6B - MANURE SOURCE APPLICATION CALCULATIONS

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

Step 2: Determine Required Nutrients for Planned Crop *(see section 6.5 for planned crops for the crop management units)*
The following crops are planned for one year. This planned crop is used for all of the source manure application rate calculations in this section.

PLANNED CROP	Crop Year	N	P2O5	K2O
Corn Silage	1st year	223	81	210
Rye Silage	1st year	90	16	91.68

CAFO APPLICATION REQUIREMENTS (35 IAC 602.620 (j,k))

LESS THAN 60 INCHES OF UNCONSOLIDATED MATERIAL OVER BEDROCK	NO
MIN SOIL DEPTH TO SHWT IS LESS THAN OR EQUAL TO 2 FEET	NO

REDUCES THE NITROGEN APPLICATION RATE BY 50%

MANURE SOURCE 1

Step 1: Estimate the Available Nutrients (N,P,K) from the manure source (liquid and solid):

SOURCE	Solids
NUTRIENTS	lb/TON
TOTAL N	14.3
AMMONIUM N	5.9
ORGANIC N	8.4
P2O5	5.9
K2O	13.5

Ammonium N = 5.9 x 0.95 = 5.6 lbs/TON
Organic N = 8.4 x 0.25 = 2.1 lbs/TON
ORG N CREDIT = 8.4 x 0.25 x 50% + 8.4 x 0.25 x 25% + 8.4 x 0.25 x 12.5% = 1.8 lbs/TON
Total PAN = 5.6 + 2.1 + 1.8 = 9.5 lbs/TON

Total P2O5 = 5.9 x 0.9 = 5.3 lbs/TON
Total K2O = 13.5 x 0.93 = 12.6 lbs/TON

Step 3: Estimate Manure Application Rate:

N: $\frac{\text{313 lb N/ac}}{\text{9.5 lb PAN/TON}}$ = 32.9 TON/ac

P2O5: $\frac{\text{97 lb P2O5/ac}}{\text{5.3 lb P2O5/TON}}$ = 18.3 TON/ac

K2O: $\frac{\text{302 lb K2O/ac}}{\text{12.6 lb K2O/TON}}$ = 23.9 TON/ac

Application Timing: EVERY YEAR

SELECT THE MINIMUM APPLICATION RATE FROM THE CALCULATED RATES:

15.3 TON/ac - Phophorous (P2O5) Based

Timing of Application Notes:	*Manure should be applied during optimum soil conditions. The manure will be applied with drag hose and injected or incorporated with in 24 hours. This will comply with all applicable incorporation setbacks and will prevent runoff and odor.*

MANURE SOURCE 2

Step 1: Estimate the Available Nutrients (N,P,K) from the manure source (liquid and solid):

SOURCE	E5
NUTRIENTS	lb/1000 GAL
TOTAL N	16
AMMONIUM N	9.2
ORGANIC N	6.8
P2O5	5.6
K2O	13.1

Ammonium N = 9.2 x 0.98 = 9 lbs/1000 GAL
Organic N = 6.8 x 0.3 = 2 lbs/1000 GAL
ORG N CREDIT = 6.8 x 0.3 x 50% + 6.8 x 0.3 x 25% + 6.8 x 0.3 x 12.5% = 1.8 lbs/1000 GAL
Total PAN = 9 + 2 + 1.8 = 12.8 lbs/1000 GAL

Total P2O5 = 5.6 x 0.9 = 5 lbs/1000 GAL
Total K2O = 13.1 x 0.93 = 12.2 lbs/1000 GAL

Step 3: Estimate Manure Application Rate:

N: $\frac{\text{313 lb N/ac}}{\text{12.8 lb PAN/TON}}$ = 24.5 1000 GAL/ac

P2O5: $\frac{\text{97 lb P2O5/ac}}{\text{5 lb P2O5/TON}}$ = 19.4 1000 GAL/ac

K2O: $\frac{\text{302 lb K2O/ac}}{\text{12.2 lb K2O/TON}}$ = 24.7 1000 GAL/ac

Application Timing: EVERY YEAR

SELECT THE MINIMUM APPLICATION RATE FROM THE CALCULATED RATES:

16.2 1000 GAL/ac - Phophorous (P2O5) Based

Timing of Application Notes:	*Manure should be applied during optimum soil conditions. The manure will be applied with drag hose and injected or incorporated with in 24 hours. This will comply with all applicable incorporation setbacks and will prevent runoff and odor.*

MANURE SOURCE 3

Step 1: Estimate the Available Nutrients (N,P,K) from the manure source (liquid and solid):

SOURCE	E8 E6
NUTRIENTS	lb/1000 GAL
TOTAL N	1.8
AMMONIUM N	0.1
ORGANIC N	1.7
P2O5	0.1
K2O	5.9

Ammonium N = 0.1 x 0.6 = 0.1 lbs/1000 GAL
Organic N = 1.7 x 0.3 = 0.5 lbs/1000 GAL
ORG N CREDIT = 1.7 x 0.3 x 50% + 1.7 x 0.3 x 25% + 1.7 x 0.3 x 12.5% = 0.4 lbs/1000 GAL
Total PAN = 0.1 + 0.5 + 0.4 = 1 lbs/1000 GAL

Total P2O5 = 0.1 x 0.9 = 0.1 lbs/1000 GAL
Total K2O = 5.9 x 0.93 = 5.5 lbs/1000 GAL

Step 3: Estimate Manure Application Rate:

N: $\frac{\text{313 lb N/ac}}{\text{1 lb PAN/TON}}$ = 313 1000 GAL/ac

P2O5: $\frac{\text{97 lb P2O5/ac}}{\text{0.1 lb P2O5/TON}}$ = 970 1000 GAL/ac

K2O: $\frac{\text{302 lb K2O/ac}}{\text{5.5 lb K2O/TON}}$ = 54.9 1000 GAL/ac

Application Timing: EVERY YEAR

SELECT THE MINIMUM APPLICATION RATE FROM THE CALCULATED RATES:

313 1000 GAL/ac - Nitrogen (N) Based

Timing of Application Notes:	*Manure should be applied during optimum soil conditions. The manure will be applied with drag hose and injected or incorporated with in 24 hours. This will comply with all applicable incorporation setbacks and will prevent runoff and odor.*

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TABLE 4.5 - PLANNED CROPS AND FERTILIZER RECOMMENDATIONS

PROJECT: New Shoes Dairy
PROJECT NO 23808034.11

COMMON MANAGEMENT UNIT #1: Alfalfa - Corn - Soybean

PLANNED CROPS	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROP (lbs/acre)	TOTAL K REQUIRED BY CROP (lbs/acre)
Alfalfa Hay	10 Ton/AC	223	120	500	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Alfalfa Hay	10 Ton/AC	223	120	500	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Alfalfa Hay	10 Ton/AC	223	120	500	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Alfalfa Hay	10 Ton/AC	223	120	500	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Alfalfa Hay	10 Ton/AC	223	120	500	Alfalfa Hay	10 Ton/AC	223	120	500
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84					

COMMON MANAGEMENT UNIT #2: Corn Silage- Wheat

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROP (lbs/acre)	TOTAL K REQUIRED BY CROP (lbs/acre)
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Wheat Grain-Straw / DC Soybeans	78 bu/ac / 40 bu/ac	343	116	140.92	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Wheat Grain-Straw / DC Soybeans	78 bu/ac / 40 bu/ac	343	116	140.92	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Alfalfa Hay	10 Ton/AC	223	120	500
Wheat Grain-Straw / DC Soybeans	78 bu/ac / 40 bu/ac	343	116	140.92					

COMMON MANAGEMENT UNIT #3: Continuous Corn Silage

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROP (lbs/acre)	TOTAL K REQUIRED BY CROP (lbs/acre)
Corn Silage	30 Ton/AC	223	81	210	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Corn Silage	30 Ton/AC	223	81	210	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Corn Silage	30 Ton/AC	223	81	210	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Corn Silage	30 Ton/AC	223	81	210	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Corn Silage	30 Ton/AC	223	81	210	Alfalfa Hay	10 Ton/AC	223	120	500
Corn Silage	30 Ton/AC	223	81	210					

COMMON MANAGEMENT UNIT #4: Continuous Rye/Corn Silage

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROP (lbs/acre)	TOTAL K REQUIRED BY CROP (lbs/acre)
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68	Alfalfa Hay	10 Ton/AC	223	120	500
Rye Silage / Corn Silage	4 Ton/AC / 30 Ton/AC	313	97	301.68					

COMMON MANAGEMENT UNIT #5: Corn Silage (2) Wheat DC SB

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	CROP N (lbs/acre)	TOTAL P RECOMMEND (lbs/acre)	TOTAL K RECOMMEND (lbs/acre)
Corn Silage	30 Ton/AC	223	81	210	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Corn Silage	30 Ton/AC	223	81	210	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Wheat Grain-Straw / DC Soybeans	78 bu/ac / 40 bu/ac	343	116	140.92	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Corn Silage	30 Ton/AC	223	81	210	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Corn Silage	30 Ton/AC	223	81	210	Alfalfa Hay	10 Ton/AC	223	120	500
Wheat Grain-Straw / DC Soybeans	78 bu/ac / 40 bu/ac	343	116	140.92					

COMMON MANAGEMENT UNIT #6: Corn Grain - Soybean - Wheat

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	TOTAL N REQUIRED BY CROPS (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	TOTAL N RECOMMEND (lbs/acre)	TOTAL P RECOMMEND (lbs/acre)	TOTAL K RECOMMEND (lbs/acre)
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Soybeans	63 bu/ac	223	54	81.9	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Wheat Grain-Straw / DC Soybeans	78 bu/ac / 40 bu/ac	343	116	140.92	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Soybeans	63 bu/ac	223	54	81.9	Alfalfa Hay	10 Ton/AC	223	120	500
Wheat Grain-Straw / DC Soybeans	78 bu/ac / 40 bu/ac	343	116	140.92					

COMMON MANAGEMENT UNIT #7: Continous Corn

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	TOTAL N REQUIRED BY CROPS (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	TOTAL N RECOMMEND (lbs/acre)	TOTAL P RECOMMEND (lbs/acre)	TOTAL K RECOMMEND (lbs/acre)
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Alfalfa Hay	10 Ton/AC	223	120	500
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84					

COMMON MANAGEMENT UNIT #8: Corn Grain (2) Soybeans

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	TOTAL N REQUIRED BY CROPS (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	TOTAL N RECOMMEND (lbs/acre)	TOTAL P RECOMMEND (lbs/acre)	TOTAL K RECOMMEND (lbs/acre)
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Soybeans	63 bu/ac	223	54	81.9	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84	Alfalfa Hay	10 Ton/AC	223	120	500
Soybeans	63 bu/ac	223	54	81.9					

COMMON MANAGEMENT UNIT #9: Alfalfa - Corn - Soybean (2)

PLANNED CROPS OR OTHER USE	REALISTIC ANNUAL YIELD GOAL	TOTAL N REQUIRED BY CROPS (lbs/acre)	TOTAL P REQUIRED BY CROPS (lbs/acre)	TOTAL K REQUIRED BY CROPS (lbs/acre)	ALTERNATIVE CROP	REALISTIC ANNUAL YIELD GOAL	TOTAL N RECOMMEND (lbs/acre)	TOTAL P RECOMMEND (lbs/acre)	TOTAL K RECOMMEND (lbs/acre)
Alfalfa Hay	10 Ton/AC	223	120	500	Corn Grain	253 bu/ac	223	109	70.84
					Corn Silage	30 Ton/AC	223	81	210
Alfalfa Hay	10 Ton/AC	223	120	500	Corn Stover	1.5 Ton/AC	0	11	45
					Corn G Bale	253 bu/ac	223	119	116.38
Alfalfa Hay	10 Ton/AC	223	120	500	Soybeans	63 bu/ac	223	54	81.9
					DC Soybeans	40 bu/ac	223	34	52
Alfalfa Hay	10 Ton/AC	223	120	500	Wheat Grain-Straw	78 bu/ac	120	82	88.92
					Rye Silage	4 Ton/AC	90	16	91.68
Alfalfa Hay	10 Ton/AC	223	120	500	Alfalfa Hay	10 Ton/AC	223	120	500
Corn Grain / Corn Stover	253 bu/ac / 1.5 Ton/AC	223	119	115.84					

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TABLE 4.7A PROJECTED MANURE NUTRIENT APPLICATIONS

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

CROP YEAR 2026

FIELD NAME	SPREADABLE ACRES	CROP	MANURE APPLICATIONS			COMMERCIAL APPLICATIONS	
			FALL	SPRING	SUMMER	SPREADABLE	SETBACK
West 18 Along Warners (F6478-T5026-1)	19.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Back 22 (F6478-T5026-2)	21.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Patch 9 (F6478-T5026-3)	8.9	Alfalfa Hay				500 LBS K/ACRE	
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage	19.4 1000 GAL - ES on 22.6 AC			92 LBS N/ACRE 65 LBS K/ACRE	
Along WW (F6478-T5026-1)	4.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
5 Hills (F3529-T5036-8)	6.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
From 5 Hills (F3529-T5036-6)	8.3	Alfalfa Hay				120 LBS P/ACRE 500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale	19.4 1000 GAL - ES on 7.7 AC			90 LBS N/ACRE 65 LBS K/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Along N Rd. (F3529-T5036-1)	8.8	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Corner 2 (F3529-T5036-2)	2.7	Alfalfa Hay				500 LBS K/ACRE	
Around Barn W (F3529-T5036-2)	5.7	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale	19.4 1000 GAL - ES on 10.2 AC			90 LBS N/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Down Lane W 22 (F3529-T5036-9)	16.8	Corn Grain	18.1 1000 GAL - ES on 16.8 AC				205 LBS N/ACRE 109 LBS P/ACRE 71 LBS K/ACRE
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale	19.4 1000 GAL - ES on 19.9 AC			92 LBS N/ACRE	
South Lane 8 (F3529-T5036-11)	8.5	Corn Grain / Corn Stover	18.1 1000 GAL - ES on 8.5 AC				
Sudkamp Down Lane (F2878-T5037-1)	13.9	Corn Grain / Corn Stover	18.1 1000 GAL - ES on 13.9 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
South Lane (F3529-T5036-11)	25	Rye Silage / Corn Silage	19.4 1000 GAL - ES on 25 AC			92 LBS N/ACRE	
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage	19.4 1000 GAL - ES on 7.9 AC			92 LBS N/ACRE 65 LBS K/ACRE	
Behind Silage (F3529-T5036-3)	7	Rye Silage / Soybeans	7 1000 GAL - ES on 7 AC				69 LBS P/ACRE 173 LBS K/ACRE
Bohanon N 14 (F6478-T5023-1)	12.9	Rye Silage / Soybeans	7 1000 GAL - ES on 12.9 AC			88 LBS K/ACRE	69 LBS P/ACRE 173 LBS K/ACRE
Bohanon S 19 (F6478-T5023-1)	17.2	Rye Silage / Soybeans	7 1000 GAL - ES on 17.2 AC			88 LBS K/ACRE	69 LBS P/ACRE 173 LBS K/ACRE
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage	16.2 1000 GAL - ES on 44.1 AC				
Adkins W [illegible] (F2832-T5025-[illegible])	9	Corn Silage	16.2 1000 GAL - ES on 9 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Adkins Big Field (F2832-T5025-2)	302.7	Corn Silage		41.8 1000 GAL - E8 E6 on 100.9 AC 15 1000 GAL - ES on 100.9 AC	41 1000 GAL - E8 E6 on 100.9 AC		223 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
The 40 W 7 (F3529-T5001-1)	5.6	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
The 40 E 19 (F3529-T5001-2)	19.3	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage	16.2 1000 GAL - ES on 30.5 AC			35 LBS N/ACRE	216 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage	16.2 1000 GAL - ES on 44.9 AC			35 LBS N/ACRE	216 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Probst E 31 (F2848-T5013-3)	37.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst 12 (F2848-T5013-4)	3.3	Alfalfa Hay				120 LBS P/ACRE 500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst W (F2848-T5013-2)	52.6	Wheat Grain-Straw / DC Soybeans	9.8 1000 GAL - ES on 52.6 AC				106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Birchold E 35 (F3621-T5059-1)	34.3	Wheat Grain-Straw / DC Soybeans			14 TON - Solids on 34.3 AC		106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Birchold W 12 (F3621-T5059-1)	11.5	Wheat Grain-Straw / DC Soybeans			15 TON - Solids on 11.5 AC		106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover		22.5 TON - Solids on 76.4 AC		42 LBS N/ACRE	

PROJECTED MANURE NUTRIENT APPLICATIONS

Gratz (F6498-14792-3)	25.1	Soybeans						53 LBS P/ACRE 82 LBS K/ACRE
Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover	22.5 TON - Solids on 23 AC				127 LBS N/ACRE	
Josh E (F9240-T8005-1)	38.3	Corn Grain / Corn Stover	22.5 TON - Solids on 38.3 AC					
Josh W (F9241-T8004-1)	38.4	Soybeans						
Sudkamp Along WW (F2878-T5037-2)	4	Alfalfa Hay						
Sudkamp Middle 14 (F2878-T5037-2)	14	Alfalfa Hay					500 LBS K/ACRE	
Sudkamp E Fence (F2878-T5037-2)	17.3	Alfalfa Hay					500 LBS K/ACRE	
Sudkamp E Lane (F2878-T5037-2)	13	Alfalfa Hay					500 LBS K/ACRE	
Don's House (F2878-T5037-2)	6.4	Alfalfa Hay					500 LBS K/ACRE	170 LBS P/ACRE 500 LBS K/ACRE
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage	18.1 1000 GAL - E5 on 11.2 AC				106 LBS N/ACRE	
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover	18 1000 GAL - E5 on 57.9 AC					205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
		TOTAL ACRES	481.1	278.2	146.7			

PROJECTED MANURE NUTRIENT APPLICATIONS

CROP YEAR 2027

FIELD NAME	SPREADABLE ACRES	CROP	MANURE APPLICATIONS: FALL	MANURE APPLICATIONS: SPRING	MANURE APPLICATIONS: SUMMER	COMMERCIAL APPLICATIONS: SPREADABLE	COMMERCIAL APPLICATIONS: SETBACK
West 18 Along Warners (F6478-T5026-1)	19.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Back 22 (F6478-T5026-2)	21.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Patch 9 (F6478-T5026-3)	8.9	Alfalfa Hay				500 LBS K/ACRE	
Middle 22 (F6478-T5026-1)	22.6	Wheat Grain-Straw / DC Soybeans	9 1000 GAL - E5 on 22.6 AC			31 LBS K/ACRE	
Along WW (F6478-T5026-1)	4.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
5 Hills (F3529-T5036-8)	6.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Front 5 Hills (F3529-T5036-6)	8.3	Alfalfa Hay				120 LBS P/ACRE 500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 7.7 AC			77 LBS N/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Along N Rd. (F3529-T5036-1)	8.8	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Corner 2 (F3529-T5036-2)	2.7	Alfalfa Hay				500 LBS K/ACRE	
Around Barn W (F3529-T5036-2)	5.7	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 10.2 AC			77 LBS N/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Down Lane W 23 (F3529-T5036-9)	16.8	Rye Silage / Soybeans	7 1000 GAL - E5 on 16.8 AC				69 LBS P/ACRE 173 LBS K/ACRE
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 19.9 AC			71 LBS N/ACRE	
South Lane 8 (F3529-T5036-11)	8.5	Rye Silage / Soybeans	7 1000 GAL - E5 on 8.5 AC				
Sudkamp Down Lane (F2878-T5037-3)	13.9	Rye Silage / Soybeans	7 1000 GAL - E5 on 13.9 AC				69 LBS P/ACRE 173 LBS K/ACRE
South Lane (F3529-T5036-11)	25	Rye Silage / Corn Silage	19.4 1000 GAL - E5 on 25 AC			71 LBS N/ACRE	
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage	19.4 1000 GAL - E5 on 7.9 AC			71 LBS N/ACRE 65 LBS K/ACRE	
Behind Silage (F3529-T5036-3)	7	Alfalfa Hay	19.2 1000 GAL - E5 on 7 AC			266 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon N 14 (F6478-T5023-1)	12.9	Alfalfa Hay	19.2 1000 GAL - E5 on 12.9 AC			266 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon S 19 (F6478-T5023-1)	17.2	Alfalfa Hay	19.2 1000 GAL - E5 on 17.2 AC			266 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage	16.2 1000 GAL - E5 on 44.1 AC				
Adkins W Joshs (F2832-T5025-3)	9	Corn Silage	16.2 1000 GAL - E5 on 9 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Adkins Big Field (F2832-T5025-2)	302.7	Corn Silage		41.8 1000 GAL - E8 E6 on 100.9 AC 8.5 1000 GAL - E5 on 100.9 AC	41 1000 GAL - E8 E6 on 100.9 AC	43 LBS N/ACRE	205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
The 40 W 7 (F3529-T5001-1)	5.6	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
The 40 E 19 (F3529-T5001-2)	19.3	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst NW 31 (F2848-T5013-1)	30.5	Wheat Grain-Straw / DC Soybeans	9 1000 GAL - E5 on 30.5 AC				106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Probst NE 45 (F2848-T5013-1)	44.9	Wheat Grain-Straw / DC Soybeans	9 1000 GAL - E5 on 44.9 AC				106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Probst E 31 (F2848-T5013-3)	27.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst 12 (F2848-T5013-4)	3.3	Alfalfa Hay				120 LBS P/ACRE 500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage	19 1000 GAL - E5 on 52.6 AC			90 LBS N/ACRE	205 LBS N/ACRE 81 LBS P/ACRE 302 LBS K/ACRE
Birchtold E 35 (F3621-T5059-1)	34.3	Corn Grain / Corn Stover	22 TON - Solids on 34.3 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Birchtold W 12 (F3621-T5059-1)	11.5	Corn Grain / Corn Stover	22 TON - Solids on 11.5 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover		22.5 TON - Solids on 76.4 AC			
Gratz (F6498-T4797-3)	25.1	Corn Grain / Corn Stover	22.5 TON - Solids on 15.5 AC			159 LBS N/ACRE	212 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE

PROJECTED MANURE NUTRIENT APPLICATIONS

Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover	18 1000 GAL - ES on 34.8 AC				
Josh E (F9240-T8005-1)	38.3	Corn Grain / Corn Stover	18 1000 GAL - ES on 38.3 AC				
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover	22.5 TON - Solids on 29.9 AC 18 1000 GAL - ES on 8.5 AC			42 LBS N/ACRE	
Sudkamp Along WW (F2878-T5037-2)	4	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp Middle 14 (F2878-T5037-2)	14	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp E Fence (F2878-T5037-2)	17.3	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp E Lane (F2878-T5037-2)	13	Alfalfa Hay				500 LBS K/ACRE	
Don's House (F2878-T5037-2)	6.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage	18.1 1000 GAL - ES on 11.2 AC			88 LBS N/ACRE	
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover	18 1000 GAL - ES on 57.9 AC				223 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
		TOTAL ACRES	592.6	278.2	100.9		

PROJECTED MANURE NUTRIENT APPLICATIONS

			CROP YEAR 2028				
			MANURE APPLICATIONS			COMMERCIAL APPLICATIONS	
FIELD NAME	SPREADABLE ACRES	CROP	FALL	SPRING	SUMMER	SPREADABLE	SETBACK
West 18 Along Warners (F6478-T5026-1)	19.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Back 22 (F6478-T5026-2)	21.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Patch 9 (F6478-T5026-3)	8.9	Alfalfa Hay				500 LBS K/ACRE	0 LBS N/ACRE
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage	19.4 1000 GAL - E5 on 22.6 AC			78 LBS N/ACRE 65 LBS K/ACRE	
Along WW (F6478-T5026-1)	4.4	Alfalfa Hay				500 LBS K/ACRE	0 LBS N/ACRE 120 LBS P/ACRE 500 LBS K/ACRE
5 Hills (F3529-T5036-8)	6.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
From 5 Hills (F3529-T5036-6)	8.3	Alfalfa Hay				120 LBS P/ACRE 500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 7.7 AC			78 LBS N/ACRE 65 LBS K/ACRE	135 LBS P/ACRE 208 LBS K/ACRE
Along N Rd. (F3529-T5036-1)	8.8	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Corner 2 (F3529-T5036-2)	2.7	Alfalfa Hay				500 LBS K/ACRE	
Around Barn W (F3529-T5036-2)	5.7	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 10.2 AC			78 LBS N/ACRE 65 LBS K/ACRE	135 LBS P/ACRE 208 LBS K/ACRE
Down Lane W 22 (F3529-T5036-9)	16.8	Alfalfa Hay	19.2 1000 GAL - E5 on 16.8 AC			264 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 19.9 AC			78 LBS N/ACRE 65 LBS K/ACRE	0 LBS N/ACRE
South Lane 8 (F3529-T5036-11)	8.5	Alfalfa Hay	19.2 1000 GAL - E5 on 8.5 AC			258 LBS K/ACRE	
Sudkamp Down Lane (F2878-T5037-1)	13.9	Alfalfa Hay	19.2 1000 GAL - E5 on 13.9 AC			264 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South Lane (F3529-T5036-11)	25	Rye Silage / Corn Silage	19 1000 GAL - E5 on 25 AC			78 LBS N/ACRE 70 LBS K/ACRE	
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage	19.3 1000 GAL - E5 on 7.9 AC			78 LBS N/ACRE 67 LBS K/ACRE	0 LBS N/ACRE
Behind Silage (F3529-T5036-3)	7	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon N 14 (F6478-T5023-1)	12.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon S 19 (F6478-T5023-1)	17.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage	16.2 1000 GAL - E5 on 44.1 AC				
Adkins W Joshs (F2832-T5025-2)	9	Corn Silage	16.2 1000 GAL - E5 on 9 AC				81 LBS P/ACRE 210 LBS K/ACRE
Adkins Big Field (F2832-T5025-2)	302.7	Corn Silage		41.8 1000 GAL - E8 E6 on 100.9 AC 12 1000 GAL - E5 on 100.9 AC	41 1000 GAL - E8 E6 on 100.9 AC		81 LBS P/ACRE 210 LBS K/ACRE
The 40 W 7 (F3529-T5001-1)	5.6	Corn Grain / Corn Stover	20 1000 GAL - E5 on 5.6 AC				119 LBS P/ACRE 116 LBS K/ACRE
The 40 E 19 (F3529-T5001-2)	19.3	Corn Grain / Corn Stover	20 1000 GAL - E5 on 19.3 AC				119 LBS P/ACRE 116 LBS K/ACRE
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage	16.2 1000 GAL - E5 on 30.5 AC				81 LBS P/ACRE 210 LBS K/ACRE
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage	16.2 1000 GAL - E5 on 44.9 AC				81 LBS P/ACRE 210 LBS K/ACRE
Probst E 31 (F2848-T5013-3)	27.2	Corn Grain / Corn Stover	18.1 1000 GAL - E5 on 27.2 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Probst 12 (F2848-T5013-4)	3.3	Corn Grain / Corn Stover	18.1 1000 GAL - E5 on 3.3 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage	19 1000 GAL - E5 on 52.6 AC			82 LBS N/ACRE	205 LBS N/ACRE 97 LBS P/ACRE 302 LBS K/ACRE
Birchtold E 35 (F3621-T5059-1)	34.3	Soybeans	9.5 TON - Solids on 34.3 AC				0 LBS N/ACRE 53 LBS P/ACRE 82 LBS K/ACRE
Birchtold W 12 (F3621-T5059-1)	11.5	Soybeans	10 TON - Solids on 11.5 AC				0 LBS N/ACRE 53 LBS P/ACRE 82 LBS K/ACRE
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover		22.5 TON - Solids on 76.4 AC			0 LBS N/ACRE
Gratz (F6498-T4792-3)	25.1	Corn Grain / Corn Stover	22.5 TON - Solids on 8.5 AC			156 LBS N/ACRE	205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE

PROJECTED MANURE NUTRIENT APPLICATIONS

Harmons (F6449-T7590-5)	34.8	Soybeans	10 TON - Solids on 34.8 AC				0 LBS N/ACRE
Josh E (F9240-T8005-1)	38.3	Soybeans	10 TON - Solids on 38.3 AC				0 LBS N/ACRE
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover	22.5 TON - Solids on 29.5 AC				
Sudkamp Along WW (F2878-T5037-2)	4	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp Middle 14 (F2878-T5037-2)	14	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp E Fence (F2878-T5037-2)	17.3	Alfalfa Hay				500 LBS K/ACRE	0 LBS N/ACRE
Sudkamp E Lane (F2878-T5037-2)	33	Alfalfa Hay				500 LBS K/ACRE	
Don's House (F2878-T5037-2)	6.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 560 LBS K/ACRE
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage	18.1 1000 GAL - ES on 11.2 AC			92 LBS N/ACRE	
Deans (F2921-T4474-2)	57.9	Soybeans					53 LBS P/ACRE 82 LBS K/ACRE
		TOTAL ACRES	537.1	278.2	100.9		

PROJECTED MANURE NUTRIENT APPLICATIONS

			CROP YEAR 2029				
			MANURE APPLICATIONS			COMMERCIAL APPLICATIONS	
FIELD NAME	SPREADABLE ACRES	CROP	FALL	SPRING	SUMMER	SPREADABLE	SETBACK
West 18 Along Warners (F6478-T5026-1)	19.4	Corn Grain / Corn Stover	20 1000 GAL - E5 on 19.4 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Back 22 (F6478-T5026-2)	21.2	Corn Grain / Corn Stover	20 1000 GAL - E5 on 21.2 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Patch 9 (F6478-T5026-3)	8.9	Corn Grain / Corn Stover	20 1000 GAL - E5 on 8.9 AC				
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage	19.4 1000 GAL - E5 on 22.6 AC			64 LBS N/ACRE 65 LBS K/ACRE	
Along WW (F6478-T5026-1)	4.4	Corn Grain	20 1000 GAL - E5 on 4.4 AC				205 LBS N/ACRE 109 LBS P/ACRE 71 LBS K/ACRE
5 Hills (F3529-T5036-8)	6.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
From 5 Hills (F3529-T5036-6)	8.3	Corn Grain	20 1000 GAL - E5 on 8.3 AC				205 LBS N/ACRE 109 LBS P/ACRE 71 LBS K/ACRE
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 7.7 AC			57 LBS N/ACRE 65 LBS K/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Along N Rd (F3529-T5036-1)	8.8	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Corner 2 (F3529-T5036-2)	2.7	Alfalfa Hay				500 LBS K/ACRE	
Around Barn W (F3529-T5036-2)	5.7	Corn Grain	20 1000 GAL - E5 on 5.7 AC				205 LBS N/ACRE 109 LBS P/ACRE 71 LBS K/ACRE
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 10.2 AC			57 LBS N/ACRE 65 LBS K/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Down Lane W 22 (F3529-T5036-9)	16.8	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 19.9 AC			57 LBS N/ACRE 65 LBS K/ACRE	
South Lane 8 (F3529-T5036-11)	8.5	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp Down Lane (F2878-T5037-1)	13.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South Lane (F3529-T5036-11)	25	Rye Silage / Corn Silage	19 1000 GAL - E5 on 25 AC			60 LBS N/ACRE 70 LBS K/ACRE	
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage	19.3 1000 GAL - E5 on 7.9 AC			57 LBS N/ACRE 67 LBS K/ACRE	
Behind Silage (F3529-T5036-3)	7	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon N 14 (F6478-T5023-1)	12.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon S 19 (F6478-T5023-1)	17.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage	16.2 1000 GAL - E5 on 44.1 AC				
Adkins W Jiminis (F2832-T5025-2)	9	Corn Silage	16.2 1000 GAL - E5 on 9 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Adkins Big Field (F2832-T5025-2)	302.7	Corn Silage		GAL - E8 E6 on 100.9 AC10.5 1000 GAL - E5 or	41 1000 GAL - E8 E6 on 100.9 AC		205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
The 40 W 7 (F3529-T5001-1)	5.6	Rye Silage / Soybeans	7 1000 GAL - E5 on 5.6 AC				69 LBS P/ACRE 173 LBS K/ACRE
The 40 E 19 (F3529-T5001-2)	19.3	Rye Silage / Soybeans	7 1000 GAL - E5 on 19.3 AC				69 LBS P/ACRE 173 LBS K/ACRE
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage	16.2 1000 GAL - E5 on 30.5 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage	16.2 1000 GAL - E5 on 44.9 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Probst E 31 (F2848-T5013-3)	27.2	Rye Silage / Soybeans	7 1000 GAL - E5 on 27.2 AC				69 LBS P/ACRE 173 LBS K/ACRE
Probst 12 (F2848-T5013-4)	3.3	Rye Silage / Soybeans					69 LBS P/ACRE 173 LBS K/ACRE
Probst W (F2848-T5013-2)	52.6	Wheat Grain-Straw / DC Soybeans	7 1000 GAL - E5 on 52.6 AC				106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Birchtold E 35 (F3621-T5059-1)	34.3	Wheat Grain-Straw / DC Soybeans			14 TON - Solids on 34.3 AC	106 LBS N/ACRE	106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Birchtold W 12 (F3621-T5059-1)	11.5	Wheat Grain-Straw / DC Soybeans			14 TON - Solids on 11.5 AC	106 LBS N/ACRE	106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover		22.5 TON - Solids on 76.4 AC			
Gratz (F6498-T4791-3)	25.1	Soybeans					53 LBS P/ACRE 82 LBS K/ACRE

PROJECTED MANURE NUTRIENT APPLICATIONS

Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover	22.5 TON - Solids on 34.8 AC				
Josh E (F9240-T8005-1)	38 3	Corn Grain / Corn Stover	22.5 TON - Solids on 27 AC			98 LBS N/ACRE	
Josh W (F9241-T8004-1)	38.4	Soybeans					
Sudkamp Along WW (F2878-T5037-2)	4	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp Middle 14 (F2878-T5037-2)	14	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp E Fence (F2878-T5037-2)	17.3	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp E Lane (F2878-T5037-2)	13	Alfalfa Hay				500 LBS K/ACRE	
Don's House (F2878-T5037-2)	6.4	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage	18.1 1000 GAL - ES on 11.2 AC			74 LBS N/ACRE	
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover	18 1000 GAL - ES on 57 9 AC				223 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
		TOTAL ACRES	525.3	278.2	146.7		

PROJECTED MANURE NUTRIENT APPLICATIONS

CROP YEAR 2030

FIELD NAME	SPREADABLE ACRES	CROP	MANURE APPLICATIONS: FALL	MANURE APPLICATIONS: SPRING	MANURE APPLICATIONS: SUMMER	COMMERCIAL APPLICATIONS: SPREADABLE	COMMERCIAL APPLICATIONS: SETBACK
West 18 Along Warners (F6478-T5026-1)	19.4	Rye Silage / Soybeans	7 1000 GAL - E5 on 19.4 AC				69 LBS P/ACRE 173 LBS K/ACRE
Back 22 (F6478-T5026-2)	21.2	Rye Silage / Soybeans	7 1000 GAL - E5 on 21.2 AC				69 LBS P/ACRE 173 LBS K/ACRE
Patch II (F6478-T5026-3)	8.9	Rye Silage / Soybeans	7 1000 GAL - E5 on 8.9 AC				
Middle 22 (F6478-T5026-1)	22.6	Wheat Grain-Straw / DC Soybeans	8 1000 GAL - E5 on 22.6 AC			43 LBS K/ACRE	
Along WW (F6478-T5026-1)	4.4	Rye Silage / Soybeans	7 1000 GAL - E5 on 4.4 AC				69 LBS P/ACRE 173 LBS K/ACRE
S Hills (F3529-T5036-8)	6.9	Corn Grain	20 1000 GAL - E5 on 6.9 AC				205 LBS N/ACRE 119 LBS P/ACRE 71 LBS K/ACRE
From S Hills (F3529-T5036-6)	8.3	Rye Silage / Soybeans	7 1000 GAL - E5 on 8.3 AC				69 LBS P/ACRE 173 LBS K/ACRE
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 7.7 AC			62 LBS N/ACRE 65 LBS K/ACRE	205 LBS N/ACRE 134 LBS P/ACRE 208 LBS K/ACRE
Along N Rd (F3529-T5036-1)	8.8	Corn Grain / Corn Stover	20 1000 GAL - E5 on 8.8 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Corner 2 (F3529-T5036-2)	2.7	Corn Grain / Corn Stover	20 1000 GAL - E5 on 2.7 AC				
Around Barn W (F3529-T5036-3)	5.7	Rye Silage / Soybeans	7 1000 GAL - E5 on 5.7 AC				69 LBS P/ACRE 173 LBS K/ACRE
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 10.2 AC			62 LBS N/ACRE 65 LBS K/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Down Lane W 22 (F3529-T5036-9)	16.8	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 19.9 AC			57 LBS N/ACRE 65 LBS K/ACRE	
South Lane 8 (F3529-T5036-11)	8.5	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp Down Lane (F2878-T5037-1)	13.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South Lane (F3529-T5036-11)	25	Rye Silage / Corn Silage	19.3 1000 GAL - E5 on 25 AC			60 LBS N/ACRE 67 LBS K/ACRE	
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage	19.3 1000 GAL - E5 on 7.9 AC			57 LBS N/ACRE 67 LBS K/ACRE	
Behind Silage (F3529-T5036-3)	7	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon N 14 (F6478-T5023-1)	12.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon S 19 (F6478-T5023-1)	17.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage	16 1000 GAL - E5 on 44.1 AC				
Adkins W [illegible] (F2832-T5025-2)	9	Corn Silage	16 1000 GAL - E5 on 9 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Adkins Big Field (F2832-T5025-2)	302.7	Corn Silage		41.8 1000 GAL - E8 E6 on 100.9 AC 4.2 1000 GAL - E5 on 100.9 AC	41 1000 GAL - E8 E6 on 100.9 AC	72 LBS N/ACRE	205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
The 40 W 7 (F3529-T5001-1)	5.6	Alfalfa Hay	18.5 1000 GAL - E5 on 5.6 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
The 40 E 19 (F3529-T5001-2)	19.3	Alfalfa Hay	18.5 1000 GAL - E5 on 19.3 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst NW 31 (F2848-T5013-1)	30.5	Wheat Grain-Straw / DC Soybeans	8 1000 GAL - E5 on 30.5 AC				106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Probst NE 45 (F2848-T5013-1)	44.9	Wheat Grain-Straw / DC Soybeans	8 1000 GAL - E5 on 44.9 AC				106 LBS N/ACRE 116 LBS P/ACRE 141 LBS K/ACRE
Probst E 31 (F2848-T5013-3)	27.2	Alfalfa Hay	18.5 1000 GAL - E5 on 27.2 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst 32 (F2848-T5013-4)	3.3	Alfalfa Hay	18.5 1000 GAL - E5 on 3.3 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage	19.3 1000 GAL - E5 on 52.6 AC			74 LBS N/ACRE	205 LBS N/ACRE 97 LBS P/ACRE 302 LBS K/ACRE
Birchtold E 35 (F3621-T5059-1)	34.3	Corn Grain / Corn Stover	22 TON - Solids on 34.3 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Birchtold W 12 (F3621-T5059-1)	11.5	Corn Grain / Corn Stover	22 TON - Solids on 11.5 AC				205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover		22.5 TON - Solids on 76.4 AC			
Gratz (F6498-T4792-3)	25.1	Corn Grain / Corn Stover	22.5 TON - Solids on 8 AC			148 LBS N/ACRE	205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE

PROJECTED MANURE NUTRIENT APPLICATIONS

Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover	17 1000 GAL - E5 on 34.8 AC				
Josh E (F9240-T8005-1)	38.3	Corn Grain / Corn Stover	17 1000 GAL - E5 on 38.3 AC				
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover	22.5 TON - Solids on 37.5 AC				
Sudkamp Along WW (F2878-T5037-2)	4	Alfalfa Hay				240 LBS K/ACRE	
Sudkamp Middle 14 (F2878-T5037-2)	14	Alfalfa Hay				240 LBS K/ACRE	
Sudkamp E Fence (F2878-T5037-2)	17.3	Alfalfa Hay				240 LBS K/ACRE	
Sudkamp E Lane (F2878-T5037-2)	13	Alfalfa Hay				240 LBS K/ACRE	
Don's House (F2878-T5037-2)	6.4	Alfalfa Hay				240 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Joes Fence (F3529-T5036-11)	11.2	Ryu Silage / Corn Silage	18.1 1000 GAL - E5 on 11.2 AC			74 LBS N/ACRE	
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover	18 1000 GAL - E5 on 57.9 AC				223 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE
		TOTAL ACRES	649.6	278.2	100.9		

PROJECTED MANURE NUTRIENT APPLICATIONS

CROP YEAR 2031

FIELD NAME	SPREADABLE ACRES	CROP	MANURE APPLICATIONS			COMMERCIAL APPLICATIONS	
			FALL	SPRING	SUMMER	SPREADABLE	SETBACK
West 18 Along Warners (F6478-T5026-1)	19.4	Alfalfa Hay	18.5 1000 GAL - E5 on 19.4 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Back 22 (F6478-T5026-2)	21.2	Alfalfa Hay	18.5 1000 GAL - E5 on 21.2 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Patch 9 (F6478-T5026-3)	8.9	Alfalfa Hay	18.5 1000 GAL - E5 on 8.9 AC			270 LBS K/ACRE	
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage	19.4 1000 GAL - E5 on 22.6 AC			67 LBS N/ACRE 65 LBS K/ACRE	
Along WW (F6478-T5026-1)	4.4	Alfalfa Hay	18.5 1000 GAL - E5 on 4.4 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
5 Hills (F3529-T5036-8)	6.9	Rye Silage / Soybeans	7 1000 GAL - E5 on 6.9 AC				69 LBS P/ACRE 173 LBS K/ACRE
From 5 Hills (F3529-T5036-6)	8.3	Alfalfa Hay	18.5 1000 GAL - E5 on 8.3 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 7.7 AC			62 LBS N/ACRE 65 LBS K/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Along N Rd (F3529-T5036-1)	8.8	Rye Silage / Soybeans	7 1000 GAL - E5 on 8.8 AC				69 LBS P/ACRE 173 LBS K/ACRE
Corner 2 (F3529-T5036-2)	2.7	Rye Silage / Soybeans	7 1000 GAL - E5 on 2.7 AC				
Around Barn W (F3529-T5036-2)	5.7	Alfalfa Hay	18.5 1000 GAL - E5 on 5.7 AC			270 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 10.2 AC			62 LBS N/ACRE 65 LBS K/ACRE	205 LBS N/ACRE 135 LBS P/ACRE 208 LBS K/ACRE
Down Lane W 23 (F3529-T5036-9)	16.8	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale	19.4 1000 GAL - E5 on 19.9 AC			57 LBS N/ACRE 65 LBS K/ACRE	
South Lane 8 (F3529-T5036-11)	8.5	Alfalfa Hay				500 LBS K/ACRE	
Sudkamp Down Lane (F2878-T5037-1)	13.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
South Lane (F3529-T5036-11)	25	Rye Silage / Corn Silage	19.4 1000 GAL - E5 on 25 AC			57 LBS N/ACRE 65 LBS K/ACRE	
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage	19.4 1000 GAL - E5 on 7.9 AC			57 LBS N/ACRE 65 LBS K/ACRE	
Behind Silage (F3529-T5036-3)	7	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon N 14 (F6478-T5023-1)	12.9	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Bohanon S 18 (F6478-T5023-1)	17.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage	16 1000 GAL - E5 on 44.1 AC				
Adkins W Along (F2832-T5025-3)	9	Corn Silage	16 1000 GAL - E5 on 9 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Adkins Big Field (F2832-T5025-2)	302.7	Corn Silage		41.8 1000 GAL - E8 E6 on 100.9 AC 9.1 1000 GAL - E5 on 100.9 AC	41 1000 GAL - E8 E6 on 100.9 AC		205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
The 40 W 7 (F3529-T5001-1)	5.6	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
The 40 E 19 (F3529-T5001-2)	19.3	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage	16 1000 GAL - E5 on 30.5 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage	16 1000 GAL - E5 on 44.9 AC				205 LBS N/ACRE 81 LBS P/ACRE 210 LBS K/ACRE
Probst E 31 (F2848-T5013-3)	27.2	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst 12 (F2848-T5013-4)	3.3	Alfalfa Hay				500 LBS K/ACRE	120 LBS P/ACRE 500 LBS K/ACRE
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage	19.3 1000 GAL - E5 on 52.6 AC			70 LBS N/ACRE	205 LBS N/ACRE 97 LBS P/ACRE 302 LBS K/ACRE
Birchtold E 35 (F3621-T5059-1)	34.3	Soybeans	9.5 TON - Solids on 34.3 AC				53 LBS P/ACRE 82 LBS K/ACRE
Birchtold W 12 (F3621-T5059-1)	11.5	Soybeans	10 TON - Solids on 11.5 AC				53 LBS P/ACRE 87 LBS K/ACRE
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover		22.5 TON - Solids on 76.4 AC			
Gratz (F6498-T4792-3)	25.1	Corn Grain / Corn Stover	22.5 TON - Solids on 8.5 AC			123 LBS N/ACRE	205 LBS N/ACRE 119 LBS P/ACRE 116 LBS K/ACRE

PROJECTED MANURE NUTRIENT APPLICATIONS

Harmons (F6449-T7590-5)	34.8	Soybeans	10 TON - Solids on 34.8 AC				
Josh E (F9240-T8005-1)	38.3	Soybeans	10 TON - Solids on 38.3 AC				
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover	22.5 TON - Solids on 29.5 AC			82 LBS N/ACRE	
Sudkamp Along WW (F2878-T5037-2)	4	Alfalfa Hay					
Sudkamp Middle 14 (F2878-T5037-2)	14	Corn Grain / Corn Stover	20 1000 GAL - E5 on 14 AC				
Sudkamp E Fence (F2878-T5037-2)	17.3	Corn Grain / Corn Stover	20 1000 GAL - E5 on 17.3 AC				
Sudkamp E Lane (F2878-T5037-2)	13	Corn Grain / Corn Stover	20 1000 GAL - E5 on 13 AC				
Don's House (F2878-T5037-2)	6.4	Corn Grain / Corn Stover	20 1000 GAL - E5 on 6.4 AC				
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage	18.1 1000 GAL - E5 on 11.2 AC			74 LBS N/ACRE	
Deans (F2921-T4474-2)	57.9	Soybeans					
		TOTAL ACRES	579.5	278.2	100.9		

MAURER-STUTZ

PROJECT: New Shoes Dairy

PROJECT NO.: 23808034.11

TABLE 4.7B PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

CROP YEAR 2026

		SPREADABLE COMMERCIAL APPLICATIONS			SETBACK COMMERCIAL APPLICATIONS		
FIELD NAME	CROP	SPREADABLE ACRES	FALL	SPRING	SETBACK ACRES	FALL	SPRING
West 18 Along Warners (F6478-T5026-1)	Alfalfa Hay	19 4		833 LBS PC	0.3		261 LBS TSP, 833 LBS PC
Back 22 (F6478-T5026-2)	Alfalfa Hay	21.2		833 LBS PC	0.9		261 LBS TSP, 833 LBS PC
Patch 9 (F6478-T5026-3)	Alfalfa Hay	8 9		833 LBS PC	0.0		
Middle 22 (F6478-T5026-1)	Rye Silage / Corn Silage	22.6		26 GAL UAN 32, 109 LBS PC	0.0		
Along WW (F6478-T5026-1)	Alfalfa Hay	4 4		833 LBS PC	0 8		261 LBS TSP, 833 LBS PC
5 Hills (F3529-T5036-8)	Alfalfa Hay	6.9		833 LBS PC	6.0		261 LBS TSP, 833 LBS PC
From 5 Hills (F3529-T5036-6)	Alfalfa Hay	8 3		261 LBS TSP, 833 LBS PC	0 8		261 LBS TSP, 833.333333333333 LBS PC
Split 12 ac (F3529-T5036-7)	Rye Silage / Corn G Bale	7.7		110 LBS AA, 109 LBS PC	4.4		250 LBS AA, 294 LBS TSP, 348 LBS PC
Along N Rd (F3529-T5036-1)	Alfalfa Hay	8 8		833 LBS PC	7 4		261 LBS TSP, 833 LBS PC
Corner 2 (F3529-T5036-2)	Alfalfa Hay	2.7		833 LBS PC	0.0		
Around Barn W (F3529-T5036-2)	Alfalfa Hay	5.7		833 LBS PC	4 7		261 LBS TSP, 833 LBS PC
South of Udder Place (F3529-T5036-5)	Rye Silage / Corn G Bale	10.2		110 LBS AA	9.0		250 LBS AA, 294 LBS TSP, 348 LBS PC
Down Lane W 22 (F3529-T5036-9)	Corn Grain	16 6			5.4		250 LBS AA, 237 LBS TSP, 118 LBS PC
North Lane 20 (F3529-T5036-5)	Rye Silage / Corn G Bale	19.9		26 GAL UAN 32	0.0		
South Lane 8 (F3529-T5036-11)	Corn Grain / Corn Stover	8 5			0.0		
Sudkamp Down Lane (F2878-T5037-1)	Corn Grain / Corn Stover	13.9			3.6		250 LBS AA, 259 LBS TSP, 193 LBS PC
South Lane (F3529-T5036-11)	Rye Silage / Corn Silage	25.0		26 GAL UAN 32	0 0		
South House (F3529-T5036-4)	Rye Silage / Corn Silage	7.9		26 GAL UAN 32, 109 LBS PC	0.0		
Behind Silage (F3529-T5036-3)	Rye Silage / Soybeans	7 0			0 2		151 LBS TSP, 289 LBS PC
Bohanon N 14 (F6478-T5023-1)	Rye Silage / Soybeans	12.9		147 LBS PC	1.4		151 LBS TSP, 289 LBS PC
Bohanon S 19 (F6478-T5023-1)	Rye Silage / Soybeans	17 2		147 LBS PC	2 5		151 LBS TSP, 289 LBS PC
Adkins 45 (F2832-T5025-1)	Corn Silage	44.1			0.0		
Adkins W Joshs (F2832-T5025-2)	Corn Silage	9 0			1 1		250 LBS AA, 176 LBS TSP, 350 LBS PC
Adkins Big Field (F2832-T5025-2)	Corn Silage	302.7			0.1		272 LBS AA, 176 LBS TSP, 350 LBS PC
The 40 W 7 (F3529-T5001-1)	Alfalfa Hay	5 6		833 LBS PC	0 2		261 LBS TSP, 833 LBS PC
The 40 E 19 (F3529-T5001-2)	Alfalfa Hay	19.3		833 LBS PC	0.3		261 LBS TSP, 833 LBS PC
Probst NW 31 (F2848-T5013-1)	Corn Silage	30 5		10 GAL UAN 32	1 7		61 GAL UAN 32, 176 LBS TSP, 350 LBS PC
Probst NE 45 (F2848-T5013-1)	Corn Silage	44.9		10 GAL UAN 32	1.6		61 GAL UAN 32, 176 LBS TSP, 350 LBS PC
Probst E 31 (F2848-T5013-3)	Alfalfa Hay	27 2		833 LBS PC	2 9		261 LBS TSP, 833 LBS PC
Probst 12 (F2848-T5013-4)	Alfalfa Hay	3.3		261 LBS TSP, 833 LBS PC	7.8		261 LBS TSP, 833 LBS PC
Probst W (F2848 T5013-2)	Wheat Grain-Straw / DC Soybeans	52 6			1 5		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Birchtold E 35 (F3621-T5059-1)	Wheat Grain-Straw / DC Soybeans	34.3			2.3		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

Bechtold W 12 (F3621-T5059-1)	Wheat Grain-Straw / DC Soybeans	11 5			0 4		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Stewardson (F4832-T5975-2)	Corn Grain / Corn Stover	76.4		12 GAL UAN 32	0.0		
Gratz (F6498-T4792-3)	Soybeans	25 1			1.9		116 LBS TSP, 137 LBS PC
Harmone (F6449-T7590-5)	Corn Grain / Corn Stover	34.8		155 LBS AA	0.0		
Josh E (F9240-T8005-1)	Corn Grain / Corn Stover	38 3			0 0		
Josh W (F9241-T8004-1)	Soybeans	38.4			0.0		
Sudkamp Along WW (F2878-T5037-2)	Alfalfa Hay	4.0			0 0		
Sudkamp Middle 14 (F2878-T5037-2)	Alfalfa Hay	14.0		833 LBS PC	0.0		
Sudkamp E Fence (F2878-T5037-2)	Alfalfa Hay	17.3		833 LBS PC	0.0		
Sudkamp E Lane (F2878-T5037-2)	Alfalfa Hay	13.0		833 LBS PC	0.0		
Don's House (F2878-T5037-2)	Alfalfa Hay	6 4		833 LBS PC	1.2		260 LBS TSP, 833 LBS PC
Joes Fence (F3529-T5036-11)	Rye Silage / Corn Silage	11.2		30 GAL UAN 32	0.0		
Deans (F2921-T4474-2)	Corn Grain / Corn Stover	57.9			0.3		250 LBS AA, 259 LBS TSP, 193 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

CROP YEAR 2027

		SPREADABLE COMMERCIAL APPLICATIONS			SETBACK COMMERCIAL APPLICATIONS		
FIELD NAME	**CROP**	**SPREADABLE ACRES**	**FALL**	**SPRING**	**SETBACK ACRES**	**FALL**	**SPRING**
West 18 Along Warners (F6478-T5026-1)	Alfalfa Hay	19.4		833 LBS PC	0.3		261 LBS TSP, 833 LBS PC
Back 22 (F6478-T5026-2)	Alfalfa Hay	21.2		833 LBS PC	0.9		261 LBS TSP, 833 LBS PC
Patch 9 (F6478-T5026-3)	Alfalfa Hay	8.9		833 LBS PC	0.0		
Middle 22 (F6478-T5026-1)	Wheat Grain-Straw / DC Soybeans	22.6		52 LBS PC	0.0		
Along WW (F6478-T5026-1)	Alfalfa Hay	4.4		833 LBS PC	0.8		261 LBS TSP, 833 LBS PC
5 Hills (F3529-T5036-6)	Alfalfa Hay	6.9		833 LBS PC	6.0		261 LBS TSP, 833 LBS PC
From 5 Hills (F3529-T5036-6)	Alfalfa Hay	8.3		261 LBS TSP, 833 LBS PC	0.8		261 LBS TSP, 833 LBS PC
Split 12 ac (F3529-T5036-7)	Rye Silage / Corn G Bale	7.7		94 LBS AA	4.4		250 LBS AA, 294 LBS TSP, 347 LBS PC
Along N Rd (F3579-T5036-1)	Alfalfa Hay	6.8		833 LBS PC	7.4		261 LBS TSP, 833 LBS PC
Corner 2 (F3529-T5036-2)	Alfalfa Hay	2.7		833 LBS PC	0.0		
Around Barn W (F3529-T5036-2)	Alfalfa Hay	5.7		833 LBS PC	4.7		261 LBS TSP, 833 LBS PC
South of Udder Place (F3529-T5036-5)	Rye Silage / Corn G Bale	10.2		94 LBS AA	9.0		250 LBS AA, 294 LBS TSP, 347 LBS PC
Down Lane W 22 (F3529-T5036-9)	Rye Silage / Soybeans	16.6			5.4		151 LBS TSP, 289 LBS PC
North Lane 20 (F3529-T5036-5)	Rye Silage / Corn G Bale	19.9		20 GAL UAN 32	0.0		
South Lane 8 (F3529-T5036-11)	Rye Silage / Soybeans	8.5			0.0		
Sudkamp Down Lane (F2878-T5037-1)	Rye Silage / Soybeans	13.9			3.6		151 LBS TSP, 289 LBS PC
South Lane (F3529-T5036-11)	Rye Silage / Corn Silage	25.0		20 GAL UAN 32	0.0		
South House (F3529-T5036-4)	Rye Silage / Corn Silage	7.9		20 GAL UAN 32, 109 LBS PC	0.0		
Behind Silage (F3529-T5036-3)	Alfalfa Hay	7.0		443 LBS PC	0.2		261 LBS TSP, 833 LBS PC
Bohanon N 14 (F6478-T5023-1)	Alfalfa Hay	12.9		443 LBS PC	1.4		261 LBS TSP, 833 LBS PC
Bohanon S 19 (F6478-T5023-1)	Alfalfa Hay	17.2		443 LBS PC	2.5		261 LBS TSP, 833 LBS PC
Adkins 45 (F2832-T5025-1)	Corn Silage	44.1			0.0		
Adkins W Joshs (F2832-T5025-2)	Corn Silage	9.0			1.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
Adkins Big Field (F2832-T5025-2)	Corn Silage	302.7		50 LBS AA	0.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
The 40 W 7 (F3529-T5001-1)	Alfalfa Hay	5.6		833 LBS PC	0.2		261 LBS TSP, 833 LBS PC
The 40 E 19 (F3529-T5001-2)	Alfalfa Hay	19.3		833 LBS PC	0.3		261 LBS TSP, 833 LBS PC
Probst NW 31 (F2848-T5013-1)	Wheat Grain-Straw / DC Soybeans	30.5			1.7		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Probst NE 45 (F2848-T5013-1)	Wheat Grain-Straw / DC Soybeans	44.9			1.6		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Probst E 31 (F2848-T5013-3)	Alfalfa Hay	27.2		833 LBS PC	2.9		261 LBS TSP, 833 LBS PC
Probst 12 (F2848-T5013-4)	Alfalfa Hay	3.3		261 LBS TSP, 833 LBS PC	7.6		261 LBS TSP, 833 LBS PC
Probst W (F2848-T5013-2)	Rye Silage / Corn Silage	52.6		110 LBS AA	1.5		250 LBS AA, 176 LBS TSP, 503 LBS PC
Birchtold E 35 (F3821-T5059-1)	Corn Grain / Corn Stover	34.3			2.3		250 LBS AA, 259 LBS TSP, 193 LBS PC
Birchtold W 12 (F3821-T5059-1)	Corn Grain / Corn Stover	11.5			0.4		250 LBS AA, 259 LBS TSP, 193 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

Stewardson (F4832-T5975-2)	Corn Grain / Corn Stover	78.4			0.0		
Gratz (F6498-T4792-3)	Corn Grain / Corn Stover	25.1		45 GAL UAN 32	1.9		60 GAL UAN 32, 259 LBS TSP, 193 LBS PC
Harmons (F6449-T7590-5)	Corn Grain / Corn Stover	34.8			0.0		
Josh E (F9240-T8005-1)	Corn Grain / Corn Stover	38.3			0.0		
Josh W (F9241-T8004-1)	Corn Grain / Corn Stover	38.4		12 GAL UAN 32	0.0		
Sudkamp Along WW (F2878-T5037-2)	Alfalfa Hay	4.0		833 LBS PC	0.0		
Sudkamp Middle 14 (F2878-T5037-2)	Alfalfa Hay	14.0		833 LBS PC	0.0		
Sudkamp E Fence (F2878-T5037-2)	Alfalfa Hay	17.3		833 LBS PC	0.0		
Sudkamp E Lane (F2878-T5037-2)	Alfalfa Hay	13.0		833 LBS PC	0.0		
Don's House (F2878-T5037-2)	Alfalfa Hay	6.4		833 LBS PC	1.2		261 LBS TSP, 833 LBS PC
Joes Fence (F3529-T5036-11)	Rye Silage / Corn Silage	11.2		25 GAL UAN 32	0.0		
Deans (F2921-T4474-2)	Corn Grain / Corn Stover	57.9			0.3		272 LBS AA, 259 LBS TSP, 193 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

CROP YEAR 2028

FIELD NAME	CROP	SPREADABLE COMMERCIAL APPLICATIONS: SPREADABLE ACRES	SPREADABLE COMMERCIAL APPLICATIONS: FALL	SPREADABLE COMMERCIAL APPLICATIONS: SPRING	SETBACK COMMERCIAL APPLICATIONS: SETBACK ACRES	SETBACK COMMERCIAL APPLICATIONS: FALL	SETBACK COMMERCIAL APPLICATIONS: SPRING
West 18 Along Warners (F6478-T5026-1)	Alfalfa Hay	19 4		833 LBS PC	0 3		261 LBS TSP, 833 LBS PC
Back 22 (F6478-T5026-2)	Alfalfa Hay	21.2		833 LBS PC	0.9		261 LBS TSP, 833 LBS PC
Patch 9 (F6478-T5026-3)	Alfalfa Hay	8 9		833 LBS PC	0 0		
Middle 22 (F6478-T5026-1)	Rye Silage / Corn Silage	22 6		22 GAL UAN 32, 109 LBS PC	0.0		
Along WW (F6478-T5026-1)	Alfalfa Hay	4 4		833 LBS PC	0 8		261 LBS TSP, 833 LBS PC
5 Hills (F3529-T5036-8)	Alfalfa Hay	6.9		833 LBS PC	8.0		261 LBS TSP, 833 LBS PC
From 5 Hills (F3529-T5036-6)	Alfalfa Hay	8.3		261 LBS TSP 833 LBS PC	0 8		261 LBS TSP, 833 LBS PC
Split 12 ac (F3529-T5036-7)	Rye Silage / Corn G Bale	7.7		95 LBS AA, 109 LBS PC	4.4		250 LBS AA, 294 LBS TSP, 347 LBS PC
Along N Rd (F3529-T5036-1)	Alfalfa Hay	8 8		833 LBS PC	7.4		261 LBS TSP, 833 LBS PC
Corner 2 (F3529-T5036-2)	Alfalfa Hay	2.7		833 LBS PC	0.0		
Around Barn W (F3529-T5036-2)	Alfalfa Hay	5 7		833 LBS PC	4 7		261 LBS TSP, 833 LBS PC
South of Udder Place (F3529-T5036-5)	Rye Silage / Corn G Bale	10.2		95 LBS AA, 109 LBS PC	8.0		250 LBS AA, 294 LBS TSP, 347 LBS PC
Down Lane W 22 (F3529-T5036-9)	Alfalfa Hay	16.8		440 LBS PC	5 4		261 LBS TSP, 833 LBS PC
North Lane 20 (F3529-T5036-5)	Rye Silage / Corn G Bale	19.9		22 GAL UAN 32, 109 LBS PC	0.0		
South Lane 8 (F3529-T5036-11)	Alfalfa Hay	8 5		430 LBS PC	0 0		
Sudkamp Down Lane (F2878-T5037-1)	Alfalfa Hay	13.9		440 LBS PC	3.6		261 LBS TSP, 833 LBS PC
South Lane (F3529-T5036-11)	Rye Silage / Corn Silage	25 0		22 GAL UAN 32, 117 LBS PC	0 0		
South House (F3529-T5036-4)	Rye Silage / Corn Silage	7.9		22 GAL UAN 32, 111 LBS PC	0.0		
Behind Silage (F3529-T5036-3)	Alfalfa Hay	7 0		833 LBS PC	0 2		261 LBS TSP, 833 LBS PC
Bohanon N 14 (F6478-T5023-1)	Alfalfa Hay	12.9		833 LBS PC	1.4		261 LBS TSP, 833 LBS PC
Bohanon S 19 (F6478-T5023-1)	Alfalfa Hay	17 2		833 LBS PC	2 5		261 LBS TSP, 833 LBS PC
Adkins 45 (F2832-T5025-1)	Corn Silage	44.1			0.0		
Adkins W Joshs (F2832-T5025-2)	Corn Silage	9.0			1 1		250 LBS AA, 176 LBS TSP, 350 LBS PC
Adkins Big Field (F2832-T5025-2)	Corn Silage	302.7			0.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
The 40 W 7 (F3529-T5001-1)	Corn Grain / Corn Stover	5 6			0 2		250 LBS AA, 259 LBS TSP, 193 LBS PC
The 40 E 19 (F3529-T5001-2)	Corn Grain / Corn Stover	19.3			0.3		250 LBS AA, 259 LBS TSP, 193 LBS PC
Probst NW 31 (F2848-T5013-1)	Corn Silage	30 5			1 7		250 LBS AA, 176 LBS TSP, 350 LBS PC
Probst NE 45 (F2848-T5013-1)	Corn Silage	44.9			1.6		250 LBS AA, 176 LBS TSP, 350 LBS PC
Probst E 31 (F2848-T5013-3)	Corn Grain / Corn Stover	27 2			2 9		250 LBS AA, 259 LBS TSP, 193 LBS PC
Probst 12 (F2848-T5013-4)	Corn Grain / Corn Stover	3.3			7.6		250 LBS AA, 259 LBS TSP, 193 LBS PC
Probst W (F2848-T5013-2)	Rye Silage / Corn Silage	52 6		100 LBS AA	1.5		250 LBS AA, 211 LBS TSP, 503 LBS PC
Birchtold E 35 (F3621-T5059-1)	Soybeans	34.3			2.3		116 LBS TSP, 137 LBS PC
Birchtold W 12 (F3621-T5059-1)	Soybeans	11 5			0.4		116 LBS TSP, 137 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

Stewardson (F4832-T5975-2)	Corn Grain / Corn Stover	78.4			0.0		
Gratz (F6498-T4792-3)	Corn Grain / Corn Stover	25 1		190 LBS AA	1 9		250 LBS AA, 259 LBS TSP, 193 LBS PC
Harmons (F6449-T7590-5)	Soybeans	34.8			0.0		
Josh E (F9240-T8005-1)	Soybeans	38 3			0 0		
Josh W (F9241-T8004-1)	Corn Grain / Corn Stover	38.4			0.0		
Sudkamp Along WW (F2878-T5037-2)	Alfalfa Hay	4 0		833 LBS PC	0 0		
Sudkamp Middle 14 (F2878-T5037-2)	Alfalfa Hay	14.0		833 LBS PC	0.0		
Sudkamp E Fence (F2878-T5037-2)	Alfalfa Hay	17 3		833 LBS PC	0 0		
Sudkamp E Lane (F2878-T5037-2)	Alfalfa Hay	13.0		833 LBS PC	0.0		
Don's House (F2878-T5037-2)	Alfalfa Hay	6 4		833 LBS PC	1 2		261 LBS TSP, 933 LBS PC
Joes Fence (F3529-T5036-11)	Rye Silage / Corn Silage	11.2		26 GAL UAN 32	0.0		
Deans (F2921-T4474-2)	Soybeans	57 9			0 3		116 LBS TSP, 137 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

CROP YEAR 2029

		SPREADABLE COMMERCIAL APPLICATIONS			SETBACK COMMERCIAL APPLICATIONS		
FIELD NAME	CROP	SPREADABLE ACRES	FALL	SPRING	SETBACK ACRES	FALL	SPRING
West 18 Along Warners (F6478-T5026-1)	Corn Grain / Corn Stover	19.4			0.3		250 LBS AA, 259 LBS TSP, 193 LBS PC
Back 22 (F6478-T5026-2)	Corn Grain / Corn Stover	21.2			0.9		250 LBS AA, 259 LBS TSP, 193 LBS PC
Patch 9 (F6478-T5026-3)	Corn Grain / Corn Stover	8.9			0.0		
Middle 22 (F6478-T5026-1)	Rye Silage / Corn Silage	22.6		18 GAL UAN 32, 109 LBS PC	0.0		
Along WW (F6478-T5026-1)	Corn Grain	4.4			0.8		250 LBS AA, 237 LBS TSP, 118 LBS PC
5 Hills (F3529-T5036-8)	Alfalfa Hay	6.9		833 LBS PC	6.0		261 LBS TSP, 833 LBS PC
From 5 Hills (F3529-T5036-6)	Corn Grain	8.3			0.8		250 LBS AA, 237 LBS TSP, 118 LBS PC
Split 12 ac (F3529-T5036-7)	Rye Silage / Corn G Bale	7.7		70 LBS AA, 109 LBS PC	4.4		250 LBS AA, 294 LBS TSP, 347 LBS PC
Along N Rd (F3529-T5036-1)	Alfalfa Hay	8.8		833 LBS PC	7.4		261 LBS TSP, 833 LBS PC
Corner 2 (F3529-T5036-2)	Alfalfa Hay	2.7		833 LBS PC	0.0		
Around Barn W (F3529-T5036-2)	Corn Grain	5.7			4.7		250 LBS AA, 237 LBS TSP, 118 LBS PC
South of Udder Place (F3529-T5036-5)	Rye Silage / Corn G Bale	10.2		70 LBS AA, 109 LBS PC	9.0		250 LBS AA, 294 LBS TSP, 347 LBS PC
Down Lane W 22 (F3529-T5036-9)	Alfalfa Hay	16.8		833 LBS PC	5.4		261 LBS TSP, 833 LBS PC
North Lane 20 (F3529-T5036-5)	Rye Silage / Corn G Bale	19.9		18 GAL UAN 32, 109 LBS PC	0.0		
South Lane 8 (F3529-T5036-11)	Alfalfa Hay	8.5		833 LBS PC	0.0		
Sudkamp Down Lane (F2878-T5037-1)	Alfalfa Hay	13.9		833 LBS PC	3.6		261 LBS TSP, 833 LBS PC
South Lane (F3529-T5036-11)	Rye Silage / Corn Silage	25.0		17 GAL UAN 32, 117 LBS PC	0.0		
South House (F3529-T5036-4)	Rye Silage / Corn Silage	7.9		18 GAL UAN 32, 111 LBS PC	0.0		
Behind Silage (F3529-T5036-3)	Alfalfa Hay	7.0		833 LBS PC	0.2		261 LBS TSP, 833 LBS PC
Bohanon N 14 (F6478-T5023-1)	Alfalfa Hay	12.9		833 LBS PC	1.4		261 LBS TSP, 833 LBS PC
Bohanon S 19 (F6478-T5023-1)	Alfalfa Hay	17.2		833 LBS PC	2.5		261 LBS TSP, 833 LBS PC
Adkins 45 (F2832-T5025-1)	Corn Silage	44.1			0.0		
Adkins W Johns (F2832-T5025-2)	Corn Silage	9.0			1.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
Adkins Big Field (F2832-T5025-2)	Corn Silage	302.7			0.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
The 40 W 7 (F3529-T5001-1)	Rye Silage / Soybeans	5.6			0.2		151 LBS TSP, 289 LBS PC
The 40 E 19 (F3529-T5001-2)	Rye Silage / Soybeans	19.3			0.3		151 LBS TSP, 289 LBS PC
Probst NW 31 (F2848-T5013-1)	Corn Silage	30.5			1.7		250 LBS AA, 176 LBS TSP, 350 LBS PC
Probst NE 45 (F2848-T5013-1)	Corn Silage	44.9			1.6		250 LBS AA, 176 LBS TSP, 350 LBS PC
Probst E 31 (F2848-T5013-3)	Rye Silage / Soybeans	27.2			2.9		151 LBS TSP, 289 LBS PC
Probst 12 (F2848-T5013-4)	Rye Silage / Soybeans	3.3			7.6		151 LBS TSP, 289 LBS PC
Probst W (F2848-T5013-2)	Wheat Grain-Straw / DC Soybeans	52.6			1.5		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Birchtold E 35 (F3821-T5059-1)	Wheat Grain-Straw / DC Soybeans	34.3		30 GAL UAN 32	2.3		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Birchtold W 12 (F3821-T5059-1)	Wheat Grain-Straw / DC Soybeans	11.5		30 GAL UAN 32	0.4		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

Stewardson (F4832-T5975-2)	Corn Grain / Corn Stover	76.4			0.0		
Gratz (F6498-T4792-3)	Soybeans	25.1			1.9		116 LBS TSP, 137 LBS PC
Harmons (F6449-T7590-5)	Corn Grain / Corn Stover	34.8			0.0		
Josh E (F9240-T8005-1)	Corn Grain / Corn Stover	38.3		120 LBS AA	0.0		
Josh W (F9241-T8004-1)	Soybeans	38.4			0.0		
Sudkamp Along WW (F2878-T5037-2)	Alfalfa Hay	4.0		833 LBS PC	0.0		
Sudkamp Middle 14 (F2878-T5037-2)	Alfalfa Hay	14.0		833 LBS PC	0.0		
Sudkamp E Fence (F2878-T5037-2)	Alfalfa Hay	17.3		833 LBS PC	0.0		
Sudkamp E Lane (F2878-T5037-2)	Alfalfa Hay	13.0		833 LBS PC	0.0		
Don's House (F2878-T5037-2)	Alfalfa Hay	6.4		833 LBS PC	1.2		261 LBS TSP 833 LBS PC
Joes Fence (F3529-T5036-11)	Rye Silage / Corn Silage	11.2		21 GAL UAN 32	0.0		
Deans (F2921-T4474-2)	Corn Grain / Corn Stover	57.9			0.3		272 LBS AA, 259 LBS TSP, 193 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

CROP YEAR 2030

		SPREADABLE COMMERCIAL APPLICATIONS			SETBACK COMMERCIAL APPLICATIONS		
FIELD NAME	CROP	SPREADABLE ACRES	FALL	SPRING	SETBACK ACRES	FALL	SPRING
West 18 Along Warners (F6478-T5026-1)	Rye Silage / Soybeans	19 4			0 3		151 LBS TSP, 289 LBS PC
Back 22 (F6478-T5026-2)	Rye Silage / Soybeans	21.2			0.9		151 LBS TSP, 289 LBS PC
Patch 9 (F6478-T5026-3)	Rye Silage / Soybeans	8 9			0 0		
Middle 22 (F6478-T5026-1)	Wheat Grain-Straw / DC Soybeans	22.6		72 LBS PC	0.0		
Along WW (F6478-T5026-1)	Rye Silage / Soybeans	4 4			0.8		151 LBS TSP, 289 LBS PC
5 Hills (F3529-T5036-8)	Corn Grain	6.9			6.0		250 LBS AA, 259 LBS TSP, 118 LBS PC
From 5 Hills (F3529-T5036-6)	Rye Silage / Soybeans	8 3			0 8		151 LBS TSP, 289 LBS PC
Split 12 ac (F3529-T5036-7)	Rye Silage / Corn G Bale	7.7		75 LBS AA, 109 LBS PC	4.4		250 LBS AA, 291 LBS TSP, 347 LBS PC
Along N Rd (F3529-T5036-1)	Corn Grain / Corn Stover	8 8			7 4		250 LBS AA, 259 LBS TSP, 193 LBS PC
Corner 2 (F3529-T5036-2)	Corn Grain / Corn Stover	2.7			0.0		
Around Barn W (F3529-T5036-2)	Rye Silage / Soybeans	5 7			4 7		151 LBS TSP, 289 LBS PC
South of Udder Place (F3529-T5036-5)	Rye Silage / Corn G Bale	10.2		75 LBS AA, 109 LBS PC	9.0		250 LBS AA, 294 LBS TSP, 347 LBS PC
Down Lane W 22 (F3529-T5036-9)	Alfalfa Hay	16 6		833 LBS PC	5 4		261 LBS TSP, 833 LBS PC
North Lane 20 (F3529-T5036-5)	Rye Silage / Corn G Bale	19.9		18 GAL UAN 32, 109 LBS PC	0.0		
South Lane 8 (F3529-T5036-11)	Alfalfa Hay	6 5		833 LBS PC	0.0		
Sudkamp Down Lane (F2878-T5037-1)	Alfalfa Hay	13.9		833 LBS PC	3.8		261 LBS TSP, 833 LBS PC
South Lane (F3529-T5036-11)	Rye Silage / Corn Silage	25.0		17 GAL UAN 32, 111 LBS PC	0 0		
South House (F3529-T5036-4)	Rye Silage / Corn Silage	7.9		18 GAL UAN 32, 111 LBS PC	0.0		
Behind Silage (F3529-T5036-3)	Alfalfa Hay	7 0		833 LBS PC	0 2		261 LBS TSP, 833 LBS PC
Bohanon N 14 (F6478-T5023-1)	Alfalfa Hay	12.9		833 LBS PC	1.4		261 LBS TSP, 833 LBS PC
Bohanon S 19 (F6478-T5023-1)	Alfalfa Hay	17 2		833 LBS PC	2 5		261 LBS TSP, 833 LBS PC
Adkins 45 (F2832-T5025-1)	Corn Silage	44.1			0.0		
Adkins W Justa (F2832-T5025-2)	Corn Silage	9 0			1 1		250 LBS AA, 176 LBS TSP, 350 LBS PC
Adkins Big Field (F2832-T5025-2)	Corn Silage	302.7		88 LBS AA	0.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
The 40 W 7 (F3529-T5001-1)	Alfalfa Hay	5 6		450 LBS PC	0 2		261 LBS TSP, 833 LBS PC
The 40 E 19 (F3529-T5001-2)	Alfalfa Hay	19.3		450 LBS PC	0.3		261 LBS TSP, 833 LBS PC
Probst NW 31 (F2848-T5013-1)	Wheat Grain-Straw / DC Soybeans	30 5			1 7		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Probst NE 45 (F2848-T5013-1)	Wheat Grain-Straw / DC Soybeans	44.9			1.8		30 GAL UAN 32, 252 LBS TSP, 235 LBS PC
Probst E 31 (F2848-T5013-3)	Alfalfa Hay	27 2		450 LBS PC	2 9		261 LBS TSP, 833 LBS PC
Probst 12 (F2848-T5013-4)	Alfalfa Hay	3.3		450 LBS PC	7.8		261 LBS TSP, 833 LBS PC
Probst W (F2848-T5013-2)	Rye Silage / Corn Silage	52 6		90 LBS AA	1 5		250 LBS AA, 211 LBS TSP, 503 LBS PC
Birchtold E 35 (F3621-T5059-1)	Corn Grain / Corn Stover	34.3			2.3		250 LBS AA, 259 LBS TSP, 193 LBS PC
Birchtold W 12 (F3621-T5059-1)	Corn Grain / Corn Stover	11.5			0 4		250 LBS AA, 259 LBS TSP, 193 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

Stewardson (F4832-T5975-2)	Corn Grain / Corn Stover	78.4			0.0		
Gratz (F6498-T4792-3)	Corn Grain / Corn Stover	25.1		180 LBS AA	1.9		250 LBS AA, 259 LBS TSP, 193 LBS PC
Harmons (F6449-T7590-5)	Corn Grain / Corn Stover	34.8			0.0		
Josh E (F9240-T8005-1)	Corn Grain / Corn Stover	38.3			0.0		
Josh W (F9241-T8004-1)	Corn Grain / Corn Stover	38.4			0.0		
Sudkamp Along WW (F2878-T5037-2)	Alfalfa Hay	4.0		400 LBS PC	0.0		
Sudkamp Middle 14 (F2878-T5037-2)	Alfalfa Hay	14.0		400 LBS PC	0.0		
Sudkamp E Fence (F2878-T5037-2)	Alfalfa Hay	17.3		400 LBS PC	0.0		
Sudkamp E Lane (F2878-T5037-2)	Alfalfa Hay	13.0		400 LBS PC	0.0		
Don's House (F2878-T5037-2)	Alfalfa Hay	6.4		400 LBS PC	1.2		261 LBS TSP, 833 LBS PC
Joes Fence (F3529-T5036-11)	Rye Silage / Corn Silage	11.2		21 GAL UAN 32	0.0		
Deans (F2921-T4474-2)	Corn Grain / Corn Stover	57.9			0.3		272 LBS AA, 259 LBS TSP, 193 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

		CROP YEAR 2031					
		SPREADABLE COMMERCIAL APPLICATIONS			SETBACK COMMERCIAL APPLICATIONS		
FIELD NAME	CROP	SPREADABLE ACRES	FALL	SPRING	SETBACK ACRES	FALL	SPRING
West 18 Along Warners (F6478-T5026-1)	Alfalfa Hay	19.4		450 LBS PC	0.3		261 LBS TSP, 833 LBS PC
Back 22 (F6478-T5026-2)	Alfalfa Hay	21.2		450 LBS PC	0.9		261 LBS TSP, 833 LBS PC
Patch 9 (F6478-T5026-3)	Alfalfa Hay	8.9		450 LBS PC	0.0		
Middle 22 (F6478-T5026-1)	Rye Silage / Corn Silage	22.6		19 GAL UAN 32, 109 LBS PC	0.0		
Along WW (F6478-T5026-1)	Alfalfa Hay	4.4		450 LBS PC	0.8		261 LBS TSP, 833 LBS PC
5 Hills (F3529-T5036-8)	Rye Silage / Soybeans	6.9			6.0		151 LBS TSP, 289 LBS PC
From 5 Hills (F3529-T5036-6)	Alfalfa Hay	8.3		450 LBS PC	0.8		261 LBS TSP, 833 LBS PC
Split 12 ac (F3529-T5036-7)	Rye Silage / Corn G Bale	7.7		75 LBS AA, 109 LBS PC	4.4		250 LBS AA, 294 LBS TSP, 347 LBS PC
Along N Rd (F3529-T5036-1)	Rye Silage / Soybeans	6.8			7.4		151 LBS TSP, 289 LBS PC
Corner 2 (F3529-T5036-2)	Rye Silage / Soybeans	2.7			0.0		
Around Barn W (F3529-T5036-2)	Alfalfa Hay	5.7		450 LBS PC	4.7		261 LBS TSP, 833 LBS PC
South of Udder Place (F3529-T5036-5)	Rye Silage / Corn G Bale	10.2		75 LBS AA, 109 LBS PC	9.0		250 LBS AA, 294 LBS TSP, 347 LBS PC
Down Lane W 22 (F3529-T5036-9)	Alfalfa Hay	16.8		833 LBS PC	5.4		261 LBS TSP, 833 LBS PC
North Lane 20 (F3529-T5036-5)	Rye Silage / Corn G Bale	19.9		16 GAL UAN 32, 109 LBS PC	0.0		
South Lane 8 (F3529-T5036-11)	Alfalfa Hay	6.5		833 LBS PC	0.0		
Sudkamp Down Lane (F2878-T5037-1)	Alfalfa Hay	13.9		833 LBS PC	3.6		261 LBS TSP, 833 LBS PC
South Lane (F3529-T5036-11)	Rye Silage / Corn Silage	25.0		16 GAL UAN 32, 109 LBS PC	0.0		
South House (F3529-T5036-4)	Rye Silage / Corn Silage	7.9		16 GAL UAN 32, 109 LBS PC	0.0		
Behind Silage (F3529-T5036-3)	Alfalfa Hay	7.0		833 LBS PC	0.2		261 LBS TSP, 833 LBS PC
Bohanon N 14 (F6478-T5023-1)	Alfalfa Hay	12.9		833 LBS PC	1.4		261 LBS TSP, 833 LBS PC
Bohanon S 19 (F6478-T5023-1)	Alfalfa Hay	17.2		833 LBS PC	2.5		261 LBS TSP, 833 LBS PC
Adkins 45 (F2832-T5025-1)	Corn Silage	44.1			0.0		
Adkins W Joshs (F2832-T5025-2)	Corn Silage	9.0			1.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
Adkins Big Field (F2832-T5025-2)	Corn Silage	302.7			0.1		250 LBS AA, 176 LBS TSP, 350 LBS PC
The 40 W 7 (F3529-T5001-1)	Alfalfa Hay	5.6		833 LBS PC	0.2		261 LBS TSP, 833 LBS PC
The 40 E 19 (F3529-T5001-2)	Alfalfa Hay	19.3		833 LBS PC	0.3		261 LBS TSP, 833 LBS PC
Probst NW 31 (F2848-T5013-1)	Corn Silage	30.5			1.7		250 LBS AA, 176 LBS TSP, 350 LBS PC
Probst NE 45 (F2848-T5013-1)	Corn Silage	44.9			1.8		250 LBS AA, 176 LBS TSP, 350 LBS PC
Probst E 31 (F2848-T5013-3)	Alfalfa Hay	27.2		833 LBS PC	2.9		261 LBS TSP, 833 LBS PC
Probst 12 (F2848-T5013-4)	Alfalfa Hay	3.3		833 LBS PC	7.8		261 LBS TSP, 833 LBS PC
Probst W (F2848-T5013-2)	Rye Silage / Corn Silage	52.6		85 LBS AA	1.5		250 LBS AA, 211 LBS TSP, 503 LBS PC
Birchtold E 35 (F3621-T5059-1)	Soybeans	34.3			2.3		118 LBS TSP, 137 LBS PC
Birchtold W 12 (F3621-T5059-1)	Soybeans	11.5			0.4		118 LBS TSP, 137 LBS PC

PROJECTED COMMERCIAL NUTRIENT APPLICATIONS

Stewardson (F4832-T5975-2)	Corn Grain / Corn Stover	76.4			0.0		
Gratz (F6498-T4792-3)	Corn Grain / Corn Stover	25 1		150 LBS AA	1 9		250 LBS AA, 259 LBS TSP, 193 LBS PC
Harmons (F6449-T7590-5)	Soybeans	34.8			0.0		
Josh E (F9240-T8005-1)	Soybeans	38 3			0 0		
Josh W (F9241-T8004-1)	Corn Grain / Corn Stover	36.4		100 LBS AA	0.0		
Sudkamp Along WW (F2878-T5037-2)	Alfalfa Hay	4 0			0 0		
Sudkamp Middle 14 (F2878-T5037-2)	Corn Grain / Corn Stover	14.0			0.0		
Sudkamp E Fence (F2878-T5037-2)	Corn Grain / Corn Stover	17 3			0 0		
Sudkamp E Lane (F2878-T5037-2)	Corn Grain / Corn Stover	13.0			0.0		
Don's House (F2878-T5037-2)	Corn Grain / Corn Stover	8 4			1 2		272 LBS AA, 259 LBS TSP, 193 LBS PC
Joes Fence (F3529-T5036-11)	Rye Silage / Corn Silage	11 2		21 GAL UAN 32	0.0		
Deans (F2921-T4474-2)	Soybeans	57.9			0 3		116 LBS TSP, 137 LBS PC

MAURER-STUTZ

TABLE 4.8 PROJECTED ANNUAL NUTRIENT BALANCE OF SPREADABLE ACRES

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

CROP YEAR 2026

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.0	Alfalfa Hay	2.6	168	144	7.1				223	120	500			500		155	144
Back 22 (F6478-T5026-2)	0.0	Alfalfa Hay	2.5	134	217	7.1				223	120	500			500		121	217
Patch 9 (F6478-T5026-3)	0.0	Alfalfa Hay	2.5	134	176	7.2				223	120	500			500		121	176
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage	2.3	96	282	7.6	214	98	236	313	97	302	92		65	40	96	282
Along WW (F6478-T5026-1)	0.0	Alfalfa Hay	2.5	162	268	6.9				223	120	500			500		149	268
5 Hills (F3529-T5036-8)	0.0	Alfalfa Hay	2.4	146	314	7.7				223	120	500			500		133	314
From 5 Hills (F3529-T5036-6)	0.0	Alfalfa Hay	2.4	65	178	7.2				223	120	500		120	500		65	178
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale	2.3	121	423	7.6	214	98	236	313	135	208	90		65	40	117	446
Along N Rd. (F3529-T5036-1)	0.0	Alfalfa Hay	2.4	138	233	7.2				223	120	500			500		125	233
Corner 2 (F3529-T5036-2)	0.0	Alfalfa Hay	2.5	176	289	7.7				223	120	500			500		163	289
Around Barn W (F3529-T5036-2)	0.0	Alfalfa Hay	2.5	172	400	7.3				223	120	500			500		159	400
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale	2.4	79	271	7.7	214	98	236	313	135	208	90			40	75	278
Down Lane W 22 (F3529-T5036-9)	16.8	Corn Grain	2.5	137	249	7.2	200	91	221	223	109	71				37	135	286
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale	2.4	216	711	7.9	214	98	236	313	135	208	92			40	212	718
South Lane 8 (F3529-T5036-11)	8.5	Corn Grain / Corn Stover	2.5	211	253	7.1	200	91	221	223	119	116				37	208	279
Sudkamp Down Lane (F2878-T5037-1)	13.9	Corn Grain / Corn Stover	2.5	185	249	7.2	200	91	221	223	119.3	116				37	182	275
South Lane (F3529-T5036-11)	25.0	Rye Silage / Corn Silage					214	98	236	313	97.0	302	92			40		
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage	2.3	252	428	7.3	214	98	236	313	97.0	302	92		65	40	252	428
Behind Silage (F3529-T5036-3)	7.0	Rye Silage / Soybeans					77	35	85	313	69.6	174				14		
Bohanon N 14 (F6478-T5023-1)	12.9	Rye Silage / Soybeans	2.5	111	163	7.1	77	35	85	313	69.6	174			88	14	107	163
Bohanon S 19 (F6478-T5023-1)	17.2	Rye Silage / Soybeans	2.5	126	172	7.2	77	35	85	313	69.6	174			88	14	122	172
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage	2.3	186	495	7.7	179	82	197	223	81.0	210				33	186	492
Adkins W Joshs (F2832-T5025-2)	9.0	Corn Silage	2.6	275	437	7.7	179	82	197	223	81.0	210				33	275	434
Adkins Big Field (F2832-T5025-2)	100.9	Corn Silage	2.3	171	387	7.5	213	83	637	223	81.0	210				31	171	494
The 40 W 7 (F3529-T5001-1)	0.0	Alfalfa Hay	2.5	183	221	7.1				223	120.0	500			500		170	221
The 40 E 19 (F3529-T5001-2)	0.0	Alfalfa Hay	2.4	102	172	7				223	120.0	500			500		89	172
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage	2.5	87	263	7.3	179	82	197	223	81.0	210	35			33	87	260
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage	2.5	106	308	7.3	179	82	197	223	81.0	210	35			33	106	305
Probst E 31 (F2848-T5013-3)	0.0	Alfalfa Hay	2.5	113	190	6.7				223	120.0	500			500		100	190
Probst 12 (F2848-T5013-4)	0.0	Alfalfa Hay	2.6	76	154	6.3				223	120.0	500		120	500		76	154
Probst W (F2848-T5013-2)	52.6	Wheat Grain-Straw / DC Soybeans	2.7	117	337	6.9	108	49	119	343	115.9	141				20	110	332
Birchtold E 35 (F3621-T5059-1)	34.3	Wheat Grain-Straw / DC Soybeans	2.4	126	423	7.3	108	74	176	343	115.9	141				29	121	432
Birchtold W 12 (F3621-T5059-1)	11.5	Wheat Grain-Straw / DC Soybeans	2	101	259	7.3	116	80	188	343	115.9	141				32	97	271
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover					173	119	282	223	119.3	116	42			47		
Gratz (F6498-T4792-3)	0.0	Soybeans	2.4	56	351	7.2				223	53.6	82					50	331
Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover	2.3	50	201	6.9	115	79	187	223	119.3	116	127			47	46	219
Josh E (F9240-T8005-1)	38.3	Corn Grain / Corn Stover	2.2	70	302	7.4	173	119	282	223	119.3	116				47	70	344
Josh W (F9241-T8004-1)	0.0	Soybeans	2.3	52	213	7.3				223	53.6	82					46	193
Sudkamp Along WW (F2878-T5037-2)	0.0	Alfalfa Hay								223	120.0	500						
Sudkamp Middle 14 (F2878-T5037-2)	0.0	Alfalfa Hay	2.6	190	401	7.4				223	120.0	500			500		177	401
Sudkamp E Fence (F2878-T5037-2)	0.0	Alfalfa Hay	2.3	113	330	7.4				223	120.0	500			500		100	330
Sudkamp E Lane (F2878-T5037-2)	0.0	Alfalfa Hay	2.4	195	574	7.5				223	120.0	500			500		182	574
Don's House (F2878-T5037-2)	0.0	Alfalfa Hay	2.6	134	350	7.2				223	120.0	500			500		121	350
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage					200	91	221	313	97.0	302	106			37		
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover	2.3	62	306	6.7	188	91	219	223	119.3	116				37	59	332

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CROP YEAR 2027

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.0	Alfalfa Hay								223	120	500			500		141	144
Back 22 (F6478-T5026-2)	0.0	Alfalfa Hay								223	120	500			500		107	217
Patch 9 (F6478-T5026-3)	0.0	Alfalfa Hay								223	120	500			500		107	176
Middle 22 (F6478-T5026-1)	22.6	Wheat Grain-Straw / DC Soybeans					119	45	110	343	116	141			31	18	88	282
Along WW (F6478-T5026-1)	0.0	Alfalfa Hay								223	120	500			500		135	268
5 Hills (F3529-T5036-8)	0.0	Alfalfa Hay								223	120	500			500		119	314
From 5 Hills (F3529-T5036-6)	0.0	Alfalfa Hay								223	120	500		120	500		65	178
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale					234	98	236	313	135	208	77			40	113	453
Along N Rd. (F3529-T5036-1)	0.0	Alfalfa Hay								223	120	500			500		111	233
Corner 2 (F3529-T5036-2)	0.0	Alfalfa Hay								223	120	500			500		149	289
Around Barn W (F3529-T5036-2)	0.0	Alfalfa Hay								223	120	500			500		145	400
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale					234	98	236	313	135	208	77			40	71	285
Down Lane W 22 (F3529-T5036-9)	16.8	Rye Silage / Soybeans					96	35	85	313	70	174				14	131	264
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale					234	98	236	313	135	208	71			40	208	725
South Lane 8 (F3529-T5036-11)	8.5	Rye Silage / Soybeans					96	35	85	313	70	174				14	204	257
Sudkamp Down Lane (F2878-T5037-1)	13.9	Rye Silage / Soybeans					96	35	85	313	70	174				14	178	253
South Lane (F3529-T5036-11)	25.0	Rye Silage / Corn Silage					234	98	236	313	97	302	71			40		
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage					234	98	236	313	97	302	71		65	40	252	428
Behind Silage (F3529-T5036-3)	7.0	Alfalfa Hay					219	97	234	223	120	500			266	39		
Bohanon N 14 (F6478-T5023-1)	12.9	Alfalfa Hay					219	97	234	223	120	500			266	39	105	163
Bohanon S 19 (F6478-T5023-1)	17.2	Alfalfa Hay					219	97	234	223	120	500			266	39	120	172
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage					196	82	197	223	81	210				33	186	489
Adkins W Joshs (F2832-T5025-2)	9.0	Corn Silage					196	82	197	223	81	210				33	275	431
Adkins Big Field (F2832-T5025-2)	100.9	Corn Silage					178	50	558	223	81	210	41			21	168	581
The 40 W 7 (F3529-T5001-1)	0.0	Alfalfa Hay								223	120	500			500		156	221
The 40 E 19 (F3529-T5001-2)	0.0	Alfalfa Hay								223	120	500			500		75	172
Probst NW 31 (F2848-T5013-1)	30.5	Wheat Grain-Straw / DC Soybeans					116	45	110	343	116	141				18	79	252
Probst NE 45 (F2848-T5013-1)	44.9	Wheat Grain-Straw / DC Soybeans					116	45	110	343	116	141				18	98	297
Probst E 31 (F2848-T5013-3)	0.0	Alfalfa Hay								223	120	500			500		86	190
Probst 12 (F2848-T5013-4)	0.0	Alfalfa Hay								223	120	500		120	500		76	154
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage					220	96	231	313	97	302	90			39	109	314
Birchtold E 35 (F3621-T5059-1)	34.3	Corn Grain / Corn Stover					184	117	276	223	119	116				46	121	472
Birchtold W 12 (F3621-T5059-1)	11.5	Corn Grain / Corn Stover					185	117	276	223	119	116				46	97	311
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover					197	119	282	223	119	116				47		
Gratz (F6498-T4792-3)	25.1	Corn Grain / Corn Stover					107	74	174	223	119	116	159			47	45	345
Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover					223	91	219	223	119	116				37	42	245
Josh E (F9240-T8005-1)	38.3	Corn Grain / Corn Stover					223	91	219	223	119	116				37	67	370
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover					179	113	268	223	119	116	42			47	45	231
Sudkamp Along WW (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500			
Sudkamp Middle 14 (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		163	401
Sudkamp E Fence (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		86	330
Sudkamp E Lane (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		168	574
Don's House (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		107	350
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage					219	91	221	313	97	302	88			37		
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover					217	91	219	223	119	116				37	56	358

CROP YEAR 2028

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.0	Alfalfa Hay								223	120	500			500		128	144
Back 22 (F6478-T5026-2)	0.0	Alfalfa Hay								223	120	500			500		94	217
Patch 9 (F6478-T5026-3)	0.0	Alfalfa Hay								223	120	500			500		94	176
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage					224	98	236	313	97	302	78		65	40	88	282
Along WW (F6478-T5026-1)	0.0	Alfalfa Hay								223	120	500			500		122	268
5 Hills (F3529-T5036-8)	0.0	Alfalfa Hay								223	120	500			500		106	314
From 5 Hills (F3529-T5036-6)	0.0	Alfalfa Hay								223	120	500		120	500		65	178
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale					229	98	236	313	135	208	78		65	40	108	477
Along N Rd. (F3529-T5036-1)	0.0	Alfalfa Hay								223	120	500			500		98	233
Corner 2 (F3529-T5036-2)	0.0	Alfalfa Hay								223	120	500			500		136	289
Around Barn W (F3529-T5036-2)	0.0	Alfalfa Hay								223	120	500			500		132	400
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale					229	98	236	313	135	208	78		65	40	66	309
Down Lane W 22 (F3529-T5036-9)	16.8	Alfalfa Hay					220	97	234	223	120	500			264	39	129	264
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale					229	98	236	313	135	208	78		65	40	203	749
South Lane 8 (F3529-T5036-11)	8.5	Alfalfa Hay					220	97	234	223	120	500			258	39	201	255
Sudkamp Down Lane (F2878-T5037-1)	13.9	Alfalfa Hay					220	97	234	223	120	500			264	39	175	253
South Lane (F3529-T5036-11)	25.0	Rye Silage / Corn Silage					225	96	231	313	97	302	78		70	39		
South House (F3529-T5036-4)	7.9						228	97	235	313	97	302	78		67	39	252	428
Behind Silage (F3529-T5036-3)	0.0	Alfalfa Hay								223	120	500			500			
Bohanon N 14 (F6478-T5023-1)	0.0	Alfalfa Hay								223	120	500			500		91	163
Bohanon S 19 (F6478-T5023-1)	0.0	Alfalfa Hay								223	120	500			500		106	172
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage					192	82	197	223	81	210				33	186	486
Adkins W Joshs (F2832-T5025-2)	9.0	Corn Silage					192	82	197	223	81	210				33	275	428
Adkins Big Field (F2832-T5025-2)	100.9	Corn Silage					220	88	601	223	81	210				24	166	678
The 40 W 7 (F3529-T5001-1)	5.6	Corn Grain / Corn Stover					221	101	244	223	119	116				41	154	253
The 40 E 19 (F3529-T5001-2)	19.3	Corn Grain / Corn Stover					221	101	244	223	119	116				41	73	204
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage					188	82	197	223	81	210				33	79	249
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage					188	82	197	223	81	210				33	98	294
Probst E 31 (F2848-T5013-3)	27.2	Corn Grain / Corn Stover					200	91	221	223	119	116				37	83	216
Probst 12 (F2848-T5013-4)	3.3	Corn Grain / Corn Stover					200	91	221	223	119	116				37	73	180
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage					222	96	231	313	97	302	82			39	109	297
Birchtold E 35 (F3621-T5059-1)	34.3	Soybeans					88	50	119	223	54	82				20	121	481
Birchtold W 12 (F3621-T5059-1)	11.5	Soybeans					93	53	126	223	54	82				21	97	322
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover					191	119	282	223	119	116				47		
Gratz (F6498-T4792-3)	25.1	Corn Grain / Corn Stover					63	40	96	223	119	116	156			47	36	340
Harmons (F6449-T7590-5)	34.8	Soybeans					92	53	126	223	54	82				21	42	255
Josh E (F9240-T8005-1)	38.3	Soybeans					92	53	126	223	54	82				21	67	380
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover					142	92	217	223	119	116				47	42	256
Sudkamp Along WW (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500			
Sudkamp Middle 14 (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		150	401
Sudkamp E Fence (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		73	330
Sudkamp E Lane (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		155	574
Don's House (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			500		94	350
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage					214	91	221	313	97	302	92			37		
Deans (F2921-T4474-2)	0.0	Soybeans								223	54	82					50	337

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CROP YEAR 2029

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	19.4	Corn Grain / Corn Stover					221	101	244	223	119	116				41	126	176
Back 22 (F6478-T5026-2)	21.2	Corn Grain / Corn Stover					221	101	244	223	119	116				41	92	249
Patch 9 (F6478-T5026-3)	8.9	Corn Grain / Corn Stover					221	101	244	223	119	116				41	92	208
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage					244	98	236	313	97	302	64		65	40	88	282
Along WW (F6478-T5026-1)	4.4	Corn Grain					221	101	244	223	109	71				41	121	311
5 Hills (F3529-T5036-8)	0.0	Alfalfa Hay								223	120	500			500		93	314
From 5 Hills (F3529-T5036-6)	8.3	Corn Grain					221	101	244	223	109	71				41	64	221
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale					249	98	236	313	135	208	57		65	40	104	500
Along N Rd. (F3529-T5036-1)	0.0	Alfalfa Hay								223	120	500			500		85	233
Corner 2 (F3529-T5036-2)	0.0	Alfalfa Hay								223	120	500			500		123	289
Around Barn W (F3529-T5036-2)	5.7	Corn Grain					221	101	244	223	109	71				41	131	443
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale					249	98	236	313	135	208	57		65	40	62	332
Down Lane W 22 (F3529-T5036-9)	0.0	Alfalfa Hay								223	120	500			500		115	264
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale					249	98	236	313	135	208	57		65	40	199	772
South Lane 8 (F3529-T5036-11)	0	Alfalfa Hay								223	120	500			500		188	255
Sudkamp Down Lane (F2878-T5037-1)	0	Alfalfa Hay								223	120	500			500		162	253
South Lane (F3529-T5036-11)	25	Rye Silage / Corn Silage					244	96	231	313	97	302	60		70	39		
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage					248	97	235	313	97	302	57		67	39	252	428
Behind Silage (F3529-T5036-3)	0	Alfalfa Hay								223	120	500			500			
Bohanon N 14 (F6478-T5023-1)	0	Alfalfa Hay								223	120	500			500		78	163
Bohanon S 19 (F6478-T5023-1)	0	Alfalfa Hay								223	120	500			500		93	172
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage					208	82	197	223	81	210				33	186	482
Adkins W Joshs (F2832-T5025-2)	9	Corn Silage					208	82	197	223	81	210				33	275	424
Adkins Big Field (F2832-T5025-2)	100.9	Corn Silage					221	60	562	223	81	210				21	164	771
The 40 W 7 (F3529-T5001-1)	5.6	Rye Silage / Soybeans					98	35	85	313	70	174				14	150	231
The 40 E 19 (F3529-T5001-2)	19.3	Rye Silage / Soybeans					98	35	85	313	70	174				14	69	182
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage					204	82	197	223	81	210				33	79	246
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage					204	82	197	223	81	210				33	98	291
Probst E 31 (F2848-T5013-3)	27.2	Rye Silage / Soybeans					96	35	85	313	70	174				14	79	194
Probst 12 (F2848-T5013-4)	3.3	Rye Silage / Soybeans					96	35	85	313	70	174				14	69	158
Probst W (F2848-T5013-2)	52.6	Wheat Grain-Straw / DC Soybeans					109	35	85	343	116	141				14	100	283
Birchtold E 35 (F3621-T5059-1)	34.3	Wheat Grain-Straw / DC Soybeans					133	74	176	343	116	141	106			28	116	490
Birchtold W 12 (F3621-T5059-1)	11.5	Wheat Grain-Straw / DC Soybeans					134	74	176	343	116	141	106			29	92	331
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover					215	119	282	223	119	116				47		
Gratz (F6498-T4792-3)	0	Soybeans								223	54	82					30	320
Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover					199	119	282	223	119	116				47	42	297
Josh E (F9240-T8005-1)	38.3	Corn Grain / Corn Stover					140	84	199	223	119	116	98			47	63	401
Josh W (F9241-T8004-1)	0	Soybeans								223	54	82					36	236
Sudkamp Along WW (F2878-T5037-2)	0	Alfalfa Hay								223	120	500			500			
Sudkamp Middle 14 (F2878-T5037-2)	0	Alfalfa Hay								223	120	500			500		137	401
Sudkamp E Fence (F2878-T5037-2)	0	Alfalfa Hay								223	120	500			500		60	330
Sudkamp E Lane (F2878-T5037-2)	0	Alfalfa Hay								223	120	500			500		142	574
Don's House (F2878-T5037-2)	0	Alfalfa Hay								223	120	500			500		81	350
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage					232	91	221	313	97	302	74			37		
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover					213	91	219	223	119	116				37	47	363

CROP YEAR 2030

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	19.4	Rye Silage / Soybeans					98	35	85	313	70	174				41	122	166
Back 22 (F6478-T5026-2)	21.2	Rye Silage / Soybeans					98	35	85	313	70	174				41	88	239
Patch 9 (F6478-T5026-3)	8.9	Rye Silage / Soybeans					98	35	85	313	70	174				41	88	198
Middle 22 (F6478-T5026-1)	22.8	Wheat Grain-Straw / DC Soybeans					120	40	97	343	116	141			43	40	80	282
Along WW (F6478-T5026-1)	4.4	Rye Silage / Soybeans					98	35	85	313	70	174				41	117	301
5 Hills (F3529-T5036-8)	6.9	Corn Grain					221	101	244	223	109	71					92	333
From 5 Hills (F3529-T5036-6)	8.3	Rye Silage / Soybeans					98	35	85	313	70	174				41	60	211
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale					249	98	236	313	135	208	62		65	40	100	511
Along N Rd. (F3529-T5036-1)	8.8	Corn Grain / Corn Stover					221	101	244	223	119	116					83	247
Corner 2 (F3529-T5036-2)	2.7	Corn Grain / Corn Stover					221	101	244	223	119	116					121	303
Around Barn W (F3529-T5036-2)	5.7	Rye Silage / Soybeans					98	35	85	313	70	174				41	127	433
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale					249	98	236	313	135	208	62		65	40	58	342
Down Lane W 22 (F3529-T5036-9)	0.0	Alfalfa Hay								223	120	500			500		102	264
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale					249	98	236	313	136	208	57		65	40	195	782
South Lane 8 (F3529-T5036-11)	0.0	Alfalfa Hay								223	120	500			500		175	255
Sudkamp Down Lane (F2878-T5037-1)	0.0	Alfalfa Hay								223	120	500			500		149	252
South Lane (F3529-T5036-11)	25.0	Rye Silage / Corn Silage					247	97	235	313	97	302	60		67	39		
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage					248	97	235	313	97	302	57		67	39	252	428
Behind Silage (F3529-T5036-3)	0.0	Alfalfa Hay								223	120	500			500			
Bohanon N 14 (F6478-T5023-1)	0.0	Alfalfa Hay								223	120	500			500		65	163
Bohanon S 19 (F6478-T5023-1)	0.0	Alfalfa Hay								223	120	500			500		80	172
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage					206	81	195	223	81	210				33	186	481
Adkins W Joshs (F2832-T5025-2)	9.0	Corn Silage					206	81	195	223	81	210				33	275	423
Adkins Big Field (F2832-T5025-2)	100.9	Corn Silage					150	29	505	223	81	210	72			21	158	804
The 40 W 7 (F3529-T5001-1)	5.6	Alfalfa Hay					222	93	225	223	120	500			270	14	147	230
The 40 E 19 (F3529-T5001-2)	19.3	Alfalfa Hay					222	93	225	223	120	500			270	14	66	181
Probst NW 31 (F2848-T5013-1)	30.5	Wheat Grain-Straw / DC Soybeans					116	40	97	343	116	141				33	71	241
Probst NE 45 (F2848-T5013-1)	44.9	Wheat Grain-Straw / DC Soybeans					116	40	97	343	116	141				33	90	286
Probst E 31 (F2848-T5013-3)	27.2	Alfalfa Hay					221	93	225	223	120	500			270	14	76	193
Probst 12 (F2848-T5013-4)	3.3	Alfalfa Hay					221	93	225	223	120	500			270	14	68	157
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage					235	97	235	313	97	302	74			14	100	275
Birchtold E 35 (F3621-T5059-1)	34.3	Corn Grain / Corn Stover					195	117	276	223	119	116				29	116	508
Birchtold W 12 (F3621-T5059-1)	11.5	Corn Grain / Corn Stover					195	117	276	223	119	116				29	92	348
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover					215	119	282	223	119	116				47		
Gratz (F6498-T4792-3)	25.1	Corn Grain / Corn Stover					61	38	90	223	119	116	148				21	317
Harmons (F6449-T7590-5)	34.8	Corn Grain / Corn Stover					221	86	207	223	119	116				47	39	307
Josh E (F9240-T8005-1)	38.3	Corn Grain / Corn Stover					221	86	207	223	119	116				47	59	411
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover					187	117	276	223	119	116					36	253
Sudkamp Along WW (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			240			
Sudkamp Middle 14 (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			240		123	372
Sudkamp E Fence (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			240		46	301
Sudkamp E Lane (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			240		128	545
Don's House (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500			240		67	321
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage					232	91	221	313	97	302	74			37		
Deans (F2921-T4474-2)	57.9	Corn Grain / Corn Stover					222	91	219	223	119	116				37	43	375

CROP YEAR 2031

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	19.4	Alfalfa Hay					222	93	225	223	120	500			270	38	119	165
Back 22 (F6478-T5026-2)	21.2	Alfalfa Hay					222	93	225	223	120	500			270	38	85	238
Patch 9 (F6478-T5026-3)	8.9	Alfalfa Hay					222	93	225	223	120	500			270	38	85	197
Middle 22 (F6478-T5026-1)	22.6	Rye Silage / Corn Silage					237	98	236	313	97	302	67		65	40	80	282
Along WW (F6478-T5026-1)	4.4	Alfalfa Hay					222	93	225	223	120	500			270	38	114	300
5 Hills (F3529-T5036-8)	6.9	Rye Silage / Soybeans					98	35	85	313	70	174				14	88	311
From 5 Hills (F3529-T5036-6)	8.3	Alfalfa Hay					222	93	225	223	120	500			270	38	57	210
Split 12 ac (F3529-T5036-7)	7.7	Rye Silage / Corn G Bale					249	98	236	313	135	208	62		65	40	96	534
Along N Rd. (F3529-T5036-1)	8.8	Rye Silage / Soybeans					98	35	85	313	70	174				14	79	225
Corner 2 (F3529-T5036-2)	2.7	Rye Silage / Soybeans					98	35	85	313	70	174				14	117	281
Around Barn W (F3529-T5036-2)	5.7	Alfalfa Hay					222	93	225	223	120	500			270	38	124	432
South of Udder Place (F3529-T5036-5)	10.2	Rye Silage / Corn G Bale					249	98	236	313	135	208	62		65	40	54	386
Down Lane W 22 (F3529-T5036-9)	0.0	Alfalfa Hay								223	120	500			500		89	264
North Lane 20 (F3529-T5036-5)	19.9	Rye Silage / Corn G Bale					249	98	236	313	135	208	57		65	40	191	806
South Lane 8 (F3529-T5036-11)	0.0	Alfalfa Hay								223	120	500			500		161	255
Sudkamp Down Lane (F2878-T5037-1)	0.0	Alfalfa Hay								223	120	500			500		135	252
South Lane (F3529-T5036-11)	25.0	Rye Silage / Corn Silage					249	98	236	313	97	302	57		65	40		
South House (F3529-T5036-4)	7.9	Rye Silage / Corn Silage					249	98	236	313	97	302	57		65	40	252	428
Behind Silage (F3529-T5036-3)	0.0	Alfalfa Hay								223	120	500			500			
Bohanon N 14 (F6478-T5023-1)	0.0	Alfalfa Hay								223	120	500			500		51	163
Bohanon S 19 (F6478-T5023-1)	0.0	Alfalfa Hay								223	120	500			500		66	172
Adkins 45 (F2832-T5025-1)	44.1	Corn Silage					206	81	195	223	81	210				33	186	477
Adkins W Joshs (F2832-T5025-2)	9.0	Corn Silage					206	81	195	223	81	210				33	275	419
Adkins Big Field (F2832-T5025-2)	100.9	Corn Silage					197	53	565	223	81	210				21	155	893
The 40 W 7 (F3529-T5001-1)	0.0	Alfalfa Hay								223	120	500			500		134	230
The 40 E 19 (F3529-T5001-2)	0.0	Alfalfa Hay								223	120	500			500		53	181
Probst NW 31 (F2848-T5013-1)	30.5	Corn Silage					197	81	195	223	81	210				33	71	237
Probst NE 45 (F2848-T5013-1)	44.9	Corn Silage					197	81	195	223	81	210				33	90	282
Probst E 31 (F2848-T5013-3)	0.0	Alfalfa Hay								223	120	500			500		63	193
Probst 12 (F2848-T5013-4)	0.0	Alfalfa Hay								223	120	500			500		53	157
Probst W (F2848-T5013-2)	52.6	Rye Silage / Corn Silage					241	97	235	313	97	302	70			39	100	259
Birchtold E 35 (F3621-T5059-1)	34.3	Soybeans					106	50	119	223	54	82				20	116	517
Birchtold W 12 (F3621-T5059-1)	11.5	Soybeans					110	53	126	223	54	82				21	92	359
Stewardson (F4832-T5975-2)	76.4	Corn Grain / Corn Stover					215	119	282	223	119	116				47		
Gratz (F6498-T4792-3)	25.1	Corn Grain / Corn Stover					69	40	96	223	119	116	123			47	13	312
Harmons (F6449-T7590-5)	34.8	Soybeans					109	53	126	223	54	82				21	39	318
Josh E (F9240-T8005-1)	38.3	Soybeans					109	53	126	223	54	82				21	58	422
Josh W (F9241-T8004-1)	38.4	Corn Grain / Corn Stover					156	92	217	223	119	116	82			47	33	279
Sudkamp Along WW (F2878-T5037-2)	0.0	Alfalfa Hay								223	120	500						
Sudkamp Middle 14 (F2878-T5037-2)	14.0	Corn Grain / Corn Stover					221	101	244	223	119	116				41	121	404
Sudkamp E Fence (F2878-T5037-2)	17.3	Corn Grain / Corn Stover					221	101	244	223	119	116				41	44	333
Sudkamp E Lane (F2878-T5037-2)	13.0	Corn Grain / Corn Stover					221	101	244	223	119	116				41	126	577
Don's House (F2878-T5037-2)	6.4	Corn Grain / Corn Stover					221	101	244	223	119	116				41	65	353
Joes Fence (F3529-T5036-11)	11.2	Rye Silage / Corn Silage					232	91	221	313	97	302	74			37		
Deans (F2921-T4474-2)	0.0	Soybeans								223	54	82					37	354

MAURER-STUTZ

TABLE 4.8 ANNUAL NUTRIENT BALANCE OF SETBACK ACRES

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

CROP YEAR 2026

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.3	Alfalfa Hay	2.6	168	144	7.1				223	120	500		120	500		168	144
Back 22 (F6478-T5026-2)	0.9	Alfalfa Hay	2.5	134	217	7.1				223	120	500		120	500		134	217
Along WW (F6478-T5026-1)	0.8	Alfalfa Hay	2.5	162	268	6.9				223	120	500		120	500		162	268
5 Hills (F3529-T5036-8)	6.0	Alfalfa Hay	2.4	146	314	7.7				223	120	500		120	500		146	314
From 5 Hills (F3529-T5036-6)	0.8	Alfalfa Hay	2.4	65	178	7.2				223	120	500		120	500		65	178
Split 12 ac (F3529-T5036-7)	4.4	Rye Silage / Corn G Bale	2.3	121	423	7.6				313	135	208	205	135	208		121	423
Along N Rd. (F3529-T5036-1)	7.4	Alfalfa Hay	2.4	138	233	7.2				223	120.0	500		120	500		138	233
Around Barn W (F3529-T5036-2)	4.7	Alfalfa Hay	2.5	172	400	7.3				223	120.0	500		120	500		172	400
South of Udder Place (F3529-T5036-5)	9.0	Rye Silage / Corn G Bale	2.4	79	271	7.7				313	135.3	208.06	205	135	208		79	271
Down Lane W 22 (F3529-T5036-9)	5.4	Corn Grain	2.5	137	249	7.2				223	108.8	70.84	205	109	71		137	249
Sudkamp Down Lane (F2878-T5037-1)	3.6	Corn Grain / Corn Stover	2.5	185	249	7.2				223	119.3	115.84	205	119	116		185	249
Behind Silage (F3529-T5036-3)	0.2	Rye Silage / Soybeans								313	69.6	173.58		69	173			
Bohanon N 14 (F6478-T5023-1)	1.4	Rye Silage / Soybeans	2.5	111	163	7.1				313	69.6	173.58		69	173		111	163
Bohanon S 19 (F6478-T5023-1)	2.5	Rye Silage / Soybeans	2.5	126	172	7.2				313	69.6	173.58		69	173		126	172
Adkins W Joshs (F2832-T5025-2)	1.1	Corn Silage	2.6	275	437	7.7				223	81.0	210	205	81	210		275	437
Adkins Big Field (F2832-T5025-2)	0.1	Corn Silage	2.3	171	387	7.5				223	81.0	210	223	81	210		171	387
The 40 W 7 (F3529-T5001-1)	0.2	Alfalfa Hay	2.5	183	221	7.1				223	120.0	500		120	500		183	221
The 40 E 19 (F3529-T5001-2)	0.3	Alfalfa Hay	2.4	102	172	7				223	120.0	500		120	500		102	172
Probst NW 31 (F2848-T5013-1)	1.7	Corn Silage	2.5	87	263	7.3				223	81.0	210	216	81	210		87	263
Probst NE 45 (F2848-T5013-1)	1.6	Corn Silage	2.5	106	308	7.3				223	81.0	210	216	81	210		106	308
Probst E 31 (F2848-T5013-3)	2.9	Alfalfa Hay	2.5	113	190	6.7				223	120.0	500		120	500		113	190
Probst 12 (F2848-T5013-4)	7.8	Alfalfa Hay	2.6	76	154	6.3				223	120.0	500		120	500		76	154
Probst W (F2848-T5013-2)	1.5	Wheat Grain-Straw / DC Soybeans	2.7	117	337	6.9				343	115.9	140.92	106	116	141		117	337
Birchtold E 35 (F3621-T5059-1)	2.3	Wheat Grain-Straw / DC Soybeans	2.4	126	423	7.3				343	115.9	140.92	106	116	141		126	423
Birchtold W 12 (F3621-T5059-1)	0.4	Wheat Grain-Straw / DC Soybeans	2	101	259	7.3				343	115.9	140.92	106	116	141		101	259
Gratz (F6498-T4792-3)	1.9	Soybeans	2.4	56	351	7.2				223	53.6	81.9		53	82		56	351
Don's House (F2878-T5037-2)	1.2	Alfalfa Hay	2.6	134	350	7.2				223	120.0	500		120	500		134	350
Deans (F2921-T4474-2)	0.3	Corn Grain / Corn Stover	2.3	62	306	6.7				223	119.3	115.84	205	119	116		62	306

CROP YEAR 2027

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.3	Alfalfa Hay								223	120	500		120	500		168	144
Back 22 (F6478-T5026-2)	0.9	Alfalfa Hay								223	120	500		120	500		134	217
Along WW (F6478-T5026-1)	0.8	Alfalfa Hay								223	120	500		120	500		162	268
5 Hills (F3529-T5036-8)	6.0	Alfalfa Hay								223	120	500		120	500		146	314
From 5 Hills (F3529-T5036-6)	0.8	Alfalfa Hay								223	120	500		120	500		65	178
Split 12 ac (F3529-T5036-7)	4.4	Rye Silage / Corn G Bale								313	135	208	205	135	208		121	423
Along N Rd. (F3529-T5036-1)	7.4	Alfalfa Hay								223	120	500		120	500		138	233
Around Barn W (F3529-T5036-2)	4.7	Alfalfa Hay								223	120	500		120	500		172	400
South of Udder Place (F3529-T5036-5)	9.0	Rye Silage / Corn G Bale								313	135	208	205	135	208		79	271
Down Lane W 22 (F3529-T5036-9)	5.4	Rye Silage / Soybeans								313	70	174		69	173		137	249
Sudkamp Down Lane (F2878-T5037-1)	3.6	Rye Silage / Soybeans								313	70	174		69	173		185	249
Behind Silage (F3529-T5036-3)	0.2	Alfalfa Hay								223	120	500		120	500			
Bohanon N 14 (F6478-T5023-1)	1.4	Alfalfa Hay								223	120	500		120	500		111	163
Bohanon S 19 (F6478-T5023-1)	2.5	Alfalfa Hay								223	120	500		120	500		126	172
Adkins W Joshs (F2832-T5025-2)	1.1	Corn Silage								223	81	210	205	81	210		275	437
Adkins Big Field (F2832-T5025-2)	0.1	Corn Silage								223	81	210	205	81	210		171	387
The 40 W 7 (F3529-T5001-1)	0.2	Alfalfa Hay								223	120	500		120	500		183	221
The 40 E 19 (F3529-T5001-2)	0.3	Alfalfa Hay								223	120	500		120	500		102	172
Probst NW 31 (F2848-T5013-1)	1.7	Wheat Grain-Straw / DC Soybeans								343	116	141	106	116	141		87	263
Probst NE 45 (F2848-T5013-1)	1.6	Wheat Grain-Straw / DC Soybeans								343	116	141	106	116	141		106	308
Probst E 31 (F2848-T5013-3)	2.9	Alfalfa Hay								223	120	500		120	500		113	190
Probst 12 (F2848-T5013-4)	7.8	Alfalfa Hay								223	120	500		120	500		76	154
Probst W (F2848-T5013-2)	1.5	Rye Silage / Corn Silage								313	97	302	205	81	302		115	337
Birchtold E 35 (F3621-T5059-1)	2.3	Corn Grain / Corn Stover								223	119	116	205	119	116		126	423
Birchtold W 12 (F3621-T5059-1)	0.4	Corn Grain / Corn Stover								223	119	116	205	119	116		101	259
Gratz (F6498-T4792-3)	1.9	Corn Grain / Corn Stover								223	119	116	212	119	116		56	351
Don's House (F2878-T5037-2)	1.2	Alfalfa Hay								223	120	500		120	500		134	350
Deans (F2921-T4474-2)	0.3	Corn Grain / Corn Stover								223	119	116	223	119	116		62	306

CROP YEAR 2028

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS %OM	P	K	PH	AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS) PAN	P2O5	K2O	NEEDED BY CROP (INCLUDES CROP CREDITS) PAN	P2O5	K2O	COMMERCIAL N	P2O5	K2O	SOIL BALANCE ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.3	Alfalfa Hay								223	120	500		120	500		168	144
Back 22 (F6478-T5026-2)	0.9	Alfalfa Hay								223	120	500		120	500		134	217
Along WW (F6478-T5026-1)	0.8	Alfalfa Hay								223	120	500		120	500		162	268
5 Hills (F3529-T5036-8)	6.0	Alfalfa Hay								223	120	500		120	500		146	314
From 5 Hills (F3529-T5036-6)	0.8	Alfalfa Hay								223	120	500		120	500		65	178
Split 12 ac (F3529-T5036-7)	4.4	Rye Silage / Corn G Bale								313	135	208	205	135	208		121	423
Along N Rd. (F3529-T5036-1)	7.4	Alfalfa Hay								223	120	500		120	500		138	233
Around Barn W (F3529-T5036-2)	4.7	Alfalfa Hay								223	120	500		120	500		172	400
South of Udder Place (F3529-T5036-5)	9.0	Rye Silage / Corn G Bale								313	135	208	205	135	208		79	271
Down Lane W 22 (F3529-T5036-9)	5.4	Alfalfa Hay								223	120	500		120	500		137	249
Sudkamp Down Lane (F2878-T5037-1)	3.6	Alfalfa Hay								223	120	500		120	500		185	249
Behind Silage (F3529-T5036-3)	0.2	Alfalfa Hay								223	120	500		120	500			
Bohanon N 14 (F6478-T5023-1)	1.4	Alfalfa Hay								223	120	500		120	500		111	163
Bohanon S 19 (F6478-T5023-1)	2.5	Alfalfa Hay								223	120	500		120	500		126	172
Adkins W Joshs (F2832-T5025-2)	1.1	Corn Silage								223	81	210	205	81	210		275	437
Adkins Big Field (F2832-T5025-2)	0.1	Corn Silage								223	81	210	205	81	210		171	387
The 40 W 7 (F3529-T5001-1)	0.2	Corn Grain / Corn Stover								223	119	116	205	119	116		183	221
The 40 E 19 (F3529-T5001-2)	0.3	Corn Grain / Corn Stover								223	119	116	205	119	116		102	172
Probst NW 31 (F2848-T5013-1)	1.7	Corn Silage								223	81	210	205	81	210		87	263
Probst NE 45 (F2848-T5013-1)	1.6	Corn Silage								223	81	210	205	81	210		106	308
Probst E 31 (F2848-T5013-3)	2.9	Corn Grain / Corn Stover								223	119	116	205	119	116		113	190
Probst 12 (F2848-T5013-4)	7.8	Corn Grain / Corn Stover								223	119	116	205	119	116		76	154
Probst W (F2848-T5013-2)	1.5	Rye Silage / Corn Silage								313	97	302	205	97	302		115	337
Birchtold E 35 (F3621-T5059-1)	2.3	Soybeans								223	54	82		53	82		126	423
Birchtold W 12 (F3621-T5059-1)	0.4	Soybeans								223	54	82		53	82		101	259
Gratz (F6498-T4792-3)	1.9	Corn Grain / Corn Stover								223	119	116	205	119	116		56	351
Don's House (F2878-T5037-2)	1.2	Alfalfa Hay								223	120	500		120	500		134	365
Deans (F2921-T4474-2)	0.3	Soybeans								223	54	82		53	82		62	306

CROP YEAR 2029

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.3	Corn Grain / Corn Stover								223	119	116	205	119	116		168	144
Back 22 (F6478-T5026-2)	0.9	Corn Grain / Corn Stover								223	119	116	205	119	116		134	217
Along WW (F6478-T5026-1)	0.8	Corn Grain								223	109	71	205	109	71		162	268
5 Hills (F3529-T5036-8)	6.0	Alfalfa Hay								223	120	500		120	500		146	314
From 5 Hills (F3529-T5036-6)	0.8	Corn Grain								223	109	71	205	109	71		65	178
Split 12 ac (F3529-T5036-7)	4.4	Rye Silage / Corn G Bale								313	135	208	205	135	208		121	423
Along N Rd. (F3529-T5036-1)	7.4	Alfalfa Hay								223	120	500		120	500		138	233
Around Barn W (F3529-T5036-2)	4.7	Corn Grain								223	109	71	205	109	71		172	400
South of Udder Place (F3529-T5036-5)	9.0	Rye Silage / Corn G Bale								313	135	208	205	135	208		79	271
Down Lane W 22 (F3529-T5036-9)	5.4	Alfalfa Hay								223	120	500		120	500		137	249
Sudkamp Down Lane (F2878-T5037-1)	3.6	Alfalfa Hay								223	120	500		120	500		185	249
Behind Silage (F3529-T5036-3)	0.2	Alfalfa Hay								223	120	500		120	500			
Bohanon N 14 (F6478-T5023-1)	1.4	Alfalfa Hay								223	120	500		120	500		111	163
Bohanon S 19 (F6478-T5023-1)	2.5	Alfalfa Hay								223	120	500		120	500		126	172
Adkins W Joshs (F2832-T5025-2)	1.1	Corn Silage								223	81	210	205	81	210		275	437
Adkins Big Field (F2832-T5025-2)	0.1	Corn Silage								223	81	210	205	81	210		171	387
The 40 W 7 (F3529-T5001-1)	0.2	Rye Silage / Soybeans								313	70	174		69	173		183	221
The 40 E 19 (F3529-T5001-2)	0.3	Rye Silage / Soybeans								313	70	174		69	173		102	172
Probst NW 31 (F2848-T5013-1)	1.7	Corn Silage								223	81	210	205	81	210		87	263
Probst NE 45 (F2848-T5013-1)	1.6	Corn Silage								223	81	210	205	81	210		106	308
Probst E 31 (F2848-T5013-3)	2.9	Rye Silage / Soybeans								313	70	174		69	173		113	190
Probst 12 (F2848-T5013-4)	7.8	Rye Silage / Soybeans								313	70	174		69	173		76	154
Probst W (F2848-T5013-2)	1.5	Wheat Grain-Straw / DC Soybeans								343	116	141	106	116	141		115	337
Birchtold E 35 (F3621-T5059-1)	2.3	Wheat Grain-Straw / DC Soybeans								343	116	141	106	116	141		126	423
Birchtold W 12 (F3621-T5059-1)	0.4	Wheat Grain-Straw / DC Soybeans								343	116	141	106	116	141		101	259
Gratz (F6498-T4792-3)	1.9	Soybeans								223	54	82		53	82		56	351
Don's House (F2878-T5037-2)	1.2	Alfalfa Hay								223	120	500		120	500		134	365
Deans (F2921-T4474-2)	0.3	Corn Grain / Corn Stover								223	119	116	223	119	116		62	306

CROP YEAR 2030

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.3	Rye Silage / Soybeans								313	70	174		69	173		168	144
Back 22 (F6478-T5026-2)	0.9	Rye Silage / Soybeans								313	70	174		69	173		134	217
Along WW (F6478-T5026-1)	0.8	Rye Silage / Soybeans								313	70	174		69	173		162	268
5 Hills (F3529-T5036-8)	6.0	Corn Grain								223	109	71	205	119	71		147	314
From 5 Hills (F3529-T5036-6)	0.8	Rye Silage / Soybeans								313	70	174		69	173		65	178
Split 12 ac (F3529-T5036-7)	4.4	Rye Silage / Corn G Bale								313	135	208	205	134	208		121	423
Along N Rd. (F3529-T5036-1)	7.4	Corn Grain / Corn Stover								223	119	116	205	119	116		138	233
Around Barn W (F3529-T5036-2)	4.7	Rye Silage / Soybeans								313	70	174		69	173		172	400
South of Udder Place (F3529-T5036-5)	9.0	Rye Silage / Corn G Bale								313	135	208	205	135	208		79	271
Down Lane W 22 (F3529-T5036-9)	5.4	Alfalfa Hay								223	120	500		120	500		137	249
Sudkamp Down Lane (F2878-T5037-1)	3.6	Alfalfa Hay								223	120	500		120	500		185	249
Behind Silage (F3529-T5036-3)	0.2	Alfalfa Hay								223	120	500		120	500			
Bohanon N 14 (F6478-T5023-1)	1.4	Alfalfa Hay								223	120	500		120	500		111	163
Bohanon S 19 (F6478-T5023-1)	2.5	Alfalfa Hay								223	120	500		120	500		126	172
Adkins W Joshs (F2832-T5025-2)	1.1	Corn Silage								223	81	210	205	81	210		275	437
Adkins Big Field (F2832-T5025-2)	0.1	Corn Silage								223	81	210	205	81	210		171	387
The 40 W 7 (F3529-T5001-1)	0.2	Alfalfa Hay								223	120	500		120	500		183	221
The 40 E 19 (F3529-T5001-2)	0.3	Alfalfa Hay								223	120	500		120	500		102	172
Probst NW 31 (F2848-T5013-1)	1.7	Wheat Grain-Straw / DC Soybeans								343	116	141	106	116	141		87	263
Probst NE 45 (F2848-T5013-1)	1.6	Wheat Grain-Straw / DC Soybeans								343	116	141	106	116	141		106	308
Probst E 31 (F2848-T5013-3)	2.9	Alfalfa Hay								223	120	500		120	500		113	190
Probst 12 (F2848-T5013-4)	7.8	Alfalfa Hay								223	120	500		120	500		76	154
Probst W (F2848-T5013-2)	1.5	Rye Silage / Corn Silage								313	97	302	205	97	302		115	337
Birchtold E 35 (F3621-T5059-1)	2.3	Corn Grain / Corn Stover								223	119	116	205	119	116		126	423
Birchtold W 12 (F3621-T5059-1)	0.4	Corn Grain / Corn Stover								223	119	116	205	119	116		101	259
Gratz (F6498-T4792-3)	1.9	Corn Grain / Corn Stover								223	119	116	205	119	116		56	351
Don's House (F2878-T5037-2)	1.2	Alfalfa Hay								223	120	500		120	500		134	365
Deans (F2921-T4474-2)	0.3	Corn Grain / Corn Stover								223	119	116	223	119	116		62	306

CROP YEAR 2031

FIELD NAME	TOTAL ACRES	CROP ROTATION	SOIL TEST RESULTS				AVAILABLE FROM MANURE (INCLUDES MANURE CREDITS)			NEEDED BY CROP (INCLUDES CROP CREDITS)			COMMERCIAL			SOIL BALANCE		
			%OM	P	K	PH	PAN	P2O5	K2O	PAN	P2O5	K2O	N	P2O5	K2O	ORGN	P	K
West 18 Along Warners (F6478-T5026-1)	0.3	Alfalfa Hay								223	120	500		120	500		168	144
Back 22 (F6478-T5026-2)	0.9	Alfalfa Hay								223	120	500		120	500		134	217
Along WW (F6478-T5026-1)	0.8	Alfalfa Hay								223	120	500		120	500		162	268
5 Hills (F3529-T5036-8)	6.0	Rye Silage / Soybeans								313	70	174		69	173		147	314
From 5 Hills (F3529-T5036-6)	0.8	Alfalfa Hay								223	120	500		120	500		65	178
Split 12 ac (F3529-T5036-7)	4.4	Rye Silage / Corn G Bale								313	135	208	205	135	208		121	423
Along N Rd. (F3529-T5036-1)	7.4	Rye Silage / Soybeans								313	70	174		69	173		138	233
Around Barn W (F3529-T5036-2)	4.7	Alfalfa Hay								223	120	500		120	500		172	400
South of Udder Place (F3529-T5036-5)	9.0	Rye Silage / Corn G Bale								313	135	208	205	135	208		79	271
Down Lane W 22 (F3529-T5036-9)	5.4	Alfalfa Hay								223	120	500		120	500		137	249
Sudkamp Down Lane (F2878-T5037-1)	3.6	Alfalfa Hay								223	120	500		120	500		185	249
Behind Silage (F3529-T5036-3)	0.2	Alfalfa Hay								223	120	500		120	500			
Bohanon N 14 (F6478-T5023-1)	1.4	Alfalfa Hay								223	120	500		120	500		111	163
Bohanon S 19 (F6478-T5023-1)	2.5	Alfalfa Hay								223	120	500		120	500		126	172
Adkins W Joshs (F2832-T5025-2)	1.1	Corn Silage								223	81	210	205	81	210		275	437
Adkins Big Field (F2832-T5025-2)	0.1	Corn Silage								223	81	210	205	81	210		171	387
The 40 W 7 (F3529-T5001-1)	0.2	Alfalfa Hay								223	120	500		120	500		183	221
The 40 E 19 (F3529-T5001-2)	0.3	Alfalfa Hay								223	120	500		120	500		102	172
Probst NW 31 (F2848-T5013-1)	1.7	Corn Silage								223	81	210	205	81	210		87	263
Probst NE 45 (F2848-T5013-1)	1.6	Corn Silage								223	81	210	205	81	210		106	308
Probst E 31 (F2848-T5013-3)	2.9	Alfalfa Hay								223	120	500		120	500		113	190
Probst 12 (F2848-T5013-4)	7.8	Alfalfa Hay								223	120	500		120	500		78	154
Probst W (F2848-T5013-2)	1.5	Rye Silage / Corn Silage								313	97	302	205	97	302		115	337
Birchtold E 35 (F3621-T5059-1)	2.3	Soybeans								223	54	82		53	82		126	423
Birchtold W 12 (F3621-T5059-1)	0.4	Soybeans								223	54	82		53	82		101	259
Gratz (F6498-T4792-3)	1.9	Corn Grain / Corn Stover								223	119	116	205	119	116		56	351
Don's House (F2878-T5037-2)	1.2	Corn Grain / Corn Stover								223	119	116	223	119	116		134	365
Deans (F2921-T4474-2)	0.3	Soybeans								223	54	82		53	82		62	306

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TABLE 4.8B PROJECTED SOIL P AND K LEVELS FOR SPREADABLE ACRES

PROJECT: New Shoes Dairy

PROJECT NO.: 23808034.11

Rotation Years: 2026 to 2031

Number of Years at Planned Nutrient Management to Reach 300 lb/acres (150 ppm) Bray P1

FIELD NAME	P_1 At Start lb/Acre	P Balance @ End of Rotation	Average P1 Soil Change for Rotation	Average Annual Change in P1	Years To Reach 300 lbs/Ac P1	K At Start lb/Acre	K Balance @ End of Rotation	Average K soil change for Rotation	Average Annual change in K
West 18 Along Warners (F6478-T5026-1)	168	119	(49)	(8)	#	144	165	21	3
Back 22 (F6478-T5026-2)	134	85	(49)	(8)	#	217	238	21	3
Patch 9 (F6478-T5026-3)	134	85	(49)	(8)	#	176	197	21	3
Middle 22 (F6478-T5026-1)	96	80	(16)	(3)	#	282	282	0	0
Along WW (F6478-T5026-1)	162	114	(48)	(8)	#	268	300	32	5
5 Hills (F3529-T5036-8)	146	88	(58)	(10)	#	314	311	(3)	(1)
From 5 Hills (F3529-T5036-6)	65	57	(8)	(1)	#	178	210	32	5
Split 12 ac (F3529-T5036-7)	121	96	(25)	(4)	#	423	534	111	19
Along N Rd. (F3529-T5036-1)	138	79	(59)	(10)	#	233	225	(8)	(1)
Corner 2 (F3529-T5036-2)	176	117	(59)	(10)	#	289	281	(8)	(1)
Around Barn W (F3529-T5036-2)	172	124	(48)	(8)	#	400	432	32	5
South of Udder Place (F3529-T5036-5)	79	54	(25)	(4)	#	271	366	95	16
Down Lane W 22 (F3529-T5036-9)	137	89	(48)	(8)	#	249	264	15	2
North Lane 20 (F3529-T5036-5)	216	191	(25)	(4)	#	711	806	95	16
South Lane 8 (F3529-T5036-11)	211	161	(50)	(8)	#	253	255	2	0
Sudkamp Down Lane (F2878-T5037-1)	185	135	(50)	(8)	#	249	252	3	1
South Lane (F3529-T5036-11)					#				
South House (F3529-T5036-4)	252	252	0	0	818	428	428	0	0
Behind Silage (F3529-T5036-3)					#				
Bohanon N 14 (F6478-T5023-1)	111	51	(60)	(10)	#	163	163	(0)	(0)
Bohanon S 19 (F6478-T5023-1)	126	66	(60)	(10)	#	172	172	(0)	(0)
Adkins 45 (F2832-T5025-1)	186	186	0	0	3282	495	477	(18)	(3)
Adkins W Joshs (F2832-T5025-2)	275	275	0	0	715	437	419	(18)	(3)
Adkins Big Field (F2832-T5025-2)	171	155	(16)	(3)	#	387	893	506	84
The 40 W 7 (F3529-T5001-1)	183	134	(49)	(8)	#	221	230	9	2
The 40 E 19 (F3529-T5001-2)	102	53	(49)	(8)	#	172	181	9	2
Probst NW 31 (F2848-T5013-1)	87	71	(16)	(3)	#	263	237	(26)	(4)
Probst NE 45 (F2848-T5013-1)	106	90	(16)	(3)	#	308	282	(26)	(4)
Probst E 31 (F2848-T5013-3)	113	63	(50)	(8)	#	190	193	3	1
Probst 12 (F2848-T5013-4)	76	53	(23)	(4)	#	154	157	3	1
Probst W (F2848-T5013-2)	117	100	(17)	(3)	#	337	259	(78)	(13)
Birchtold E 35 (F3621-T5059-1)	126	116	(10)	(2)	#	423	517	94	16
Birchtold W 12 (F3621-T5059-1)	101	92	(9)	(2)	#	259	359	100	17
Stewardson (F4832-T5975-2)					#				
Gratz (F6498-T4792-3)	56	13	(43)	(7)	#	351	312	(39)	(7)

Harmons (F6449-T7590-5)	50	39	(11)	(2)	#	201	318	117	20
Josh E (F9240-T8005-1)	70	59	(11)	(2)	#	302	422	120	20
Josh W (F9241-T8004-1)	52	33	(19)	(3)	#	213	279	66	11
Sudkamp Along WW (F2878-T5037-2)					#				
Sudkamp Middle 14 (F2878-T5037-2)	190	121	(69)	(11)	#	401	404	3	0
Sudkamp E Fence (F2878-T5037-2)	113	44	(69)	(11)	#	330	333	3	0
Sudkamp E Lane (F2878-T5037-2)	195	126	(69)	(11)	#	574	577	3	0
Don's House (F2878-T5037-2)	134	65	(69)	(11)	#	350	353	3	0
Joes Fence (F3529-T5036-11)					#				
Deans (F2921-T4474-2)	62	37	(25)	(4)	#	306	354	48	8

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TABLE 6.8B PROJECTED SOIL P AND K LEVELS FOR SETBACK ACRES

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

Rotation Years: 2026 to 2031
Number of Years at Planned Nutrient Management to Reach 300 lb/acres (150 ppm) Bray P1

FIELD NAME	P_1 At Start lb/Acre	P Balance @ End of Rotation	Average P1 soil change for Rotation	Average Annual change in P1	Years To Reach 300 lbs/Ac P1	K At Start lb/Acre	K Balance @ End of Rotation	Average K soil change for Rotation	Average Annual change in K
West 18 Along Warners (F6478-T5026-1)	168	168	0	0		144	144	(0)	(0)
Back 22 (F6478-T5026-2)	134	134	0	0		217	217	(0)	(0)
	134				#	176			
	96				#	282			
Along WW (F6478-T5026-1)	162	162	0	0	19605	268	268	(0)	(0)
5 Hills (F3529-T5036-8)	146	147	1	0	786	314	314	(0)	(0)
From 5 Hills (F3529-T5036-6)	65	65	0	0	33389	178	178	(0)	(0)
Split 12 ac (F3529-T5036-7)	121	121	(0)	(0)	#	423	423	0	0
Along N Rd. (F3529-T5036-1)	138	138	0	0		233	233	(0)	(0)
	176				#	289			
Around Barn W (F3529-T5036-2)	172	172	0	0	18183	400	400	(0)	(0)
South of Udder Place (F3529-T5036-5)	79	79	(0)	(0)	#	271	271	0	0
Down Lane W 22 (F3529-T5036-9)	137	137	0	0	23157	249	249	(0)	(0)
	216				#	711			
	211				#	253			
Sudkamp Down Lane (F2878-T5037-1)	185	185	0	0		249	249	(0)	(0)
					#				
	252				#	428			
Behind Silage (F3529-T5036-3)			#VALUE!	#VALUE!				#VALUE!	#VALUE!
Bohanon N 14 (F6478-T5023-1)	111	111	0	0	48594	163	163	(0)	(0)
Bohanon S 19 (F6478-T5023-1)	126	126	0	0	44737	172	172	(0)	(0)
	186				#	495			
Adkins W Joshs (F2832-T5025-2)	275	275	(0)	(0)	#	437	437	0	0
Adkins Big Field (F2832-T5025-2)	171	171	(0)	(0)	#	387	387	0	0
The 40 W 7 (F3529-T5001-1)	183	183	0	0		221	221	(0)	(0)
The 40 E 19 (F3529-T5001-2)	102	102	(0)	(0)	#	172	172	(0)	(0)
Probst NW 31 (F2848-T5013-1)	87	87	(0)	(0)	#	263	263	0	0
Probst NE 45 (F2848-T5013-1)	106	106	(0)	(0)	#	308	308	0	0
Probst E 31 (F2848-T5013-3)	113	113	(0)	(0)	#	190	190	(0)	(0)
Probst 12 (F2848-T5013-4)	76	76	(0)	(0)	#	154	154	(0)	(0)
Probst W (F2848-T5013-2)	117	115	(2)	(0)	#	337	337	0	0
Birchtold E 35 (F3621-T5059-1)	126	126	(0)	(0)	#	423	423	0	0
Birchtold W 12 (F3621-T5059-1)	101	101	(0)	(0)	#	259	259	0	0
					#				
Gratz (F6498-T4792-3)	56	56	(0)	(0)	#	351	351	0	0
	50				#	201			

	70				#	302			
	52				#	213			
					#				
	190				#	401			
	113				#	330			
	195				#	574			
Don's House (F2878-T5037-2)	134	134	(0)	(0)	#	350	365	15	2
					#				
Deans (F2921-T4474-2)	62	62	(0)	(0)	#	306	306	0	0

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Table 4.9 PROJECTED MANURE INVENTORY

PROJECT: New Shoes Dairy

PROJECT NO.: 23808034.11

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Applied	Total Exported	Total Transferred Out	On Hand at End of Period	Units
Solids	2026	0	3750	3750			0	TON
E5	2026	0	8400	8130			270	1000 GAL
E8 E6	2026	0	8350	8350			0	1000 GAL
Solids	2027	0	3750	3750			0	TON
E5	2027	270	8400	8670			0	1000 GAL
E8 E6	2027	0	8350	8350			0	1000 GAL
Solids	2028	0	3750	3750			0	TON
E5	2028	0	8400	8100			300	1000 GAL
E8 E6	2028	0	8350	8350			0	1000 GAL
Solids	2029	0	3750	3750			0	TON
E5	2029	300	8400	8300			400	1000 GAL
E8 E6	2029	0	8350	8350			0	1000 GAL
Solids	2030	0	3750	3750			0	TON
E5	2030	400	8400	8800			0	1000 GAL
E8 E6	2030	0	8350	8350			0	1000 GAL
Solids	2031	0	3750	3750			0	TON
E5	2031	0	8400	8400			0	1000 GAL
E8 E6	2031	0	8350	8350			0	1000 GAL

4.10 Manure Export Agreement(s)

Agreements should be inserted after this page.

4.11 Nitrogen Risk Analysis

The following table lists those fields with in the land application area that contain 50% tile drainage and/or contain high risk soil types.

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NITROGEN RISK ASSESSMENT

PROJECT: New Shoes Dairy PROJECT NO.: 23808034 11	Soils with High Risk N-Leaching Characteristics[1]	>50% Tile-Drained[2]	Selected Management[3]	Risk Analysis	
				Soils	Tile Drained
West 18 Along Warners (F6478-T5026-1)	No	No	1		
Back 22 (F6478-T5026-2)	No	No	1		
Patch 9 (F6478-T5026-3)	No	No	1		
Middle 22 (F6478-T5026-1)	No	No	1		
Along WW (F6478-T5026-1)	No	No	1		
5 Hills (F3529-T5036-8)	No	No	1		
From 5 Hills (F3529-T5036-6)	No	No	1		
Split 12 ac (F3529-T5036-7)	No	No	1		
Along N Rd. (F3529-T5036-1)	No	No	1		
Corner 2 (F3529-T5036-2)	No	No	1		
Around Barn W (F3529-T5036-2)	No	No	1		
South of Udder Place (F3529-T5036-5)	No	No	1		
Down Lane W 22 (F3529-T5036-9)	No	No	1		
North Lane 20 (F3529-T5036-5)	No	No	1		
South Lane 8 (F3529-T5036-11)	No	No	1		
Sudkamp Down Lane (F2878-T5037-1)	No	No	1		
South Lane (F3529-T5036-11)	No	No	1		
South House (F3529-T5036-4)	No	No	1		
Behind Silage (F3529-T5036-3)	No	No	1		
Bohanon N 14 (F6478-T5023-1)	No	No	1		
Bohanon S 19 (F6478-T5023-1)	No	No	1		
Adkins 45 (F2832-T5025-1)	No	No	1		
Adkins W Joshs (F2832-T5025-2)	No	No	1		
Adkins Big Field (F2832-T5025-2)	No	No	6		
The 40 W 7 (F3529-T5001-1)	No	No	1		
The 40 E 19 (F3529-T5001-2)	No	No	1		
Probst NW 31 (F2848-T5013-1)	No	No	1		
Probst NE 45 (F2848-T5013-1)	No	No	1		
Probst E 31 (F2848-T5013-3)	No	No	1		
Probst 12 (F2848-T5013-4)	No	No	1		
Probst W (F2848-T5013-2)	No	No	1		
Birchtold E 35 (F3621-T5059-1)	No	No	1		
Birchtold W 12 (F3621-T5059-1)	No	No	1		
Stewardson (F4832-T5975-2)	No	No	6		
Gratz (F6498-T4792-3)	No	No	1		
Harmons (F6449-T7590-5)	No	No	1		
Josh E (F9240-T8005-1)	No	No	1		
Josh W (F9241-T8004-1)	No	No	1		
Sudkamp Along WW (F2878-T5037-2)	No	No	1		
Sudkamp Middle 14 (F2878-T5037-2)	No	No	1		
Sudkamp E Fence (F2878-T5037-2)	No	No	1		
Sudkamp E Lane (F2878-T5037-2)	No	No	1		
Don's House (F2878-T5037-2)	No	No	1		
Joes Fence (F3529-T5036-11)	No	No	1		
Deans (F2921-T4474-2)	No	No	1		

1. Refer to the excel spreadsheet titled "High Risk N Leaching Soils" that contains a list of soil series and karst soils, by county, that pose a high risk for downward nitrogen movement.

2. Applies to fields where 50% or more of the field acreage is tile drained. The drained area shall be defined by the lateral spacing recommendations specified in the Illinois Drainage Guide based on predominant soil type. The outer boundary of the drained area shall be a distance of ½ the recommended lateral spacing away from the tile line(s).

3. The selected management is the worst case scenario if more than one management will be utilized.

Generalized Interpretation of the Nitrogen Leaching Risk Analysis:

•Fields with a rating of "LOW" or " MEDIUM" have a low/medium potential to leach nitrates below the root zone. These fields have more flexibility for timing of nitrogen application; however, care must be taken to limit loss of applied nitrogen through denitrification.

•Fields with a rating of HIGH" have a high potential to leach nitrates below the root zone. Fields with systematic subsurface drains (tile) are rated "HIGH" potential to leach nitrates out of the root zone. These fields require management that applies the nitrogen closer to the time the crop can utilize the applied nitrogen.

Criteria for Nitrogen via Commercial Fertilizer Sources:

•On fields with a "High Nitrogen Leaching Potential" apply the recommended nitrogen for spring planted crops prior to planting spring crops or split applications between pre-plant and a sidedress application.

•For perennial crops split the recommended application between two or three periods including early spring, early summer, or late summer.

•For fall planted crops apply 20-30 Lbs/Ac of the recommended amount in the fall and the remainder in the spring.

•Nitrogen may be fall applied for spring planted crops following the guidance in Table 1 of this section except for fields located south of the line approximating Route 16.

Criteria for Nitrogen Application via Manure (during Summer and Fall Periods)

•On fields with a "High Nitrogen Leaching Potential" and with no growing crop, manure and other organic by-products application is to be limited to 50 Lbs/ac of Nitrogen (Ammonium N + 1/3 of the Organic N) calculated at the time of application from June to October 1st to limit nitrogen leaching.

•When a grass or legume cover crop is growing or established immediately after waste application, manure or other organic by-products can be applied prior to October 1st at the recommended Nitrogen rate for the next non-legume crop or the nitrogen removal rate for the next legume (maximum 150 Lbs/ac) crop.

Illinois Nitrogen Management Guidelines

The table below is to be used for recommending nitrogen applications under high risk situations:

Nitrate loss potentials based on timing and nitrification inhibitors for corn.

	Timing/method of fertilizer or manure application	**Soils with High Risk N-Leaching Characteristics[1]**	**Tile-Drained Fields[2]**
1	Fall > 50oF3	High	High
2	Fall < 50 oF[3]without an inhibitor[4] and at half of the expected MRTN rate not to exceed 120 lbs N/acre	Medium	Medium if implementing Drainage Water Management (554), Constructed Wetland, or Cover Crop (340)
3	Manure fall applied that provides the full nitrogen rate with a cover crop or inhibitor prior to corn or other crops	Medium	Medium
4	Manure fall applied that provides only the crop phosphorus removal rate prior to corn or other crops	Medium	Medium
5	Fall < 50oF plus inhibitor	Medium	Medium
6	Spring5	Medium	Medium
7	Spring[5] plus side dress	Low	Low
8	Spring[5] applied controlled release nitrogen fertilizer	Medium	Medium
9	Adding a minimum of 2 years of hay or other perennial crops to the rotation.	Low	Low
10	Fall seeded, overwintering cover crops.	Low	Low
11	Irrigated cropland pre-plant plus side-dress or fertigation[6].	Low	Medium

	Nitrate loss potentials based on timing and nitrification inhibitors for late spring planted summer annuals.		
	Timing/method	**Soils with High Risk N-Leaching Characteristics[1]**	**Tile-Drained Fields[2]**
12	Fall	High	High
13	Spring applied < 30 days prior to planting	Medium	Medium
14	Spring plus inhibitor, Spring split applications, and Spring applied controlled release nitrogen fertilizer	Low	Medium

1. Refer to the excel spreadsheet titled "High Risk N Leaching Soils" that contains a list of soil series and karst soils, by county, that pose a high risk for downward nitrogen movement.
2. Applies to fields where 50% or more of the field acreage is tile drained. The drained area shall be defined by the lateral spacing recommendations specified in the Illinois Drainage Guide based on predominant soil type. The outer boundary of the drained area shall be a distance of ½ the recommended lateral spacing away from the tile line(s).
3. Soil temperature measures at a depth of 4 inches, 10 am, bare soil (Fo). http://www.isws.illinois.edu/warm/soiltemp.asp
4. Nitrification Inhibitor
5. Spring application no more than 30 days prior to average planting date.
6. Irrigation Water Management (449) is also applied.

Generalized Interpretation of the Nitrogen Leaching Risk Analysis:

- Fields with a rating of "LOW" or "MEDIUM" have a low/medium potential to leach nitrates below the root zone. These fields have more flexibility for timing of nitrogen application; however, care must be taken to limit loss of applied nitrogen through denitrification.
- Fields with a rating of HIGH" have a high potential to leach nitrates below the root zone. Fields with systematic subsurface drains (tile) are rated "HIGH" potential to leach nitrates out of the root zone. These fields require management that applies the nitrogen closer to the time the crop can utilize the applied nitrogen.

Criteria for Nitrogen via Commercial Fertilizer Sources:

- On fields with a "High Nitrogen Leaching Potential" apply the recommended nitrogen for spring planted crops prior to planting spring crops or split applications between pre-plant and a sidedress application.
- For perennial crops split the recommended application between two or three periods including early spring, early summer, or late summer.
- For fall planted crops apply 20-30 Lbs/Ac of the recommended amount in the fall and the remainder in the spring.
- Nitrogen may be fall applied for spring planted crops following the guidance in Table 1 of this standard.

Criteria for Nitrogen Application via Manure (during Summer and Fall Periods):

- On fields with a "High Nitrogen Leaching Potential" and with no growing crop, manure and other organic by-products application is to be limited to 50 Lbs/ac of Nitrogen (Ammonium N + 1/3 of the Organic N) calculated at the time of application from June to October 1st to limit nitrogen leaching.
- When a grass or legume cover crop is growing or established immediately after waste application, manure or other organic by-products can be applied prior to October 1st at the recommended Nitrogen rate for the next non-legume crop or the nitrogen removal rate for the next legume (maximum 150 Lbs/ac) crop.

4.12 Phosphorous Risk Assessment

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PHOSPOROUS INDEX - SCORING SHEET

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11

	Sheet & Rill Erosion		Ephemeral Erosion		Leaching Potential		Distance to H2O		Practices Implemented		Soil Test P		Fertilizer Spread.		Fertilizer Application Method		Organic Application Rate		Organic Application Method		Practices Implemented	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
West 18 Along Warners (F6478-T5026-1)	1	1	1	1	1	1	6	4	CR	CR	5	2	0	0	0	0	5	5	1	1		DS
Back 22 (F6478-T5026-2)	1	1	1	1	1	1	1	1	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Patch 9 (F6478-T5026-3)	1	1	1	1	1	1	1	1	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Middle 22 (F6478-T5026-1)	1	1	1	1	1	1	2	2	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Along WW (F6478-T5026-1)	1	1	1	1	1	1	2	2	CR	CR	5	2	0	0	0	0	5	5	1	1		DS
5 Hills (F3529-T5036-8)	1	1	1	1	1	1	6	4	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
From 5 Hills (F3529-T5036-6)	1	1	1	1	1	1	6	4	CR	CR	1	1	0	0	0	0	5	5	1	1		DS
Split 12 ac (F3529-T5036-7)	1	1	1	1	1	1	6	4	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Along N Rd. (F3529-T5036-1)	1	1	1	1	1	1	6	4	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Corner 2 (F3529-T5036-2)	1	1	1	1	1	1	1	1	CR	CR	5	2	0	0	0	0	5	5	1	1		DS
Around Barn W (F3529-T5036-2)	1	1	1	1	1	1	6	4	CR	CR	5	2	0	0	0	0	5	5	1	1		DS
South of Udder Place (F3529-T5036-5)	1	1	1	1	1	1	6	4	CR	CR	2	1	0	0	0	0	5	5	1	1		DS
Down Lane W 22 (F3529-T5036-9)	1	1	1	1	1	1	6	4	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
North Lane 20 (F3529-T5036-5)	1	1	1	1	1	1	6	4	CR	CR	5	5	0	0	0	0	5	5	1	1		DS
South Lane 8 (F3529-T5036-11)	1	1	1	1	1	1	1	1	CR	CR	5	5	0	0	0	0	5	5	1	1		DS
Sudkamp Down Lane (F2878-T5037-1)	1	1	1	1	1	1	6	4	CR	CR	5	2	0	0	0	0	5	5	1	1		DS
South Lane (F3529-T5036-11)	1	1	1	1	1	1	1	1	CR	CR	9	9	0	0	0	0	5	5	1	1		SB
South House (F3529-T5036-4)	1	1	1	1	1	1	1	1	CR	CR	5	5	0	0	0	0	5	5	1	1		SB
Behind Silage (F3529-T5036-3)	1	1	1	1	1	1	6	4	CR	CR	9	9	0	0	0	0	5	2	1	1		DS
Bohanon N 14 (F6478-T5023-1)	1	1	1	1	1	1	6	4	CR	CR	2	1	0	0	0	0	5	2	1	1		DS
Bohanon S 19 (F6478-T5023-1)	1	1	1	1	1	1	6	4	CR	CR	2	1	0	0	0	0	5	2	1	1		DS
Adkins 45 (F2832-T5025-1)	1	1	1	1	1	1	2	2	IN	IN	5	5	0	0	0	0	5	2	1	1		SB
Adkins W Joshs (F2832-T5025-2)	1	1	1	1	1	1	1	1	IN	IN	5	5	0	0	0	0	5	2	1	1		SB
Adkins Big Field (F2832-T5025-2)	1	1	1	1	1	1	1	1	IN	IN	5	5	0	0	0	0	5	2	1	1		DS
The 40 W 7 (F3529-T5001-1)	1	1	1	1	1	1	6	4	CR	CR	5	2	0	0	0	0	5	5	1	1		DS
The 40 E 19 (F3529-T5001-2)	1	1	1	1	1	1	1	1	CR	CR	2	1	0	0	0	0	5	5	1	1		DS
Probst NW 31 (F2848-T5013-1)	1	1	1	1	1	1	6	4	CR	CR	2	2	0	0	0	0	5	2	1	1		DS
Probst NE 45 (F2848-T5013-1)	1	1	1	1	1	1	6	4	CR	CR	2	2	0	0	0	0	5	2	1	1		DS
Probst E 31 (F2848-T5013-3)	1	1	1	1	1	1	6	4	CR	CR	2	1	0	0	0	0	5	5	1	1		DS
Probst 12 (F2848-T5013-4)	1	1	1	1	1	1	6	4	CR	CR	2	1	0	0	0	0	5	5	1	1		DS
Probst W (F2848-T5013-2)	1	1	1	1	1	1	6	4	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Birchtold E 35 (F3621-T5059-1)	1	1	1	1	1	1	1	1	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Birchtold W 12 (F3621-T5059-1)	1	1	1	1	1	1	1	1	CR	CR	2	2	0	0	0	0	5	5	1	1		DS
Stewardson (F4832-T5975-2)	1	1	1	1	1	1	1	1	CR	CR	9	9	0	0	0	0	5	5	1	1		SB
Gratz (F6498-T4792-3)	1	1	1	1	1	1	6	4	CR	CR	1	1	0	0	0	0	5	2	1	1		DS
Harmons (F6449-T7590-5)	1	1	1	1	1	1	1	1	CR	CR	1	1	0	0	0	0	5	5	1	1		DS
Josh E (F9240-T8005-1)	1	1	1	1	1	1	1	1	CR	CR	1	1	0	0	0	0	5	5	1	1		DS
Josh W (F9241-T8004-1)	1	1	1	1	1	1	1	1	CR	CR	1	1	0	0	0	0	5	5	1	1		DS
Sudkamp Along WW (F2878-T5037-2)	1	1	1	1	1	1	2	2	CR	CR	9	9	0	0	0	0	0	0	0	0		DS
Sudkamp Middle 14 (F2878-T5037-2)	1	1	1	1	1	1	2	2	CR	CR	5	2	0	0	0	0	5	2	1	1		DS
Sudkamp E Fence (F2878-T5037-2)	1	1	1	1	1	1	1	1	CR	CR	2	1	0	0	0	0	5	2	1	1		DS
Sudkamp E Lane (F2878-T5037-2)	1	1	1	1	1	1	2	2	CR	CR	5	2	0	0	0	0	5	2	1	1		DS
Don's House (F2878-T5037-2)	1	1	1	1	1	1	6	4	CR	CR	2	1	0	0	0	0	5	2	1	1		DS
Joes Fence (F3529-T5036-11)	1	1	1	1	1	1	1	1	CR	CR	9	9	0	0	0	0	5	5	1	1		DS
Deans (F2921-T4474-2)	1	1	1	1	1	1	1	1	CR	CR	1	1	0	0	0	0	5	2	1	1		DS

MAURER-STUTZ

Table 5.2 PHOSPOROUS INDEX - RISK LEVEL SUMMARY

PROJECT: New Shoes Dairy

PROJECT NO.: 23808034.11

*Any individual features with a Very High or High rating should be evaluated and conservation practices applied where possible.

	SPREADABLE			
	Total Points		Risk Level	
	Before	After	Before	After
West 18 Along Warners (F6478-T5026-1)	20	15	Med.	Low
Back 22 (F6478-T5026-2)	12	12	Low	Low
Patch 9 (F6478-T5026-3)	12	12	Low	Low
Middle 22 (F6478-T5026-1)	13	13	Low	Low
Along WW (F6478-T5026-1)	16	13	Low	Low
5 Hills (F3529-T5036-8)	17	15	Low	Low
From 5 Hills (F3529-T5036-6)	16	14	Low	Low
Split 12 ac (F3529-T5036-7)	17	15	Low	Low
Along N Rd. (F3529-T5036-1)	17	15	Low	Low
Corner 2 (F3529-T5036-2)	15	12	Low	Low
Around Barn W (F3529-T5036-2)	20	15	Med.	Low
South of Udder Place (F3529-T5036-5)	17	14	Low	Low
Down Lane W 22 (F3529-T5036-9)	17	15	Low	Low
North Lane 20 (F3529-T5036-5)	20	18	Med.	Low
South Lane 8 (F3529-T5036-11)	15	15	Low	Low
Sudkamp Down Lane (F2878-T5037-1)	20	15	Med.	Low
South Lane (F3529-T5036-11)	19	19	Low	Low
South House (F3529-T5036-4)	15	15	Low	Low
Behind Silage (F3529-T5036-3)	24	19	Med.	Low
Bohanon N 14 (F6478-T5023-1)	17	11	Low	Low
Bohanon S 19 (F6478-T5023-1)	17	11	Low	Low
Adkins 45 (F2832-T5025-1)	16	13	Low	Low
Adkins W Joshs (F2832-T5025-2)	15	12	Low	Low
Adkins Big Field (F2832-T5025-2)	15	12	Low	Low
The 40 W 7 (F3529-T5001-1)	20	15	Med.	Low
The 40 E 19 (F3529-T5001-2)	12	11	Low	Low
Probst NW 31 (F2848-T5013-1)	17	12	Low	Low
Probst NE 45 (F2848-T5013-1)	17	12	Low	Low
Probst E 31 (F2848-T5013-3)	17	14	Low	Low
Probst 12 (F2848-T5013-4)	17	14	Low	Low
Probst W (F2848-T5013-2)	17	15	Low	Low
Birchtold E 35 (F3621-T5059-1)	12	12	Low	Low
Birchtold W 12 (F3621-T5059-1)	12	12	Low	Low
Stewardson (F4832-T5975-2)	19	19	Low	Low
Gratz (F6498-T4792-3)	16	11	Low	Low
Harmons (F6449-T7590-5)	11	11	Low	Low
Josh E (F9240-T8005-1)	11	11	Low	Low
Josh W (F9241-T8004-1)	11	11	Low	Low
Sudkamp Along WW (F2878-T5037-2)	14	14	Low	Low
Sudkamp Middle 14 (F2878-T5037-2)	16	10	Low	V Low
Sudkamp E Fence (F2878-T5037-2)	12	8	Low	V Low
Sudkamp E Lane (F2878-T5037-2)	16	10	Low	V Low
Don's House (F2878-T5037-2)	17	11	Low	Low
Joes Fence (F3529-T5036-11)	19	19	Low	Low
Deans (F2921-T4474-2)	11	8	Low	V Low

PRACTICES ALREADY APPLIED OR IMPLEMENTED

CC = Cover Crops
CF = Contour Farming
CR = Crop Rotation
DS = Drawdown Strategy
FS = Filter Strip/Field Border
WSB = Water and Sediment Control Basins

GS = Grassed Waterway
IN (F or S) = Incorporation Fall or Spring
IS = Irrigation System Improvement
IWM = Irrigation Water Management
MT = Mulch Till

NT = No Till
SB = Application Setback
RB = Riparian Buffer
RR = Reduce Application Rate
TR = Terrace
WS = Wetland System

Illinois Phosphorus Index (IPI)

Table 1: Site Characteristics & Source Factors

Site Characteristics	Low	Medium	High		Very High
Sheet & Rill Erosion tons acre/year[1]	<6	6-8	8-13		>13
Ephemeral Gully Erosion Control	Ephemeral gully erosion is controlled by terraces, WASCOB's, and/or grassed waterways or ephemeral gully erosion is not present.	N/A	N/A		Ephemeral gully erosion is present and not treated
Points:	1	2	5		9
Leaching Potential	Not Tile Drained	N/A	N/A		Tile Drained[2]
Points:	1				4
Distance to Surface Water	>500 feet	251-500 feet	< 250 ft w/setback or buffer present or applied[3]	< 250 ft w/no setback/buffer present or applied	Downstream edge of field adjacent to water (w/in 20 feet)
Points:	1	2	4	6	9
Source Factors	**Low**	**Medium**	**High**		**Very High**
Median Soil Test P Bray P_1 or Mehlich-3 lbs. P/acre	< 70	70-150	151-300		> 300
Fertilizer P Application Rate - lbs P_2O_5/acre/year[4]	1-40	41-90	91-180		> 180
Fertilizer P Application Method	Placed with planter at least 2 inches or injected below the soil surface	Surface applied and incorporated	Surface applied in the fall and unincorporated		Surface applied in the spring and unincorporated
Organic P Source Application Rate - lbs P_2O_5/acre/year[4]	1-40	41-90	91-180		> 180
Organic P Source Application Method	Applied with manure injection equipment, surface applied and incorporated within 24 hours, or through in-season irrigation equipment	Surface applied in late summer or early fall, unincorporated, with a cover crop or winter small grain	Surface applied in the late summer or early fall, unincorporated, without a cover crop or winter small grain		Surface applied in the spring and unincorporated
Points:	1	2	5		9

**Individual high and very high risk factors should first be evaluated and conservation practices applied where possible.

1. The erosion rate is the average annual erosion rate from Rusle2.
2. Fields with > 50% of the field acreage served by tile are considered tile drained.
3. Manure is applied according to an appropriate setback as shown in table 2. Where vegetative buffers (i.e. filter strips, field borders, or riparian buffers) are installed or present, setbacks are not needed. Setback distances are from the edge of the field. Applications subject to a CAFO NPDES permit or state or federal regulations must meet the requirements outlined in the permit or regulations. Organic by-products and biosolids must meet setback requirements as outlined in State Operating permits.
4. Average annual application rate. For multiple year phosphorus applications, divide the total single application rate by the application interval.

%Slope	Table 2 - Setback/Buffer Width	
	Application Setback Distance in Feet	**Buffer Width in Feet in Lieu of Setbacks**
0.5	200	36-72
1	200	54-108
2	200	72-144
3	200	90-180
4	200	108-216
>5	200	117-234

Table 3 - Field Vulnerability for Phosphorus Loss	
Illinois Phosphorus Index	**General Interpretation of Illinois Phosphorus Index**
< 11	**VERY LOW** potential for phosphorus movement from the field. If phosphorus is managed properly, there is little or no probability of an adverse impact to surface or ground water.
11-19	**LOW** potential for phosphorus movement from the field. The chance of organic material and nutrients' getting into surface or groundwater is very small. Buffers, setbacks, erosion control, improved application techniques and improved irrigation practices, alone or in combination will reduce movement. Commercial phosphorus fertilizer can be applied to build up P soil test levels. Manure can be applied at crop nitrogen needs.
20-25	**MEDIUM** potential for phosphorus movement from the field. The chance of organic material and nutrients getting to surface or ground water is very likely. A combination of buffers, setbacks, erosion control practices, irrigation practices, and/or application practices will lower phosphorus movement. Manure must be applied at crop phosphorus needs.
26-46	**HIGH** potential for phosphorus movement from the field and an adverse impact on surface and ground water. Phosphorus should not be applied unless conservation practices are in place. Commercial phosphorus application rates should be limited to starter fertilizer placed below the surface. Manure can be applied at crop phosphorus needs only if a soil test phosphorus draw down strategy is in place.
> 46	**VERY HIGH** potential for phosphorus movement from the field and an adverse impact on surface and ground water. Very high parameters should be addressed individually. Do not apply phosphorus until conservation practices are in place. Commercial phosphorus application rates should be reduced or eliminated. Manure should not be applied until soil test levels are reduced and conservation practices are in place.

4.13 Provisions for Manure Testing

If results of an analysis performed on samples of waste are used for the nutrient values in a plan, the following procedures shall be followed:

1) The livestock waste handling facility owner or operator shall annually obtain a laboratory analysis of the nutrient content of the livestock waste to be applied to land as provided within the waste management plan. Livestock waste shall be sampled during the application process. Multiple subsamples shall be obtained and may be combined into one sample for analysis so that a representative sample is used for preparation of the waste management plan. A sample taken during waste application the previous year can be used as a representative sample of the waste to be applied the following year unless there has been a change in the waste management practices.
2) Livestock waste sampling shall be performed under the direction of a certified livestock manager to ensure a representative sample from the livestock waste storage facility and to preserve the integrity of the sample.
3) The laboratory analysis of the livestock waste sample shall include, but not be limited to, % solids, total nitrogen, ammonium nitrogen, total phosphorous, and total potassium. Results of the analysis shall be included in the waste management plan. **See section 5.10 of this plan for more detail and appendix C for manure test results**.

4.14 Provisions for Waste Application

All fields where manure or process wastewater is applied must follow these previsions. A listing of the fields is included in Section 4.6 with the application rate calculations for each source type.

The following provisions of 35 IL Adm Code 502.620 and 8 IAC 900.803 shall be met or exceeded when applying waste. These and other restrictions are identified on the attached aerial photos or other field maps.

1. Livestock wastes shall not be applied to waters of the United States. Livestock waste application shall not cause runoff to waters of the United States during non-precipitation events. Livestock waste application shall not occur on land that is saturated at the time of application. Livestock waste shall not be applied onto land with ponded water.
2. Discharge of livestock waste to waters of the United States or off-site during dry weather through subsurface drains is prohibited.
3. Livestock waste shall not be applied during precipitation when runoff of livestock waste will be produced.
    a. Surface land application of livestock waste shall not occur within 24 hours preceding a forecast of 0.5 inches or more of precipitation in a 24-hour period as measured in liquid form.
    b. A prediction of a 60 percent or greater chance of 0.5 inches or more of precipitation in a 24-hour period as measured in liquid form; or
    c. A prediction of 0.5 inches or more of precipitation in a 24 hour period as measured in liquid form for the land application area location.
4. Determination of soil loss must be made for each field using Revised Universal Soil Loss Equation 2 (RUSLE2).
5. Surface land application may be used when the land slope is no greater than 5% or when the yearly average soil loss calculated using RUSLE2 is equal to or less than 5 tons per acre per year or Erosion Factor T, whichever is less, regardless of slope. Injection or incorporation within 24 hours shall be used when the land slope is greater than 5% and the yearly average soil loss calculated using RUSLE2 is greater than 5 tons per acre per year or Erosion Factor T, whichever is less. Fields with varying or steep slopes must be divided into separate areas for calculating yearly average soil loss using RUSLE2 to comply with this subsection.
6. Land application of livestock waste is prohibited on slopes greater than 15%.
7. Land application is prohibited:
    a. to land with less than 36 inches of soil covering fractured bedrock, sand or gravel. The depth of soil cover may be determined by using NRCS soil surveys, Illinois State Geological Survey well logs, or soil probes.
    b. to bedrock outcrops.
8. Livestock waste shall be applied at no greater than 50 percent of the agronomic nitrogen rate determined pursuant to Section 502.625 when there is less than 60 inches of unconsolidated material over bedrock. The depth of unconsolidated material may be determined by using NRCS surveys, Illinois State Geological Survey well logs, or soil probes.
9. Livestock waste shall be applied at no greater than 50 percent of the agronomic nitrogen rate determined pursuant to Section 502.625 when the minimum soil depth to seasonal high water table is less than or equal to 2 feet. The depth of soil to seasonal high water table may be determined by using information from NRCS soil surveys, soil probes, and water table levels from Illinois State Geological Survey well log data or well points.
10. Livestock waste shall not be applied at rates that exceed the infiltration rates of the soil.
11. A provision that livestock waste applied within 1/4 mile of any residence not part of the facility shall be injected or incorporated on the day of application. However, livestock management facilities and livestock waste handling facilities that have irrigation systems in operation prior to May 21, 1996, or existing facilities applying waste on frozen ground, are not subject to the provisions of this subsection (o) [510 ILCS 77/20(f)(5)];

12. A provision that livestock waste may not be applied within 200 feet of surface water unless the water is upgrade or there is adequate diking and waste will not be applied within 150 feet of potable water supply wells [510 ILCS 77/20(f)(6)];
13. Livestock waste shall not be applied within 100 feet of down gradient (slope) open subsurface drainage intakes, agricultural drainage wells, sinkholes, waterways or other conduits to surface waters, unless a 35-foot vegetative buffer exists between the land application area and the waterways, open subsurface drainage intakes, agricultural drainage wells, sinkholes or other conduits to surface water.)
14. A provision that livestock waste may not be applied in a 10-year flood plain unless the injection or incorporation method of application is used [510 ILCS 77/20(f)(7)];
15. A provision that livestock waste may not be applied in waterways. [510 ILCS 77/20(f)(8)] For the purposes of this Part, a grassed area serving as a waterway may receive livestock waste through an irrigation system if there is no runoff, the distance from applied livestock waste to surface water is greater than 200 feet, the distance from applied livestock waste to potable water supply wells is greater than 150 feet; the distance from applied livestock waste to a non-potable well, an abandoned or plugged well, a drainage well, or an injection well is greater than 100 feet; and precipitation is not expected within 24 hours;
16. Livestock waste handling facilities shall practice odor control methods during the course of manure removal and field application so as not to affect a neighboring farm or non-farm residence or populated area by causing air pollution as described in 501.102d. Odor control methods include but are not limited to:
    a. Soil injection or other methods of incorporation of waste into the soil including disking or plowing
    b. Consideration of climatic conditions, including wind direction and inversions

Facility management and employees or professional waste applicators retained shall handle all wastes. All land application of waste shall be performed in a manner that prevents runoff and odor and in accordance with all applicable regulations and NPDES Permit (if applicable).

4.15 Winter Application

The facility does not intend to apply manure to frozen, ice covered, or snow-covered ground. However, if the facility does determine that a winter application plan is needed, the CNMP will need to be updated with a winter application plan that meets 35 Ill Adm. Code 502.630 I.

a) **Winter Application Prohibition.** Surface land application of livestock waste on frozen, ice-covered, or snow-covered ground is prohibited except as specified below.

1) Notwithstanding the winter application prohibition, surface land application of livestock waste on frozen, ice-covered or snow-covered ground is allowed if all of the following conditions are met:

   A) No practical alternative measures are available to handle the livestock waste within storage facilities or to dispose of the livestock waste at other sites. Examples of practical alternative measures may include, but are not limited to, the transfer of waste to another waste handling facility or sewage treatment plant, rental or acquisition of a storage tank, reduction of herd size or depopulation, and protection of the facility from direct precipitation and clean stormwater runoff;

   B) Liquid livestock waste cannot be injected or incorporated within 24 hours after application due to soil conditions;

   C) Prior to December 1, the owner or operator has taken steps to provide 120 days of available storage capacity of manure storage areas. Examples of steps that could be taken may include, but are not limited to, land application of livestock waste, transfer of waste to another party, protection of waste storage structures from direct precipitation and stormwater runoff, and depopulating facilities to reduce the amount of waste generated;

   D) The owner or operator has taken steps to provide storage, yet the storage volume available on December 1 of that winter season is less than 120 days of storage;

   E) The owner or operator has notified the IEPA in writing on December 1 of that winter season that the CAFO has less than 120 days storage available; and

   F) The discharge of livestock waste from the structure to the surface waters is expected to occur due to shortage in storage capacity.

2) The storage volume calculation in subsection (a)(1)(C) must include runoff and direct precipitation plus the volume of livestock excreta, wash water and other process wastewater generated and expected to enter the storage structure during the period of December 1 to April 1. Runoff volume calculations must meet the requirements of IAC 502.630(2)

3) In the event winter land application is necessary, it must be conducted pursuant to a winter application plan described in subsection (b) and according to the conditions of subsection (c).

b) **Winter Application Plan**

In order to conduct surface land application on frozen, ice covered, or snow covered ground, the requirements of this subsection (b) must be met.

1) No land application may occur within ¼ mile of a non-farm residence.

2) No discharge may occur during land application of livestock waste.

3) Surface land application on frozen ground shall not occur within 24-hours preceding a forecast of 0.25 inches or more of precipitation in a 24-hour period as measured in liquid form. The CAFO owner or operator shall use one of the following two methods for determining whether these conditions exist and shall maintain a record of the forecast from the source used.

   A) A prediction of a 60 percent or greater chance of 0.25 inches or more of precipitation in a 24-hour period as measured in liquid form, obtained from the National Weather Service; or

   B) A prediction of 0.25 inches or more of precipitation in a 24-hour period as measured in liquid form and identified as higher than QPF category 2 obtained from the National Weather Service.

4) Surface land application of livestock waste on ice covered or snow covered land shall not occur within 24 hours preceding a forecast of 0.1 inches or more of precipitation in a 24 hour period as measured in liquid form. The CAFO owner or operator shall use one of the two methods provided below for determining whether or not these conditions exist and shall maintain a record of the forecast from the source used.

   A) A prediction of a 60 percent or greater chance of 0.1 inches or more of precipitation in a 24-hour period as measured in liquid form obtained from the National Weather Service; or

   B) A prediction of 0.1 inches or more of precipitation in a 24-hour period as measured in liquid form and identified as higher than QPF category 1 obtained from the National Weather Service.

5) If the land application of livestock waste is on ice covered or snow covered land, surface land application shall not occur when the predicted high temperature exceeds 32 degrees F on the day of land application or on any of the 7 days following land application as predicted by the National Weather Service for the location nearest to the land application area. The owner or operator shall maintain a record of the forecast from the source used.

6) If the surface land application of livestock waste is on ice covered or snow covered land, the CAFO owner or operator shall visually monitor for runoff from the site. The CAFO owner or operator daily must monitor each ice covered or snow covered field where land application has been conducted when the ambient temperature is 32 degrees F or greater following winter land application until all the ice or snow melts from the land application area.

7) If the surface land application of livestock waste is on ice covered or snow covered land and a runoff from the land application area occurs, the CAFO owner or operator shall report any discharge of livestock waste within 24 hours after the discovery of the discharge as follows:

   A) The report shall be made to the Agency through the Illinois Emergency Management Agency by calling 1-800-782-7860 or 1-217-782-7860;

   B) Within 5 days after this telephone report, the CAFO owner or operator shall file a written report with the Agency that includes the name and telephone number of the person filing the report, location of the discharge, an estimate of the quantity of the discharge, time and duration of the discharge, actions taken in response to the discharge, and observations of the condition of the discharge with regards to turbidity, color, foaming, floatable solids and other deleterious conditions of the runoff for each day of each runoff event until the ice or snow melts off the site.

c) **Availability of Individual Fields for Winter Application**

If livestock waste is to be surface applied on frozen ground, ice covered land or snow covered land, the land application may only be conducted on land that meets the following requirements:

1) Adequate erosion and runoff control practices exist, including, but not limited to, vegetative fence rows around the site, contour farming, terracing, catchment basins and buffer areas that intercept surface runoff from the site;

2) A crop stubble, crop residue or vegetative buffer of 200 feet exists between the land application area and surface waters, waterways, open tile line intake structures, sinkholes, agricultural wellheads, or other conduits to surface water and the vegetative buffer zone is down gradient of the livestock waste application area;

3) Application on land with slopes greater than 5% is prohibited;

4) Application may only occur on sites that have field specific soil erosion loss calculated using Revised Universal Soil Loss Equation less than Erosion Factor T, and have a median Bray P1 or Mehlich 3 soil level of phosphorus equal to or less than 300 pounds per acre;

5) Surface application may only occur if the setbacks equal three times the otherwise applicable setbacks as shown on the setback maps in Section 4. This setback requirement does not include the quarter mile distance from residences; and

6) For fields with slopes of less than 2 percent, the surface application may only occur if the setbacks equal two times the otherwise applicable setbacks shown in Section 4. This setback requirement does not include the quarter mile distance from residences.

4.16 General Liquid Manure Applications

For liquid wastes, the application rate is to be adjusted to the most limiting factor to avoid ponding, surface runoff, subsurface drainage (tile) discharge, the nutrient needs of the field, or the nitrogen or phosphorus risks for the field. The total application is not to exceed the field capacity of the upper 8 inches of soil. See **Appendix D (Available Water Capacity (AWC) Practical Soil Moisture Interpretations for Various Soils Textures and Conditions to Determine Liquid Waste Volume Applications not to exceed AWC)** to determine AWC and the amount (volume) that can be applied to reach the AWC. The actual application rate shall be adjusted during application to avoid ponding or runoff. Bare/Crusted soils may require some tillage to improve infiltration.

4.17 Manure Application on Fields with "Systematic Surface Drainage"

Criteria for Systematic Surface Drained Fields:

A field is considered subsurface (tile) drained if 50% or more of the field is subsurface (tiled) drained; however, even a field with one subsurface drainage line may present a risk of manure/wastewater movement to subsurface drains and cause a direct discharge.

- If Liquid Manure is applied:
  - **Surface application:** Till the surface at least 3 to 5 inches deep prior to liquid manure surface application. Surface apply the liquid manure uniformly over the entire soil surface on the freshly tilled soil. The purpose of the surface application on the freshly tilled soil is to allow the liquid manure to be soaked/absorbed into the entire 3 to 5 inches of loose soil surface.
  - For perennial crops (hay or pasture), or continuous no till fields where tillage is not an option, all tile outlets from the application area are to be plugged prior to application.
  - **If injection is used**, inject only deep enough to cover the manure with soil. Till the soil at least 3 inches below the depth of injection prior to application, or all tile outlets from the application area are to be plugged prior to application.
  - Limit LIQUID application rates to 13,000 gallons per acre or less per application.
- For SOLID manure till either prior to application or incorporate within 24 hours. This can be done with a heavy disk, chisel plow, plow, field cultivator, AERWAY tool, or similar tool that can provide "full-width" soil disturbance to a depth of 3 to 5 inches.

4.18 Subsurface Drainage Tile System Inspection, Maintenance & Repair Plan

Tile drainage systems should be inspected annually, preferably at peak flow times that typically occur during spring melt and after heavy rainfall events. The direct pathways created by these features can result in large amounts of sediment, debris, manure, fertilizer or chemicals entering tiles.

Tile Outlets Inspections

- Inspection should include checking outlet pipes to ensure that rodent guards are in place and working properly.
- Tile outlets should also be inspected for excessive erosion and broken or crushed pipe.

Riser Inspections

- Riser locations should be inspected for erosion around the inlet location
- Riser location should be recorded to ensure they are being plugged or setbacks are being complied with.

Mid-Field Inspections

- A good indicator of tile drain performance is a change in field moisture conditions, such as when traditionally well-drained areas exhibit prolonged periods of wetness.
- On-going maintenance of fields and waterways with tile systems should include visual observations for animal burrow, tile blow-outs or sink holes.
- Blowouts result from excessively high flow velocity or pressure inside the tile, causing it to crack or burst. Blowouts are common at tile junctions, fittings or weak spots. Blowouts will often create a sink hole. Ensure properly function of air vents.

Repair Plan

- A tile outlet with a rodent guard can be quickly cleaned by sliding your hand inside the pipe under the guard and removing any trapped material.
- In the case of a change in tile drain performance, the tile line should be inspected for a possible mid-field blockage and to verify that an adequate outlet (i.e. conveyance and capacity) exists.
- If a blowout occurs:
    - Install an air vent to prevent future blow outs
    - Repair damaged tile that caused blow out

Reference: Tile Drainage in Wisconsid: Maintaining Tile Drainage Systems Fact Sheet No. 2, September 2009

Section 5 - Recordkeeping

If a facility is a Permitted CAFO:

- The facility will submit an annual report to the agency, from records in this section.
- The permittee must create, maintain for five years, and make available to the Agency, upon request, the records requested in Section 502.320 of Title 35, Subtitle E, Chapter I.
- **Records documenting any actions taken to correct deficiencies**. Deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction.

Recordkeeping documents in this Section include:

- Inspection/monitoring schedule and records. The forms also establish a record of scheduled events, dates of completion, and individuals involved.
- Annual crop records (crop and yield, by field) – Crop records help the producer maintain records regarding crops, planting dates, planting rates, tillage and harvest dates, and yields.
- Manure application records—date, rate, timing, weather, and setbacks, by manure type, manure source, storage facility, by fields receiving manure, etc.
- Other nutrient applications (e.g. commercial fertilizer, irrigation water application) records—nutrient content analysis, application rate/acre, amount of water applied, nutrient content of irrigation water, etc.
- Manure exports off the farm—date(s) and amount(s).
- Manure imports onto the farm—date(s), amount(s), and analysis (prior to application).
- Internal transfers of manure—date(s), amount(s), initial location(s) and final location(s).
- Soil testing results – date(s), field, location in field, test results
- Manure analysis results – date(s), manure type, storage facility, application method
- Calibration tests on application equipment – date, results
- Other records required by State and/or local regulations.
- Records documenting the test methods and sampling protocols for manure, litter and process wastewater and soil analyses.

5.1. Annual NMP Review

Activity/Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animal numbers – review animal numbers yearly to determine if plan updates are required						
Manure Tests – test the facility manure sources yearly and calculate the land application rates for nitrogen and phosphorous crop needs						
Land Application Fields – review the fields included in the plan yearly and add fields not included in the plan if land application is planned.Adding fields requires soil tests and manure setback information.						
Soil Tests – review the land application fields included in this plan for soil tests needed for the upcoming year. Revew soil tests that may have been take to determine if manure can be applied to nitrogen or phosphorous crop needs.						
Manure Storage Needs – review the storage capacity of the facility to evaluate if additional storage is needed.						
Recordkeeping – review the records for the past year and keep on file for 5 years.						

5.2. Inspection/Monitoring Recordkeeping

Inspection/monitoring schedule and records

Visual Inspections. There must be routine visual inspections of the CAFO production area. At a minimum, the following must occur:

Daily inspection:
- water lines in the production areas, including drinking water or cooling water lines; and

Weekly inspections:
- stormwater diversion devices,
- runoff diversion structures,
- devices channeling contaminated stormwater to the wastewater and manure storage and containment structure;
- livestock waste storage facilities. The inspection will note the level of total volume of materials in the liquid livestock waste storage facility using the depth marker.

Yearly inspection:
- subsurface drainage
- Maximum number and type of animals, whether in open confinement or housed under roof
- the results of leak inspection of livestock waste application equipment;

5.2.1. Daily Inspections

Daily inspection:

- water lines in the production areas, including drinking water or cooling water lines; and

5.2.2. Weekly Inspections

Weekly inspections:

- stormwater diversion devices,
- runoff diversion structures,
- devices channeling contaminated stormwater to the wastewater and manure storage and containment structure;
- livestock waste storage facilities. The inspection will note the level of total volume of materials in the liquid livestock waste storage facility using the depth marker.

<u>Containment Inspection and Maintenance Protocols</u>

Weekly Check List

1. Inspect all building foundations for leaks and cracks
2. Inspect all earthen dikes for channeling and seepage
3. Eliminate all rodent activity from buildings and containments
4. Remove or spray all weeds and shrub trees from dikes and perimeters
5. Assure good vegetative cover on dike slopes and tops and mow as needed
6. Be sure all pump-out covers are in place
7. Assure all containments have freeboard space available
8. Clean and check all manure transfer pumps and recycle lines
9. Clean and check all separation equipment
10. Be sure all security covers and fences are in place
11. Maintain all warning placards
12. Review all spill contingency plans
13. Check location and readiness of all spill recovery equipment
14. Check condition of all surface water diversion structures
15. Repair and report on all incidents of deterioration

Weekly Self Inspection Record Sheet

Farm Name: New Shoes Dairy

Date (MM/DD/YY)	E5 - 1st Stage Measurement	E8 - 2nd Stage Measurement	E6 - Concrete Pit Measurement	Numbers of Mortalites	Mortality Disposal Method	Water lines (Checked daily, Recorded weekly)	Runoff Diversions	Storm Water Diversions	Repair Notes

5.2.4. Yearly Inspections

Yearly inspection:
- subsurface drainage
- Maximum number and type of animals, whether in open confinement or housed under roof
- the results of leak inspection of livestock waste application equipment;

Containment Inspection and Maintenance Protocols

Annual Check List
1. Maintain all pumps and motors per manufacturer recommendations
2. Check all hoses and lines for leaks and excessive wear
3. Clean all sumps and settling tanks and remove debris
4. Service all application equipment and inspect for wear
5. Review all records and reports; update as needed
6. Plan next years application windows

Yearly Animal Inventory

YEAR ____________

Animal Type	# of Animals	Avg. Weight (lbs)	Location	Outside/Inside Confinement

5.2.5. Periodic Records

Rainfall Records

Form 11-E

We
☐ have
☐ do not have
a rain gauge at our facility that we use to monitor and record precipitation.

Date / Time	Recorded by (Name)	Rainfall Amount

5.3. Crop Recordkeeping

Annual crop records (crop and yield, by field) – Crop records help the producer maintain records regarding crops, planting dates, planting rates, tillage and harvest dates, and yields.

Crop Yield Summary (Year _______)

Field Id	Manure Source	Acres	Harvested Crop	Date Planted	Date Harvested	Yield

5.4. Manure Application Recordkeeping

Manure application records—date, rate, timing, weather, and setbacks, by manure type, manure source, storage facility, by fields receiving manure, etc.

Record Keeping and Testing

1.) Obtain composite manure samples and test prior to all application events.
**If manure testing is mandated to point of application; use these sampling suggestions:
   1. Irrigation applications should be collected within the application area several times during the application event. These samples should be combined, mixed and tested as representative of the containment.
   2. Tank applied manure should be sampled several times during the hauling event and combined as a representative sample of the containment.
   3. Dry box applied manure should be sampled by placing a clean 8' by 8' section of visqueen in the path of the spreader. Collect the discharged manure and mix together for a representative sample of the manure mass.

2.) Request a full nutrient profile on all manure samples.
3.) Test soils every three years -- (annually is optimum)
4.) Maintain field maps to scale for all application sites.
5.) Keep daily application logs of all application events.
6.) Monitor and record weather conditions during application events.
7.) Maintain soil and cropping records for each field manure is applied to.
8.) Secure landowner agreements for all non-owned application sites.
9.) Record final application event information.
10.) Supply landowners and farming tenants with application summaries.
11.) Use pre side-dress nitrate testing to verify plant available nitrogen.

Require custom applicators adhere to the above protocols

Waste Application Records

Records of waste application shall be kept and include all of the information on the attached forms including:

1. Field I.D.
2. Date of application
3. Waste source and type
4. Method of application
5. Application rate
6. Total acres applied to
7. Total amount of waste applied
8. Important notes or comments
9. Identification of application areas on field maps.

Manure Application Equipment and Practices

Applicator Name (self/custom)	Custom (Liquids) Self (Solids)
Custom Applicator Name	Borgic Custom Pumping – Neil Borgic
Address	2023 N 1600th Street
City, State, Zip	West Liberty, IL 62475
Phone #	618-553-5666
Agitation equipment	Y
Transport equipment	N
Incorporation equipment	Y
Irrigation equipment	Y
Odor abatement practices	Y
Crop Fertility Advisor	
Phone #	

2025 Manure Applications - Land Owned or Operated by New Shoes Dairy

Field Name	Application Date	Acres Applied	Manure Source	Total (Gallons or Tons)	Rate gal/acre or ton/acre	Application Method	Applicator	Application Equipment Inspected	Soil Conditions	Application Weather (temp, wind, precip) 24hr before	Application Weather (temp, wind, precip) During	Application Weather (temp, wind, precip) 24hr following
Example	4/25/2025	50	Solids	580 Tons	12 tons/acre	Broadcast + incorp.	Ed	☑	Dry	50F, 10mph wind N, Dry	45F, 15 mph wind NW, Dry	60F, 5mph wind S, Dry
Adkins (Example)	6/12/2025	50	E8	500000 Gallons	10000 Gal/Acre	Irrigator	Ed	☑	Dry	75F, 10mph wind S, Dry	80F, 15 mph wind NW, Dry	70F, 5mph wind S, Dry
								☐				
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5.5. Fertilizer Application Recordkeeping

Other nutrient applications (e.g. commercial fertilizer, irrigation water application) records—nutrient content analysis, application

Farm Name: ______________________

Field ID	Date	Manure or Fertilizer Type	Method of Application (Surface, Injected, Irrigated, Incorporated, etc.)	Ground Cover	% Soil Moisture	Rate of Application					Weather and Comments
						Rate Gallons or Tons /Acre	Acres Applied	N Lbs/A	P2O5 Lbs/A	K2O Lbs/A	

Comments / Notes:

rate/acre, amount of water applied, nutrient content of irrigation water, etc.

5.6. Manure Export Recordkeeping

Transfers of Manure Off-site
Manure Source:___________________________________

Date	Manure Source	Quantity Transferred	Units: (gallons or tons)	Manure Analysis Date:	NH_4-N	Total N	P_2O_5	K_2O	Units of Concentration Lbs/1,000 gal or Lbs/ton	Recipient, Hauler or Broker Name, Contact Information,

5.7. Manure Import Recordkeeping

Manure imports onto the farm—date(s), amount(s), and analysis (prior to application).

5.8. Manure Internal Transfer Recordkeeping

Internal transfers of manure—date(s), amount(s), initial location(s) and final location(s).

5.9. Soil testing results – date(s), field, location in field, test results

5.9.1. Soil Sampling Procedure

Soil samples for soil tests should not represent more than 2.5 acres for grid sampling. The fields will be sub-divided into units of approximately 2.5 acres for soil sampling and nutrient planning purposes. Soil sampling depth for P and K shall be 7 inches. Under no till conditions pH can be tested using the top 4 inches only. Optionally, soil type sampling/testing may be used for soil tests.

Soil samples shall be collected and prepared according to The Illinois Agronomy handbook. Take soil samples prior to manure application (e.g., Mid Autumn). Since manure will typically be applied to soybean stubble anticipating a corn crop in the spring, soil tests should either be taken in corn stalks or soybean stubble prior to manure application. Wait 9 months after manure application before soil testing.

Soil testing shall include analysis for any nutrients for which specific information is needed to develop the nutrient plan. Request analyses pertinent to monitoring or amending the annual nutrient budget, e.g. pH, phosphorus, potassium. Testing for CEC, organic matter, and/or nitrogen is optional.

Soil test analyses must be performed by laboratories successfully meeting the requirements and performance standards of the Illinois Soil Testing Association Lab Accreditation Program (ISTA-LAP), http://www.soiltesting.org/ or other NRCS approved programs that consider laboratory performance and proficiency to assure accuracy of soil test results.

5.9.2. Soil Analysis

Sample and test soils on each field at least every 4 years. For facilities with over 1000 animal units under common ownership in Illinois, fields must be tested at least every 3 years.

The minimum analysis for Illinois is to include:

- pH
- Phosphorus (P as indicated by Bray P1 test)
- Potassium (K)

See appendix B for Laboratory test results

5.10. Manure analysis results – date(s), manure type, storage facility, application method

5.10.1. Manure Sampling Procedures

Accurate determination of manure nutrients depends on accurate sampling procedures. Sampling can be approached two ways:

I. Before application
II. During application

Sampling before application lets you plan efficient nutrient use. Sampling after application only lets you verify an application rate, right or wrong.

Regardless of the sampling method, always remember to:

1. Obtain samples that are representative of the source from which they were taken.
2. Be sure collected samples are thoroughly mixed and poured immediately into lab sample container.
3. Refrigerate the sample before sending it to the lab.

5.10.1.1. Solid Manure (Dairy, Beef, Swine, Poultry)

Collect a composite sample by following one of the procedures listed below. A method for mixing a composite sample is to pile the manure and then shovel from the outside to the inside of the pile until well mixed. Fill a one-gallon plastic heavy-duty zip lock bag approximately one-half full with the composite sample, squeeze out excess air, close and seal. Store sample in freezer if not delivered to the laboratory immediately.

Procedure 1. Sampling while loading - *Recommended method for sampling from a stack or bedded pack.* Take at least ten samples while loading several spreader loads and combine to form one composite sample. Thoroughly mix the composite sample and take an approximately one pound sub sample using a one-gallon plastic bag. *Sampling directly from a stack or bedded pack is not recommended.*
Procedure 2. Sampling during spreading - Spread a tarp in field and catch the manure from one pass. Sample from several locations and create a composite sample. Thoroughly mix the composite sample together and take a one-pound sub sample using a one-gallon plastic bag.
Procedure 3. Sampling daily haul - Place a five-gallon bucket under the barn cleaner 4-5 times while loading a spreader. Thoroughly mix the composite sample together and take a one-pound sub sample using a one-gallon plastic bag. Repeat sampling 2-3 times over a period of time and test separately to determine variability.
Procedure 4. Sampling poultry in-house - Collect 8-10 samples from throughout the house to the depth the litter will be removed. Samples near feeders and waterers may not be indicative of the entire house and sub samples taken near here should be proportionate to their space occupied in the whole house. Mix the samples well in a five-gallon pail and take a one-pound sub sample, place it in a one-gallon zip lock bag.

Procedure 5. Sampling stockpiled litter - Take ten sub samples from different locations around the pile at least 18 inches below the surface. Mix in a five-gallon pail and place a one-pound composite sample in a gallon zip lock bag.

5.10.1.2. Liquid Manure - Dairy, Beef, Swine

Obtain a composite following one of the procedures listed below and thoroughly mix. Using a plunger, an up-and-down action works well for mixing liquid manure in a five-gallon bucket. Fill a one-quart plastic bottle not more than three-quarters full with the composite sample. Store sample in freezer or refrigerator if not delivered to the lab immediately.
Procedure 1. Sampling from storage- Agitate storage facility thoroughly before sampling. Collect at least five samples from the storage facility or during loading using a five-gallon bucket. Place a sub sample of the composite sample in a one-quart plastic container. Sampling a liquid manure storage facility without proper agitation (2-4 hrs. minimum) is not recommended due to nutrient stratification, which occurs in liquid systems. If manure is sampled from a lagoon that was not properly agitated, typically the nitrogen and potassium will be more concentrated in the top liquid, while the phosphorus will be more concentrated in the bottom solids.
Procedure 2. Sampling during application- Place buckets around field to catch manure from spreader or irrigation equipment. Combine and mix samples into one composite sub sample in a one-quart plastic container.
Procedure 3. (Recommended for storage tanks). Use a round pip with a stopper to obtain a composite sample. Open the sampler (one left with the farm) and extend vertically into the pit slowly so air can be released and manure at each depth enters the sampler. After reaching the bottom of the pit/tank, close the sampler and remove. Place end of sampler into the sample bottle and release the stopper. Repeat as necessary to fill bottle about 2/3 full (~ 1 pint).

5.10.1.3. Sampling Methods

5.10.1.3.1 Pre-application Sampling using a COLIWASA core sampling instrument.

1. Assemble the COLIWASA according to the instructions provided.
2. Open the bottom port of the sampler.
3. Advance the open sampler slowly hand over hand into the manure mass, letting the manure fill the tube.
4. Continue to advance the sampler until the sinking action of the sampler stops.
5. Gently shake the outer tube of the sampler while pulling up on the plunger rod knob to seat the plunger into the bottom port.
6. Remove the closed sampler from the manure mass.
7. Place the bottom of the sampler into a clean pail and release the captured manure.
8. Collect samples from several locations to represent the entire containment.
9. When sampling earthen structures, be sure to take samples as far from the inner dike slopes as can be reached.
10. Manure solids settle quickly, so be sure to vigorously mix the core samples collected and pour immediately into the lab sample containers.
11. Refrigerate the sample before sending it to the lab.

5.10.1.3.2. Pre-application Sampling using a COLIWASA to sample a de-watering layer.

1. Assemble the base section of the COLIWASA according to the instructions provided..
2. Close the bottom port of the sampler.
3. Advance the closed end of the sampler into the upper liquid manure layer.
4. Using the etched graduation marks on the outside of the clear tube to position the sampler midway between the top liquid level and the expected lowered liquid level.
5. Push down on the plunger knob to open the bottom port.
6. Hold the sampler at the desired depth and allow the manure to flow into the sampler.
7. Close the bottom port by pulling up on the plunger control knob.
8. Remove the filled sampler from the containment and release into a clean pail.
9. Multiple samples may be taken but are not necessary to represent the liquid layer.
10. Test the sample with an on-site Nitrogen kit or refrigerate and send the sample to a lab.

5.10.1.3.3. Identifying Stratification using the COLIWASA to identify and qualify stratified layers of manure in a containment.

1. Assemble the COLIWASA according to the instructions provided.
2. Open the bottom port of the sampler.
3. Advance the open sampler slowly hand over hand into the manure mass letting the manure fill the tube.
4. Continue to advance the sampler until the sinking action of the sampler stops.
5. Gently shake the outer tube of the sampler while pulling up on the plunger rod knob to seat the plunger into bottom port.
6. Remove the closed sampler from the manure mass.
7. Place the sampler between you and a light source.
8. Record the stratified layer locations using the etched graduations on the outside of the sampler tube.
9. Each 1" of graduation of column contains 2 oz of manure liquid.
10. The identified stratification layers can now be sampled specifically for nutrient content of each layer.
11. Advance the closed sampler to the middle of the stratified layer.
12. Push down on the plunger knob to open the bottom port of the sampler.
13. Hold the sampler at the desired depth and allow the manure to flow into the sampler.
14. Close the bottom port by pulling up on the plunger control knob.
15. Remove the filled sampler from the containment and release into a clean pail.
16. Multiple samples may be taken but are not necessary to represent the stratified layer.
17. Refrigerate the sample before sending it to the lab.

5.10.1.3.4. Sampling During Application - catch sampling at point of application.

<u>Irrigation</u>

1. Irrigation liquid should be collected several times during the application procedure.
2. Place a clean pail in the path of the irrigation discharge.
3. Allow the irrigation equipment to move past the sample container.
4. Repeat this collection procedure several times as the containment is emptied.
5. Manure solids settle quickly, so be sure to vigorously mix the collected samples and pour immediately into the lab sample containers.
6. Refrigerate the sample before sending it to the lab.

Tank Transport and Application

1. Tank applied manure should be sampled several times during the hauling event and combined to provide a representative of the containment.
2. Collect samples from the discharge of the tank.
3. Manure solids settle quickly, so be sure to vigorously mix the collected samples and pour immediately into the lab sample containers.
4. Refrigerate the sample before sending it to the lab.

Dry Box Application

1. Manure applied by dry box should be sampled by placing a clean 8' by 8' (or larger) sheet of plastic in the path of the spreader.
2. Collect the discharged manure and mix together for a representative sample.
3. Place in sample container and refrigerate before sending to a lab.

5.10.1.4. Sample Identification and Delivery

Identify the sample container with information regarding the farm, animal species and date. This information should also be included on the sample information sheet along with application method, which is important in determining first year availability of nitrogen. Keep all manure samples frozen until shipped or delivered to a laboratory. Ship early in the week (Mon.-Wed.) and avoid holidays and weekends.

Manure testing analyses must be performed by laboratories successfully meeting the requirements and performance standards of the Manure Testing Laboratory Certification program (MTLCP) under the auspices of the Minnesota Department of Agriculture.

http://www2.mda.state.mn.us/webapp/lis/manurelabs.jsp

5.10.2. Manure Analysis

The minimum analysis for Illinois is to include:

- Total Nitrogen (TKN)
- Ammonia Nitrogen
- Total Phosphorus (P2O5)
- Total Potassium (K2O)
- Total Solids (Percent Solids)

See Appendix C for Laboratory test results

5.11. Calibration tests on application equipment – date, results

5.11.1. AWMFH Appendix 13A Calibrating Manure Spreading

The use of animal manure as a cropland fertilizer is economically and environmentally important. However, farmers cannot simply spread manure. They must know the nutrient quality of the manure and control the quantity and uniformity of the manure spread to ensure that the entire crop receives the nutrients.

The nutrient content of the manure is estimated from laboratory tests, and the quantity to apply is determined through computations of crop need. Farmers can receive this information from their county Extension office or other nutrient management planners. In practice, farmers often do not know exactly how much or how uniformly manure has been applied. Manure spreader calibration provides this important information.

Manure spreaders can discharge manure at varying rates, depending on forward travel speed, PTO speed, gear box settings, discharge opening, width of spread, overlap patterns, and other parameters. Calibration defines the combination of settings and travel speed needed to apply manure at a desired rate. Following is a description of the measurement methods used to determine manure application rates and ensure uniform application.

Calibration techniques

Calibration requires the measurement of the quantity of manure applied to the soil under different conditions. There are two calibration techniques: the *load area* method, which involves measuring the amount of manure in a loaded spreader and then calculating the number of spreader loads required to cover a known land area; and the *weight-area* method, which requires weighing manure spread over a small surface and computing the quantity of manure applied per acre.

The calibration method to use depends on the type of manure spreader. Soil-injection, liquid manure spreaders must be calibrated using the load-area method because soil-injected manure cannot be collected.

Liquid manure surface applied through a tank spreader Is also best measured by the load-area method because Of the difficulty in collecting the liquid manure, but it Can be measured with the weight-area method. Solid And semisolid manure also can be measured with Either method.

Load-area calibration

Load-area calibration requires measuring the quantity of manure (tons or gallons) held in a spreader load; spreading a number of identical loads at a constant speed, spreader setting and overlap; measuring the total area of the spread; and computing the quantity of manure applied per acre. After completing the following steps, record the calculations on Worksheet 1, Manure Spreader Capacity and Worksheet 2, Load-area Calibration.

Step 1. Determine the capacity of the manure spreader. The capacity of the manure spreader must be expressed in units compatible with the units used for the nutrient analysis and recommended application rate. In some cases, the manufacturer provides the appropriate information; in other instances. The manufacturer's information must be converted.

Liquid manure. Liquid manure analysis is expressed in pounds of nutrient per gallon and the application rate is provided in gallons per acre; therefore, use gallons to express the capacity of a liquid manure spreader. Manufacturers specify liquid manure spreaders by gallons of volumetric capacity. This information can be found in the owner's manual.

Solid and semisolid manure. Solid and semisolid manure analysis is expressed in pounds of nutrient per ton and the application rate is provided in tons per acre; therefore, solid and semisolid manure spreader capacity must be expressed in tons of manure.

Solid and semisolid manures of different moisture content have different weights; thus, the weight capacity of the spreader changes according to the kind of manure held. The most direct and accurate method of determining the weight of a load of manure is to actually weigh the spreader load on farm scales. If scales are not available, use the procedure in the next section to convert the volumetric capacity of the spreader to weight capacity for the particular manure held. Record Your calculations on Worksheet 1, Manure Spreader Capacity.

Converting volumetric capacity to weight capacity.

The volumetric capacity of box-type and open-tank or barrel spreaders for solid and semisolid manure is expressed in cubic feet. The manufacturer provides this information in the owner's manual. Two capacities are usually provided: heaped load (manure piled higher than the sides of the box) and struck load (the volume contained within the box). The capacity of older spreaders is sometimes designated in bushels; multiply the bushel capacity by 1.24 to determine capacity in cubic feet.

Multiply the volumetric capacity in cubic feet by the bulk density of the manure (in pounds per cubic foot) and convert it to tons. Bulk density depends on the amount of water, solids and air in the manure and can be measured by weighing a known standard volume of manure. A 5-gallon bucket has a volume of 2/3 cubic foot and can be used as a standard volume as follows:

l. Weigh the empty bucket and write the weight on the side of the bucket. This establishes the bucket's tare weight (the container weight subtracted from the gross weight to determine the weight of the manure).

2. Fill the bucket with manure from the loaded spreader. Use all the space in the bucket and pack the manure to the same density as in the spreader.

3. Weigh the full bucket and subtract the tare weight. The result is the manure weight in pounds.

4. Multiply the manure weight by 3 and then divide the product by 2. This gives the manure bulk density in pounds per cubic foot of volume.

5. Multiply the manure bulk density (in pounds per cubic foot) by the spreader capacity (in cubic feet) to get the weight of the spreader load in pounds. Divide by 2,000 to get tons.

6. Repeat this procedure at least three times. Sample the manure at different places and in different spreader loads. Average the values to obtain a representative composite of the manure.

Step 2. Spread manure on a selected field. Spread at least three full loads of manure on a field. Maintain the same speed and spreader setting for each load. Choose spreader path spacing to achieve what appears to be the most uniform coverage. Try to spread in a rectangle or square for easy calculation.

Step 3. Measure the area of the spread. Place flags at the corners of the spread area. Measure the width and length between the flags in feet using a measuring tape, measuring wheel, or consistent pace. Multiply the length by the width and divide that product by 43,560 to determine the area in acres.

Step 4. Compute the application rate. Multiply the number of loads spread by the number of tons or gallons per load to determine the total amount of manure applied to the area. Divide the total amount of manure by the area of the spread in acres to determine the application rate in tons per acre or gallons per acre.

The load-area method should be repeated at different speeds and spreader settings until the desired application rate is obtained. Maintain a record of the application rates at different settings to avoid recalibrating the spreader each season.

Weight-area calibration

Spreader calibration by weight-area requires laying out a ground sheet of known dimensions on the soil; spreading manure over it at a selected speed, spreader setting and overlap; retrieving the ground sheet and the manure deposited on it; weighing the manure retrieved; and computing the quantity of manure applied per acre. The weight-area method does not require measuring the amount of manure in the spreader. As you complete the following steps, record your calculations on Worksheet 3.

Weight-Area Calibration.

Step 1. Select a manure collection surface. A ground sheet can be a cloth or plastic (6 mil) sheet of at least 100 square feet (10 feet by 10 feet) in area. Multiply the length of the sheet by the width to determine its area in square feet.

Liquid manure may run off a flat ground sheet; shallow plastic or metal pans are more useful. The pans should have a minimum area of 1 square foot each. Multiply the length of one pan by its width to determine the area of one pan. Multiply the area of one pan by the number of pans used to determine the total collection area in square feet. For handling and cleaning convenience, place the pan inside a plastic garbage bag for each field test so that the bag and manure can be discarded leaving the pan clean. Six or more pans are necessary for a test.

Weigh the ground sheet or pan and record the weights for use as a tare weight in calculations. Dirty sheets and pans can be used for multiple tests only after major manure deposits have been removed. Dirty sheets and pans must be weighed before each test so that any manure residue is included in the new tare weight.

Step 2. Secure the collection surface in the field. Lay the ground sheet out fully extended. Lay the sheet on the ground so that as the sheet is removed from the field the manure applied over the surface can be collected easily in its folds. If dirty sheets are being used for additional tests turn the dirty side up so that any manure residue included in the tare weight is not lost. Weights of stone metal or earth clods will be required to hold the ground sheet on the soil surface. A small breeze can easily fold the sheet or tractor wheels and forceful applications of manure can move it.

Pans are not as easily affected by wind, but may be moved by forceful streams from side outlet manure spreaders. Evenly space pans in a row perpendicular to the spreader's path. Pans are easily crushed by tires; allow for wheel tracks and adhere to the path provided. Placing flags at designated wheel tracks helps Avoid pan damage.

Step 3. Spread manure over the collection area. Spread manure over and near the ground sheet or pans in a manner that best duplicates the spreading pattern you plan for the field. With rear outlet spreaders, make three passes: the first pass directly over the center of the collection area and the remaining two passes on the opposite sides of the first pass with an overlap. With side outlet spreaders, locate a first pass off of, but along one edge of, the collection area. Follow with subsequent passes farther away from the collection area and at the intended overlap until manure no longer reaches the surface.

In all cases. start spreading manure far enough before the collection area to ensure that the spreader is functioning. If a ground sheet is folded or a pan is moved during a spread pass, investigate its condition before continuing with the test. Folded edges can be straightened without major loss of accuracy. If more than one-fourth of the surface has moved and did not receive manure, the test should be conducted again with a newly weighed sheet. Pans that have been crushed but retain the applied manure can still be used. Return moved pans to their original position.

Step 4. Collect and weigh the manure. Remove weights used to hold the ground sheet in place. Fold the ground sheet and manure in short sections from all sides and corners inward to avoid losing any manure. A 10-foot by 10-foot sheet folded with wet manure may weigh as much as 150 pounds and tends to slip around when carried; place it in a feed tub or other container for easier handling.

Pans are easy to handle and will usually weigh less than 4 pounds each. Careful handling is required to avoid spilling liquid manure.

Select scales capable of accurately weighing the type and quantity of manure collected. A single pan may collect from 2 ounces to 4 pounds and can be weighed with a kitchen scale. A ground sheet may collect from 10 to 50 pounds with application rates of less than 10 tons per acre. A ground sheet can be weighed with spring-tension or milk scales. A ground sheet with application rates greater than 10 tons per acre will require a platform balance with a capacity of 50 to 150 pounds or greater.

The weight indicated on the scale will include the tare weight of the ground sheet or pan as well as that of any container used to hold the ground sheet or pan during weighing. Subtract the tare weights from the total weight to determine the net weight of the manure collected.

Step 5. Compute the application rate. The number of steps and the procedure used to compute the application rate depend on the method of collection and the units per acre.

Ground sheet to tons per acre. Divide the net pounds of manure collected by the area of the ground sheet to obtain the manure application rate in pounds of manure per square foot. Multiply the result by 43,560 and then divide by 2,000 to convert to tons per acre.

Pans to tons per acre. Add the net weights of manure collected in individual pans to determine the total weight of manure collected. Divide the total manure weight by the total collection area to obtain pounds of manure per square foot. Multiply the result by 43,560 and divide by 2000 to obtain tons per acre.

Pans to gallons per acre. If working with weight from pans to determine liquid applications in gallons per acre, make an additional measurement to calculate the weight per gallon of manure. Fill a 5-gallon bucket with liquid manure of the same consistency of that applied. Weigh the bucket of manure and subtract the tare weight of the bucket to determine the net weight of 5 gallons of manure. Divide the result by 5 to determine the weight in pounds per gallon. Follow the procedure for "Pans to tons per acre" through obtaining pounds of manure per square foot. Then multiply by 43,560 and divide by pounds per gallon to obtain Gallons per acre.

Uniformity testing

The results of nonuniform manure spreading are often indicated by the lush, green growth within the spreader paths and the not-so-lush growth between spreader paths. This occurs because more manure was deposited in and near the spreader path than farther away from the path. Uniform application can be obtained by adjusting the application overlap. The amount of overlap necessary can be determined by a uniformity test. As you complete the steps in this uniformity test, record your calculations on Worksheet 4, Uniformity Testing.

The test procedure is identical to the weight-area calibration method, using pans or a series of 24-inch by 24-inch ground sheet sheets laid out with equal spacing across two spreader path widths. After the manure is applied, each pan or sheet is compared with the others. Uniformity can be recorded when manure is spread to determine the application rate.

If all containers collect about the same amount of manure during a test, the application is uniform; if some collect more than others, the overlap should be adjusted. High application in the center of paths and low application between paths indicate a need to increase the overlap by decreasing the path spacing. Higher application between paths than within paths indicates a need to decrease overlap by increasing path spacing.

Shortcuts

Developing a range of application rates for different manure spreader speeds can be simplified if the spreader is PTO-powered and the tractor or truck is equipped with a groundspeed indicator. Conduct one test at low groundspeed and one at high groundspeed, maintaining the same spreader setting and PTO speed for both tests. Plot these two application rates on a graph of groundspeed versus application and draw a straight line connecting the two points. The application rate available at intermediate groundspeeds can then be estimated from the graph. Conducting additional high-low tests at different settings or at different PTO speeds will define a full range of available application rates.

If solid or semisolid manure changes moisture content from season to season, the weight capacity in the spreader and the application rate by weight will change. Adjust previously calibrated spreader conditions for these changes by determining the bulk density of the new manure. To estimate the field application rate for the new manure for a particular speed and spreader setting, multiply the old application rate by the new bulk density and then divide by the old bulk density.

This calculation eliminates the need to repeat the field tests every time manure properties change.

Summary

By measuring the application rate and uniformity of manure spreading, a farmer can be sure of the amount of manure nutrients applied to a crop. This measurement, called calibration, can be accomplished with a little time and a few dollars. For further information, contact your county Extension office.

Source—Adapted from Calibrating Manure Spreaders, Fact Sheet 419, Cooperative Extension Service, University of Maryland System, H.L. Brodie, extension agricultural engineer, and G.L. Smith, extension agricultural engineer, Department of Agricultural Engineering, University of Maryland at College Park, Published 1985-86, revised 1990-91.

5.11.2. AWMFH Appendix 13A – Worksheet 13A-1

Worksheet 13A-1—Manure Spreader Capacity

A. Description of spreader.

Manufacturer ______________________ Model ______________________

Type: ❑ box ❑ open-tank ❑ liquid-tank

Capacity: This information is available from your dealer or owner's manual.

Older models: bushels x 1.24 = cubic feet

Box or open-tank: _______ ft^3 struck load _______ ft^3 heaped load

Liquid-tank: _______ gal

B. For open-tank and box spreaders, determine the pounds per cubic foot of manure and the weight capacity of the spreader.

Type of manure: ❑ solid ❑ semisolid

		Trial 1	Trial 2	Trial 3	
1.	Determine manure density using a 5-gallon bucket.				
a.	Empty bucket weight or tare weight	_____	_____	_____	lb
b.	Bucket filled with manure	_____	_____	_____	lb
c.	Net weight of manure (b – a)	_____	_____	_____	lb
d.	Manure density [(c x 3) + 2]	_____	_____	_____	lb/ft^3
e.	Average of three trials	_____ lb/ft^3			

2. Weight capacity of the spreader.	Struck load	Heaped load
Spreader capacity	_____ ft^3	_____ ft^3
x	x	x
Manure density	_____ lb/ft^3	_____ lb/ft^3
=	=	=
Load weight	_____ lb	_____ lb
÷	÷	÷
2,000	_____ tons	_____ tons

(210-vi-AWMFH, May 1996)

5.11.3. AWMFH Appendix 13A – Worksheet 13A-2

Worksheet 13A-2—Load-Area Calibration

Liquid-Tank Spreaders (Liquid Manure)

1. Determine the capacity of the manure spreader. ______ gal
2. Spread at least three full loads at the desired speed, spreader setting and overlap.
3. Measure the area of the spread.
   a. Spread manure area width ______ ft
   b. Spread manure area length ______ ft
   c. Spread area (a x b) ______ ft^2
   d. Spread area in acres (c + 43,560) ______ acres
4. Compute the application rate.
   e. Number of loads spread
   f. Capacity per load ______ gal
   g. Total manure spread (e x f) ______ gal
   h. Application rate (g + d) ______ gal/acre

Box and Open-Tank Spreaders (Solid and Semisolid Manure)

1. Determine the capacity of the manure spreader. ______ tons
2. Spread at least three full loads at the desired speed, spreader setting and overlap.
3. Measure the area of the spread.
   a. Spread manure area width ______ ft
   b. Spread manure area length ______ ft
   c. Spread area (a x b) ______ ft^2
   d. Spread area in acres (c + 43,560) ______ acres
4. Compute the application rate.
   e. Number of loads spread ______
   f. Capacity per load ______ tons
   g. Total manure spread (e x f) ______ tons
   h. Application rate (g + d) ______ tons/acre

Nutrient application = tons/acre x pounds of nutrient per ton
or gallons/acre x pounds of nutrient per gallon

5.11.4. AWMFH Appendix 13A – Worksheet 13A-3

Worksheet 13A-3—Weight-Area Calibration

1. Select a manure collection surface.
   a. Determine collection area
   Ground sheet:
   width ________ ft x length ________ ft = area ________ ft²
   Pans:
   pan width ________ inch x pan length ________ inch + 144 = pan area ________ ft²
   pan area ________ x number of pans ________ = collection area ________ ft²

2. Secure ground sheet or pans.

3. Spread manure over the collection area.

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	
Forward speed, gear or throttle setting	________	________	________	________	________	
PTO speed	________	________	________	________	________	
Spreader setting	________	________	________	________	________	

4. Collect and weigh the manure and compute the application rate.

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	
a. Tare weight of sheet or pan andweighing container	________	________	________	________	________	lb
b. Gross weight of sheet or pan, collected manure and weighing container	________	________	________	________	________	lb
c. Net weight of manure (b – a)	________	________	________	________	________	lb
d. Area of sheet or pans	________	________	________	________	________	ft²
e. Application rate (c + d)	________	________	________	________	________	lb/ft²
Ground sheet or pans to tons per acre.						
f. Application rate [(e x 43,560) + 2,000]	________	________	________	________	________	ton/ac
Pans to gallons per acre.						
g. Tare weight of a 5-gallon bucket	________	________	________	________	________	lb
h. Weight of a 5-gallon bucket full of manure	________	________	________	________	________	lb
i. Net weight of 1 gallon of manure [(h - g) - 5]	________	________	________	________	________	lb/gal
j. Application rate [(e x 43,560) + g]	________	________	________	________	________	gal/ac

Nutrient application = tons/acre x pounds of nutrient per ton
or gallons/acre x pounds of nutrient per gallon.

5.11.5. AWMFH Appendix 13A – Worksheet 13A-4

Worksheet 13A-4—Uniformity Testing

1. Layout a line of small ground sheet sheets or pans of equal size, equally spaced across two spreader path widths
   a. Determine the pan or sheet area.
      width _______ inch x length _______ inch ÷ 144 = area _______ ft^2

2. Spread manure over the collection area.

Forward speed, gear or throttle setting _______

PTO speed _______

Spreader setting _______

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	
a. Tare weight of sheet or pan and weighing container	_____	_____	_____	_____	_____	_____	_____	lb
b. Gross weight of sheet or pan, collected manure and weighing container	_____	_____	_____	_____	_____	_____	_____	lb
c. Net weight of manure (b − a)	_____	_____	_____	_____	_____	_____	_____	lb
d. Area of sheet or pans	_____	_____	_____	_____	_____	_____	_____	ft^2
e. Application rate (c ÷ d)	_____	_____	_____	_____	_____	_____	_____	lb/ft^2

Uniformity is achieved when all pans or sheets collect the same amount of manure. To improve uniformity, adjust spreader paths to increase or decrease overlap.

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Revised 1990-91

5.12. Other records required by State and/or local regulations.

Section 6 - Farmstead Safety and Security

6.1. Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

6.1.1. Emergency Contacts

Department / Agency	Phone Number
Fire –	911 or 815-692-3341
Rescue services	911 or 815-692-2414
State veterinarian	217-782-4944
Facility veterinarian	
Electric Company –	
Propane Company –	
Rendering Company –	
Water Company -	
Emergency Response Contacts:	
1st Ed Schumacher	217-240-0288
2nd Josh Schumacher	217-240-0681
3rd Daniel N Feucht, CCA (Maurer-Stutz)	309-635-5046
4th Gayle C. Baker, PE (Maurer-Stutz)	309-693-7615 (Office), 563-380-8720 (Cell)

6.1.2. Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
Backhoe, bulldozer, dump trucks, scraper	Ed Schumacher	217-240-0288
Irrigation Pump	Ed Schumacher	217-240-0288
Vacuum Manure tank	Ed Schumacher	217-240-0288

6.1.3. Contacts to be made by Farm's Owner or operator As Soon As Possible within 24 hours:

Organization	Phone Number
Health Department Office – Shelby County	217-774-9555
Natural Resource Conservation Service	217-774-5561
Illinois Emergency Management Agency (IEMA)	1-800-782-7860
Illinois EPA	217-782-3397
Illinois Department of Agriculture	217-785-2427
Shelby County Sheriff's Office	217-774-1499
Maurer Stutz, Inc. – Engineers (Terry Feldmann or Gayle Baker)	309-693-7615

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.

See next page;

c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

Driving Directions to the Facility

United States Postal Service
102 E Louis St, Sigel, IL 62462

↑ Head west on E Louis St toward Main St

266 ft

↱ Turn right at the 1st cross street onto US-45 N/Main St

ⓘ Continue to follow US-45 N

1.2 mi

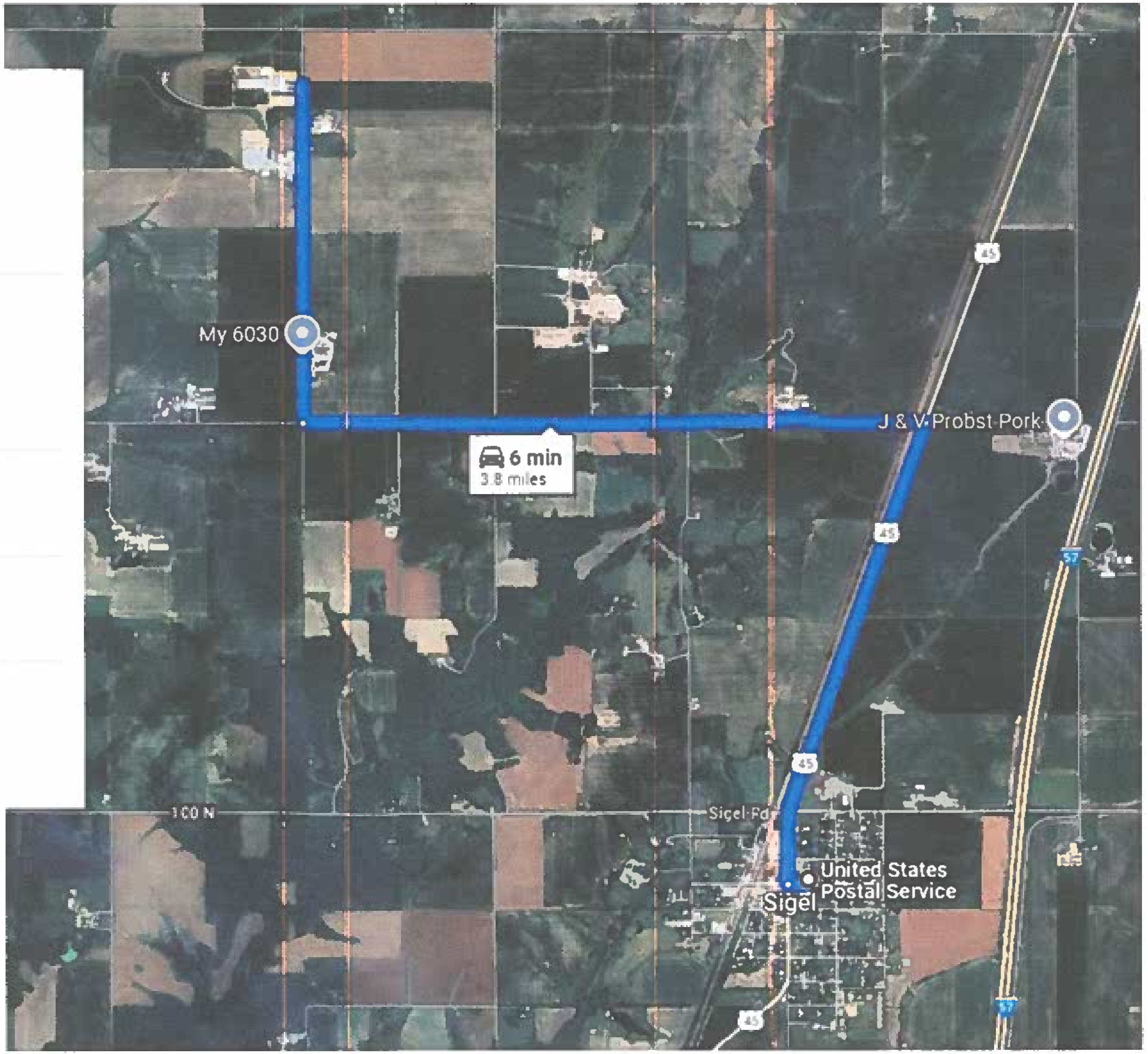
↰ Turn left onto 200 N

1.5 mi

↱ Turn right onto 3350 E

0.9 mi

S & B Dairy
263 3350 E, Sigel, IL 62462



6.2 Emergency Action Plan

6.2.1 Emergency Storage Plan

In the event of cropping practices, soil conditions, weather conditions or other conditions prevent the application of livestock waste to land or prevent other methods of livestock waste disposal, a description of the storage provisions and schedules will be provided to comply with Section 502.320 of Title 35, Subtitle E, Chapter I.

Solid Manure	Manure may be transferred to neighboring storage facilities if available, otherwise solid manure is planned to be stockpiled in the nearby land application fields. The stockpiled manure will follow the temporary manure stack guidelines set forth in Section 2.7.
Liquid Manure	Manure may be transferred to neighboring storage facilities if available

6.2.2 Spill Emergency Action Plan

Spills From Containment Breaches or Structure Failures

1. Construct earthen dike to contain or divert spill away from tiles, watercourses, roadways, and water of the state.
2. Relieve containment of manure sufficient to cease the unplanned release of manure.
3. Setup equipment and procedures to secure the containment from further uncontrolled releases until proper repairs are made.
4. Remove spill from diked area with vacuum tank.

Spills During Pumping Operations

1. Shut off all pumping equipment
2. Build a sand bag dike to contain or divert spills away from tiles, watercourses, and roadways
3. Use absorbent pads to stop leaks in dike
4. Remove spill from diked area with vacuum tank
5. If larger dike is necessary use backhoe to reinforce with soil barrier.

Spills During Transportation on Public Roadways

1. Coordinate efforts with local law enforcement and emergency personnel.
2. Contain spill or divert manure away from watercourses and roadways.
3. Wash manure from roadways and public use areas into the containment or diversion structure.
4. Remove spill from diked area with vacuum tank.

Clean-up Spill Area

1. Break down dike
2. Dry out sand bags
3. Discard any absorbent pads used
4. Level any soil disturbance and incorporate residue
5. Replace any discarded or damaged equipment

Spill Reporting

Part 580 of 35 IAC contains rules for the procedure that owners or operators of livestock waste handling facilitys must follow to satisfy their obligation under Section 18(a) of the LMFA [510 ILCS 77/18(a)]. If there is a release of more than 25 gallons or if waste ***HAS ENTERED*** surface or ground water, notify the Illinois Emergency Management Agency within 24 hours by calling **800-782-7860 or 217-782-7860.**

An owner or operator of a livestock waste handling facility shall report any release of livestock waste from the livestock waste handling facility or from the transport of livestock waste by means of transportation equipment within 24 hours after the discovery of the release. Reports of releases to surface waters, including to sinkholes, drain inlets, broken subsurface drains or other conduits to groundwater or surface waters, shall be made upon discovery of the release, except when such immediate notification will impede the owner's or operator's response to correct the cause of the release or to contain the livestock waste, in which case the report shall be made as soon as possible but no later than 24 hours after discovery. The report required under subsection (a) shall be given to the Illinois Environmental Protection Agency through the Illinois Emergency Management Agency.

Also, notify the following persons ASAP.

Name	Office	Cell Phone
Ed Schumacher		217-240-0288
Terry L. Feldmann	309-693-7615	309-251-6962
Gayle C. Baker, PE	309-693-7615	563-380-8720

Written Reports

All spills must be reported to management personnel and include the following information.

1) name and telephone number of the person reporting the release;
2) county, distance and direction from nearest town, village or municipality of the release;
3) an estimate of the quantity in gallons that was released, and an estimate of the flow rate if the release is ongoing;
4) area into which the release occurred (field, ditch, stream, or other description) and apparent environmental impacts of the release;
5) time and duration of the release;
6) the names and telephone numbers of persons who may be contacted for further information;
7) dangers to health or the environment resulting from the release;
8) actions taken to respond to, contain and mitigate the release; and
9) name of facility and mailing address.

Follow up Written Report

An owner or operator of a livestock waste handling facility who reports by telephone any release of livestock waste shall provide a follow-up written report of the release within 5 days after the discovery of the release. The report shall confirm and update the information provided by telephone pursuant to Section 580.106. Written reports shall be addressed to:

Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Custom Applicator Agreement

"I have received and agree to follow this emergency spill recovery plan and reporting protocol. I will land apply the manure from this facility using Best Management Practices. I agree to monitor all application equipment and prevent runoff due to the application process. In the event of a spill I will follow the procedures outlined by this plan."

Custom Applicator______________________________ Date_______________

Owner/Operator_________________________________ Date_______________

6.3. Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.

6.4. Catastrophic Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Handling

The following table describes how you plan to manage catastrophic loss of animals in a manner that protects surface and ground water quality. You must follow all national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health.

Steps for Managing Catastrophic Mortality **Step 1: Prior to carcass disposal, contact the Illinois Department of Agriculture – Bureau of Animal Health & Welfare / Illinois State Veterinarian and / or your engineer at Maurer-Stutz, Inc.** **Illinois State Veterinarian: 217-782-4944** **Maurer-Stutz, Inc.: 309-693-7615 (office)** **309-251-6962 (Terry Feldmann cellular)** **Step 2: At the discretion and direction of the Illinois State Veterinarian and / or your engineer, begin disposing of catastrophic mortality by methods in accordance with applicable laws and regulations (i.e. via licensed rendering service, burial, composter, or large scale temporary composter (if needed)).**

6.5. Chemical Handling

If checked, the indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

	This is not a regulatory-agency permitted facility. This section does not apply.
	This is a Large Unpermitted CAFO. Chemicals and other contaminants handled on-site shall not disposed of in any livestock waste or stormwater storage or treatment system unless specifically designed to treat those chemicals and other contaminants.

	Measure
X	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
X	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
X	Chemical storage areas are covered to prevent chemical contact with rain or snow.
X	Emergency procedures and equipment are in place to contain and clean up chemical spills.
X	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

Section 7 - Updates/Amendments

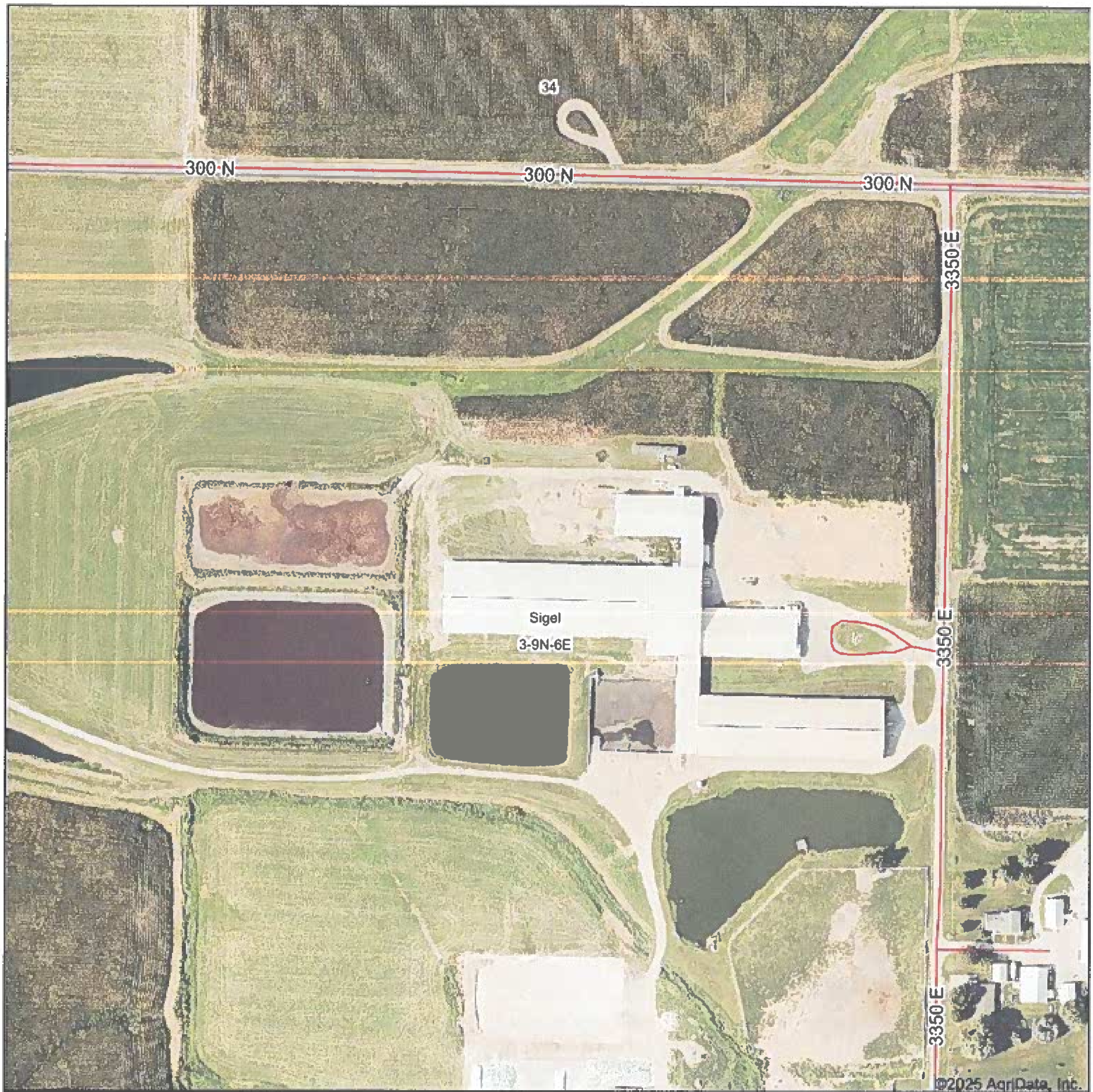
7.1. Updates

7.2. Amendments

Appendix A. Map(s)

A.1. Aerial Maps

Aerial Map



MAURER-STUTZ
ENGINEERS SURVEYORS

Map Center: 39.256972, -88.520034

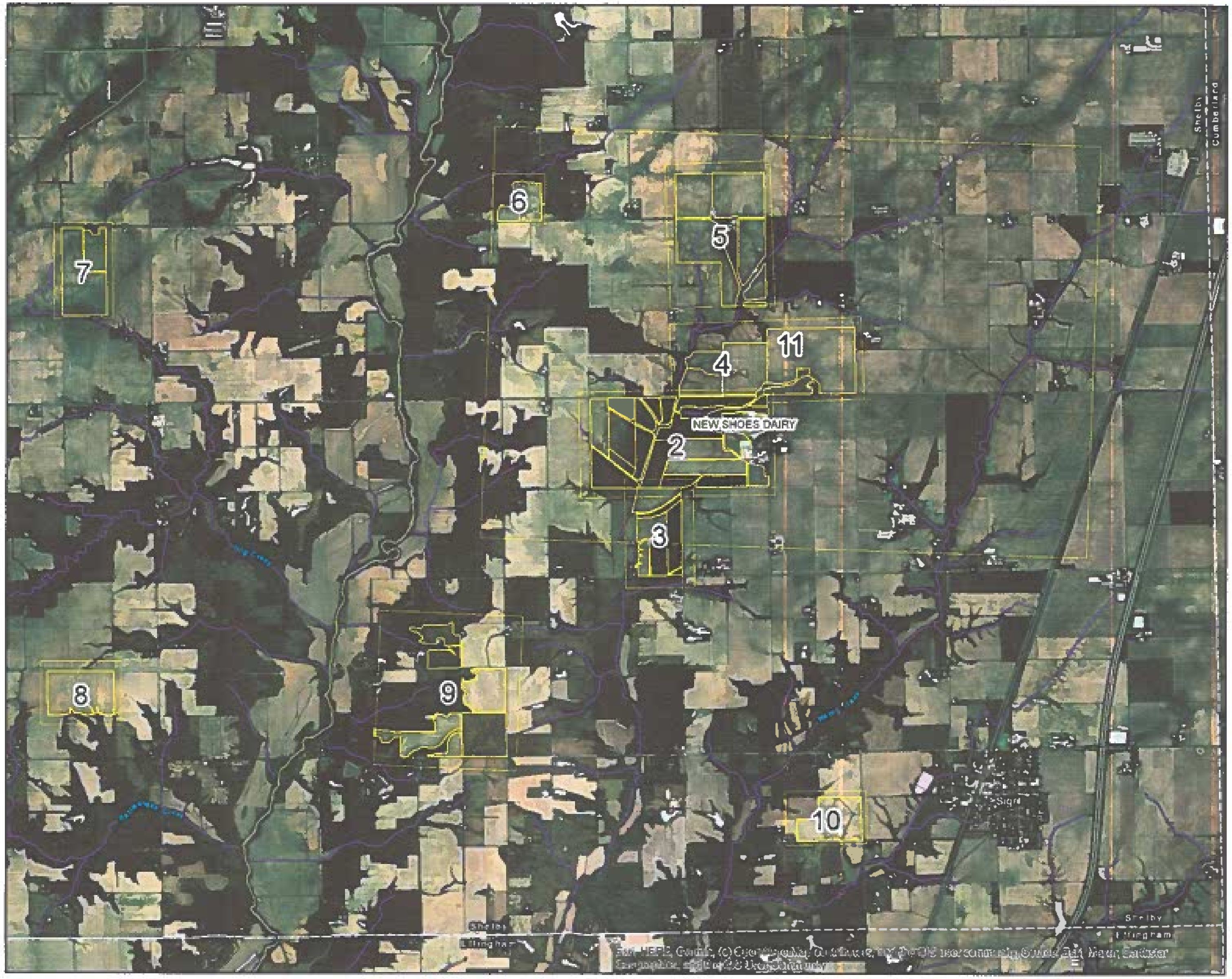
0ft 273ft 545ft

3-9N-6E
Shelby County
Illinois

N W E S

1/23/2025

LAND APPLICATION MAPS



MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Overall
PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

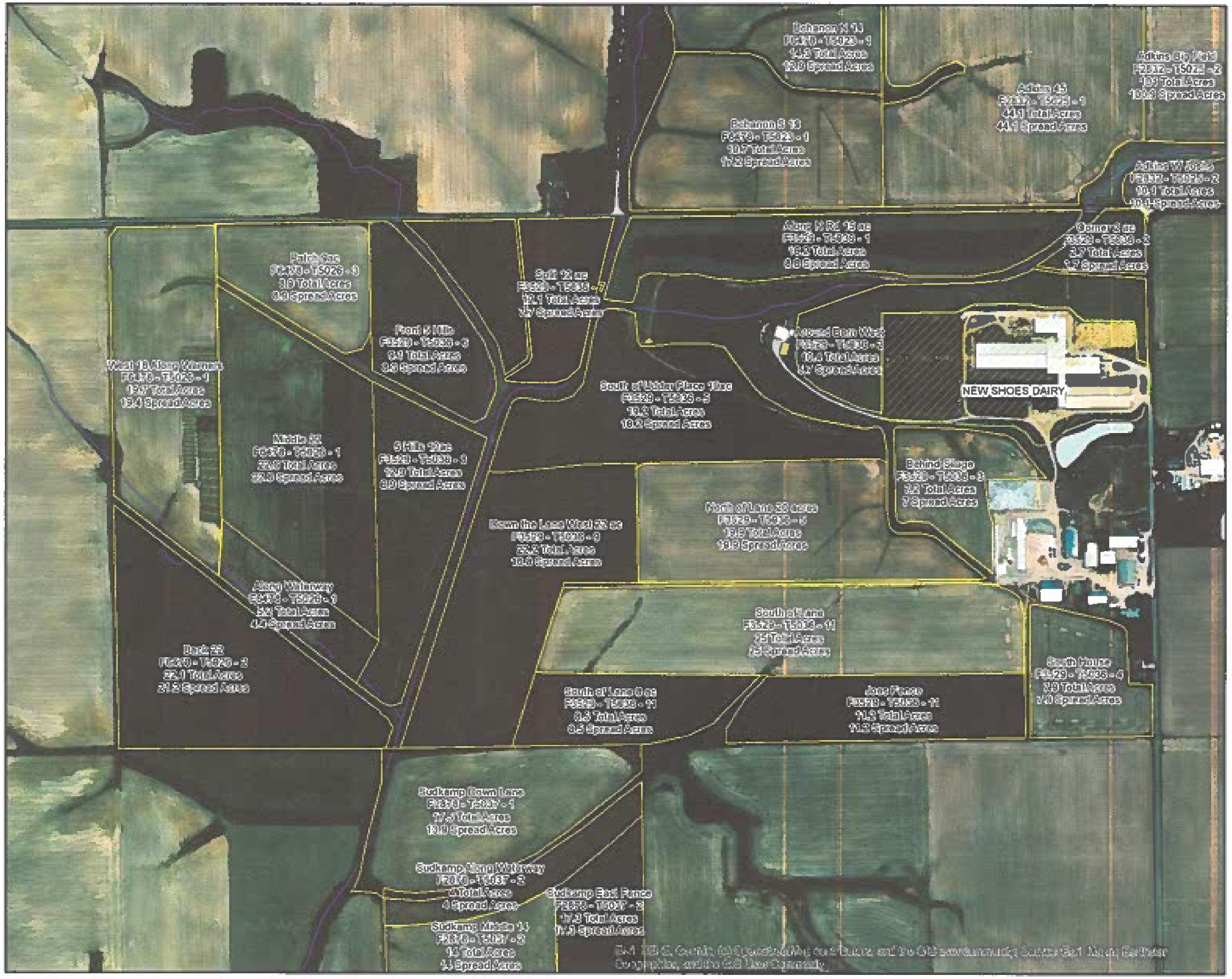
Livestock Facilities
FSA CLU

NHDWaterbody
LakePond
Reservoir

NHDFlowline
ArtificialPath
CanalDitch
StreamRiver

Feet
0 2800 5600

N



MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Dairy
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

- Livestock Facilities
- FSA CLU

NHDWaterbody

- LakePond

NHDFlowline

- StreamRiver

Feet
0 500 1000

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
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NEW SHOES DAIRY
SHEET NAME: Sudkamp
PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

NHDWaterbody

LakePond

NHDFlowline

— StreamRiver

Feet
0 370 740

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Adkins
PREPARED WITH ASSISTANCE FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

- Livestock Facilities
- FSA CLU

NHDWaterbody
- LakePond

NHDFlowline
- StreamRiver

Feet
0 525 1050

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Probst
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

NHDWaterbody

LakePond

NHDFlowline

ArtificialPath

StreamRiver

Feet
0 525 1050

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: 40
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

NHDWaterbody

LakePond

NHDFlowline

— StreamRiver

Feet
0 240 480

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Stewardson
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

NHDFlowline

— StreamRiver

N

Feet
0 330 660

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Deans
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

NHDFlowline

StreamRiver

Feet
0 370 740

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Joshs
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

FSA CLU

NHDWaterbody

LakePond

NHDFlowline

StreamRiver

Feet
0 500 1000

N

LAND APPLICATION MAPS

MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Birchtold
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

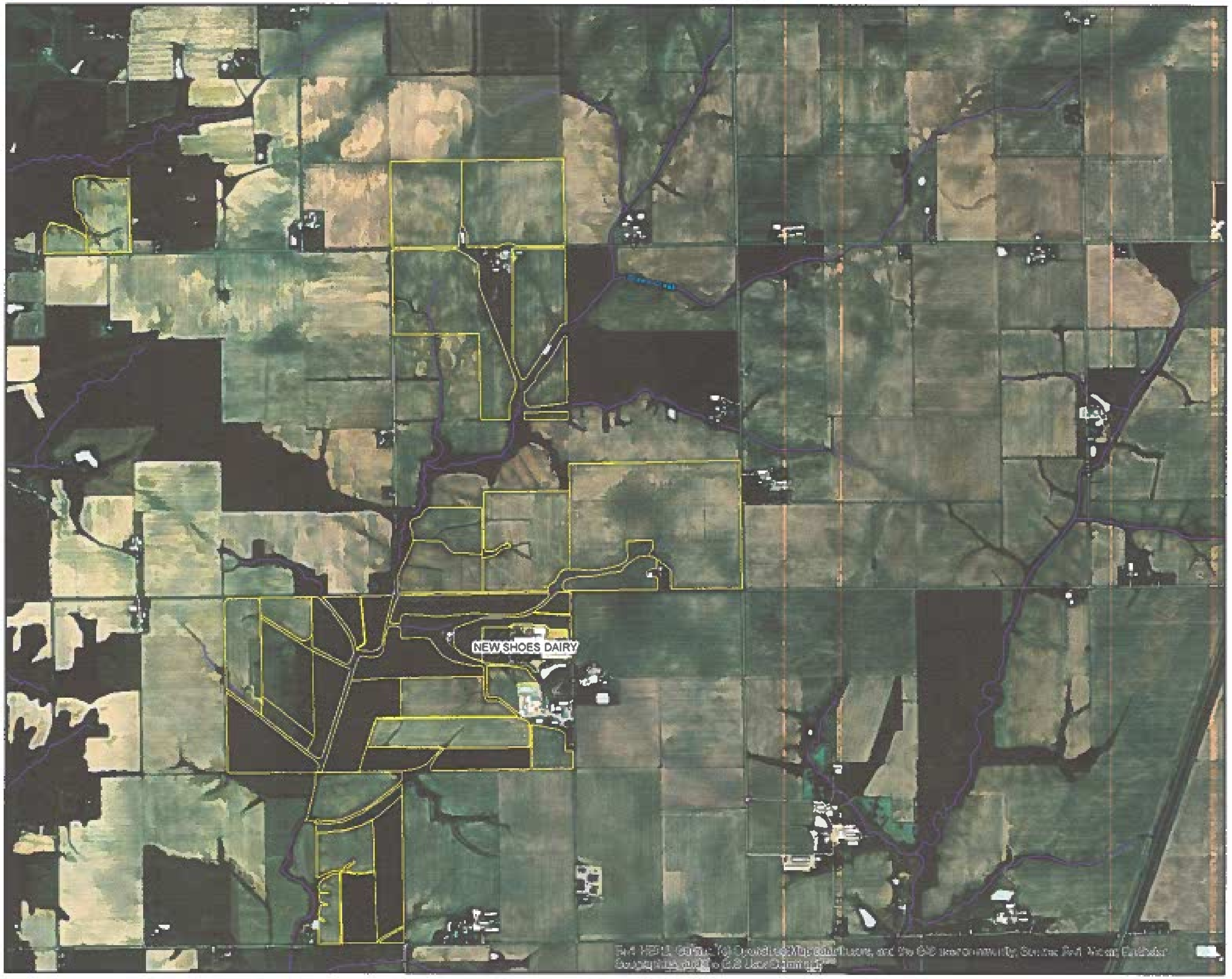
NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend
FSA CLU
NHDWaterbody
LakePond
NHDFlowline
— StreamRiver

N

Feet
0 330 660

LAND APPLICATION MAPS



MAURER-STUTZ
ENGINEERS SURVEYORS
mstutz.com

NEW SHOES DAIRY
SHEET NAME: Export Fields
PREPARED WITH ASSISTANCE
FROM USDA-NRCS
ASSISTED BY: DANIEL N FEUCHT

SHELBY COUNTY SOIL & WATER
CONSERVATION DISTRICT
SHELBY COUNTY, IL

NOTE: ESRI SHAPEFILES WERE OBTAINED FOR THE PURPOSES OF COMPLETING APPLICATION SETBACK MAPS. ADJUSTMENTS TO FIELD BOUNDARIES MAY HAVE RESULTED IN SLIGHT DISCREPANCIES IN FIELD ACREAGE.

Legend

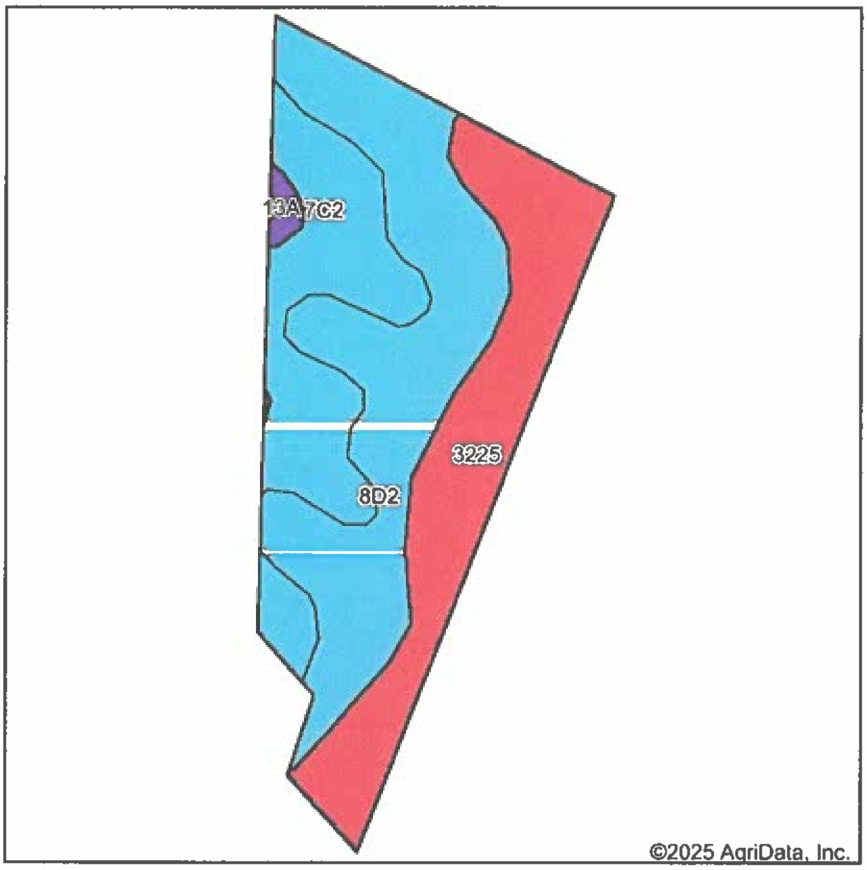
Livestock Facilities
FSA CLU
NHDWaterbody
LakePond
NHDFlowline
ArtificialPath
StreamRiver

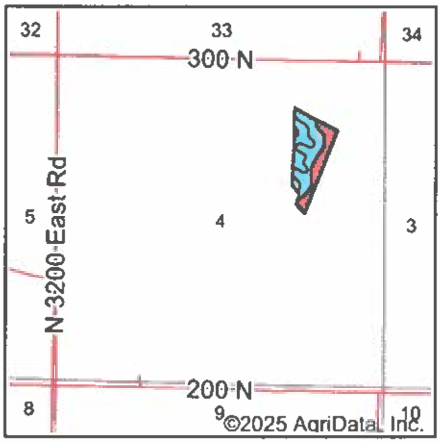
Feet
0 1400 2800

N

A.2. Soils Maps

5 Hills





Soils data provided by USDA and NRCS.

State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **16.31**
Date: **3/3/2025**

MAURER-STUTZ

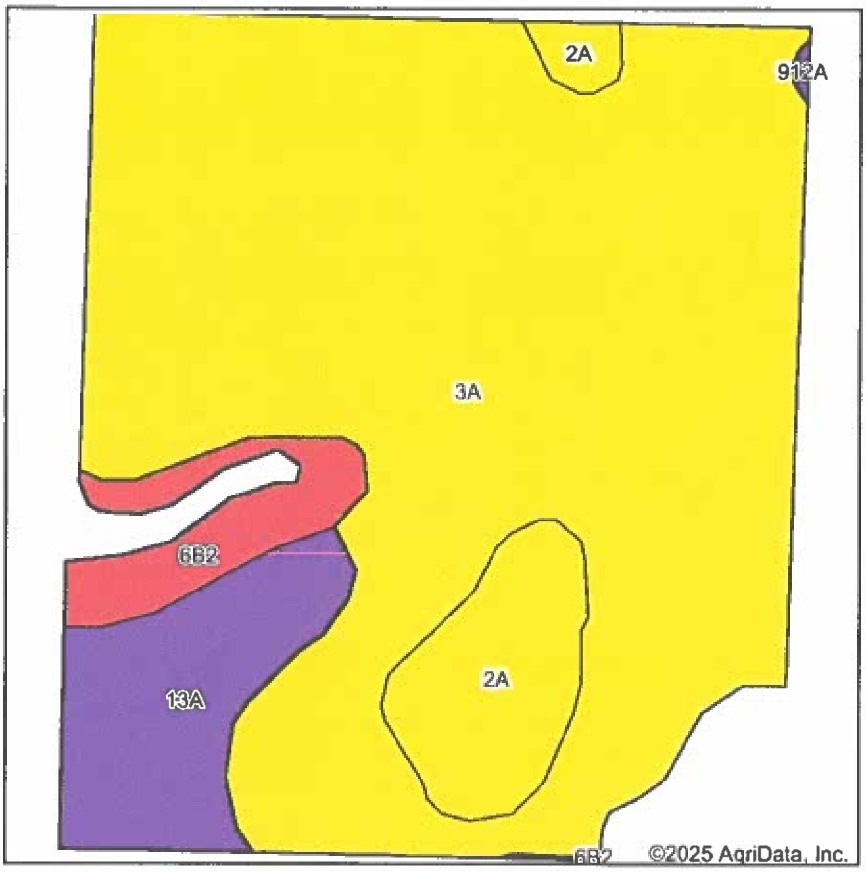
Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21												
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	6.90	42.3%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
**3225	Holton silt loam, frequently flooded	5.24	32.1%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	3.96	24.3%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
13A	Bluford silt loam, 0 to 2 percent slopes	0.21	1.3%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
							Weighted Average	111.5	37.5	43.7	3.6	84.3

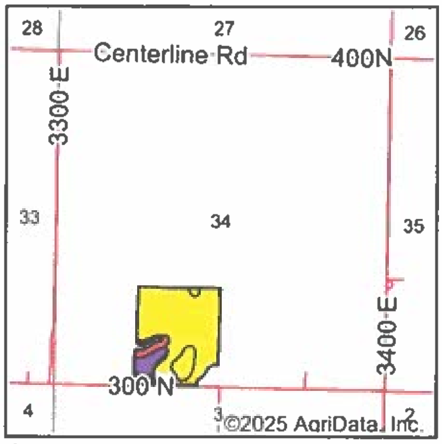
Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Adkins 45



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **34-10N-6E**
Township: **Sigel**
Acres: **44.03**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING
© AgriData, Inc. 2023 www.AgriDataInc.com

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	34.08	77.4%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
13A	Bluford silt loam, 0 to 2 percent slopes	4.27	9.7%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
2A	Cisne silt loam, 0 to 2 percent slopes	3.55	8.1%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	2.13	4.8%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
							Weighted Average	144.1	45.5	57.3	4.4	106.5

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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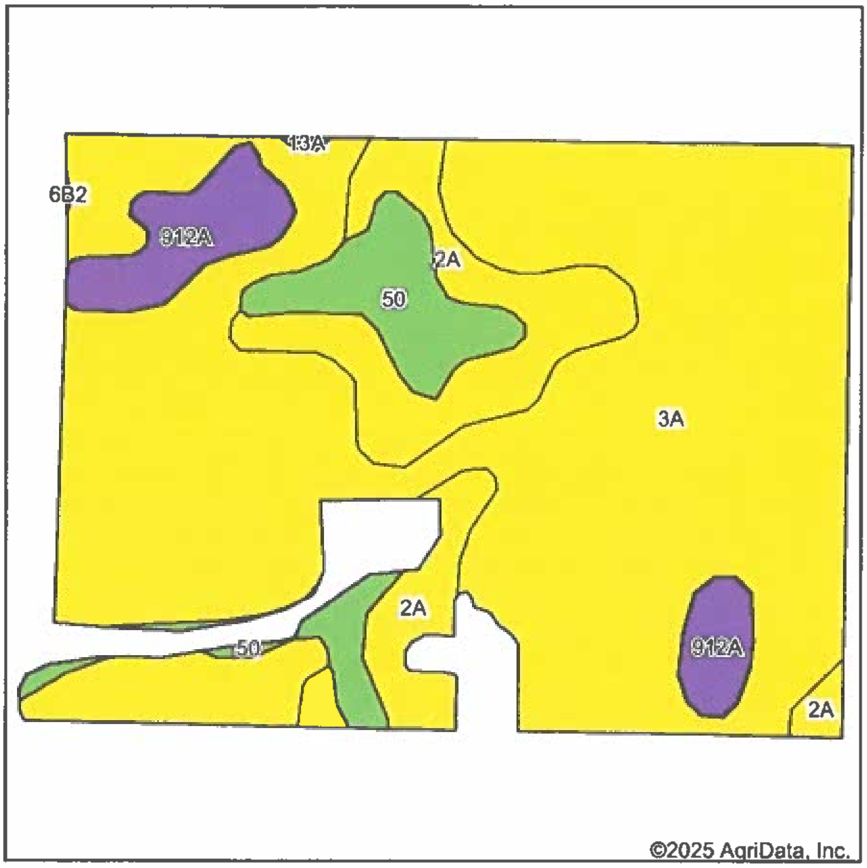
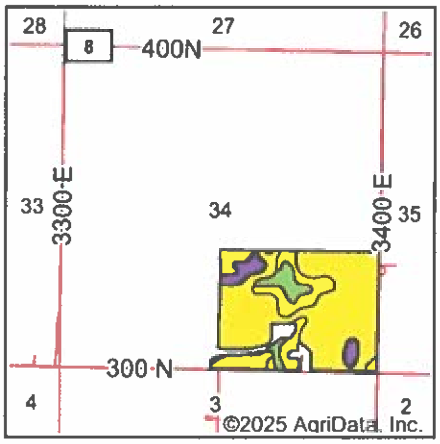
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Adkins Big Field & West Joshs





State: **Illinois**
County: **Shelby**
Location: **34-10N-6E**
Township: **Sigel**
Acres: **110.99**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING
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Soils data provided by USDA and NRCS.

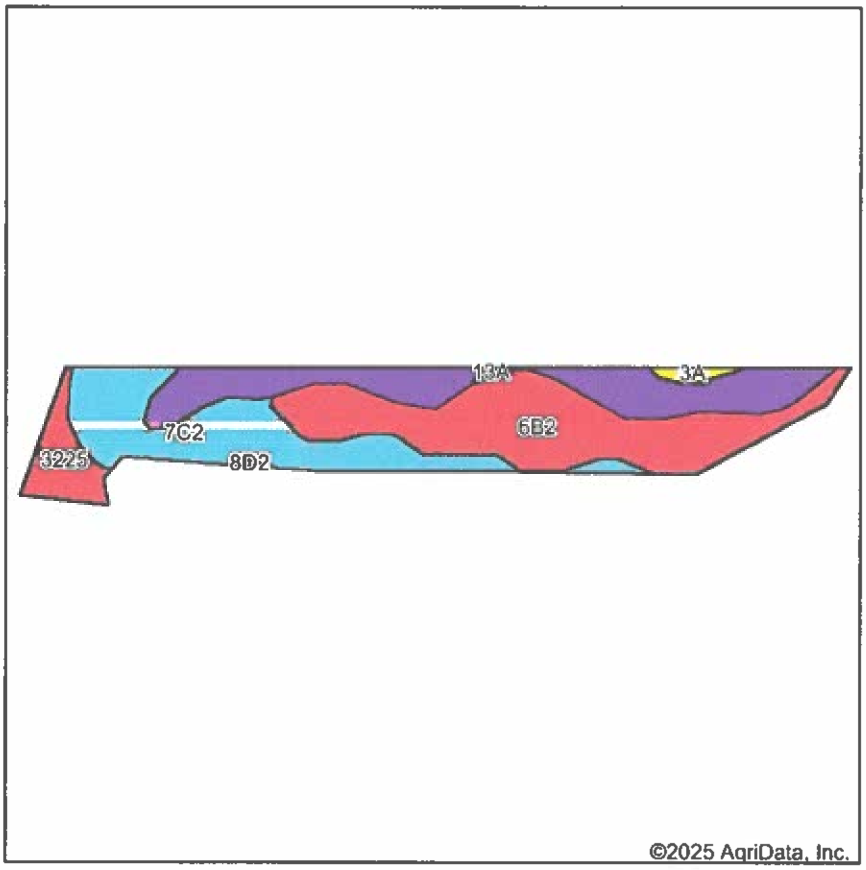
Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	81.07	73.0%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
2A	Cisne silt loam, 0 to 2 percent slopes	14.91	13.4%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
**50	Virden silty clay loam, 0 to 2 percent slopes	8.17	7.4%		0.5ft.	> 6.5ft.	Poorly drained	**186	**60	**75	**5.40	**138
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	6.73	6.1%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	132	45	51	4.50	101
13A	Bluford silt loam, 0 to 2 percent slopes	0.11	0.1%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
							Weighted Average	**148.5**	**47**	**59**	**4.7**	**109.9**

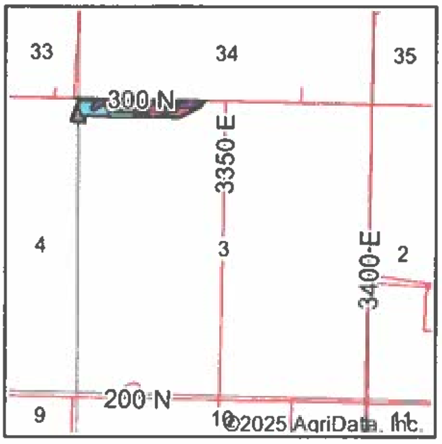
Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Along N road



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **3-9N-6E**
Township: **Sigel**
Acres: **14.91**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21												
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	5.74	38.5%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	4.04	27.1%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
13A	Bluford silt loam, 0 to 2 percent slopes	3.90	26.2%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**3225	Holton silt loam, frequently flooded	1.06	7.1%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
3A	Hoyleton silt loam, 0 to 2 percent slopes	0.17	1.1%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
							Weighted Average	**120.7**	**39.6**	**47.5**	**3.4**	**90**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
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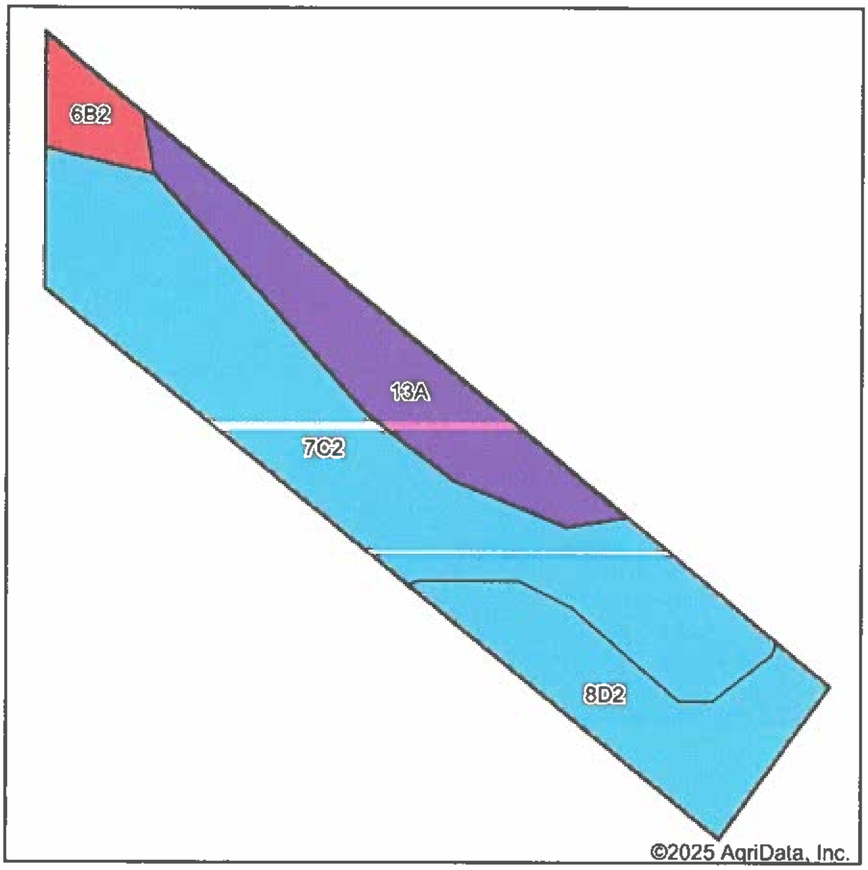
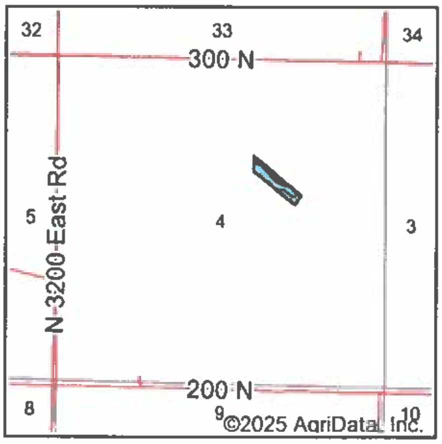
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Along WW



Soils data provided by USDA and NRCS.



State: Illinois
County: Shelby
Location: 4-9N-6E
Township: Sigel
Acres: 4.08
Date: 3/3/2025

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING

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Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	2.15	52.7%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
13A	Bluford silt loam, 0 to 2 percent slopes	0.88	21.6%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.85	20.8%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	0.20	4.9%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
							Weighted Average	112.4	38.1	44.9	3.3	85.4

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
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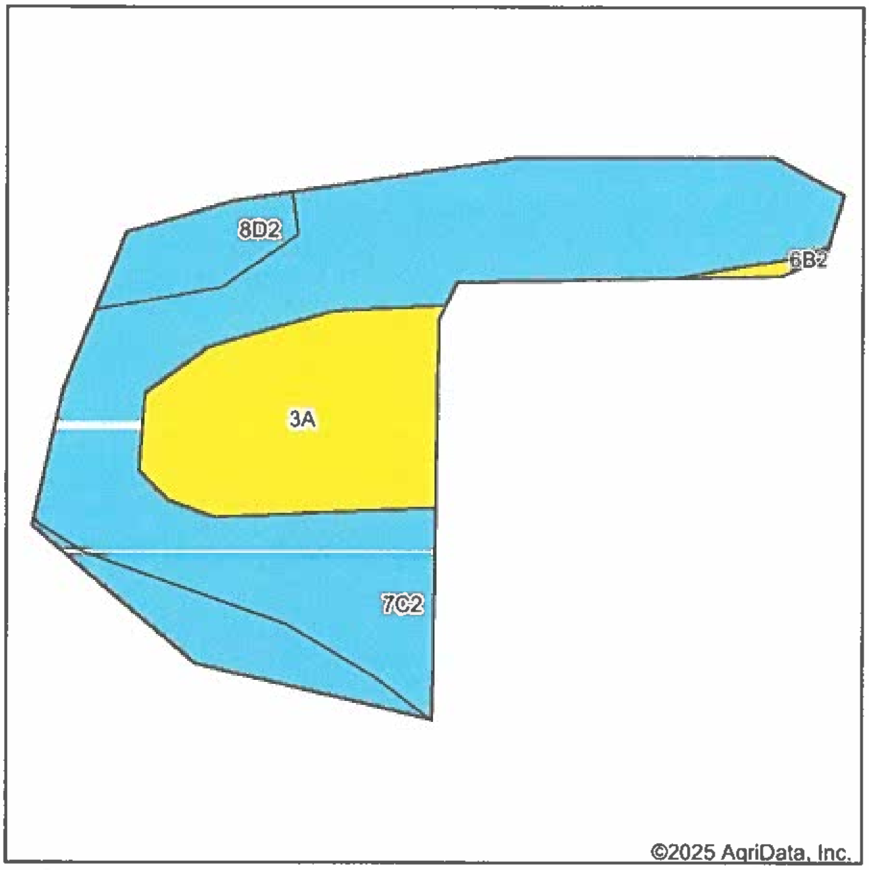
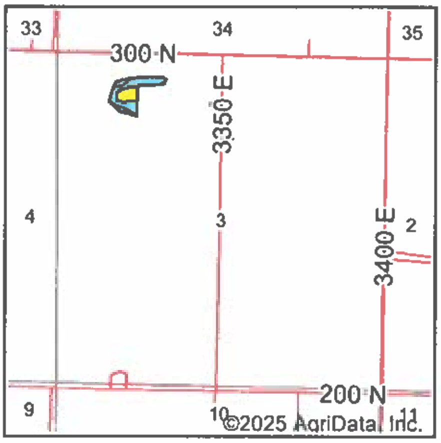
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Around Barn W



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **3-9N-6E**
Township: **Sigel**
Acres: **6.14**
Date: **3/3/2025**

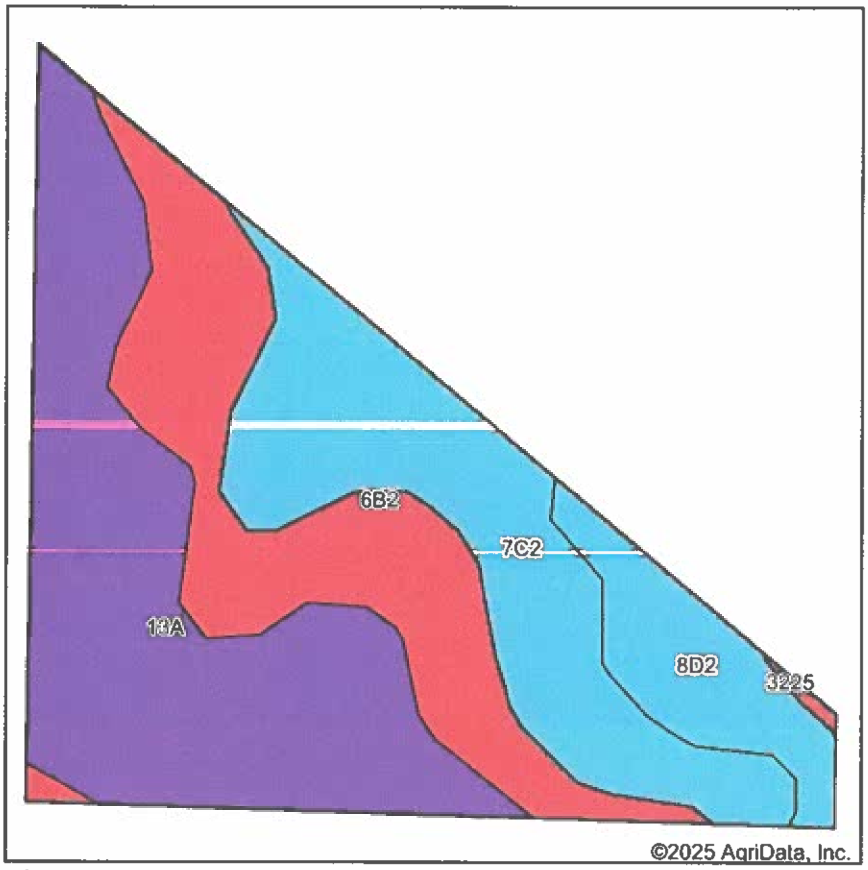
Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	3.76	61.3%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
3A	Hoyleton silt loam, 0 to 2 percent slopes	1.53	24.9%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.85	13.8%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
							Weighted Average	114.9	38.6	45.7	3.5	87.3

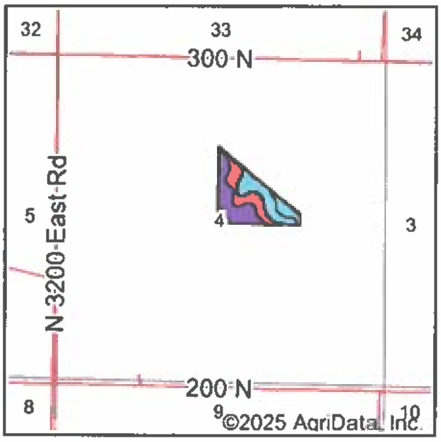
Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Back 22



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **21.91**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING
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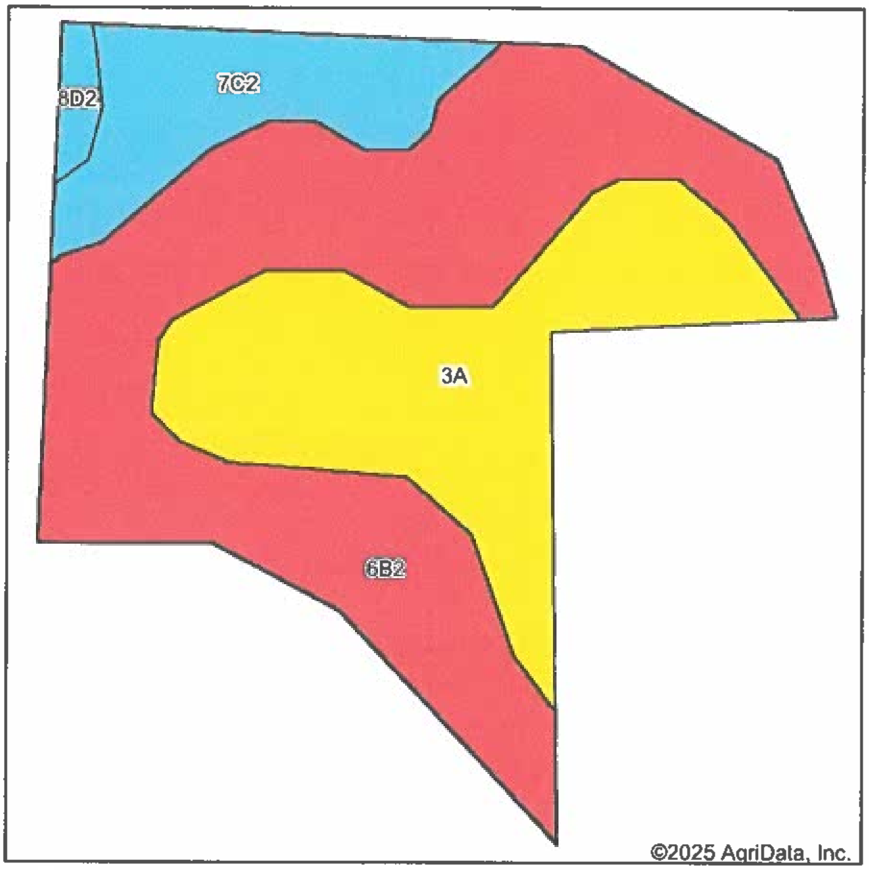
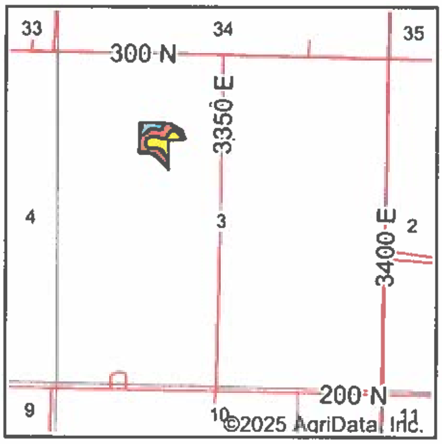
Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	8.60	39.2%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	5.62	25.7%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	5.56	25.4%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	2.06	9.4%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
**3225	Holton silt loam, frequently flooded	0.07	0.3%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
							Weighted Average	**121.2**	**40**	**48.3**	**3.4**	**90.7**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".
Soils data provided by USDA and NRCS Soils data provided by University of Illinois at Champaign-Urbana

Behind Silage





State: **Illinois**
County: **Shelby**
Location: **3-9N-6E**
Township: **Sigel**
Acres: **6.99**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By:
surety
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Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume *e* hay, T/A	Crop productivity index for optimum management
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	3.75	53.6%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
3A	Hoyleton silt loam, 0 to 2 percent slopes	2.20	31.5%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.93	13.3%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.11	1.6%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
							Weighted Average	**126.4**	**40.8**	**49.6**	**3.8**	**93.7**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
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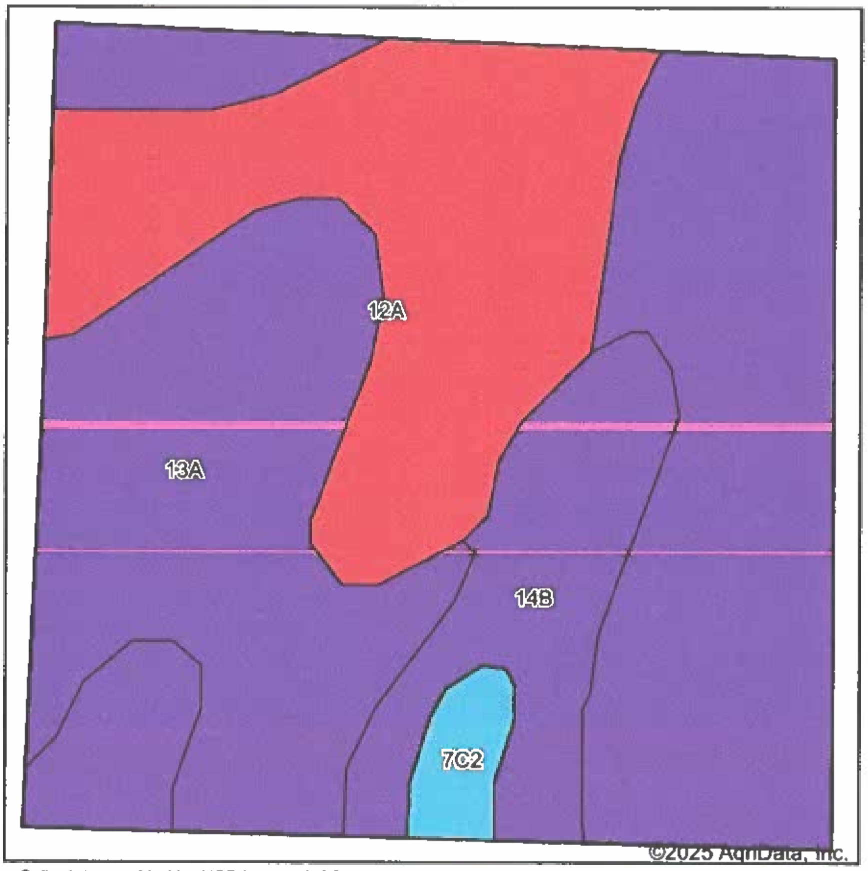
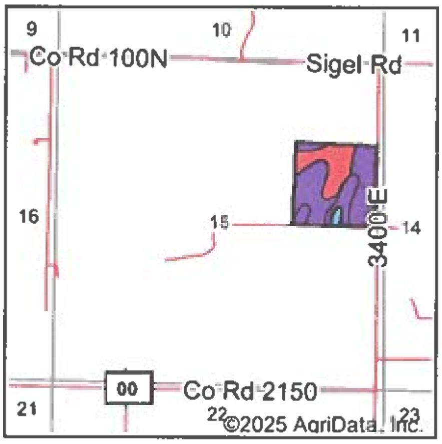
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Birchtold E 35





State:	**Illinois**
County:	**Shelby**
Location:	**15-9N-6E**
Township:	**Sigel**
Acres:	**38.86**
Date:	**3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

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Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	21.96	56.5%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
12A	Wynoose silt loam, 0 to 2 percent slopes	10.05	25.9%		0.5ft.	1.6ft. (Abrupt textural change)	Poorly drained	128	42	51	4.30	97
**14B	Ava silt loam, 2 to 5 percent slopes	6.02	15.5%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.83	2.1%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
							Weighted Average	132.9	43.3	53.5	3.6	99.2

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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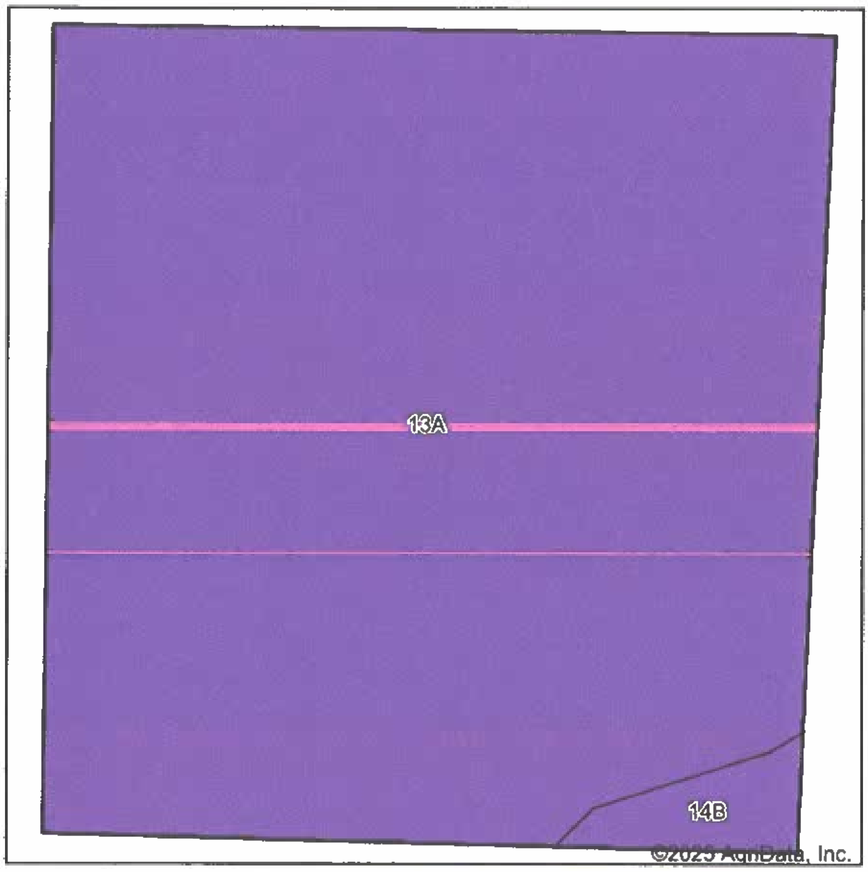
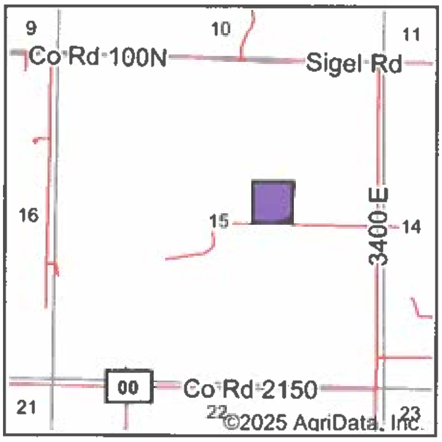
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Birchtold W 12





State: **Illinois**
County: **Shelby**
Location: **15-9N-6E**
Township: **Sigel**
Acres: **9.58**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	9.33	97.4%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**14B	Ava silt loam, 2 to 5 percent slopes	0.25	2.6%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
							Weighted Average	**135.9**	**44**	**55**	**3.4**	**100.9**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
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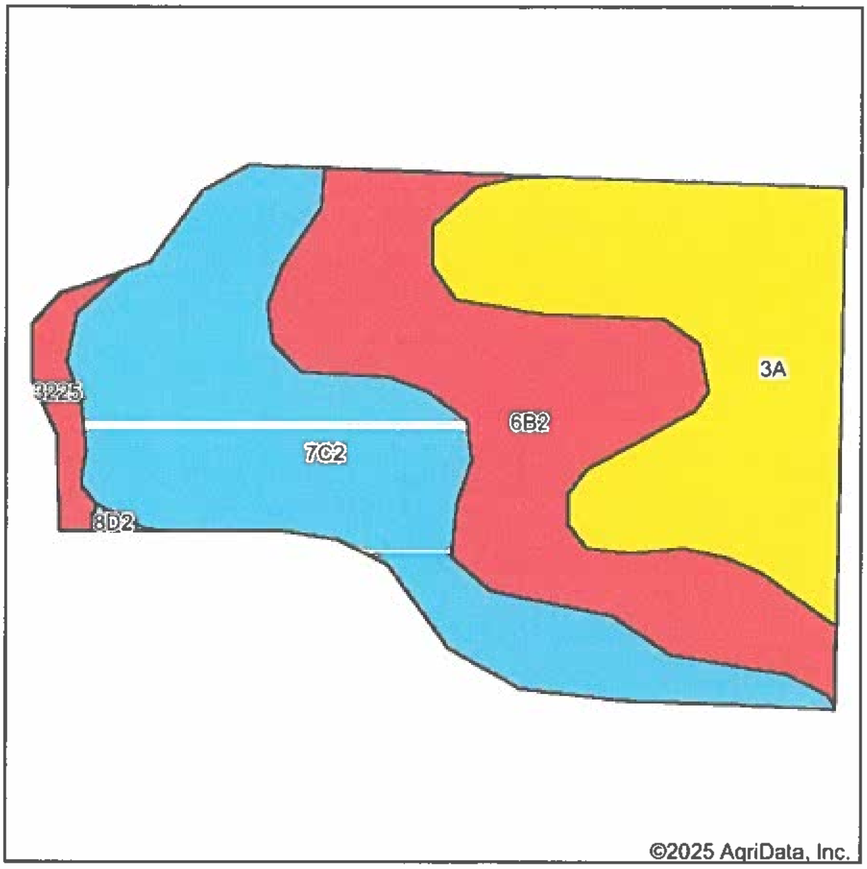
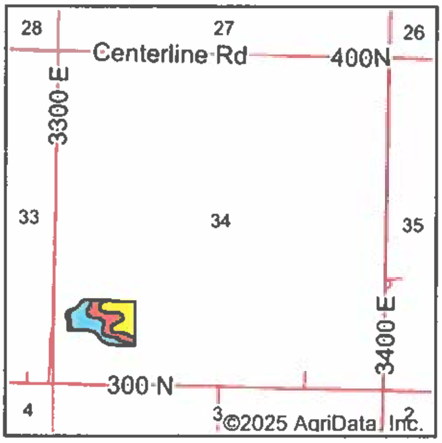
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Bohanon N 14





State: **Illinois**
County: **Shelby**
Location: **34-10N-6E**
Township: **Sigel**
Acres: **14.16**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume *e* hay, T/A	Crop productivity index for optimum management
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	5.03	35.6%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	4.42	31.2%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
3A	Hoyleton silt loam, 0 to 2 percent slopes	4.34	30.6%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**3225	Holton silt loam, frequently flooded	0.37	2.6%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
							Weighted Average	122.6	40.1	48.2	3.7	91.7

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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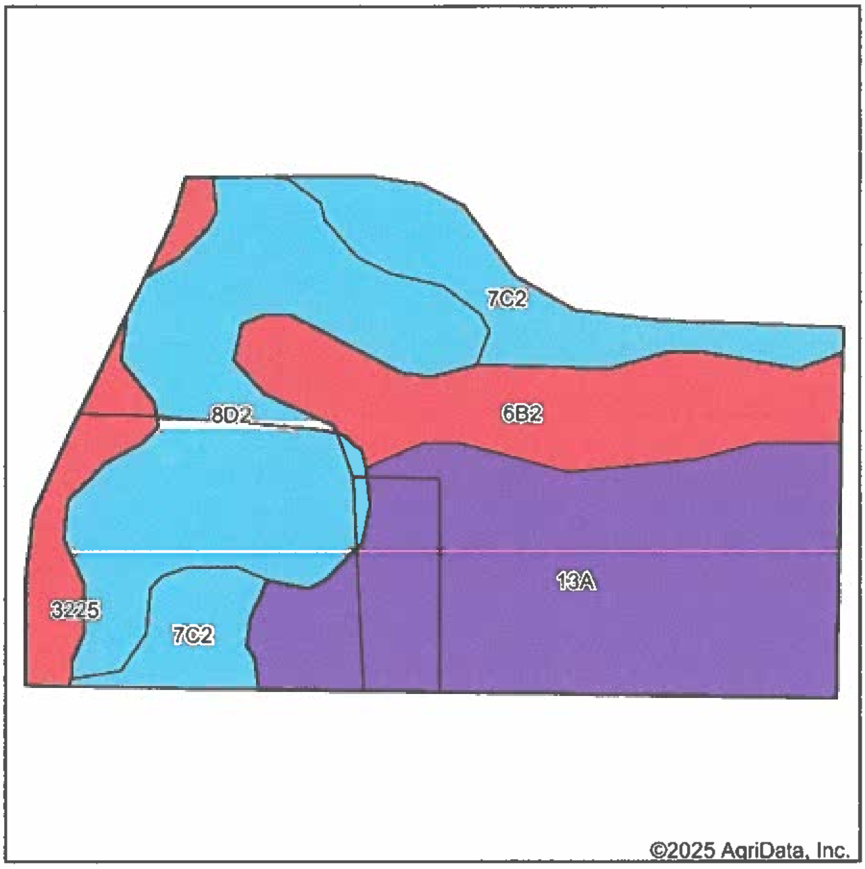
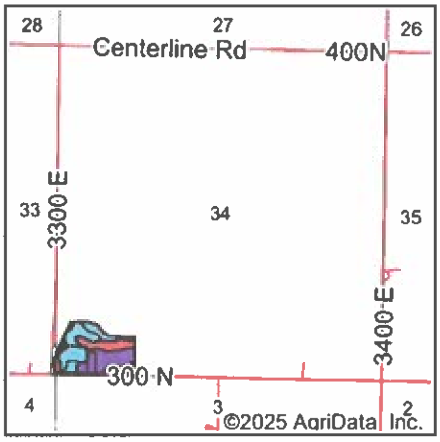
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Bohanon S 19





State: Illinois
County: Shelby
Location: 34-10N-6E
Township: Sigel
Acres: 19.76
Date: 3/3/2025

MAURER-STUTZ
ENGINEERS SURVEYORS

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING

Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	7.33	37.0%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	5.39	27.3%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	3.16	16.0%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	2.70	13.7%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**3225	Holton silt loam, frequently flooded	1.18	6.0%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
							Weighted Average	120.5	39.9	48.2	3.5	90.4

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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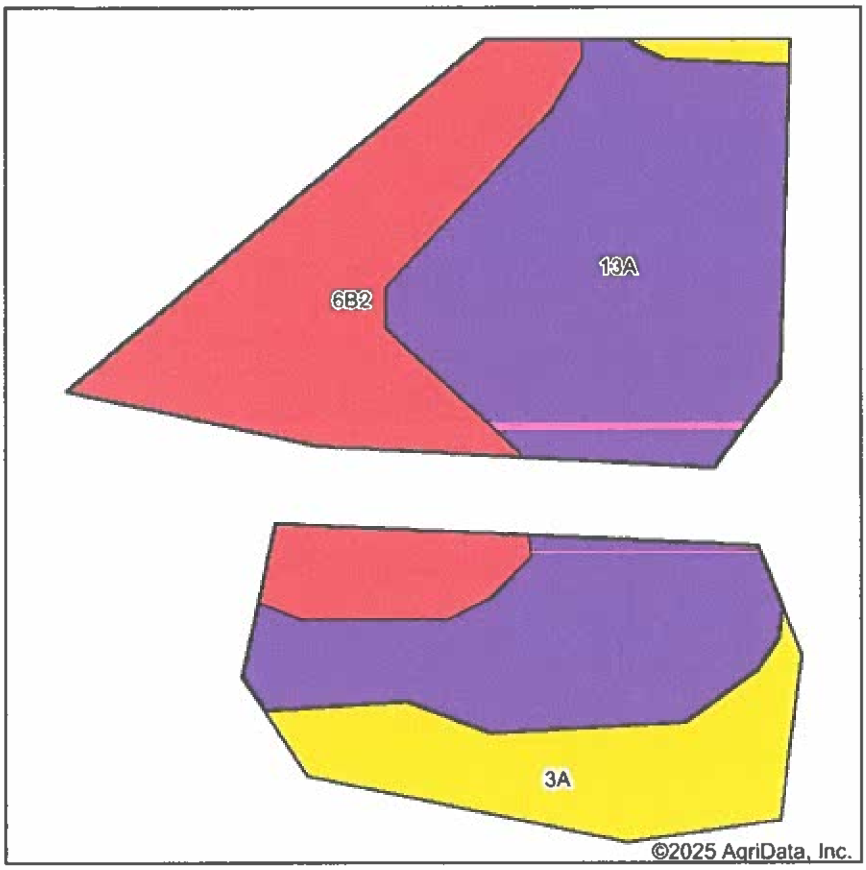
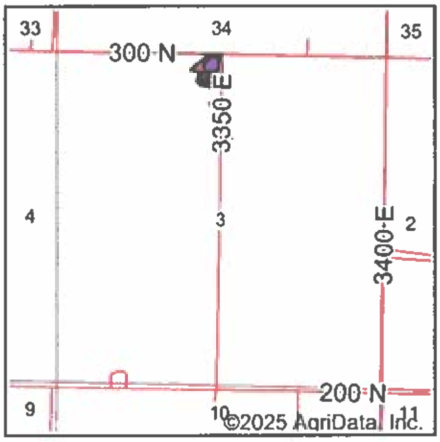
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Corner 2 Ac





State: **Illinois**
County: **Shelby**
Location: **3-9N-6E**
Township: **Sigel**
Acres: **3.32**
Date: **3/3/2025**

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING
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Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	1.82	54.8%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	0.99	29.8%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
3A	Hoyleton silt loam, 0 to 2 percent slopes	0.51	15.4%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
							Weighted Average	**133.1**	**42.8**	**53.1**	**3.6**	**98.5**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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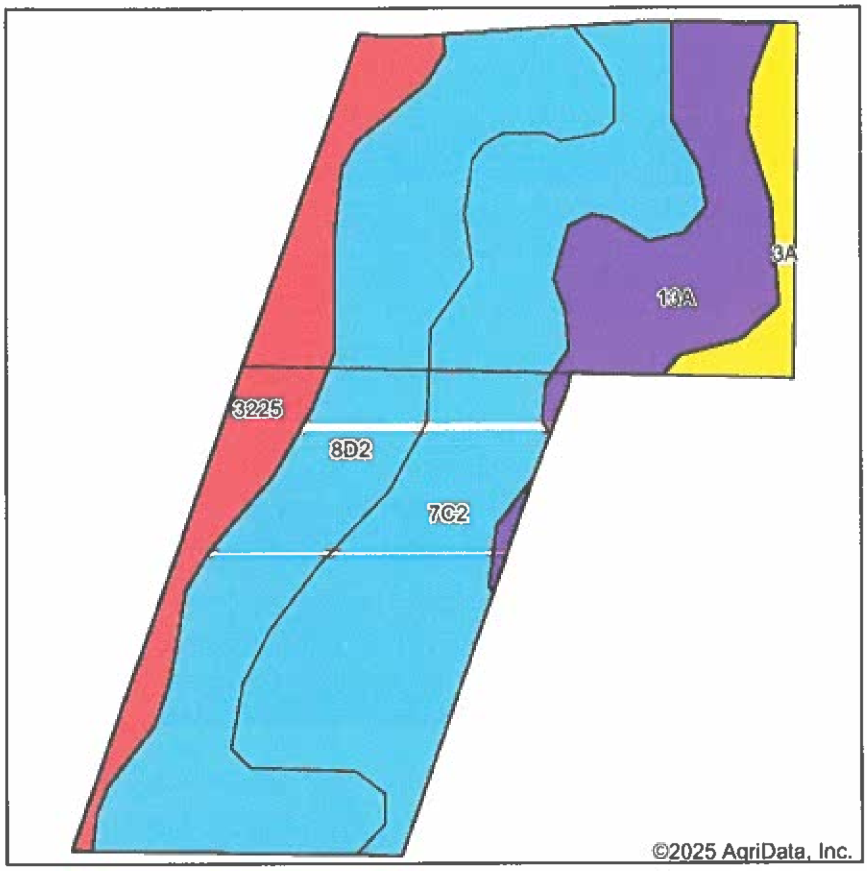
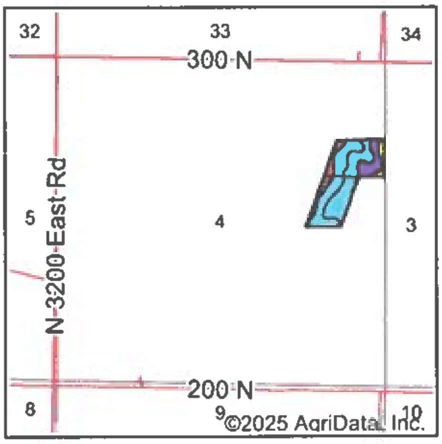
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Down Lane W 22



Soils data provided by USDA and NRCS.



State:	**Illinois**
County:	**Shelby**
Location:	**4-9N-6E**
Township:	**Sigel**
Acres:	**22.2**
Date:	**3/3/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	7.78	35.1%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	7.61	34.3%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
13A	Bluford silt loam, 0 to 2 percent slopes	3.11	14.0%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**3225	Holton silt loam, frequently flooded	2.76	12.4%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
3A	Hoyleton silt loam, 0 to 2 percent slopes	0.94	4.2%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
							Weighted Average	**113.5**	**38.3**	**45.2**	**3.5**	**86.1**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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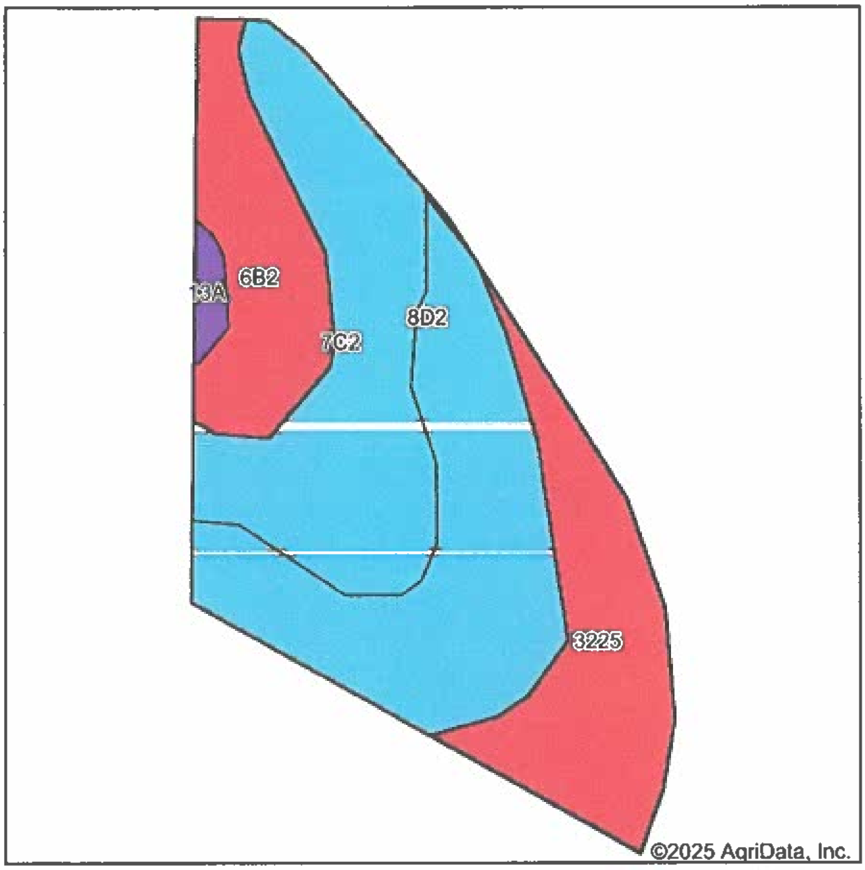
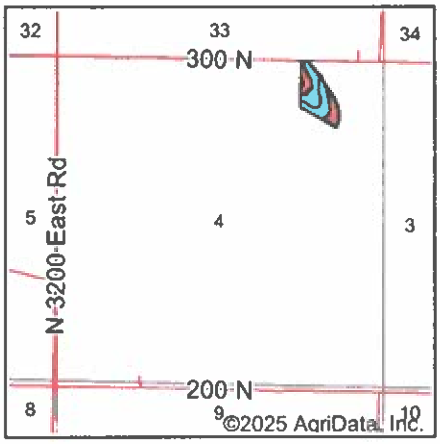
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Front 5 Hills





State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **9.29**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING
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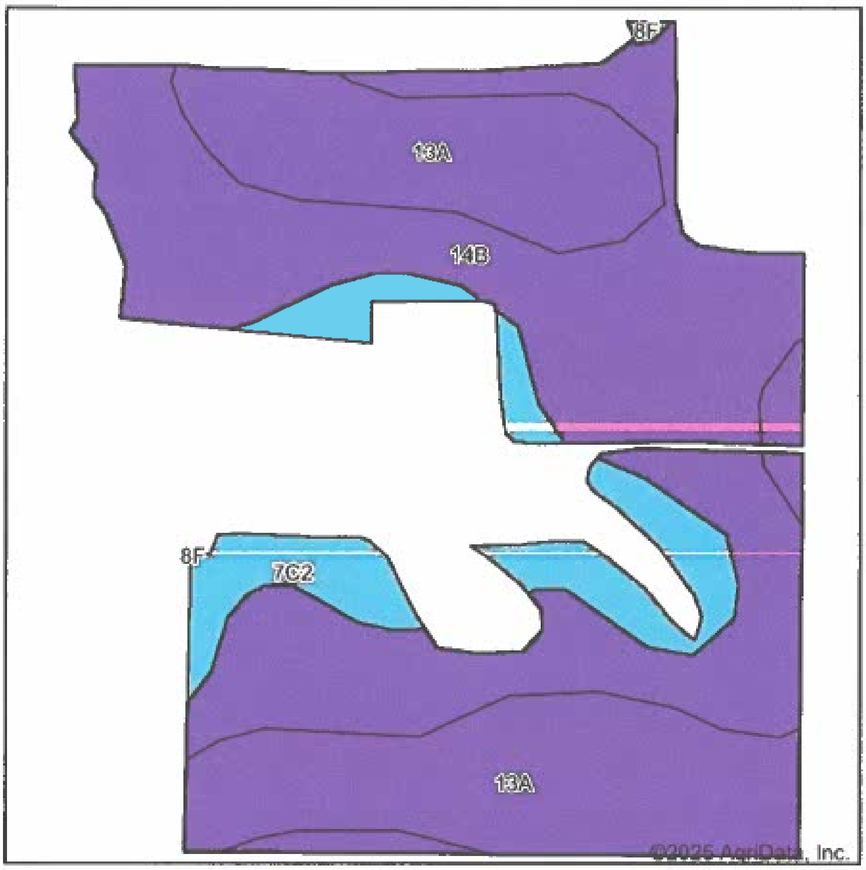
Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

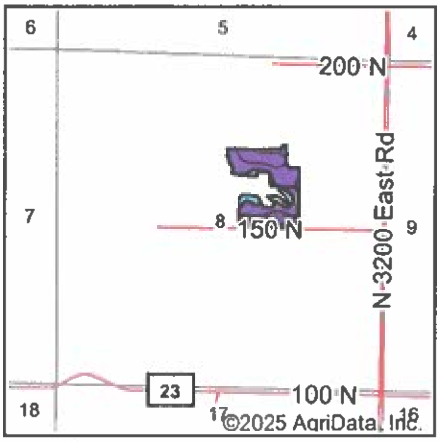
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	2.93	31.6%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	2.79	30.0%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**3225	Holton silt loam, frequently flooded	1.98	21.3%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	1.45	15.6%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
13A	Bluford silt loam, 0 to 2 percent slopes	0.14	1.5%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
							Weighted Average	**111.9**	**37.5**	**43.9**	**3.5**	**84.5**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices:
https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Grotz



Soils data provided by USDA and NRCS.



State:	**Illinois**
County:	**Shelby**
Location:	**8-9N-6E**
Township:	**Sigel**
Acres:	**22.91**
Date:	**3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume *e* hay, T/A	Crop productivity index for optimum management
**14B	Ava silt loam, 2 to 5 percent slopes	11.79	51.5%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
13A	Bluford silt loam, 0 to 2 percent slopes	8.34	36.4%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	2.78	12.1%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
							Weighted Average	**131.1**	**43**	**52.8**	**3.3**	**97.4**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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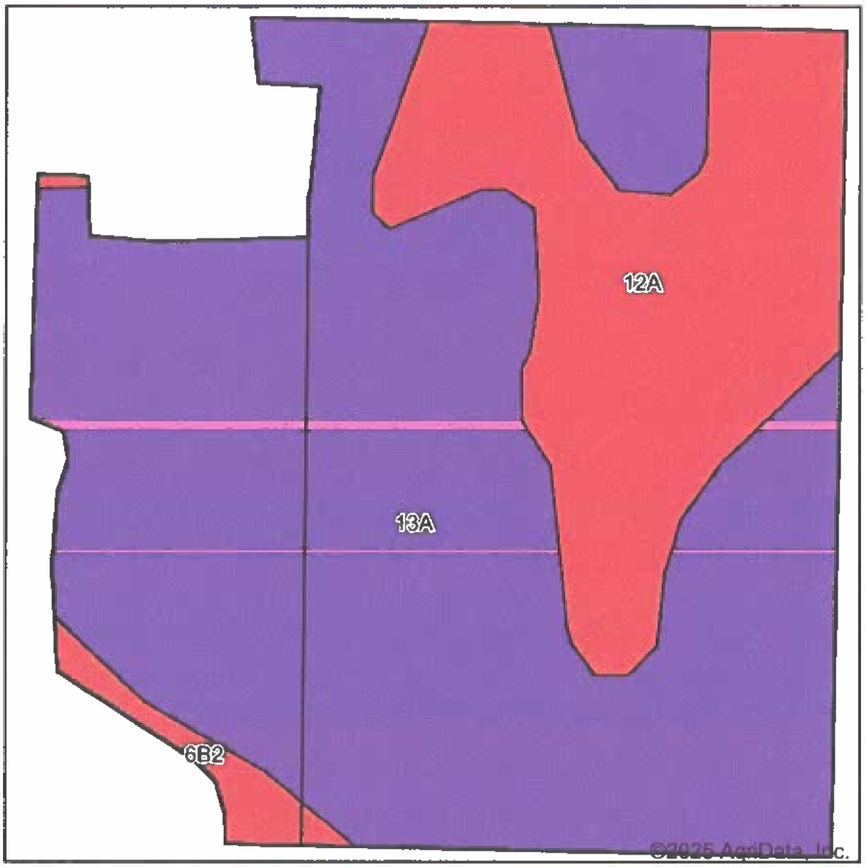
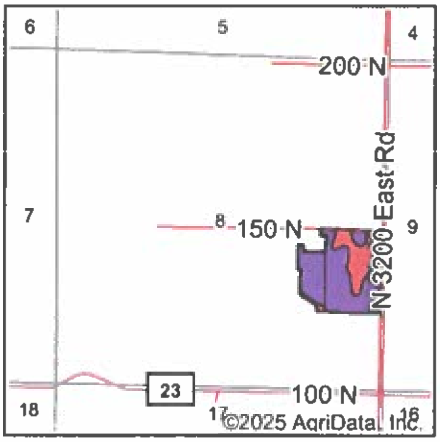
Soils data provided by USDA and NRCS Soils data provided by University of Illinois at Champaign-Urbana.

Hermon



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **8-9N-6E**
Township: **Sigel**
Acres: **35.12**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING
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Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	24.93	71.0%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
12A	Wynoose silt loam, 0 to 2 percent slopes	9.37	26.7%		0.5ft.	1.6ft. (Abrupt textural change)	Poorly drained	128	42	51	4.30	97
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	0.82	2.3%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
							Weighted Average	**133.5**	**43.3**	**53.7**	**3.6**	**99.7**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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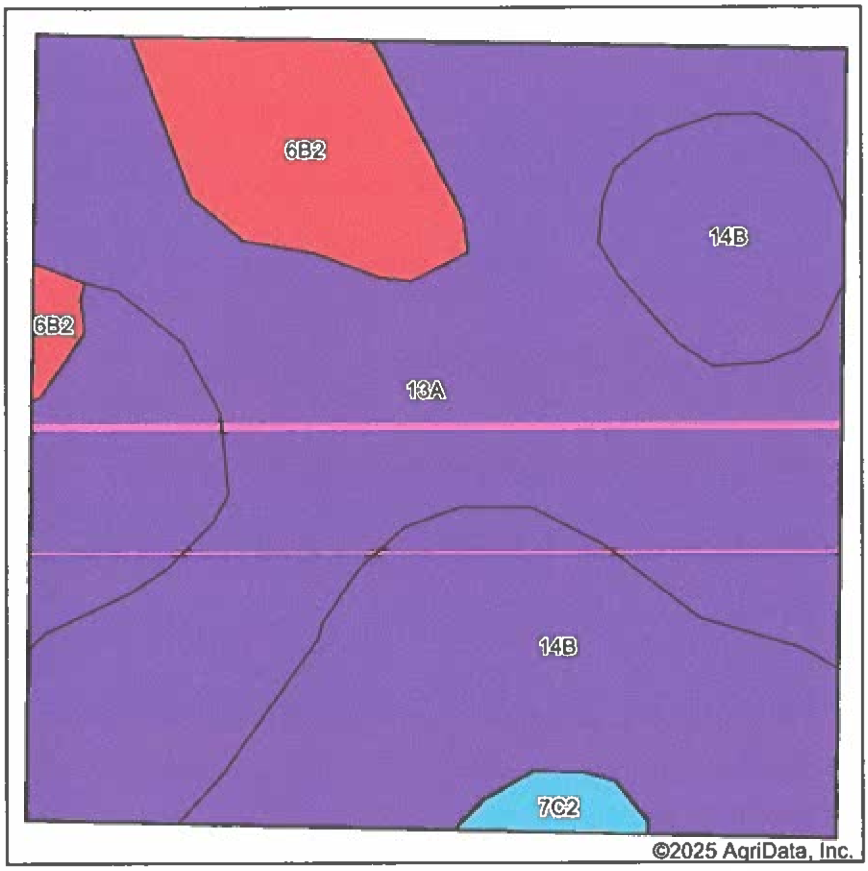
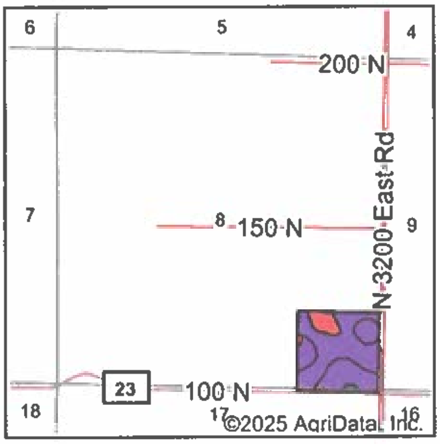
Josh E





State: **Illinois**
County: **Shelby**
Location: **8-9N-6E**
Township: **Sigel**
Acres: **38.3**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	20.04	52.2%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**14B	Ava silt loam, 2 to 5 percent slopes	14.12	36.9%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	3.62	9.5%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.52	1.4%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
							Weighted Average	**133.4**	**43.4**	**53.7**	**3.4**	**98.8**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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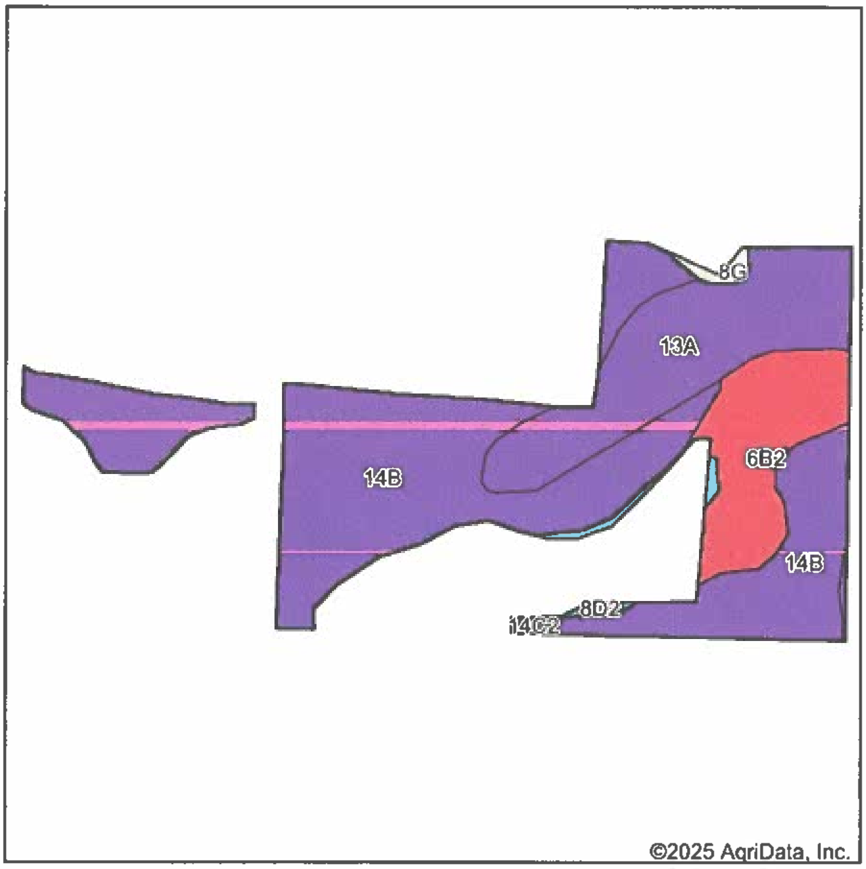
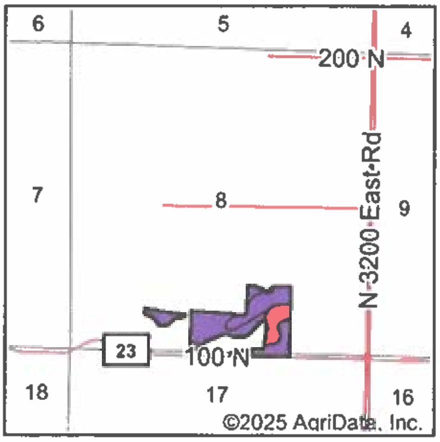
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Josh W





State: **Illinois**
County: **Shelby**
Location: **8-9N-6E**
Township: **Sigel**
Acres: **32.98**
Date: **3/3/2025**

MAURER-STUTZ
ENGINEERS SURVEYORS

Maps Provided By:
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CUSTOMIZED ONLINE MAPPING

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Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	II. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-leg ume e hay, T/A	Crop productivity index for optimum management
**14B	Ava silt loam, 2 to 5 percent slopes	19.88	60.3%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
13A	Bluford silt loam, 0 to 2 percent slopes	7.65	23.2%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	4.63	14.0%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.42	1.3%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
**8G	Hickory silt loam, 35 to 60 percent slopes	0.24	0.7%		> 6.5ft.	> 6.5ft.	Well drained	**58	**20	**24	**1.90	**44
**14C2	Ava silt loam, 5 to 10 percent slopes, eroded	0.16	0.5%		2.2ft.	2.3ft. (Fragipan)	Moderately well drained	**120	**39	**49	**2.90	**89

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
							Weighted Average	**131.7**	**43**	**52.9**	**3.4**	**97.4**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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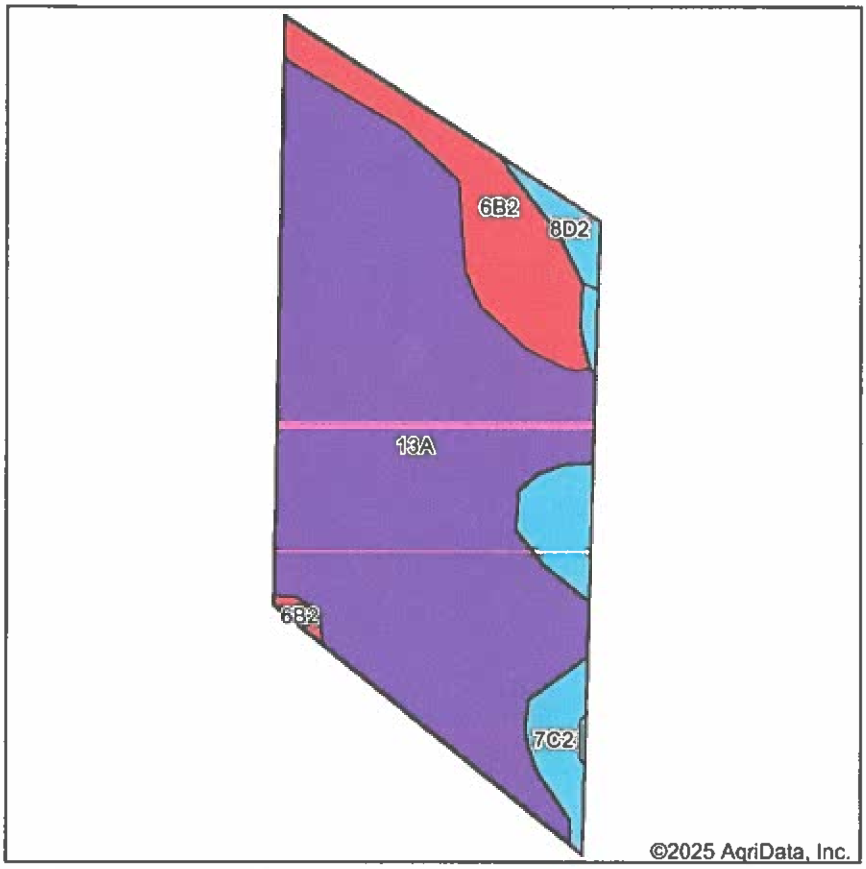
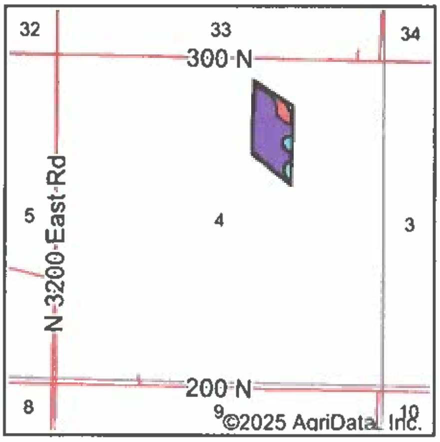
Middle 22



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **18.48**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety

Area Symbol: IL173, Soil Area Version: 21												
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-leg ume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	14.15	76.5%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	2.49	13.5%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	1.46	7.9%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.38	2.1%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
							Weighted Average	**130.9**	**42.6**	**52.6**	**3.4**	**97.3**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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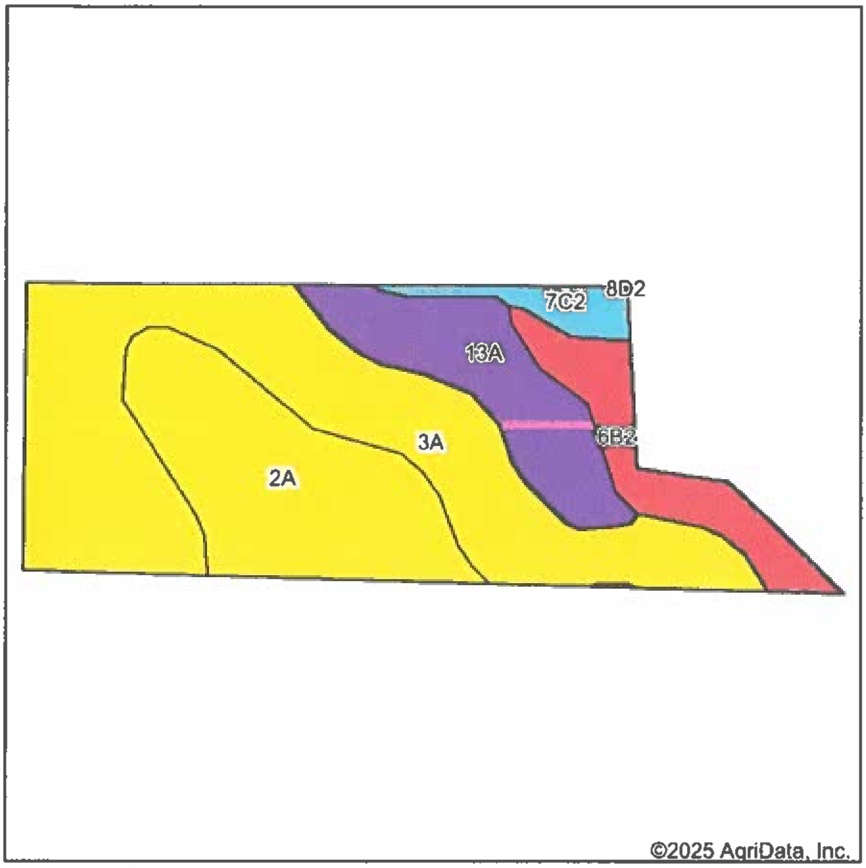
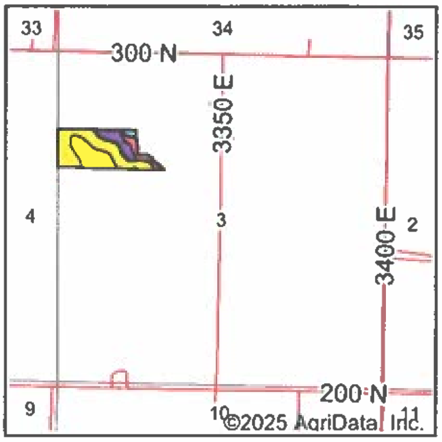
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

N Lane 20 Acres





State: **Illinois**
County: **Shelby**
Location: **3-9N-6E**
Township: **Sigel**
Acres: **19.41**
Date: **3/3/2025**

MAURER-STUTZ
ENGINEERS SURVEYORS

Maps Provided By:
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 www.AgriDataInc.com

Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-leg ume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	9.02	46.6%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
2A	Cisne silt loam, 0 to 2 percent slopes	4.90	25.2%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
13A	Bluford silt loam, 0 to 2 percent slopes	2.92	15.0%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	1.94	10.0%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.63	3.2%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
							Weighted Average	**141.4**	**44.7**	**56.1**	**4.3**	**104.4**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
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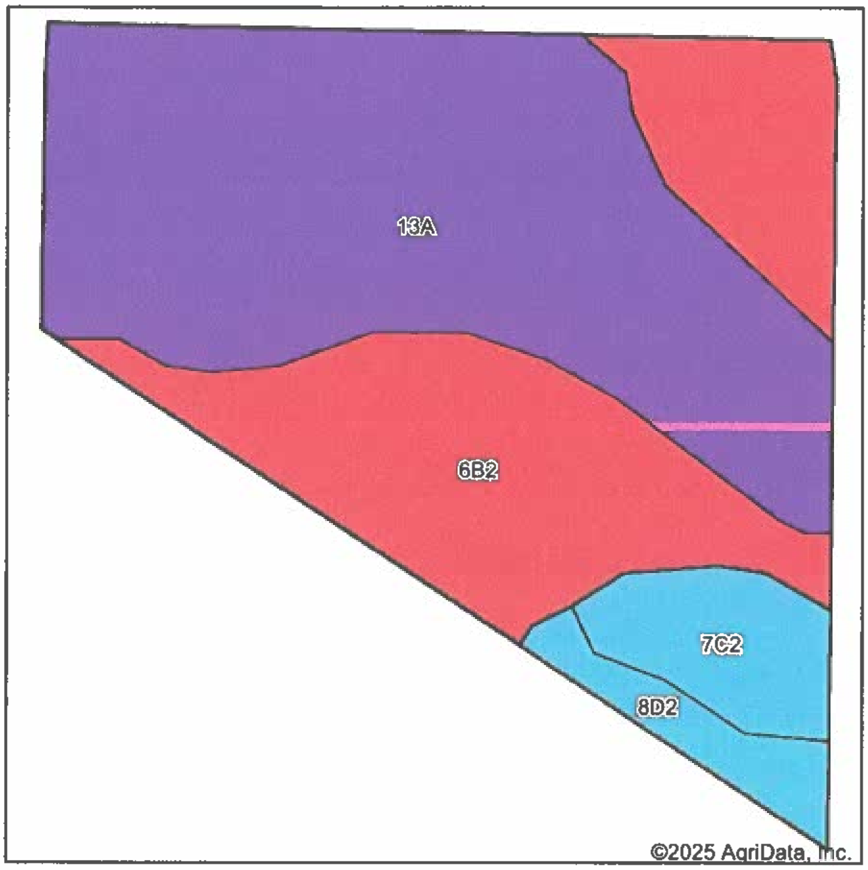
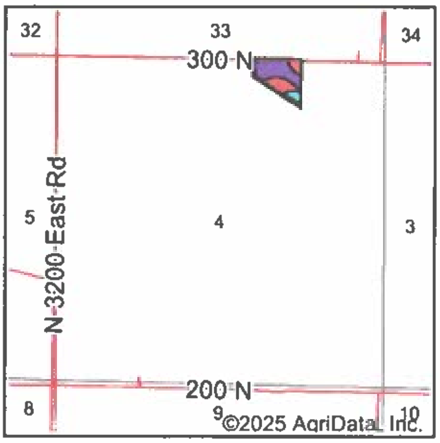
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Patch 9 ac



Soils data provided by USDA and NRCS



State:	**Illinois**
County:	**Shelby**
Location:	**4-9N-6E**
Township:	**Sigel**
Acres:	**9.84**
Date:	**3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	5.28	53.6%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	3.44	35.0%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.69	7.0%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.43	4.4%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
							Weighted Average	**127.2**	**41.4**	**50.7**	**3.5**	**94.5**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

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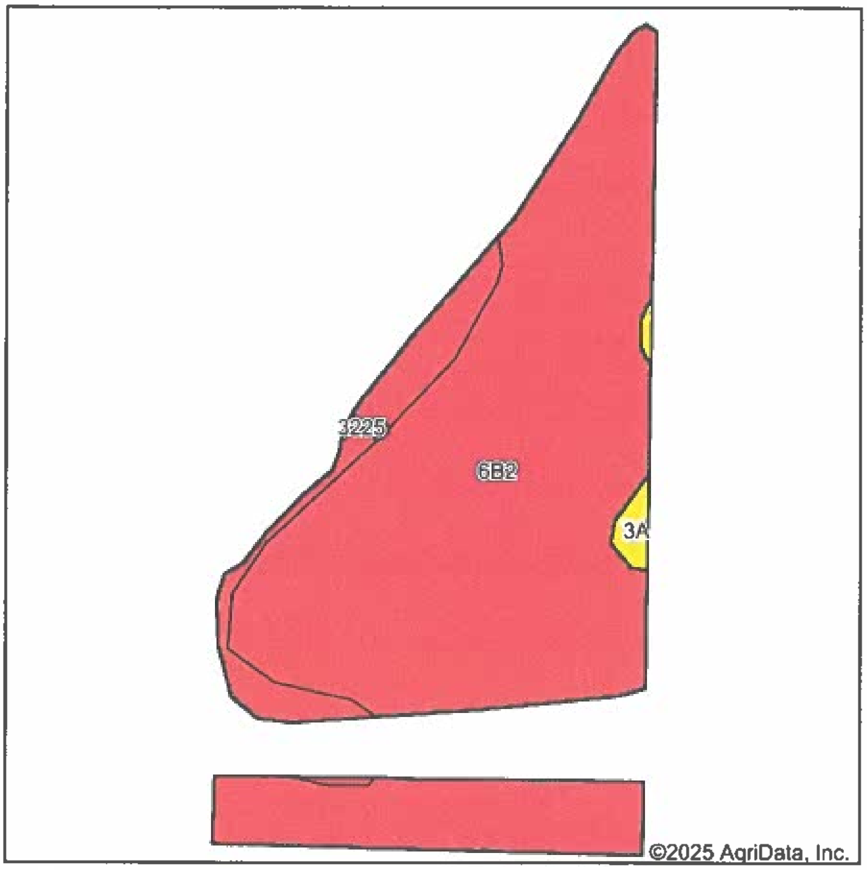
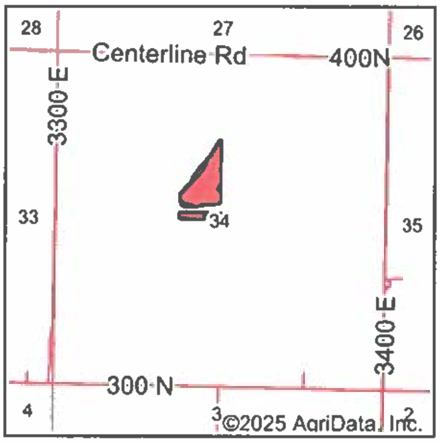


Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **34-10N-6E**
Township: **Sigel**
Acres: **11.09**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	IL State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	9.98	89.9%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**3225	Holton silt loam, frequently flooded	0.96	8.7%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
3A	Hoyleton silt loam, 0 to 2 percent slopes	0.15	1.4%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
							Weighted Average	**121.4**	**39.1**	**47**	**3.6**	**89.3**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
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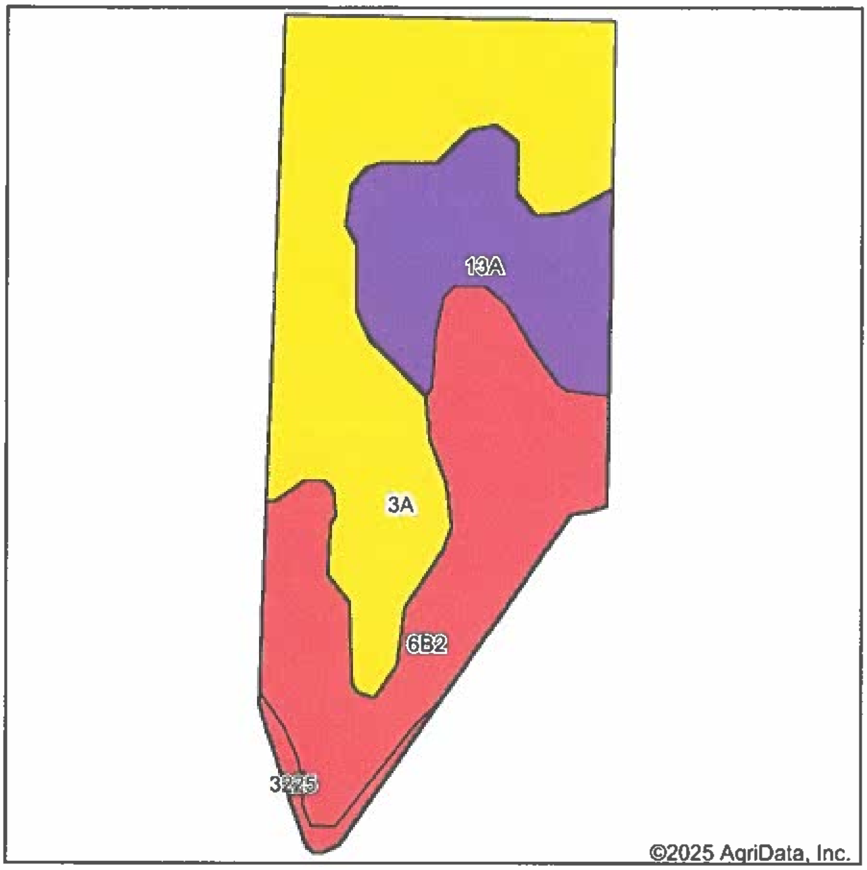
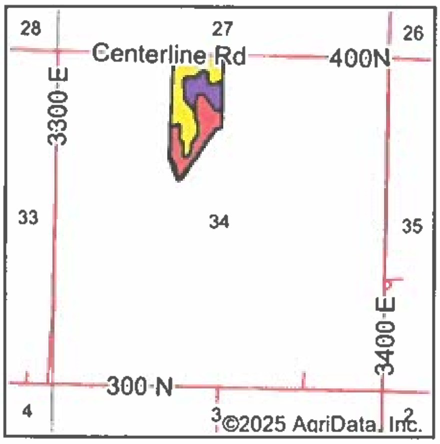
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Probst E 31



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **34-10N-6E**
Township: **Sigel**
Acres: **30.09**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING © AgriData, Inc. 2023 www.AgriDataInc.com

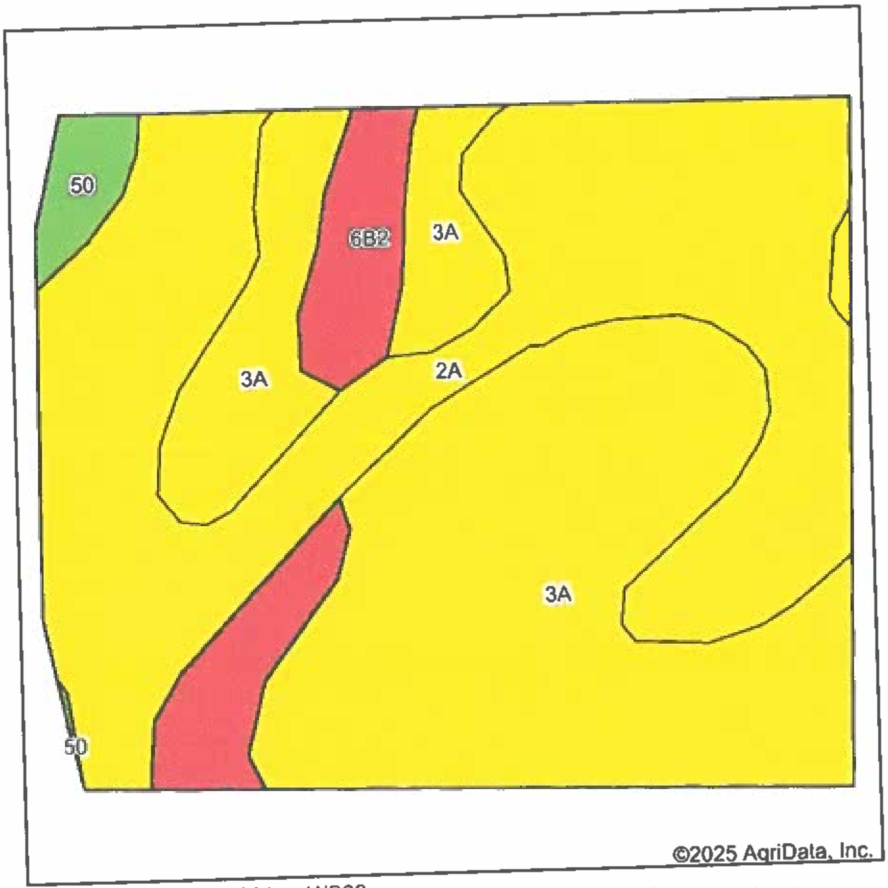
Area Symbol: IL173, Soil Area Version: 21

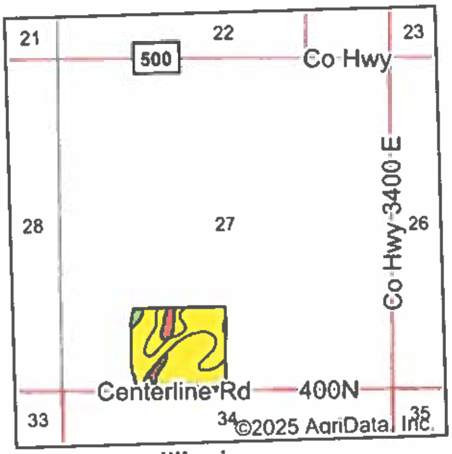
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	13.48	44.8%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	10.03	33.3%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
13A	Bluford silt loam, 0 to 2 percent slopes	5.98	19.9%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**3225	Holton silt loam, frequently flooded	0.60	2.0%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
							Weighted Average	135.2	43.1	53.5	4	99.9

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Probst NE 45





State: **Illinois**
County: **Shelby**
Location: **27-10N-6E**
Township: **Big Spring**
Acres: **43.42**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING

Soils data provided by USDA and NRCS.

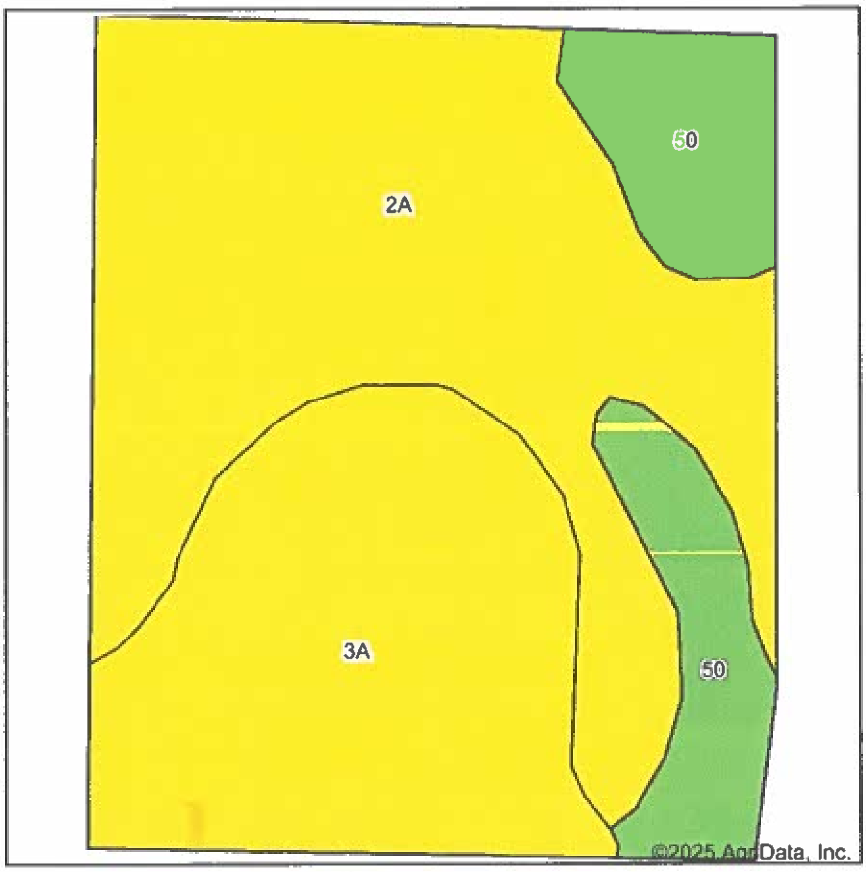
Area Symbol: IL173, Soil Area Version: 21

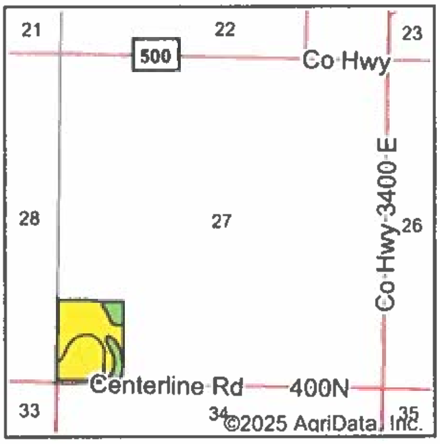
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	19.77	45.5%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
2A	Cisne silt loam, 0 to 2 percent slopes	19.17	44.2%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	3.57	8.2%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**50	Virden silty clay loam, 0 to 2 percent slopes	0.91	2.1%		0.5ft.	> 6.5ft.	Poorly drained	**186	**60	**75	**5.40	**138
							Weighted Average	146.1	45.7	57.9	4.5	107.5

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices:
https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the IL Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Probst NW 31





State: **Illinois**
County: **Shelby**
Location: **27-10N-6E**
Township: **Big Spring**
Acres: **31.36**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety

Soils data provided by USDA and NRCS.

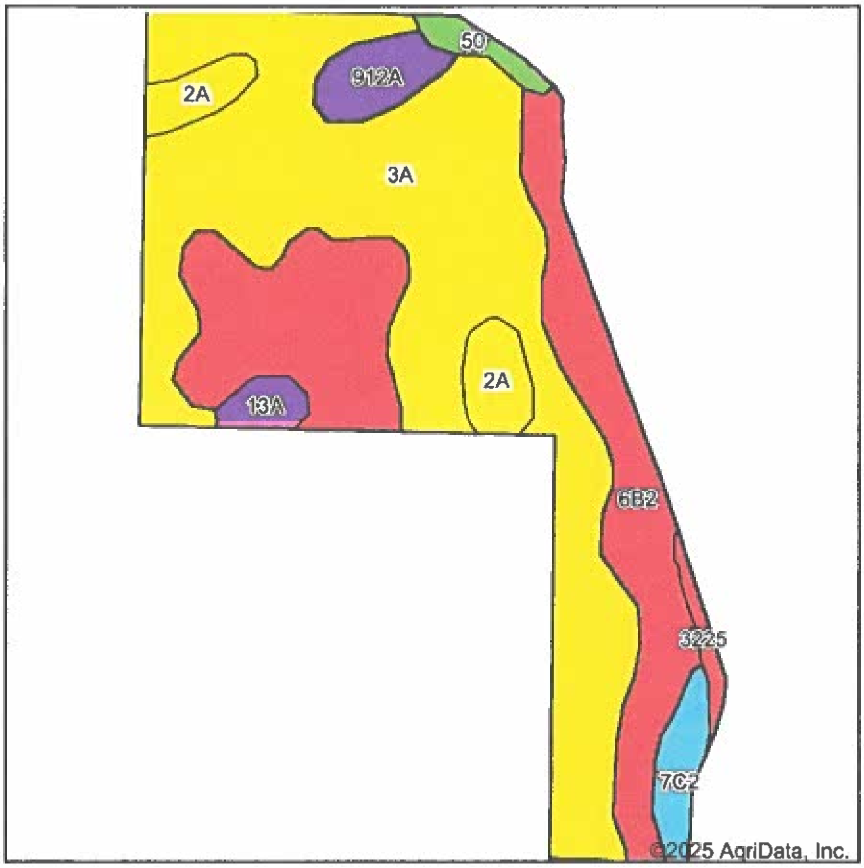
Area Symbol: IL173, Soil Area Version: 21

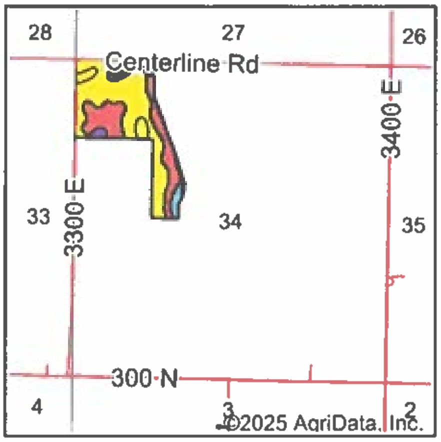
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
2A	Cisne silt loam, 0 to 2 percent slopes	15.96	50.9%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
3A	Hoyleton silt loam, 0 to 2 percent slopes	10.55	33.6%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**50	Virden silty clay loam, 0 to 2 percent slopes	4.85	15.5%		0.5ft.	> 6.5ft.	Poorly drained	**186	**60	**75	**5.40	**138
							Weighted Average	153.7	48.2	61.1	4.7	113.1

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices:
https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Probst West





State: **Illinois**
County: **Shelby**
Location: **34-10N-6E**
Township: **Sigel**
Acres: **54.07**
Date: **3/3/2025**

MAURER-STUTZ
ENGINEERS SURVEYORS

Maps Provided By:
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Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-leg ume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	29.28	54.2%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	16.37	30.3%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
2A	Cisne silt loam, 0 to 2 percent slopes	2.69	5.0%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	1.86	3.4%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	132	45	51	4.50	101
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	1.51	2.8%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
13A	Bluford silt loam, 0 to 2 percent slopes	0.87	1.6%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Maps Provided By:
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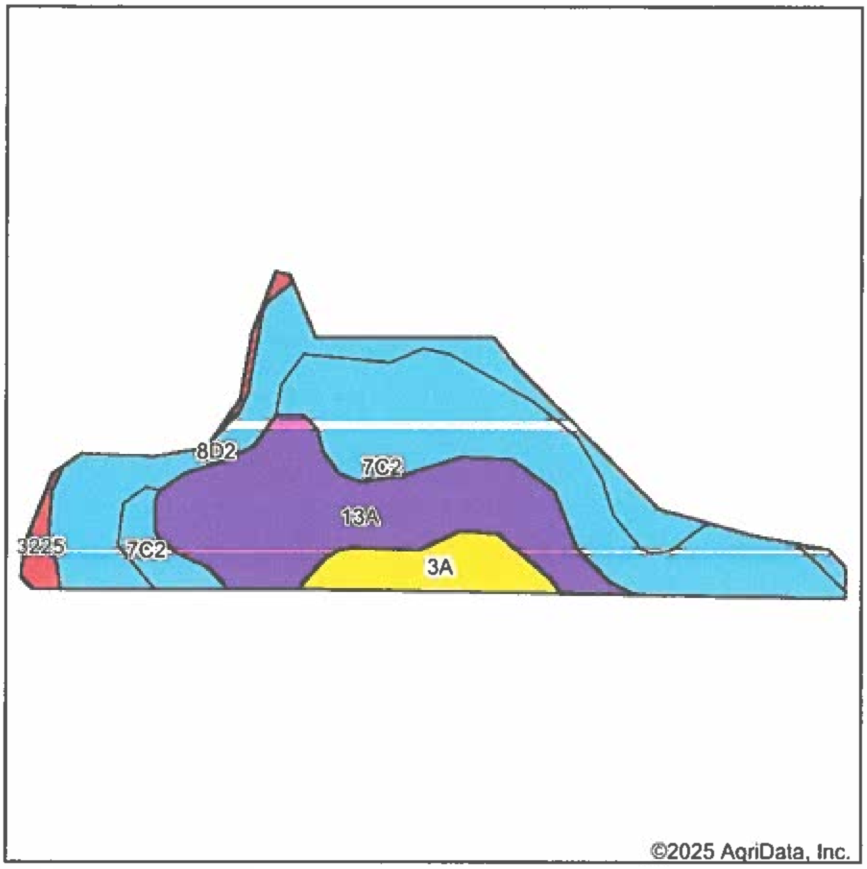
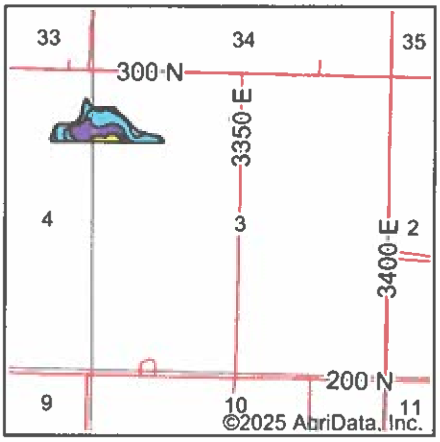
CUSTOMIZED ONLINE MAPPING

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**50	Virden silty clay loam, 0 to 2 percent slopes	0.83	1.5%		0.5ft.	> 6.5ft.	Poorly drained	**186	**60	**75	**5.40	**138
**3225	Holton silt loam, frequently flooded	0.66	1.2%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
							Weighted Average	137.1	43.7	54.1	4.2	101.4

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

S Udder Place





State:	**Illinois**
County:	**Shelby**
Location:	**3-9N-6E**
Township:	**Sigel**
Acres:	**17.37**
Date:	**3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

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Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	6.17	35.5%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
13A	Bluford silt loam, 0 to 2 percent slopes	5.47	31.5%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	3.91	22.5%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
3A	Hoyleton silt loam, 0 to 2 percent slopes	1.34	7.7%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**3225	Holton silt loam, frequently flooded	0.48	2.8%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
							Weighted Average	**118.5**	**39.6**	**47.5**	**3.4**	**89.5**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023

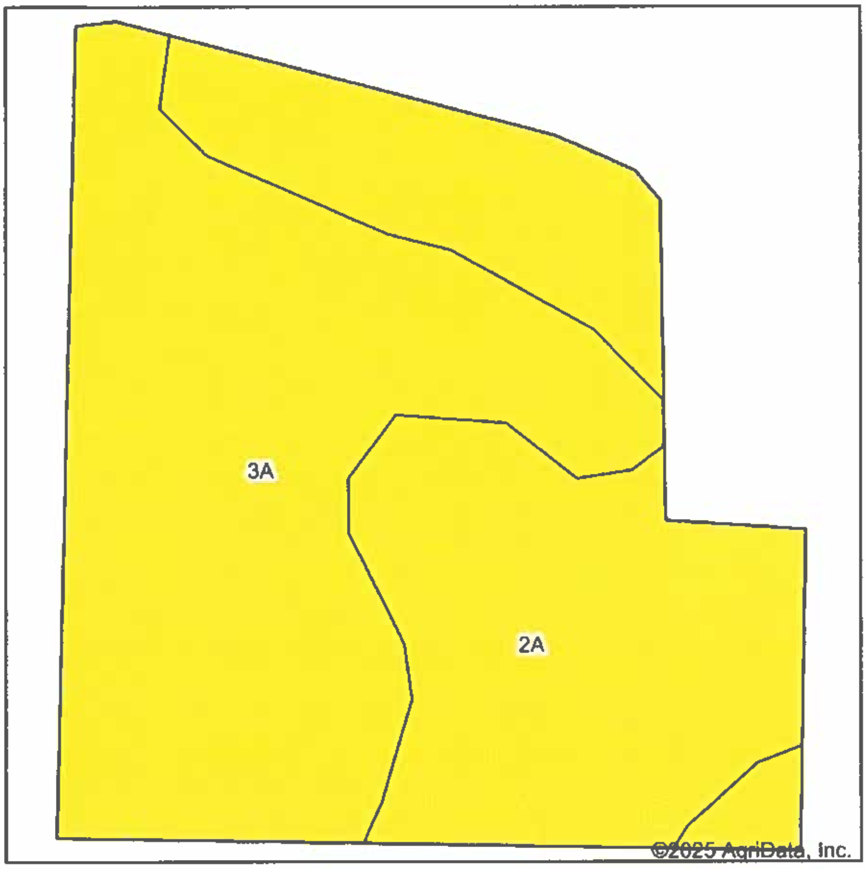
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809

** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG

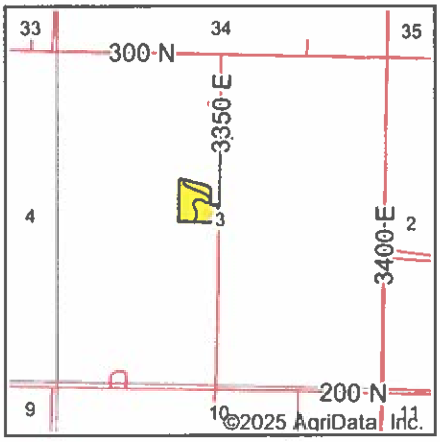
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

South House



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **3-9N-6E**
Township: **Sigel**
Acres: **7.91**
Date: **3/3/2025**

MAURER-STUTZ
ENGINEERS SURVEYORS

Maps Provided By:
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Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	4.34	54.9%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
2A	Cisne silt loam, 0 to 2 percent slopes	3.57	45.1%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
							Weighted Average	**147.4**	**46**	**58.5**	**4.6**	**108.5**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices:
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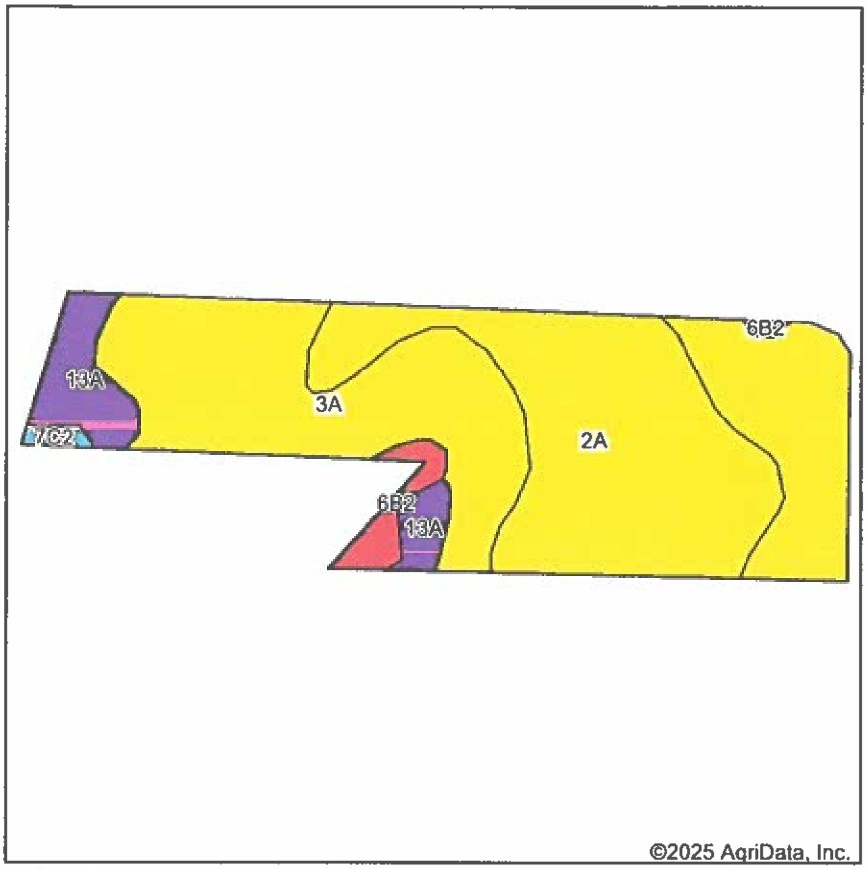
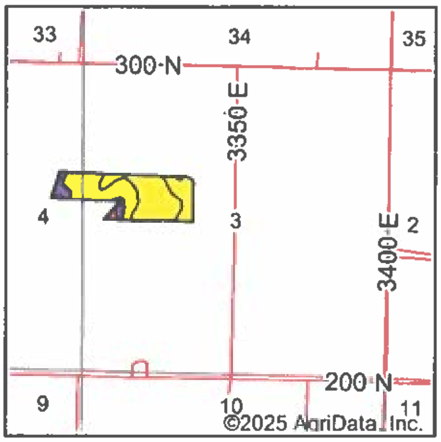
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

South Lane



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **3-9N-6E**
Township: **Sigel**
Acres: **34.83**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21												
Code	Soil Description	Acres	Percent of field	II. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	17.25	49.5%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
2A	Cisne silt loam, 0 to 2 percent slopes	13.50	38.8%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
13A	Bluford silt loam, 0 to 2 percent slopes	2.74	7.9%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	1.08	3.1%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.26	0.7%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
							Weighted Average	**145.3**	**45.6**	**57.7**	**4.5**	**107**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
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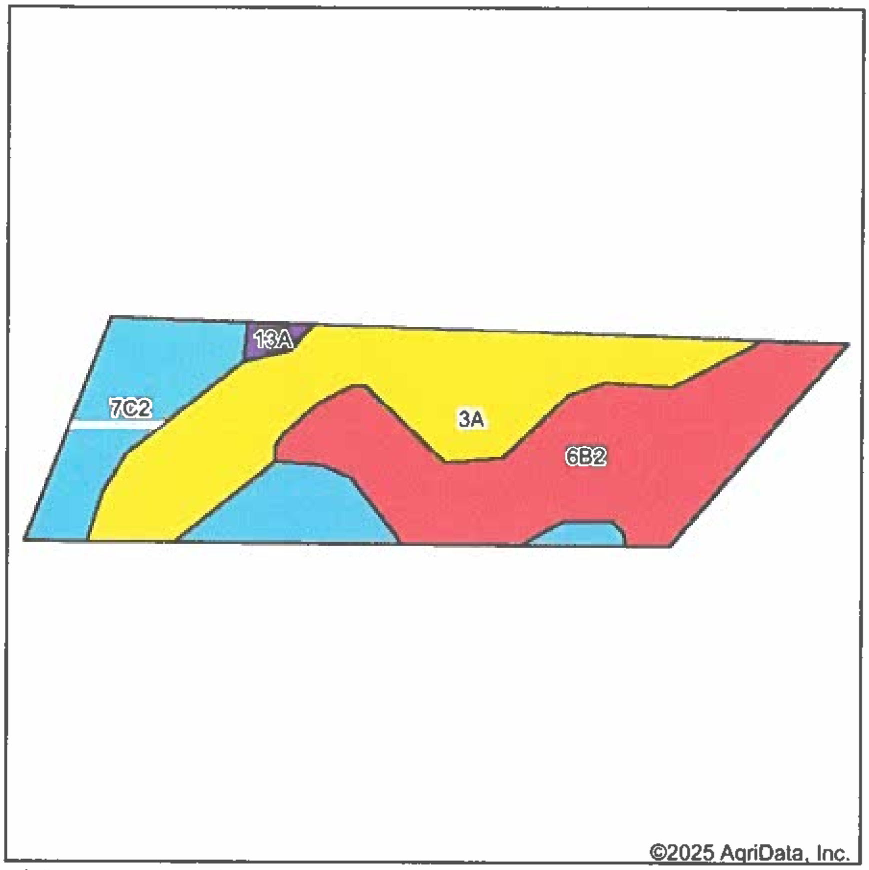
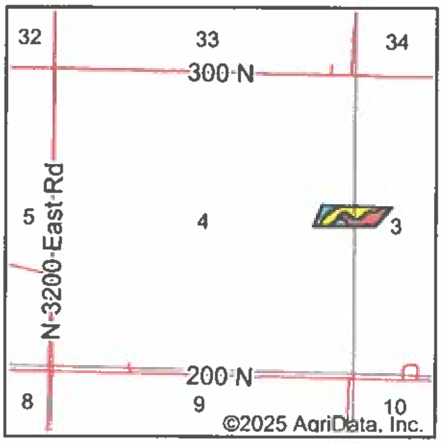
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

South Lane 8



Soils data provided by USDA and NRCS



State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **9.39**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume *e* hay, T/A	Crop productivity index for optimum management
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	3.64	38.8%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
3A	Hoyleton silt loam, 0 to 2 percent slopes	3.44	36.6%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	2.19	23.3%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
13A	Bluford silt loam, 0 to 2 percent slopes	0.12	1.3%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
							Weighted Average	**126.4**	**40.9**	**49.7**	**3.8**	**94**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
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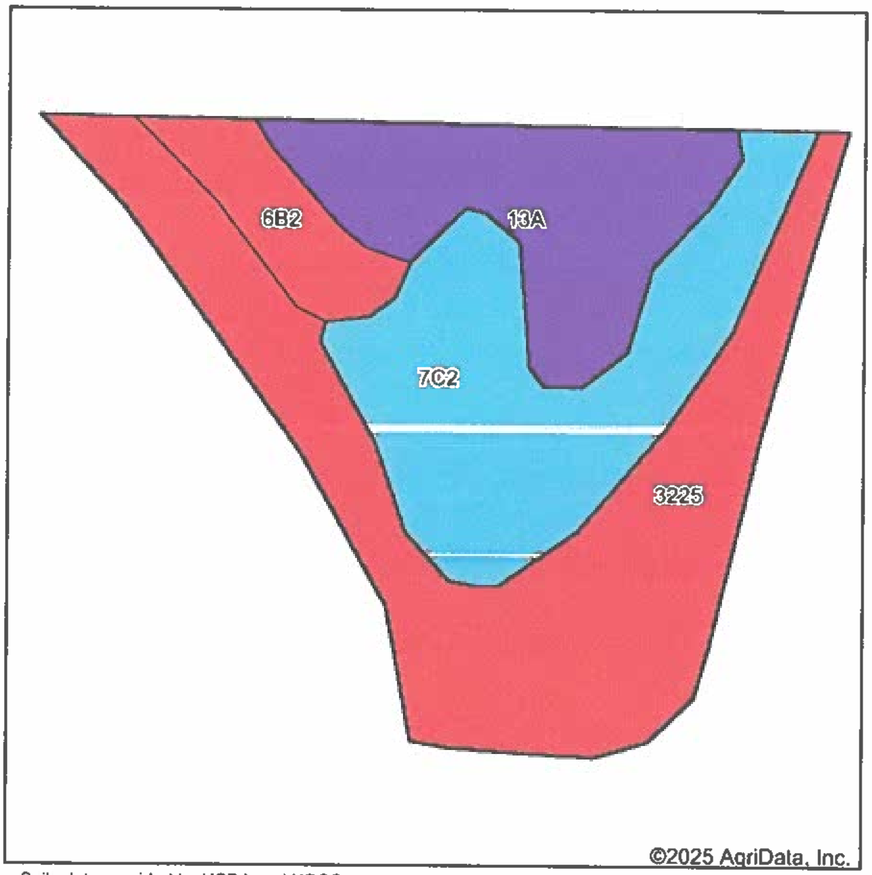
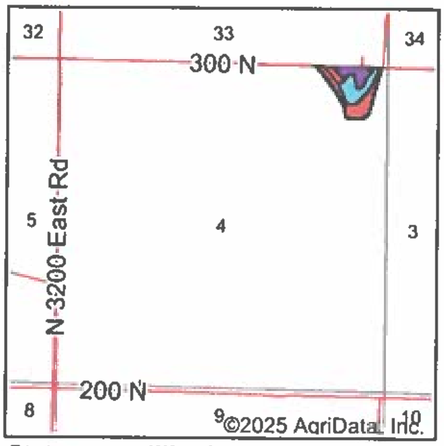
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Split 12 Ac





State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **12.44**
Date: **3/3/2025**

MAURER-STUTZ

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Soils data provided by USDA and NRCS.

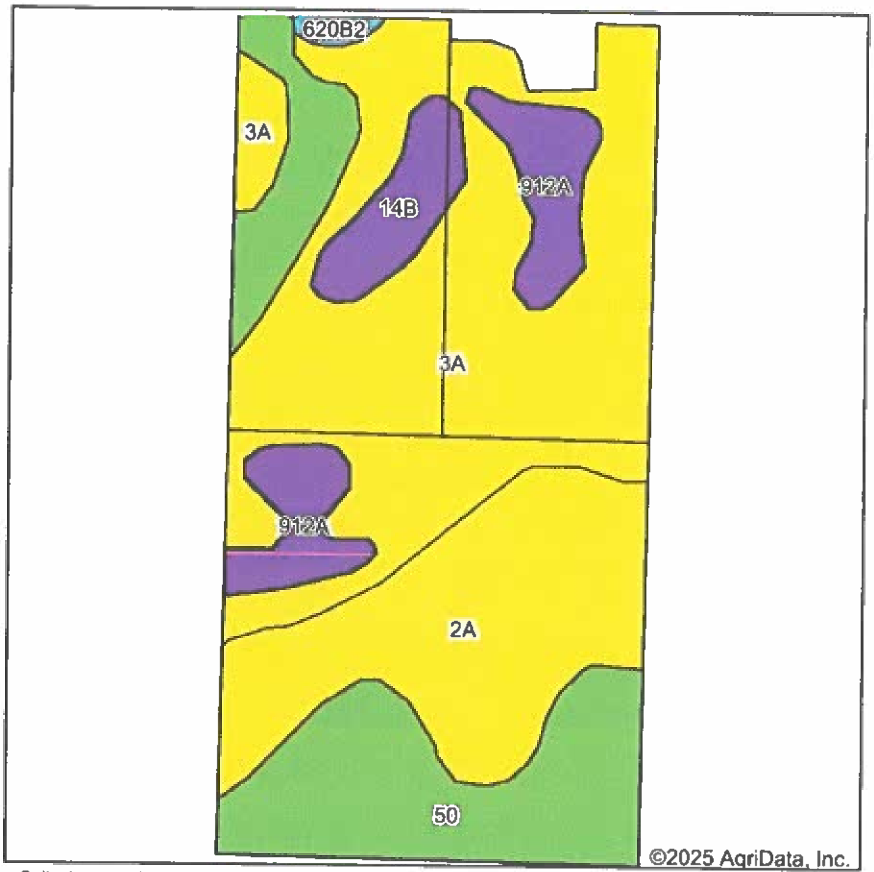
Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume *e* hay, T/A	Crop productivity index for optimum management
**3225	Holton silt loam, frequently flooded	5.32	42.8%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	3.65	29.3%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
13A	Bluford silt loam, 0 to 2 percent slopes	2.59	20.8%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	0.88	7.1%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
							Weighted Average	**119.6**	**39.2**	**46**	**3.5**	**89.3**

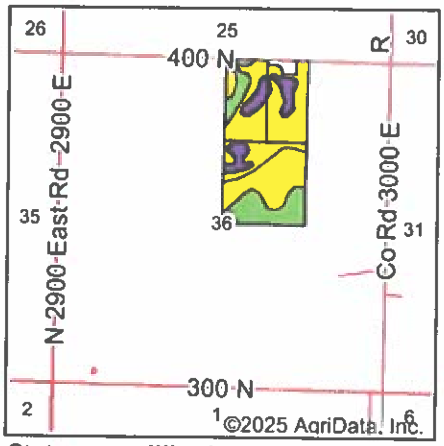
Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Stewardson



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **36-10N-5E**
Township: **Prairie**
Acres: **77.66**
Date: **3/3/2025**

MAURER-STUTZ

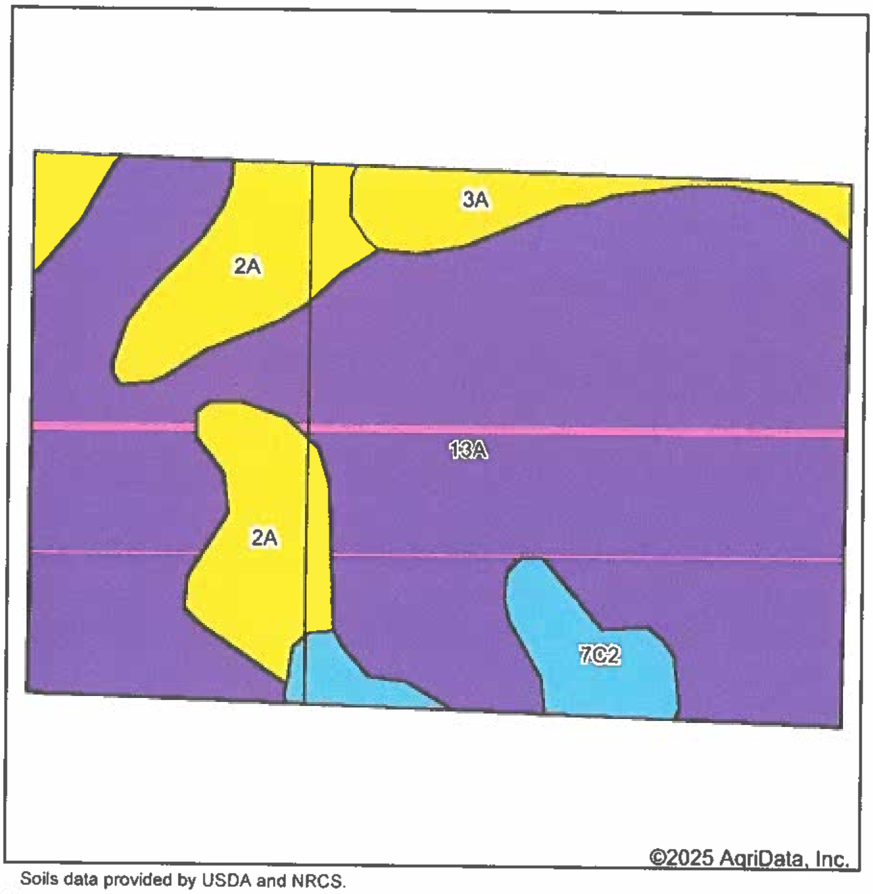
Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21

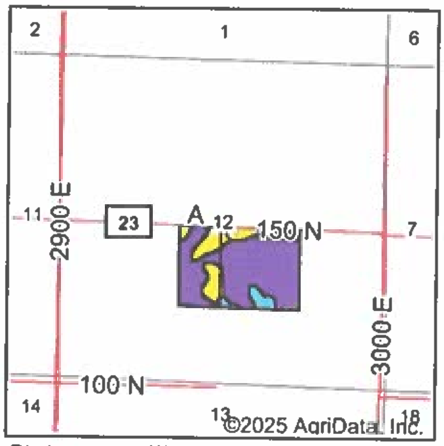
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-leg ume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	33.62	43.3%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
2A	Cisne silt loam, 0 to 2 percent slopes	17.10	22.0%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
**50	Virden silty clay loam, 0 to 2 percent slopes	16.92	21.8%		0.5ft.	> 6.5ft.	Poorly drained	**186	**60	**75	**5.40	**138
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	6.21	8.0%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	132	45	51	4.50	101
**14B	Ava silt loam, 2 to 5 percent slopes	3.32	4.3%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
**620B2	Darmstadt silt loam, 2 to 5 percent slopes, eroded	0.49	0.6%		1.3ft.	1.7ft. (Natric)	Somewhat poorly drained	**109	**40	**40	**3.30	**86
							Weighted Average	**153.5**	**48.8**	**61.1**	**4.7**	**113.7**

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Deans 57



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **12-9N-5E**
Township: **Prairie**
Acres: **59.41**
Date: **5/8/2025**

MAURER-STUTZ
ENGINEERS SURVEYORS

Maps Provided By:
surety®
CUSTOMIZED ONLINE MAPPING
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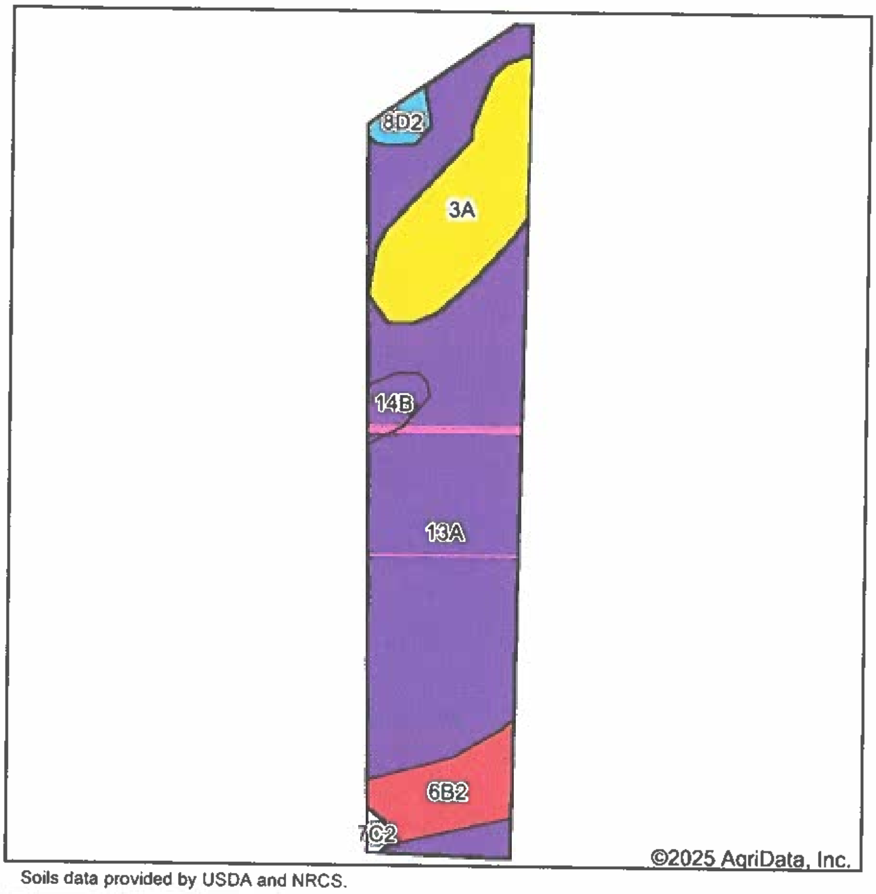
Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	44.97	75.8%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.00	101
2A	Cisne silt loam, 0 to 2 percent slopes	7.86	13.2%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	5.00	109
3A	Hoyleton silt loam, 0 to 2 percent slopes	3.47	5.8%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	5.00	108
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	3.11	5.2%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.00	**80
							Weighted Average	**136.6**	**44**	**55**	**3.4**	**101.4**

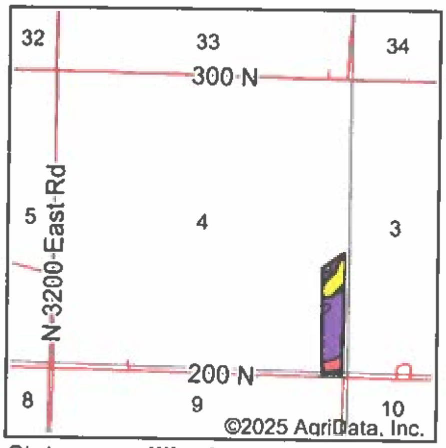
Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 01-28-2025
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Sudkamp East Fence Row



Soils data provided by USDA and NRCS.



State:	**Illinois**
County:	**Shelby**
Location:	**4-9N-6E**
Township:	**Sigel**
Acres:	**18.57**
Date:	**5/8/2025**

MAURER-STUTZ

Maps Provided By:

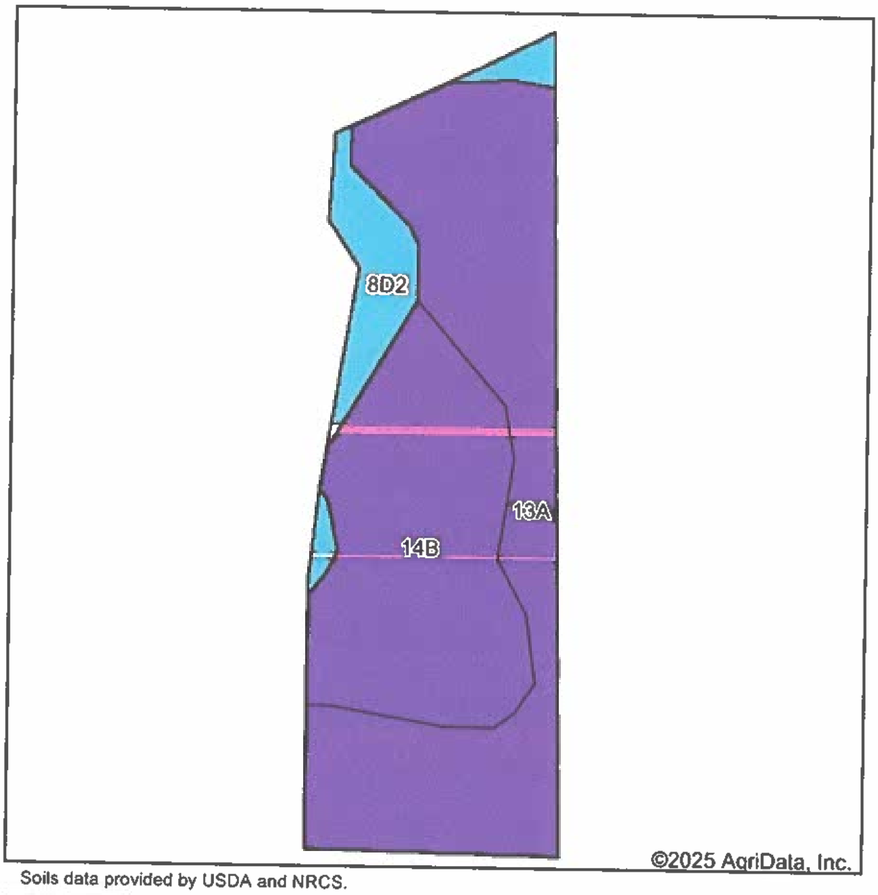
surety® CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21

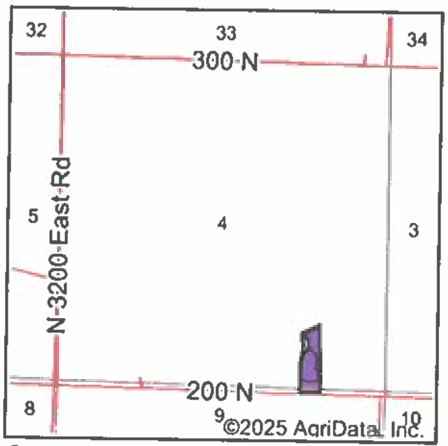
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	12.71	68.5%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.00	101
3A	Hoyleton silt loam, 0 to 2 percent slopes	3.33	17.9%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	5.00	108
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	1.61	8.7%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**4.00	**89
**14B	Ava silt loam, 2 to 5 percent slopes	0.45	2.4%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.00	**99
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.36	1.9%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**4.00	**82
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.11	0.6%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.00	**80
							Weighted Average	**135.7**	**43.7**	**54.5**	**3.5**	**100.7**

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Sudkamp Don's House



Soils data provided by USDA and NRCS.



State:	**Illinois**
County:	**Shelby**
Location:	**4-9N-6E**
Township:	**Sigel**
Acres:	**7.18**
Date:	**5/8/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

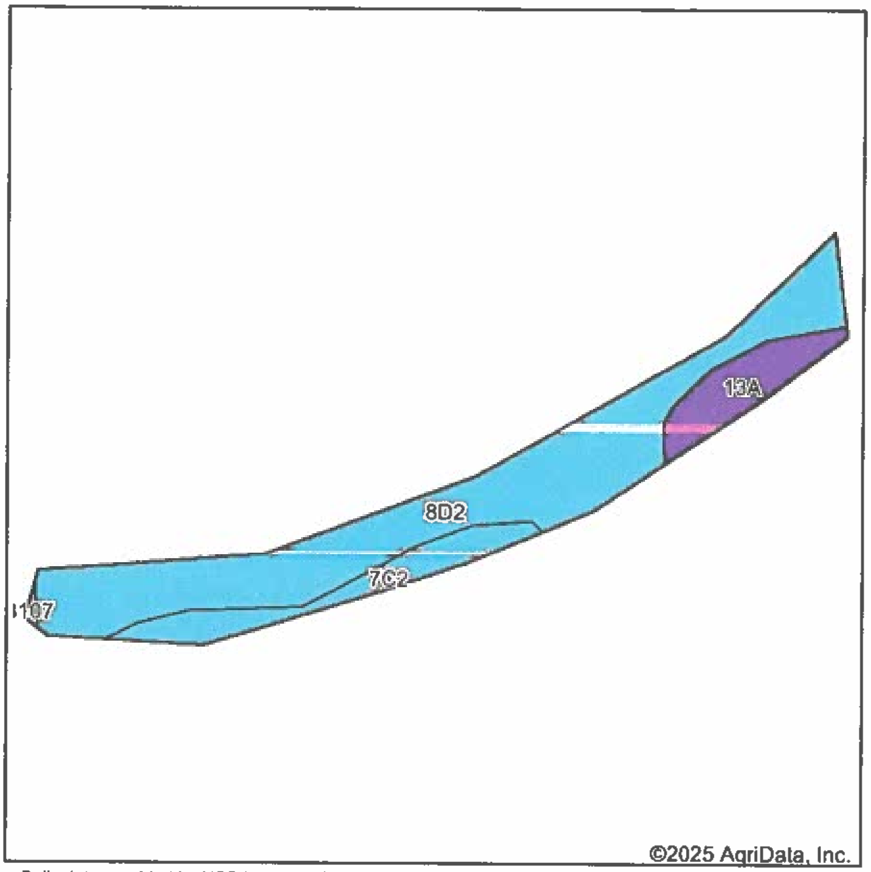
Area Symbol: IL173, Soil Area Version: 21

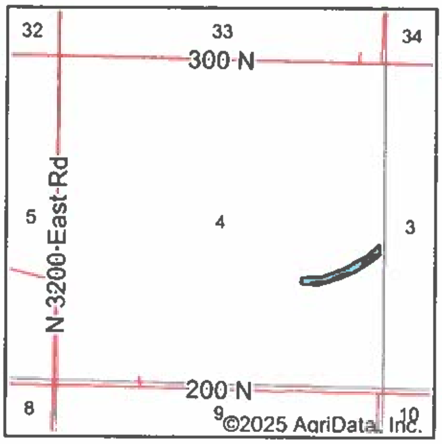
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-leg ume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	3.74	52.1%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.00	101
**14B	Ava silt loam, 2 to 5 percent slopes	2.74	38.2%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.00	**99
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.70	9.7%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**4.00	**82
							Weighted Average	**132.4**	**43.3**	**53.5**	**3.1**	**98.4**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 01-28-2025
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices:
https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS Soils data provided by University of Illinois at Champaign-Urbana.

Sudkamp Along Creek





State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **3.94**
Date: **5/8/2025**

MAURER-STUTZ

Maps Provided By: surety

Soils data provided by USDA and NRCS.

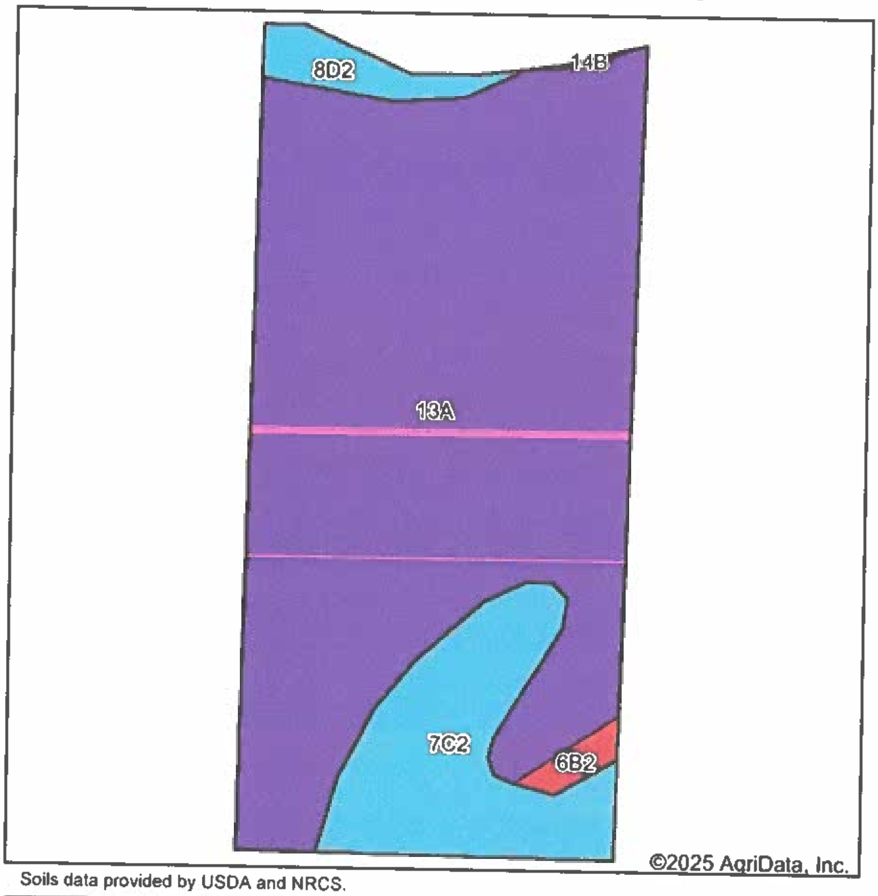
Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume *e* hay, T/A	Crop productivity index for optimum management
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	2.86	72.6%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**4.00	**82
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.58	14.7%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.00	**80
13A	Bluford silt loam, 0 to 2 percent slopes	0.50	12.7%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.00	101
							Weighted Average	**110.2**	**37.7**	**45**	**3.7**	**84.1**

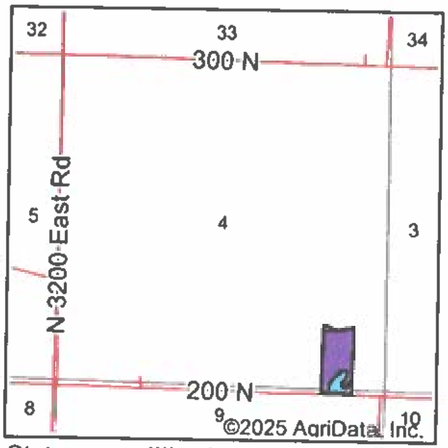
Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 01-28-2025
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices:
https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Sudkamp East of Lane



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **11.87**
Date: **5/8/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING
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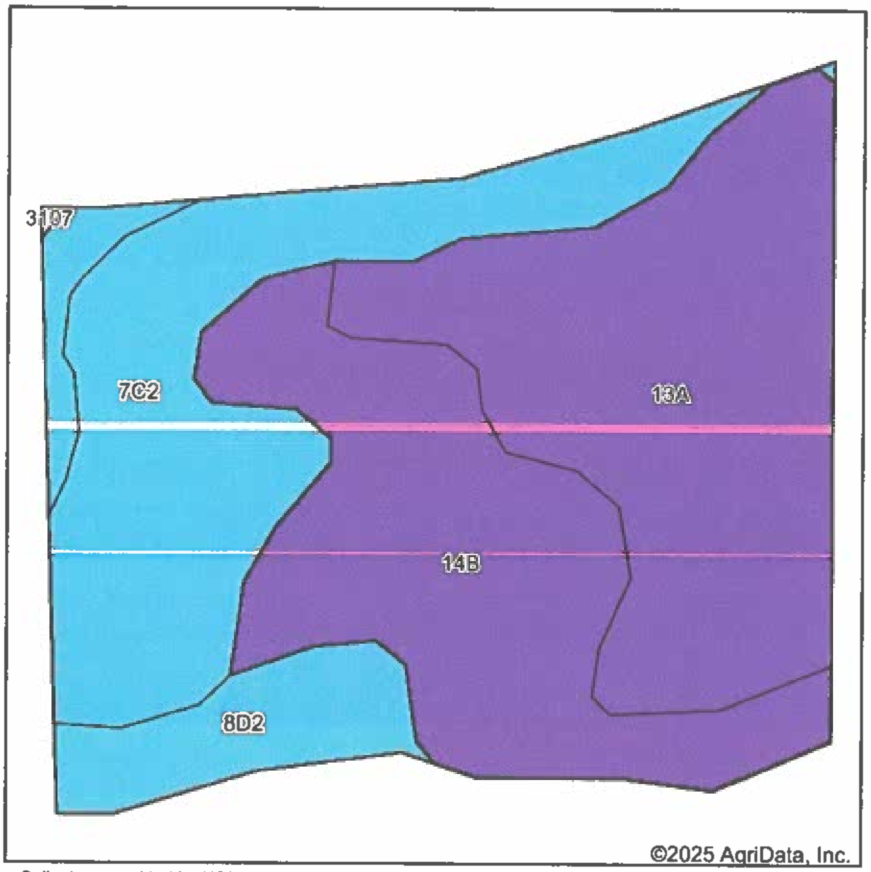
Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	9.60	80.9%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.00	101
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	1.78	15.0%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.00	**80
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	0.36	3.0%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**4.00	**82
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	0.13	1.1%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**4.00	**89
							Weighted Average	130.2	42.5	52.5	3	97.1

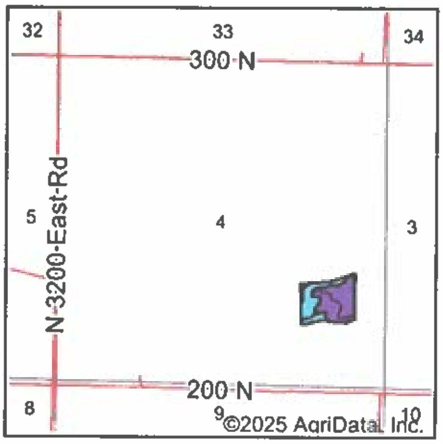
Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 01-28-2025
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Sudkamp Middle 14



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **13.39**
Date: **5/8/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING
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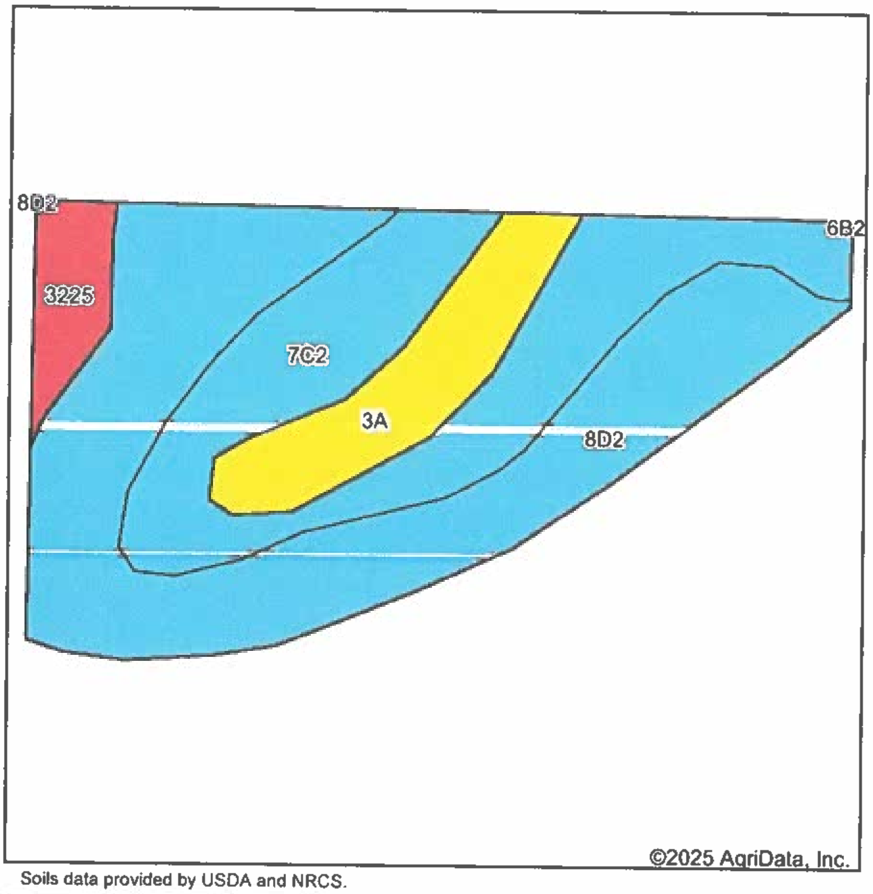
Area Symbol: IL173, Soil Area Version: 21

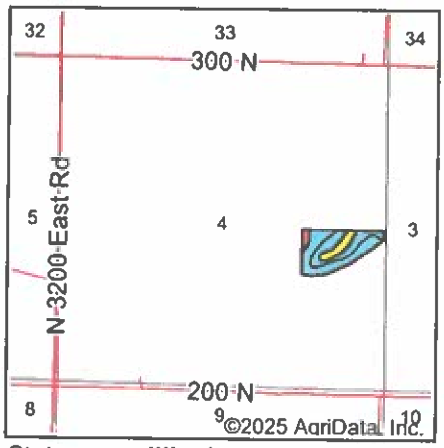
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	4.69	35.0%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.00	101
**14B	Ava silt loam, 2 to 5 percent slopes	3.89	29.1%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.00	**99
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	3.52	26.3%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.00	**80
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	1.29	9.6%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**4.00	**82
							Weighted Average	124.2	41.2	50	3.1	93.1

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 01-28-2025
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

Sudkamp Down Lane





State: **Illinois**
County: **Shelby**
Location: **4-9N-6E**
Township: **Sigel**
Acres: **16.45**
Date: **3/3/2025**

MAURER-STUTZ
ENGINEERS SURVEYORS

Maps Provided By:
surety® CUSTOMIZED ONLINE MAPPING

Soils data provided by USDA and NRCS.

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	7.96	48.3%		> 6.5ft.	> 6.5ft.	Well drained	**107	**37	**44	**3.60	**82
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	5.57	33.9%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
3A	Hoyleton silt loam, 0 to 2 percent slopes	2.07	12.6%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
**3225	Holton silt loam, frequently flooded	0.85	5.2%		2ft.	> 6.5ft.	Somewhat poorly drained	**122	**39	**45	**3.90	**90
							Weighted Average	**111.7**	**37.9**	**44.8**	**3.6**	**85**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
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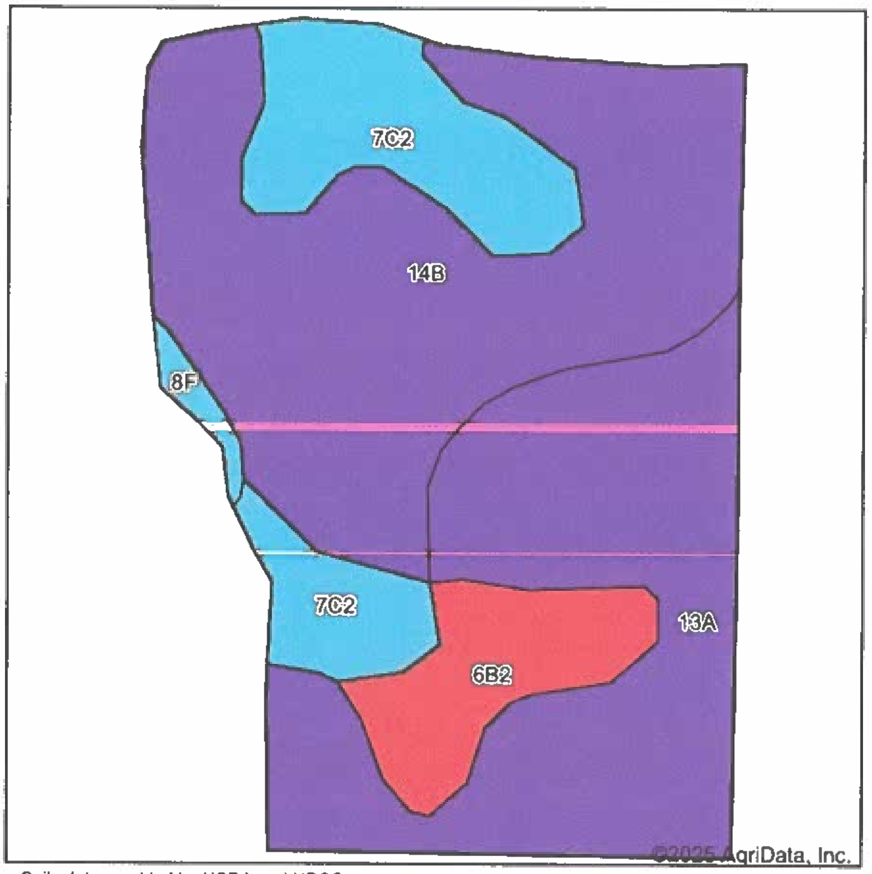
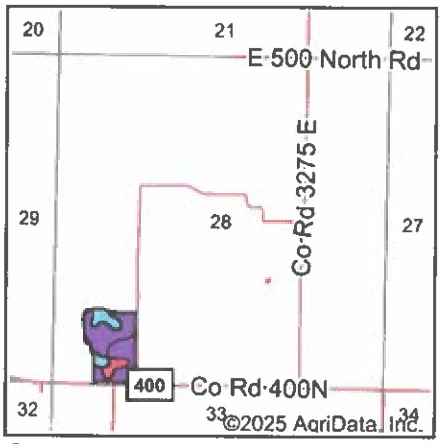
Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

The 40 E 19



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Shelby**
Location: **28-10N-6E**
Township: **Big Spring**
Acres: **19.58**
Date: **3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21													
Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
**14B	Ava silt loam, 2 to 5 percent slopes	8.25	42.1%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
13A	Bluford silt loam, 0 to 2 percent slopes	6.41	32.7%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	3.05	15.6%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	1.66	8.5%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**8F	Hickory silt loam, 18 to 35 percent slopes	0.21	1.1%		> 6.5ft.	> 6.5ft.	Well drained	**89	**30	**36	**3.00	**68
							Weighted Average	128.4	42.2	51.5	3.3	95.5

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

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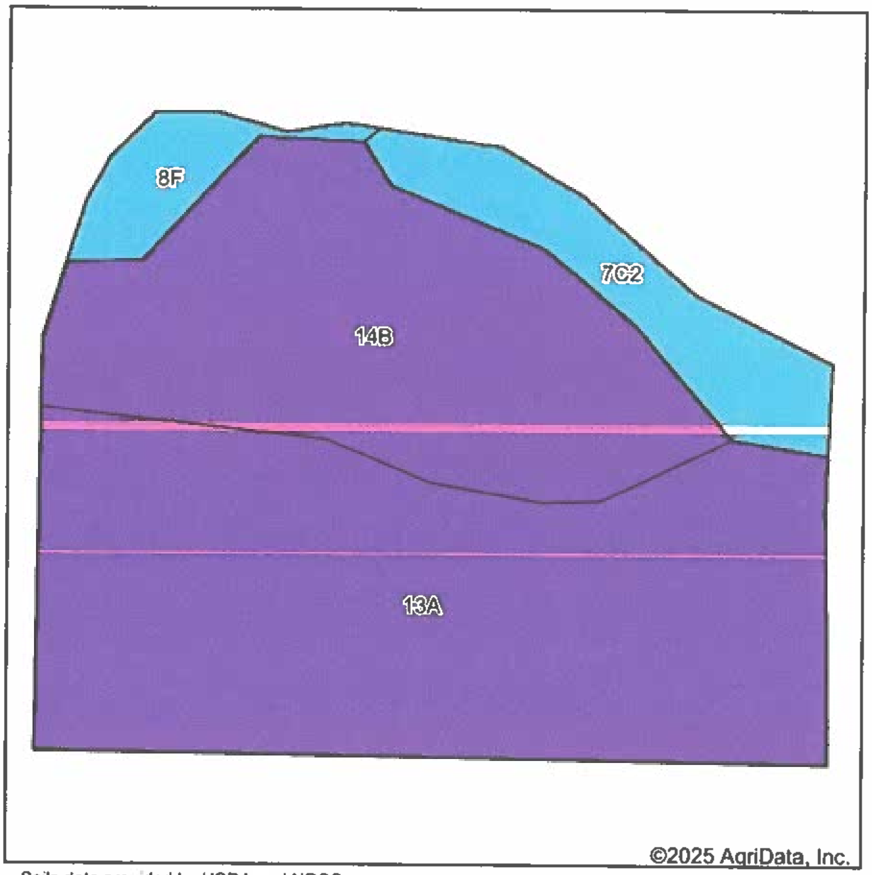
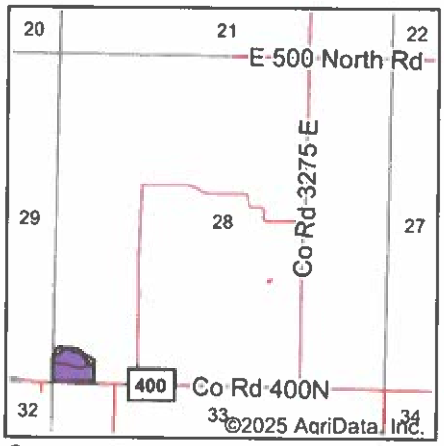


Soils data provided by USDA and NRCS.



State:	**Illinois**
County:	**Shelby**
Location:	**28-10N-6E**
Township:	**Big Spring**
Acres:	**7.36**
Date:	**3/3/2025**

MAURER-STUTZ

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING © AgriData, Inc. 2023 www.AgriDataInc.com

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
13A	Bluford silt loam, 0 to 2 percent slopes	3.95	53.7%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
**14B	Ava silt loam, 2 to 5 percent slopes	2.46	33.4%		2.2ft.	2.8ft. (Fragipan)	Moderately well drained	**134	**44	**54	**3.30	**99
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.66	9.0%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
**8F	Hickory silt loam, 18 to 35 percent slopes	0.29	3.9%		> 6.5ft.	> 6.5ft.	Well drained	**89	**30	**36	**3.00	**68
							Weighted Average	130.6	42.7	52.7	3.3	97.1

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices: https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the IL Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana

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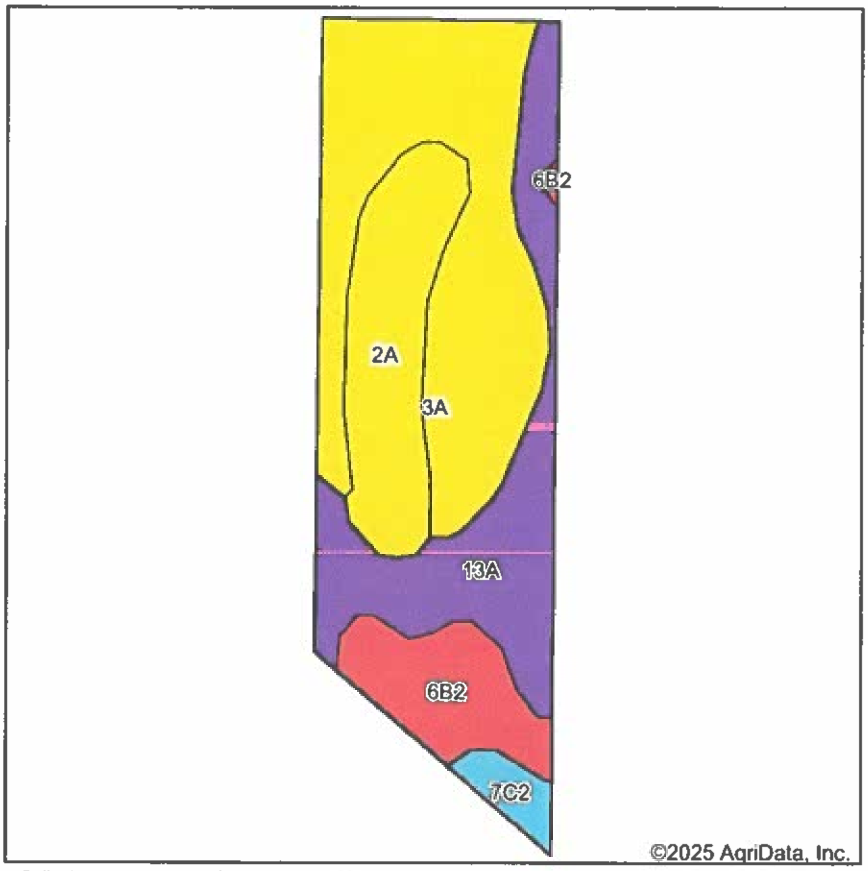
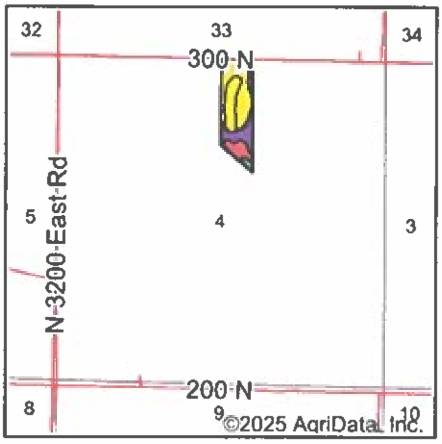


Soils data provided by USDA and NRCS



State:	**Illinois**
County:	**Shelby**
Location:	**4-9N-6E**
Township:	**Sigel**
Acres:	**19.32**
Date:	**3/3/2025**

MAURER-STUTZ

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING

Area Symbol: IL173, Soil Area Version: 21

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Water Table	Restrictive Layer	Soil Drainage	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Grass-legume e hay, T/A	Crop productivity index for optimum management
3A	Hoyleton silt loam, 0 to 2 percent slopes	7.90	40.8%		1.7ft.	0.9ft. (Abrupt textural change)	Somewhat poorly drained	146	46	58	4.60	108
13A	Bluford silt loam, 0 to 2 percent slopes	4.86	25.2%		1.2ft.	1.6ft. (Abrupt textural change)	Somewhat poorly drained	136	44	55	3.40	101
2A	Cisne silt loam, 0 to 2 percent slopes	3.67	19.0%		0.5ft.	1.4ft. (Abrupt textural change)	Poorly drained	149	46	59	4.60	109
**6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	2.31	12.0%		2.2ft.	2.3ft. (Densic material)	Somewhat poorly drained	**121	**39	**47	**3.60	**89
**7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.58	3.0%		0.7ft.	> 6.5ft.	Somewhat poorly drained	**104	**36	**41	**3.10	**80
							Weighted Average	**139.8**	**44.4**	**55.6**	**4.1**	**103.3**

Table: Optimum Crop Productivity Ratings for Illinois Soil EFOTG are sourced from Bulletin 811 calculated Map Unit Base Yield Indices, and adjusted (Adj) for slope, erosion, flooding, and surface texture. Publication Date: 02-08-2023
Crop yields and productivity (B811 EFOTG) are maintained at the following USDA web site: 2023 Illinois Soil Productivity and Yield Indices:
https://efotg.sc.egov.usda.gov/#/state/IL/documents/section=2&folder=52809
** Base indexes from Bulletin 811 adjusted for slope, erosion, flooding, and surface texture according to the Il. Soils EFOTG
e Soils in the well drained group were not rated for grass-legume and are shown with a zero "0".

Soils data provided by USDA and NRCS. Soils data provided by University of Illinois at Champaign-Urbana.

Appendix B. Soil Test Laboratory Test Results

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Adkins	North 34ac	41.65 acres	39.263209, -88.512994

	Min	Max	Avg
P	104.0	273.0	189.4
K	534.0	1023	726.1
Mg	509.0	708.0	617.7
Ca	3027	4203	3642
pH	7.2	7.9	7.6
bpH	7.40	7.60	7.47
OM	2.3	2.5	2.4
CEC	10.4	14.2	12.6
%K	5.3	9.9	7.4
%Mg	19.1	22.2	20.4
%Ca	69.1	74.0	72.2
%H	0.0	0.2	0.0

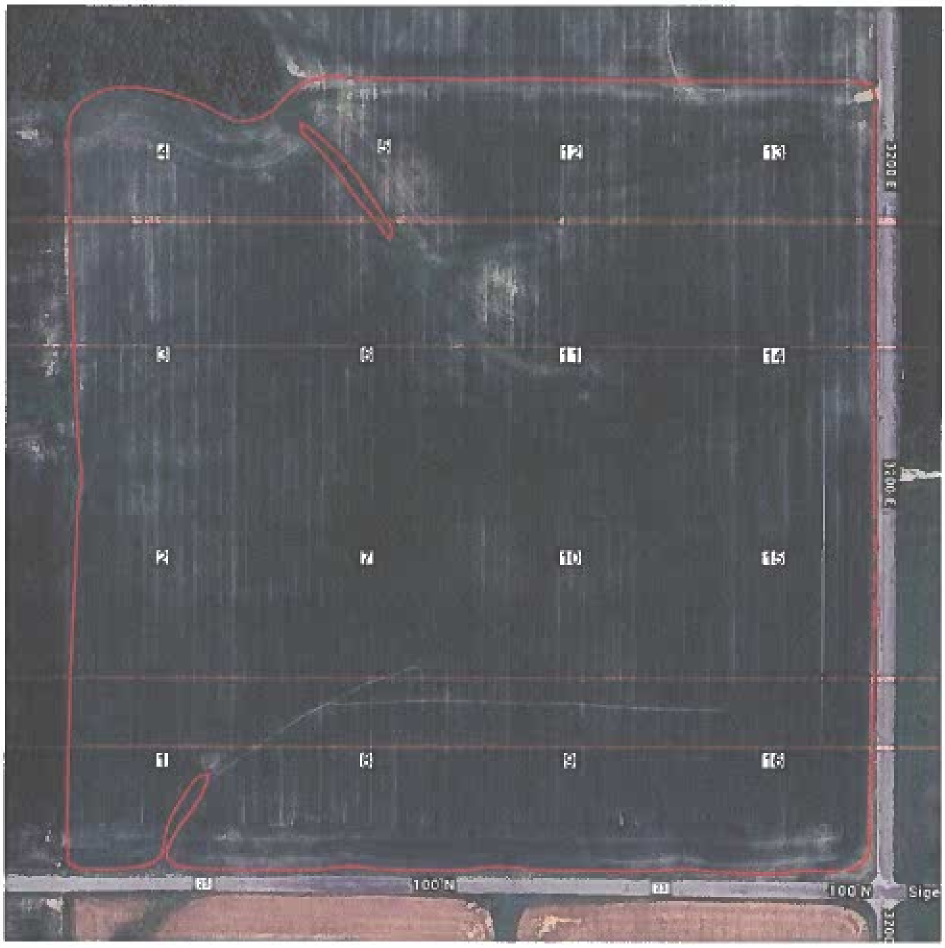
Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	273.0	868.0	636.0	3868	7.4	7.50	2.3	13.4	8.4	19.8	72.2	0.0
2	219.0	693.0	601.0	3716	7.6	7.50	2.3	12.7	7.0	19.8	73.2	0.0
3	235.0	810.0	650.0	3857	7.2	7.40	2.3	13.4	7.8	20.3	72.0	0.0
4	210.0	904.0	653.0	3744	7.6	7.50	2.4	13.2	8.8	20.7	71.0	0.0
5	208.0	880.0	646.0	3780	7.8	7.50	2.4	13.3	8.5	20.3	71.1	0.1
6	149.0	689.0	554.0	3560	7.7	7.50	2.4	12.1	7.4	19.1	73.6	0.0
7	148.0	598.0	534.0	3318	7.6	7.40	2.3	11.3	6.8	19.7	73.5	0.0
8	104.0	632.0	572.0	3273	7.4	7.40	2.3	11.4	7.2	21.0	71.8	0.1
9	129.0	534.0	513.0	3027	7.6	7.50	2.4	10.4	6.6	20.6	72.8	0.0
10	137.0	716.0	626.0	3307	7.8	7.50	2.3	11.8	7.8	22.2	70.1	0.0
11	168.0	587.0	707.0	4149	7.6	7.40	2.4	14.1	5.4	20.9	73.6	0.1

South Central FS PRECISION

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	138.0	580.0	708.0	4203	7.6	7.40	2.5	14.2	5.3	20.8	74.0	0.0
13	222.0	732.0	697.0	3989	7.7	7.50	2.5	13.8	6.9	21.1	72.3	0.0
14	235.0	716.0	610.0	3733	7.5	7.50	2.3	12.8	7.2	19.9	73.0	0.0
15	267.0	1023	667.0	3674	7.9	7.60	2.3	13.3	9.9	20.9	69.1	0.0
16	188.0	656.0	509.0	3081	7.6	7.50	2.3	10.7	7.9	19.9	72.0	0.2

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Josh	East 38ac	37.93 acres	39.231474, -88.547843



	Min	Max	Avg
P	55.0	105.0	73.9
K	209.0	402.0	303.8
Mg	407.0	804.0	550.6
Ca	2769	3977	3233
pH	7.2	7.5	7.4
bpH	7.20	7.50	7.41
OM	2.0	2.4	2.2
CEC	8.9	13.7	10.8
%K	2.9	4.9	3.7
%Mg	19.1	24.5	21.2
%Ca	72.6	77.8	75.3
%H	0.0	0.3	0.1

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	78.0	347.0	581.0	3259	7.4	7.40	2.3	11.0	4.1	22.1	74.1	0.0
2	105.0	402.0	609.0	3520	7.3	7.40	2.2	11.9	4.4	21.4	74.0	0.2
3	58.0	281.0	494.0	3084	7.3	7.50	2.2	10.1	3.6	20.4	76.4	0.0
4	75.0	254.0	407.0	2769	7.4	7.50	2.2	8.9	3.7	19.1	77.8	0.0
5	94.0	303.0	804.0	3977	7.4	7.50	2.0	13.7	2.9	24.5	72.6	0.0
6	86.0	267.0	466.0	2864	7.4	7.50	2.2	9.4	3.7	20.7	76.2	0.0
7	66.0	209.0	491.0	2857	7.2	7.40	2.3	9.5	2.9	21.6	75.2	0.3
8	55.0	291.0	745.0	3753	7.4	7.40	2.0	12.9	2.9	24.1	72.8	0.2
9	72.0	345.0	710.0	3850	7.3	7.50	2.0	13.0	3.5	22.8	74.1	0.0
10	64.0	250.0	495.0	2997	7.5	7.40	2.3	9.9	3.3	20.9	75.7	0.1
11	68.0	239.0	505.0	2966	7.4	7.30	2.3	9.8	3.2	21.5	75.7	0.0

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	68.0	304.0	472.0	3004	7.4	7.50	2.2	9.9	4.0	19.9	75.9	0.2
13	61.0	301.0	491.0	3196	7.3	7.40	2.3	10.4	3.8	19.7	76.9	0.0
14	64.0	388.0	535.0	3361	7.4	7.30	2.4	11.1	4.5	20.1	75.7	0.0
15	94.0	364.0	451.0	2915	7.3	7.40	2.2	9.6	4.9	19.6	76.0	0.0
16	74.0	315.0	554.0	3367	7.4	7.20	2.2	11.1	3.7	20.8	75.9	0.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Probst	W 53ac	53.24 acres	39.270425, -88.523631

	Min	Max	Avg
P	55.0	185.0	114.6
K	175.0	504.0	351.3
Mg	383.0	651.0	496.5
Ca	2535	3693	3044
pH	6.1	7.3	6.9
bpH	7.20	7.40	7.33
OM	2.3	2.9	2.7
CEC	9.1	12.6	10.5
%K	2.2	6.0	4.4
%Mg	17.0	23.4	19.8
%Ca	57.7	77.8	72.8
%H	0.0	17.8	3.1

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	83.0	175.0	501.0	3234	7.1	7.40	2.8	10.4	2.2	20.1	77.8	0.0
2	89.0	292.0	521.0	3115	6.1	7.20	2.7	12.6	3.0	17.3	61.9	17.8
3	129.0	311.0	579.0	3428	6.8	7.30	2.8	11.9	3.4	20.3	72.1	4.2
4	129.0	315.0	446.0	2954	6.9	7.40	2.8	9.8	4.2	19.0	75.4	1.4
5	159.0	326.0	494.0	3175	7.3	7.40	2.4	10.4	4.1	19.8	76.4	0.0
6	185.0	401.0	530.0	3384	7.0	7.40	2.4	11.2	4.6	19.8	75.6	0.0
7	68.0	248.0	440.0	2703	6.6	7.30	2.8	9.7	3.3	19.0	69.7	8.0
8	55.0	249.0	616.0	2535	6.2	7.20	2.3	11.0	3.0	23.4	57.7	16.0
9	92.0	318.0	456.0	2762	6.9	7.40	2.4	9.4	4.4	20.3	73.5	1.8
10	166.0	504.0	529.0	3224	7.0	7.40	2.4	10.9	6.0	20.3	74.0	0.0
11	156.0	412.0	651.0	3693	7.0	7.40	2.5	12.5	4.3	21.8	73.9	0.1

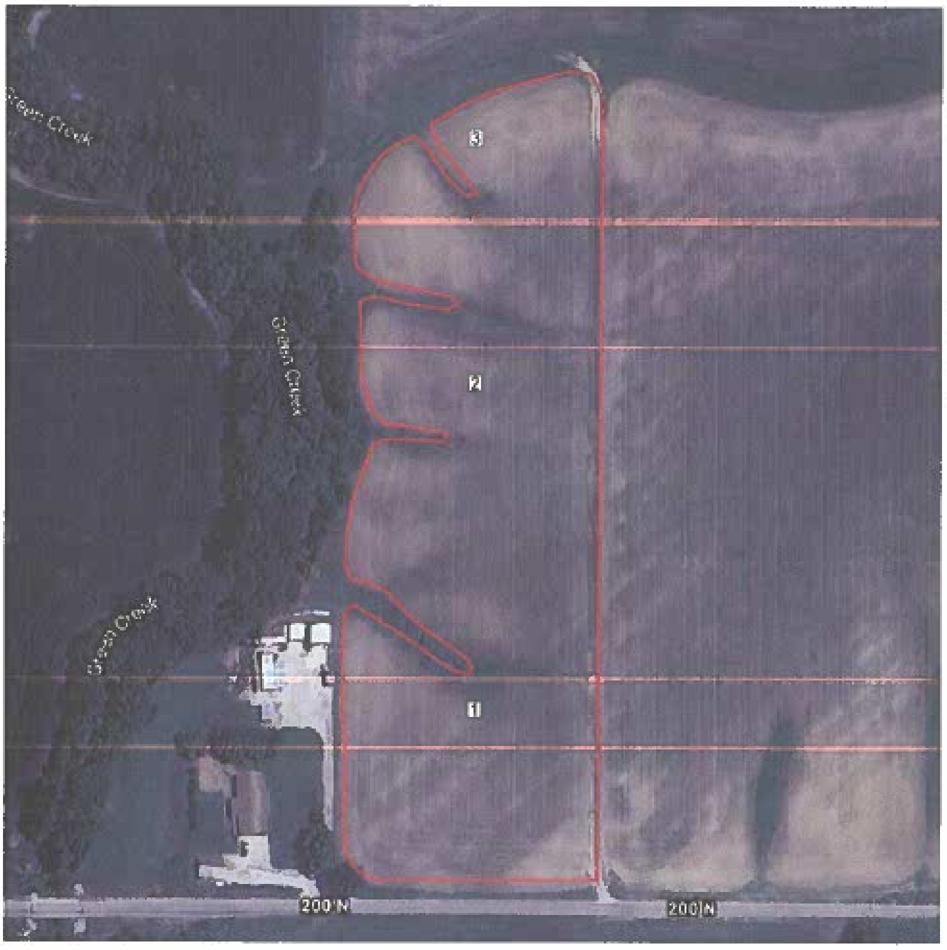
South Central FS PRECISION

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	181.0	333.0	465.0	3211	7.0	7.30	2.7	10.4	4.2	18.7	77.2	0.0
13	100.0	493.0	519.0	2971	6.7	7.30	2.8	10.9	5.8	19.9	68.2	6.1
14	65.0	430.0	487.0	2932	6.8	7.20	2.9	10.3	5.4	19.8	71.2	3.6
15	136.0	394.0	537.0	3214	7.3	7.40	2.8	10.8	4.7	20.8	74.4	0.1
16	101.0	381.0	460.0	2928	7.0	7.30	2.8	9.7	5.1	19.8	75.5	0.0
17	69.0	337.0	480.0	2933	6.9	7.30	2.9	10.0	4.4	20.1	73.4	2.2
18	117.0	385.0	480.0	3229	7.1	7.40	2.8	10.6	4.7	18.9	76.2	0.2
19	140.0	407.0	388.0	2722	6.9	7.30	2.7	9.1	5.8	17.8	74.8	1.6
20	119.0	400.0	383.0	2842	6.9	7.30	2.7	9.4	5.5	17.0	75.6	1.8
21	67.0	267.0	465.0	2753	7.0	7.30	2.4	9.2	3.8	21.1	74.9	0.3

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Sudkamps	Dons House 8ac	7.63 acres	39.245616, -88.530791



	Min	Max	Avg
P	87.0	173.0	131.3
K	293.0	411.0	351.3
Mg	548.0	685.0	594.0
Ca	3740	4049	3848
pH	7.0	7.3	7.2
bpH	7.30	7.50	7.40
OM	2.4	2.7	2.6
CEC	12.1	12.9	12.5
%K	3.0	4.1	3.6
%Mg	17.8	22.7	19.8
%Ca	74.6	78.5	76.8
%H	0.0	0.0	0.0

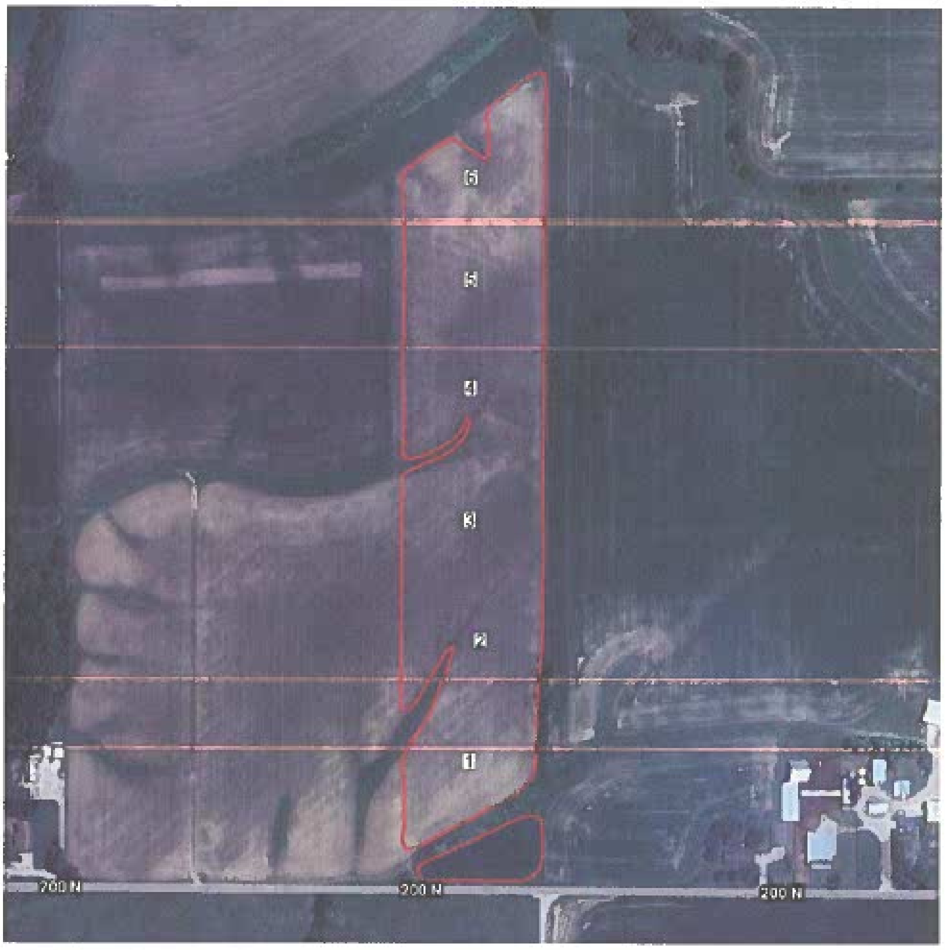
Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	173.0	411.0	549.0	4049	7.3	7.50	2.6	12.9	4.1	17.8	78.5	0.0
2	134.0	350.0	548.0	3740	7.2	7.30	2.7	12.1	3.8	18.9	77.3	0.0
3	87.0	293.0	685.0	3757	7.0	7.40	2.4	12.6	3.0	22.7	74.6	0.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Sudkamps	East Fence Row 17ac	17.3 acres	39.247151, -88.527528



	Min	Max	Avg
P	45.0	176.0	114.7
K	208.0	589.0	374.2
Mg	542.0	629.0	594.8
Ca	3178	3952	3604
pH	7.3	7.5	7.4
bpH	7.30	7.50	7.42
OM	2.2	2.3	2.3
CEC	10.7	13.1	12.0
%K	2.5	5.8	4.0
%Mg	20.0	23.2	20.8
%Ca	74.3	76.6	75.2
%H	0.0	0.2	0.0

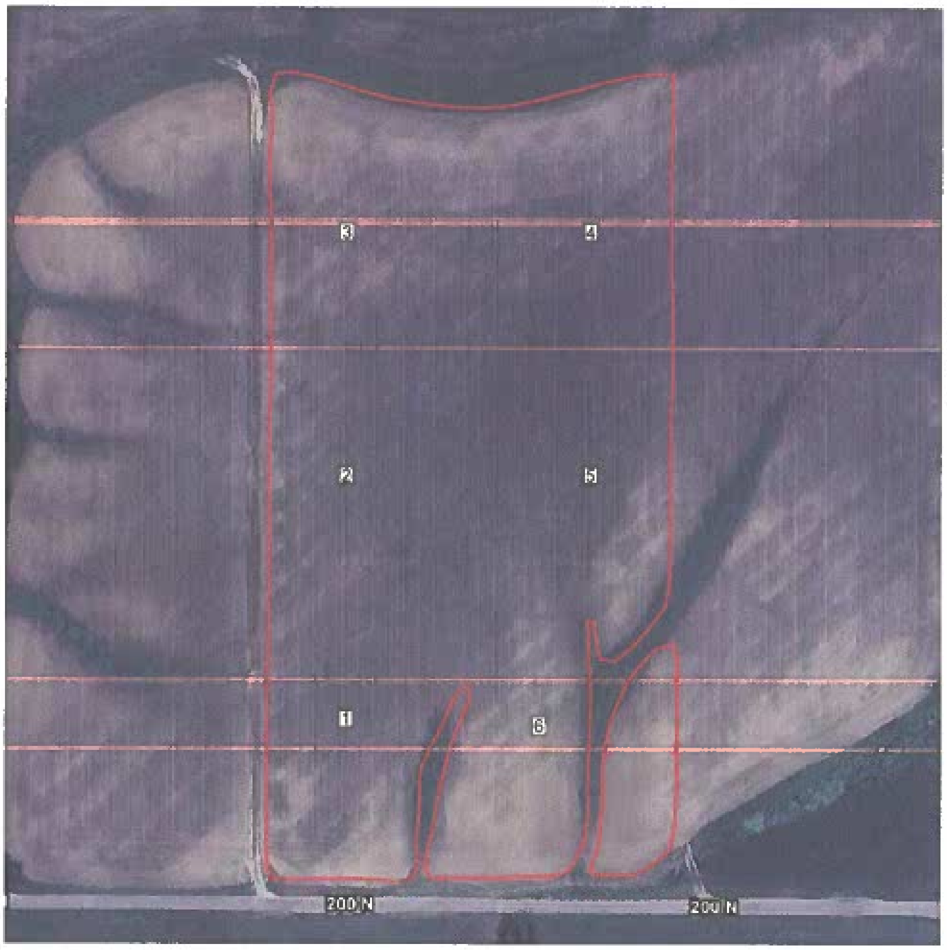
Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	87.0	352.0	542.0	3394	7.5	7.50	2.2	11.2	4.1	20.2	75.8	0.0
2	154.0	491.0	576.0	3584	7.4	7.50	2.3	12.0	5.3	20.1	74.7	0.0
3	176.0	589.0	629.0	3892	7.4	7.30	2.3	13.1	5.8	20.1	74.3	0.0
4	137.0	307.0	619.0	3952	7.4	7.30	2.3	12.9	3.1	20.0	76.6	0.2
5	89.0	298.0	608.0	3629	7.3	7.40	2.3	12.0	3.2	21.2	75.7	0.0
6	45.0	208.0	595.0	3178	7.4	7.50	2.2	10.7	2.5	23.2	74.3	0.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Sudkamps	East of Lane 13ac	13.0 acres	39.245698, -88.529227



	Min	Max	Avg
P	104.0	254.0	187.5
K	367.0	698.0	541.0
Mg	570.0	681.0	610.5
Ca	3516	4190	3881
pH	7.3	7.6	7.5
bpH	7.40	7.60	7.52
OM	2.3	2.8	2.4
CEC	11.6	14.1	12.9
%K	4.1	6.8	5.4
%Mg	19.1	20.6	19.8
%Ca	74.0	75.9	75.1
%H	0.0	0.1	0.0

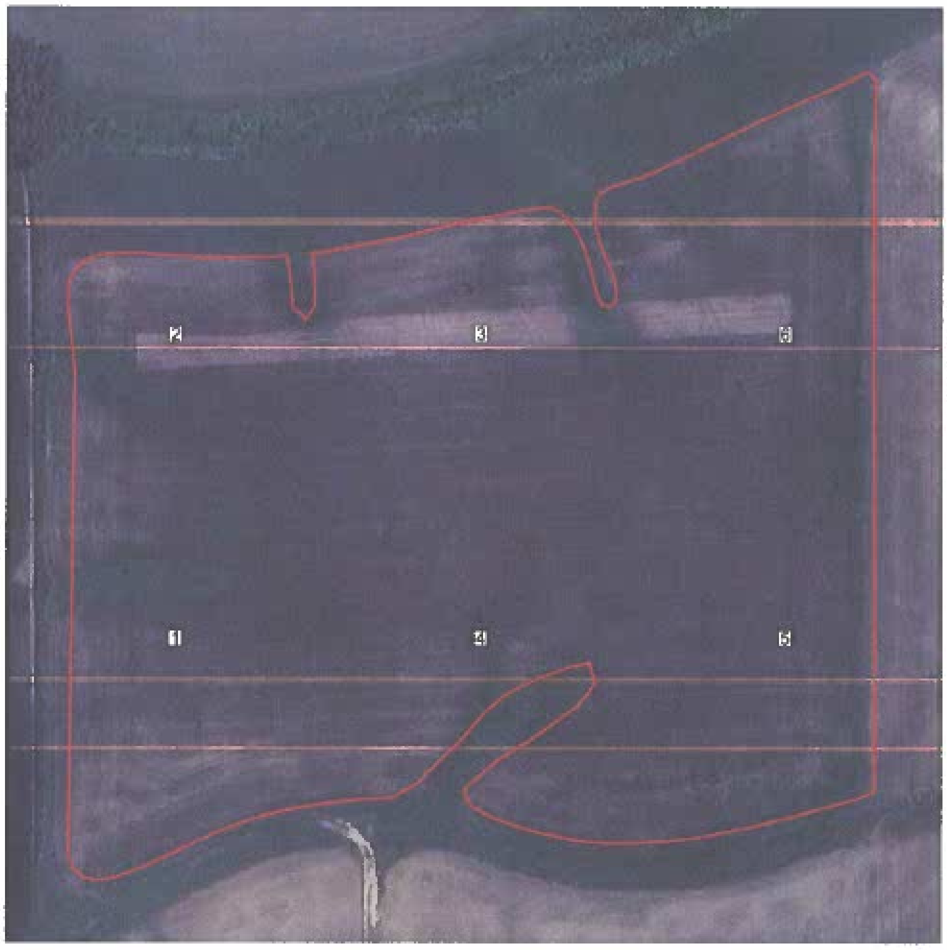
Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	254.0	698.0	626.0	3932	7.3	7.50	2.3	13.3	6.8	19.7	74.0	0.0
2	228.0	586.0	630.0	4086	7.6	7.60	2.3	13.6	5.6	19.4	75.2	0.0
3	180.0	562.0	570.0	3774	7.5	7.40	2.3	12.5	5.8	19.1	75.5	0.0
4	210.0	592.0	681.0	4190	7.5	7.50	2.8	14.1	5.4	20.2	74.3	0.1
5	149.0	441.0	583.0	3792	7.5	7.60	2.4	12.5	4.6	19.5	75.9	0.1
6	104.0	367.0	573.0	3516	7.3	7.50	2.4	11.6	4.1	20.6	75.8	0.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Sudkamps	Middle 14ac	13.2 acres	39.248177, -88.529799



	Min	Max	Avg
P	138.0	280.0	201.5
K	244.0	669.0	420.2
Mg	473.0	605.0	528.2
Ca	3585	4002	3802
pH	7.3	7.5	7.4
bpH	7.40	7.50	7.47
OM	2.3	2.8	2.5
CEC	11.4	13.4	12.2
%K	2.7	6.5	4.4
%Mg	17.3	18.9	18.0
%Ca	74.7	79.6	77.7
%H	0.0	0.1	0.0

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	138.0	341.0	473.0	3585	7.4	7.50	2.3	11.4	3.9	17.3	78.7	0.1
2	167.0	276.0	519.0	3879	7.3	7.50	2.4	12.2	3.0	17.8	79.5	0.0
3	280.0	531.0	549.0	3850	7.3	7.40	2.3	12.6	5.5	18.2	76.4	0.0
4	138.0	244.0	502.0	3692	7.5	7.40	2.4	11.6	2.7	18.1	79.6	0.0
5	274.0	669.0	605.0	4002	7.5	7.50	2.8	13.4	6.5	18.9	74.7	0.0
6	212.0	460.0	521.0	3809	7.3	7.50	2.6	12.3	4.8	17.7	77.5	0.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	SCHUMACHER, JORDAN	Gratz	East of House	26.77 acres	39.238834, -88.552303

	Min	Max	Avg
P	38.0	128.0	60.2
K	281.0	599.0	367.1
Mg	299.0	408.0	330.6
Ca	1951	2560	2313
pH	6.7	7.5	7.2
bpH	7.20	7.50	7.39
OM	2.0	2.5	2.3
CEC	6.6	8.4	7.7
%K	4.6	9.2	6.2
%Mg	15.6	20.5	18.0
%Ca	72.0	79.1	75.4
%H	0.0	5.5	0.6

Sample Date	Soil Lab
2024-09-04	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	53.0	344.0	303.0	2560	7.3	7.40	2.4	8.1	5.5	15.6	79.1	0.0
2	73.0	449.0	328.0	2418	7.2	7.50	2.5	8.0	7.2	17.1	75.6	0.0
3	60.0	373.0	299.0	2286	7.4	7.40	2.2	7.4	6.5	16.9	77.3	0.0
4	49.0	349.0	408.0	2465	7.1	7.40	2.4	8.3	5.4	20.5	74.3	0.0
5	49.0	354.0	346.0	2365	7.0	7.40	2.3	7.8	5.9	18.5	75.9	0.0
6	65.0	304.0	371.0	2470	7.3	7.30	2.4	8.1	4.9	19.1	76.3	0.0
7	49.0	352.0	307.0	2052	7.5	7.50	2.2	6.9	6.6	18.6	74.4	0.4
8	65.0	327.0	313.0	1951	7.1	7.50	2.0	6.6	6.4	19.8	74.0	0.0
9	43.0	284.0	316.0	2418	7.0	7.40	2.4	7.7	4.8	17.1	78.6	0.0
10	51.0	316.0	324.0	2339	7.1	7.30	2.3	7.6	5.4	17.8	77.0	0.0
11	38.0	281.0	337.0	2275	6.7	7.20	2.2	7.9	4.6	17.8	72.0	5.5

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Adkins	Adkins 45ac	44.71 acres	39.261041, -88.519996

	Min	Max	Avg
P	96.0	262.0	180.7
K	302.0	660.0	492.7
Mg	454.0	629.0	537.5
Ca	2993	3764	3249
pH	7.1	7.9	7.7
bpH	7.40	7.60	7.53
OM	2.1	2.8	2.3
CEC	9.8	12.6	11.0
%K	4.0	7.4	5.8
%Mg	19.0	21.5	20.4
%Ca	72.0	76.4	74.0
%H	0.0	0.3	0.1

Sample Date	Soil Lab
2024-04-18	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	218.0	593.0	629.0	3511	7.1	7.50	2.1	12.2	6.3	21.5	72.0	0.2
2	262.0	660.0	602.0	3425	7.4	7.50	2.3	11.9	7.2	21.1	72.0	0.0
3	209.0	580.0	547.0	3206	7.6	7.60	2.2	11.0	6.8	20.8	72.9	0.0
4	246.0	635.0	577.0	3281	7.5	7.60	2.4	11.4	7.2	21.1	72.0	0.0
5	191.0	555.0	544.0	3148	7.4	7.50	2.4	10.8	6.6	21.0	72.9	0.0
6	131.0	400.0	516.0	3123	7.7	7.60	2.3	10.5	4.9	20.5	74.4	0.1
7	160.0	335.0	506.0	3052	7.8	7.50	2.2	10.2	4.3	20.7	74.9	0.2
8	238.0	495.0	605.0	3764	7.8	7.60	2.3	12.6	5.1	20.1	74.7	0.1
9	223.0	603.0	532.0	3251	7.7	7.60	2.3	11.1	7.0	20.0	73.3	0.0
10	193.0	436.0	531.0	3408	7.7	7.50	2.3	11.3	5.0	19.6	75.4	0.0
11	164.0	506.0	505.0	3357	7.8	7.60	2.2	11.1	5.9	19.0	75.7	0.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	137.0	469.0	490.0	2993	7.8	7.50	2.3	10.1	6.0	20.3	74.1	0.0
13	111.0	302.0	454.0	2994	7.6	7.50	2.4	9.8	4.0	19.4	76.4	0.2
14	186.0	556.0	529.0	3036	7.8	7.50	2.4	10.5	6.8	21.0	72.3	0.0
15	96.0	415.0	534.0	3039	7.7	7.40	2.3	10.4	5.2	21.4	73.1	0.3
16	164.0	399.0	493.0	3177	7.6	7.50	2.4	10.5	4.9	19.6	75.7	0.0
17	117.0	371.0	528.0	3140	7.8	7.40	2.3	10.5	4.6	21.0	74.8	0.0
18	134.0	403.0	553.0	3526	7.9	7.60	2.3	11.6	4.5	19.9	76.0	0.0
19	253.0	649.0	537.0	3302	7.8	7.60	2.8	11.3	7.4	19.9	73.1	0.0

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Adkins	East of Joshs House	19.64 acres	39.259847, -88.510505

	Min	Max	Avg
P	139.0	214.0	181.8
K	394.0	477.0	424.2
Mg	482.0	609.0	535.0
Ca	2677	3207	2922
pH	7.5	7.7	7.6
bpH	7.40	7.50	7.44
OM	2.3	2.4	2.4
CEC	9.3	10.8	10.1
%K	4.9	6.6	5.5
%Mg	21.3	23.5	22.2
%Ca	71.8	74.3	72.7

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %
1	139.0	406.0	609.0	3098	7.5	7.40	2.4	10.8	4.9	23.5	71.8
2	165.0	429.0	486.0	2700	7.6	7.50	2.4	9.3	6.0	21.8	72.6
3	188.0	394.0	547.0	2931	7.6	7.40	2.4	10.1	5.1	22.6	72.6
4	214.0	477.0	482.0	2677	7.7	7.50	2.3	9.3	6.6	21.6	72.0
5	203.0	415.0	551.0	3207	7.6	7.40	2.3	10.8	5.0	21.3	74.3

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Adkins	Middle 47ac	46.29 acres	39.261465, -88.513466

	Min	Max	Avg
P	149.0	252.0	191.0
K	331.0	751.0	580.2
Mg	452.0	636.0	513.3
Ca	2429	3215	2770
pH	7.3	7.9	7.7
bpH	7.40	7.50	7.47
OM	2.2	2.4	2.3
CEC	8.9	11.5	9.8
%K	4.8	9.8	7.7
%Mg	20.7	23.1	21.8
%Ca	67.3	74.1	70.7
%H	0.1	0.4	0.3

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	231.0	574.0	478.0	2568	7.7	7.50	2.3	9.1	8.1	21.9	70.6	---
2	169.0	594.0	488.0	2517	7.6	7.50	2.3	9.1	8.4	22.4	69.2	---
3	156.0	337.0	461.0	2636	7.5	7.50	2.2	8.9	4.9	21.6	74.1	---
4	203.0	449.0	578.0	3146	7.7	7.40	2.2	10.8	5.4	22.3	72.9	---
5	190.0	556.0	574.0	3215	7.6	7.40	2.4	11.1	6.5	21.6	72.5	---
6	211.0	675.0	636.0	3181	7.8	7.50	2.4	11.5	7.6	23.1	69.2	0.1
7	180.0	751.0	537.0	2662	7.9	7.50	2.3	9.9	9.8	22.7	67.3	0.3
8	176.0	677.0	483.0	2429	7.7	7.50	2.3	9.0	9.7	22.4	67.5	0.4
9	173.0	626.0	452.0	2535	7.7	7.50	2.3	9.0	9.0	21.0	70.5	---
10	197.0	608.0	526.0	2869	7.9	7.50	2.4	10.1	7.8	21.7	71.1	---
11	177.0	685.0	464.0	2500	7.8	7.50	2.3	9.1	9.7	21.3	68.7	0.3

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	188.0	598.0	596.0	3212	7.6	7.40	2.4	11.3	6.8	22.0	71.1	---
13	149.0	331.0	460.0	2627	7.3	7.40	2.3	8.9	4.8	21.6	73.8	---
14	213.0	582.0	491.0	2741	7.9	7.50	2.3	9.6	7.8	21.4	71.4	---
15	252.0	660.0	475.0	2720	7.9	7.50	2.4	9.6	8.9	20.7	70.9	---

South Central FS PRECISION

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Adkins	West of Joshs House	9.35 acres	39.259309, -88.514982

	Min	Max	Avg
P	144.0	384.0	256.8
K	285.0	557.0	410.2
Mg	459.0	648.0	579.4
Ca	2994	4169	3669
pH	7.6	7.7	7.7
bpH	7.30	7.50	7.42
OM	2.4	2.7	2.6
CEC	9.8	13.6	12.1
%K	3.8	5.6	4.4
%Mg	19.1	20.6	20.0
%Ca	73.7	76.7	75.8
%H	0.1	0.2	0.1

Sample Date	Soil Lab
2024-04-25	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	144.0	285.0	459.0	2994	7.7	7.50	2.5	9.8	3.8	19.6	76.4	0.2
2	175.0	321.0	533.0	3347	7.6	7.40	2.4	11.0	3.8	20.2	76.1	---
3	254.0	437.0	648.0	4034	7.7	7.50	2.6	13.3	4.3	20.4	75.9	---
4	384.0	451.0	622.0	4169	7.6	7.30	2.7	13.6	4.3	19.1	76.7	---
5	327.0	557.0	635.0	3802	7.7	7.40	2.6	12.9	5.6	20.6	73.7	0.1

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Birchtold	East 35ac	34.65 acres	39.224195, -88.51062

	Min	Max	Avg
P	28.0	179.0	115.8
Bray P2	0.0	0.0	0.0
PBicarb	0.0	0.0	0.0
K	236.0	576.0	422.4
Mg	443.0	806.0	533.9
Ca	3077	4207	3461
S	15.9	29.0	22.6
B	1.1	2.4	1.6
Cu	10.5	24.2	15.2
Fe	119.0	283.0	216.9
Na	35.2	65.6	46.0
Mn	75.0	122.0	99.7
Zn	4.3	69.7	14.4
pH	7.1	7.5	7.3
bpH	7.00	7.00	7.00
OM	2.0	2.6	2.3
ENR	0.0	0.0	0.0
CEC	10.0	14.2	11.4
%K	2.2	6.8	4.9
%Mg	16.8	24.3	19.4
%Ca	72.3	78.4	75.9
%H	0.0	0.2	0.0
%Na	0.0	0.0	0.0
NH4-N	0.0	0.0	0.0
SS	0.0	0.0	0.0
NO3N	0.0	0.0	0.0

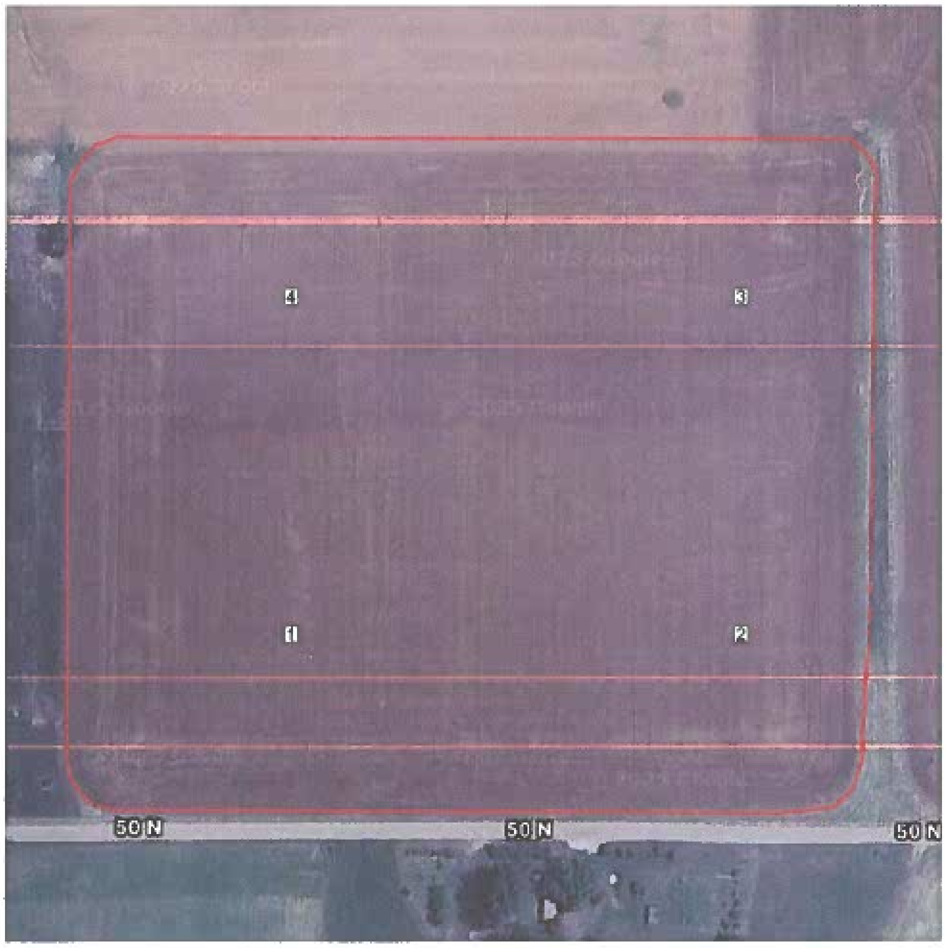
Sample Date	Soil Lab
2022-10-12	KSI Labs

ID	P lbs/ac	Bray P2 lbs/ac	PBicarb lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	S lbs/ac	B lbs/ac	Cu lbs/ac	Fe lbs/ac	Na lbs/ac	Mn lbs/ac	Zn lbs/ac	pH	bpH	OM %	ENR	CEC meq	%K %	%Mg %	%Ca %	%H %	%Na %	NH4-N lbs/ac	SS lbs/ac	NO3N lbs/ac
1	130.0	0.0	0.0	411.0	475.0	3375	22.7	1.7	10.9	250.0	41.3	113.0	14.8	7.2	7.00	2.4	0.0	10.9	4.9	18.2	77.5	0.0	0.0	0.0	0.0	0.0
2	179.0	0.0	0.0	462.0	497.0	3884	19.7	2.4	21.9	189.0	35.2	121.0	69.7	7.1	7.00	2.6	0.0	12.4	4.8	16.8	78.4	0.1	0.0	0.0	0.0	0.0
3	168.0	0.0	0.0	508.0	564.0	3562	28.5	1.9	13.8	276.0	46.5	91.6	14.7	7.3	7.00	2.3	0.0	11.9	5.5	19.8	74.9	0.0	0.0	0.0	0.0	0.0
4	153.0	0.0	0.0	497.0	493.0	3157	21.6	1.9	14.3	255.0	40.1	96.9	14.3	7.3	7.00	2.2	0.0	10.6	6.1	19.4	74.5	0.0	0.0	0.0	0.0	0.0
5	72.0	0.0	0.0	346.0	457.0	3077	24.3	1.5	16.2	179.0	53.6	92.3	9.1	7.1	7.00	2.3	0.0	10.0	4.5	19.1	77.0	0.0	0.0	0.0	0.0	0.0
6	121.0	0.0	0.0	390.0	553.0	3812	24.8	1.7	15.8	269.0	48.3	89.4	9.3	7.3	7.00	2.5	0.0	12.3	4.1	18.8	77.5	0.0	0.0	0.0	0.0	0.0
7	47.0	0.0	0.0	318.0	734.0	3639	18.5	1.2	13.8	138.0	46.7	77.1	5.7	7.4	7.00	2.2	0.0	12.6	3.3	24.3	72.3	0.1	0.0	0.0	0.0	0.0
8	28.0	0.0	0.0	236.0	806.0	4207	15.9	1.1	10.5	119.0	53.4	75.0	4.3	7.4	7.00	2.0	0.0	14.2	2.2	23.7	74.1	0.0	0.0	0.0	0.0	0.0
9	142.0	0.0	0.0	430.0	445.0	3115	19.9	1.5	10.9	279.0	39.5	93.6	10.5	7.4	7.00	2.4	0.0	10.2	5.5	18.2	76.4	0.0	0.0	0.0	0.0	0.0
10	143.0	0.0	0.0	506.0	487.0	3245	21.3	1.6	11.7	283.0	41.6	112.0	10.0	7.3	7.00	2.3	0.0	10.8	6.1	18.8	75.2	0.0	0.0	0.0	0.0	0.0
11	165.0	0.0	0.0	576.0	482.0	3247	29.0	1.9	14.6	265.0	46.3	97.4	12.5	7.5	7.00	2.5	0.0	10.9	6.8	18.5	74.5	0.2	0.0	0.0	0.0	0.0
12	108.0	0.0	0.0	416.0	462.0	3253	24.1	1.4	14.6	205.0	46.2	122.0	10.5	7.4	7.00	2.4	0.0	10.6	5.1	18.2	76.8	0.0	0.0	0.0	0.0	0.0
13	108.0	0.0	0.0	517.0	443.0	3266	23.8	1.8	24.2	164.0	39.2	114.0	10.1	7.5	7.00	2.3	0.0	10.7	6.2	17.3	76.4	0.1	0.0	0.0	0.0	0.0
14	57.0	0.0	0.0	301.0	576.0	3623	22.5	1.4	19.1	165.0	65.6	100.0	6.4	7.3	7.00	2.4	0.0	11.8	3.3	20.4	76.8	0.0	0.0	0.0	0.0	0.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Birchtold	West 12ac	11.78 acres	39.223269, -88.513952



	Min	Max	Avg
P	96.0	104.0	100.2
K	244.0	304.0	266.2
Mg	309.0	361.0	332.2
Ca	2443	2768	2574
pH	7.2	7.4	7.3
bpH	7.50	7.50	7.50
OM	2.0	2.2	2.0
CEC	7.8	8.8	8.2
%K	4.1	4.5	4.2
%Mg	16.3	17.8	17.0
%Ca	78.4	79.7	79.0
%H	0.0	0.0	0.0

Sample Date	Soil Lab
2024-04-18	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	104.0	253.0	309.0	2516	7.4	7.50	2.0	7.9	4.2	16.3	79.7	0.0
2	96.0	304.0	361.0	2768	7.3	7.50	2.2	8.8	4.5	17.1	78.7	0.0
3	98.0	244.0	332.0	2443	7.2	7.50	2.0	7.8	4.1	17.8	78.4	0.0
4	103.0	264.0	327.0	2569	7.2	7.50	2.0	8.1	4.2	16.9	79.3	0.0

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Bohanon	North 14ac	13.5 acres	39.261533, -88.523911

	Min	Max	Avg
P	73.0	141.0	109.2
K	150.0	210.0	172.0
Mg	335.0	470.0	387.2
Ca	2428	2939	2633
pH	7.0	7.2	7.1
bpH	7.30	7.40	7.34
OM	2.3	2.6	2.5
CEC	7.9	9.2	8.4
%K	2.1	3.5	2.7
%Mg	17.5	22.3	19.1
%Ca	74.7	79.9	78.0
%H	0.1	0.3	0.2

Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	111.0	210.0	369.0	2428	7.1	7.30	2.5	7.9	3.5	19.5	76.9	0.1
2	73.0	177.0	470.0	2629	7.1	7.40	2.3	8.8	2.6	22.3	74.7	0.3
3	141.0	160.0	368.0	2626	7.2	7.30	2.5	8.3	2.5	18.5	79.1	---
4	120.0	163.0	335.0	2546	7.2	7.40	2.4	8.0	2.7	17.5	79.6	0.2
5	101.0	150.0	394.0	2939	7.0	7.30	2.6	9.2	2.1	17.9	79.9	0.1

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Bohanon	South 19ac	18.44 acres	39.259768, -88.52455

	Min	Max	Avg
P	82.0	156.0	120.6
K	134.0	252.0	182.6
Mg	305.0	493.0	367.2
Ca	2232	2828	2434
pH	7.0	7.2	7.1
bpH	7.30	7.50	7.39
OM	2.2	2.6	2.5
CEC	7.2	9.0	7.8
%K	2.3	4.2	3.0
%Mg	17.0	23.1	19.4
%Ca	73.9	79.6	77.7
%H	0.1	0.4	0.2

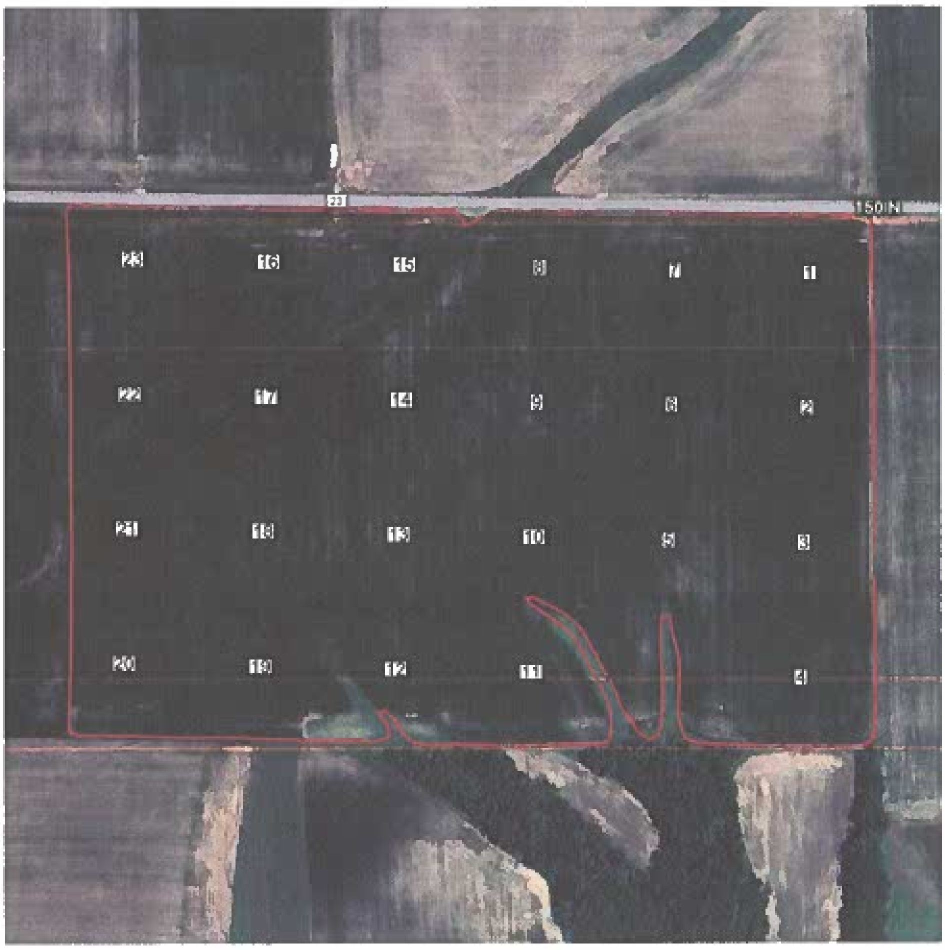
Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	145.0	189.0	336.0	2232	7.0	7.50	2.6	7.2	3.4	19.5	77.6	---
2	135.0	137.0	333.0	2290	7.1	7.40	2.3	7.3	2.5	19.1	78.5	---
3	142.0	252.0	396.0	2828	7.1	7.50	2.6	9.0	3.6	18.4	78.6	---
4	100.0	200.0	444.0	2421	7.2	7.30	2.4	8.2	3.2	22.6	73.9	0.4
5	82.0	155.0	493.0	2658	7.2	7.40	2.2	8.9	2.3	23.1	74.7	---
6	88.0	134.0	323.0	2345	7.1	7.30	2.5	7.4	2.4	18.2	79.3	0.1
7	117.0	153.0	308.0	2323	7.2	7.30	2.4	7.3	2.7	17.6	79.6	---
8	156.0	241.0	305.0	2377	7.2	7.40	2.6	7.5	4.2	17.0	79.3	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Deans	Deans 57ac	57.69 acres	39.235385, -88.589898



	Min	Max	Avg
P	32.0	124.0	65.5
K	233.0	398.0	309.0
Mg	124.0	381.0	209.9
Ca	2525	3750	3149
pH	6.1	7.0	6.6
bpH	7.00	7.00	7.00
OM	2.2	2.7	2.4
CEC	8.7	11.5	9.8
%K	2.9	5.4	4.1
%Mg	5.1	14.7	8.9
%Ca	71.0	89.7	80.0
%H	0.0	17.4	7.0

Sample Date	Soil Lab
2022-10-17	KSI Labs

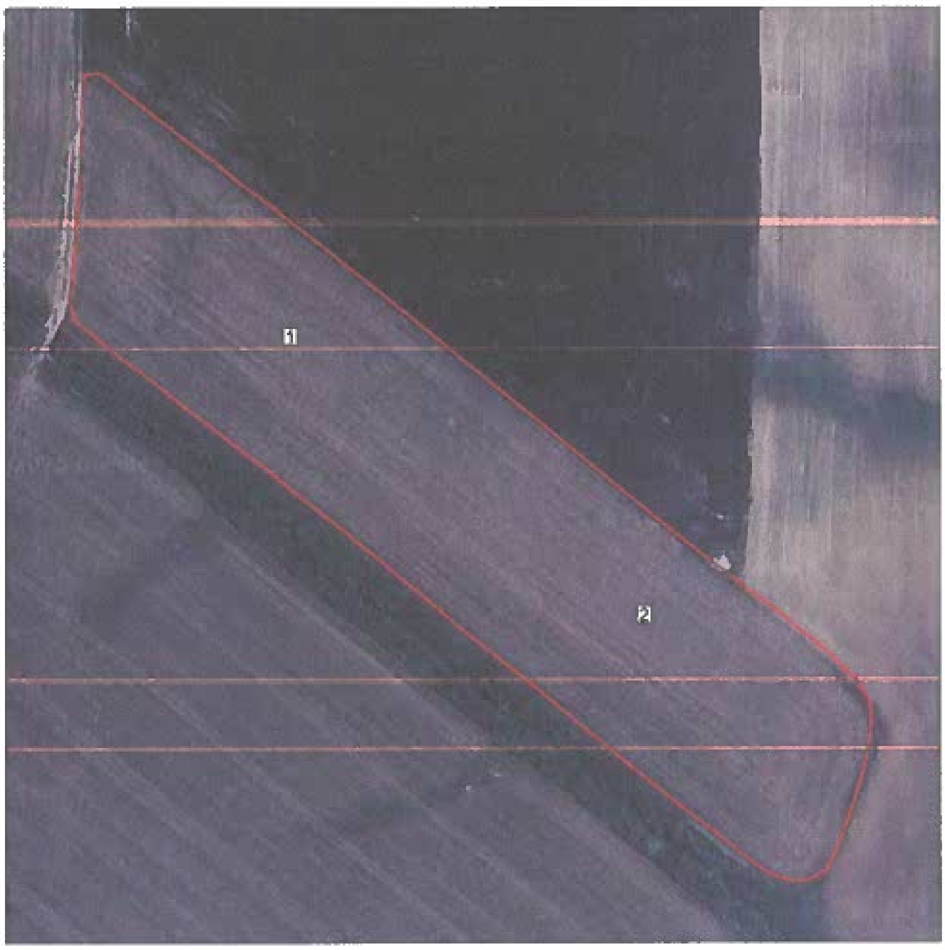
ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	101.0	331.0	135.0	3386	6.7	7.00	2.7	10.1	4.3	5.6	83.9	6.3
2	56.0	313.0	162.0	3397	6.6	7.00	2.3	10.4	3.9	6.5	81.7	7.8
3	64.0	303.0	144.0	3336	7.0	7.00	2.3	9.3	4.2	6.5	89.7	0.0
4	93.0	287.0	128.0	3275	6.7	7.00	2.3	9.7	3.8	5.5	84.5	6.2
5	32.0	266.0	171.0	2908	6.5	7.00	2.7	9.2	3.8	7.8	79.1	9.4
6	47.0	274.0	170.0	3488	6.7	7.00	2.7	10.4	3.4	6.9	83.9	5.8
7	63.0	261.0	124.0	3528	6.7	7.00	2.7	10.3	3.3	5.1	85.7	6.0
8	67.0	289.0	178.0	3018	6.6	7.00	2.2	9.4	4.0	7.9	80.3	7.8
9	61.0	322.0	195.0	3039	6.7	7.00	2.2	9.4	4.4	8.7	80.9	6.0
10	53.0	270.0	273.0	2973	6.6	7.00	2.3	9.7	3.6	11.8	76.7	7.9
11	46.0	264.0	191.0	3080	6.6	7.00	2.3	9.6	3.6	8.3	80.3	7.8

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	44.0	277.0	381.0	3127	6.5	7.00	2.3	10.8	3.3	14.7	72.4	9.5
13	67.0	382.0	192.0	2710	6.4	7.00	2.2	9.2	5.4	8.7	73.7	12.2
14	61.0	292.0	156.0	2525	6.1	7.00	2.2	8.9	4.3	7.4	71.0	17.4
15	95.0	233.0	186.0	3109	6.2	7.00	2.4	10.5	2.9	7.4	74.1	15.6
16	47.0	360.0	305.0	2851	6.7	7.00	2.3	9.4	5.0	13.6	75.9	5.6
17	124.0	398.0	221.0	3750	7.0	7.00	2.3	10.8	4.8	8.6	86.9	0.0
18	58.0	322.0	211.0	3394	6.9	7.00	2.4	10.0	4.2	8.8	84.9	2.1
19	72.0	335.0	330.0	3502	6.6	7.00	2.4	11.5	3.8	12.0	76.2	8.0
20	63.0	354.0	265.0	2759	6.5	7.00	2.7	9.4	4.9	11.8	73.4	9.9
21	58.0	320.0	273.0	3438	6.9	7.00	2.3	10.3	4.0	11.1	83.5	1.4
22	72.0	306.0	234.0	3096	6.9	7.00	2.4	9.3	4.3	10.5	83.3	1.9
23	62.0	347.0	203.0	2749	6.7	7.00	2.4	8.7	5.2	9.8	79.0	6.0

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Eds	Along Waterway 6ac	4.36 acres	39.253413, -88.53301



	Min	Max	Avg
P	142.0	181.0	161.5
K	246.0	268.0	257.0
Mg	641.0	688.0	664.5
Ca	3359	3364	3361
pH	6.9	7.0	7.0
bpH	7.10	7.20	7.15
OM	2.4	2.5	2.5
CEC	11.4	11.9	11.7
%K	2.8	2.9	2.9
%Mg	23.5	24.1	23.8
%Ca	70.7	73.7	72.2
%H	2.2	2.2	2.2

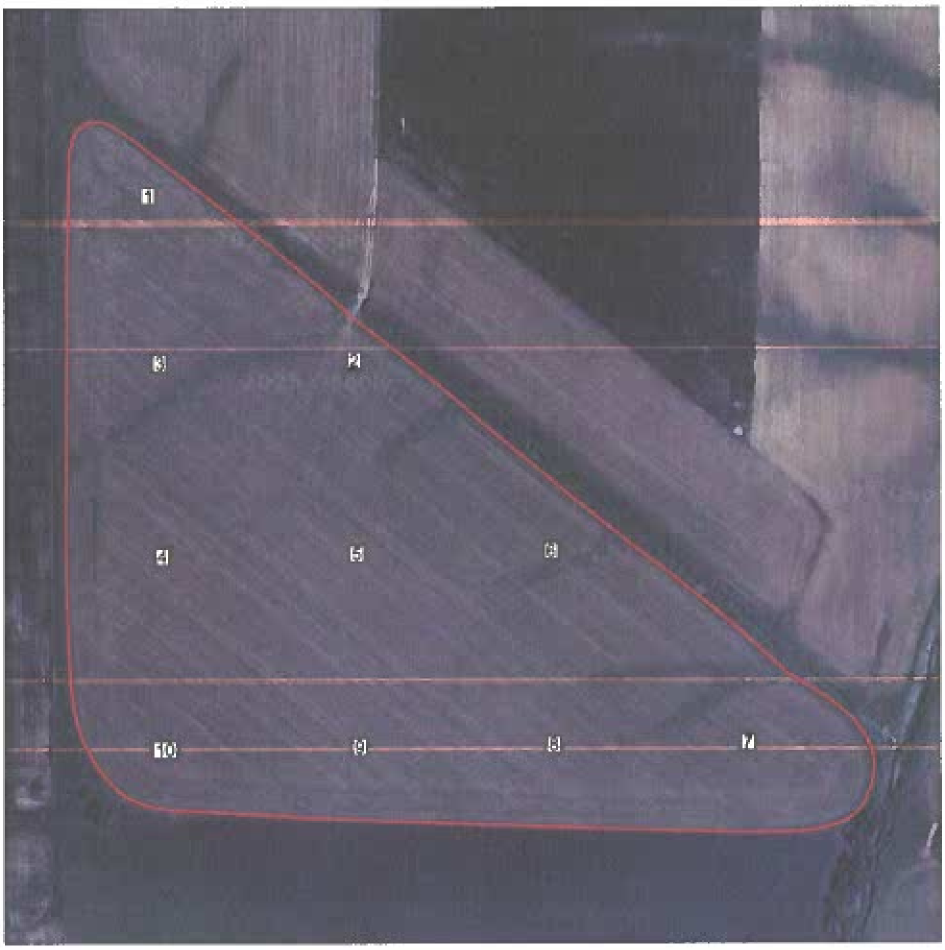
Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	181.0	246.0	641.0	3359	7.0	7.10	2.4	11.4	2.8	23.5	73.7	---
2	142.0	268.0	688.0	3364	6.9	7.20	2.5	11.9	2.9	24.1	70.7	2.2

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Eds	Back 22ac	21.72 acres	39.252571, -88.534355



	Min	Max	Avg
P	68.0	217.0	133.6
K	146.0	374.0	232.6
Mg	350.0	698.0	448.3
Ca	2182	3063	2591
pH	6.9	7.4	7.1
bpH	7.10	7.50	7.37
OM	2.3	2.6	2.5
CEC	7.3	10.7	8.7
%K	2.3	5.5	3.5
%Mg	17.4	28.3	21.2
%Ca	66.7	78.9	75.0
%H	0.1	1.7	0.7

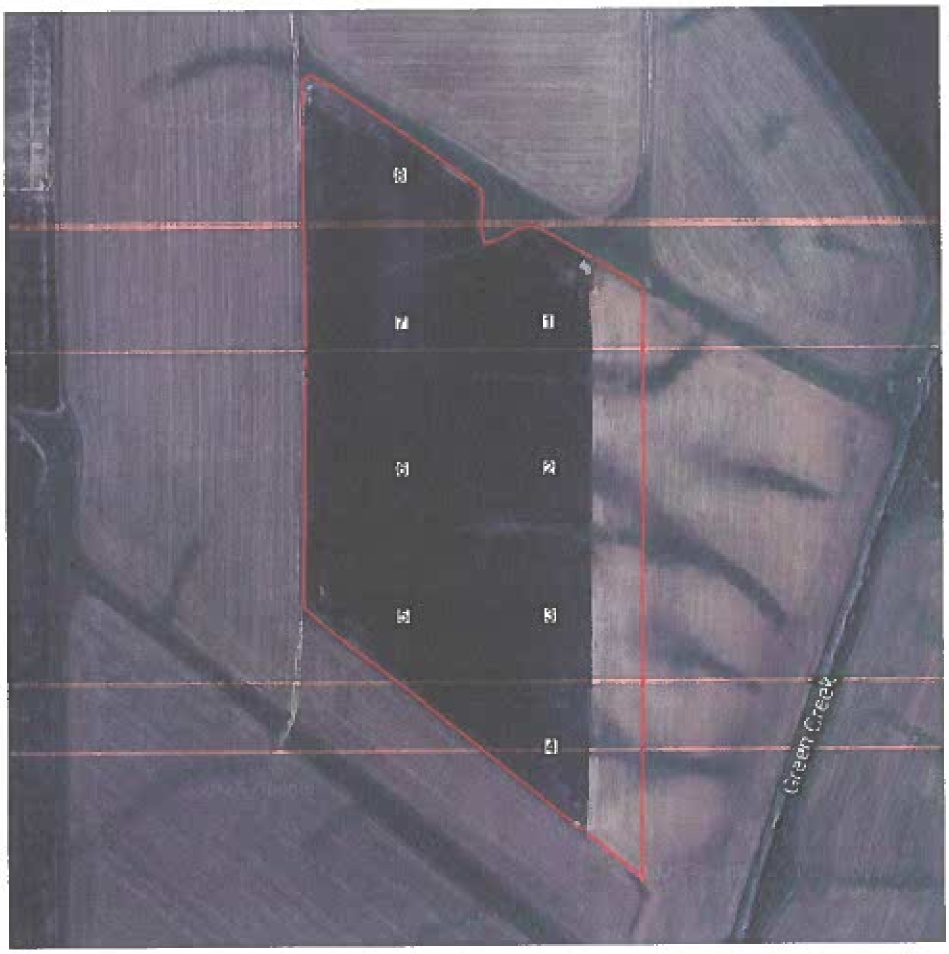
Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	164.0	374.0	605.0	3063	7.4	7.50	2.5	10.7	4.5	23.6	71.6	0.2
2	68.0	250.0	597.0	2739	7.1	7.30	2.3	9.7	3.4	25.7	70.6	0.3
3	115.0	217.0	393.0	2576	7.3	7.50	2.6	8.4	3.4	19.5	76.7	0.4
4	217.0	205.0	368.0	2556	7.0	7.20	2.5	8.2	3.3	18.7	78.0	---
5	141.0	168.0	354.0	2363	7.1	7.50	2.4	7.6	2.9	19.5	77.8	---
6	86.0	146.0	350.0	2650	6.9	7.10	2.6	8.4	2.3	17.4	78.9	1.4
7	79.0	263.0	698.0	2745	6.9	7.30	2.3	10.3	3.3	28.3	66.7	1.7
8	127.0	177.0	378.0	2394	7.2	7.50	2.5	7.8	3.0	20.2	76.8	---
9	191.0	216.0	383.0	2643	7.1	7.40	2.4	8.5	3.3	18.8	77.8	0.1
10	148.0	310.0	357.0	2182	7.0	7.40	2.4	7.3	5.5	20.4	74.8	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Eds	Eds Middle 22ac	21.9 acres	39.255444, -88.532912



	Min	Max	Avg
P	66.0	148.0	105.8
K	195.0	462.0	303.6
Mg	422.0	456.0	440.2
Ca	2618	3008	2801
pH	7.5	7.8	7.6
bpH	7.40	7.60	7.49
OM	2.2	2.5	2.4
CEC	8.7	9.8	9.2
%K	2.7	6.1	4.3
%Mg	18.6	21.1	20.0
%Ca	74.8	79.2	76.0
%H	0.1	0.3	0.2

Sample Date	Soil Lab
2024-06-27	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	76.0	195.0	422.0	3008	7.5	7.50	2.3	9.5	2.7	18.6	79.2	---
2	81.0	259.0	456.0	2976	7.8	7.40	2.4	9.7	3.5	19.6	76.8	0.1
3	66.0	249.0	431.0	2618	7.6	7.50	2.3	8.7	3.7	20.7	75.3	0.3
4	92.0	380.0	427.0	2665	7.7	7.50	2.5	8.9	5.5	20.0	74.9	---
5	148.0	321.0	444.0	2736	7.6	7.50	2.2	9.1	4.6	20.4	75.2	---
6	137.0	282.0	443.0	2844	7.6	7.60	2.5	9.3	3.9	19.9	76.5	---
7	146.0	462.0	454.0	2936	7.7	7.40	2.3	9.8	6.1	19.4	74.9	---
8	100.0	281.0	445.0	2630	7.6	7.50	2.3	8.8	4.1	21.1	74.8	---

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Eds	Patch 9ac	8.65 acres	39.258016, -88.532723

	Min	Max	Avg
P	117.0	279.0	166.0
K	161.0	333.0	211.5
Mg	368.0	417.0	395.8
Ca	2414	3505	2778
pH	7.1	7.2	7.2
bpH	7.30	7.50	7.45
OM	2.3	2.8	2.5
CEC	7.8	10.9	8.8
%K	2.6	4.0	3.0
%Mg	16.0	20.0	18.9
%Ca	77.4	80.4	78.3
%H	0.2	0.2	0.2

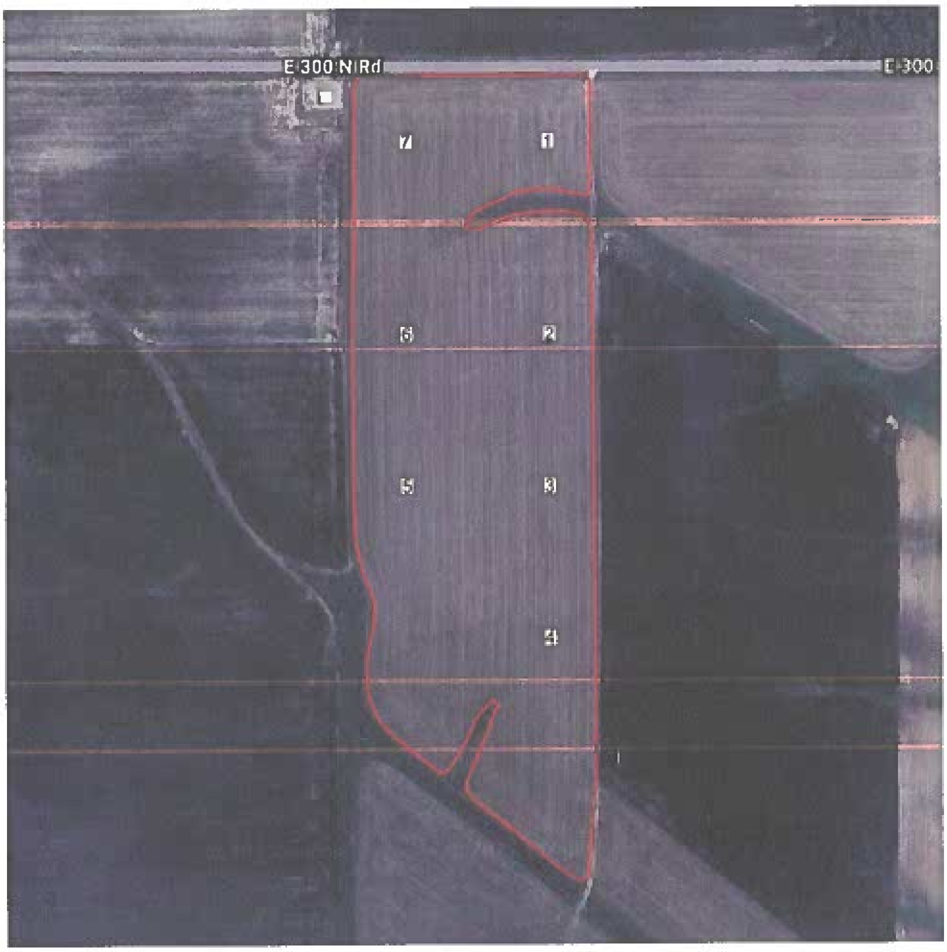
Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	142.0	189.0	403.0	2611	7.2	7.30	2.5	8.4	2.9	20.0	77.8	---
2	126.0	161.0	368.0	2414	7.2	7.50	2.3	7.8	2.7	19.7	77.4	0.2
3	117.0	163.0	395.0	2582	7.1	7.50	2.5	8.3	2.6	19.9	77.8	---
4	279.0	333.0	417.0	3505	7.1	7.50	2.8	10.9	4.0	16.0	80.4	---

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Eds	West 18ac Along Warners	17.98 acres	39.25658, -88.535203



	Min	Max	Avg
P	141.0	222.0	171.0
K	127.0	218.0	153.9
Mg	286.0	352.0	322.4
Ca	2366	3042	2596
pH	7.0	7.2	7.1
bpH	7.30	7.50	7.37
OM	2.4	2.6	2.5
CEC	7.3	9.2	8.0
%K	2.2	3.4	2.5
%Mg	15.3	17.8	16.8
%Ca	78.4	82.7	80.7
%H	0.1	0.4	0.3

Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	189.0	167.0	336.0	3042	7.1	7.40	2.5	9.2	2.4	15.3	82.7	---
2	141.0	127.0	293.0	2439	7.1	7.30	2.6	7.5	2.2	16.3	81.4	0.1
3	142.0	139.0	318.0	2691	7.0	7.30	2.6	8.2	2.2	16.2	82.1	---
4	168.0	144.0	286.0	2366	7.0	7.40	2.5	7.3	2.6	16.4	81.1	---
5	171.0	218.0	352.0	2602	7.0	7.50	2.6	8.3	3.4	17.7	78.4	0.4
6	222.0	154.0	350.0	2601	7.2	7.30	2.4	8.2	2.5	17.8	79.3	0.4
7	164.0	128.0	322.0	2437	7.2	7.40	2.6	7.6	2.2	17.7	80.2	---

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Harmon	Harmons	33.02 acres	39.234976, -88.547666

	Min	Max	Avg
P	30.0	91.0	52.8
K	134.0	326.0	220.4
Mg	262.0	878.0	399.7
Ca	1994	2636	2413
pH	6.6	7.4	7.0
bpH	7.20	7.40	7.36
OM	2.2	2.4	2.3
CEC	6.8	10.5	8.1
%K	2.1	5.1	3.5
%Mg	15.4	34.9	20.1
%Ca	60.8	79.4	74.5
%H	0.1	7.3	2.1

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	37.0	201.0	436.0	2632	7.4	7.40	2.2	8.7	3.0	20.9	75.7	0.4
2	30.0	169.0	387.0	2575	7.3	7.40	2.3	8.3	2.7	19.5	77.6	0.3
3	74.0	134.0	684.0	1994	6.9	7.40	2.3	8.2	2.1	34.8	60.8	2.2
4	91.0	188.0	878.0	2636	7.0	7.30	2.4	10.5	2.3	34.9	62.8	---
5	48.0	245.0	310.0	2314	6.9	7.40	2.4	7.5	4.2	17.3	77.2	1.3
6	59.0	306.0	335.0	2349	7.0	7.40	2.3	7.7	5.1	18.2	76.3	0.4
7	58.0	326.0	364.0	2518	7.1	7.40	2.4	8.2	5.1	18.5	76.8	---
8	42.0	312.0	361.0	2432	6.9	7.40	2.2	8.1	5.0	18.6	75.1	1.3
9	44.0	201.0	284.0	2274	6.6	7.20	2.3	7.7	3.4	15.4	73.9	7.3
10	51.0	149.0	293.0	2373	6.9	7.40	2.3	7.5	2.6	16.3	79.2	1.9
11	46.0	181.0	346.0	2522	7.0	7.40	2.3	8.0	3.0	18.1	78.9	0.1

South Central FS
PRECISION

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	68.0	298.0	329.0	2453	6.8	7.30	2.4	8.2	4.7	16.8	74.8	3.7
13	51.0	211.0	327.0	2553	6.7	7.30	2.4	8.5	3.2	16.1	75.1	5.5
14	40.0	165.0	262.0	2159	6.9	7.40	2.3	6.8	3.2	16.1	79.4	1.3

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	5 Hills 12ac	12.46 acres	39.25447, -88.53088

	Min	Max	Avg
P	70.0	160.0	127.0
K	214.0	373.0	292.6
Mg	416.0	697.0	550.4
Ca	3421	4348	3868
pH	7.6	7.8	7.7
bpH	7.40	7.60	7.50
OM	2.2	2.5	2.4
CEC	10.6	14.2	12.4
%K	2.5	4.1	3.1
%Mg	16.4	20.5	18.5
%Ca	76.6	80.7	78.4
%H	0.1	0.2	0.1

Sample Date	Soil Lab
2024-06-27	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	104.0	214.0	416.0	3421	7.8	7.60	2.4	10.6	2.6	16.4	80.7	0.2
2	70.0	226.0	506.0	3670	7.7	7.50	2.2	11.6	2.5	18.2	79.1	0.1
3	143.0	314.0	697.0	4348	7.7	7.50	2.4	14.2	2.9	20.5	76.6	---
4	160.0	373.0	546.0	3650	7.6	7.40	2.5	11.9	4.1	19.2	76.7	---
5	158.0	336.0	587.0	4252	7.7	7.50	2.3	13.5	3.2	18.2	78.8	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	Along N Rd 15ac	14.87 acres	39.258319, -88.523219

	Min	Max	Avg
P	74.0	200.0	135.4
K	172.0	285.0	226.7
Mg	443.0	608.0	533.3
Ca	3144	3848	3573
pH	7.0	7.6	7.3
bpH	7.20	7.50	7.40
OM	2.2	2.5	2.4
CEC	9.9	12.5	11.4
%K	1.9	3.2	2.6
%Mg	18.4	20.6	19.5
%Ca	76.9	79.9	78.2

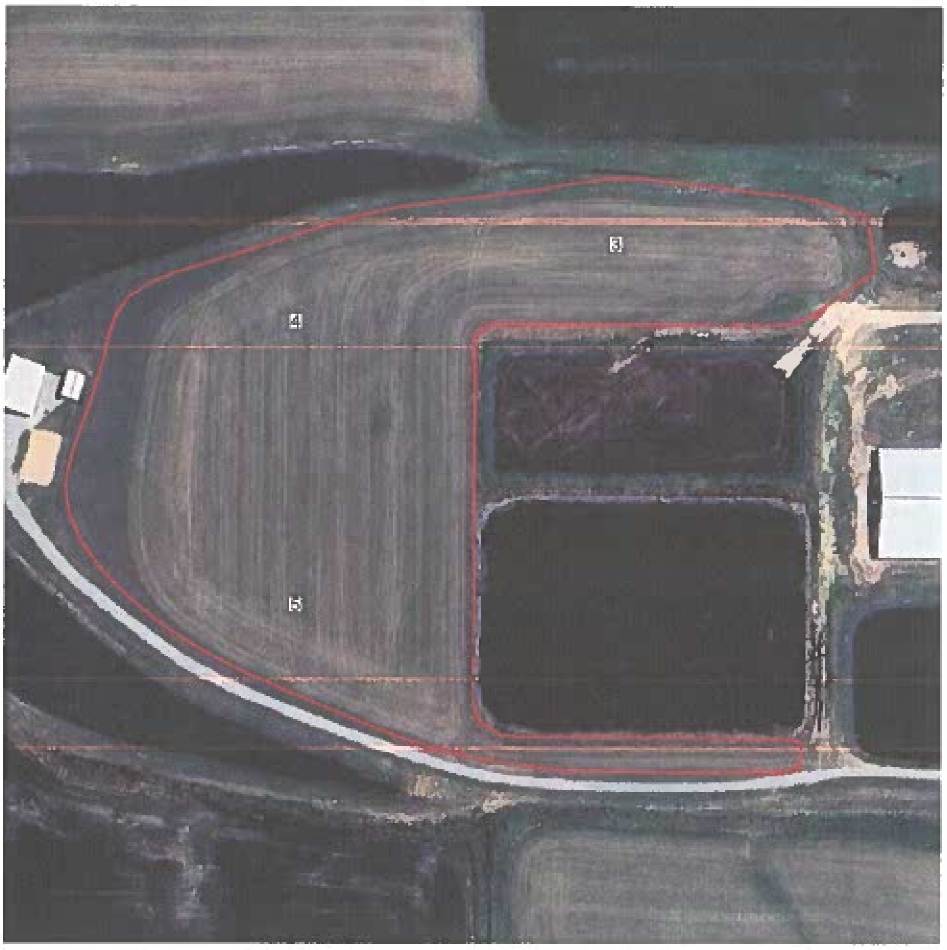
Sample Date	Soil Lab
2024-04-29	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %
1	85.0	172.0	561.0	3739	7.5	7.40	2.4	11.9	1.9	19.7	78.6
2	146.0	233.0	545.0	3607	7.6	7.50	2.5	11.6	2.6	19.6	77.8
3	126.0	270.0	505.0	3463	7.5	7.40	2.3	11.1	3.2	19.0	78.0
4	138.0	199.0	523.0	3803	7.2	7.40	2.4	11.9	2.2	18.4	79.9
5	179.0	255.0	548.0	3413	7.0	7.20	2.5	11.1	3.0	20.6	76.9
6	74.0	173.0	443.0	3144	7.2	7.50	2.2	9.9	2.3	18.7	79.4
7	200.0	285.0	608.0	3848	7.1	7.40	2.4	12.5	3.0	20.3	77.0

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	Around Barn West	7.16 acres	39.256965, -88.522665



	Min	Max	Avg
P	160.0	234.0	189.0
K	321.0	581.0	442.8
Mg	477.0	604.0	521.8
Ca	3117	4345	3562
pH	7.2	7.7	7.4
bpH	7.30	7.60	7.46
OM	2.3	2.6	2.5
CEC	10.2	14.1	11.6
%K	3.8	6.0	4.9
%Mg	17.9	19.6	18.8
%Ca	74.4	78.5	76.6
%H	0.1	0.1	0.1

Sample Date	Soil Lab
2024-04-29	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	212.0	566.0	570.0	3629	7.7	7.50	2.6	12.2	6.0	19.5	74.4	0.1
2	234.0	581.0	604.0	4345	7.7	7.60	2.4	14.1	5.3	17.9	77.1	---
3	167.0	400.0	479.0	3240	7.2	7.30	2.5	10.6	4.9	18.9	76.5	---
4	172.0	321.0	477.0	3481	7.3	7.50	2.5	11.1	3.8	18.0	78.5	---
5	160.0	346.0	479.0	3117	7.3	7.40	2.3	10.2	4.4	19.6	76.4	---

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	Corner 2ac	2.35 acres	39.258252, -88.51831

	Min	Max	Avg
P	176.0	176.0	176.0
K	289.0	289.0	289.0
Mg	431.0	431.0	431.0
Ca	2988	2988	2988
pH	7.7	7.7	7.7
bpH	7.50	7.50	7.50
OM	2.5	2.5	2.5
CEC	9.6	9.6	9.6
%K	3.9	3.9	3.9
%Mg	18.8	18.8	18.8
%Ca	77.9	77.9	77.9

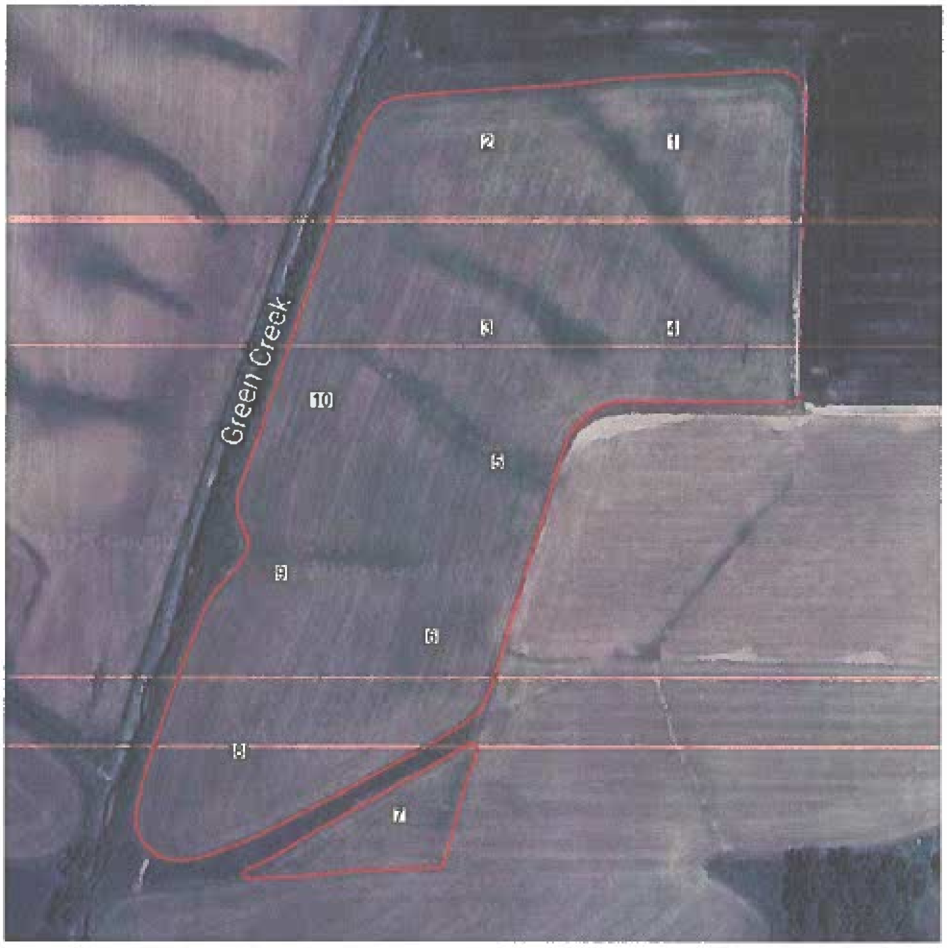
Sample Date	Soil Lab
2024-04-25	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %
1	176.0	289.0	431.0	2988	7.7	7.50	2.5	9.6	3.9	18.8	77.9

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	Down the Lane West 22ac	21.0 acres	39.25348, -88.528968



	Min	Max	Avg
P	64.0	214.0	141.8
K	202.0	361.0	264.3
Mg	457.0	840.0	610.1
Ca	3179	4377	3679
pH	7.0	7.4	7.2
bpH	7.20	7.50	7.36
OM	2.3	2.6	2.5
CEC	10.2	14.8	12.1
%K	2.4	3.7	2.9
%Mg	17.8	25.0	20.8
%Ca	72.7	79.9	76.5
%H	0.2	0.2	0.2

Sample Date	Soil Lab
2024-04-29	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	193.0	293.0	840.0	4377	7.4	7.40	2.6	14.8	2.6	23.7	74.0	---
2	64.0	234.0	667.0	3895	7.3	7.40	2.4	12.8	2.4	21.8	76.1	---
3	149.0	264.0	471.0	3179	7.3	7.40	2.3	10.2	3.4	19.3	78.0	---
4	164.0	221.0	481.0	3231	7.2	7.40	2.5	10.4	2.8	19.3	77.7	0.2
5	118.0	202.0	457.0	3290	7.0	7.30	2.6	10.4	2.5	18.4	79.1	---
6	132.0	212.0	487.0	3635	7.2	7.40	2.5	11.4	2.4	17.8	79.8	---
7	113.0	225.0	468.0	3513	7.3	7.50	2.3	11.0	2.7	17.8	79.9	---
8	142.0	361.0	806.0	4040	7.2	7.30	2.5	13.9	3.4	24.2	72.7	---
9	129.0	289.0	833.0	4040	7.1	7.20	2.4	13.9	2.7	25.0	72.7	---
10	214.0	342.0	591.0	3593	7.1	7.30	2.5	11.9	3.7	20.7	75.5	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	Front 5 Hills 9ac	8.45 acres	39.257185, -88.530595

	Min	Max	Avg
P	45.0	116.0	72.8
K	122.0	200.0	169.2
Mg	369.0	622.0	527.8
Ca	3141	3544	3358
pH	7.2	7.2	7.2
bpH	7.40	7.50	7.47
OM	2.2	2.8	2.4
CEC	9.5	11.7	10.8
%K	1.7	2.4	2.0
%Mg	16.2	22.2	20.2
%Ca	75.8	82.7	78.0

Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %
1	80.0	200.0	535.0	3292	7.2	7.50	2.3	10.7	2.4	20.9	77.0
2	45.0	178.0	585.0	3457	7.2	7.40	2.2	11.3	2.1	21.6	76.5
3	116.0	122.0	369.0	3141	7.2	7.50	2.8	9.5	1.7	16.2	82.7
4	50.0	177.0	622.0	3544	7.2	7.50	2.4	11.7	2.0	22.2	75.8

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	Joes Fence 12ac	11.62 acres	39.251846, -88.522489

	Min	Max	Avg
P	66.0	261.0	196.6
K	207.0	381.0	273.6
Mg	461.0	659.0	511.2
Ca	3011	4254	3405
pH	7.7	7.8	7.8
bpH	7.00	7.00	7.00
OM	2.2	2.7	2.6
CEC	9.9	13.7	11.0
%K	2.2	4.7	3.3
%Mg	18.2	20.1	19.4
%Ca	76.1	78.3	77.4
%H	0.1	0.4	0.2

Sample Date	Soil Lab
2018-08-15	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	261.0	381.0	461.0	3292	7.8	7.00	2.6	10.6	4.7	18.2	77.7	---
2	254.0	273.0	461.0	3060	7.7	7.00	2.6	9.9	3.6	19.5	77.3	---
3	153.0	281.0	471.0	3011	7.7	7.00	2.7	9.9	3.7	19.9	76.1	0.4
4	249.0	207.0	504.0	3412	7.8	7.00	2.7	10.9	2.5	19.3	78.3	---
5	66.0	226.0	659.0	4254	7.8	7.00	2.2	13.7	2.2	20.1	77.7	0.1

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	North of Lane 20ac	20.21 acres	39.25442, -88.52431

	Min	Max	Avg
P	172.0	335.0	233.4
K	496.0	891.0	685.2
Mg	436.0	714.0	534.7
Ca	2770	4299	3321
pH	7.8	8.1	7.9
bpH	7.40	7.50	7.47
OM	2.2	2.5	2.4
CEC	9.4	14.9	11.4
%K	6.8	9.0	7.7
%Mg	18.5	20.7	19.6
%Ca	71.1	74.8	72.8
%H	0.1	0.2	0.1

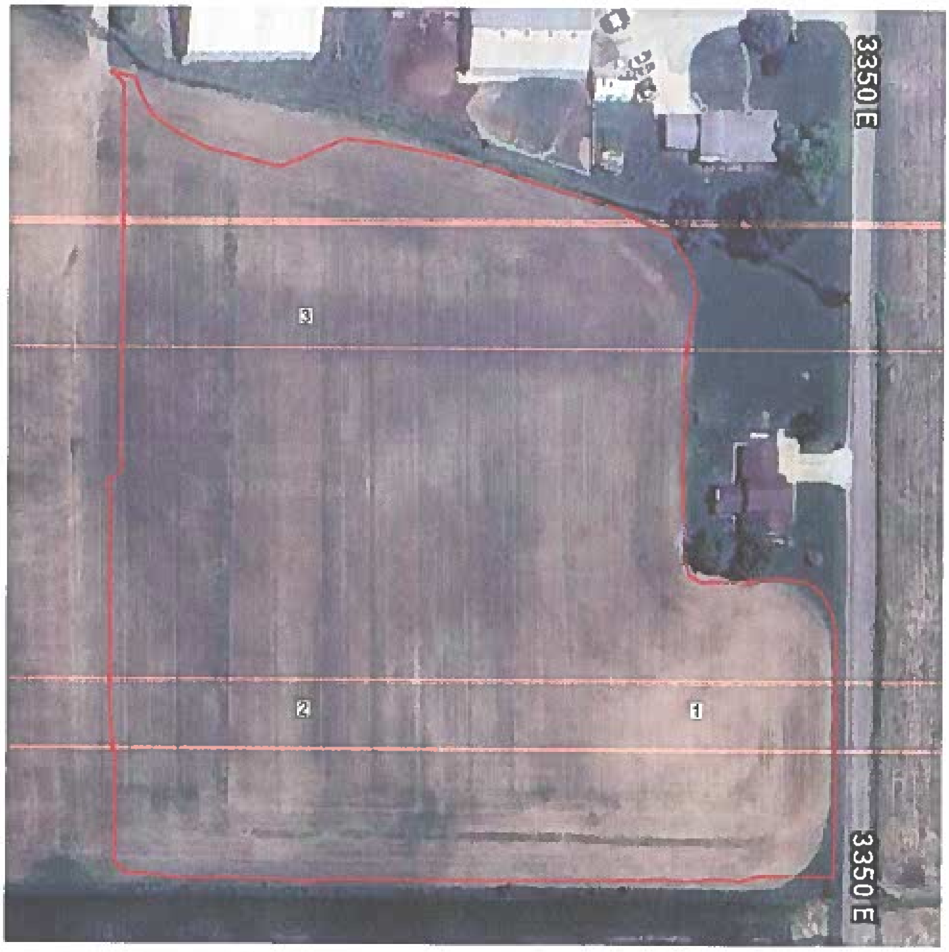
Sample Date	Soil Lab
2024-04-25	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	172.0	515.0	437.0	2899	7.9	7.50	2.3	9.7	6.9	18.8	74.8	---
2	216.0	711.0	515.0	3406	7.9	7.50	2.2	11.6	7.9	18.5	73.5	0.1
3	302.0	798.0	592.0	3982	7.9	7.40	2.4	13.4	7.7	18.5	74.3	---
4	335.0	891.0	714.0	4299	8.1	7.50	2.3	14.9	7.7	20.0	72.2	0.1
5	182.0	609.0	516.0	2999	7.9	7.50	2.5	10.4	7.6	20.7	72.1	---
6	177.0	496.0	436.0	2770	8.0	7.50	2.4	9.4	6.8	19.4	73.7	0.1
7	250.0	745.0	584.0	3548	7.9	7.50	2.3	12.3	7.8	19.8	72.2	0.2
8	288.0	778.0	537.0	3183	7.9	7.40	2.4	11.2	9.0	20.0	71.1	---
9	179.0	624.0	481.0	2806	7.8	7.40	2.4	9.8	8.2	20.5	71.6	---

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	South of Deans House 7ac	7.31 acres	39.252174, -88.518867



	Min	Max	Avg
P	234.0	265.0	250.3
K	310.0	471.0	403.0
Mg	444.0	566.0	491.0
Ca	3183	3485	3349
pH	7.1	7.3	7.2
bpH	7.40	7.50	7.43
OM	2.3	2.3	2.3
CEC	10.4	11.7	11.0
%K	3.7	5.3	4.7
%Mg	17.8	20.2	18.6
%Ca	74.5	78.3	76.5
%H	0.1	0.3	0.2

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	265.0	471.0	566.0	3485	7.1	7.40	2.3	11.7	5.2	20.2	74.5	0.1
2	252.0	310.0	463.0	3380	7.3	7.40	2.3	10.8	3.7	17.9	78.3	0.1
3	234.0	428.0	444.0	3183	7.3	7.50	2.3	10.4	5.3	17.8	76.6	0.3

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	South of Lane 8ac	8.28 acres	39.251914, -88.527129

	Min	Max	Avg
P	172.0	261.0	213.8
K	191.0	327.0	255.8
Mg	386.0	649.0	480.2
Ca	2744	3655	3179
pH	7.0	7.1	7.1
bpH	7.20	7.50	7.38
OM	2.2	2.6	2.4
CEC	8.8	12.3	10.3
%K	2.8	3.9	3.2
%Mg	18.3	22.0	19.3
%Ca	74.3	79.2	77.6
%H	0.2	0.2	0.2

Sample Date	Soil Lab
2024-04-29	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	172.0	327.0	649.0	3655	7.1	7.20	2.2	12.3	3.5	22.0	74.3	0.2
2	244.0	242.0	490.0	3514	7.1	7.40	2.4	11.1	2.8	18.4	79.2	---
3	178.0	191.0	396.0	2803	7.0	7.40	2.6	8.9	2.8	18.6	78.8	---
4	261.0	263.0	386.0	2744	7.1	7.50	2.5	8.8	3.9	18.3	78.0	---

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	South of Lane 24ac	24.23 acres	39.25294, -88.524108

	Min	Max	Avg
P	126.0	333.0	290.4
K	354.0	701.0	589.2
Mg	477.0	538.0	508.9
Ca	2863	3229	3022
pH	7.5	8.0	7.7
bpH	7.00	7.00	7.00
OM	2.0	2.5	2.2
CEC	10.1	11.0	10.4
%K	4.4	8.5	7.3
%Mg	18.8	21.8	20.4
%Ca	70.9	73.9	72.5
%H	0.2	0.3	0.2

Sample Date	Soil Lab
2018-08-15	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	326.0	582.0	509.0	3010	7.6	7.00	2.2	10.4	7.2	20.4	72.4	---
2	276.0	701.0	477.0	3070	8.0	7.00	2.5	10.6	8.5	18.8	72.5	0.2
3	286.0	503.0	530.0	2958	7.5	7.00	2.0	10.2	6.4	21.7	72.6	---
4	126.0	354.0	538.0	3102	7.5	7.00	2.4	10.5	4.4	21.4	73.9	0.3

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	South of Udder Place 19ac	18.67 acres	39.256043, -88.52625

	Min	Max	Avg
P	42.0	177.0	98.2
K	146.0	553.0	333.8
Mg	457.0	765.0	587.2
Ca	3004	3896	3510
pH	7.5	7.7	7.6
bpH	7.40	7.50	7.47
OM	2.2	2.6	2.4
CEC	10.0	13.3	11.7
%K	1.8	6.3	3.8
%Mg	18.5	24.0	20.9
%Ca	73.3	78.5	75.4
%H	0.2	0.3	0.2

Sample Date	Soil Lab
2024-04-25	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	91.0	270.0	765.0	3896	7.7	7.40	2.2	13.3	2.7	24.0	73.3	---
2	73.0	284.0	652.0	3791	7.7	7.50	2.4	12.6	2.9	21.6	75.3	0.2
3	132.0	421.0	457.0	3004	7.7	7.50	2.6	10.0	5.4	19.1	75.2	0.3
4	170.0	553.0	517.0	3394	7.7	7.50	2.4	11.3	6.3	19.1	75.1	---
5	177.0	534.0	509.0	3485	7.6	7.50	2.5	11.5	6.0	18.5	75.8	---
6	65.0	271.0	561.0	3439	7.6	7.40	2.3	11.3	3.1	20.7	76.1	---
7	55.0	255.0	664.0	3717	7.5	7.40	2.4	12.4	2.7	22.4	75.0	---
8	79.0	270.0	641.0	3449	7.6	7.50	2.5	11.6	3.0	23.1	74.4	---
9	42.0	146.0	519.0	3421	7.7	7.50	2.3	10.9	1.8	19.9	78.5	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	Split 12ac	11.74 acres	39.257796, -88.528755

	Min	Max	Avg
P	85.0	175.0	130.4
K	299.0	511.0	412.2
Mg	354.0	693.0	505.8
Ca	2968	4352	3586
pH	7.5	7.6	7.6
bpH	7.40	7.50	7.44
OM	2.0	2.5	2.3
CEC	9.3	14.3	11.6
%K	3.8	5.1	4.6
%Mg	15.8	20.2	18.0
%Ca	76.0	79.8	77.5
%H	0.1	0.2	0.1

Sample Date	Soil Lab
2024-04-25	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	153.0	400.0	386.0	3219	7.6	7.50	2.3	10.2	5.1	15.8	78.9	0.2
2	118.0	423.0	693.0	4352	7.6	7.40	2.0	14.3	3.8	20.2	76.1	---
3	175.0	511.0	571.0	3960	7.5	7.40	2.4	12.9	5.1	18.5	76.8	---
4	121.0	428.0	525.0	3432	7.6	7.40	2.3	11.3	4.9	19.4	76.0	---
5	85.0	299.0	354.0	2968	7.5	7.50	2.5	9.3	4.2	15.9	79.8	0.1

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Home	West of Bags	7.17 acres	39.254917, -88.521116

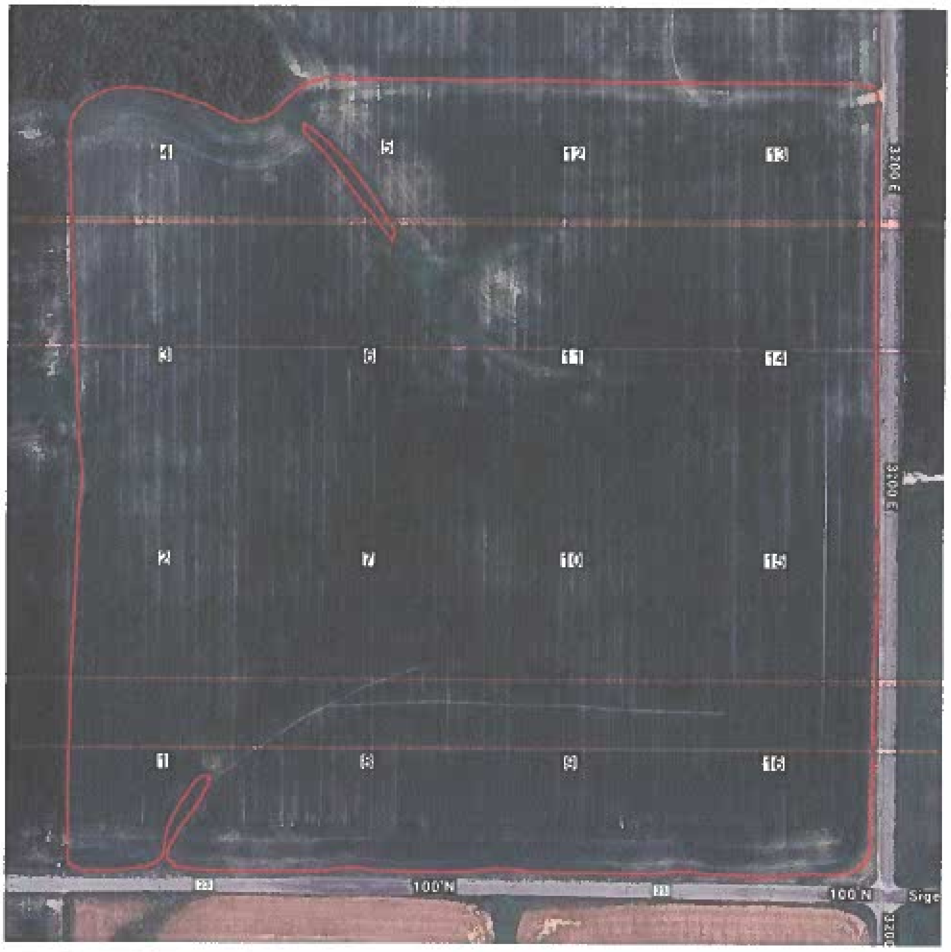
	Min	Max	Avg
P	152.0	227.0	192.3
K	360.0	696.0	542.7
Mg	544.0	564.0	550.7
Ca	3861	4455	4059
pH	7.6	7.7	7.7
bpH	7.00	7.00	7.00
OM	2.2	2.5	2.3
CEC	12.4	14.3	13.1
%K	3.8	6.3	5.3
%Mg	15.9	18.6	17.6
%Ca	76.1	77.9	77.3

Sample Date	Soil Lab
2010-06-03	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %
1	152.0	360.0	544.0	3861	7.6	7.00	2.5	12.4	3.8	18.3	77.9
2	198.0	572.0	564.0	3861	7.7	7.00	2.3	12.7	5.8	18.6	76.1
3	227.0	696.0	544.0	4455	7.7	7.00	2.2	14.3	6.3	15.9	77.9

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Josh	East 38ac	37.92 acres	39.231474, -88.547843



	Min	Max	Avg
P	38.0	111.0	60.7
K	159.0	367.0	212.4
Mg	244.0	733.0	362.5
Ca	2052	3507	2552
pH	7.1	7.5	7.3
bpH	7.00	7.00	7.00
OM	2.2	2.7	2.4
CEC	6.5	12.3	8.2
%K	2.6	4.9	3.4
%Mg	15.7	24.9	18.2
%Ca	71.3	80.9	78.6
%H	0.2	0.4	0.3

Sample Date	Soil Lab
2018-08-15	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	67.0	234.0	337.0	2561	7.1	7.00	2.4	8.1	3.8	17.4	79.1	---
2	53.0	193.0	393.0	2703	7.2	7.00	2.3	8.6	2.9	19.1	78.6	---
3	38.0	172.0	293.0	2253	7.4	7.00	2.4	7.1	3.2	17.2	79.4	0.2
4	58.0	247.0	244.0	2052	7.3	7.00	2.3	6.5	4.9	15.7	79.0	0.4
5	111.0	367.0	733.0	3507	7.2	7.00	2.6	12.3	3.9	24.9	71.3	---
6	60.0	172.0	316.0	2175	7.3	7.00	2.5	7.0	3.2	18.9	77.7	0.2
7	47.0	166.0	296.0	2326	7.3	7.00	2.7	7.3	3.0	16.9	79.7	0.4
8	41.0	248.0	506.0	3173	7.2	7.00	2.4	10.4	3.1	20.3	76.3	0.2
9	48.0	159.0	367.0	2514	7.4	7.00	2.5	8.0	2.6	19.2	78.6	---
10	62.0	173.0	275.0	2109	7.4	7.00	2.2	6.6	3.4	17.4	79.9	---
11	66.0	201.0	332.0	2555	7.3	7.00	2.6	8.0	3.3	17.3	79.9	---

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	70.0	178.0	312.0	2364	7.4	7.00	2.4	7.4	3.1	17.6	79.9	---
13	54.0	186.0	293.0	2286	7.4	7.00	2.3	7.2	3.4	17.0	79.4	0.2
14	49.0	230.0	290.0	2489	7.5	7.00	2.4	7.7	3.9	15.7	80.9	---
15	55.0	201.0	290.0	2444	7.4	7.00	2.3	7.6	3.4	15.9	80.4	0.2
16	92.0	271.0	523.0	3324	7.5	7.00	2.6	10.8	3.3	20.2	77.0	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Josh	West 33ac	32.61 acres	39.231305, -88.553318

	Min	Max	Avg
P	30.0	130.0	70.2
K	133.0	341.0	226.5
Mg	353.0	535.0	438.7
Ca	2293	2991	2781
pH	7.1	7.4	7.3
bpH	7.30	7.50	7.40
OM	2.2	2.5	2.3
CEC	7.8	10.0	9.1
%K	1.9	5.0	3.3
%Mg	16.2	23.9	20.2
%Ca	73.5	78.7	76.6
%H	0.2	0.4	0.3

Sample Date	Soil Lab
2024-09-30	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	130.0	341.0	353.0	2862	7.2	7.50	2.3	9.1	4.9	16.2	78.7	0.3
2	87.0	334.0	369.0	2635	7.4	7.50	2.3	8.6	5.0	17.9	76.6	0.4
3	50.0	136.0	407.0	2695	7.3	7.40	2.2	8.6	2.1	19.8	78.4	---
4	52.0	161.0	430.0	2775	7.3	7.30	2.4	8.9	2.4	20.2	78.0	---
5	36.0	133.0	496.0	2747	7.1	7.30	2.4	9.1	1.9	22.8	75.5	---
6	77.0	323.0	440.0	2837	7.4	7.40	2.4	9.3	4.5	19.8	76.3	---
7	59.0	260.0	535.0	2991	7.4	7.40	2.3	10.0	3.4	22.3	74.8	---
8	30.0	190.0	458.0	2706	7.4	7.40	2.5	8.9	2.8	21.5	76.1	---
9	45.0	150.0	456.0	2906	7.3	7.40	2.3	9.4	2.1	20.3	77.3	0.3
10	117.0	297.0	428.0	2962	7.3	7.40	2.3	9.6	4.0	18.6	77.2	0.2
11	129.0	236.0	404.0	2949	7.2	7.40	2.4	9.4	3.3	18.0	78.5	0.3

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	49.0	171.0	447.0	2293	7.2	7.40	2.2	7.8	2.9	23.9	73.5	---
13	51.0	213.0	480.0	2799	7.4	7.40	2.2	9.3	3.0	21.6	75.3	0.2

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Probst	Back 12ac	11.22 acres	39.267287, -88.518543

	Min	Max	Avg
P	40.0	132.0	80.8
K	112.0	264.0	171.0
Mg	265.0	399.0	325.0
Ca	1922	2665	2458
pH	5.9	6.6	6.2
bpH	6.80	7.20	7.03
OM	2.4	2.6	2.5
CEC	7.9	9.7	9.1
%K	1.9	3.7	2.5
%Mg	11.9	17.7	15.0
%Ca	60.9	70.6	67.5
%H	8.1	22.0	15.1

Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	72.0	163.0	347.0	2665	6.3	7.10	2.6	9.7	2.2	15.0	68.7	14.1
2	40.0	112.0	289.0	1922	5.9	6.80	2.4	7.9	1.9	15.3	60.9	22.0
3	132.0	264.0	399.0	2651	6.6	7.20	2.6	9.4	3.7	17.7	70.6	8.1
4	79.0	145.0	265.0	2594	6.2	7.00	2.5	9.3	2.0	11.9	69.8	16.2

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Probst	East 31ac	30.57 acres	39.270791, -88.519178

	Min	Max	Avg
P	42.0	195.0	110.3
K	150.0	296.0	207.9
Mg	331.0	710.0	420.2
Ca	2236	3171	2608
pH	6.2	6.8	6.6
bpH	6.90	7.50	7.24
OM	2.3	2.6	2.5
CEC	8.3	11.9	9.2
%K	2.1	4.0	2.9
%Mg	15.9	24.9	19.0
%Ca	65.7	75.6	71.0
%H	3.4	15.6	7.1

Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	168.0	194.0	406.0	2902	6.8	7.30	2.6	9.6	2.6	17.7	75.6	4.1
2	120.0	225.0	384.0	2539	6.8	7.30	2.5	8.6	3.4	18.7	73.9	4.1
3	117.0	248.0	412.0	2503	6.8	7.30	2.3	8.6	3.7	20.0	72.8	3.4
4	116.0	265.0	710.0	3171	6.7	7.40	2.4	11.9	2.9	24.9	66.7	5.5
5	56.0	150.0	413.0	2838	6.7	7.20	2.4	9.6	2.1	18.0	74.0	6.0
6	68.0	195.0	465.0	2636	6.7	6.90	2.6	9.3	2.7	20.9	70.9	5.5
7	94.0	174.0	433.0	2379	6.8	7.20	2.5	8.3	2.7	21.8	71.7	3.8
8	113.0	186.0	415.0	2599	6.7	7.10	2.4	9.0	2.7	19.3	72.2	5.8
9	112.0	177.0	407.0	2677	6.8	7.30	2.6	9.0	2.6	18.9	74.4	4.1
10	150.0	183.0	331.0	2411	6.4	7.20	2.5	8.7	2.7	15.9	69.3	12.0
11	104.0	172.0	357.0	2236	6.4	7.20	2.6	8.3	2.7	18.0	67.4	11.9

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	195.0	296.0	415.0	2712	6.7	7.30	2.6	9.5	4.0	18.3	71.4	6.3
13	89.0	264.0	386.0	2530	6.4	7.20	2.5	9.4	3.7	17.2	67.3	11.9
14	42.0	182.0	349.0	2391	6.2	7.50	2.4	9.1	2.6	16.0	65.7	15.6

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Probst	NE 45ac	45.19 acres	39.275148, -88.520306

	Min	Max	Avg
P	49.0	238.0	116.8
K	246.0	481.0	333.4
Mg	300.0	638.0	481.7
Ca	2677	4140	3148
pH	6.4	7.4	7.2
bpH	6.90	7.50	7.39
OM	2.3	2.6	2.5
CEC	9.0	13.1	10.4
%K	2.8	5.7	4.2
%Mg	12.4	24.1	19.5
%Ca	71.3	85.1	75.7
%H	0.1	12.0	2.5

Sample Date	Soil Lab
2024-06-27	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	238.0	442.0	518.0	4140	7.1	7.40	2.4	13.1	4.4	16.5	79.1	---
2	140.0	259.0	300.0	2707	6.4	6.90	2.5	9.5	3.5	13.2	71.3	12.0
3	158.0	272.0	351.0	3318	7.1	7.40	2.3	10.1	3.5	14.5	82.2	---
4	120.0	246.0	339.0	3880	7.1	7.40	2.6	11.4	2.8	12.4	85.1	---
5	88.0	297.0	638.0	3724	7.2	7.50	2.4	12.3	3.1	21.7	75.7	---
6	151.0	271.0	471.0	3553	7.2	7.40	2.4	11.2	3.2	17.6	79.4	---
7	171.0	270.0	439.0	3466	7.1	7.20	2.5	10.8	3.3	17.0	80.3	---
8	96.0	481.0	487.0	3281	6.9	7.30	2.5	11.1	5.6	18.3	73.9	2.1
9	177.0	367.0	420.0	2732	7.1	7.30	2.4	9.1	5.2	19.3	75.1	0.4
10	109.0	351.0	499.0	2701	7.1	7.40	2.4	9.3	4.9	22.4	72.7	---
11	151.0	287.0	552.0	3387	7.3	7.50	2.5	11.1	3.4	20.8	76.3	---

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	102.0	278.0	460.0	3067	7.4	7.40	2.3	9.9	3.7	19.4	77.5	---
13	97.0	342.0	504.0	2906	7.4	7.50	2.6	9.8	4.5	21.5	74.2	---
14	76.0	342.0	531.0	2981	7.3	7.50	2.4	10.1	4.4	22.0	73.8	---
15	150.0	318.0	456.0	2707	7.3	7.50	2.4	9.1	4.5	20.9	74.4	0.1
16	64.0	282.0	634.0	3183	7.4	7.50	2.5	11.0	3.3	24.1	72.4	0.2
17	81.0	413.0	503.0	2823	7.4	7.40	2.6	9.7	5.5	21.7	72.8	---
18	59.0	416.0	505.0	2799	7.4	7.40	2.6	9.6	5.6	22.0	72.9	---
19	58.0	281.0	458.0	2677	7.3	7.50	2.4	9.0	4.1	21.3	74.4	0.3
20	49.0	454.0	569.0	2941	7.3	7.40	2.5	10.3	5.7	23.1	71.4	---

South Central FS PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Probst	NW 31ac	31.18 acres	39.27516, -88.525037

	Min	Max	Avg
P	40.0	137.0	84.3
K	166.0	366.0	270.6
Mg	289.0	611.0	412.8
Ca	2723	4044	3287
pH	7.1	7.6	7.3
bpH	7.20	7.50	7.39
OM	2.3	2.6	2.5
CEC	8.7	12.6	10.3
%K	2.5	4.4	3.4
%Mg	13.7	23.6	16.8
%Ca	73.6	83.3	80.0
%H	0.1	0.3	0.2

Sample Date	Soil Lab
2024-06-27	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	102.0	217.0	334.0	3397	7.6	7.40	2.4	10.2	2.8	13.7	83.3	0.2
2	92.0	200.0	360.0	3329	7.5	7.50	2.5	10.1	2.6	14.9	82.5	0.1
3	61.0	166.0	289.0	2897	7.4	7.50	2.3	8.7	2.5	13.9	83.3	0.3
4	122.0	240.0	414.0	3784	7.2	7.30	2.6	11.5	2.7	15.1	82.3	---
5	116.0	366.0	490.0	3935	7.3	7.40	2.4	12.3	3.9	16.6	80.0	---
6	82.0	328.0	347.0	3086	7.2	7.50	2.6	9.6	4.4	15.1	80.4	---
7	54.0	257.0	350.0	2937	7.3	7.50	2.4	9.1	3.7	16.1	80.7	---
8	40.0	246.0	611.0	3178	7.1	7.40	2.5	10.8	3.0	23.6	73.6	---
9	53.0	297.0	504.0	2995	7.3	7.30	2.5	10.0	3.9	21.1	74.9	0.2
10	51.0	268.0	406.0	2723	7.1	7.40	2.3	8.8	4.0	19.3	77.4	---
11	102.0	300.0	356.0	3150	7.1	7.20	2.4	9.7	4.0	15.3	81.2	---

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	137.0	362.0	492.0	4044	7.2	7.30	2.6	12.6	3.7	16.3	80.3	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Stewardson	Stewardson 80	77.24 acres	39.269735, -88.588896

	Min	Max	Avg
P	49.0	148.0	82.5
K	176.0	404.0	260.3
Mg	198.0	654.0	350.8
Ca	2497	4345	3133
pH	6.3	7.1	6.8
bpH	7.00	7.00	7.00
OM	2.0	2.8	2.4
CEC	7.8	16.1	10.0
%K	2.0	5.8	3.5
%Mg	10.6	22.1	14.4
%Ca	66.9	84.4	78.3
%H	1.4	13.9	5.9

Sample Date	Soil Lab
2020-10-16	KSI Labs

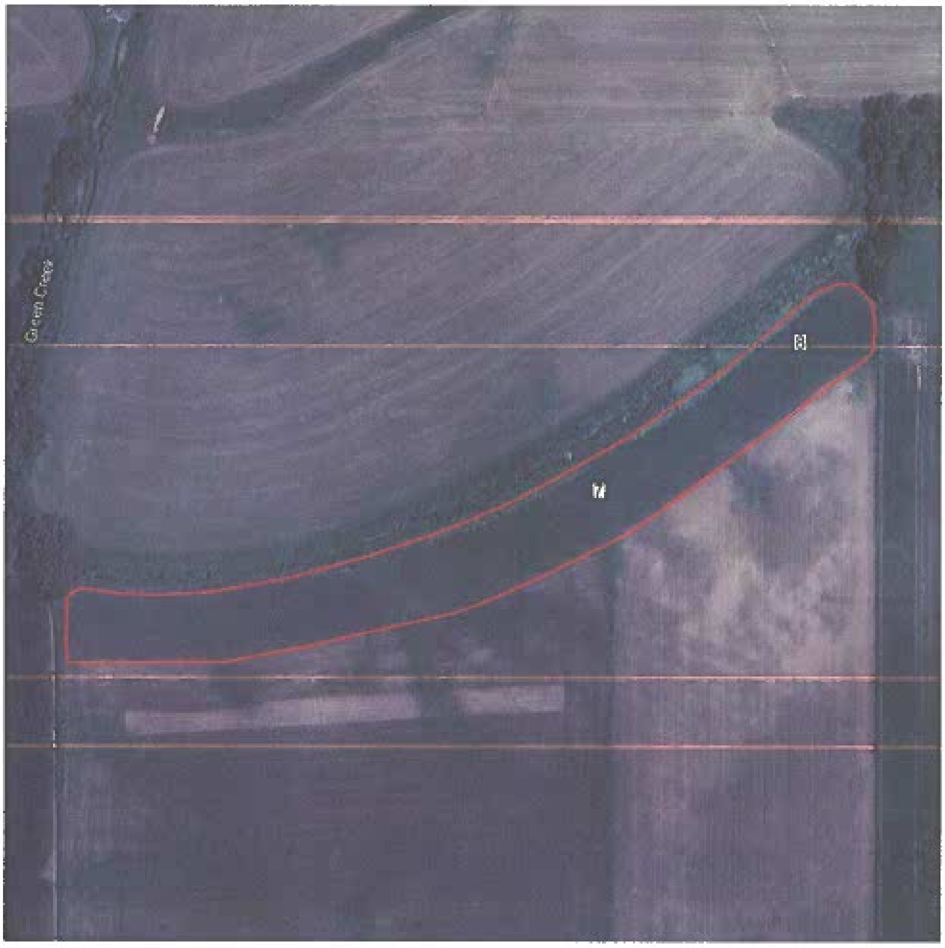
ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	65.0	238.0	471.0	3325	6.9	7.00	2.0	10.8	2.9	18.2	77.0	1.9
2	53.0	212.0	581.0	3164	6.8	7.00	2.2	11.0	2.5	22.1	72.0	3.5
3	69.0	237.0	361.0	3243	7.0	7.00	2.3	9.9	3.1	15.2	81.9	---
4	63.0	279.0	654.0	4305	6.3	7.00	2.3	16.1	2.3	17.0	66.9	13.9
5	100.0	320.0	254.0	2497	6.4	7.00	2.2	8.8	4.7	12.1	71.0	12.2
6	108.0	400.0	245.0	2502	6.4	7.00	2.3	8.9	5.8	11.5	70.3	12.3
7	70.0	183.0	198.0	2590	6.8	7.00	2.7	7.8	3.1	10.6	83.1	3.3
8	49.0	223.0	228.0	2655	6.9	7.00	2.6	8.0	3.6	11.9	83.0	1.4
9	148.0	404.0	370.0	3073	6.9	7.00	2.4	9.9	5.3	15.6	77.7	1.4
10	74.0	238.0	255.0	2964	6.7	7.00	2.7	9.3	3.3	11.5	79.7	5.5
11	50.0	214.0	334.0	3538	6.8	7.00	2.8	10.9	2.6	12.8	81.2	3.4

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	69.0	212.0	435.0	4345	6.9	7.00	2.7	13.2	2.1	13.8	82.3	1.8
13	89.0	198.0	442.0	3981	7.0	7.00	2.3	12.0	2.2	15.4	83.0	---
14	71.0	255.0	310.0	2675	6.7	7.00	2.3	8.8	3.8	14.7	76.0	5.5
15	89.0	231.0	351.0	3772	7.1	7.00	2.3	11.2	2.7	13.1	84.2	---
16	68.0	182.0	251.0	2665	7.0	7.00	2.6	7.9	3.0	13.3	84.4	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	Sudkamps	Along Creek 4ac	4.07 acres	39.249564, -88.529027



	Min	Max	Avg
P	71.0	134.0	102.5
K	204.0	344.0	274.0
Mg	415.0	504.0	459.5
Ca	3168	3465	3316
pH	6.8	7.1	7.0
bpH	7.00	7.00	7.00
OM	2.8	3.2	3.0
CEC	10.3	11.2	10.8
%K	2.6	4.0	3.3
%Mg	16.8	18.8	17.8
%Ca	76.9	77.4	77.2
%H	3.6	3.6	3.6

Sample Date	Soil Lab
2014-10-03	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
7	71.0	204.0	415.0	3168	6.8	7.00	2.8	10.3	2.6	16.8	76.9	3.6
8	134.0	344.0	504.0	3465	7.1	7.00	3.2	11.2	4.0	18.8	77.4	---

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	The Forty	East 19ac	18.78 acres	39.275012, -88.542312

	Min	Max	Avg
P	75.0	146.0	107.3
K	158.0	207.0	180.3
Mg	383.0	444.0	409.7
Ca	2405	2697	2538
pH	6.9	7.2	7.0
bpH	7.30	7.40	7.39
OM	2.3	2.6	2.5
CEC	8.0	8.8	8.3
%K	2.6	3.2	2.8
%Mg	18.8	22.1	20.5
%Ca	74.9	78.2	76.1
%H	0.3	2.0	1.1

Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	140.0	207.0	395.0	2522	6.9	7.40	2.5	8.4	3.2	19.6	75.1	2.0
2	146.0	204.0	419.0	2558	7.0	7.40	2.4	8.4	3.2	20.8	76.2	---
3	75.0	168.0	424.0	2405	7.1	7.40	2.4	8.0	2.7	22.1	75.2	---
4	84.0	182.0	444.0	2697	7.1	7.30	2.6	8.8	2.7	21.1	76.7	---
5	102.0	172.0	404.0	2455	6.9	7.40	2.3	8.2	2.7	20.6	74.9	1.8
6	84.0	158.0	399.0	2475	7.0	7.40	2.4	8.1	2.6	20.6	76.4	0.4
7	120.0	171.0	383.0	2657	7.2	7.40	2.6	8.5	2.6	18.8	78.2	0.3

South Central FS
PRECISION

Master Soil Book
Field Sample Summary

Location	Grower	Farm	Field	Area	Centroid
Effingham	NEW SHOES DAIRY	The Forty	West 7ac	6.16 acres	39.273944, -88.544502

	Min	Max	Avg
P	160.0	206.0	183.0
K	202.0	240.0	221.0
Mg	367.0	418.0	392.5
Ca	2653	2902	2777
pH	7.1	7.1	7.1
bpH	7.50	7.50	7.50
OM	2.4	2.5	2.5
CEC	8.5	9.3	8.9
%K	2.8	3.7	3.2
%Mg	18.0	18.8	18.4
%Ca	78.1	78.1	78.1
%H	0.2	0.3	0.2

Sample Date	Soil Lab
2024-06-07	KSI Labs

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
1	160.0	202.0	418.0	2902	7.1	7.50	2.4	9.3	2.8	18.8	78.1	0.3
2	206.0	240.0	367.0	2653	7.1	7.50	2.5	8.5	3.7	18.0	78.1	0.2

ID	P lbs/ac	K lbs/ac	Mg lbs/ac	Ca lbs/ac	pH	bpH	OM %	CEC meq	%K %	%Mg %	%Ca %	%H %
12	128.0	599.0	350.0	2463	7.5	7.40	2.5	8.4	9.2	17.4	73.4	0.0
13	58.0	428.0	304.0	2128	7.2	7.30	2.3	7.1	7.8	17.9	75.0	0.0
14	62.0	379.0	322.0	2192	6.9	7.40	2.4	7.5	6.5	17.9	73.1	2.4

Appendix C. Manure Test Laboratory Test Results

Report Number
F23326-6544
Account Number
02023

a&lgreatlakes LABORATORIES
Scientists who don't mind getting dirty™

3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: BORGIC CUSTOM PUMPING
2023 N 1600TH ST.
WEST LIBERTY, IL 62475
e5

Lab Number: 60915
Sample ID: S & B LAGOON
Manure Type: DAIRY, LAGOON (21)

Date Sampled: 11/14/2023
Date Received: 11/22/2023
Date Reported: 12/4/2023

MANURE ANALYSIS

Analysis	Unit	Analysis Result (As Received)	Pounds Per 1,000 Gal **	First Year Availability @ Pounds Per 1,000 Gal
Moisture	%	96.37	8028	
Solids	%	3.63	302	
Nitrogen, Total Kjeldahl (TKN)	%	0.169	14 1	8.6 *
Nitrogen, Ammonium (NH_4-N)	%	0.080	6.7	6.7 *
Nitrogen, Organic (N)	%	0.089	7.4	1.9 *
Phosphorus (P)	%	0.042	8.0 (as P_2O_5)	8.0 * (as P_2O_5)
Potassium (K)	%	0.126	12.6 (as K_2O)	12.6 * (as K_2O)

@ Estimate of first-year availability does not account for incorporation losses. Consult MWPS-18, "Livestock Waste Facilities Handbook" for additional information.
* Source: PS-18, Livestock Waste Facilities Handbook, 1993 # Source: A3411, ' ure Nutrient Credit Worksheet", University of Wisconsin
** Manure sity assumed to be 8.33 lb/gallon

REPORT NUMBER
24-267-9108

REPORT DATE **Sep 23, 2024**
RECEIVED DATE **Sep 18, 2024**
SEND TO **16078**

Midwest Laboratories®
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www.midwestlabs.com

ISSUE DATE **Sep 23, 2024**

MAURER-STUTZ INC
TERRY FELDMANN
3116 N DRIES LANE SUITE 100
PEORIA IL 61604

Nutrient Land Application

For: (16078) MAURER-STUTZ INC

e8

Sample ID: **NSD - 2nd Stage** Lab Number: **10239960** Date Sampled: **2024-09-11**

Parameter	Analysis As Received	Pounds of Nutrient AR per 1000 gal	Pounds of Nutrient AR per acre-in	Est. First Year Availability lbs per 1000 gal	Method	Reviewer-Date
Ammonium nitrogen (total)	< 0.01 %	---	---	---	AOAC 2001.11	tat9 2024-09-23 06:51:48
Organic nitrogen	0.02 %	1.7	45.1	1	Calculation	Auto 2024-09-23 06:51:48
Total Kjeldahl nitrogen (TKN)	0.02 %	1.7	45.1	1	AOAC 2001.11	tat9 2024-09-23 06:51:48
Phosphorus (as P2O5)	< 0.01 %	---	---	---	AOAC 985.01 (mod)	Auto 2024-09-23 06:51:48
Potassium (as K2O)	0.07 %	5.9	158	5	AOAC 985.01 (mod)	Auto 2024-09-23 06:51:48
Sulfur (total)	< 0.01 %	---	---	---	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Calcium (total)	0.01 %	0.8	22.6	1	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Magnesium (total)	0.01 %	0.8	22.6	1	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Sodium (total)	0.04 %	3.4	90.2	2	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Copper (total)	< 1 ppm	---	---	---	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Iron (total)	< 5 ppm	---	---	---	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Manganese (total)	< 1 ppm	---	---	---	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Zinc (total)	< 1 ppm	---	---	---	AOAC 985.01 (mod)	tat9 2024-09-23 06:51:48
Moisture	99.6 %				SM 2540 G-(2015)	tat9 2024-09-23 06:51:48
Total solids	0.40 %	33.8			Calculation	Auto 2024-09-23 06:51:48
Total salts	0.13 %	11.0	293		Calculation	Auto 2024-09-23 06:51:48
pH	8.1 S.U.				EPA 9045C *	tat9 2024-09-23 06:51:48

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 lbs/acre. Less than 500 lbs/acre if annual rainfall is less than 25 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availabilty will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

REPORT NUMBER
24-267-9109

REPORT DATE **Sep 23, 2024**
SEND TO **16078**
RECEIVED DATE **Sep 18, 2024**

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ISSUE DATE **Sep 23, 2024**

MAURER-STUTZ INC
TERRY FELDMANN
3116 N DRIES LANE SUITE 100
PEORIA IL 61604

Nutrient Land Application
For: (16078) MAURER-STUTZ INC

Sample ID: **NSD - Solids** Lab Number: **10239961** Date Sampled: **2024-09-11**

Parameter	Analysis As Received	Pounds of Nutrient AR per 1000 gal	per acre-in	Est. First Year Availability lbs per 1000 gal	Method	Reviewer-Date
Ammonium nitrogen (total)	0.07 %	5.9	158	3	AOAC 2001.11	tat9 2024-09-23 06:52:23
Organic nitrogen	0.10 %	8.4	226	3	Calculation	Auto 2024-09-23 06:52:23
Total Kjeldahl nitrogen (TKN)	0.17 %	14.4	383	6	AOAC 2001.11	tat9 2024-09-23 06:52:23
Phosphorus (as P2O5)	0.07 %	5.9	158	4	AOAC 985.01 (mod)	Auto 2024-09-23 06:52:23
Potassium (as K2O)	0.16 %	13.5	361	12	AOAC 985.01 (mod)	Auto 2024-09-23 06:52:23
Sulfur (total)	0.02 %	1.7	45.1	1	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Calcium (total)	0.16 %	13.5	361	9	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Magnesium (total)	0.06 %	5.1	135	4	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Sodium (total)	0.06 %	5.1	135	4	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Copper (total)	6 ppm	0.05	1.35	0.04	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Iron (total)	436 ppm	3.68	98.3	2.58	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Manganese (total)	22 ppm	0.19	4.96	0.13	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Zinc (total)	11 ppm	0.09	2.48	0.06	AOAC 985.01 (mod)	tat9 2024-09-23 06:52:23
Moisture	62.6 %				SM 2540 G-(2015)	tat9 2024-09-23 06:52:23
Total solids	37.40 %	3160			Calculation	Auto 2024-09-23 06:52:23
Total salts	0.51 %	43.1	1150		Calculation	Auto 2024-09-23 06:52:23
pH	7.7 S.U.				EPA 9045C *	tat9 2024-09-23 06:52:23

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 lbs/acre. Less than 500 lbs/acre if annual rainfall is less than 25 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availability will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

Appendix D. Available Water Capacity (AWC)

D.1. Available Water Capacity (AWC) Practical Soil Moisture Interpretations for Various Soils Textures and Conditions to Determine Liquid Waste Volume Applications Not to Exceed AWC

This table shall be used to determine the AWC at the time of application and the liquid volume in gallons that can be applied not to exceed the AWC. To determine the AWC in the upper 8 inches use a soil probe or similar device to evaluate the soil to a depth of 8 inches.

Available Moisture in the Soil	Sands and Loamy Sands	Sandy Loam and Fine Sandy Loam	Very Fine Sandy Loam, Loam, Silt Loam, Silty Clay Loam, Clay Loam, Sandy Clay Loam	Sandy Clay, Silty Clay, Clay
< 25% Soil Moisture	Dry, loose and single-grained; flows through fingers.	Dry and loose; flows through fingers.	Powdery dry; in some places slightly crusted but breaks down easily into powder.	Hard, baked and cracked; has loose crumbs on surface in some places.
Amount to Reach AWC	20,000 gallons/ac	27,000 gallons/ac	40,000 gallons/ac	27,000 gallons/ac
25-50% or Less Soil Moisture	Appears to be dry; does not form a ball under pressure.	Appears to be dry; does not form a ball under pressure.	Somewhat crumbly but holds together under pressure.	Somewhat pliable; balls under pressure.
Amount to Reach AWC	15,000 gallons/ac	20,000 gallons/ac	30,000 gallons/ac	20,000 gallons/ac
50 - 75 % Soil Moisture	Appears to be dry; does not form a ball under pressure.	Balls under pressure but seldom holds together.	Forms a ball under pressure; somewhat plastic; slicks slightly under pressure.	Forms a ball; ribbons out between thumb and forefinger.
Amount to Reach AWC	10,000 gallons/ac	13,000 gallons/ac	20,000 gallons/ac	13,000 gallons/ac
75% to Field Capacity	Sticks together slightly; may form a weak ball under pressure.	Forms a weak ball that breaks easily, does not stick.	Forms ball; very pliable; slicks readily if relatively high in clay.	Ribbons out between fingers easily; has a slick feeling.
Amount to Reach AWC	5,000 gallons/ac	7,000 gallons/ac	11,000 gallons/ac	7,000 gallons/ac
100% Field Capacity	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.
Above Field Capacity	Free water appears when soil is bounced in hand.	Free water is released with kneading.	Free water can be squeezed out.	Puddles: free water forms on surface

Appendix E: Proven Yield Documentation

MAURER-STUTZ

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034.11
COMPUTATION BY: DNF DATE: 3/3/25 SH. NO.: 1
CHECKED BY: DATE: OF: 1

Subject: 5-Year Yield Avg. - Corn

	Corn, bu										5*	10**
FIELD NAME	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg	Avg
Probst Atkins	255	205	226	205	281	246	250	281	270	255	260	247
Joshs Huermar	220	240	212		291	198	212	247	245	247	230	235
Birchtold	250		229	217	269	200		266			233	239
Stewardson	210	193	189		287		242		277	233	251	233
Home	248	216	229	215	282	247	251	278	260	250	257	248
Deans	217	200		222	283	176		250		233	220	226
WT AVG.	242	210	222	211	282	233	246	273	265	249	253	243

* 5yr Yield Block
**10yr running average

Notes:

MAURER-STUTZ

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034
COMPUTATION BY: DNF DATE: 3/3/25 SH. NO.: 1
CHECKED BY: DATE: OF: 1

Subject: 5-Year Yield Avg. - Soybean

	Soybean, bu										5*	10**
COUNTY NAME	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg	Avg
Shelby				61	70.4	56.2	59.3	66.2	67.1	63.2	62	63

* 5yr Yield Block
**10yr running average

Notes: USDA Yields - Source NASS.USDA.gov

MAURER-STUTZ

PROJECT: New Shoes Dairy
PROJECT NO.: 23808034
COMPUTATION BY: DNF   DATE: 3/3/25   SH. NO.: 1
CHECKED BY: DATE: OF: 1

Subject: 5-Year Yield Avg. - Wheat

	Wheat, bu										5*	10**
COUNTY NAME	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg	Avg
Shelby			72	70.2	64.7	56.6	70.5	78.7	88.8	93.2	78	74

* 5yr Yield Block
**10yr running average

Notes: USDA Yields - Source NASS.USDA.gov