Livingston Dairy Consulting, Inc.

1635 E. Propserity Ave., Ste B, Tulare
559-687-1440

FM Ranch #1 WDID 5C54NC00233
16777 South I Drive Tulare, CA 93274

- [X] Annual Report
- [X] Water Analysis Samples
- [N/A] Manure Manifest
- [N/A] Facility / Land Map
- [X] CCA Nitrogen Retrofit Report
- [ ]
- [ ]

GEO Tracker Confirmation # **Date:**

Facility Info

Reporting Period: **1/1/2023** **to** **12/31/2023**

Name of the Facility

Dairy Name: FM Ranch #1 WDID 5C54NC00233

Facility Address: 16777 South I Drive Tulare, CA 93274

Original Operation Date: 7/3/1955

Facility APN's: x228 x160 x026 xxxx

RWQCB Basin Plan Designation: Tulare Lake Basin

☐ Check if any information has changed

Owner(s)

Owner(s) Name: FM Ranch #1 WDID 5C54NC00233

Mailing Address: 16777 South I Drive Tulare, CA 93274

Home Phone Number: 559-752-4727

Cell Phone Number:

☐ Check if any information has changed

Operator(s)

Operator(s) Name: Same as owner

Mailing Address:

Home Phone Number:

Cell Phone Number:

☐ Check if any information has changed

Herd Information

	Milk Cows	Dry Cows	Bred Heifers (12-24 mo)	Heifers (3-12 mo)	Calves (0-3 mo)
Open Confinement:	-	212	341	366	-
Number Under Roof	-	-	-	-	-
Maximum Number		212	341	366	
Average Number		212	341	366	
Average Live Weight (lbs)		950	660	370	

Average Milk Production: 66

Predominant Milk Cow Breed: Jersey

Manure Generated:

Total manure excreted by the herd:	920.20	@40% Moisture	*ton/yr*
Total nitrogen from manure:	46,832		*lbs*
	4,598		*lbs*
	14,209		*lbs*
Total salt from manure:	-		*lbs*

After Ammonia (30% loss applied)

32,783 *lbs per reporting period*

Process Wastewater Generated:

Process wastewater generated:	-	*gal*
Total nitrogen generated:	-	*lbs*
	-	*lbs*
	-	*lbs*
Total salt (TDS) generated:	-	*lbs*

List of Land Application Areas

Field Name	APN	APN Acres	Cropable Acres	Total Harvest	Type of Waste Applied
FM 1	x228 x150 x006 xxxx	92	8	2	P.W. & D.M.
FM 2	x228 x150 x006 xxxx		25	2	P.W. & D.M.
FM 3	x228 x150 x006 xxxx		26	2	P.W. & D.M.
FM 4	x228 x150 x006 xxxx		30	2	P.W. & D.M.
FM East	x228 x160 x026 xxxx	149	80	2	P.W. & D.M.
FM West	x228 x160 x026 xxxx		50	2	P.W. & D.M.
BS1 N	x200 x200 x006 xxxx	636	150	2	Dry Manure
BS1 S	x200 x200 x006 xxxx		150	2	Dry Manure
BS2 N	x200 x200 x006 xxxx		150	2	Dry Manure
BS2 S	x200 x200 x006 xxxx		150	2	Dry Manure
BS3 N	x200 x200 x001 xxxx	640	150	1	Dry Manure
BS3 S	x200 x200 x001 xxxx		150	2	Dry Manure
BS4 N	x200 x200 x001 xxxx		150	2	Dry Manure
BS4 S (Trees)	x200 x200 x001 xxxx		150	0	N/A
	Total Crop Acres		1,419.00		

List of Fresh Water Sources

Source Description	Type	Subsurface (Tile) Drainage Sources
Barn Well	**Ground Water**	**No**
Barn Backup	**Ground Water**	**No**
Well #1	**Ground Water**	**No**
BS #1 Well	**Ground Water**	**No**
BS #2 Well	**Ground Water**	**No**
Old Barn	**Ground Water**	**No**
Canal	**Surface Water**	**No**

(WINTER) PLANT TISSUE ANALYSIS (Recorded As Received)

Field	Crop	Moist %	N%	TP %	TK%	Salt	TFS	Sample #:	Date:	Source
FM 1	Wheat, Silage	67.80	0.50	0.09	0.42	-	9.85	6-6H52642	06/06/23	Valley Tech
FM 2	Wheat, Silage	67.70	0.56	0.12	0.57	-	10.50	6-6H52642	06/06/23	Valley Tech
FM 3	Wheat, Silage	65.80	0.38	0.07	0.30	-	8.63	6-6H52642	06/06/23	Valley Tech
FM 4	Wheat, Silage	62.80	0.52	0.10	0.51	-	9.83	6-6H52642	06/06/23	Valley Tech
FM East	Wheat, Silage	63.60	0.42	0.10	0.65	-	11.50	6-6H52642	06/06/23	Valley Tech
FM West	Wheat, Silage	64.00	0.45	0.10	0.63	-	10.40	6-6H52642	06/06/23	Valley Tech
BS1 N	Wheat, Silage	71.70	0.36	0.08	0.39	-	10.10	4-20H47020	04/20/23	Valley Tech
BS1 S	Wheat, Silage	60.10	0.44	0.09	0.26	-	8.56	5-31H51798	05/31/23	Valley Tech
BS2 N	Wheat, Silage	66.30	0.42	0.08	0.25	-	10.40	5-9H49177	05/09/23	Valley Tech
BS2 S	Wheat, Silage	65.00	0.30	0.04	0.29	-	10.40	5-25H51411	05/25/23	Valley Tech
BS3 N	Wheat, Silage	69.20	0.49	0.10	0.44	-	10.60	4-20H47020	04/20/23	Valley Tech
BS3 S	Wheat, Silage	71.30	0.40	0.06	0.24	-	10.60	5-9H49177	05/09/23	Valley Tech
BS4 N	Wheat, Silage	65.00	0.23	0.05	0.23	-	7.70	5-31H51798	05/31/23	Valley Tech
BS4 S (Trees)	Trees, Pistachios	-	2.81	0.42	3.09	-	-	Book Value		-

Detectable Lim	*Valley Tech*	*0.10%*	*0.05%*	*0.01%*	*0.01%*	*0.05%*
	Dellavalle	*0.001%*	*0.01%*	*0.01%*	*0.003%*	*0.001%*
Detectable Limits						
Valley Tech		*0.10%*	*0.05%*	*0.01%*	*0.01%*	*0.05%*
Dellavalle		*0.001%*	*0.01%*	*0.01%*	*0.003%*	*0.001%*

(SUMMER) PLANT TISSUE ANALYSIS (Recorded As Received)										
Field	Crop	Moist %	N%	TP %	TK%	Salt	TFS	Sample #:	Date:	Source
FM 1	Corn, Silage	61.50	0.56	0.09	0.48	-	5.97	10-19H70185	10/19/23	Valley Tech
FM 2	Corn, Silage	64.40	0.54	0.11	0.39	-	8.70	10-12H69265	10/12/23	Valley Tech
FM 3	Corn, Silage	62.10	0.37	0.07	0.26	-	4.88	11-21H733730	11/21/23	Valley Tech
FM 4	Corn, Silage	58.70	0.37	0.08	0.30	-	5.48	11-21H73370	11/21/23	Valley Tech
FM East	Corn, Silage	60.60	0.52	0.12	0.35	-	6.48	10-12H69265	10/12/23	Valley Tech
FM West	Corn, Silage	63.90	0.38	0.10	0.30	-	4.70	11-21H73370	11/02/23	Valley Tech
BS1 N	Corn, Silage	59.40	0.59	0.07	0.22	-	5.39	9-14H65436	09/14/23	Valley Tech
BS1 S	Corn, Silage	63.80	0.29	0.05	0.24	-	6.69	9-22H67005	09/22/23	Valley Tech
BS2 N	Corn, Silage	64.10	0.36	0.06	0.19	-	4.97	10-6H68234	10/06/23	Valley Tech
BS2 S	Corn, Silage	70.70	0.32	0.07	0.18	-	5.36	10-6H68234	10/06/23	Valley Tech
BS3 N	S. Fallow	-	-	-	-	-	-	Fallow		-
BS3 S	Corn, Silage	62.60	0.51	0.07	0.22	-	6.98	9-14H65436	09/14/23	Valley Tech
BS4 N	Corn, Silage	69.30	0.37	0.08	0.44	-	5.83	11-8H72225	11/08/23	Valley Tech
BS4 S (Trees)	Trees, Pistachios	-	-	-	-	-	-	Trees		-

Detectable Limits					
Valley Tech	*0.10%*	*0.05%*	*0.01%*	*0.01%*	*0.05%*
Dellavalle	*0.001%*	*0.01%*	*0.01%*	*0.003%*	*0.001%*

Winter Crops & Harvest

Field:	Crop	Plant Date	Harvest Date	Lab #	Moisture %	N (mg//kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS	Reporting Basis
FM 1	Wheat, Silage	12/2/22	5/31/23	6-6H52642	67.80	0.50	0.09	0.42	-	9.85	Dry Weight
FM 2	Wheat, Silage	12/2/22	5/31/23	6-6H52642	67.70	0.56	0.12	0.57	-	10.50	Dry Weight
FM 3	Wheat, Silage	12/2/22	5/30/23	6-6H52642	65.80	0.38	0.07	0.30	-	8.63	Dry Weight
FM 4	Wheat, Silage	12/2/22	5/21/23	6-6H52642	62.80	0.52	0.10	0.51	-	9.83	Dry Weight
FM East	Wheat, Silage	11/12/22	5/30/23	6-6H52642	63.60	0.42	0.10	0.65	-	11.50	Dry Weight
FM West	Wheat, Silage	12/10/22	5/31/23	6-6H52642	64.00	0.45	0.10	0.63	-	10.40	Dry Weight
BS1 N	Wheat, Silage	11/21/22	4/15/23	4-20H47020	71.70	0.36	0.08	0.39	-	10.10	Dry Weight
BS1 S	Wheat, Silage	12/9/22	5/28/23	5-31H51798	60.10	0.44	0.09	0.26	-	8.56	Dry Weight
BS2 N	Wheat, Silage	10/19/22	5/8/23	5-9H49177	66.30	0.42	0.08	0.25	-	10.40	Dry Weight
BS2 S	Wheat, Silage	10/27/22	5/25/23	5-25H51411	65.00	0.30	0.04	0.29	-	10.40	Dry Weight
BS3 N	Wheat, Silage	12/8/22	4/15/23	4-20H47020	69.20	0.49	0.10	0.44	-	10.60	Dry Weight
BS3 S	Wheat, Silage	10/25/22	5/8/23	5-9H49177	71.30	0.40	0.06	0.24	-	10.60	Dry Weight
BS4 N	Wheat, Silage	11/18/22	5/28/23	5-31H51798	65.00	0.23	0.05	0.23	-	7.70	Dry Weight
BS4 S (Trees)	Trees, Pistachios	11/1/14	10/10/23	Book Value	-	2.81	0.42	3.09	-	-	Dry Weight
Detectable L Valley Tech					*0.10%*	*0.05%*	*0.01%*	*0.01%*		*0.05%*	
Dellavalle					*0.001%*	*0.01%*	*0.01%*	*0.003%*		*0.001%*	

Field:	Crop	Plant Date	Harvest Date	Lab #	Moisture %	N (mg//kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS	Reporting Basis
FM 1	Corn, Silage	7/15/23	10/19/23	10-19H70185	61.50	0.56	0.09	0.48	-	5.97	Dry Weight
FM 2	Corn, Silage	7/15/23	10/19/23	10-12H69265	64.40	0.54	0.11	0.39	-	8.70	Dry Weight
FM 3	Corn, Silage	7/15/23	11/10/23	11-21H733730	62.10	0.37	0.07	0.26	-	4.88	Dry Weight
FM 4	Corn, Silage	7/15/23	11/10/23	11-21H73370	58.70	0.37	0.08	0.30	-	5.48	Dry Weight
FM East	Corn, Silage	6/15/23	10/9/23	10-12H69265	60.60	0.52	0.12	0.35	-	6.48	Dry Weight
FM West	Corn, Silage	7/14/23	11/10/23	11-21H73370	63.90	0.38	0.10	0.30	-	4.70	Dry Weight
BS1 N	Corn, Silage	5/23/23	9/11/23	9-14H65436	59.40	0.59	0.07	0.22	-	5.39	Dry Weight
BS1 S	Corn, Silage	6/15/23	9/11/23	9-22H67005	63.80	0.29	0.05	0.24	-	6.69	Dry Weight
BS2 N	Corn, Silage	6/12/23	10/4/23	10-6H68234	64.10	0.36	0.06	0.19	-	4.97	Dry Weight
BS2 S	Corn, Silage	6/12/23	10/6/23	10-6H68234	70.70	0.32	0.07	0.18	-	5.36	Dry Weight
BS3 N	S. Fallow			Fallow	-	-	-	-	-	-	Dry Weight
BS3 S	Corn, Silage	6/5/23	9/11/23	9-14H65436	62.60	0.51	0.07	0.22	-	6.98	Dry Weight
BS4 N	Corn, Silage	7/23/23	10/31/23	11-8H72225	69.30	0.37	0.08	0.44	-	5.83	Dry Weight
BS4 S (Trees)	Trees, Pistachios			Trees	-	-	-	-	-	-	

Detectable	*L Valley Tech*	*0.10%*	*0.05%*	*0.01%*	*0.01%*	*0.05%*
	Dellavalle	*0.001%*	*0.01%*	*0.01%*	*0.003%*	*0.001%*

Well / Canal Analysis

General Minerals

Well Name/Number	NO3-N (mg/L)	EC (umhos/cm)	TDS (mg/L)	NH4-N (mg/L)	TN (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	HCO3 (mg/L)	CO3 (mg/L)	SO4 (mg/L)	Cl (mg/L)	Lab #:	Date:	LAB
Barn Well	10.60	626	390	-	10.60	-	-	-	-	-	-	-	VI 2340556	1/31/2023	FGL Enviromental
Barn Backup	10.80	633	420	-	10.80	-	-	-	-	-	-	-	VI 2340556	1/31/2023	FGL Enviromental
Well #1	-	-	-	-	-	-	-	-	-	-	-	-	Used Canal		
BS #1 Well	-	-	-	-	-	-	-	-	-	-	-	-	Used Canal		
BS #2 Well	-	-	-	-	-	-	-	-	-	-	-	-	Non-Op		
Old Barn	11.10	595	410	-	-	74.00	5.00	40.00	260.00	0.01	33.40	17.00	VI 2344720	7/20/2023	FGL Enviromental
Canal	0.01	138	37	-	-	-	-	-	-	-	-	-	558TRA144	7/18/2023	Other
Detectable Limits															
Dellavalle	*0.01*	*1*	*10*	*0.2*	*NR*	*0.1*	*0.1*	*0.15*	*3*	*0.9*	*0.03*	*0.03*			
FGL Enviromental	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
Valley Tech	*0.1*	*1*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*			

Soil Analysis (Winter)

Fields:	0/1ft. NO3-N (mg/kg)	1/2 ft. NO3-N (mg/kg)	0/1 ft. Sol. P (mg/kg)	0/1 ft. K (mg/kg)	0/1 ft. EC (ds/m)	OM %	Lab #	Date	Source
FM 1	11.8	6.70	27.40	176.00	0.54	3.33	11-08S72347	11/14/23	Valley Tech
FM 2	-	-	-	-	-	-			-
FM 3	-	-	-	-	-	-			-
FM 4	-	-	-	-	-	-			-
FM East	-	-	-	-	-	-			-
FM West	-	-	-	-	-	-			-
BS1 N	-	-	-	-	-	-			-
BS1 S	-	-	-	-	-	-			-
BS2 N	-	-	-	-	-	-			-
BS2 S	-	-	-	-	-	-			-
BS3 N	-	-	-	-	-	-			-
BS3 S	-	-	-	-	-	-			-
BS4 N	-	-	-	-	-	-			-
BS4 S (Trees)	5.20	3.60	14.80	266.00	0.57	2.88	11-08S72347	11/14/23	Valley Tech

Detectable Limits						
Valley Tech	*0.1*	*0.1*				
DellaValle	*0.1*	*0.1*	*1.1*	*0.2*	*0.0015*	*0.0001%*

Soil Analysis (Summer)

Fields:	0/1ft. NO3-N (mg/kg)	1/2 ft. NO3-N (mg/kg)	0/1 ft. Sol. P (mg/kg)	0/1 ft. K (mg/kg)	0/1 ft. EC (ds/m)	OM %	Lab #	Date	Source
FM 1	24.9	9.20	3.45	1,790.00	6.04	158.00	11-3S71876	11/03/23	Valley Tech
FM 2	9.1	3.60	3.10	1,670.00	5.15	73.50	11-3S71876	11/03/23	Valley Tech
FM 3	10.4	4.40	1.98	1,170.00	1.49	33.00	11-3S71876	11/03/23	Valley Tech
FM 4	8.4	3.70	3.34	1,700.00	4.35	39.10	11-3S71876	11/03/23	Valley Tech
FM East	12.5	9.90	3.83	1,870.00	6.36	52.10	11-3S71876	11/03/23	Valley Tech
FM West	19.6	9.00	8.03	4,020.00	1.92	101.00	11-3S71876	11/03/33	Valley Tech
BS1 N	11.8	6.70	3.33	1,560.00	5.27	27.40	11-08S72347	11/08/23	Valley Tech
BS1 S	12.4	11.70	3.17	1,570.00	6.74	42.60	11-08S72347	11/08/23	Valley Tech
BS2 N	25.2	13.90	3.78	1,700.00	10.60	26.10	11-08S72347	11/08/23	Valley Tech
BS2 S	5.2	3.60	2.88	1,350.00	8.96	14.80	11-08S72347	11/08/23	Valley Tech
BS3 N	7.30	4.00	2.64	1,210.00	10.80	12.90	11-08S72347	11/08/23	Valley Tech
BS3 S	12.90	8.90	3.84	1,620.00	8.19	30.90	11-08S72347	11/08/23	Valley Tech
BS4 N	11.60	8.60	2.95	1,320.00	3.45	10.40	11-08S72347	11/08/23	Valley Tech
BS4 S (Trees)	6.80	3.20	2.50	1,210.00	4.78	12.10	11-08S72347	11/08/23	Valley Tech

Detectable Limits						
Valley Tech	*0.1*	*0.1*				
DellaValle	*0.1*	*0.1*	*1.1*	*0.2*	*0.0015*	*0.0001%*

Nutrient Import & Export

Nutrient Export-Did you sell, give away or otherwise remove slurry, process water or dry manure from your property?

X No

___ Yes, Manifest attached (Attachment D)

Total Dry Manure Exported [ ]

Nutrient Import

No Dry manure nutient imports entered

No Process wastewater nutrient imports entered

No Commerical or other nutrient imports entered

Total Process Water Exported [ ]

Field Name	Type of Manure Applied	As Is / Dry Weight	Source

Process Water & Manure Analysis

Process Water															
Quarters:	NH4N (mg/L)	TKN (mg/L)	TP (mg/L)	TK (mg/L)	NO3N (mg/L)	NH3N (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	CO3 (mg/L)	HCO3 (mg/L)	SO4 (mg/L)	CL (mg/L)	EC (ds/m)	TDS (mg/L)
1	172.0	435.0	87.6	733.0	1.0	-	-	-	-	-	-	-	-	5	3,270
2	144.0	267.0	72.6	767.0	1.0	-	-	-	-	-	-	-	-	5	3,580
3	382.0	450.0	141.0	761.0	1.0	-	217.0	115.0	110.0	0.0	44.9	185.0	12.2	9	5,800
4	143.0	669.0	141.0	389.0	1.0	-	-	-	-	-	-	-	-	-	2,280
Detectable Limits															
Valley Tech	2.0	5.0	0.1	0.2										0.10	10
Dellavalle	0.2	0.7	0.02	0.2	0.01		0.05	0.4	0.10	0.9	3	0.01	0.03	0.001	10

				Inorg N	Org N	P2O5	K2O
Qtr	Sample #:	Sample Date:	Source	lbs / Ac In			
1	3-24L44733	3/24/2023	Valley Tech	39.2	59.6	45.5	200.1
2	5-11L49503	5/11/2023	Valley Tech	32.9	27.9	37.7	209.4
3	8-17L62142	8/17/2023	Valley Tech	86.8	15.4	73.2	207.8
4	10-3L67883	10/16/2023	Valley Tech	32.6	119.2	73.2	106.2

Description	Sample #:	Date:	As Is/ Dry Weight	Source	Material Type
Manure	5-11M49478	5/11/2023	Dry Weight	Valley Tech	Corral Solids
Manure	10-3M67877	10/13/2023	Dry Weight	Valley Tech	Corral Solids

Dry Manure: (As Recv'd)	TN %	TP %	TK %	Ca	Mg	Na	S	CL	Salt	TFS	Moisture %
Corral	0.92	0.29	1.11	-	-	-	-	-	-	-	44.40
Corral	0.60	0.21	0.44	1.58	0.43	0.17	0.19	0.82	-	31.80	72.30
Detectable Limits											
Valley Tech	0.01%	0.02%	0.02%								
Dellavalle	0.01%	0.01%	0.003%	0.001%	0.001%	0.001%	0.001%	0.000%		0.001%	0.001%

Nutrient Applications

Field Name/Number: FM 1 **Acres:** 8.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
12/2/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
2/19/23	Canal	-	-	-	6.46	-	0.0	-	-	33	-		-
3/23/23	Canal	-	-	-	5.63	-	0.0	-	-	28	-		-
3/23/23	Process Water	-	-	-	-	1.64	113.7	32.6	273.0	1,218	-		-
4/30/23	Canal	-	-	-	5.30	-	0.0	-	-	27	-		-
4/30/23	Process Water	-	-	-	-	1.55	65.8	25.5	268.9	1,255	-		-
5/31/23	W. Harvest	-	-	-	-	-	(161.0)	(30.1)	(136.0)	-	9.85		16.13
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
6/20/23	S. Manure App.	10.00	-	-	-	-	48.3	42.1	87.5	-	-		-
7/9/23	Canal	-	-	-	6.13	-	0.0	-	-	31	-		-
7/15/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/18/23	Canal	-	-	-	6.30	-	0.0	-	-	32	-		-
8/11/23	Canal	-	-	-	6.06	-	0.0	-	-	31	-		-
9/1/23	Canal	-	-	-	5.47	-	0.0	-	-	28	-		-
9/1/23	Process Water	-	-	-	-	1.60	114.1	51.0	275.1	2,097	-		-
9/24/23	Canal	-	-	-	5.80	-	0.0	-	-	29	-		-
9/24/23	Process Water	-	-	-	-	1.69	121.1	54.1	291.8	2,224	-		-
10/11/23	Canal	-	-	-	6.20	-	0.0	-	-	31	-		-
10/19/23	S. Harvest	-	-	-	-	-	(233.1)	(38.6)	(200.9)	-	5.97		20.88
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
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	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		**10.0**		**0**	**53.35**	**6.48**	**69**	**137**	**859**	**7,063**	**15.82**	**0**	**37.00**

Dry Weight
As Received

Field Name/Number: FM 1 **Acres:** 8

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	463.1	205.2	1196.4	7063.0
Nutrients Removed at Harvest	-394.0	-68.7	-337.0	0.0
Nutrient Balance	69.1	136.5	859.4	7063.0

Winter Nitrogen Crop App / Use Ratio: 1.16 **Summer Nitrogen Crop App / Use Ratio:** 1.25

Field Name/Number: FM 1 **Acres:** 8

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	1.6	Ac In /Ac	113.7	74.7	327.6
	Q2	1.5	Ac In /Ac	65.8	58.3	322.7
Well Water		-	Ac In /Ac	-		
Canal		17.4	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	12/2/22					
W. Harvest	5/31/23	16.1	T/Ac	(161.0)	(69.0)	(163.2)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		10.0	T/Ac	48.3	96.4	105.0
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	3.3	Ac In /Ac	235.2	240.6	680.3
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-4.11E-14		
Canal		36.0	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	7/15/23					
S. Harvest	10/19/23	20.9	T/Ac	(233.1)	(88.3)	(241.1)

Nutrient Applications

Field Name/Number: FM 2 **Acres:** 25.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
12/2/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
2/19/23	Canal	-	-	-	5.09	-	0.0	-	-	26	-		-
2/19/23	Process Water	-	-	-	-	1.48	102.7	29.5	246.7	1,101	-		-
3/23/23	Canal	-	-	-	5.51	-	0.0	-	-	28	-		-
3/23/23	Process Water	-	-	-	-	1.61	111.3	31.9	267.3	1,192	-		-
4/30/23	Canal	-	-	-	6.36	-	0.0	-	-	32	-		-
5/31/23	W. Harvest	-	-	-	-	-	(215.0)	(44.7)	(218.8)	-	9.85		19.24
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
6/20/23	S. Manure App.	10.00	-	-	-	-	48.3	42.1	87.5	-	-		-
7/9/23	Canal	-	-	-	6.57	-	0.0	-	-	33	-		-
7/15/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/18/23	Canal	-	-	-	6.15	-	0.0	-	-	31	-		-
8/11/23	Canal	-	-	-	6.47	-	0.0	-	-	33	-		-
9/1/23	Canal	-	-	-	5.20	-	0.0	-	-	26	-		-
9/1/23	Process Water	-	-	-	-	1.52	108.5	48.4	261.5	1,993	-		-
9/24/23	Canal	-	-	-	5.51	-	0.0	-	-	28	-		-
9/24/23	Process Water	-	-	-	-	1.61	115.1	51.4	277.5	2,115	-		-
10/11/23	Canal	-	-	-	6.68	-	0.0	-	-	34	-		-
10/19/23	S. Harvest	-	-	-	-	-	(242.1)	(48.1)	(176.4)	-	5.97		22.52
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
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	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		10.0		0	53.55	6.22	29	111	745	6,670	15.82	0	41.76

Field Name/Number: FM 2 **Acres:** 25.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	486.0	88.8	946.6	6670.2
Nutrients Removed at Harvest	-457.1	-40.5	-328.0	0.0
Nutrient Balance	28.9	48.2	618.6	6670.2

Winter Nitrogen Crop App / Use Ratio: 1.03 **Summer Nitrogen Crop App / Use Ratio:** 1.15

Field Name/Number: FM 2 **Acres:** 25

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	3.1	Ac In /Ac	214.0	140.7	616.7
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		17.0	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	12/2/22					
W. Harvest	5/31/23	19.2	T/Ac	(215.0)	(102.5)	(262.5)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		10.0	T/Ac	48.3	96.4	105.0
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	3.1	Ac In /Ac	223.6	228.7	646.7
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	0.0		
Canal		36.6	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	7/15/23					
S. Harvest	10/19/23	22.5	T/Ac	(242.1)	(110.2)	(211.7)

Nutrient Applications

Field Name/Number: FM 3 **Acres:** 26.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
12/2/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
2/19/23	Canal	-	-	-	5.61	-	0.0	-	-	28	-		-
2/19/23	Process Water	-	-	-	-	1.64	113.2	32.5	271.8	1,213	-		-
3/23/23	Canal	-	-	-	6.63	-	0.0	-	-	33	-		-
4/30/23	Canal	-	-	-	6.22	-	0.0	-	-	31	-		-
5/30/23	W. Harvest	-	-	-	-	-	(118.2)	(21.1)	(91.8)	-	9.85		15.42
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
7/15/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/18/23	Canal	-	-	-	6.12	-	0.0	-	-	31	-		-
8/11/23	Canal	-	-	-	6.53	-	0.0	-	-	33	-		-
9/1/23	Canal	-	-	-	5.71	-	0.0	-	-	29	-		-
9/1/23	Process Water	-	-	-	-	1.67	119.2	53.2	287.3	2,190	-		-
9/24/23	Canal	-	-	-	5.51	-	0.0	-	-	28	-		-
9/24/23	Process Water	-	-	-	-	1.61	114.9	51.3	277.1	2,112	-		-
10/11/23	Canal	-	-	-	6.02	-	0.0	-	-	30	-		-
10/29/23	Canal	-	-	-	6.63	-	0.0	-	-	33	-		-
11/10/23	S. Harvest	-	-	-	-	-	(194.6)	(35.7)	(135.0)	-	5.97		26.19
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
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	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		0.0		0	54.96	4.91	35	80	609	5,791	15.82	0	41.62

Field Name/Number: FM 3 **Acres:** 26.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	347.4	59.8	694.1	5790.9
Nutrients Removed at Harvest	-312.7	-24.8	-188.3	0.0
Nutrient Balance	34.7	35.0	505.8	5790.9

Winter Nitrogen Crop App / Use Ratio: 1.02 **Summer Nitrogen Crop App / Use Ratio:** 1.24

Field Name/Number: FM 3 **Acres:** 26

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	1.6	Ac In /Ac	113.2	74.4	326.2
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		18.5	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	12/2/22					
W. Harvest	5/30/23	15.4	T/Ac	(118.2)	(48.3)	(110.1)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	3.3	Ac In /Ac	234.1	239.5	677.2
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	(0.0)		
Canal		36.5	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	7/15/23					
S. Harvest	11/10/23	26.2	T/Ac	(194.6)	(81.8)	(162.0)

Nutrient Applications

Field Name/Number: FM 4 **Acres:** 30.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
11/25/22	W. Manure App.	8.33	-	-	-	-	61.5	48.2	184.4	-	-		-
12/2/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
2/19/23	Canal	-	-	-	5.48	-	0.0	-	-	28	-		-
2/19/23	Process Water	-	-	-	-	1.60	110.6	31.7	265.5	1,185	-		-
3/23/23	Canal	-	-	-	6.27	-	0.0	-	-	32	-		-
4/30/23	Canal	-	-	-	6.63	-	0.0	-	-	33	-		-
5/21/23	W. Harvest	-	-	-	-	-	(148.9)	(27.9)	(147.8)	-	9.85		14.40
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
6/25/23	S. Manure App.	11.67	-	-	-	-	56.4	49.1	102.1	-	-		-
7/15/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/17/23	Canal	-	-	-	6.36	-	0.0	-	-	32	-		-
8/11/23	Canal	-	-	-	6.54	-	0.0	-	-	33	-		-
9/1/23	Canal	-	-	-	5.57	-	0.0	-	-	28	-		-
9/1/23	Process Water	-	-	-	-	1.62	116.2	51.9	280.1	2,135	-		-
9/24/23	Canal	-	-	-	6.19	-	0.0	-	-	31	-		-
10/11/23	Canal	-	-	-	6.45	-	0.0	-	-	32	-		-
10/29/23	Canal	-	-	-	6.72	-	0.0	-	-	34	-		-
11/10/23	S. Harvest	-	-	-	-	-	(162.3)	(36.1)	(131.7)	-	5.97		21.83
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
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	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		**20.0**		**0**	**56.20**	**3.22**	**34**	**117**	**553**	**3,603**	**15.82**	**0**	**36.23**

Field Name/Number: FM 4 **Acres:** 30.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	344.8	79.0	690.8	3602.8
Nutrients Removed at Harvest	-311.2	-27.9	-232.0	0.0
Nutrient Balance	33.6	51.1	458.8	3602.8

Winter Nitrogen Crop App / Use Ratio: 1.20 **Summer Nitrogen Crop App / Use Ratio:** 1.11

Field Name/Number: FM 4 **Acres:** 30

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		8.3	T/Ac	61.5	110.3	221.3
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	1.6	Ac In /Ac	110.6	72.7	318.6
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		18.4	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	12/2/22					
W. Harvest	5/21/23	14.4	T/Ac	(148.9)	(63.8)	(177.4)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		11.7	T/Ac	56.4	112.5	122.5
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	1.6	Ac In /Ac	116.2	118.9	336.2
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	0.0		
Canal		37.8	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	7/15/23					
S. Harvest	11/10/23	21.8	T/Ac	(162.3)	(82.6)	(158.0)

Nutrient Applications

Field Name/Number: FM East **Acres:** 80.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
11/1/22	W. Manure App.	10.00	-	-	-	-	73.8	57.8	221.3	-	-		-
11/12/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
2/10/23	Canal	-	-	-	5.43	-	0.0	-	-	27	-		-
2/10/23	Process Water	-	-	-	-	1.59	109.7	31.5	263.4	1,175	-		-
3/14/23	Canal	-	-	-	6.26	-	0.0	-	-	32	-		-
4/21/23	Canal	-	-	-	6.46	-	0.0	-	-	33	-		-
5/30/23	W. Harvest	-	-	-	-	-	(148.3)	(36.1)	(230.8)	-	9.85		17.71
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
6/1/23	S. Manure App.	10.00	-	-	-	-	48.3	42.1	87.5	-	-		-
6/4/23	Canal	-	-	-	6.40	-	0.0	-	-	32	-		-
6/15/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
6/19/23	Canal	-	-	-	6.33	-	0.0	-	-	32	-		-
7/23/23	Canal	-	-	-	5.50	-	0.0	-	-	28	-		-
7/23/23	Process Water	-	-	-	-	1.60	114.8	51.3	276.8	2,110	-		-
8/14/23	Canal	-	-	-	5.34	-	0.0	-	-	27	-		-
8/14/23	Process Water	-	-	-	-	1.56	111.4	49.7	268.5	2,046	-		-
9/15/23	Canal	-	-	-	6.59	-	0.0	-	-	33	-		-
10/9/23	S. Harvest	-	-	-	-	-	(227.3)	(51.3)	(152.1)	-	5.97		21.69
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Totals:		**20.0**		**0**	**48.32**	**4.75**	**83**	**145**	**735**	**5,574**	**15.82**	**0**	**39.40**

Field Name/Number: FM East **Acres:** 80.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	458.1	101.4	927.6	5574.3
Nutrients Removed at Harvest	-375.6	-38.1	-317.9	0.0
Nutrient Balance	82.6	63.3	609.8	5574.3

Winter Nitrogen Crop App / Use Ratio: 1.29 **Summer Nitrogen Crop App / Use Ratio:** 1.24

Field Name/Number: FM East **Acres:** 80

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		10.0	T/Ac	73.8	132.4	265.5
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	1.6	Ac In /Ac	109.7	72.1	316.1
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		18.2	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	11/12/22					
W. Harvest	5/30/23	17.7	T/Ac	(148.3)	(82.7)	(277.0)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		10.0	T/Ac	48.3	96.4	105.0
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	3.2	Ac In /Ac	226.2	231.4	654.3
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	0.0		
Canal		30.2	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	6/15/23					
S. Harvest	10/9/23	21.7	T/Ac	(227.3)	(117.4)	(182.5)

Nutrient Applications

Field Name/Number: FM West **Acres:** 50.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
12/10/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
2/10/23	Canal	-	-	-	5.04	-	0.0	-	-	25	-		-
2/10/23	Process Water	-	-	-	-	1.47	101.7	29.2	244.1	1,089	-		-
3/14/23	Canal	-	-	-	5.20	-	0.0	-	-	26	-		-
3/14/23	Process Water	-	-	-	-	1.52	104.9	30.1	251.8	1,124	-		-
4/21/23	Canal	-	-	-	6.36	-	0.0	-	-	32	-		-
5/31/23	W. Harvest	-	-	-	-	-	(156.8)	(33.6)	(219.0)	-	9.85		17.28
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6/25/23	S. Manure App.	15.00	-	-	-	-	72.5	63.2	131.3	-	-		-
7/7/23	Canal	-	-	-	6.63	-	0.0	-	-	33	-		-
7/14/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/16/23	Canal	-	-	-	6.20	-	0.0	-	-	31	-		-
8/3/23	Canal	-	-	-	5.25	-	0.0	-	-	26	-		-
8/3/23	Process Water	-	-	-	-	1.53	109.6	48.9	264.1	2,013	-		-
9/1/23	Canal	-	-	-	6.57	-	0.0	-	-	33	-		-
9/29/23	Canal	-	-	-	6.47	-	0.0	-	-	33	-		-
10/27/23	Canal	-	-	-	6.31	-	0.0	-	-	32	-		-
11/10/23	S. Harvest	-	-	-	-	-	(171.4)	(46.1)	(138.4)	-	5.97		22.82
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Totals:		15.0		0	54.03	4.52	61	92	534	4,498	15.82	0	40.10

Field Name/Number: FM West **Acres:** 50.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	388.7	74.8	739.9	4497.8
Nutrients Removed at Harvest	-328.1	-34.8	-296.7	0.0
Nutrient Balance	60.6	40.0	443.3	4497.8

Winter Nitrogen Crop App / Use Ratio: 1.36 **Summer Nitrogen Crop App / Use Ratio:** 1.10

Field Name/Number: FM West **Acres:** 50

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	3.0	Ac In /Ac	206.5	135.7	595.2
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		16.6	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	12/10/22					
W. Harvest	5/31/23	17.3	T/Ac	(156.8)	(76.9)	(262.8)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		15.0	T/Ac	72.5	144.6	157.6
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	1.5	Ac In /Ac	109.6	112.1	316.9
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	(0.0)		
Canal		37.4	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	7/14/23					
S. Harvest	11/10/23	22.8	T/Ac	(171.4)	(105.6)	(166.1)

Nutrient Applications

Field Name/Number: BS1 N **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
2/17/23	W. Comm Fert App.	-	-	100	-	-	100.0	-	-	-	-		-
11/21/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/19/23	Canal	-	-	-	6.01	-	0.0	-	-	30	-		-
2/17/23	Canal	-	-	-	6.15	-	0.0	-	-	31	-		-
3/21/23	Canal	-	-	-	6.06	-	0.0	-	-	31	-		-
4/15/23	W. Harvest	-	-	-	-	-	(183.6)	(43.7)	(199.6)	-	9.85		25.74
	-	-	-	-	-	-	-	-	-	-	-		-
5/1/23	S. Manure App.	10.00	-	-	-	-	48.3	42.1	87.5	-	-		-
6/19/23	S. Comm Fert App.	-	-	120	-	-	120.0	-	-	-	-		-
5/8/23	Canal	-	-	-	6.27	-	0.0	-	-	32	-		-
5/23/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
5/24/23	Canal	-	-	-	6.13	-	0.0	-	-	31	-		-
6/19/23	Canal	-	-	-	6.20	-	0.0	-	-	31	-		-
7/19/23	Canal	-	-	-	6.36	-	0.0	-	-	32	-		-
8/21/23	Canal	-	-	-	6.31	-	0.0	-	-	32	-		-
9/11/23	S. Harvest	-	-	-	-	-	(286.1)	(35.3)	(105.8)	-	5.97		24.13
	-	-	-	-	-	-	-	-	-	-	-		-
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Totals:		**10.0**		**220**	**49.51**	**0.00**	**(201)**	**(37)**	**(218)**	**249**	**15.82**	**0**	**49.87**

Field Name/Number: BS1 N **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	268.4	18.4	72.7	249.2
Nutrients Removed at Harvest	-469.7	-34.5	-253.5	0.0
Nutrient Balance	-201.3	-16.1	-180.9	249.2

Winter Nitrogen Crop App / Use Ratio: 1.13 **Summer Nitrogen Crop App / Use Ratio:** 1.03

Field Name/Number: BS1 N **Acres:** 150

Winter Crop **Wheat, Silage**

Nutrient Summary :		Applied		N		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		100.0	lbs/Ac	100.0		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	100.0		
Canal		18.2	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	11/21/22					
W. Harvest	4/15/23	25.7	T/Ac	(183.6)	(100.1)	(239.5)

Summer Crop **Corn, Silage**

Nutrient Summary :		Applied		N		
S. Manure App.		10.0	T/Ac	48.3	96.4	105.0
S. Comm Fert App.		120.0	lbs/Ac	120.0	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	120.0		
Canal		31.3	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	5/23/23					
S. Harvest	9/11/23	24.1	T/Ac	(286.1)	(80.8)	(127.0)

Nutrient Applications

Field Name/Number: BS1 S **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
3/21/23	W. Comm Fert App.	-	-	100	-	-	100.0	-	-	-	-		-
12/9/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/19/23	Canal	-	-	-	6.19	-	0.0	-	-	31	-		-
2/17/23	Canal	-	-	-	6.35	-	0.0	-	-	32	-		-
3/21/23	Canal	-	-	-	6.27	-	0.0	-	-	32	-		-
4/28/23	Canal	-	-	-	6.20	-	0.0	-	-	31	-		-
5/28/23	W. Harvest	-	-	-	-	-	(164.0)	(32.5)	(96.0)	-	9.85		18.51
	-	-	-	-	-	-	-	-	-	-	-		-
7/15/23	S. Comm Fert App.	-	-	80	-	-	80.0	-	-	-	-		-
6/1/23	Canal	-	-	-	6.33	-	0.0	-	-	32	-		-
6/15/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
6/17/23	Canal	-	-	-	6.26	-	0.0	-	-	31	-		-
7/15/23	Canal	-	-	-	6.38	-	0.0	-	-	32	-		-
8/7/23	Canal	-	-	-	6.24	-	0.0	-	-	31	-		-
8/29/23	Canal	-	-	-	6.36	-	0.0	-	-	32	-		-
9/11/23	S. Harvest	-	-	-	-	-	(121.7)	(22.8)	(100.4)	-	5.97		21.02
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Totals:		**0.0**		**180**	**56.57**	**0.00**	**(106)**	**(55)**	**(196)**	**285**	**15.82**	**0**	**39.53**

Field Name/Number: BS1 S **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	180.1	0.0	0.0	284.8
Nutrients Removed at Harvest	-285.7	-24.1	-163.1	0.0
Nutrient Balance	-105.6	-24.1	-163.1	284.8

Winter Nitrogen Crop App / Use Ratio: 1.26 **Summer Nitrogen Crop App / Use Ratio:** 1.37

Field Name/Number: BS1 S **Acres:** 150

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		100.0	lbs/Ac	100.0		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	100.0		
Canal		25.0	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
W. Planting	12/9/22					
W. Harvest	5/28/23	18.5	T/Ac	(164.0)	(74.4)	(115.2)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		80.0	lbs/Ac	80.0	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	80.0		
Canal		31.6	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	6/15/23					
S. Harvest	9/11/23	21.0	T/Ac	(121.7)	(52.3)	(120.5)

Nutrient Applications

Field Name/Number: BS2 N **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
2/17/23	W. Comm Fert App.	-	-	100	-	-	100.0	-	-	-	-		-
10/19/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/19/23	Canal	-	-	-	6.19	-	0.0	-	-	31	-		-
2/17/23	Canal	-	-	-	6.35	-	0.0	-	-	32	-		-
3/21/23	Canal	-	-	-	6.27	-	0.0	-	-	32	-		-
5/8/23	W. Harvest	-	-	-	-	-	(185.4)	(34.4)	(112.1)	-	9.85		22.18
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
7/14/23	S. Comm Fert App.	-	-	110	-	-	110.0	-	-	-	-		-
5/28/23	Canal	-	-	-	6.26	-	0.0	-	-	31	-		-
6/12/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
6/14/23	Canal	-	-	-	6.40	-	0.0	-	-	32	-		-
7/14/23	Canal	-	-	-	6.31	-	0.0	-	-	32	-		-
8/19/23	Canal	-	-	-	6.33	-	0.0	-	-	32	-		-
9/13/23	Canal	-	-	-	6.29	-	0.0	-	-	32	-		-
10/4/23	S. Harvest	-	-	-	-	-	(188.2)	(33.5)	(96.9)	-	5.97		25.95
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Totals:		0.0		210	50.39	0.00	#N/A	-	-	#N/A	15.82	0	48.13

Field Name/Number: BS2 N **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	210.1	0.0	0.0	253.7
Nutrients Removed at Harvest	-373.5	-29.6	-173.5	0.0
Nutrient Balance	-163.4	-29.6	-173.5	253.7

Winter Nitrogen Crop App / Use Ratio: 1.12 **Summer Nitrogen Crop App / Use Ratio:** 1.21

Field Name/Number: BS2 N **Acres:** 150

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		100.0	lbs/Ac	100.0		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	100.0		
Canal		18.8	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	10/19/22					
W. Harvest	5/8/23	22.2	T/Ac	(185.4)	(78.7)	(134.5)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		110.0	lbs/Ac	110.0	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	110.0		
Canal		31.6	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	6/12/23					
S. Harvest	10/4/23	25.9	T/Ac	(188.2)	(76.8)	(116.2)

Nutrient Applications

Field Name/Number: BS2 S **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
10/20/22	W. Manure App.	11.33	-	-	-	-	83.7	65.5	250.8	-	-		-
10/27/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/19/23	Canal	-	-	-	6.47	-	0.0	-	-	33	-		-
2/17/23	Canal	-	-	-	6.38	-	0.0	-	-	32	-		-
3/21/23	Canal	-	-	-	6.42	-	0.0	-	-	32	-		-
5/25/23	W. Harvest	-	-	-	-	-	(88.1)	(12.2)	(85.1)	-	9.85		14.47
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
7/14/23	S. Comm Fert App.	-	-	80	-	-	80.0	-	-	-	-		-
5/28/23	Canal	-	-	-	5.09	-	0.0	-	-	26	-		-
6/12/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
6/14/23	Canal	-	-	-	5.51	-	0.0	-	-	28	-		-
7/14/23	Canal	-	-	-	5.94	-	0.0	-	-	30	-		-
8/19/23	Canal	-	-	-	4.67	-	0.0	-	-	23	-		-
9/13/23	Canal	-	-	-	5.94	-	0.0	-	-	30	-		-
10/6/23	S. Harvest	-	-	-	-	-	(124.8)	(27.7)	(70.5)	-	5.97		19.71
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Totals:		**11.3**		**80**	**46.41**	**0.00**	**(49)**	**26**	**95**	**234**	**15.82**	**0**	**34.19**

Field Name/Number: BS2 S **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	163.8	28.6	208.2	233.6
Nutrients Removed at Harvest	-212.9	-17.4	-129.1	0.0
Nutrient Balance	-49.1	11.2	79.0	233.6

Winter Nitrogen Crop App / Use Ratio: 1.03 **Summer Nitrogen Crop App / Use Ratio:** 1.34

Field Name/Number: BS2 S **Acres:** 150

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		11.3	T/Ac	83.7	150.1	301.0
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		19.3	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	10/27/22					
W. Harvest	5/25/23	14.5	T/Ac	(88.1)	(27.8)	(102.1)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		80.0	lbs/Ac	80.0	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	80.0		
Canal		27.1	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	6/12/23					
S. Harvest	10/6/23	19.7	T/Ac	(124.8)	(63.5)	(84.6)

Nutrient Applications

Field Name/Number: BS3 N **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
2/3/23	W. Comm Fert App.	-	-	80	-	-	80.0	-	-	-	-		-
12/8/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/10/23	Canal	-	-	-	6.43	-	0.0	-	-	32	-		-
2/3/23	Canal	-	-	-	6.49	-	0.0	-	-	33	-		-
3/11/23	Canal	-	-	-	6.38	-	0.0	-	-	32	-		-
4/15/23	W. Harvest	-	-	-	-	-	(153.5)	(31.1)	(139.9)	-	9.85		15.77
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	S. Fallow	-	-	-	-	-	-	-	-	-	-		-
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Totals:		**0.0**		**80**	**19.30**	**0.00**	**(73)**	**(31)**	**(140)**	**97**	**9.85**	**0**	**15.77**

Field Name/Number: BS3 N **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	80.0	0.0	0.0	97.2
Nutrients Removed at Harvest	-153.5	-13.6	-116.1	0.0
Nutrient Balance	-73.4	-13.6	-116.1	97.2

Winter Nitrogen Crop App / Use Ratio: 1.09 **Summer Nitrogen Crop App / Use Ratio:** #N/A

Field Name/Number: BS3 N **Acres:** 150

Winter Crop **Wheat, Silage**

Nutrient Summary :		Applied		N		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		80.0	lbs/Ac	80.0		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	80.0		
Canal		19.3	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	12/8/22					
W. Harvest	4/15/23	15.8	T/Ac	(153.5)	(71.2)	(167.8)

Summer Crop **S. Fallow**

Nutrient Summary :		Applied		N		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
S. Planting	#N/A					
S. Harvest	-	#N/A	T/Ac	#N/A	#N/A	#N/A

Nutrient Applications

Field Name/Number: BS3 S **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
2/3/23	W. Comm Fert App.	-	-	100	-	-	100.0	-	-	-	-		-
10/25/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/10/23	Canal	-	-	-	6.52	-	0.0	-	-	33	-		-
2/3/23	Canal	-	-	-	6.40	-	0.0	-	-	32	-		-
3/11/23	Canal	-	-	-	6.57	-	0.0	-	-	33	-		-
4/18/23	Canal	-	-	-	6.54	-	0.0	-	-	33	-		-
5/8/23	W. Harvest	-	-	-	-	-	(195.9)	(29.6)	(119.8)	-	9.85		24.55
	-	-	-	-	-	-	-	-	-	-	-		-
7/16/23	S. Comm Fert App.	-	-	120	-	-	120.0	-	-	-	-		-
5/16/23	Canal	-	-	-	6.59	-	0.0	-	-	33	-		-
6/5/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
6/7/23	Canal	-	-	-	6.45	-	0.0	-	-	32	-		-
7/16/23	Canal	-	-	-	6.38	-	0.0	-	-	32	-		-
8/19/23	Canal	-	-	-	6.50	-	0.0	-	-	33	-		-
9/11/23	S. Harvest	-	-	-	-	-	(224.3)	(33.0)	(98.9)	-	5.97		22.05
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Totals:		**0.0**		**220**	**51.96**	**0.00**	**(200)**	**(63)**	**(219)**	**262**	**15.82**	**0**	**46.60**

Field Name/Number: BS3 S **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	220.1	0.0	0.0	261.6
Nutrients Removed at Harvest	-420.2	-27.3	-181.6	0.0
Nutrient Balance	-200.1	-27.3	-181.6	261.6

Winter Nitrogen Crop App / Use Ratio: 1.06 **Summer Nitrogen Crop App / Use Ratio:** 1.10

Field Name/Number: BS3 S **Acres:** 150

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		100.0	lbs/Ac	100.0		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	100.0		
Canal		26.0	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
W. Planting	10/25/22					
W. Harvest	5/8/23	24.6	T/Ac	(195.9)	(67.8)	(143.8)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		120.0	lbs/Ac	120.0	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	120.0		
Canal		25.9	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	6/5/23					
S. Harvest	9/11/23	22.0	T/Ac	(224.3)	(75.5)	(118.7)

Nutrient Applications

Field Name/Number: BS4 N **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
11/1/22	W. Manure App.	10.00	-	-	-	-	73.8	57.8	221.3	-	-		-
11/18/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/8/23	Canal	-	-	-	6.36	-	0.0	-	-	32	-		-
2/3/23	Canal	-	-	-	6.56	-	0.0	-	-	33	-		-
3/11/23	Canal	-	-	-	6.43	-	0.0	-	-	32	-		-
5/28/23	W. Harvest	-	-	-	-	-	(79.1)	(16.5)	(79.1)	-	9.85		16.86
	-	-	-	-	-	-	-	-	-	-	-		-
8/18/23	S. Comm Fert App.	-	-	80	-	-	80.0	-	-	-	-		-
7/9/23	Canal	-	-	-	6.52	-	0.0	-	-	33	-		-
7/23/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/25/23	Canal	-	-	-	6.59	-	0.0	-	-	33	-		-
8/18/23	Canal	-	-	-	6.45	-	0.0	-	-	32	-		-
9/16/23	Canal	-	-	-	6.38	-	0.0	-	-	32	-		-
10/7/23	Canal	-	-	-	6.47	-	0.0	-	-	33	-		-
10/31/23	S. Harvest	-	-	-	-	-	(152.4)	(33.7)	(177.4)	-	5.97		20.35
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Totals:		**10.0**		**80**	**51.77**	**0.00**	**(78)**	**8**	**(35)**	**261**	**15.82**	**0**	**37.21**

Field Name/Number: BS4 N **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	154.0	25.2	183.7	260.6
Nutrients Removed at Harvest	-231.5	-21.9	-212.9	0.0
Nutrient Balance	-77.5	3.3	-29.2	260.6

Winter Nitrogen Crop App / Use Ratio: 1.02 **Summer Nitrogen Crop App / Use Ratio:** 1.10

Field Name/Number: BS4 N **Acres:** 150

Winter Crop **Wheat, Silage**

Nutrient Summary :		Applied		N		
W. Manure App.		10.0	T/Ac	73.8	132.4	265.5
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		19.4	Ac In /Ac	0.0		
Atm. Depos.		Yes		7.0		
W. Planting	11/18/22					
W. Harvest	5/28/23	16.9	T/Ac	(79.1)	(37.8)	(94.9)

Summer Crop **Corn, Silage**

Nutrient Summary :		Applied		N		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		80.0	lbs/Ac	80.0	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	80.0		
Canal		32.4	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
S. Planting	7/23/23					
S. Harvest	10/31/23	20.3	T/Ac	(152.4)	(77.2)	(212.9)

Nutrient Applications

Field Name/Number: BS4 S (Trees) **Acres:** 150.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
11/1/14	W. Planting	-	-	-	-	-	-	-	-	-	-		-
3/3/23	Canal	-	-	-	1.08	-	0.0	-	-	5	-		-
4/7/23	Canal	-	-	-	1.08	-	0.0	-	-	5	-		-
5/4/23	Canal	-	-	-	2.40	-	0.0	-	-	12	-		-
6/9/23	Canal	-	-	-	5.51	-	0.0	-	-	28	-		-
7/16/23	Canal	-	-	-	8.06	-	0.0	-	-	41	-		-
8/17/23	Canal	-	-	-	7.05	-	0.0	-	-	35	-		-
9/18/23	Canal	-	-	-	5.11	-	0.0	-	-	26	-		-
10/19/23	Canal	-	-	-	2.60	-	0.0	-	-	13	-		-
10/10/23	W. Harvest	-	-	-	-	-	(98.4)	(14.7)	(108.2)	-	9.85		1.75
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
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	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		**0.0**		**0**	**32.89**	**0.00**	**(98)**	**(15)**	**(108)**	**166**	**9.85**	**0**	**1.75**

Field Name/Number: BS4 S (Trees) **Acres:** 150.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	0.1	0.0	0.0	165.6
Nutrients Removed at Harvest	-98.4	-6.4	-89.8	0.0
Nutrient Balance	-98.3	-6.4	-89.8	165.6

Winter Nitrogen Crop App / Use Ratio: 0.07 **Summer Nitrogen Crop App / Use Ratio:** #N/A

Field Name/Number: BS4 S (Trees) **Acres:** 150

Winter Crop **Trees, Pistachios**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		30.3	Ac In /Ac	0.1		
Atm. Depos.		Yes		7.0		
W. Planting	11/1/14					
W. Harvest	10/10/23	1.8	T/Ac	(98.4)	(33.7)	(129.8)

Summer Crop **Trees, Pistachios**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		#N/A		#N/A		
S. Planting	#N/A					
S. Harvest	#N/A	#N/A	T/Ac	#N/A	#N/A	#N/A

(Fm1)

Notes

Without allowance for the significant amount of rainfall during the winter months of 2022/2023, the irrigation logs on each field page of the annual report, reflect canal and/or well used only during that time frame. The facility did not irrigate during the "Significant Storm Events".

It is inaccurate to present "salt" application without acknowledging that there is substantial uptake and utilization of "salts" by crops. If it is possible to calculate "salt" application, it is also possible to calculate "salt" utilization. That calculation should be included in this report. To calculate "salt" utilization is a lengthy process and cannot be done with the constituents required in the Revised General Order sampling requirements.

The signature(s) affixed to this report does not affirmatively refer to those references to "salt" that we know to be incorrect.

_____ *(Initial)*

Exception Reporting

Manure , Process Water and Other Dairy Waste Discharges:

The following is a summary of all manure and process water discharges from the production area to surface water or to land areas (land application areas or otherwise) when not in accordance with the facility's Nutrient Management Plan.

No, manure or process water discharges occurred during the reporting period

Storm Water Discharges:

The follow is a summary of all storm water discharges from the production area to surface water during the reporting period when not in accordance with the facility's Nutrient Management Plan.

No, storm water discharges occurred durging the reporting period

Land Application Area To Surface Water Discharges:

The following is a summary of all discharges from the land application area surface water that have occurred during the reporting period when not in accordance with the facility's Nutrient

No, land application area to surface water discharges occurred during the reporting period

Nutrient Management Plan (NMP) & Written Agreement Statement

Nutrient Management Plan Statement:

Was the faciltiy NMP updated in the reporting period? Yes

Was the facility's NMP developed and approved by a certified nutrient management specialist? Yes

Written Agreements:

Are there any written agreements with third parties to receive manure or process water that are new or were revised within the repoting period? No

(Fm1)

Owner and/or Operator Certification

I certify under penalty of law that all information submitted as part of this document is accurate and true. Certification signatures by a California Registered Professional have been applied as needed in Part II. I have personally examined and am familiar with the information submitted in Parts I and II of this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

ignature of Owner of Facility	**Signature of Operator of Facility**
M Ranch #1 WDID 5C54NC00233	Same as owner
rint Name	**Print Name**
4/17/2024	4/17/2024

FM Ranch #1

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

February 17, 2023

Lab No. : **VI 2340556**
Customer No. : **4018505**

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Laboratory Report

Introduction: This report package contains a total of 4 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
Barn	01/31/2023	01/31/2023	VI 2340556-001	DW
Barn-Backup	01/31/2023	01/31/2023	VI 2340556-002	DW

Sampling and Receipt Information:

All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples were received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary

	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-02-17

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TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

February 17, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Lab No. : VI 2340556-001
Customer No. : 4018505

Sampled On : January 31, 2023 at 08:30
Sampled By : Marlene / Kaylin
Received On : January 31, 2023 at 14:03
Matrix : Drinking Water

Description : Barn
Project : W-6 FM Ranch #1

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
							Date	Time	Who	Method	Date	Time	Who
Dairy Analysis													
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	02/14/2023	10:47	sta	EPA 351.2	02/15/2023	17:01	lcr
Nitrate Nitrogen	10.6	0.4	mg/L	10	1		02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	16:49	lfs
Nitrogen, Total as Nitrogen	10.6	0.5	mg/L		1		02/14/2023	10:47	sta	EPA 351.2	02/15/2023	17:01	lcr
Nitrate + Nitrite as N	10.6	0.4	mg/L	10	1		02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	16:49	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	02/14/2023	10:47	sta	EPA 351.2	02/15/2023	17:01	lcr
Conductivity	626	1	umhos/cm	1600[2]	1		02/09/2023	14:28	sta		02/09/2023	14:28	sta
Solids, Total Dissolved (TDS)	390	20	mg/L	1000[2]	1		02/02/2023	11:53	ctl	SM 2540 C	02/03/2023	12:32	ctl

DQF Flags Definition:
U Constituent results were non-detect.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

Page 2 of 4

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February 17, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Lab No. : VI 2340556-002
Customer No. : 4018505

Sampled On : January 31, 2023 at 08:34
Sampled By : Marlene / Kaylin
Received On : January 31, 2023 at 14:03
Matrix : Drinking Water

Description : Barn-Backup
Project : W-6 FM Ranch #1

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AI	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	02/14/2023	10:47	sta	EPA 351.2	02/15/2023	17:13	lcr
Nitrate Nitrogen	10.8	0.4	mg/L	10	1		02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	16:51	lfs
Nitrogen, Total as Nitrogen	10.8	0.5	mg/L		1		02/14/2023	10:47	sta	EPA 351.2	02/15/2023	17:13	lcr
Nitrate + Nitrite as N	10.8	0.4	mg/L	10	1		02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	16:51	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	02/14/2023	10:47	sta	EPA 351.2	02/15/2023	17:13	lcr
Conductivity	633	1	umhos/cm	1600[2]	1		02/09/2023	14:28	sta		02/09/2023	14:28	sta
Solids, Total Dissolved (TDS)	420	20	mg/L	1000[2]	1		02/02/2023	11:53	ctl	SM 2540 C	02/03/2023	12:31	ctl

DQF Flags Definition:
U Constituent results were non-detect.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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February 17, 2023
Livingston Dairy Consulting, Inc.

Lab No. : VI 2340556
Customer No. : 4018505

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2510B	02/09/2023:201372STA	Blank	umhos/cm		ND	<1	
		(STK2331345-001)	Dup	umhos/cm		0.6%	5	
			Blank	umhos/cm		ND	<1	
		(VI 2340831-003)	Dup	umhos/cm		1%	5	
Solids, Total Dissolved	2540CE	02/02/2023:201179CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	990.8	103 %	90-110	
		(SP 2301488-001)	Dup	mg/L		2.2%	5	
		(SP 2301488-001)	Dup	mg/L		0.4%	5	
Nitrogen, Total Kjeldahl	351.2	02/14/2023:201629STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	94.3%	73-124	
			MS	mg/L	12.00	99.4%	54-136	
		(SP 2301580-001)	MSD	mg/L	12.00	95.8%	54-136	
			MSRPD	mg/L	12.00	3.7%	≤27	
			MS	mg/L	12.00	97.9%	54-136	
		(CH 2370584-001)	MSD	mg/L	12.00	94.8%	54-136	
			MSRPD	mg/L	12.00	3.1%	≤27	
Nitrate + Nitrite as N	4500NO3F	02/01/2023:201107LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	93.1%	80-120	
			MS	mg/L	5.609	91.9%	66-125	
		(VI 2340560-001)	MSD	mg/L	5.609	95.0%	66-125	
			MSRPD	mg/L	5.609	2.6%	≤30.4	
Nitrate Nitrogen	4500NO3F	02/01/2023:201107LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	93.1%	80-120	
			MS	mg/L	5.609	91.9%	66-125	
		(VI 2340560-001)	MSD	mg/L	5.609	95.0%	66-125	
			MSRPD	mg/L	5.609	2.6%	≤30.4	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

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FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

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Laboratory Copy (1 of 3)

42086:03/01/2022

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: **Livingston Dairy Consulting, Inc.**
Address: Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Phone: (559)687-1440 Fax:
Contact Person: Noreen Livingston
Project Name: W-6 FM Ranch #1
Purchase Order Number:
Quote Number: VI 20210208-01

Sampler(s) Marlene & Kaylin

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: VI 23405556 4-18505

Method of Sampling: Composite(C) Grab(G)
SEE REVERSE SIDE
Type of Sample
Potable(P) Non-Potable(NP) Ag Water(AgW)
Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)
Bacti Reason: Other(O) Routine(ROUT) Special(SPL) Repeat(RPT) Replace(RPL)
Dairy Analysis-W-6-Conductivity,NO3-N,Total N,TDS 16oz(P)
Sampling-W-6 - Total N - Split Bottle
VI Lab to Split for Total N 8oz(P)-H2SO4

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling	Type of Sample	Potable	Bacti Type	Bacti Reason	Dairy Analysis-W-6-Conductivity,NO3-N,Total N,TDS 16oz(P)	Sampling-W-6 - Total N - Split Bottle ***VI Lab to Split for Total N*** 8oz(P)-H2SO4
1	Barn	1/31	8:30AM	G	DW	P			1	1
2	Barn - backup	1/31	8:34AM	G	DW	P			1	1
3				G					1	1
4				G					1	1
5				G					1	1
6				G					1	1
7				G					1	1
8				G					1	1
9				G					1	1
10				G					1	1

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
[signature]	1/31/23	1:33	[signature]	1/31/23	1403	[signature]	1/31/23	1710
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
[signature]	1/31/23	1:33	[signature]	1/31/23	1403	[signature]		

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GLS 2/1/23 1125

Inter-Laboratory Condition Upon Receipt (Attach to COC)

Sample Receipt at: STK CC CH VI

1. Number of ice chests/packages received: 1 Shipping tracking # 01L
2. Were samples received in a chilled condition? Temps: 4.3 / ____ / ____ / ____
   Surface water SWTR bact samples: A sample that has a temperature upon receipt of >10° C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.

3. Do the number of bottles received agree with the COC?	Yes	No	N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.)	Yes	No	
5. VOAs checked for Headspace?	Yes	No	N/A
6. Were sample custody seals intact?	Yes	No	N/A
7. If required, was sample split for pH analysis?	Yes	No	N/A
8. Were all analyses within holding times at time of receipt?	Yes	No	
9. Verify sample date, time and sampler name	Yes	No	

Sign and date the COC, place in a ziplock and put in the same ice chest as the samples.
Sample Receipt Review completed by (initials): ____

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 2c / ____ / ____ / ____ / ____
   Acceptable is above freezing to 6 C. If many packages are received at one time check for tests/H.T.'s/rushes/
2. Shipping tracking numbers: 558722593 590 584

3. Do the number of bottles received agree with the COC?	Yes	No	N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.)	Yes	No	
5. Were sample custody seals intact?	Yes	No	N/A

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable?	Yes	No		
2. Did bottle labels correspond with the client's ID's?	Yes	No		
3. Were all bottles requiring sample preservation properly preserved? [Exception: Oil & Grease, VOA and CrVI verified in lab]	Yes	No	N/A	FGL
4. VOAs checked for Headspace?	Yes	No	N/A	
5. Have rush or project due dates been checked and accepted?	Yes	No	N/A	
6. Were all analyses within holding times at time of receipt?	Yes	No		

Attach labels to the containers and include a copy of the COC for lab delivery.
Sample Receipt, Login and Verification completed by (initials): MDC

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: ____ Phone Number: ____
   Initiated By: ____ Date: ____
   Problem:
   Resolution:

2. Person Contacted: ____ Phone Number: ____
   Initiated By: ____
   Problem:
   Resolution:

(Please use the back of this sheet for additional co
contacts)

(4018505)
Livingston Dairy Consulting, Inc.
VI 2340556
iv 02/01/2023 09:28:04

FM Rank #1

ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

July 28, 2023

Lab No. : **VI 2344720**
Customer No. : **4018505**

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Laboratory Report

Introduction: This report package contains a total of 4 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
Old Barn	07/20/2023	07/20/2023	VI 2344720-001	DW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary

EPA 200.7	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-07-31

Page 1 of 4

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July 28, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Lab No. : VI 2344720-001
Customer No. : 4018505

Sampled On : July 20, 2023 at 07:06
Sampled By : Marlene & Noreen
Received On : July 20, 2023 at 10:32
Matrix : Drinking Water

Description : Old Barn
Project : W-4 FM Ranch #1

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	210	10	mg/L		1		07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	22:43	amm
Bicarbonate	260	10	mg/L		1		07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	22:43	amm
Carbonate	ND	10	mg/L		1	U	07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	22:43	amm
Hydroxide	ND	10	mg/L		1	U	07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	22:43	amm
Chloride	17	1	mg/L	500[2]	1	b	07/21/2023	15:50	lfs	EPA 300.0	07/22/2023	02:20	lfs
Nitrate Nitrogen	11.1	0.1	mg/L	10	1		07/21/2023	15:50	lfs	EPA 300.0	07/22/2023	02:20	lfs
Conductivity	595	1	umhos/cm	1600[2]	1		07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	22:43	amm
Sulfate	33.4	0.5	mg/L	500[2]	1		07/21/2023	15:50	lfs	EPA 300.0	07/22/2023	02:20	lfs
Solids, Total Dissolved (TDS)	410	20	mg/L	1000[2]	1		07/24/2023	12:50	ctl	SM 2540 C	07/25/2023	10:50	ctl
Calcium	74	1	mg/L		1		07/26/2023	04:45	ejc	EPA 200.7	07/26/2023	19:54	ac
Magnesium	5	1	mg/L		1		07/26/2023	04:45	ejc	EPA 200.7	07/26/2023	19:54	ac
Sodium	40	1	mg/L		1		07/26/2023	04:45	ejc	EPA 200.7	07/26/2023	19:54	ac

DQF Flags Definition:
U Constituent results were non-detect.
b The Blank was positive for constituent but less than the PQL

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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July 28, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344720
Customer No. : 4018505

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	07/26/2023:208188EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.3%	85-115	
			MS	mg/L	12.00	96.3%	75-125	
		(SP 2312627-001)	MSD	mg/L	12.00	90.7%	75-125	
			MSRPD	mg/L		2.2%	≤20.0	
			MS	mg/L	12.00	79.6%	75-125	
		(STK2339623-007)	MSD	mg/L	12.00	75.3%	75-125	
			MSRPD	mg/L		0.6%	≤20.0	
Magnesium	200.7	07/26/2023:208188EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.5%	85-115	
			MS	mg/L	12.00	101%	75-125	
		(SP 2312627-001)	MSD	mg/L	12.00	98.8%	75-125	
			MSRPD	mg/L		1.5%	≤20	
			MS	mg/L	12.00	95.4%	75-125	
		(STK2339623-007)	MSD	mg/L	12.00	94.6%	75-125	
			MSRPD	mg/L		0.3%	≤20	
Sodium	200.7	07/26/2023:208188EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	95.8%	85-115	
			MS	mg/L	12.00	93.3%	75-125	
		(SP 2312627-001)	MSD	mg/L	12.00	92.1%	75-125	
			MSRPD	mg/L		0.5%	≤20.0	
			MS	mg/L	12.00	68.4%	<¼	406
		(STK2339623-007)	MSD	mg/L	12.00	28.8%	<1/4	
			MSRPD	mg/L		2.1%	≤20.0	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

Page 3 of 4

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July 28, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344720
Customer No. : 4018505

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	07/25/2023:208164AMM	ND	mg/L		0.8%	10	406
Bicarbonate	2320B	(VI 2344625-004)	Dup	mg/L		0%	10	
E. C.	2320B	(VI 2344625-004)	Dup	umhos/cm		4.26%	5	
Solids, Total Dissolved	2540CE	07/24/2023:208076CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	98.5 %	90-110	
		(STK2339600-009)	Dup	mg/L		0.6%	5	
		(STK2339600-009)	Dup	mg/L		0.08%	5	
Chloride	300.0	07/21/2023:208029LFS	Blank	mg/L		1	<1	
			LCS	mg/L	25.00	101 %	90-110	
			MS	mg/L	50.00	92.4 %	85-121	
		(STK2339751-002)	MSD	mg/L	50.00	107 %	85-121	
			MSRPD	mg/L	10.00	13.8%	≤19	
			MS	mg/L	50.00	99.9 %	85-121	
		(STK2339623-009)	MSD	mg/L	50.00	91.9 %	85-121	
			MSRPD	mg/L	10.00	8.3%	≤19	
Nitrate Nitrogen	300.0	07/21/2023:208029LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	99.8 %	90-110	
			MS	mg/L	40.00	93.3 %	85-119	
		(STK2339751-002)	MSD	mg/L	40.00	108 %	85-119	
			MSRPD	mg/L	10.00	13.9%	≤19	
			MS	mg/L	40.00	100 %	85-119	
		(STK2339623-009)	MSD	mg/L	40.00	92.3 %	85-119	
			MSRPD	mg/L	10.00	8.3%	≤19	
Sulfate	300.0	07/21/2023:208029LFS	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	101 %	90-110	
			MS	mg/L	100.0	93.3 %	82-124	
		(STK2339751-002)	MSD	mg/L	100.0	108 %	82-124	
			MSRPD	mg/L	10.00	14.0%	≤23	
			MS	mg/L	100.0	101 %	82-124	
		(STK2339623-009)	MSD	mg/L	100.0	92.8 %	82-124	
			MSRPD	mg/L	10.00	8.2%	≤23	

Definition

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.

Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.

LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.

MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.

ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

Page 4 of 4

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

Special

CHAIN OF CUSTODY
www.fglinc.com

Laboratory Copy (1 of 3)

42085:03/01/2022

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: **Livingston Dairy Consulting, Inc.**
Address: Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Phone: (559)687-1440 Fax:
Contact Person: Noreen Livingston
Project Name: W-4 FM Ranch #1
Purchase Order Number:
Quote Number: **VI 20210208-01**

Sampler(s) Marlene & Noreen

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **VI** 2344720 **4-18505**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dairy Analysis-W-4-Alk. (CaCO3),Cl,Conductivity,NO3-N,TDS,SO4,Ca,Na,Mg 16oz(P)
1	Old Barn	7/20	7:00AM	G	DW	P			1
2				G					1
3				G					1
4				G					1
5				G					1
6				G					1
7				G					1
8				G					1
9				G					1
10				G					1

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Marlene	7/20/23	10:32	SRO	7/20/23	1730	GLS	7/21/23	1120
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
SRO	7/20/23	1032	GLS	7/20/23	1730	MC	/	/

R01
8.5°C

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Phone: (559) 734-9473
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Inter-Laboratory Condition Upon Receipt (Attach to COC)

Sample Receipt at: STK CC CH VI

1. Number of ice chests/packages received: 1 Shipping tracking # OTC

2. Were samples received in a chilled condition? Temps: R01 / 8.5°C / ____ / ____ / ____
   Surface water SWTR bact samples: A sample that has a temperature upon receipt of >10° C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.

3.	Do the number of bottles received agree with the COC?	Yes	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	Yes	No	
5.	VOAs checked for Headspace?	Yes	No	N/A
6.	Were sample custody seals intact?	Yes	No	N/A
7.	If required, was sample split for pH analysis?	Yes	No	N/A
8.	Were all analyses within holding times at time of receipt?	Yes	No	
9.	Verify sample date, time and sampler name	Yes	No	

Sign and date the COC, place in a ziplock and put in the same ice chest as the samples.
Sample Receipt Review completed by (initials): SRO

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 1c / ____ / ____ / ____ / ____
   Acceptable is above freezing to 6° C. If many packages are received at one time check for tests/H.T.'s/rushes/
2. Shipping tracking numbers: 559803345 3297 3542 3359

3.	Do the number of bottles received agree with the COC?	Yes	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	Yes	No	
5.	Were sample custody seals intact?	Yes	No	N/A

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1.	Were all requested analyses understood and acceptable?	Yes	No		
2.	Did bottle labels correspond with the client's ID's?	Yes	No		
3.	Were all bottles requiring sample preservation properly preserved? [Exception: Oil & Grease, VOA and CrVI verified in lab]	Yes	No	N/A	FGL
4.	VOAs checked for Headspace?	Yes	No	N/A	
5.	Have rush or project due dates been checked and accepted?	Yes	No	N/A	
6.	Were all analyses within holding times at time of receipt?	Yes	No		

Attach labels to the containers and include a copy of the COC for lab delivery.
Sample Receipt, Login and Verification completed by (initials): MDL

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted:_____ Phone Number:_____
   Initiated By:_____ Date:_____
   Problem:
   Resolution:

2. Person Contacted:_____
   Initiated By:_____
   Problem:
   Resolution:

(Please use the back of this sheet for additional c
contacts)

(4018505)
Livingston Dairy Consulting, Inc.
VI 2344720
iv 07/20/2023 14:25:53
VI 2344720

2023 Canal Results

558TRA144 - Tule River at Road 144

Core & Assessment Constituents

Constituent	Field/Lab	WQTL	MDL	PQL	Units	Oct-22	Nov-22	Dec-22	1/17/23	2/13/23	March-23	4/17/23	5/15/23	6/19/23	7/18/23
Flow	Field				cfs	0	0	0	220	280	Due to Record Flood Conditions, No Surface Water Analysis in March 2023	180	150	250	400
EC	BSK	700			umhos/cm				151.2	115.3		134.4	128.3	131	138.4
pH	BSK	6.5-8.3			pH				7.59	6.5		7.1	6.8	6.4	8.53
Temperature	BSK				Celsius				10	11.3		15.9	21.4	20.3	19.6
Dissolved Oxygen	BSK	Min. 7.0			mg/L				10.87	12.7		9.49	**	14.37	8
TDS	BSK	450	4.4	10	mg/L				30	50		110	96	33	37
Turbidity	BSK			0.1	NTU				56	15		11	6.4	15	21
Nitrate + Nitrite as N	BSK	10	0.028	0.2	mg/L				1.3	0.24		0.022	0.61	0.077	ND
Orthophosphate-P	BSK		0.0051	0.6	mg/L				1.9	0.019		0.021	0.038	0.011	0.015
Ammonia-N	BSK	1.5	0.05	0.5	mg/L				ND	ND		ND	ND	ND	ND
Unionized Ammonia	BSK				mg/L				ND	ND		ND	ND	ND	ND
TKN	BSK		0.267	0.5	mg/L				0.17	0.43		ND	0.16	ND	0.16
Phosphorus	BSK		8.1	50	ug/L				1.8	0.044		0.091	0.048	0.034	0.02
Arsenic	BSK	10	0.041	0.2	ug/L				2.2	1.7		1.6	1.3	1.1	1.1
Boron	BSK	700	4.5	10	ug/L				30	23		22	17	8.1	5
Cadmium	BSK	5	0.025	0.2	ug/L				ND	ND		ND	ND	ND	ND
Copper	BSK	1300	0.36	0.5	ug/L				3.3	5		2.8	2.4	2.7	4.8
Lead	BSK	15	0.034	0.2	ug/L				1.4	0.63		0.83	0.48	0.45	0.55
Nickel	BSK	100	0.2	0.5	ug/L				1.5	0.79		1.5	0.86	0.75	0.85
Selenium	BSK	50	0.29	1	ug/L				1.1	0.33		0.77	0.62	ND	0.32
Zinc	BSK		0.68	20	ug/L				7.1	3.9		6.1	7.4	2.9	5.1
Molybdenum	BSK	10	0.15	0.5	ug/L				1.5	1.2		1.2	0.98	0.68	0.59
Hardness	BSK		1	1	mg/L				58	22		50	40	12	8
TSS	BSK		na	10	mg/L				30	32		36	12	22	32
TOC	BSK		0.085	0.5	mg/L				3.1	3.2		3.6	2.6	2.2	1.8
E. coli	BSK	235		1.1	MPN				130	4.5		49	240	130	79
Fecal Coliform	BSK	400		1.1	MPN				130	4.5		49	240	130	79
Toxicity, minnow	ABC				96h				100	100		100	100	100	87.5
Toxicity, water flea	ABC				48h				100	100		100	100	100	100
Toxicity, algae	ABC				48h				100	100		100	100	100	100
2,4-D Acids &Salts	BSK														

Livingston Dairy Consulting, Inc.

FIELD ACTIVITY REPORT

Facility Name: FM Ranch #1
16777 S. "I" St, Tulare
Tulare County

2023

Sample Collection Equipment:
Bottle Container

Sample Container: (Circle one)
Bottle Container: 8 fl oz 16 fl oz 32 fl oz

Sample Collection Location: (Circle one)
Discharge Pipe **Spigot/Faucet**

Sample Collection Method: (Circle one) *All Samples are labeled with the facility name, date, contents, location and description ** Please see the Sample and Anylsis Plan for more detailed descriptions.

Well: **Sample taken at the Discharge Pipe, Spigot or Faucet using a sample container provided by laboratory**

Sample Type:

Date	Well Name	Time	PH	Temp	Ammonium
1-31	Barn	8:30	7.0	62	Ø
1-31	Barn Back up	8:34	6.8	62	Ø
7/20	Old Barn	7:06	7	65	Ø

Sample Preservation Method: (Circle one) **Ice Chest** **Refrigerator** **Ice Pack**

Livingston Dairy Contuling, Inc. 2020

Livingston Dairy Consulting, Inc.

1635 E. Prosperity Ave. Ste. B
Tulare, CA 93274
559-687-1440

Sunday, April 21, 2024

Re: 2023 NMP
FM Ranch #1 WDID 5C54NC00233
16777 South I Drive Tulare, CA 93274

Enclosed is the 2023/2024 Nutrient Budget for your facility to comply with the California Regional Water Quality Control Board General Oder No. R5-2007-0035.

***2023 Whole Farm Nitrogen Balance**

The whole farm nitrogen balance for the crop year 2022 was **1.06**
Nitrogen Summary will show the balances for each field and for the whole farm.

***Ranges for the Whole Farm Nitrogen Balance**

Factor	Status	Evaluation
> 1.65	Excessive	Too much nitrogen applied
1.4 - 1.65	Slightly High	Nitrogen is satisfactory to slightly high
0.9 - 1.4	Normal	Normal to slightly low
< 0.9	Low	Low nitrogen status, additional nitrogen needed

***Nutrient Management Plan/ Nutrient Budget Certification**

This Nutrient Budget was prepared by a Certified Crop Advisor as required by the California Regional Water Quality Control Board.

Butch Brazil
Certified Crop Advisor #35629

This Nutrient Management Plan / Nutrient Budget is based on samples collected and analyzed by a third party laboratory. This Certified Crop Advisor was not involved in oversight of outside laboratory sample collection, transportation, or analyses. Interpretation of the data is based on submitted information. Where data was incomplete, book values and / or historical data was used. The third party laboratory or Certified Crop Advisor was not involved with the agronomic growth of the crops and the Nutrient Budget is based on information provided by the owner.