Field DM-7

Years 2 thru 5

Alternate Crop Options

Dairy Annual Nutrient Manager

Date	12/3/2009					
Dairy	Dominguez Dairy					
Crop_Year	2010-2011 (alt)					
Field_ID	DM-7					
Area (ac)	91					

NM STATE UNIVERSITY Dairy Extension Program

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PLANNED

	Month - Month	Crop	Unit	N Loss Goal/Real Yield	0% Nutrient Needed N	P
1st Crop	Nov'10-May'11	Triticale (Wheat for green chop 70%)	t/ac	20	25509	3385
2nd Crop	Jun'11-Oct'11	Cotton	lb/ac	1250	3458	432
					0	0
Total		Nutrient Needed			28,967	3,817
					Soil Analyses	
					N	P
Texture by Feel		Clay				
Nutrient Available in Soil			lb/ac		63	176.42
		Nutrient Still Needed			23,234	-12,237
					Effluent Analyses	
					N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA	ac-in	0.712	1620	735
			ac-in		0	0
			ac-in		0	0
		Nutrient Still Needed			21,614	-12,972
					Manure Analyses	
					N	P
Dry Manure Application			t/ac		0	0
			t/ac		0	0
			t/ac		0	0
		Nutrient Still Needed			21,614	-12,972
					Fertilizer Content	
					N	P
Chemical Fertilizers Applied		22-0-0	lb/ac	950	21613	0
			lb/ac		0	0
			lb/ac		0	0
		Annual Nutrient Balance			**2**	**-12,972**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-7

Application Information *(Enter the units that will be or has been applied to the field)*:

Crop Rotation:	Triticale Silage			Needed for field (acin):	25.935
Liquid Applied:	0.285	Acln/ac		(gal):	704,135
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
Book	Test	Book	Test	Book	Test	Book	Test
0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	20.8 (lbs/acin) NH4-N
			0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	7.3	7.5	58.3

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-7

Application information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Cotton			Needed for field (acin):	38.857
Liquid Applied:	0.427	AcIn/ac		(gal):	1,054,968
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

	TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
	Book	Test	Book	Test	Book	Test	Book	Test
	0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**20.8** (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	10.9	11.2	87.4

Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

used for Triticale

Wheat, for green chop
Forage
Triticum sp.
Plant part harvested: Aboveground biomass
Crop yield unit: ton

Nutrients in harvested part (lb/ton) at 70% moisture percentage.

Nitrogen	Phosphorus	Potassium
14.0160	1.8600	

Nutrients removed in harvested part (lb/acre) at 20 ton yield level.

Nitrogen	Phosphorus	Potassium
280.3200	37.2000	

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
25509.1200	3385.2000	

Element-Fertilizer Equivalents | Average NPK Percentages

«Contents»

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PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

Cotton, for seed with lint or seed cotton
Fiber and miscellaneous
Gossypium sp.
Plant part harvested: Seed and lint
Crop yield unit: lb of seed and lint

Nutrients in harvested part (lb/lb of seed and lint) at 7.80% moisture percentage.

Nitrogen	Phosphorus	Potassium
.0304	.0038	.0045

Nutrients removed in harvested part (lb/acre) at 1250 lb of seed and lint yield level.

Nitrogen	Phosphorus	Potassium
37.9864	4.7253	5.6473

Nutrients removed in harvested part (lb/lb of seed and lint) at 1250 lb of seed and lint yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
3456.7624	429.9978	513.8998

Element-Fertilizer Equivalents | Average NPK Percentages

«Contents»

Time Generated: Mon 4:50 PM - 11/30/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Nov'10 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Triticale
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	22.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 11/10 to 5/11) 0.43 t/ac + (RUSLE 2) 0.17 t/ac = 0.60 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Jun'11 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Cotton
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	22.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 6/11 to 10/11) 0.46 t/ac + (RUSLE 2) 0.44 t/ac = 0.90 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: Dominguez Dairy
Planner: Chet Wyant
Current Land Use: Triticale Silage / Cotton
Date: 11/20/2009

Tract: 1579
Field(s) No.: DM-7
Total Acres: 91
Date to apply: Nov'10 alt

See the Conservation Plan map for the location of the field(s) to applying IWM.

Purposes (check all that apply)

- ☐ Manage soil moisture to improve crops
- ☑ Optimize use of water
- ☑ Minimize Irrigation Erosion
- ☐ Decrease non-point source pollution
- ☐ Manage salt in the root zone
- ☐ Manage air, soil, or plant microclimate

Conditions where practice applies

This practice is applicable to all irrigated lands. An irrigation system adapted for the site conditions is available and capable of applying water to meet the intended purpose(s).

Soil (Series, Texture, and Map Unit) *Select the soil to manage for:*

Critical soil to manage: **Glendale CL, Alkali, Hondale Mimbres complex, Alk** | Intake Family (in/hr): **0.10**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Wheat, winter, silage; Las Cruces	Medium	3.0	3.0	50%	1.5	6.1
Cotton; Las Cruces	Medium	3.0	3.0	50%	1.5	6.1

Crop Consumptive Use (CU) Information *(inches/month needed)*

Crop: Wheat, winter, silage; Las Cruces — **Total Irrigation Needed:** 10.2 ac in/ac

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan	>1 Mo.	1.2	Jul		0.0
Feb	22	2.1	Aug		0.0
Mar	14	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

Crop: Cotton; Las Cruces — **Total Irrigation Needed:** 30.2 ac in/ac

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	6	7.5
Feb		0.0	Aug	6	7.3
Mar		0.0	Sep	8	5.4
Apr	>1 Mo.	0.3	Oct	16	2.8
May	23	2.0	Nov	>1 Mo.	0.6
Jun	10	4.4	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** (days between irr.)	**In/Mo**
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System: **Flood, controlled** System Efficiency (%): **80%**

System Capacity (Ditch/Pump/Well): **6000** GPM

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	4	2.81	0.11	System meets CU for crop
Cotton; Las Cruces	11	2.81	0.25	System meets CU for crop

Operation and Maintenance Requirements

1. Irrigate when the soils reaches the MAD level, determined by soil moisture monitoring. Use one of the following methods to monitor soil moisture; the feel method, tensiometers, electrical resistance blocks, or moisture probes. Drip or Center Pivots can be irrigated on an as needed basis to meet daily CU.

2. Test irrigation water for Nitrate and Salts (Total Desolved Solids/Electrical Conductivity)

3. Do not exceed the net water to replace listed above when irrigating, unless salts are being managed.

4. Do not apply water at rates that cause runoff or erosion.

5. Monitor the soil to maintain: pH, permeability, salinity, and structure.

6. Application of pond effluent shall not exceed the crop needs (water and nutrient), and will not exceed the water holding capacity listed above.

7. Consider using crops such as sorghum, cotton, or winter wheat when water supplies are short.

8. Avoid traffic on wet soils to minimize soil compaction.

Additional Requirements

Job Approval and Completion

Client: [signature] **Date:** 11-23-2009

Conservationist: [signature] **Date:** 11-23-09

Completed by: [signature] **Date:**

NRCS - WEQ CALCULATIONS

Version 9 03 11-19-2007

Producer: Dominguez Dairy | Planner: Chet Wyant | Location: Mesquite, NM | Tract: 1579 | Field: DM-7

Crop Rotation: Triticale Silage / Cotton | Climate Data Station: NM, LAS CRUCES | Site "C" Value: 150

Tillage Direction (NS/EW): NS | Length/width ratio: 1 | Field Direction (NS/EW): NS | Field Width (Ft.): 2006

Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 4L (1-7) | TWF: 2 (see instr.)

Sum Period Erosion (t/ac): 0.9 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: 0.9 (t/ac/yr)

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SGe	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Kr"	Dev.	Prep.	WED	"L"	"Y"	"E"	EWE	"F"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
11/1	11/02/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	0	24.4	0.2	1.00	0.04
11/2	12/02/10	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	3544	0.0	5.0	1.00	0.00
12/2	01/01/11	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	3898	0.0	7.4	0.93	0.00
1/1	01/31/11	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	6010	0.0	4.0	1.00	0.00
1/31	03/02/11	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	6999	0.0	24.7	1.00	0.00
3/2	03/17/11	2	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	6999	0.0	12.9	0.73	0.00
3/17	04/01/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	3544	0.0	12.9	1.00	0.00
4/1	04/16/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	3544	0.0	8.8	0.87	0.00
4/16	05/01/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	3544	0.0	8.8	1.00	0.00
5/1	05/16/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	4282	0.0	5.3	1.00	0.00
5/16	05/23/11	1	56	0.0	4	13	0.24	0.52	0.0	4.0	1.000	2006	89	5.7	2.5	0.71	0.10
5/23	05/29/11	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.000	2006	27	9.8	2.1	0.67	0.14
5/29	06/13/11	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.000	2006	23	8.5	1.7	1.00	0.15
6/13	06/28/11	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	2066	16	37.2	0.8	0.87	0.26
6/28	07/13/11	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	2066	21	37.1	0.3	0.87	0.10
7/13	07/28/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	2066	203	34.9	0.2	0.87	0.06
7/28	08/12/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	2066	668	20.3	0.1	0.87	0.02
8/12	08/27/11	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.01	2026	1367	5.2	0.1	0.87	0.00
8/27	09/11/11	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.01	2026	2319	0.0	0.3	0.87	0.00
9/11	09/20/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.00	2006	943	6.2	0.3	1.00	0.02
9/20	09/21/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.00	2006	1178	2.9	0.0	1.00	0.00
9/21	10/31/11	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.00	2006	5304	0.0	1.6	1.00	0.00
		0			2	10											
		0															
		0															
		0															

NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: (Alt) Triticale Silage Nov'10 to May'11, Cotton Jun'11 to Oct'11

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-7

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gg GLENDALE CLAY LOAM, ALKALI\GLENDALE clay loam 85%
Slope length (horiz): 100.0 ft
Avg. slope steepness: 0.50 %
T value: 5.0 t/ac/yr

Alternatives:

Management	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss, t/ac/yr*	*Description*
a.Single Year/Single Crop Templates\Triticale, silage, plow, irr CT	b. absolute row grade 0.5 percent	(none)	(none)	0.17	
a.Single Year/Single Crop Templates\Cotton, CT 2 bale	b. absolute row grade 0.5 percent	(none)	(none)	0.44	

Year 3

Dairy Annual Nutrient Manager

Date	11/30/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu		PLANNED		
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2011-2012 (alt)				Goal/Real	Nutrient Needed	
Field_ID	DM-7						
Area (ac)	91						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'11-May'12	Barley-6 row, for green chop (boot)		t/ac	20	16331	2742
2nd Crop	Jun'12-Oct'12	Corn-Field for Silage (dough 68%)		t/ac	22	15831	2370
						0	0
Total		Nutrient Needed				32,162	5,112
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		63	176.42
		Nutrient Still Needed				26,429	-10,942
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1620	735
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				24,809	-11,677
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				24,809	-11,677
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1090	24798	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**12**	**-11,677**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-7

Application information *(Enter the units that will be or has been applied to the field):*

Crop Rotation:	Barley Silage			Needed for field (acin):	25.935
Liquid Applied:	0.285	AcIn/ac		(gal):	704,135
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
Book	Test	Book	Test	Book	Test	Book	Test
0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**20.8 (lbs/acin) NH4-N**
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	7.3	7.5	58.3

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-7

Application Information *(Enter the units that will be or has been applied to the field):*

Crop Rotation:	Corn Silage			Needed for field (acin):	38.857
Liquid Applied:	0.427	Acin/ac		(gal):	1,054,968
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
Book	Test	Book	Test	Book	Test	Book	Test
0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**20.8 (lbs/acin) NH4-N**
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	10.9	11.2	87.4

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

Barley-6 row, for green chop (boot)
Forage
Hordeum vulgare
Plant part harvested: Aboveground biomass
Crop yield unit: ton

Nutrients in harvested part (lb/ton) at 69% moisture percentage.

Nitrogen	Phosphorus	Potassium
13.6688	2.2951	9.7854

Nutrients removed in harvested part (lb/acre) at 20 ton yield level.

Nitrogen	Phosphorus	Potassium
273.3764	45.9023	195.7077

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
24877.2554	4177.1132	17809.4050

Element-Fertilizer Equivalents

Average NPK Percentages

«Contents»

Time Generated: Mon 4:56 PM - 11/30/2009

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PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

Corn-Field, for silage (dough stage)

Forage

Zea mays ssp. mays

Plant part harvested: Aboveground biomass

Crop yield unit: ton

Nutrients in harvested part (lb/ton) at 68% moisture percentage.

Nitrogen	Phosphorus	Potassium
7.9078	1.1840	6.6560

Nutrients removed in harvested part (lb/acre) at 22 ton yield level.

Nitrogen	Phosphorus	Potassium
173.9725	26.0480	146.4320

Nutrients removed in harvested part (lb/ton) at 22 ton yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
15831.4957	2370.3680	13325.3120

Element-Fertilizer Equivalents

Average NPK Percentages

«Contents»

Time Generated: Mon 4:57 PM - 11/30/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Nov'11 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Barley Silage
Soil Permeability (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >16-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	22.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 11/11 to 5/12) 0.33 t/ac + (RUSLE 2) 0.092 t/ac = 0.42 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Jun'12 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeability (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	22.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 6/12 to 10/12) 0.17 t/ac + (RUSLE 2) 0.088 t/ac = 0.26 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: Dominguez Dairy
Planner: Chet Wyant
Current Land Use: Barley Silage / Corn Silage
Date: 11/20/2009

Tract: 1579
Field(s) No.: DM-7
Total Acres: 91
Date to apply: Nov'11 alt

See the Conservation Plan map for the location of the field(s) to applying IWM.

Purposes (check all that apply)

- ☐ Manage soil moisture to improve crops
- ☑ Optimize use of water
- ☑ Minimize Irrigation Erosion
- ☐ Decrease non-point source pollution
- ☐ Manage salt in the root zone
- ☐ Manage air, soil, or plant microclimate

Conditions where practice applies

This practice is applicable to all irrigated lands. An irrigation system adapted for the site conditions is available and capable of applying water to meet the intended purpose(s).

Soil (Series, Texture, and Map Unit) *Select the soil to manage for:*

Critical soil to manage: **Glendale CL, Alkali, Hondale Mimbres complex, Alk** | Intake Family (in/hr): **0.10**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Wheat, winter, silage; Las Cruces	Medium	3.0	3.0	50%	1.5	6.1
Corn, silage; Las Cruces	Medium	3.0	3.0	50%	1.5	6.1

Crop Consumptive Use (CU) Information *(inches/month needed)*

Crop: Wheat, winter, silage; Las Cruces — **Total Irrigation Needed:** 10.2 ac in/ac

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan	>1 Mo.	1.2	Jul		0.0
Feb	22	2.1	Aug		0.0
Mar	14	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

Crop: Corn, silage; Las Cruces — **Total Irrigation Needed:** 29.3 ac in/ac

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	5	9.4
Feb		0.0	Aug	7	6.6
Mar		0.0	Sep		0.0
Apr	>1 Mo.	1.2	Oct		0.0
May	11	4.2	Nov		0.0
Jun	6	7.9	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** (days between irr.)	**In/Mo**
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System: **Flood, controlled** System Efficiency (%): **80%**

System Capacity (Ditch/Pump/Well): **6000** GPM

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	4	2.81	0.11	System meets CU for crop
Corn, silage; Las Cruces	10	2.81	0.31	System meets CU for crop

Operation and Maintenance Requirements

1. Irrigate when the soils reaches the MAD level, determined by soil moisture monitoring. Use one of the following methods to monitor soil moisture; the feel method, tensiometers, electrical resistance blocks, or moisture probes. Drip or Center Pivots can be irrigated on an as needed basis to meet daily CU.

2. Test irrigation water for Nitrate and Salts (Total Desolved Solids/Electrical Conductivity)

3. Do not exceed the net water to replace listed above when irrigating, unless salts are being managed.

4. Do not apply water at rates that cause runoff or erosion.

5. Monitor the soil to maintain: pH, permeability, salinity, and structure.

6. Application of pond effluent shall not exceed the crop needs (water and nutrient), and will not exceed the water holding capacity listed above.

7. Consider using crops such as sorghum, cotton, or winter wheat when water supplies are short.

8. Avoid traffic on wet soils to minimize soil compaction.

Additional Requirements

Job Approval and Completion

Client: _____ **Date:** 11-23-2009

Conservationist: _____ **Date:** 11-23-09

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: Dominguez Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 1579 | Field: DM-7

Crop Rotation: Barley Silage/Corn Silage | Climate Data Station: NM, LAS CRUCES | Site "C" Value: 150

Tillage Direction (NS/EW): NS | Length/width ratio: 2 | Field Direction (NS/EW): NS | Field Width (Ft.): 2006

Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 4L (1-7) | TWF: 2 (see instr.)

Sum Period Erosion (t/ac): 0.5 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: 0.5 (t/ac/yr)

Calculations and Output

Mgt Periods Dates		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SGe	Erosion			
Begin	End	No. of (#)	"I" (t/ac)	Dev. (deg)	Ht. (in.)	Sp. (in.)	"Krd" (factor)	"Kr" (factor)	Dev. (deg)	Prep. (factor)	WED (factor)	"L" (ft)	"V" (lbs/ac)	"E" (t/ac)	EWE (%)	"IF" (%)	Loss (t/ac)
11/1	11/02/11	0	56	0.0	2	18	0.58	0.86	0.0	4.0	1.010	2026	0	34.3	0.2	1.00	0.06
11/2	11/17/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	2026	3774	0.0	2.5	0.87	0.00
11/17	12/02/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	2026	3774	0.0	2.5	1.00	0.00
12/2	12/17/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	2026	3774	0.0	3.7	0.87	0.00
12/17	01/01/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	2026	3774	0.0	3.7	1.00	0.00
1/1	01/16/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	2026	3774	0.0	2.0	1.00	0.00
1/16	05/15/12	3	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	2026	3774	0.0	75.1	0.95	0.00
5/15	05/22/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	2026	4282	0.0	2.5	1.00	0.00
5/22	05/29/12	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.010	2026	789	1.6	2.5	1.00	0.04
5/29	05/29/12	0	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	2026	285	7.7	0.0	1.00	0.00
5/29	06/29/12	0	56	0.0	8	30	0.21	0.99	0.0	4.0	1.010	2026	251	9.0	2.6	1.00	0.23
6/29	07/14/12	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.370	2748	237	39.8	0.3	0.87	0.09
7/14	07/29/12	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2959	242	41.8	0.2	0.73	0.06
7/29	08/13/12	1	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2959	763	22.2	0.1	0.87	0.02
8/13	08/28/12	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	4012	1671	2.7	0.1	0.87	0.00
8/28	09/12/12	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	4012	5473	0.0	0.4	0.87	0.00
9/12	10/01/12	0	56	0.0	2	18	0.58	0.99	0.0	4.0	1.010	2026	6999	0.0	0.6	1.00	0.00
10/1	11/01/12	0	56	0.0	2	18	0.59	0.99	0.0	3.3	1.01	2026	5317	0.0	1.3	1.00	0.00
		0			2	18											
		0															
		0															
		0															
		0															
		0															
		0															
		0															

NRCS

RUSLE2 Worksheet Erosion Calculation Record

Info: (Alt) Barley Silage Nov'11 to May'12, Corn Silage Jun'12 to Oct'12

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-7

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gg GLENDALE CLAY LOAM, ALKALI\GLENDALE clay loam 85%
Slope length (horiz): 100.0 ft
Avg. slope steepness: 0.50 %
T value: 5.0 t/ac/yr

Alternatives:

Management	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss, t/ac/yr*	*Description*
a.Single Year/Single Crop Templates\WWheat, silage, plow, irr CT	b. absolute row grade 0.5 percent	(none)	(none)	0.092	
a.Single Year/Single Crop Templates\Corn, silage, plow	b. absolute row grade 0.5 percent	(none)	(none)	0.088	

used WWheat for Barley

Year 4

Dairy Annual Nutrient Manager

Date	12/3/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu		PLANNED		
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2012-2013 (alt)				Goal/Real	Nutrient Needed	
Field_ID	DM-7						
Area (ac)	91						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-May'13	Wheat Silage (Wheat for green chop 70%)		t/ac	20	25509	3385
2nd Crop	Jun'13-Oct'13	Sorghum/Sudangrass, for silage (70%)		t/ac	21	18781	2408
						0	0
Total		Nutrient Needed				44,290	5,793
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		63	176.42
		Nutrient Still Needed				38,557	-10,261
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1620	735
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				36,938	-10,997
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				36,938	-10,997
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1623	36923	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				14	-10,997

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-7

Application information *(enter the units that will be or has been applied to the field):*

Crop Rotation:	Winter Wheat Silage			Needed for field (acin):	25.935
Liquid Applied:	0.285	Acln/ac		(gal):	704,135
Solids Applied:		ton/ac		Needed for field (tons):	
Liquid Loads Applied:		1000gal/ac		Loads needed for field:	

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

	TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
	Book	Test	Book	Test	Book	Test	Book	Test
	0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	20.8 (lbs/acin) NH4-N 0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	7.3	7.5	58.3

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-5

Application information *(enter the units that will be or has been applied to the field)*:

Crop Rotation:	Sorghum Silage			Needed for field (acin):	38.857
Liquid Applied:	0.427	Acin/ac		(gal):	1,054,968
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
Book	Test	Book	Test	Book	Test	Book	Test
0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**20.8** (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	10.9	11.2	87.4

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

Wheat, for green chop
Forage
Triticum sp.
Plant part harvested: Aboveground biomass
Crop yield unit: ton

Nutrients in harvested part (lb/ton) at 70% moisture percentage.

Nitrogen	Phosphorus	Potassium
14.0160	1.8600	

Nutrients removed in harvested part (lb/acre) at 20 ton yield level.

Nitrogen	Phosphorus	Potassium
280.3200	37.2000	

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
25509.1200	3385.2000	

Element-Fertilizer Equivalents | Average NPK Percentages

«Contents»

Intellectual Property Statement / How to Cite the PLANTS Database

Disclaimers

USDA non-discrimination policy

Time Generated: Mon 5:01 PM - 11/30/2009

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

Sorghum/Sudangrass, for silage

Forage

Sorghum bicolor ssp. drummondii

Plant part harvested: Aboveground biomass

Crop yield unit: ton

Nutrients in harvested part (lb/ton) at 70% moisture percentage.

Nitrogen	Phosphorus	Potassium
9.8280	1.2600	15.6600

Nutrients removed in harvested part (lb/acre) at 21 ton yield level.

Nitrogen	Phosphorus	Potassium
206.3880	26.4600	328.8600

Nutrients removed in harvested part (lb/ton) at 21 ton yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
18781.3080	2407.8600	29926.2600

Element-Fertilizer Equivalents

Average NPK Percentages

«Contents»

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Nov'12 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Wheat Silage
Soil Permeability (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	22.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 11/12 to 5/13) 0.36 t/ac + (RUSLE 2) 0.092 t/ac = 0.45 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Jun'13 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Sudangrass
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	22.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 6/13 to 10/13) 0.18 t/ac + (RUSLE 2) 0.00069 t/ac = 0.18 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: Dominguez Dairy
Planner: Chet Wyant
Current Land Use: Winter Wheat Silage / Sorghum Silage
Date: 11/20/2009

Tract: 1579
Field(s) No.: DM-7
Total Acres: 91
Date to apply: Nov'12 alt

See the Conservation Plan map for the location of the field(s) to applying IWM.

Purposes (check all that apply)

- ☐ Manage soil moisture to improve crops
- ☑ Optimize use of water
- ☑ Minimize Irrigation Erosion
- ☐ Decrease non-point source pollution
- ☐ Manage salt in the root zone
- ☐ Manage air, soil, or plant microclimate

Conditions where practice applies

This practice is applicable to all irrigated lands. An irrigation system adapted for the site conditions is available and capable of applying water to meet the intended purpose(s).

Soil (Series, Texture, and Map Unit) *Select the soil to manage for:*

Critical soil to manage: **Glendale CL, Alkali, Hondale Mimbres complex, Alk** | Intake Family (in/hr): **0.10**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Wheat, winter, silage; Las Cruces	Medium	3.0	3.0	50%	1.5	6.1
Sorghum, silage; Deming	Medium	3.0	3.0	65%	2.0	9.6

Crop Consumptive Use (CU) Information *(inches/month needed)*

Crop: Wheat, winter, silage; Las Cruces — **Total Irrigation Needed:** 10.2 ac in/ac

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan	>1 Mo.	1.2	Jul		0.0
Feb	22	2.1	Aug		0.0
Mar	14	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

Crop: Sorghum, silage; Deming — **Total Irrigation Needed:** 23.5 ac in/ac

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	7	8.5
Feb		0.0	Aug	11	5.5
Mar		0.0	Sep	>1 Mo.	1.0
Apr		0.0	Oct		0.0
May	>1 Mo.	1.6	Nov		0.0
Jun	8	7.0	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System: **Flood, controlled** System Efficiency (%): **80%**

System Capacity (Ditch/Pump/Well): **6000** GPM

Crop Grown	Days of Operation for CU by crop (days)	Est. System Applicaiton Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	4	2.81	0.11	System meets CU for crop
Sorghum, silage; Deming	8	2.81	0.28	System meets CU for crop

Operation and Maintenance Requirements

1. Irrigate when the soils reaches the MAD level, determined by soil moisture monitoring. Use one of the following methods to monitor soil moisture; the feel method, tensiometers, electrical resistance blocks, or moisture probes. Drip or Center Pivots can be irrigated on an as needed basis to meet daily CU.
2. Test irrigation water for Nitrate and Salts (Total Desolved Solids/Electrical Conductivity)
3. Do not exceed the net water to replace listed above when irrigating, unless salts are being managed.
4. Do not apply water at rates that cause runoff or erosion.
5. Monitor the soil to maintain: pH, permeability, salinity, and structure.
6. Application of pond effluent shall not exceed the crop needs (water and nutrient), and will not exceed the water holding capacity listed above.
7. Consider using crops such as sorghum, cotton, or winter wheat when water supplies are short.
8. Avoid traffic on wet soils to minimize soil compaction.

Additional Requirements

Job Approval and Completion

Client: Isaac Domingue **Date:** 11-23-2009

Conservationist: _____ **Date:** 11-23-09

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: Dominguez Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 1579 | Field: DM-7
Crop Rotation: Wheat Silage/Sudangrass Hay | Climate Data Station: NM, LAS CRUCES | Site "C" Value: 150
Tillage Direction (NS/EW): NS | Length/width ratio: 1 | Field Direction (NS/EW): NS | Field Width (Ft.): 2006
Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 4L (1-7) | TWF: 2 (see instr.)
Sum Period Erosion (t/ac): 0.5 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: 0.5 (t/ac/yr)

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SCe	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Krr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"IF"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbe/ac)	(t/ac)	(%)	(%)	(t/ac)
11/1	11/02/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	0	24.4	0.2	1.00	0.04
11/2	11/17/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	6999	0.0	2.5	0.87	0.00
11/17	12/02/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	6999	0.0	2.5	1.00	0.00
12/2	12/17/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	6999	0.0	3.7	0.87	0.00
12/17	01/01/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	6999	0.0	3.7	1.00	0.00
1/1	01/16/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	6999	0.0	2.0	1.00	0.00
1/16	05/15/13	3	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	6999	0.0	75.1	0.95	0.00
5/15	05/22/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	4282	0.0	2.5	1.00	0.00
5/22	05/29/13	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.000	2006	789	1.8	2.5	1.00	0.04
5/29	06/29/13	0	56	0.0	4	30	0.37	0.65	0.0	4.0	1.000	2006	285	10.8	2.6	1.00	0.28
6/29	07/14/13	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	2066	202	32.9	0.3	0.87	0.08
7/14	07/29/13	2	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	2066	227	34.3	0.2	0.73	0.05
7/29	08/13/13	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	2066	313	31.7	0.1	0.87	0.03
8/13	08/28/13	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	2026	706	26.1	0.1	0.87	0.02
8/28	09/12/13	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	2026	1869	1.1	0.4	0.87	0.00
9/12	10/01/13	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	2297	0.0	0.6	0.89	0.00
10/1	11/01/13	1	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	2026	6999	0.0	1.3	0.94	0.00
		0			2	10											
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

NRCS

RUSLE2 Worksheet Erosion Calculation Record

Info: (Alt) Winter Wheat Silage Nov'12 to May'13, Sudangrass Silage Jun'13 to Oct'13

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-7

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gg GLENDALE CLAY LOAM, ALKALI\GLENDALE clay loam 85%
Slope length (horiz): 100.0 ft
Avg. slope steepness: 0.50 %
T value: 5.0 t/ac/yr

Alternatives:

Management	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss, t/ac/yr*	*Description*
a.Single Year/Single Crop Templates\WWheat, silage, plow, irr CT	b. absolute row grade 0.5 percent	(none)	(none)	0.092	
a.Single Year/Single Crop Templates\Haygrazer, sudangrass, disk	b. absolute row grade 0.5 percent	(none)	(none)	0.00069	

Year 5

Dairy Annual Nutrient Manager

Date	11/30/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu		PLANNED		
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2013-2014				Goal/Real	Nutrient Needed	
Field_ID	DM-7						
Area (ac)	91						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'13-May'14	Oats for green chop (boot to early bloom 69%)		t/ac	20	40966	7648
2nd Crop	Jun'13-Oct'14	Alfalfa, for hay		t/ac	1	4586	430
						0	0
Total		Nutrient Needed				45,551	8,077
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		63	176.42
		Nutrient Still Needed				39,818	-7,977
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1620	735
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				38,199	-8,712
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				38,199	-8,712
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1679	38197	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				1	-8,712

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-7

Application Information (enter the units that will be or has been applied to the field):					
Crop Rotation: Oat Silage				Needed for field (acin):	25.935
Liquid Applied:	0.285	AcIn/ac		(gal):	704,135
Solids Applied:		ton/ac		Needed for field (tons):	
Liquid Loads Applied:		1000gal/ac		Loads needed for field:	

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
Book	Test	Book	Test	Book	Test	Book	Test
0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**20.8 (lbs/acin) NH4-N**
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	7.3	7.5	58.3

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	91	Date:	11/2/2009	Field ID:	DM-7

Application Information *(Enter the units that will be or has been applied to the field)*:

Crop Rotation:	Alfalfa			Needed for field (acin):	38.857
Liquid Applied:	0.427	Acln/ac		(gal):	1,054,968
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

Solid-Lab Report	% Moisture	TKN (%) (dry)	NH_4-N (ppm) (dry)	P_2O_5 (%) (dry)	K_2O (%) (dry)
Fill in Lab data:					

Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH_4-N (lbs/ton)		P_2O_5 (lbs/wet ton)		K_2O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM)		0		0		0.0		0		0

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:		205	0.17		

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	46	0	26	35	0	256	0

TKN (lbs/1000gal)		NH_4-N (lbs/1000gal)		P_2O_5 (lbs/1000gal)		K_2O (lbs/1000gal)	
Book	Test	Book	Test	Book	Test	Book	Test
0.0			0.0		0.0		0.0

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Dry	60 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**20.8 (lbs/acin) NH4-N**
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond	40 %	75 %	80 %	Liquid Source

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	8	26	205
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class (See Survey Information)	Percent Remaining (%)
<2	Well Drained	88

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P_2O_5	0.0	26	0
K_2O	0.0	205	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	10.9	11.2	87.4

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

Oat, for green chop (boot to early bloom)
Forage
Avena sativa
Plant part harvested: Aboveground biomass
Crop yield unit: ton

Nutrients in harvested part (lb/ton) at 69% moisture percentage.

Nitrogen	Phosphorus	Potassium
12.2508	2.1046	11.6554

Nutrients removed in harvested part (lb/acre) at 20 ton yield level.

Nitrogen	Phosphorus	Potassium
245.0165	42.0916	233.1076

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
22296.5053	3830.3382	21212.7888

Element-Fertilizer Equivalents

Average NPK Percentages

«Contents»

Time Generated: Mon 4:59 PM - 11/30/2009

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PLANTS

Nutrient Report Summary for the Crop(s) Selected

The table below summarizes the nutrients removed for the crops selected in the previous page. Crop nutrient information for individual crops follow the summary table.

Return to the crop list and make a new selection of crop(s)

Alfalfa, for hay
Forage
Medicago sativa
Plant part harvested: Aboveground biomass
Crop yield unit: ton

Nutrients in harvested part (lb/ton) at 9.65% moisture percentage.

Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939

Nutrients removed in harvested part (lb/acre) at 1 ton yield level.

Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939

Nutrients removed in harvested part (lb/ton) at 1 ton yield level and 91 acres.

Nitrogen	Phosphorus	Potassium
4585.8118	429.6712	3484.7471

Element-Fertilizer Equivalents | Average NPK Percentages

«Contents»

Time Generated: Mon 4:58 PM - 11/30/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Nov'13 alt
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeability (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
			X			2
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	20.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 11/13 to 5/14) 0.35 t/ac + (RUSLE 2) 0.13 t/ac = 0.48 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-7	Date:	Jun'14 alt
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	22.0
Phosphorus Application Classification:	N Based		

Notes:

This evaluation has a Medium P hazard class and the nutrient application can be based on N.

Comments: Soil Erosion = (WEQ 6/14 to 10/14) 0.39 t/ac + (RUSLE 2) 0.036 t/ac = 0.43 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: Dominguez Dairy
Planner: Chet Wyant
Current Land Use: Oat Silage / Alfalfa
Date: 11/20/2009

Tract: 1579
Field(s) No.: DM-7
Total Acres: 91
Date to apply: Nov'13 alt

See the Conservation Plan map for the location of the field(s) to applying IWM.

Purposes (check all that apply)

- ☐ Manage soil moisture to improve crops
- ☑ Optimize use of water
- ☑ Minimize Irrigation Erosion
- ☐ Decrease non-point source pollution
- ☐ Manage salt in the root zone
- ☐ Manage air, soil, or plant microclimate

Conditions where practice applies

This practice is applicable to all irrigated lands. An irrigation system adapted for the site conditions is available and capable of applying water to meet the intended purpose(s).

Soil (Series, Texture, and Map Unit) *Select the soil to manage for:*

Critical soil to manage: **Glendale CL, Alkali, Hondale Mimbres complex, Alk** | Intake Family (in/hr): **0.10**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Oat, hay; Deming	Medium	3.0	3.0	50%	1.5	6.1
Alfalfa, hay, southern; Las Cruces	Deep	4.0	4.0	50%	2.0	10.0

Crop Consumptive Use (CU) Information *(inches/month needed)*

Crop: Oat, hay; Deming — **Total Irrigation Needed:** 9.4 ac in/ac

Month	Est. Frequency *(days between irr.)*	In/Mo	Month	Est. Frequency *(days between irr.)*	In/Mo
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar	19	2.3	Sep		0.0
Apr	9	5.0	Oct		0.0
May	21	2.1	Nov		0.0
Jun		0.0	Dec		0.0

Crop: Alfalfa, hay, southern; Las Cruces — **Total Irrigation Needed:** 47.7 ac in/ac

Month	Est. Frequency *(days between irr.)*	In/Mo	Month	Est. Frequency *(days between irr.)*	In/Mo
Jan		0.0	Jul	6	9.7
Feb		0.0	Aug	8	7.7
Mar	>1 Mo.	1.6	Sep	11	5.7
Apr	14	4.2	Oct	22	2.7
May	9	6.9	Nov		0.0
Jun	6	9.3	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Crop:			Total Irrigation Needed:	ac in/ac	
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System: **Flood, controlled** System Efficiency (%): **80%**

System Capacity (Ditch/Pump/Well): **6000** GPM

Crop Grown	Days of Operation for CU by crop (days)	Est. System Applicaiton Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Oat, hay; Deming	3	2.81	0.17	System meets CU for crop
Alfalfa, hay, southern; Las Cruces	17	2.81	0.32	System meets CU for crop

Operation and Maintenance Requirements

1. Irrigate when the soils reaches the MAD level, determined by soil moisture monitoring. Use one of the following methods to monitor soil moisture; the feel method, tensiometers, electrical resistance blocks, or moisture probes. Drip or Center Pivots can be irrigated on an as needed basis to meet daily CU.
2. Test irrigation water for Nitrate and Salts (Total Desolved Solids/Electrical Conductivity)
3. Do not exceed the net water to replace listed above when irrigating, unless salts are being managed.
4. Do not apply water at rates that cause runoff or erosion.
5. Monitor the soil to maintain: pH, permeability, salinity, and structure.
6. Application of pond effluent shall not exceed the crop needs (water and nutrient), and will not exceed the water holding capacity listed above.
7. Consider using crops such as sorghum, cotton, or winter wheat when water supplies are short.
8. Avoid traffic on wet soils to minimize soil compaction.

Additional Requirements

Job Approval and Completion

Client: Isaac Domingo **Date:** 11-23-2009

Conservationist: [signature] **Date:** 11-23-09

Completed by: **Date:**

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: Dominguez Dairy | Planner: Chet Wyant | Location: Mesquite, NM | Tract: 1579 | Field: DM-7

Crop Rotation: Oat Silage / Alfalfa | Climate Data Station: NM, LAS CRUCES | Site "C" Value: 150

Tillage Direction (NS/EW): NS | Length/width ratio: 1 | Field Direction (NS/EW): NS | Field Width (Ft.): 2006

Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 4L (1-7) | TWF: 2 (see instr.)

Sum Period Erosion (t/ac): 0.7 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: 0.8 (t/ac/yr)

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SGe	Erosion				
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Kr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"IF"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
11/1	11/02/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	0	24.4	0.2	1.00	0.04
11/2	12/02/13	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	1989	0.0	5.0	1.00	0.00
12/2	01/01/14	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	1989	0.0	7.4	0.93	0.00
1/1	01/31/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	1989	0.0	4.0	1.00	0.00
1/31	03/02/14	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	2006	1989	0.0	24.7	0.93	0.00
3/2	03/17/14	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	1989	0.0	12.9	0.87	0.00
3/17	04/01/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	1989	0.0	12.9	1.00	0.00
4/1	04/16/14	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	1989	0.0	8.8	0.87	0.00
4/16	05/01/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	1989	0.0	8.8	1.00	0.00
5/1	05/16/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	2006	3587	0.0	5.3	1.00	0.00
5/16	05/23/14	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.000	2006	518	3.1	2.5	1.00	0.08
5/23	05/29/14	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.000	2006	187	8.5	2.1	0.67	0.12
5/29	06/13/14	1	56	0.0	8	30	0.21	0.80	0.0	4.0	1.000	2006	165	7.6	1.7	0.87	0.11
6/13	06/28/14	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	2066	117	34.9	0.8	0.87	0.24
6/28	07/13/14	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	2066	163	33.8	0.3	0.87	0.09
7/13	07/28/14	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	2066	220	34.5	0.2	0.87	0.06
7/28	08/12/14	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	2066	1792	0.6	0.1	0.87	0.00
8/12	08/27/14	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.01	2026	5501	0.0	0.1	0.87	0.00
8/27	09/11/14	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.01	2026	5501	0.0	0.3	0.87	0.00
9/11	09/29/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.00	2006	2799	0.0	0.5	1.00	0.00
9/29	10/04/14	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.00	2006	2799	0.0	0.2	0.60	0.00
10/4	10/31/14	1	56	0.0	2	10	0.46	0.99	0.0	3.3	1.01	2026	2799	0.0	1.1	0.93	0.00
		0			2	10											
		0															
		0															
		0															

RUSLE2 Worksheet Erosion Calculation Record

Info: (alt) Oat Silage Nov'13 to May'14, Alfalfa Jun'14 to Oct'14

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-7

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gg GLENDALE CLAY LOAM, ALKALI\GLENDALE clay loam 85%
Slope length (horiz): 100.0 ft
Avg. slope steepness: 0.50 %
T value: 5.0 t/ac/yr

Alternatives:

Management	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss, t/ac/yr*	*Description*
a.Single Year/Single Crop Templates\Forage\Oats, hay and grain, conv till, irr, CMZ29	b. absolute row grade 0.5 percent	(none)	(none)	0.13	
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.036	

Appendix B

Emergency Action Plan and Safety Precautions

This Emergency Action Plan (EAP) is taken from the New Mexico NRCS Comprehensive Nutrient Management Plan program.

Emergency Action Plan and Safety Precautions

Emergency Action Plan

Summary Action Plan

Facility Name		
Emergency Numbers ***911* **	➢ **Ambulance, Fire, Police – 911** ➢ **Sheriff Dept. :** **County- 575/**	
Non-Emergency Numbers	**State Police** **Sheriff Dept.** **Spill Recovery** **Spill Reporting** **Owner:** ➢ ➢	**575/** **575/** **575/** **or 505-827-9329** **575/** **or 505-827-9329**
Recovery Equipment	**Heavy equipment is located on the Farm at various staging locations within ½ mile or closer to the Dairy facility.**	**Type of equipment includes large farm tractor with portable pump (pto driven), 5 front end loaders, road grader, backhoes and vac-tank.**
Action Plan	**Spills from Containment Structures: In the event of such failure, containment of the spill will be addressed by properly draining the structures, with effluent allowed to evaporate or be applied to cropland fields. Structures will then be repaired or replaced according to a certified engineering design.**	
	Spills during Pumping: In the event of such failure, containment of the spill will be addressed by constructing a dike (an earthen embankment) around the spill. Effluent will be allowed to evaporate or be pumped into a transport tanker for delivery to the storage lagoon. Structures will then be repaired or replaced according to a certified engineering design.	
	Spills during Transport: In the event of such failure, containment of the spill will be addressed by constructing a dike around the spill, ceasing the transport of the effluent, and allow the effluent to evaporate or be pumped into a transport tanker for delivery to the storage lagoon. Structure or equipment will then be repaired or replaced accordingly.	

Emergency action plans are required to meet current animal waste management regulations. Develop an emergency action plan for your waste handling system. This plan will be implemented in the event that wastes from your operation are leaking, overflowing, or running off the site. Example Dairy will call before the problem leaves the dairy. You should NOT wait until wastes reach surface waters or leave your property to consider that you have a problem. You should make every effort to ensure that this does not happen. This plan should be available to all employees at the facility, as accidents, leaks, and breaks could happen at any time. Example Dairy will: (1) stop the release of wastes; (2) assess the extent of the spill and note any obvious damages; (3) contact the appropriate agencies; and (4) implement procedures to rectify the damage and repair the waste management system.

1. **Stop the release of wastes.** Depending on the situation, this may or may not be possible. Suggested responses to several problems are listed below:

   a. *Lagoon or slurry basin overflow* - possible solutions are:

   - add soil to berm to increase elevation of dam
   - pump wastes to fields at an acceptable rate
   - stop all additional flow to the structure (waters, flushing system, etc.)
   - call a pumping contractor
   - make sure no surface water is entering storage structure

   *Note: *These activities should be started when your lagoon level has exceeded the temporary storage level.*

   b. *Runoff from waste application field* actions include:

   - immediately stop waste application
   - create a temporary diversion or berm to contain the waste in the field
   - incorporate waste to reduce further runoff
   - evaluate and eliminate the reason(s) that caused the runoff
   - evaluate the application rates for the fields where runoff occurred

   c. *Leakage from the waste distribution system:*

   - pipes and sprinklers – actions include:
     - ☐ stop recycle (flushing system) pump
     - ☐ stop irrigation pump
     - ☐ close valves to eliminate further discharge
     - ☐ separate pipes to create an air gap and stop flow

☐ repair all leaks prior to restarting pumps

- flush system, houses, solids separators – actions include:
  - ☐ stop recycle (flushing system) pump
  - ☐ stop irrigation pump
  - ☐ make sure no siphon effect has been created
  - ☐ separate pipes to create an air gap and stop flow
  - ☐ repair all leaks prior to restarting pumps

d. *Leakage from base or sidewall of lagoon or earthen storage structure.* Often these are seepage rather than flowing leaks- possible action:

- dig a small well or ditch to catch all seepage, put in a submersible pump, and pump back into lagoon
- if holes are caused by burrowing animals, trap or remove animals and fill holes and compact with a clay type soil
- other holes may be likewise temporarily plugged with clay soil

Note: Problems with lagoons and earthen storage structures require the consultation of an individual experienced in the design and installation of lagoons for permanent repair measures.

2. **Assess the extent of the spill** and note any obvious damages.
   a. *Did the waste reach any surface waters?*
   b. *Approximately how much was released and for what duration?*
   c. *Any damage noted, such as employee injury, fish kills, or propertydamage?*
   d. *Did the spill leave the property?*
   e. *Does the spill have the potential to reach surface waters?*
   f. *Could a future rain event cause the spill to reach surface waters?*

g. *Are potable water wells in danger (either on or off the property)?*

3. **Contact appropriate agencies**

During normal business hours, call your NMED office; after hours, call this emergency number:505-827-9329. Your phone call should include: your name, facility, telephone number, the details of the incident from item 2 above, the exact location of the facility, and the location or direction of movement of the spill, weather and wind conditions, what corrective measures have been undertaken, and the seriousness of the situation.

a. If spill leaves property call local EMS. If spill enters surface water call EPA.

b. Instruct EMS to contact local Health Department.

c. Contact CES, local SWCD office, and local NRCS office for advice/technical assistance.

d. If none of the above works, call 911 or the Sheriff's Department and explain your problem to them. Ask them to contact the agencies as listed above.

4. **Implement procedures** as advised by NMED and technical assistance agencies to rectify the damage, repair the system, and reassess the waste management plan to keep problems with release of wastes from happening again.

Suggested Safety Precautions

Safety Precautions

Accidents and injuries don't just happen, they are caused. Behind every accident is a chain of events that leads up to an unsafe act, unsafe conditions, or a combination of both. Safety in the workplace should be everyone's concern. Communication between supervisors and employees generates ideas and safety awareness that leads to accident prevention. Safety programs, safety manuals, and safety meetings are essential in providing the lines of communication that lead to a safe, accident-free workplace.

Dangerous Gases

Dangerous situations can be associated with five main gases that are produced in livestock and poultry buildings and manure storage structures. These gases are listed in Table 1 along with some of their characteristics. All of these are colorless.

Table 1. Characteristics and Effects of Gases Produced in Livestock Buildings and Manure Storage Structures

Gas	Odor	Density	Health Effects
Ammonia (NH_3)	Pungent	Lighter than air	Irritation to eyes and nose. Asphyxiating at high levels.
Carbon Dioxide (CO_2)	None	Heavier than air	Drowsiness, headache. Can be asphyxiating.
Carbon Monoxide (CO)	None	Heavier than air	Headache, chest pains, potential for problems with developing fetuses. Can be asphyxiating.
Hydrogen Sulfide (H_2S)	Rotten-egg smell	Heavier than air	TOXIC: causes headache, dizziness, nausea, unconsciousness, death.
Methane (CH_4)	None	Lighter than air	Headache, asphyxiant, explosive in 5% to 15% mixture methane with air.

Ammonia

Ammonia (NH_3) is released from fresh manure and urine and during anaerobic decomposition. Ammonia levels tend to be high in buildings where manure is not regularly and thoroughly removed. Examples include buildings with litter, solid floors, or scrapers where manure is spread over the floor. Heated floors can increase ammonia release. Furthermore, when pH levels are higher than 8.0, ammonia is more susceptible to being released. Ammonia is very soluble in water, therefore liquid manure systems tend to release less ammonia. Building ventilation also affects ammonia levels in the air.

Carbon Dioxide

Death of animals in closed confinement buildings following a ventilation-equipment failure (such as a power failure) is due in part to excessive carbon dioxide. Carbon dioxide (CO_2) is released by unvented heaters, through livestock respiration and manure decomposition. In fact, most of the gas in bubbles coming from stored manure or lagoons is CO_2. Vigorous agitation of stored manure can also release a large amount of carbon dioxide in a short time period.

Carbon Monoxide

Carbon monoxide (CO) can cause workers to develop headaches and experience chest pain. Pregnant women should be aware of the potential health hazard this gas poses to a developing fetus. Carbon monoxide is rare in confinement buildings, but can accumulate in areas with poor ventilation such as swine farrowing rooms and nursery buildings. Evidence of carbon monoxide overexposure among livestock may

first appear as aborted litters and stillbirth. The main sources of CO are heaters (LP-fired, radiant brooder, or space).

Hydrogen Sulfide

Hydrogen Sulfide (H_2S) is the most toxic gas generated from the storage liquid manure storage. Exposure to 200 ppm for an hour can cause headaches and dizziness; 500 ppm for 30 minutes can cause severe headaches, nausea, excitement, or insomnia. High concentrations of 800 to 1,000 ppm can cause immediate unconsciousness and death through respiratory paralysis unless the victim is moved to fresh air and artificial respiration is immediately applied. Be aware even the characteristic rotten-egg smell of hydrogen sulfide does not give adequate warning. The sense of smell is rapidly fatigued by the gas and high concentrations do not give a proportionately higher odor intensity. Also note that dangerous concentrations can be released by agitation of stored liquid manure. Concentrations reaching 200 to 300 ppm have been reported in buildings a few minutes after starting to pump waste from a storage pit and can be as high as 800 ppm during vigorous agitation.

Methane

Methane (CH_4) is a product of manure decomposition under strict anaerobic conditions, such as those found in an anaerobic or biogas digester. It is insoluble in water, lighter than air, and thus will accumulate in stagnant air corners in the top of enclosed pits or buildings. Methane is not toxic, but at high concentrations may cause an asphyxiating environment. Methane concentrations in confinement housing is normally well below the levels that may be explosive. However, explosions attributed to methane have occurred around manure storage pits.

First Aid for Victims of Manure-Gas Asphyxiation

1. Do not attempt to rescue a victim from a hazardous gas situation unless you are protected with a supplied air-breathing apparatus.

2. Have someone telephone for an emergency medical (rescue) squad, informing them there is a "victim of toxic gas asphyxiation."

3. If the victim is free from the immediate area of danger and there is no personal threat to life, check for breathing (with the victim on his/her back). If there is no breathing, give four quick breaths and check for a pulse.

    - *If there is a pulse,* continue mouth-to-mouth breathing every 5 seconds (12 per minute).
    - *If there is no pulse,* start CPR (cardio-pulmonary resuscitation) immediately.

Training courses for rescue breathing and CPR are available through local Red Cross and Cooperative Extension Service centers. These courses provide the training and practice necessary to perform CPR.

Effect of Air Quality on Human Health

Health problems associated with poor air quality include coughing, phlegm production, wheezing, chest tightness, headaches, shortness of breath, eye irritation, sneezing, runny nose, and nasal congestion. Problems are usually greater the more time a worker spends in the presence of the contaminant and the greater the concentrations of airborne contaminants. In addition, some people are more susceptible than others.

Health problems may be chronic (lasting a long time) or acute (severe but short term). Since chronic and acute problems can be mistaken for other health problems, such as the flu or allergies, the work

environment is often overlooked as a cause of the symptoms and precautions are therefore not taken. Table 2lists some symptoms swine facility workers in Iowa have experienced as the result of poor air quality in the swine houses.

Table 2. Health Symptoms of Iowa Swine Facility Workers	
Symptom	Prevalence (percent)
Cough	67
Sputum or phlegm	56
Scratchy throat	54
Runny nose	45
Burning or watery eyes	39
Headaches	37
Chest tightness	36
Shortness of breath	30
Wheezing	27

Safety Precautions with Manure Storage

You should consider safety when constructing, operating and managing animal waste management systems. The following major safety points should be considered when installing and operating manure equipment, structures, or systems:

1. Do not enter a manure pit unless following procedures for entering a confined space.
2. When agitating a manure storage structure, always have at least one additional person available to seek help if trouble occurs.
3. Properly designed and operated ventilation systems can reduce the concentration of gases within the building, thereby improving animal performance.
4. When possible, construct lids for manure pits and tanks. Keep these lids in place. If an open, ground-level tank or pit is necessary, build a fence around it and post with "Keep Out" and "DangerManure Storage" signs.
5. Get help before attempting to rescue livestock that have fallen into a manure storage structure.
6. Build railings along all walkways or piers of open manure storage structures.
7. Permanent ladders on the outside of above-ground tanks should have locked entry guards or the ladder should not be able to be reached from the ground.
8. Never leave a ladder standing against an above-ground tank.
9. Construct permanent ladders on the inside wall of all pits and tanks, even if covered. Use noncorrosive material to prevent deterioration of the ladder.
10. Fence in earthen storage ponds and lagoons, and erect signs: "Danger Manure Storage." Additional precautions include a minimum of one lifesaving station equipped with a reaching pole and a ring buoy on a line.

11. All push-off platforms need a barrier strong enough to stop a slow-moving tractor.

12. If possible, remove animals from buildings before agitating manure stored in in-house pits. Otherwise:

    a. if the building is mechanically ventilated, turn fans on full capacity before starting agitation, or

    b. if the building is naturally ventilated, do not agitate unless there is a brisk breeze. Watch animals closely when beginning to agitate, and turn off the pump at the first sign of trouble.

13. If manure storage is outside the livestock building, use a water trap or other device to prevent gases from the storage structure from entering the building.

14. During agitation, if an animal becomes affected by toxic gases, do not try to rescue it. You might become a victim of toxic gases. Turn off the agitation pump, ventilate the building, and do not enter the building until gases have had a chance to escape.

15. Don't smoke, weld, or use an open flame in confined, poorly ventilated areas where methane can accumulate. Electric motors, fixtures, and wiring near manure storage structures should be kept in good condition to prevent a spark from igniting the methane.

16. Keep all guards and safety shields on all mechanical equipment such as pumps, manure spreaders, and irrigation equipment.

Vehicle Safety

Only employees with a current, valid NM driver's license should drive vehicles. In the case of specialized vehicles, only trained operators should operate the vehicles. The driver of the vehicle should inspect the vehicle prior to operating it.

1. All vehicles should be operated within the legal speed limit at all times or at a lower speed where conditions warrant.

2. Vehicles should not be used to transport unauthorized personnel.

3. The driver should be familiar with the capacity and required clearances for safe use of the vehicle.

4. Vehicle windshields and windows should be kept clear of obstructions.

5. Objects or persons being transported should be located so that they do not obstruct the driver's view.

6. Always know the proper operating procedures for each piece of equipment used.

Heavy Equipment Vehicles

1. Make sure that the air brake system (if present) has reached operating pressure before driving the vehicle.

2. Make sure everyone is clear of the vehicle before starting. Slight steering movement can occur as the engine starts causing machine movement.

3. Stay clear of the engine when it is running. Work on the engine only when it is off.

4. Do not move the steering wheel until everyone is clear of the vehicle.

Power Take-Off (PTO)

1. Refer to the safety section of owner's manual.

2. Stay clear of rear of vehicle during operation.

3. Do not wear loose fitting clothing, scarves, or jewelry that could get caught in the PTO.

4. Tie back long hair.

Hydraulic Systems

1. Do not open pressurized lines. Hydraulic fluid can cause severe burns, eye injury, or skin irritation.

2. Search for leaks in the line using a piece of cardboard or wood, not your hands.

3. If anyone is injured by hydraulic fluid, administer first aid, then contact a physician.

4. Stay clear of leaky hydraulic lines.

Electrical Safety

All employees must lock-out/tag-out any piece of equipment they are working on where the unexpected energization, startup, or release of stored energy could occur. In case of electrocution, turn off power to the electrical source or use an insulated implement, such as a piece of wood, to separate the victim from the source. Do not attempt to pull a victim away from the electrical source with your bare hands.

Responsibilities of the Site Supervisor

The following should be the responsibility of the site supervisor:
Establish and supervise an accident prevention program and a training program that is designed to improve the skills and competency of all employees in the field of occupational safety and health.

Conduct preliminary investigations to determine the cause of any accident that results in injury. The results of this investigation should be documented for reference.

Establish and maintain a system for maintaining records of occupational injuries and illnesses.

Provide new employees with a safety orientation on the special hazards and precautions of any new job.

Conduct job briefings with employees before starting any job to acquaint them with unfamiliar procedures.

Issue necessary safety equipment and manuals.

Conduct periodic group safety meetings with all employees.

The Safety Program should include:

- procedures for reporting injuries;
- procedures for reporting unsafe conditions or practices;
- use and care of personal protective equipment;
- proper actions to be taken in the event of emergencies;
- identification of hazardous gases, chemicals, or materials; and
- instructions on safe use of hazardous gases, chemicals, or materials and emergency procedures following exposure.

First Aid Training

There should be a person available at all times with first aid training in:

- bleeding control and bandaging
- artificial respiration, including mouth-to-mouth resuscitation
- poisons
- shock, unconsciousness, stroke
- burns
- sunstroke, heat exhaustion
- frostbite, hypothermia
- strains, sprains, hernia
- fractures, dislocations
- bites, stings
- transportation of the injured
- specific health hazards likely to be encountered by co-workers

There should be adequate, readily available first aid kits and supplies on site. Emergency telephone numbers must be posted by telephones.

Eyewash

Suitable facilities for quick drenching or flushing of the eyes and body should be provided in areas where the eyes or body of any person may be exposed to injurious chemicals and materials.

Responsibilities of the Employer (Safe Place Standards)

The following are the responsibility of the *employer*:

1. The employer should furnish to each of his employees a workplace free from recognized hazards that may cause serious injury or death.

2. The employer should furnish and use safety devices and practices that are reasonably adequate to render the employee workplace safe. The employer should do everything reasonably necessary to protect the life and safety of employees.

3. No employer should require an employee to be in any workplace that is not safe.

Responsibilities of the Employee

The following are the responsibility of the *employee*:

1. Each employee should keep themselves informed of the contents of the appropriate sections of this manual and any other safety manual provided by the employer and apply it to their work.

2. Each employee should perform their duties so as to provide safety to themselves and other employees.

3. An employee should request instruction from the site supervisor if there is a question as to the safe performance of an assigned task.

4. Each employee should wear clothing that is suitable for the job performed.

5. Each employee is responsible to report to the site supervisor any unsafe condition, acts, or hazards.

6. Each employee should wear appropriate personal protective equipment.

Personal Protective Equipment (PPE)

Employees should use the appropriate personal protective equipment, or protective devices, provided for their work. Before starting work, these items should be inspected by the employee to ensure that they are in safe operating condition. These items include, but are not limited to:

- Hard hats should be worn when appropriate.
- Hearing protection should be used, as needed, to reduce noise levels when working around generators and heavy equipment.
- Eye protection should be worn when operating shop tools, and when working around chemicals.
- Safety belts/seat belts should be worn at all times in vehicles.
- Approved welding goggles or helmets and gloves should be worn while welding, cutting, or both. Fasten clothing around the neck, wrists, and ankles.

Lifting and Carrying

Everyone should observe the following guidelines to avoid possible injury when lifting and carrying objects:

- Set your feet far enough apart to provide good balance and stability (approximately the width of your shoulders).
- Get as close to the load as practical, bending your legs at the knees, and bending at the hips to keep your back as straight as possible.
- Straighten your legs to lift the object, and at the same time bring your back to a vertical position.
- When lifting an object with another person, be sure that both individuals lift at the same time and let the load down together.
- Do not carry loads above people. Do not hoist, lower, or move any person with a crane by allowing them to stand on the hook, or by any nonapproved method.
- Do not stand under a suspended load or boom unless the nature of the work requires it.

Personal Hygiene

Wastewater contains pathogens (disease-causing organisms). Hence, good personal hygiene is very important!

1. Keep your hands away from your nose, mouth, eyes, and ears to avoid ingestion of wastewater.

2. Nonpermeable gloves should be worn when handling any equipment covered with wastewater or residuals.

3. Special care (e.g., protective, waterproof dressing) should be taken to keep any area of broken skin covered to avoid possible infection. If a worker suffers an injury which results in an open wound or laceration, they should be given a tetanus booster.

4. Wash hands thoroughly with soap before smoking, eating, drinking, or after work.

5. Work clothing should be changed and washed daily.

6. If contact with wastewater does occur, wash the area thoroughly with water and soap. Sponge any cuts with an antiseptic solution and cover with a clean, dry gauze dressing and waterproof adhesive.

Immunization

Each facility may want to consult a physician or the local health department to determine the need for immunizations for the employees working at the site. Adult tetanus and diphtheria should be given routinely every 10 years, or at shorter intervals when injury occurs.

Working in a Confined Space

A confined space is defined as a space that has limited means of entry and exit, has an adequate size and configuration for employee entry, and is not designed for continuous worker occupancy. Under new OSHA regulations, there are certain confined spaces that require a permit for entry. A permit-required confined space is defined as a confined space that has one or more of the following characteristics:

1. it contains or has the potential to contain a hazardous atmosphere;

2. it contains a material that has the potential for engulfing an entrant;

3. it has an integral configuration such that an entrant could be trapped or asphyxiated by inwardly-converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or

4. it contains any other recognized serious safety or health hazard.

If a facility has permit-required confined spaces, to be in compliance with the new OSHA regulations, a written confined space entry program must be developed and implemented. Enclosed facilities which are used to handle wastewater or wastewater solids, such as the tanks and/or tanker trucks, would fall under the permit-required confined space regulations. Do not enter a permit-required confined space without proper training, equipment, and support personnel. (*The confined space regulations can be found in the Code of Federal Regulations 29 CFR 1910.147.*)

When working in a space that does not require a confined space permit, the following safety actions must be taken:

1. Always assign a standby person to remain on the outside of the confined space. It is the standby person's responsibility to be in constant contact (visually, verbally, or both) with the workers inside the confined space as long as anyone is in the space.

2. Wear ear protection, as needed. Noise within a confined space can be amplified because of the design and acoustic properties of the space.

3. Use only an air-supplying respirator, such as a self-contained breathing apparatus (SCBA) or a supplied-air respirator with an auxiliary escape-only SCBA in confined spaces where there is insufficient oxygen.

Fire Prevention and Protection

It is important to be fire conscious in the outdoor environment. Employees should be knowledgeable of the fire conditions at the site and operate accordingly. Poor site maintenance, worn or defective electrical systems, and welding and cutting may contribute to dangerous situations. The following precautions should be observed:

1. Do not smoke near equipment or fuel trailers. No open flame should be allowed near wastewater storage tanks. Combustible gases can accumulate and when vented to the surrounding area, may become explosive.
2. Do not tamper with or remove fire-fighting equipment from designated locations for purposes other than fire-fighting or rescue operations. Access to fire equipment should not be hindered. If fire extinguishers are used, they should be promptly recharged. Inspect fire extinguishers monthly to be sure they are in good operating condition.

APPENDIX C

Example Forms

Schedule of Logs and Records

The logs and records located in this section are organized by reoccurring schedule. The as needed section is organized by order of most likely to used. Please refer to this table of contents to locate a particular form.

Daily
Water Line Inspection Log

Weekly
Process Water & Runoff Control Structure Water Level & Visual Inspection Log

Annually
Annual Soil Analysis
Annual Dry Manure Nutrient Analysis
Annual Process Water Analysis
Planned On Site Process/Runoff Water & Manure Application Rate Calculation
Year-end On Site Process/Runoff Water & Manure Application Rate Calculation
Employee Training Record
Annual Report to EPA

As Needed
On Site Process Water Land Irrigation Log
Precipitation Log
Maintenance Report
Off Site Manure/Wastewater Removal
On Site Manure Application Log
Liner Maintenance Log
Nutrient Management Plan (NMP) Amendments
Spill Log
Spill Incident Report
Discharge Log
Discharge Report (EPA)
Discharge Report (State)
Five Year Structural Controls Review

DAILY WATER LINE INSPECTION
LOG SHEET

Use this form to log your daily water line visual inspections. Initial the form each day after the inspection is done. Put a check mark in the leak detected column, if a leak is found during the inspection. If any leaks are found complete a maintenance report after repairing it.

Day	January, 20____ Initials	if leaks are found	Day	February, 20____ Initials	if leaks are found	Day	March, 20____ Initials	if leaks are found
1	_____	_____	1	_____	_____	1	_____	_____
2	_____	_____	2	_____	_____	2	_____	_____
3	_____	_____	3	_____	_____	3	_____	_____
4	_____	_____	4	_____	_____	4	_____	_____
5	_____	_____	5	_____	_____	5	_____	_____
6	_____	_____	6	_____	_____	6	_____	_____
7	_____	_____	7	_____	_____	7	_____	_____
8	_____	_____	8	_____	_____	8	_____	_____
9	_____	_____	9	_____	_____	9	_____	_____
10	_____	_____	10	_____	_____	10	_____	_____
11	_____	_____	11	_____	_____	11	_____	_____
12	_____	_____	12	_____	_____	12	_____	_____
13	_____	_____	13	_____	_____	13	_____	_____
14	_____	_____	14	_____	_____	14	_____	_____
15	_____	_____	15	_____	_____	15	_____	_____
16	_____	_____	16	_____	_____	16	_____	_____
17	_____	_____	17	_____	_____	17	_____	_____
18	_____	_____	18	_____	_____	18	_____	_____
19	_____	_____	19	_____	_____	19	_____	_____
20	_____	_____	20	_____	_____	20	_____	_____
21	_____	_____	21	_____	_____	21	_____	_____
22	_____	_____	22	_____	_____	22	_____	_____
23	_____	_____	23	_____	_____	23	_____	_____
24	_____	_____	24	_____	_____	24	_____	_____
25	_____	_____	25	_____	_____	25	_____	_____
26	_____	_____	26	_____	_____	26	_____	_____
27	_____	_____	27	_____	_____	27	_____	_____
28	_____	_____	28	_____	_____	28	_____	_____
29	_____	_____	29	_____	_____	29	_____	_____
30	_____	_____				30	_____	_____
31	_____	_____				31	_____	_____

DAILY WATER LINE INSPECTION
LOG SHEET

Use this form to log your daily water line visual inspections. Initial the form each day after the inspection is done. Put a check mark in the leak detected column, if a leak is found during the inspection. If any leaks are found complete a maintenance report after repairing it.

Day	April, 20____ Initials	if leaks are found	Day	May, 20____ Initials	if leaks are found	Day	June, 20____ Initials	if leaks are found
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
9			9			9		
10			10			10		
11			11			11		
12			12			12		
13			13			13		
14			14			14		
15			15			15		
16			16			16		
17			17			17		
18			18			18		
19			19			19		
20			20			20		
21			21			21		
22			22			22		
23			23			23		
24			24			24		
25			25			25		
26			26			26		
27			27			27		
28			28			28		
29			29			29		
30			30			30		
			31					

DAILY WATER LINE INSPECTION
LOG SHEET

Use this form to log your daily water line visual inspections. Initial the form each day after the inspection is done. Put a check mark in the leak detected column, if a leak is found during the inspection. If any leaks are found complete a maintenance report after repairing it.

Day	July, 20____ Initials	if leaks are found	Day	August, 20____ Initials	if leaks are found	Day	September, 20____ Initials	if leaks are found
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
9			9			9		
10			10			10		
11			11			11		
12			12			12		
13			13			13		
14			14			14		
15			15			15		
16			16			16		
17			17			17		
18			18			18		
19			19			19		
20			20			20		
21			21			21		
22			22			22		
23			23			23		
24			24			24		
25			25			25		
26			26			26		
27			27			27		
28			28			28		
29			29			29		
30			30			30		
31			31					

DAILY WATER LINE INSPECTION LOG SHEET

Use this form to log your daily water line visual inspections. Initial the form each day after the inspection is done. Put a check mark in the leak detected column, if a leak is found during the inspection. If any leaks are found complete a maintenance report after repairing it.

Day	October, 20____ Initials	if leaks are found	Day	November, 20____ Initials	if leaks are found	Day	December, 20____ Initials	if leaks are found
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
9			9			9		
10			10			10		
11			11			11		
12			12			12		
13			13			13		
14			14			14		
15			15			15		
16			16			16		
17			17			17		
18			18			18		
19			19			19		
20			20			20		
21			21			21		
22			22			22		
23			23			23		
24			24			24		
25			25			25		
26			26			26		
27			27			27		
28			28			28		
29			29			29		
30			30			30		
31						31		

WEEKLY PROCESS WATER STORAGE (PWRS) AND RUNOFF CONTROL STRUCTURE (RCS) INSPECTIONS

Use this form to record weekly visual inspections of the process water storage structures and runoff control structures. This inspection is to include all process water management devices, runoff control diversions, retaining berms and channels used to direct contaminated storm water drainage or to divert off-site surface drainage away from the facility control systems. Conditions discovered needing repair or maintenance are to be noted. Complete a maintenance report and enter the date the condition was corrected. The areas to be visually inspected are listed below:

PWRS (maximum water level,) RCS-1 (maximum water level,) RCS-2 ( ) RCS-3 ( ) RCS ( ) Screen Separator

Separator Drain Line Run-on Diversions Erosion Controls Drainage Channels & Control Features

For the Year of 20____ Check the OK line if the visual inspection discovers no conditions needing repair or maintenance.

Date	Initials	Water Levels					OK	Inspection Notes	Date
		PWRS,	RCS-1,	RCS-2,	RCS-3,	RCS-4		Describe any problem(s) found and possible solution(s)	Corrected

WEEKLY PROCESS WATER STORAGE (PWRS) AND RUNOFF CONTROL STRUCTURE (RCS) INSPECTIONS

For the Year of 20___ Check the OK line if the visual inspection discovers no conditions needing repair or maintenance.

Date	Initials	Water Levels					OK	Inspection Notes	Date
		PWRS,	RCS-1,	RCS-2,	RCS-3,	RCS-4		Describe any problem(s) found and possible solution(s)	Corrected

ANNUAL SOIL ANALYSIS

The following is a log of the annual soil analysis. The annual soil analysis is to be taken as a composite soil sample, from each individual crop land area, owned or operated by the Dairy, where process water and/or manure solids are applied. If a map or layout drawing of the farm land owned or operated by the Dairy is available, it should be kept with this record and updated as needed. A copy of the soil analysis are to be placed immediately behind this log.

Date Sampled	Sampled By	Location of Sample

ANNUAL MANURE NUTRIENT ANALYSIS

The following is a log of the annual manure solids nutrient analysis. Annual N, P & K analysis of the manure solids generated at this facility has been completed by a qualified laboratory. The results of the analysis are made available to any hauler/spreader who is receiving manure from this facility. A copy is attached immediately behind this Log.

Date Sampled	Sampled By	Sample Location

ANNUAL PROCESS WATER ANALYSIS

The following is a log of the annual process water nutrient analysis. Annual N, P & K analysis of the process water generated at this facility has been completed by a qualified laboratory. The results of the analysis are made available to any hauler/spreader who is receiving wastewater from this facility. A copy is attached immediately behind this Log.

Date Sampled	Sampled By	Sample Location

Dairy Annual Nutrient Manager

Date	11/8/2009	NM STATE UNIVERSITY Dairy Extension Program dairy.NMSU.edu	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu		PLANNED		
Dairy							
Crop_Year				C	N Loss	38%	
Field_ID					Goal/Real	Nutrient Needed	
Area (ac)				Unit	Yield	N	P
	Month - Month	Crop					
1st Crop					0	0	0
2nd Crop						0	0
3rd Crop						0	0
Total		Nutrient Needed				0	0
						Soil Analyses	
Texture by Feel						N	P
Nutrient Available in Soil				lb/ac		1	74
		Nutrient Still Needed				0	0
						Effluent Analyses	
						N	P
Effluent Manure Application				ac-in	0	0	0
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				0	0
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				0	0
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**0**	**0**

Dairy Annual Nutrient Manager

Date	11/8/2009	NM STATE UNIVERSITY Dairy Extension Program dairy.NMSU.edu	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	ACTUAL		Nutrient Estimator ID	
Dairy					C	N Loss	38%
Crop_Year						Goal/Real	Nutrient Needed
Field_ID							
Area (ac)							
	Month - Month	Crop		Unit	Yield	N	P
1st Crop					0	0	0
2nd Crop						0	0
3rd Crop						0	0
Total		Nutrient Needed				0	0
						Soil Analyses	
Texture by Feel						N	P
Nutrient Available in Soil				lb/ac		1	74
		Nutrient Still Needed				0	0
						Effluent Analyses	
						N	P
Effluent Manure Application				ac-in	0	0	0
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				0	0
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				0	0
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**0**	**0**

EMPLOYEE TRAINING

The following is a log of the employee training that has been conducted at this facility. This training is to provide guidance to those employees who have responsibilities in the proper operation, maintenance, spill response an record keeping at this facility.

Area of Training

Date	**Employee**	**Spill/Discharge Response &**	**Control Structure Management**	**Possible Pollutant Storage**	**Record Keeping & Reporting**	**Land Application & Management**

APPENDIX I. EXAMPLE NPDES CAFO PERMIT ANNUAL REPORT FORM

NPDES CAFO PERMIT ANNUAL REPORT

NPDES Permit Number:	Reporting period (mm/dd/yyyy - mm/dd/yyyy): / / – / /

Facility Name :

I. TYPE AND NUMBER OF ANIMALS

Report the maximum number of each type of animal confined at this facility at any one time.

Type	Number in Open Confinement	Number Housed Under Roof
Mature Dairy Cows		
Dairy Heifers		
Veal Calves		
Other Cattle		
Swine (55 lb. or more)		
Swine (under 55 lb.)		
Horses		
Sheep or Lambs		
Turkeys		
Chickens (broilers)		
Chickens (layers)		
Ducks		
Other: (specify) _____		

II. MANURE, LITTER, AND PROCESS WASTEWATER PRODUCTION

Report the estimated amount of manure, litter, and process wastewater that were generated at this facility in the 12-month period covered by this report.

A. Amount of manure generated in the 12-month period covered by this report. _____ (tons)

B. Amount of litter generated in the 12-month period covered by this report. _____ (tons)

C. Amount of process wastewater generated in the 12-month period covered by this report. _____ (gallons)

III. MANURE, LITTER, AND PROCESS WASTEWATER TRANSFERRED TO OTHER PERSONS

Report the estimated amount of manure, litter, and process wastewater that were transferred to other persons in the 12-month period covered by this report.

A. Amount of manure transferred in the 12-month period covered by this report. _____ (tons)

B. Amount of litter transferred in the 12-month period covered by this report. _____ (tons)

C. Amount of process wastewater transferred in the 12-month period covered by this report. _____ (gallons)

IV. LAND APPLICATION OF MANURE, LITTER, AND PROCESS WASTEWATER

A. Report the total number of acres of land that are covered by this facility's nutrient management plan. Include all land application acres covered by the nutrient management plan, whether or not they were used for land application during the 12-month period covered by this report.

Total number of land application acres covered by the nutrient management plan. _____ acres

B. Report the total number of acres of land where manure, litter, or process wastewater generated at this facility was spread. Include only land application areas that are under the control of this CAFO facility.

Total number of acres under the control of the CAFO used for land application in the 12-month period covered by this report. _____ acres

V. SUMMARY OF DISCHARGES

Provide a summary of each discharge of manure, litter, and/or process wastewater from the production area(s) that occurred in the 12-month period covered by this report. Attach additional sheets, if needed.

Date[a]	Time[b]	Location[c,f]	Description[d,f]	Volume[e]

[a] **Date:** The date of the discharge. If the discharge was detected after it happened, give an estimate of the date when the discharge occurred.
[b] **Time:** The time of the discharge. If the discharge was detected after it happened, give an estimate of the time when the discharge occurred.
[c] **Location:** The location of the discharge to waters of the U.S. Be specific. Include the name of the water body, and a specific description of where the manure, litter, or process wastewater entered the water body. Include landmarks or other points of reference (e.g., Three Mile Creek, at southeast corner of feedlot where creek bends to the west).
[d] **Description:** Provide other relevant information about the discharge, including the source, cause, composition (e.g., emergency overflow of process wastewater from lagoon #2), and impacts observed (e.g., fish kill in waterbody).
[e] **Volume:** Give an estimate of the number of gallons or tons of manure, litter, or process wastewater discharged.
[f] This information is not required by the NPDES CAFO regulations to be included in the annual report.

VI. NUTRIENT MANAGEMENT PLAN

Indicate whether the facility's nutrient management plan was either developed or approved by a certified nutrient management planner. Note: The *[permitting authority]* does not require CAFO owners or operators to use a certified nutrient management planner to prepare or approve nutrient management plans.

Was the current version of this facility's nutrient management plan prepared or approved by a certified nutrient management planner? ❑ Yes ❑ No

VII. INSTANCES OF NONCOMPLIANCE NOT PREVIOUSLY REPORTED

During the past 12 months have there been any instances of noncompliance which have not been reported to the permitting authority? ❑ Yes ❑ No If yes, please provide the information requested below.

If during the past 12 months there been instances of noncompliance which have not been reported to the permitting authority please provide the following information, for each instance, along with this annual report:

- ❑ Description of the noncompliance and its cause.
- ❑ The period that the operation was in noncompliance with permit conditions, including exact dates and times.
- ❑ In those cases where the noncompliance has not been corrected, the anticipated time it is expected to continue.
- ❑ Description of the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

Print Name: _____

Submit by *[insert due date/reporting schedule]*
Submit to *[permitting authority and address]*

ON SITE PROCESS WATER IRRIGATION LOG

The following is a log of the on site (on crop land owned and/or operated by this CAFO) irrigation of wastewater generated at this facility. A map identifying each field is behind this log for reference. An application rate calculation is completed annually for each individual field, once at the beginning of the crop year to establish the estimated nutrient balance application rates and once at the end of the crop year to document the actual nutrient application rate. For application rate calculations, refer to the NMSU calculation work sheets. Describe weather conditions as "clear" "dry" "cloudy" or such.

Date	**Field**	**Meter Reading**		**Weather Conditions**		
		Start	End	24 Hours Before	During	24 Hours After

PRECIPITATION (RAINFALL/SNOWFALL) LOG

The following is a record of all measurable precipitation which has occurred at this facility. Measured amounts cover a 24 hour period.

Record measurable rainfall in inches and record snowfall as "wet" or "dry" in approximate flat fall inches.

Year _____

Precipitation Rainfall/Snowfall Inches

Date	Rainfall	Snowfall

Year _____

Precipitation Rainfall/Snowfall Inches

Date	Rainfall	Snowfall

Maintenance or Modification Activity Record

The facility operator will complete the following report to briefly describe and record any significant repairs or modifications to the pollution prevention system. Any modifications that improve the performance of the system will be recorded here. Any significant modifications that change the way the system works will also be recorded as an amendment to this plan. This activity report will be filed immediately behind D.3.A.

Date or period in which maintenance was performed _____

Did the maintenance leave the system component in proper working condition? Yes____ No____ NA____

Briefly describe the system component or structural control that received maintenance or improvement:

_____

Briefly describe the maintenance preformed on the system component:

_____

_____

_____

_____

_____

_____

_____

_____

OFF SITE MANURE/WASTEWATER TRANSFER
Recipient List

The following is a list of recipients that receive manure solids or wastewater from this facility. manure solids that have been sold or given to other persons. This record is to be up-dated as needed to add new recipients and to keep the information current.

Recipients taking insignificant (ie. pickup or small trailer loads) need not be recorded.

Name	Address	Annual Analysis Provided				
		2010	2011	2012	2013	2014

OFF SITE MANURE/WASTEWATER TRANSFER

The following is a log of the removal of manure solids that have been sold or given to other persons. The amount is recorded in estimated or scaled tons, or in cubic yards. Recipients removing significant amounts of manure solids or wastewater must provide their name and address for your records. Insignificant (ie. pickup or small trailer loads) need not be recorded.

A computer record may be used in substitute for this written record. If using a computer record the same information is needed. Note on this record that a computer file is being maintained.

Date(s)	**Recipient**	**Amount Removed (ton/cu-yd/gallons/ac-ft)**

ON SITE DRY MANURE APPLICATION

The following is a log of the on site (on crop land owned and/or operated by this CAFO) use of manure solids generated at this facility. A map identifying each field is behind this log for reference. An application rate calculation is completed annually for each individual field, once at the beginning of the crop year to establish the estimated nutrient balance application rates and once at the end of the crop year to document the actual nutrient application rate. For application rate calculations, refer to the NMSU calculation work sheets. Describe weather conditions as "clear" "dry" "cloudy" or such.

Date	Field	Tons/Acre	Weather Conditions		
			24 Hours Before	During	24 Hours After

LINER MAINTENANCE

The following is a log of liner maintenance that has been preformed on the retention structures at this facility. Any activity required to restore the PWRS or RCS liner will be inspected by a professional engineer or NRCS engineer. At least every 5 years a review of this maintenance record and a site evaluation will be conducted by a professional engineer or NRCS engineer.

Date Completed	**Cause of Damage**	**Corrective Action Taken**	**Inspector**

NUTRIENT MANAGEMENT PLAN (NMP) AMENDMENTS

The following is a log of the amendments to the NMP for this facility. Details of the amendments will be attached directly behind this log.

Date	Description of NMP Change(s)

SPILLS

The following is a log of the significant spills of possible pollutants that have occurred at this facility. Refer to the Spill Clean Up Report immediately behind this log, for additional details.

Date of Spill	Material Spilled	Clean Up Completed	
		Yes	No

Spill Incident Report
For
A Possible Pollutant Source Material

The following spill incident report is to be completed to document the circumstances and actions taken regarding a significant spill of a Possible Pollutant Source Material.

Date of the Spill _____

Location on the Facility _____

Material Spilled _____

Amount of Material Spilled _____gallons/pounds

Was the Material Contained and/or Cleaned Up? Yes____ No____
If yes, provide a brief description of the containment and/or clean up.

_____
_____
_____

Did the Spilled Material Enter a Water of the US? Yes____ No____
If yes, provide a brief description of the flow path and the water polluted.

_____
_____
_____

Was Any Action Taken to Prevent Future Spills of This Type? Yes_____ No____
If yes, briefly describe the preventive action.

_____
_____
_____

I _____completed this spill incident report. _____
Print Name Signature

FIVE YEAR STRUCTURAL CONTROLS REVIEW

Facility Operators Log of Five (5) Year Structural Inspections and/or Re-Certification; For Additional Information Refer to the Facility Design Section of this document.

Date of Inspection	Inspectors Name	Follow Up Needed
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______
____________	______________	Yes______ No______

Tables and Calculations

Table 2.3

Facility: Dominguez Dairy #1

Crop Land Inventory

Field ID	No. Acres	Basis for Application	Irrigated Yes	Irrigated No	Type of Irrigation*	Crops Grown in Winter	Crops Grown in Summer	Conservation Practices Yes	Conservation Practices No
Field D-1	14.7	Nitrogen	X		Flood	X	X	X	
Field D-2	85.2	Nitrogen	X		Flood	X	X	X	
Field D-3	43.3	Nitrogen	X		Flood	X	X	X	
Field D-4	49.8	Nitrogen	X		Flood	X	X	X	
Field D-5	81.2	Nitrogen	X		Flood	X	X	X	
Field DM-1	84.0	Nitrogen	X		Flood	X	X	X	
Field DM-2	66.0	Nitrogen	X		Flood	X	X	X	
Field DM-3	48.0	Nitrogen	X		Flood	X	X	X	
Field DM-4	48.0	Nitrogen	X		Flood	X	X	X	
Field DM-5	52.0	Nitrogen	X		Flood	X	X	X	
Field DM-6	30.0	Nitrogen	X		Flood	X	X	X	
Field DM-7	91.0	Nitrogen	X		Flood	X	X	X	

*Flooded Row irrigation is used on row crops like corn
Flooded Border irrigation is used on small grains and grasses; a border covers 2 to 4 acres.

Table 10.2

Dominguez Dairy #1 - Projected

Field	Season	Year 1		Year 2		Year 3		Year 4		Year 5	
		Crop	Yield T/Ac.	Crop	Yield T/Ac.	Crop	Yield T/Ac.	Crop	Yield T/Ac.	Crop	Yield T/Ac.
D-1*		Pecan	1240	Pecan	1240	Pecan	1400	Pecan	1400	Pecan	1600
D-2:	Winter			Oat	20.0						
	Summer	Alfalfa	10	Alfalfa	1.0	Alfalfa	12.0	Alfalfa	12.0	Alfalfa	12.0
D-3:	Winter			Oat	20						
	Summer	Alfalfa	10	Alfalfa	1	Alfalfa	12.0	Alfalfa	12.0	Alfalfa	12.0
D-4:	Winter	Oat	20	Oat	20	Oat	20	Oat	20	Oat	20
	Summer	Corn	22	Corn	22	Corn	22	Corn	22	Corn	22
D-5:	Winter	Oat	20	Oat	20	Oat	20	Oat	20	Oat	20
	Summer	Corn	22	Corn	22	Corn	22	Corn	22	Corn	22
DM-1:	Winter	Oat	20	Oat	20.0						
	Summer	Corn	22	Alfalfa	1.0	Alfalfa	12.0	Alfalfa	12.0	Alfalfa	12.0
DM-2:	Winter							Oat	20	Oat	20
	Summer	Alfalfa	12	Alfalfa	12	Alfalfa	12	Corn	22	Corn	22
DM-3:	Winter	Oat	20								
	Summer	Alfalfa	1	Alfalfa	12.0	Alfalfa	12.0	Alfalfa	12.0	Alfalfa	12.0
DM-4:	Winter									Oat	20
	Summer	Alfalfa	12	Alfalfa	12	Alfalfa	12.0	Alfalfa	12.0	Corn	22
DM-5:	Winter										
	Summer	Alfalfa	12	Alfalfa	12	Alfalfa	12.0	Alfalfa	12.0	Alfalfa	12.0
DM-6:	Winter										
	Summer	Alfalfa	12	Alfalfa	12	Alfalfa	12.0	Alfalfa	12.0	Alfalfa	12.0
DM-7:	Winter							Oat	20	Oat	20
	Summer	Alfalfa	12	Alfalfa	12	Alfalfa	12	Corn	22	Corn	22

* Yields are in lbs/acre

Alfalfa is a year round crop except when planted after Oats.

Table 10.2 Con't

Dominguez Dairy #1 - Alternatives

Field	Season	Year 1		Year 2		Year 3		Year 4		Year 5	
		Crop	Yield T/Ac.	Crop	Yield T/Ac.	Crop	Yield T/Ac.	Crop	Yield T/Ac.	Crop	Yield T/Ac.
D-1		None		None		None		None		None	
D-2:	Winter	None		Triticale	20.0	Oat	20	Barley	20.0	Wheat	20
	Summer	None		Cotton*	1250.0	Corn	22	Corn	22.0	Sorg/Sudan	21
D-3:	Winter	None		Triticale	20.0	Oat	20	Barley	20.0	Wheat	20
	Summer	None		Cotton*	1250.0	Corn	22	Corn	22.0	Sorg/Sudan	21
D-4:	Winter	None		Triticale	20.0	Barley	20.0	Wheat	20	Oat	20
	Summer	None		Cotton*	1250.0	Corn	22.0	Sorg/Sudan	21	Alfalfa	1
D-5:	Winter	None		Triticale	20.0	Barley	20.0	Wheat	20	Oat	20
	Summer	None		Cotton*	1250.0	Corn	22.0	Sorg/Sudan	21	Alfalfa	1
DM-1:	Winter	None		Triticale	20.0	Barley	20.0	None		Wheat	20
	Summer	None		Cotton*	1250.0	Corn	22.0	None		Sorg/Sudan	21
DM-2:	Winter	None		Triticale	20.0	Barley	20.0	Wheat	20	Oat	20
	Summer	None		Cotton*	1250.0	Corn	22.0	Sorg/Sudan	21	Alfalfa	1
DM-3:	Winter	None		Triticale	20.0	Oat	20	Barley	20.0	Wheat	20
	Summer	None		Cotton*	1250.0	Corn	22	Corn	22.0	Sorg/Sudan	21
DM-4:	Winter	None		Triticale	20.0	Barley	20.0	Wheat	20	Oat	20
	Summer	None		Cotton*	1250.0	Corn	22.0	Sorg/Sudan	21	Alfalfa	1
DM-5:	Winter	None		Triticale	20.0	Oat	20	Barley	20.0	Wheat	20
	Summer	None		Cotton*	1250.0	Corn	22	Corn	22.0	Sorg/Sudan	21
DM-6:	Winter	None		Triticale	20.0	Oat	20	Barley	20.0	Wheat	20
	Summer	None		Cotton*	1250.0	Corn	22	Corn	22.0	Sorg/Sudan	21
DM-7:	Winter	None		Triticale	20.0	Barley	20.0	Wheat	20	Oat	20
	Summer	None		Cotton*	1250.0	Corn	22.0	Sorg/Sudan	21	Alfalfa	1

* Yields are in lbs/acre

Alfalfa is a year round crop except when planted after Oats.

Table 10.8 Facility: Dominguez Dairy #1

Total Nutrient[1] Applied All Sources

Crops (including alternate crops) in the Projected Rotation[2]

Field ID	Alfalfa[3]	Barley	Cotton	Corn	Oats	Sorghum/Sudan	Triticale	Wheat
Field D-1	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field D-2	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field D-3	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field D-4	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field D-5	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field DM-1	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field DM-2	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field DM-3	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field DM-4	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field DM-5	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field DM-6	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac
Field DM-7	362.8 #/ac[4]	273.4 #/ac	38.0 #/ac	174.0 #/ac	245.0 #/ac	206.4 #/ac	280.3 #/ac	280.3 #/ac

1 All fields at this facility are N based for crop nutrient rate projections. Total nutrients are in PAN Nitrogen needed for crop yield goal.

2 See Table 10.2 for year-by-year projections on an annual crop rotation basis and yield goals.

3 USDA-NRCS Plants Nutrient Tool for alfalfa shows 604.7224 #N/ac at 12 ton/acre yield. NRCS Standard Practice 590, Appendix D to the Permit adjusts N application to legumes to 60% of the nutrient removal.

4 Total plant available nitrogen (PAN) to be applied from all sources is taken from USDA-NRCS Plants Nutrient Tool. Also refer to NMSU Annual Nutrient Management worksheet in Appendix A.

Domenguez Dairy #1 --- Annual Manure Production Estimates

WORKSHEET I. MANURE PRODUCTION DATA FOR COLLECTABLE MANURE

TYPE OF ANIMAL (Dairy=0, Swine=1, Laying Hens=2, Beef Feedlot=3,
Sheep Feedlot=4, Horses=5, Turkeys=6, Broilers=7) => 0

Manure Production Criteria for Dairy Feeding Facilities

Parameters	Buildings, Concrete Pens & Alleys	Open Lots	Total
#1. Number of Animals	2000	2000	milking
#2. Average Liveweight per Head, lbs/hd	1600	1600	
#3. Total Liveweight,lbs (#1 x #2)	3200000	3200000	
#4. Confinement Period, hours/day	2	22	24
#5. Confinement Period, fraction (#4/24)	0.08	0.92	1.00
#6. Adjusted Total Liveweight, lbs (#3 x #5)	266667	2933333	3200000
#7. Wet Manure Production, lbs/day	27200	299200	326400
#8. Dry Manure Production, lbs/day	3920	43120	47040
#9. Dry Manure Production, tons/year	715	7869	8585
#10 .Volatile Solids (VS) Production, lbs/day	2877	31651	34528
#11 .Total Nitrogen Production, lbs/day	146	1605	1750
#12 .Total Phosphorus (P2O5), lbs/day	72	792	864
#13 .Total Potassium (K2O), lbs/day	123	1358	1482
#14 .Sodium Production, lbs/day	21	229	250
#15 .COD Production, lbs/day	3573	39307	42880
#16.BOD5 Production, lbs/day	555	6101	6656

Domenguez Dairy #1 --- Annual Manure Production Estimates

WORKSHEET I. MANURE PRODUCTION DATA FOR COLLECTABLE MANURE

TYPE OF ANIMAL (Dairy=0, Swine=1, Laying Hens=2, Beef Feedlot=3,
Sheep Feedlot=4, Horses=5, Turkeys=6, Broilers=7) => 0

Manure Production Criteria for Dairy Feeding Facilities

Parameters	Buildings, Concrete Pens & Alleys	Open Lots	Total
#1. Number of Animals	0	600	DRY
#2. Average Liveweight per Head, lbs/hd	0	1700	
#3. Total Liveweight,lbs (#1 x #2)	0	1020000	
#4. Confinement Period, hours/day	0	24	24
#5. Confinement Period, fraction (#4/24)	0.00	1.00	1.00
#6. Adjusted Total Liveweight, lbs (#3 x #5)	0	1020000	1020000
#7. Wet Manure Production, lbs/day	0	104040	104040
#8. Dry Manure Production, lbs/day	0	14994	14994
#9. Dry Manure Production, tons/year	0	2736	2736
#10 .Volatile Solids (VS) Production, lbs/day	0	11006	11006
#11 .Total Nitrogen Production, lbs/day	0	558	558
#12 .Total Phosphorus (P2O5), lbs/day	0	275	275
#13 .Total Potassium (K2O), lbs/day	0	472	472
#14 .Sodium Production, lbs/day	0	80	80
#15 .COD Production, lbs/day	0	13668	13668
#16.BOD5 Production, lbs/day	0	2122	2122

Domenguez Dairy #1 --- Annual Manure Production Estimates

WORKSHEET I. MANURE PRODUCTION DATA FOR COLLECTABLE MANURE

TYPE OF ANIMAL (Dairy=0, Swine=1, Laying Hens=2, Beef Feedlot=3, Sheep Feedlot=4, Horses=5, Turkeys=6, Broilers=7) => 0

Manure Production Criteria for Dairy Feeding Facilities

Parameters	Buildings, Concrete Pens & Alleys	Open Lots	Total
#1. Number of Animals	0	3000	HEIFERS
#2. Average Liveweight per Head, lbs/hd	0	700	
#3. Total Liveweight,lbs (#1 x #2)	0	2100000	
#4. Confinement Period, hours/day	0	24	24
#5. Confinement Period, fraction (#4/24)	0.00	1.00	1.00
#6. Adjusted Total Liveweight, lbs (#3 x #5)	0	2100000	2100000
#7. Wet Manure Production, lbs/day	0	214200	214200
#8. Dry Manure Production, lbs/day	0	30870	30870
#9. Dry Manure Production, tons/year	0	5634	5634
#10 .Volatile Solids (VS) Production, lbs/day	0	22659	22659
#11 .Total Nitrogen Production, lbs/day	0	1149	1149
#12 .Total Phosphorus (P2O5), lbs/day	0	567	567
#13 .Total Potassium (K2O), lbs/day	0	972	972
#14 .Sodium Production, lbs/day	0	164	164
#15 .COD Production, lbs/day	0	28140	28140
#16.BOD5 Production, lbs/day	0	4368	4368

Domenguez Dairy #1 --- Annual Manure Production Estimates

WORKSHEET I. MANURE PRODUCTION DATA FOR COLLECTABLE MANURE

TYPE OF ANIMAL (Dairy=0, Swine=1, Laying Hens=2, Beef Feedlot=3,
Sheep Feedlot=4, Horses=5, Turkeys=6, Broilers=7) => 0

Manure Production Criteria for	Dairy Feeding Facilities		
Parameters	Buildings, Concrete Pens & Alleys	Open Lots	Total
#1. Number of Animals	0	2000	BABY CALVES
#2. Average Liveweight per Head, lbs/hd	0	300	
#3. Total Liveweight,lbs (#1 x #2)	0	600000	
#4. Confinement Period, hours/day	0	24	24
#5. Confinement Period, fraction (#4/24)	0.00	1.00	1.00
#6. Adjusted Total Liveweight, lbs (#3 x #5)	0	600000	600000
#7. Wet Manure Production, lbs/day	0	61200	61200
#8. Dry Manure Production, lbs/day	0	8820	8820
#9. Dry Manure Production, tons/year	0	1610	1610
#10 .Volatile Solids (VS) Production, lbs/day	0	6474	6474
#11 .Total Nitrogen Production, lbs/day	0	328	328
#12 .Total Phosphorus (P2O5), lbs/day	0	162	162
#13 .Total Potassium (K2O), lbs/day	0	278	278
#14 .Sodium Production, lbs/day	0	47	47
#15 .COD Production, lbs/day	0	8040	8040
#16.BOD5 Production, lbs/day	0	1248	1248

Annual Process Wastewater Generated

Facility: Dominguez Dairy #1

NMG010054

NMED DP-624 Authorized wastewater rate 37,000 gallon per day

37,000 gpd X 365 days / 325,850 = 41.45 acre-feet or 497.35 acre-inches