NRCS Natural Resources Conservation Service

Comprehensive Nutrient Management Plan (CNMP)
(Version 3, 8/17/2016 Format)

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance information for the AFO.

Farm/Facility: Elberta Valley Ag (EVA)
c/o Brandon Andersen
P.O. Box 10
Elberta, UT 84626
801-667-3500

Owner/Operator: Operator: Brandon Andersen

Plan Period: August 2020 - August 2025

Certified Comprehensive Nutrient Management Plan (CNMP) Planner

As a Certified Comprehensive Nutrient Management Plan (CNMP) Planner, I certify that I have reviewed the *Comprehensive Nutrient Management Plan* and that the elements of the document are technically compatible, reasonable and can be implemented.

Signature: Hannah Freeze Date: 8/13/2020
Name: Hannah Freeze
Title: Certified CNMP Planner TSP Certification Credentials: N/A

Conservation District (Optional)

As a Conservation District employee, I have reviewed the *Comprehensive Nutrient Management Plan* and concur that the plan meets the District's conservation goals.

Signature: _____ Date: _____
Name:
Title:

Owner/Operator

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all necessary records associated with implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: Brandon Andersen Date: 8-13-2020
Name:

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Section 1. Farmstead (Production Area)

1.1. Maps of Existing and Planned Farmstead Conservation Practices

Farmstead Map

Date: 1/13/2020

Customer(s): Elberta Valley Ag

Agency: UDAF

Assisted By: HANNAH FREEZE

Prepared with assistance from USDA-Natural Resources Conservation Service

USDA

660 0 660 1,320 1,980 2,640

Feet

N

1.2. Farmstead Conservation Practices -- Record of Decisions

The last date of an updated CNMP for the dairy was June of 2010.

In October of 2019 Brandon Andersen contacted myself (Hannah Freeze) and asked if I could help him write and updated CNMP for Elberta Valley Ag. I met with Brandon and his staff on October 25, 2019. We went through the 2012 CNMP and noted where updates and changes needed to be made. We went through cropping history, soils tests, and storage information.

All NRCS conservation practices shall be installed, operated and maintained according to NRCS conservation practice standards and associated technical specifications.

1.3. Farmstead Conservation Practices – Implementation Requirements

There are no storage implementation requirements needed for EVA to properly following this CNMP. 3 groundwater monitoring wells are on the farmstead and are sampled twice a year. Sample results are reported to the State of Utah. All lagoons are lined with either synthetic liners or bentonite clay to eliminate any potential leaching. Lagoons 1-5 are lined with both synthetic liners and bentonite clay. The Fresh Pen ponds are lined with a synthetic liner (see Farmstead Map for lagoon locations).

1.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals[a]	Average Weight (lbs)	Confinement Period	Manure Collected (%)[b]	Manure Storage
Milkers 1	Dairy (Lact)	1,187	1,500	Jan Early - Dec Late	100	1
Milkers 2	Dairy (Lact)	1,187	1,500	Jan Early - Dec Late	100	Compost 1
Milkers 3	Dairy (Lact)	1,188	1,500	Jan Early - Dec Late	100	2
Milkers 4	Dairy (Lact)	1,188	1,500	Jan Early - Dec Late	100	Compost 2
Drys 1	Dairy (Dry)	350	1,500	Jan Early - Dec Late	50	3
Drys 2	Dairy (Dry)	350	1,500	Jan Early - Dec Late	50	3
Springers 1	Beef (Yearling)	1,125	1,000	Jan Early - Dec Late	25	Fresh Pond
Springers 2	Beef (Yearling)	1,125	1,000	Jan Early - Dec Late	25	Fresh Pond
Springers 3	Beef (Yearling)	1,125	1,000	Jan Early - Dec Late	25	Compost 2
Springers 4	Beef (Yearling)	1,125	1,000	Jan Early - Dec Late	25	Compost 2

a. The average number of animals present in the production facility at any one time.
b. If manure collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or the production facility is unoccupied one or more times during the confinement period.

1.5. Manure Storage Information

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
Compost 1	Open lot	40,048 tons	27,078 tons	540
1	Uncovered watertight structure	36,988,600 gal	6,239,000 gal	2,164
2	Uncovered watertight structure	29,590,880 gal	6,244,000 gal	1,730
3	Uncovered watertight structure	23,707,112 gal	1,896,000 gal	4,564
4	Uncovered watertight structure	19,612,560 gal	0 gal	
5	Uncovered watertight structure	11,698,720 gal	0 gal	
Fresh Pond	Uncovered watertight structure	8,343,192 gal	2,052,000 gal	1,484
Compost 2	Open lot	23,512 tons	35,682 tons	241
Settling Pond 1	Uncovered watertight structure	977,075 gal	0 gal	
Settling Pond 2	Uncovered watertight structure	915,253 gal	0 gal	
Compost 3	Open lot	18,900 tons	0 tons	

1.6. Planned Manure Exports

There are no manure exports from the dairy. All liquid waste water is land applied through pivots on 1581 acres south of Highway 6 (see Spreadable Acres Overview Map 1) Solids are composted and used as bedding, then eventually applied to crop fields. No compost from the dairy is sold.

1.7. Planned Manure Imports

No planned manure imports.

1.8. Planned Internal Transfers of Manure

Using the topography of the area where the dairy is located, all manure management systems are connected using gravity flow. Waste from "The Hill" where the milk cows are housed runs through two separators, one primary and the other secondary. Solids are then windrowed in Compost Area 1 and liquids from the separator as well as lot runoff from the compost area gravity flow into a series of ponds (Ponds 1-5). All ponds are connected and can be emptied on fields through sprinkler application on 1581 acres south of Highway 6. Pivots are equipped with a secondary piping system to apply wastewater to crop fields. Every fall all ponds are pumped down to prepare for winter storage.

1.9. Brief Description of or Additional Information about Animal Feeding Operation (Optional)

Elberta Valley Ag is a 4,750-milking cow facility that covers approximately 100 acres. There are 4,500 total heifers on the facility at any given time and all replacement stock is raised on the facility. Bull calves are weaned then sent to a feedlot at another facility. Once bull calves reach 500 lbs., they are shipped to Kansas to be finished. There is an average of 1,100 calves in hutches.

Elberta Valley Ag operates 8293 irrigated acres and 12,117 acres of rangeland. Their main crop rotation is corn or wheat for 8 years, followed by alfalfa for 5 years. On average the harvested crop acreages are as follows:

Wheat: 1429.1 acres
Wheat (3 way winter): 761 acres
Spring Barley: 987.4 acres
Alfalfa: 2976 acres
Corn (silage): 2139.5 acres
Double Cropped Corn Silage: 248 acres

Recycled lagoon water is used to flush the free stall lanes. This practice reduces the amount of extra water added to the system for the dairy to handle.

Section 2. Crop and Pasture (Land Treatment)

2.1. Maps of Fields, Soils, Application Setbacks, Existing and Planned Crop and Pasture Conservation Practices

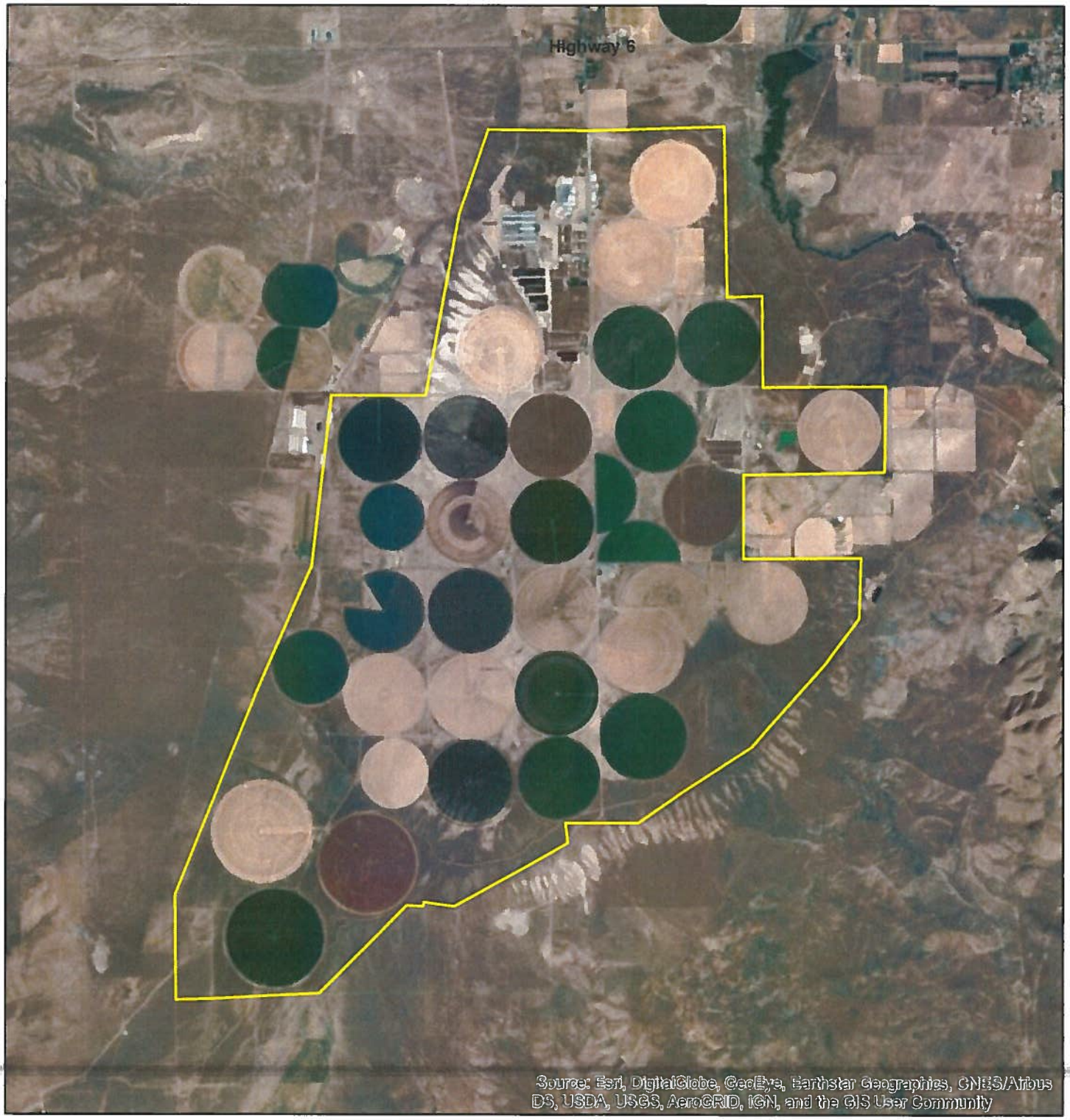
Spreadable Acres Overview Map 1

Date: 1/13/2020

Customer(s): Elberta Valley Ag

Agency: UDAF

Assisted By: HANNAH FREEZE



Prepared with assistance from USDA-Natural Resources Conservation Service

USDA

3,250 0 3,250 6,500 9,750 13,000 Feet

N

Spreadable Acres Overview Map 2

Date: 8/1/2020

Customer(s): Elberta Valley Ag

Assisted By: Hannah Freeze
Agency: UDAF

UDAF

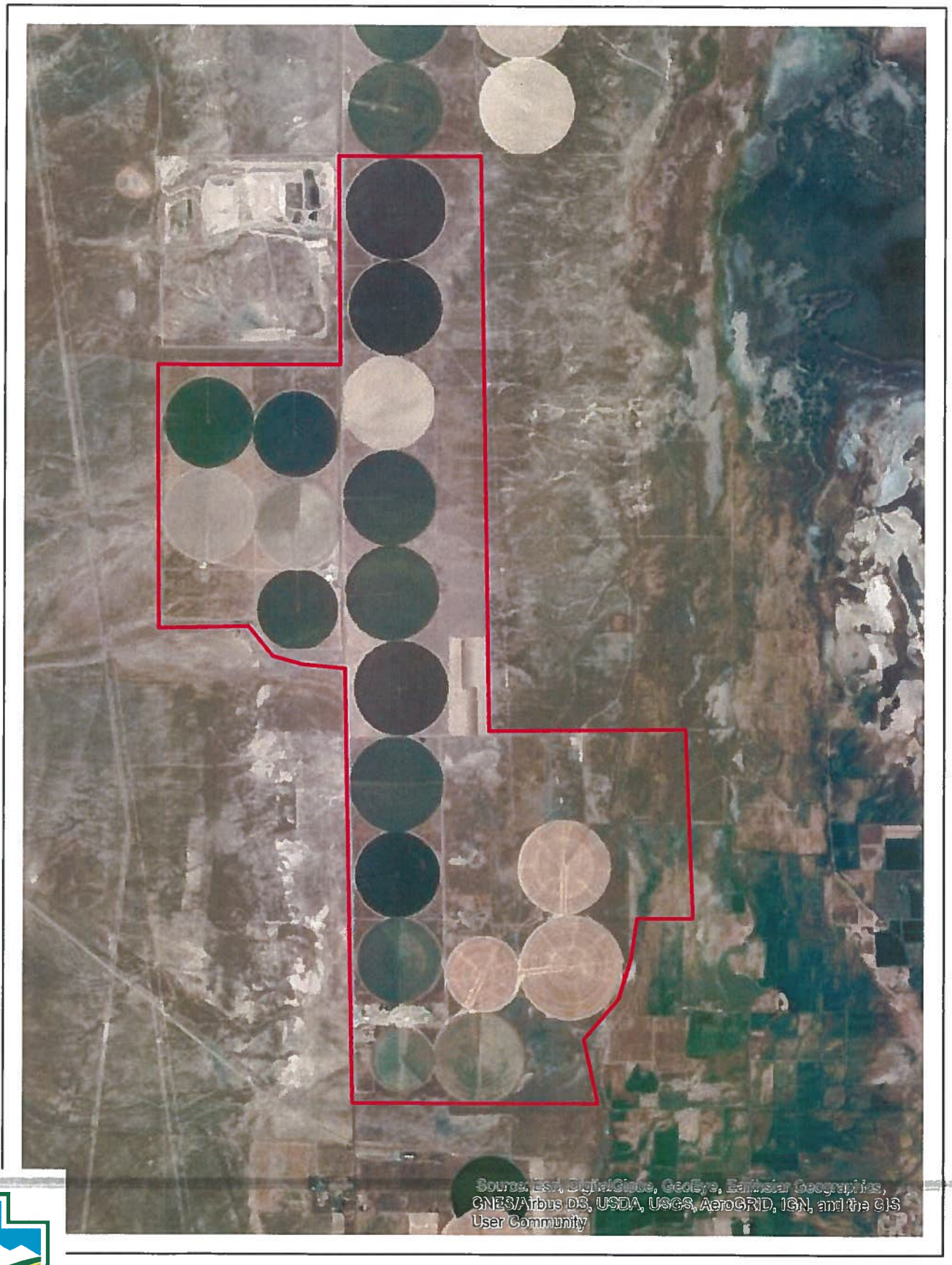
N

Spreadable Acres Overview Map 3

Date: 8/1/2020

Customer(s): Elberta Valley Ag

Assisted By: Hannah Freeze
Agency: UDAF



UDAF

N

2.2. Crop and Pasture Conservation Practices -- Record of Decisions

The slurry pivots south of the dairy receive a double application of wastewater. These fields are double cropped with a cash crop (small grain or corn) followed by a cover crop. The cover crop includes; annual rye, small grain, soybeans, sorghum, sunflowers, brassicas, turnips, and kale. The cover crop is grazed off by the feedlot beef stockers in the fall. During a corn rotation wastewater is applied in the spring before corn is planted, then again in the fall after the cover crop is grazed off. During a small grain rotation, wastewater is applied prior to the grain being planted, then again after the cover crop is planted. The cover crop in both rotation scenarios is irrigated up utilizing wastewater.

2.3. Crop and Pasture Conservation Practices – Implementation Requirements

There are 8,293 farmable acres available to Elberta Valley Ag. Of those irrigated acres, 250 acres are under wheel lines and the rest are under pivot irrigation. Liquid manure is applied to fields through pivots on 1581 acres south of Highway 6 (see Spreadable Acres Overview Map 1). Based on soil samples provided by Elberta Valley Ag, there are several fields with Phosphorus levels above 100 ppm. According to the NRCS 590 Standard, manure application should not occur on fields with soil test phosphorus levels higher than 100 ppm. Conservation measures should be implemented to avoid manure application on these fields where possible.

Phosphorus < 50 ppm	**Spread based on Nitrogen Needs**
Phosphorus 50 -100 ppm	**Spread based on Phosphorus needs**
Phosphorus > 100 ppm	**No Spreading**

2.4. Predicted Soil Erosion

Average water, wind, irrigation, gully and ephemeral erosion estimates

Field	Predominant Soil Type	T Factor (t/ac/yr)	Slope (%)	Water (t/ac/yr)	Wind (t/ac/yr)	Irrigation Erosion Controlled (y/n)	Gully Erosion Controlled (y/n)	Ephemeral Erosion Controlled (y/n)	Total (t/ac/yr)
01P04	GcA (Genola SIL)	5	0.5						Trace
01P10	GbA (Genola SIL)	5	0.5						Trace
01P11	GbA (Genola SIL)	5	0.5						Trace
01P12	GbA (Genola SIL)	5	0.5						Trace
01P14	GbA (Genola SIL)	5	0.5						Trace
01P15	GbA (Genola SIL)	5	0.5						Trace
01P16	GbA (Genola SIL)	5	0.5						Trace
01P17	GbA (Genola SIL)	5	0.5						Trace
01P18	GbA (Genola SIL)	5	0.5						Trace
01P19	GbA (Genola SIL)	5	0.5						Trace
01P02	GbA (Genola SIL)	5	0.5						Trace
01P03	GbA (Genola SIL)	5	0.5						Trace

Section 3. Nutrient Management Plan (590)

3.1. Nitrogen and Phosphorus Risk Analyses

Utah Phosphorus Index

Field	Crop Year	Winter Application Total	Non-Winter Application Total	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
01P04	2020	32.0	26.5	26.0	26.5	Low
01P04	2021	32.0	26.5	26.0	26.5	Low
01P04	2022	32.0	26.5	26.0	26.5	Low
01P04	2023	32.0	26.5	26.0	26.5	Low
01P04	2024	32.0	26.5	26.0	26.5	Low
01P10	2020	32.0	26.5	26.0	26.5	Low
01P10	2021	32.0	26.5	26.0	26.5	Low
01P10	2022	32.0	26.5	26.0	26.5	Low
01P10	2023	32.0	26.5	26.0	26.5	Low
01P10	2024	32.0	26.5	26.0	26.5	Low
01P11	2020	32.0	26.5	26.0	26.5	Low
01P11	2021	32.0	26.5	26.0	26.5	Low
01P11	2022	32.0	26.5	26.0	26.5	Low
01P11	2023	32.0	26.5	26.0	26.5	Low
01P11	2024	32.0	26.5	26.0	26.5	Low
01P12	2020	32.0	26.5	26.0	26.5	Low
01P12	2021	32.0	26.5	26.0	26.5	Low
01P12	2022	32.0	26.5	26.0	26.5	Low
01P12	2023	32.0	26.5	26.0	26.5	Low
01P12	2024	32.0	26.5	26.0	26.5	Low
01P14	2020	32.0	26.5	26.0	26.5	Low
01P14	2021	32.0	26.5	26.0	26.5	Low
01P14	2022	32.0	26.5	26.0	26.5	Low
01P14	2023	32.0	26.5	26.0	26.5	Low
01P14	2024	32.0	26.5	26.0	26.5	Low

Field	Crop Year	Winter Application Total	Non-Winter Application Total	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
01P15	2020	32.0	26.5	26.0	26.5	Low
01P15	2021	26.0	20.5	20.0	20.5	Low
01P15	2022	32.0	26.5	26.0	26.5	Low
01P15	2023	32.0	26.5	26.0	26.5	Low
01P15	2024	32.0	26.5	26.0	26.5	Low
01P16	2020	32.0	26.5	26.0	26.5	Low
01P16	2021	32.0	26.5	26.0	26.5	Low
01P16	2022	32.0	26.5	26.0	26.5	Low
01P16	2023	32.0	26.5	26.0	26.5	Low
01P16	2024	32.0	26.5	26.0	26.5	Low
01P17	2020	32.0	26.5	26.0	26.5	Low
01P17	2021	26.0	20.5	20.0	20.5	Low
01P17	2022	32.0	26.5	26.0	26.5	Low
01P17	2023	32.0	26.5	26.0	26.5	Low
01P17	2024	32.0	26.5	26.0	26.5	Low
01P18	2020	32.0	26.5	26.0	26.5	Low
01P18	2021	32.0	26.5	26.0	26.5	Low
01P18	2022	32.0	26.5	26.0	26.5	Low
01P18	2023	32.0	26.5	26.0	26.5	Low
01P18	2024	32.0	26.5	26.0	26.5	Low
01P19	2020	32.0	26.5	26.0	26.5	Low
01P19	2021	32.0	26.5	26.0	26.5	Low
01P19	2022	32.0	26.5	26.0	26.5	Low
01P19	2023	32.0	26.5	26.0	26.5	Low
01P19	2024	32.0	26.5	26.0	26.5	Low
01P02	2020	47.0	43.5	43.0	43.5	Medium
01P02	2021	47.0	43.5	43.0	43.5	Medium
01P02	2022	47.0	43.5	43.0	43.5	Medium
01P02	2023	47.0	43.5	43.0	43.5	Medium
01P02	2024	47.0	43.5	43.0	43.5	Medium

Field	Crop Year	Winter Application Total	Non-Winter Application Total	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
01P03	2020	47.0	43.5	43.0	43.5	Medium
01P03	2021	47.0	43.5	43.0	43.5	Medium
01P03	2022	47.0	43.5	43.0	43.5	Medium
01P03	2023	47.0	43.5	43.0	43.5	Medium
01P03	2024	47.0	43.5	43.0	43.5	Medium

3.2. Manure Application Setback Distances

According to USDA-NRCS standards and specifications, a 33' manure application setback should be implemented on all property boarders, especially on fields with a slope greater than 1% or fields which are directly adjacent to water (i.e. Ditches, canals, creeks, rivers, lakes).

3.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Na	Units	Soil pH	Buffer pH	CEC (meq/ 100g)	NO_3-N (ppm)	EC (mmhos/ cm)
01P04	2019	2.0		28	342	6	15	43	lbs/ac	8.0		22.0		
01P10	2019	2.0		28	737	5	12	29	lbs/ac	8.1		19.0		
01P11	2019	3.0		186	1,277	7	12	146	lbs/ac	7.7		24.0		
01P12	2019	4.0		152	1,357	8	14	190	lbs/ac	7.8		28.0		
01P14	2019	3.6		68	958	8	16	259	lbs/ac	7.6		28.0		
01P15	2019	1.7		39	780	5	12	79	lbs/ac	7.8		20.0		
01P16	2019	4.0		106	1,092	8	15	102	lbs/ac	8.0		28.0		
01P17	2019	4.4		170	1,234	8	14	154	lbs/ac	7.6		27.0		
01P18	2019	3.6		105	1,318	9	14	207	lbs/ac	7.7		29.0		
01P19	2019	3.5		118	1,086	8	15	129	lbs/ac	7.8		27.0		
01P02	2019	2.5		72	1,052	8	14	187	lbs/ac	7.9		27.0		
01P03	2019	3.0		79	1,201	8	15	172	lbs/ac	7.8		22.0		

STUKENHOLTZ LABORATORY, INC.

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2548
VALLEY AGRONOMICS
908 WEST 1000 NORTH
SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7312
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	8	H		
SALTS, mmhos/cm	1.9	M		
CHLORIDES, ppm	48	M		
SODIUM, meq/100g	0.4	VL		
CEC, meq/100g	22	H		
EXCESS LIME, %	5.8	H		
ORGANIC MATTER,%	2.09	M		
ORGANIC N, lb/Acre	40	L		
AMMONIUM-N,ppm	3.8	VL		
NITRATE-N, ppm	43	VH		
PHOSPHORUS, ppm	28	H		
Potassium, ppm	432	VH		
CALCIUM, meq/100g	14.5	VH		
MAGNESIUM, meq/100g	5.8	VH		
SULFATE-S, ppm	14	M		
ZINC, ppm	1.4	M		
IRON, ppm	4.3	M		
MANGANESE, ppm	3.6	M		
COPPER, ppm	1	M		
BORON, ppm	1.28	H		

Base Saturation, %		
Potassium (Ideal 3-6)	6.3	H
Calcium (Ideal 65-80)	65.9	M
Magnesium (Ideal 15-25)	26.4	H
Sodium (Ideal < 3)	1.8	M

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P04	
Crop	BLY FORAGE	
YIELD GOAL	18 T	
ACRES		
PREV CROP T/Acre	CORN SILAGE 1	
MANURE T/ACRE		
Prev Applied Nut		

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	85
P_2O_5 - PHOSPHATE	35
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	20
ZINC	5
IRON	0
MANGANESE	0
COPPER	0
BORON	0
Elemental Sulfur	0
Gypsum	0
Lime	0

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Excessively Calcareous soils respond to 100-200 lbs/ac of Elemental Sulfur or Ac
Crop/Yld 1 Examples of acid forming fertilizers are: 21-0-0/Thio-Sul/Nitro-Sul and Disinteg

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SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7318
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	8.1	H		
SALTS, mmhos/cm	2	M		
CHLORIDES, ppm	74	M		
SODIUM, meq/100g	0.5	L		
CEC, meq/100g	19	H		
EXCESS LIME, %	7	H		
ORGANIC MATTER,%	2.12	M		
ORGANIC N, lb/Acre	40	L		
AMMONIUM-N,ppm	5.9	L		
NITRATE-N, ppm	29	M		
PHOSPHORUS, ppm	28	H		
Potassium, ppm	737	VH		
CALCIUM, meq/100g	12.1	H		
MAGNESIUM, meq/100g	4.5	VH		
SULFATE-S, ppm	25	M		
ZINC, ppm	1.6	M		
IRON, ppm	4.9	M		
MANGANESE, ppm	10.6	VH		
COPPER, ppm	0.8	M		
BORON, ppm	1.57	H		

Base Saturation, %		
Potassium (Ideal 3-6)	12.4	H
Calcium (Ideal 65-80)	63.7	L
Magnesium (Ideal 15-25)	23.7	M
Sodium (Ideal < 3)	2.6	M

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P10	
Crop	THREE WAY	
YIELD GOAL	18 T	
ACRES		
PREV CROP T/Acre	HARD RED WHT 1	
MANURE T/ACRE		
Prev Applied Nut	105-0-0	
RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre		
NITROGEN	0	
P_2O_5 - PHOSPHATE	45	
K_2O - POTASH	0	
CALCIUM	0	
MAGNESIUM	0	
SULFATE - SULFUR	10	
ZINC	5	
IRON	0	
MANGANESE	0	
COPPER	0	
BORON	0	
Elemental Sulfur	0	
Gypsum	0	
Lime	0	

Relation of CEC to Soil Texture	
0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Excessively Calcareous soils respond to 100-200 lbs/ac of Elemental Sulfur or Ac
Crop/Yld 1 Examples of acid forming fertilizers are: 21-0-0/Thio-Sul/Nitro-Sul and Disinteg

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SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7319
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	7.7	H		
SALTS, mmhos/cm	4.4	VH		
CHLORIDES, ppm	189	VH		
SODIUM, meq/100g	0.8	L		
CEC, meq/100g	24	H		
EXCESS LIME, %	8.5	H		
ORGANIC MATTER,%	3.19	H		
ORGANIC N, lb/Acre	60	M		
AMMONIUM-N,ppm	6.5	L		
NITRATE-N, ppm	146	VH		
PHOSPHORUS, ppm	186	VH		
Potassium, ppm	1277	VH		
CALCIUM, meq/100g	12.3	VH		
MAGNESIUM, meq/100g	6.8	VH		
SULFATE-S, ppm	42	VH		
ZINC, ppm	6.1	VH		
IRON, ppm	6.1	M		
MANGANESE, ppm	6.4	H		
COPPER, ppm	1.4	M		
BORON, ppm	2.43	H		

Base Saturation, %		
Potassium (Ideal 3-6)	17.1	H
Calcium (Ideal 65-80)	51.3	L
Magnesium (Ideal 15-25)	28.3	H
Sodium (Ideal < 3)	3.3	H

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P11	
Crop	BLY FORAGE	
YIELD GOAL	18 T	
ACRES		
PREV CROP T/Acre	EARLAGE	
MANURE T/ACRE		
Prev Applied Nut		

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	0
P_2O_5 - PHOSPHATE	0
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	0
ZINC	0
IRON	0
MANGANESE	0
COPPER	0
BORON	0
Elemental Sulfur	100
Gypsum	500
Lime	0

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Establish good drainage and deep irrigate to remove excess soluble salts.
Crop/Yld 1 Soluble Salts may reduce germination.
Crop/Yld 1 Excessively Calcareous soils respond to 100-200 lbs/ac of Elemental Sulfur or Ac
Crop/Yld 1 Sodium is too high. Elemental Sulfur or Gypsum will reduce the harmful effects.
Crop/Yld 1 Examples of acid forming fertilizers are: 21-0-0/Thio-Sul/Nitro-Sul and Disinteg
Crop/Yld 1 Adjust N-P-K according to the amount and quality of compost applied. 1st year c

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2548
VALLEY AGRONOMICS
908 WEST 1000 NORTH
SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7320
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	7.8	H		
SALTS, mmhos/cm	6	VH		
CHLORIDES, ppm	252	VH		
SODIUM, meq/100g	1.5	M		
CEC, meq/100g	28	H		
EXCESS LIME, %	4.9	H		
ORGANIC MATTER,%	4.01	VH		
ORGANIC N, lb/Acre	120	H		
AMMONIUM-N,ppm	6.4	L		
NITRATE-N, ppm	190	VH		
PHOSPHORUS, ppm	152	VH		
Potassium, ppm	1357	VH		
CALCIUM, meq/100g	14.2	VH		
MAGNESIUM, meq/100g	7.8	VH		
SULFATE-S, ppm	41	VH		
ZINC, ppm	6.8	VH		
IRON, ppm	5.2	M		
MANGANESE, ppm	6.9	H		
COPPER, ppm	1.4	M		
BORON, ppm	2.48	H		

× 3.2 = #/acre foot

Base Saturation, %		
Potassium (Ideal 3-6)	15.5	H
Calcium (Ideal 65-80)	50.7	L
Magnesium (Ideal 15-25)	27.9	H
Sodium (Ideal < 3)	5.4	H

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P12	
Crop	CORN SILAGE	
YIELD GOAL	35 T	
ACRES		
PREV CROP T/Acre	THREE WAY	
MANURE T/ACRE	SLURRY	
Prev Applied Nut		

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	0
P_2O_5 - PHOSPHATE	0
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	0
ZINC	0
IRON	0
MANGANESE	0
COPPER	0
BORON	0
Elemental Sulfur	300
Gypsum	1500
Lime	0

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Adjust N-P-K according to amount and quality of manure. 1st year manure may rele
Crop/Yld 1 Establish good drainage and deep irrigate to remove excess soluble salts.
Crop/Yld 1 Soluble salts are too high. Yields may be significantly reduced.
Crop/Yld 1 Sodium is too high. Elemental Sulfur or Gypsum will reduce the harmful effects.

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SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7322
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	7.6	H		
SALTS, mmhos/cm	6.6	VH		
CHLORIDES, ppm	227	VH		
SODIUM, meq/100g	1.2	M		
CEC, meq/100g	28	H		
EXCESS LIME, %	3.1	M		
ORGANIC MATTER,%	3.59	H		
ORGANIC N, lb/Acre	120	H		
AMMONIUM-N,ppm	5.3	L		
NITRATE-N, ppm	259	VH		
PHOSPHORUS, ppm	68	VH		
Potassium, ppm	958	VH		
CALCIUM, meq/100g	15.8	VH		
MAGNESIUM, meq/100g	8.1	VH		
SULFATE-S, ppm	42	VH		
ZINC, ppm	3.6	H		
IRON, ppm	14.1	H		
MANGANESE, ppm	7.1	H		
COPPER, ppm	1	M		
BORON, ppm	2.12	H		

Base Saturation, %		
Potassium (Ideal 3-6)	11	H
Calcium (Ideal 65-80)	56.4	L
Magnesium (Ideal 15-25)	28.9	H
Sodium (Ideal < 3)	4.3	H

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P14	
Crop	CORN SILAGE	
YIELD GOAL	35 T	
ACRES		
PREV CROP T/Acre	THREE WAY	
MANURE T/ACRE	LAGOON	
Prev Applied Nut		
RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre		
NITROGEN	0	
P_2O_5 - PHOSPHATE	0	
K_2O - POTASH	0	
CALCIUM	0	
MAGNESIUM	0	
SULFATE - SULFUR	0	
ZINC	0	
IRON	0	
MANGANESE	0	
COPPER	0	
BORON	0	
Elemental Sulfur	2000	
Gypsum	1000	
Lime	0	

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Adjust N-P-K according to amount and quality of manure. 1st year manure may rele
Crop/Yld 1 Establish good drainage and deep irrigate to remove excess soluble salts.
Crop/Yld 1 Soluble salts are too high. Yields may be significantly reduced.
Crop/Yld 1 Sodium is too high. Elemental Sulfur or Gypsum will reduce the harmful effects.

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908 WEST 1000 NORTH
SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7323
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	7.8	H		
SALTS, mmhos/cm	3.3	VH		
CHLORIDES, ppm	54	M		
SODIUM, meq/100g	0.5	L		
CEC, meq/100g	20	H		
EXCESS LIME, %	2.5	M		
ORGANIC MATTER,%	1.75	M		
ORGANIC N, lb/Acre	35	L		
AMMONIUM-N,ppm	2.7	VL		
NITRATE-N, ppm	79	VH		
PHOSPHORUS, ppm	39	H		
Potassium, ppm	780	VH		
CALCIUM, meq/100g	12.4	VH		
MAGNESIUM, meq/100g	5.1	VH		
SULFATE-S, ppm	52	VH		
ZINC, ppm	2.2	H		
IRON, ppm	4.8	M		
MANGANESE, ppm	4	M		
COPPER, ppm	0.9	M		
BORON, ppm	1.25	H		

Base Saturation, %		
Potassium (Ideal 3-6)	12.5	H
Calcium (Ideal 65-80)	62	L
Magnesium (Ideal 15-25)	25.5	H
Sodium (Ideal < 3)	2.5	M

Crop/Yld 1 Also add about 40 N in the water at late boot stage of growth.

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P15	
Crop	HARD RED WHT	
YIELD GOAL	125 BU	
ACRES		
PREV CROP T/Acre	CORN SILAGE 1	
MANURE T/ACRE		
Prev Applied Nut	35-0-0	
RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre		
NITROGEN	0	
P_2O_5 - PHOSPHATE	0	
K_2O - POTASH	0	
CALCIUM	0	
MAGNESIUM	0	
SULFATE - SULFUR	0	
ZINC	0	
IRON	0	
MANGANESE	0	
COPPER	0	
BORON	0	
Elemental Sulfur	200	
Gypsum	1000	
Lime	0	

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

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Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7324
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	8	H		
SALTS, mmhos/cm	4.3	VH		
CHLORIDES, ppm	218	VH		
SODIUM, meq/100g	1	L		
CEC, meq/100g	28	H		
EXCESS LIME, %	4.9	H		
ORGANIC MATTER,%	3.9	H		
ORGANIC N, lb/Acre	120	H		
AMMONIUM-N,ppm	5.4	L		
NITRATE-N, ppm	102	VH		
PHOSPHORUS, ppm	106	VH		
Potassium, ppm	1092	VH		
CALCIUM, meq/100g	15.1	VH		
MAGNESIUM, meq/100g	8	VH		
SULFATE-S, ppm	28	H		
ZINC, ppm	5.6	VH		
IRON, ppm	9.7	M		
MANGANESE, ppm	9	H		
COPPER, ppm	2.1	H		
BORON, ppm	2.15	H		

Base Saturation, %		
Potassium (Ideal 3-6)	12.5	H
Calcium (Ideal 65-80)	53.9	L
Magnesium (Ideal 15-25)	28.6	H
Sodium (Ideal < 3)	3.6	H

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P16	
Crop	CORN SILAGE	
YIELD GOAL	35 T	
ACRES		
PREV CROP T/Acre	HARD RED WHT 3	
MANURE T/ACRE	SLURRY	
Prev Applied Nut		

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	0
P_2O_5 - PHOSPHATE	0
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	15
ZINC	0
IRON	0
MANGANESE	0
COPPER	0
BORON	0
Elemental Sulfur	200
Gypsum	1000
Lime	0

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Adjust N-P-K according to amount and quality of manure. 1st year manure may rele
Crop/Yld 1 Establish good drainage and deep irrigate to remove excess soluble salts.
Crop/Yld 1 Soluble salts may reduce yield and quality.
Crop/Yld 1 Sodium is too high. Elemental Sulfur or Gypsum will reduce the harmful effects.

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SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7325
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	7.6	H		
SALTS, mmhos/cm	5.2	VH		
CHLORIDES, ppm	155	VH		
SODIUM, meq/100g	1.1	M		
CEC, meq/100g	27	H		
EXCESS LIME, %	3.7	M		
ORGANIC MATTER,%	4.42	VH		
ORGANIC N, lb/Acre	60	M		
AMMONIUM-N,ppm	12.8	M		
NITRATE-N, ppm	154	VH		
PHOSPHORUS, ppm	170	VH		
Potassium, ppm	1234	VH		
CALCIUM, meq/100g	14.3	VH		
MAGNESIUM, meq/100g	7.9	VH		
SULFATE-S, ppm	53	VH		
ZINC, ppm	6.9	VH		
IRON, ppm	6.8	M		
MANGANESE, ppm	8.8	H		
COPPER, ppm	1.4	M		
BORON, ppm	2.43	H		

Base Saturation, %		
Potassium (Ideal 3-6)	14.6	H
Calcium (Ideal 65-80)	53	L
Magnesium (Ideal 15-25)	29.3	H
Sodium (Ideal < 3)	4.1	H

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P17	
Crop	HARD RED WHT	
YIELD GOAL	130 BU	
ACRES		
PREV CROP T/Acre	CORN SILAGE 1	
MANURE T/ACRE		
Prev Applied Nut		
RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre		
NITROGEN	0	
P_2O_5 - PHOSPHATE	0	
K_2O - POTASH	0	
CALCIUM	0	
MAGNESIUM	0	
SULFATE - SULFUR	0	
ZINC	0	
IRON	0	
MANGANESE	0	
COPPER	0	
BORON	0	
Elemental Sulfur	200	
Gypsum	1000	
Lime	0	

Relation of CEC to Soil Texture	
0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Also add about 40 N in the water at late boot stage of growth.
Crop/Yld 1 Establish good drainage and deep irrigate to remove excess soluble salts.
Crop/Yld 1 Soluble salts may reduce yield and quality.
Crop/Yld 1 Sodium is too high. Elemental Sulfur or Gypsum will reduce the harmful effects.

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908 WEST 1000 NORTH
SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7326
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	7.7	H		
SALTS, mmhos/cm	6.6	VH		
CHLORIDES, ppm	213	VH		
SODIUM, meq/100g	1.7	M		
CEC, meq/100g	29	H		
EXCESS LIME, %	3	M		
ORGANIC MATTER,%	3.61	H		
ORGANIC N, lb/Acre	120	H		
AMMONIUM-N,ppm	11.4	M		
NITRATE-N, ppm	207	VH		
PHOSPHORUS, ppm	105	VH		
Potassium, ppm	1318	VH		
CALCIUM, meq/100g	14.4	VH		
MAGNESIUM, meq/100g	8.9	VH		
SULFATE-S, ppm	50	VH		
ZINC, ppm	3.6	H		
IRON, ppm	6.6	M		
MANGANESE, ppm	12.2	VH		
COPPER, ppm	1.2	M		
BORON, ppm	2.49	H		

Base Saturation, %		
Potassium (Ideal 3-6)	14.6	H
Calcium (Ideal 65-80)	49.7	L
Magnesium (Ideal 15-25)	30.7	H
Sodium (Ideal < 3)	5.9	H

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P18	
Crop	CORN SILAGE	
YIELD GOAL	35 T	
ACRES		
PREV CROP T/Acre	THREE WAY	
MANURE T/ACRE	SLURRY	
Prev Applied Nut		

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	0
P_2O_5 - PHOSPHATE	0
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	0
ZINC	0
IRON	0
MANGANESE	0
COPPER	0
BORON	0
Elemental Sulfur	300
Gypsum	1500
Lime	0

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Adjust N-P-K according to amount and quality of manure. 1st year manure may rele
Crop/Yld 1 Establish good drainage and deep irrigate to remove excess soluble salts.
Crop/Yld 1 Soluble salts are too high. Yields may be significantly reduced.
Crop/Yld 1 Sodium is too high. Elemental Sulfur or Gypsum will reduce the harmful effects.

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SPANISH FORK, UT 84660

Tel: 801-798-8248 Fax: 801-798-8251
Report No: 7327
Date Received: 1/13/2019
Date Reported: 1/14/2019

Soil Test Data	Sample 1		Sample 2	Sample 3
pH	7.8	H		
SALTS, mmhos/cm	4.5	VH		
CHLORIDES, ppm	113	H		
SODIUM, meq/100g	0.9	L		
CEC, meq/100g	27	H		
EXCESS LIME, %	6.3	H		
ORGANIC MATTER,%	3.49	H		
ORGANIC N, lb/Acre	60	M		
AMMONIUM-N,ppm	6.2	L		
NITRATE-N, ppm	129	VH		
PHOSPHORUS, ppm	118	VH		
Potassium, ppm	1086	VH		
CALCIUM, meq/100g	15	VH		
MAGNESIUM, meq/100g	7.8	VH		
SULFATE-S, ppm	48	VH		
ZINC, ppm	4.5	VH		
IRON, ppm	5.1	M		
MANGANESE, ppm	5.4	H		
COPPER, ppm	1	M		
BORON, ppm	2.11	H		

Base Saturation, %		
Potassium (Ideal 3-6)	12.9	H
Calcium (Ideal 65-80)	55.6	L
Magnesium (Ideal 15-25)	28.9	H
Sodium (Ideal < 3)	3.3	H

	Sample 1	Sample 2
Grower	ELBERTA VALLEY AG	
Sample Identity	01P19	
Crop	BLY FORAGE	
YIELD GOAL	18 T	
ACRES		
PREV CROP T/Acre	CORN SILAGE 1	
MANURE T/ACRE	SLURRY	
Prev Applied Nut		

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	0
P_2O_5 - PHOSPHATE	0
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	0
ZINC	0
IRON	0
MANGANESE	0
COPPER	0
BORON	0
Elemental Sulfur	50
Gypsum	0
Lime	0

Relation of CEC to Soil Texture

0-5 Sand	18-24 Silt Loam
5-12 Loamy Sand	24-36 Clay Loam
12-18 Sandy Loam	36+ Clay Loam

Crop/Yld 1 Adjust N-P-K according to amount and quality of manure. 1st year manure may rele
Crop/Yld 1 Establish good drainage and deep irrigate to remove excess soluble salts.
Crop/Yld 1 Soluble Salts may reduce germination.
Crop/Yld 1 Excessively Calcareous soils respond to 100-200 lbs/ac of Elemental Sulfur or Ac
Crop/Yld 1 Sodium is too high. Elemental Sulfur or Gypsum will reduce the harmful effects.
Crop/Yld 1 Examples of acid forming fertilizers are: 21-0-0/Thio-Sul/Nitro-Sul and Disinteg

3.4. Manure Nutrient Analyses

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
Compost 1		5.3	1.1	2.7	6.8	2.2	5.8	lbs/ton	MMP Estimate
1		31.4	6.3	16.7	32.3	13.4	27.5	lbs/1000 gal	MMP Estimate
2		24.4	4.9	11.1	28.3	8.9	24.1	lbs/1000 gal	MMP Estimate
3								lbs/1000 gal	MMP Estimate
4								lbs/1000 gal	MMP Estimate
5								lbs/1000 gal	MMP Estimate
Fresh Pond		31.4	6.3	16.7	32.3	13.4	27.5	lbs/1000 gal	MMP Estimate
Compost 2		7.9	2.7	4.5	7.9	3.6	6.7	lbs/ton	MMP Estimate
Settling Pond 1								lbs/1000 gal	MMP Estimate
Settling Pond 2								lbs/1000 gal	MMP Estimate
Compost 3								lbs/ton	MMP Estimate

a. Entered analysis may be the average of several individual analyses.

b. Utah assumes that 80% of manure phosphorus and 85% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Utah, see Manure Estimated Nutrient Content spreadsheet, version 3.0e2.

3.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per ac)	N Rec (lbs/ac)	P_2O_5 Rec (lbs/ac)	K_2O Rec (lbs/ac)	N Removed (lbs/ac)	P_2O_5 Removed (lbs/ac)	K_2O Removed (lbs/ac)	Custom Fert. Rec. Source
01P04	2020	Corn silage	18.0 tons	135	50	0	162	56	162	
01P10	2020	Corn silage	18.0 tons	135	50	0	162	56	162	
01P11	2020	Corn silage	18.0 tons	135	0	0	162	56	162	
01P12	2020	Corn silage	18.0 tons	135	0	0	162	56	162	
01P14	2020	Corn silage	35.0 tons	230	0	0	315	109	315	
01P15	2020	Wheat	125.0 bu	150	0	0	213	88	250	
01P16	2020	Corn silage	35.0 tons	230	0	0	315	109	315	
01P17	2020	Wheat	130.0 bu	160	0	0	221	91	260	
01P18	2020	Corn silage	35.0 tons	230	0	0	315	109	315	
01P19	2020	Corn silage	18.0 tons	135	0	0	162	56	162	

a. Unharvested cover crop or first crop in double-crop system.
b. Custom fertilizer recommendation.

3.6. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Balance After Removal[d]	
		ac		per ac	P_2O_5 lbs/ac	K_2O lbs/ac
2020	01P04	125.0	Corn silage	35	-56	-162
2021	01P04	125.0	Wheat & CC	18		
2022	01P04	125.0	Corn silage	35		
2023	01P04	125.0	Wheat & CC	18		
2024	01P04	125.0	Corn Silage	35		
Total	**01P04**					
2020	01P10	124.6	Corn silage	35	-56	-162
2021	01P10	124.6	Wheat & CC	18		
2022	01P10	124.6	Corn silage	35		
2023	01P10	124.6	Wheat & CC	18		
2024	01P10	124.6	Corn Silage	35		
Total	**01P10**					
2020	01P11	123.8	Wheat & CC	18	-56	-162
2021	01P11	123.8	Corn	35		
2022	01P11	123.8	Wheat & CC	18		
2023	01P11	123.8	Corn	35		
2024	01P11	123.8	Wheat & CC	18		
Total	**01P11**					
2020	01P12	124.7	Wheat & Cc	18	-56	-162
2021	01P12	124.7	Corn	35		
2022	01P12	124.7	Wheat & CC	18		
2023	01P12	124.7	Corn	35		
2024	01P12	124.7	Wheat & CC	18		
Total	**01P12**					
2020	01P14	125.0	Corn silage	35	-109	-315
2021	01P14	125.0	Wheat & CC	18		
2022	01P14	125.0	Corn Silage	35		
2023	01P14	125.0	Wheat & CC	18		

Year	Field	Size	Crop	Yield Goal	Balance After Removal[d]	
		ac		per ac	P_2O_5 lbs/ac	K_2O lbs/ac
2024	01P14	125.0	Corn	35		
Total	**01P14**					
2020	01P15	120.8	Corn Silage & cc	35	-88	-250
2021	01P15	120.8	Wheat	18		
2022	01P15	120.8	Corn Silage & cc	35		
2023	01P15	120.8	Wheat	18		
2024	01P15	120.8	Corn Silage &cc	35		
Total	**01P15**					
2020	01P16	125.2	Wheat & cc	18	-109	-315
2021	01P16	125.2	Corn	35		
2022	01P16	125.2	Wheat & cc	18		
2023	01P16	125.2	Corn	35		
2024	01P16	125.2	Wheat & cc	18		
Total	**01P16**					
2020	01P17	125.4	Corn	35	-91	-260
2021	01P17	125.4	Wheat & cc	18		
2022	01P17	125.4	Corn	35		
2023	01P17	125.4	Wheat & cc	18		
2024	01P17	125.4	Corn	35		
Total	**01P17**					
2020	01P18	123.0	Corn silage	35	-109	-315
2021	01P18	123.0	Wheat & cc	18		
2022	01P18	123.0	Corn silage	35		
2023	01P18	123.0	Wheat & cc	18		
2024	01P18	123.0	Corn silage	35		
Total	**01P18**					
2020	01P19	123.0	Wheat & cc	18	-56	-162
2021	01P19	123.0	Corn	35		
2022	01P19	123.0	Wheat & cc	18		

Year	Field	Size	Crop	Yield Goal	Balance After Removal[d]	
		ac		per ac	P_2O_5 lbs/ac	K_2O lbs/ac
2023	01P19	123.0	Corn	35		
2024	01P19	123.0	Wheat & cc	18		
Total	**01P19**					
2020	01P02	171.0	Wheat	125 bu/ac.		
2021	01P02	171.0	Corn	35		
2022	01P02	171.0	Wheat	125 bu/ac.		
2023	01P02	171.0	Corn	35		
2024	01P02	171.0	Wheat	125 bu/ac.		
Total	**01P02**					
2020	01P03	171.4	Wheat silage	18		
2021	01P03	171.4	Corn	35		
2022	01P03	171.4	Wheat Silage	18		
2023	01P03	171.4	Corn	35		
2024	01P03	171.4	Wheat Silage	18		
Total	**01P03**					

[a] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[b] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[c] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P_2O_5 and K_2O, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

[d] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

[e] Custom fertilizer recommendation.

[f] Legume crop is assumed to utilize some or all of the supplied N.

[g] Includes residual N expected to become available that year from prior years' manure applications.

3.7. Manure Inventory Annual Summary (Optional)

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Compost 1	Jan '20 - Dec '20	0	27,078	0	23,788	0	0	41,840	9,026	tons
1	Jan '20 - Dec '20	0	6,239,000	0	0	0	0	0	6,239,000	gal
2	Jan '20 - Dec '20	0	6,244,000	0	0	0	0	0	6,244,000	gal
3	Jan '20 - Dec '20	0	1,896,000	0	0	0	0	0	1,896,000	gal
4	Jan '20 - Dec '20	0	0	0	0	0	0	0	0	gal
5	Jan '20 - Dec '20	0	0	0	0	0	0	0	0	gal
Fresh Pond	Jan '20 - Dec '20	0	2,052,000	0	0	0	0	0	2,052,000	gal
Compost 2	Jan '20 - Dec '20	0	35,682	0	0	0	0	23,788	11,894	tons
Settling Pond 1	Jan '20 - Dec '20	0	0	0	0	0	0	0	0	gal
Settling Pond 2	Jan '20 - Dec '20	0	0	0	0	0	0	0	0	gal
Compost 3	Jan '20 - Dec '20	0	0	0	41,840	0	0	0	41,840	tons
All Sources (liquid)	**Jan '20 - Dec '20**	**0**	**16,431,000**	**0**	**0**	**0**	**0**	**0**	**16,431,000**	**gal**
All Sources (solid)	**Jan '20 - Dec '20**	**0**	**62,760**	**0**	**65,628**	**0**	**0**	**65,628**	**62,760**	**tons**
Compost 1	Jan '21 - Dec '21	9,026	27,078	0	50,549	0	41,523	40,617	4,513	tons
1	Jan '21 - Dec '21	6,239,000	6,239,000	0	0	0	0	0	12,478,000	gal
2	Jan '21 - Dec '21	6,244,000	6,244,000	0	0	0	0	0	12,488,000	gal
3	Jan '21 - Dec '21	1,896,000	1,896,000	0	0	0	0	0	3,792,000	gal
4	Jan '21 - Dec '21	0	0	0	0	0	0	0	0	gal
5	Jan '21 - Dec '21	0	0	0	0	0	0	0	0	gal
Fresh Pond	Jan '21 - Dec '21	2,052,000	2,052,000	0	0	0	0	0	4,104,000	gal
Compost 2	Jan '21 - Dec '21	11,894	35,682	0	0	0	0	50,549	-2,973	tons
Settling Pond 1	Jan '21 - Dec '21	0	0	0	0	0	0	0	0	gal
Settling Pond 2	Jan '21 - Dec '21	0	0	0	0	0	0	0	0	gal
Compost 3	Jan '21 - Dec '21	41,840	0	0	40,617	0	82,457	0	0	tons
All Sources (liquid)	**Jan '21 - Dec '21**	**16,431,000**	**16,431,000**	**0**	**0**	**0**	**0**	**0**	**32,862,000**	**gal**
All Sources (solid)	**Jan '21 - Dec '21**	**62,760**	**62,760**	**0**	**91,166**	**0**	**123,980**	**91,166**	**1,540**	**tons**
Compost 1	Jan '22 - Dec '22	4,513	27,078	0	47,576	0	0	40,617	38,550	tons
1	Jan '22 - Dec '22	12,478,000	6,239,000	0	0	0	0	0	18,717,000	gal
2	Jan '22 - Dec '22	12,488,000	6,244,000	0	0	0	0	0	18,732,000	gal
3	Jan '22 - Dec '22	3,792,000	1,896,000	0	0	0	0	0	5,688,000	gal
4	Jan '22 - Dec '22	0	0	0	0	0	0	0	0	gal
5	Jan '22 - Dec '22	0	0	0	0	0	0	0	0	gal
Fresh Pond	Jan '22 - Dec '22	4,104,000	2,052,000	0	0	0	0	0	6,156,000	gal
Compost 2	Jan '22 - Dec '22	-2,973	35,682	0	0	0	0	47,576	-14,867	tons
Settling Pond 1	Jan '22 - Dec '22	0	0	0	0	0	0	0	0	gal
Settling Pond 2	Jan '22 - Dec '22	0	0	0	0	0	0	0	0	gal

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Compost 3	Jan '22 - Dec '22	0	0	0	40,617	0	0	0	40,617	tons
All Sources (liquid)	**Jan '22 - Dec '22**	**32,862,000**	**16,431,000**	**0**	**0**	**0**	**0**	**0**	**49,293,000**	**gal**
All Sources (solid)	**Jan '22 - Dec '22**	**1,540**	**62,760**	**0**	**88,193**	**0**	**0**	**88,193**	**64,300**	**tons**
Compost 1	Jan '23 - Dec '23	38,550	27,078	0	23,788	0	41,523	0	47,893	tons
1	Jan '23 - Dec '23	18,717,000	6,239,000	0	0	0	0	0	24,956,000	gal
2	Jan '23 - Dec '23	18,732,000	6,244,000	0	0	0	0	0	24,976,000	gal
3	Jan '23 - Dec '23	5,688,000	1,896,000	0	0	0	0	0	7,584,000	gal
4	Jan '23 - Dec '23	0	0	0	0	0	0	0	0	gal
5	Jan '23 - Dec '23	0	0	0	0	0	0	0	0	gal
Fresh Pond	Jan '23 - Dec '23	6,156,000	2,052,000	0	0	0	0	0	8,208,000	gal
Compost 2	Jan '23 - Dec '23	-14,867	35,682	0	0	0	0	23,788	-2,973	tons
Settling Pond 1	Jan '23 - Dec '23	0	0	0	0	0	0	0	0	gal
Settling Pond 2	Jan '23 - Dec '23	0	0	0	0	0	0	0	0	gal
Compost 3	Jan '23 - Dec '23	40,617	0	0	0	0	82,457	0	-41,840	tons
All Sources (liquid)	**Jan '23 - Dec '23**	**49,293,000**	**16,431,000**	**0**	**0**	**0**	**0**	**0**	**65,724,000**	**gal**
All Sources (solid)	**Jan '23 - Dec '23**	**64,300**	**62,760**	**0**	**23,788**	**0**	**123,980**	**23,788**	**3,080**	**tons**
Compost 1	Jan '24 - Dec '24	47,893	27,078	0	47,576	0	41,523	40,617	40,407	tons
1	Jan '24 - Dec '24	24,956,000	6,239,000	0	0	0	0	0	31,195,000	gal
2	Jan '24 - Dec '24	24,976,000	6,244,000	0	0	0	0	99,657	31,120,344	gal
3	Jan '24 - Dec '24	7,584,000	1,896,000	0	69,657	0	0	0	9,549,657	gal
4	Jan '24 - Dec '24	0	0	0	0	0	0	0	0	gal
5	Jan '24 - Dec '24	0	0	0	30,000	0	0	0	30,000	gal
Fresh Pond	Jan '24 - Dec '24	8,208,000	2,052,000	0	0	0	0	0	10,260,000	gal
Compost 2	Jan '24 - Dec '24	-2,973	35,682	0	0	0	0	47,576	-14,867	tons
Settling Pond 1	Jan '24 - Dec '24	0	0	0	0	0	0	0	0	gal
Settling Pond 2	Jan '24 - Dec '24	0	0	0	0	0	0	0	0	gal
Compost 3	Jan '24 - Dec '24	-41,840	0	0	40,617	0	82,457	0	-83,680	tons
All Sources (liquid)	**Jan '24 - Dec '24**	**65,724,000**	**16,431,000**	**0**	**99,657**	**0**	**0**	**99,657**	**82,155,000**	**gal**
All Sources (solid)	**Jan '24 - Dec '24**	**3,080**	**62,760**	**0**	**88,193**	**0**	**123,980**	**88,193**	**-58,140**	**tons**

3.8. Plan Nutrient Balance (Manure-spreadable Area)

	N (lbs)	P_2O_5 (lbs)	K_2O (lbs)
Total Manure Nutrients on Hand at Start of Plan[a]	0	0	0
Total Manure Nutrients Collected[b]	4,662,960	2,570,620	4,962,830
Total Manure Nutrients Imported[c]	0	0	0
Total Manure Nutrients Exported[d]	809,698	473,362	921,811
Total Manure Nutrients Gained/Lost in Transfer[e]	-2,551,569	-1,551,764	-2,478,271
Total Manure Nutrients on Hand at End of Plan[f]	2,729,858	1,435,686	2,809,130
Total Manure Nutrients Applied[g]	0	0	0
Available Manure Nutrients Applied (Utilized by plan's crops)[h]	0	0	0
Available Manure Nutrients Applied (Not utilized by plan's crops)[i]	0	0	0
Commercial Fertilizer Nutrients Applied (Utilized by plan's crops)[j]	0	0	0
Commercial Fertilizer Nutrients Applied (Not utilized by plan's crops)[k]	0	0	0
Available Nutrients Applied (Manure and fertilizer; utilized by plan's crops)[l]	0	0	0
Nutrient Utilization Potential[m]	207,868	97,502	280,980
Nutrient Balance of Spreadable Acres[n p]	-207,868	-97,502	-280,980
Average Nutrient Balance per Spreadable Acre per Year[o p]	-26	-12	-36

a. Total manure nutrients present in storage at the beginning of the plan.
b. Total manure nutrients collected on the farm.
c. Total manure nutrients imported onto the farm.
d. Total manure nutrients exported from the farm to an external operation.
e. Net change in total manure nutrients due to transfers between storage units with differing analyses.
f. Total manure nutrients present in storage at the end of plan.
g. Total nutrients present in land-applied manure. These values do not account for losses due to rate, timing, and method of application.
h. Manure nutrients applied and available to crops in the plan. These values are based on the total manure nutrients applied after accounting for nutrient losses due to rate, timing, and method of application. Nutrients which will not be utilized by crops in the plan are excluded from these values.
i. Manure nutrients applied that will be utilized by crops outside the plan. This usually results from Fall nutrient applications at the end of the plan intended for crops in subsequent years.
j. Nutrients applied as commercial fertilizers and nitrates contained in irrigation water. Nutrients that will not be utilized by crops in the plan are excluded from these values.
k. Nutrients applied as commercial fertilizer which will be utilized by crops outside the plan.
l. Sum of available manure nutrients applied and commercial fertilizer nutrients applied.
m. Nutrient utilization potential of crops grown. For N the value is based on the N recommendation for non-legume crops and N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values are based on fertilizer recommendations or crop removal (whichever is greater).
n. Available nutrients applied minus crop nutrient utilization potential. Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
o. Average per acre-year nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres by the number of spreadable acres in the plan and by the length of the plan in years. Negative values indicate additional nutrient utilization potential and positive values indicate over-application.

p. Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was developed improperly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates or fertilizer recommendations.