Year 2

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		[redacted]	
Dairy	Dominguez Dairy						
Crop_Year	2010-2011 (alt)				N Loss	0%	
Field_ID	DM-2				Goal/Real	Nutrient Needed	
Area (ac)	66						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'10-May'11	Triticale (Wheat for green chop 70%)		t/ac	20	18501	2455
2nd Crop	Jun'11-Oct'11	Cotton		lb/ac	1250	2508	314
						0	0
Total		Nutrient Needed				21,009	2,769
						Soil Analyses	
						N	P
Texture by Feel		Clay				51	176.42
Nutrient Available in Soil				lb/ac		17,643	-8,875
		Nutrient Still Needed					
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1175	533
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				16,468	-9,408
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				16,468	-9,408
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	998	16467	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				1	-9,408

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	66	Date:	11/2/2009	Field ID:	DM-2

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Tricale Silage			Needed for field (acin):	18.81
Liquid Applied:	0.285	Acin/ac		(gal):	510,692
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**	
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:**	66	**Date:**	11/2/2009	**Field ID:**	DM-2

Application Information (*enter the units that will be or has been applied to the field*):					
	Crop Rotation: Cotton			**Needed for field (acin):**	28.182
	Liquid Applied:	0.427	Acin/ac	**(gal):**	765,141
	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

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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)

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 66 acres.

Nitrogen	Phosphorus	Potassium
18501.1200	2455.2000	

Element-Fertilizer Equivalents

Average NPK Percentages

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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 66 acres.

Nitrogen	Phosphorus	Potassium
2507.1024	311.8665	372.7185

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Nov'10 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Triticale
Soil Permeablity (in/hr):	0.3	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				1.5
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:	20.5
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) 0.31 t/ac + (RUSLE 2) 0.20 t/ac = 0.51 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Jun'11 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Cotton
Soil Permeability (in/hr):	0.3	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				1.5
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:	20.5
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) 0.43 t/ac + (RUSLE 2) 0.52 t/ac = 0.95 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-2
Total Acres: 66
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 L; 23-36** | Intake Family (in/hr): **0.30**

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	6.0	50%	3.0	6.3
Cotton; Las Cruces	Medium	3.0	6.0	50%	3.0	6.3

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	>1 Mo.	2.1	Aug		0.0
Mar	27	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	12	7.5
Feb		0.0	Aug	12	7.3
Mar		0.0	Sep	17	5.4
Apr	>1 Mo.	0.3	Oct	>1 Mo.	2.8
May	>1 Mo.	2.0	Nov	>1 Mo.	0.6
Jun	21	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	3	3.88	0.11	System meets CU for crop
Cotton; Las Cruces	8	3.88	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: Joaquin Domingez **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: Mesquite, NM | Tract: 1579 | Field: DM-2

Crop Rotation: Triticale Silage / Cotton | 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.): 1234

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

Sum Period Erosion (t/ac): 0.8 | 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"	"Krr"	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	11/02/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1246	0	20.5	0.2	1.00	0.03
11/2	12/02/10	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	89	4.2	2.5	0.71	0.07
5/23	05/29/11	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1246	27	7.2	2.1	0.67	0.10
5/29	06/13/11	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1246	23	6.3	1.7	1.00	0.11
6/13	06/28/11	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1691	16	35.2	0.8	0.87	0.24
6/28	07/13/11	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1691	21	35.1	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	1.475	1820	203	33.8	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	1.475	1820	668	19.5	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	2.00	2468	1367	5.4	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	2.00	2468	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	1.01	1246	943	4.8	0.3	1.00	0.01
9/20	09/21/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.01	1246	1178	2.2	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	1.01	1246	5304	0.0	1.6	1.00	0.00
		0			2	10											
		0															
		0															
		0															

USDA 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-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Hg HARKEY LOAM\HARKEY 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)	0.20	
a.Single Year/Single Crop Templates\Cotton, CT 2 bale	b. absolute row grade 0.5 percent	(none)	(none)	0.52	

Year 3

Dairy Annual Nutrient Manager

Date	11/29/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		[redacted]	
Dairy	Dominguez Dairy						
Crop_Year	2011-2012 (alt)				N Loss	0%	
Field_ID	DM-2				Goal/Real	Nutrient Needed	
Area (ac)	66						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'11-May'12	Barley-6 row, for green chop (boot)		t/ac	20	11844	1989
2nd Crop	Jun'12-Oct'12	Corn-Field for Silage (dough 68%)		t/ac	22	11482	1719
						0	0
Total		Nutrient Needed				23,326	3,708
						Soil Analyses	
						N	P
Texture by Feel		Sandy Clay					
Nutrient Available in Soil				lb/ac		51	176.42
		Nutrient Still Needed				19,960	-7,936
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1175	533
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				18,786	-8,469
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				18,786	-8,469
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1138	18777	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**9**	**-8,469**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	66	Date: 11/2/2009	Field ID: DM-2

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Barley Silage			Needed for field (acin):	18.81
Liquid Applied:	0.285	Acin/ac		(gal):	510,692
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:	66	Date:	11/2/2009	Field ID:	DM-2

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Corn Silage			Needed for field (acin):	28.182
Liquid Applied:	0.427	AcIn/ac		(gal):	765,141
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 66 acres.

Nitrogen	Phosphorus	Potassium
18042.8445	3029.5546	12916.7114

Element-Fertilizer Equivalents

Average NPK Percentages

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- Intellectual Property Statement / How to Cite the PLANTS Database
- Disclaimers
- USDA non-discrimination policy

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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)

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 66 acres.

Nitrogen	Phosphorus	Potassium
11482.1837	1719.1680	9664.5120

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Nov'11 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Barley Silage
Soil Permeablity (in/hr):	0.3	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				1.5
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:** 20.5

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) 0.25 t/ac + (RUSLE 2) 0.11 t/ac = 0.36 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Jun'12 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeablity (in/hr):	0.3	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				1.5
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:	20.5
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) 0.16 t/ac + (RUSLE 2) 0.10 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-3
Total Acres: 66
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
- [x] Optimize use of water
- [x] 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 L; 23-36** | Intake Family (in/hr): **0.30**

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	6.0	50%	3.0	6.3
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	6.3

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	>1 Mo.	2.1	Aug		0.0
Mar	27	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	10	9.4
Feb		0.0	Aug	14	6.6
Mar		0.0	Sep		0.0
Apr	>1 Mo.	1.2	Oct		0.0
May	22	4.2	Nov		0.0
Jun	11	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 Applicaiton Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	3	3.88	0.11	System meets CU for crop
Corn, silage; Las Cruces	8	3.88	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: Isaac Domingez **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-1

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.): 1234

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

Sum Period Erosion (t/ac): 0.4 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: 0.4 (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)	"Krr" (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	1246	0	29.9	0.2	1.00	0.05
11/2	11/17/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1246	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	1246	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	1246	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	1246	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	1246	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	1246	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	1246	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	1246	789	1.2	2.5	1.00	0.03
5/29	05/29/12	0	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1246	285	5.6	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	1246	251	6.6	2.6	1.00	0.17
6/29	07/14/12	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.370	1691	237	36.2	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	1820	242	38.3	0.2	0.73	0.05
7/29	08/13/12	1	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	1820	763	20.0	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	2468	1671	2.4	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	2468	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	1246	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	1246	5317	0.0	1.3	1.00	0.00
		0			2	18											
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USDA 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-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Hg HARKEY LOAM\HARKEY 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)	0.11	
a.Single Year/Single Crop Templates\Corn, silage, plow	b. absolute row grade 0.5 percent	(none)	(none)	0.10	

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			[redacted]
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2012-2013 (alt)				Goal/Real	Nutrient Needed	
Field_ID	DM-2						
Area (ac)	66						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-May'13	Wheat Silage (Wheat for green chop 70%)		t/ac	20	18501	2455
2nd Crop	Jun'13-Oct'13	Sorghum/Sudangrass, for silage (70%)		t/ac	21	13622	1746
						0	0
Total		Nutrient Needed				32,123	4,202
						Soil Analyses	
						N	P
Texture by Feel		Sandy Clay				51	176.42
Nutrient Available in Soil				lb/ac		28,757	-7,442
		Nutrient Still Needed					
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1175	533
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				27,582	-7,976
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				27,582	-7,976
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1671	27572	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				10	-7,976

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	66	Date:	11/2/2009	Field ID:	DM-2

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Winter Wheat Silage			Needed for field (acin):	18.81
Liquid Applied:	0.285	Acin/ac		(gal):	510,692
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:	66	Date:	11/2/2009	Field ID:	DM-2

Application Information (*enter the units that will be or has been applied to the field*):	Crop Rotation:	Sorghum Silage		Needed for field (acin):	28.182
	Liquid Applied:	0.427	Acin/ac	(gal):	765,141
	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
adcast-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)
	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 66 acres.

Nitrogen	Phosphorus	Potassium
18501.1200	2455.2000	

Element-Fertilizer Equivalents

Average NPK Percentages

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Time Generated: Mon 3:57 PM - 11/30/2009

USDA Natural Resources Conservation Service

PLANTS Crop Nutrient Tool

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 22 ton yield level.

Nitrogen	Phosphorus	Potassium
216.2160	27.7200	344.5200

Nutrients removed in harvested part (lb/ton) at 22 ton yield level and 66 acres.

Nitrogen	Phosphorus	Potassium
14270.2560	1829.5200	22738.3200

Element-Fertilizer Equivalents

Average NPK Percentages

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Time Generated: Thur 10:18 AM - 12/3/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Nov'12 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Wheat Silage
Soil Permeablity (in/hr):	0.3	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				1.5
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<8 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: 20.5

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) 0.27 t/ac + (RUSLE 2) 0.11 t/ac = 0.38 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Jun'13 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Sudangrass
Soil Permeablity (in/hr):	0.3	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				1.5
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:** 20.5

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) 0.17 t/ac + (RUSLE 2) 0.00078 t/ac = 0.17 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-2
Total Acres: 66
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
- [x] Optimize use of water
- [x] 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 L; 23-36** | Intake Family (in/hr): **0.30**

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	6.0	50%	3.0	6.3
Sorghum, silage; Deming	Medium	3.0	6.0	65%	3.9	9.7

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	>1 Mo.	2.1	Aug		0.0
Mar	27	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	14	8.5
Feb		0.0	Aug	21	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	17	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 Application Rate (in/day)**	**Needed Application Rate (in/day)**	**System Evaluation**
Wheat, winter, silage; Las Cruces	3	3.88	0.11	System meets CU for crop
Sorghum, silage; Deming	6	3.88	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: Jose Luis Dominguez **Date:** 11-23-2009

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

Completed by: [illegible] **Date:**

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: Dominguez Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 1579 | Field: DM-2

Crop Rotation: Wheat Silage/Sudangrass Hay | 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.): 1234

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				SGe	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)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
11/1	11/02/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1246	0	20.5	0.2	1.00	0.03
11/2	11/17/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	789	1.2	2.5	1.00	0.03
5/29	06/29/13	0	56	0.0	4	30	0.37	0.65	0.0	4.0	1.010	1246	285	8.2	2.6	1.00	0.21
6/29	07/14/13	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1691	202	31.1	0.3	0.87	0.07
7/14	07/29/13	2	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	1820	227	33.2	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	1.475	1820	313	30.7	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	2.000	2468	706	26.9	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	2.000	2468	1869	1.2	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	1.010	1246	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	1246	6999	0.0	1.3	0.94	0.00
		0			2	10											
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USDA NRCS Natural Resources Conservation Service

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-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Hg HARKEY LOAM\HARKEY 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)	0.11	
a.Single Year/Single Crop Templates\Haygrazer, sudangrass, disk	b. absolute row grade 0.5 percent	(none)	(none)	0.00078	

Year 5

Dairy Annual Nutrient Manager

Date	11/29/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		[redacted]	
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2013-2014				Goal/Real	Nutrient Needed	
Field_ID	DM-2						
Area (ac)	66						
	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	29711	5547
2nd Crop	Jun'13-Oct'14	Alfalfa, for hay		t/ac	1	3326	312
						0	0
Total		Nutrient Needed				33,037	5,858
						Soil Analyses	
						N	P
Texture by Feel		Sandy Clay				51	176.42
Nutrient Available in Soil				lb/ac		29,671	-5,785
		Nutrient Still Needed					
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1175	533
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				28,497	-6,319
						Manure Analyses	
						N	P
Dry Manure Application		NM Dairy Cattle Net from J.S. 590 L&MLA		t/ac	30.8	28459	6220
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				37	-12,539
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				37	-12,539

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	66	Date: 11/2/2009	Field ID: DM-2

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Oat Silage			Needed for field (acin):	18.81
Liquid Applied:	0.285	Acin/ac		(gal):	510,692
Solids Applied:	30.8	ton/ac		Needed for field (tons):	2032.8
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:		2.3	89	0.5	

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
Dairy Cattle (30% wet wt) NM (Aver	30	0	0	46	0.0	0.2	0	9	35	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)
	16	7	28
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	14
P_2O_5	0.0	26	7
K_2O	0.0	205	28

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	446.7	220.0	927.6

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	**Acres:**	66	**Date:**	11/2/2009	**Field ID:**	DM-2

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation: Alfalfa				**Needed for field (acin):**	28.182
Liquid Applied:	0.427	Acin/ac		**(gal):**	765,141
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)**
	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 66 acres.

Nitrogen	Phosphorus	Potassium
16171.0917	2778.0475	15385.0995

Element-Fertilizer Equivalents | Average NPK Percentages

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Time Generated: **Mon 4:00 PM - 11/30/2009**

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.			**Nutrients removed in harvested part (lb/acre) at** 1 ton yield level.		
Nitrogen	**Phosphorus**	**Potassium**	**Nitrogen**	**Phosphorus**	**Potassium**
50.3935	4.7217	38.2939	50.3935	4.7217	38.2939

Nutrients removed in harvested part (lb/ton) at 1 ton yield level and 66 acres.

Nitrogen	**Phosphorus**	**Potassium**
3325.9734	311.6296	2527.3990

Element-Fertilizer Equivalents | Average NPK Percentages

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Time Generated: **Mon 4:04 PM - 11/30/2009**

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Nov'13 alt
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeablity (in/hr):	0.3	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	8
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				1.5
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:** 25.5

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) 0.24 t/ac + (RUSLE 2) 0.16 t/ac = 0.40 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-2	Date:	Jun'14 alt
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.3	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				1.5
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:** 20.5

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) 0.38 t/ac + (RUSLE 2) 0.042 t/ac = 0.42 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 **Tract:** 1579
Planner: Chet Wyant **Field(s) No.:** DM-2
Current Land Use: Oat Silage / Alfalfa **Total Acres:** 66
Date: 11/20/2009 **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 L; 23-36** Intake Family (in/hr): **0.30**

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	6.0	50%	3.0	6.3
Alfalfa, hay, southern; Las Cruces	Deep	4.0	8.0	50%	4.0	10.1

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	>1 Mo.	2.3	Sep		0.0
Apr	18	5.0	Oct		0.0
May	>1 Mo.	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	12	9.7
Feb		0.0	Aug	16	7.7
Mar	>1 Mo.	1.6	Sep	21	5.7
Apr	29	4.2	Oct	>1 Mo.	2.7
May	17	6.9	Nov		0.0
Jun	13	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 Application Rate (in/day)**	**Needed Application Rate (in/day)**	**System Evaluation**
Oat, hay; Deming	2	3.88	0.17	System meets CU for crop
Alfalfa, hay, southern; Las Cruces	12	3.88	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 Domingez **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-2
Crop Rotation:	Oat Silage / Alfalfa	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.):	1234		
Irrigation (Y or N):	Y	Soil "I":	86	Wind Erodibility Group:	4L (1-7)	TWF:	2	(see instr.)	
Sum Period Erosion (t/ac):	0.6	No. Yrs in Rotation:	1.0	Av. Annual Wind Erosion:	0.6	(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"	"Krr"	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	1.010	1246	0	20.5	0.2	1.00	0.03
11/2	12/02/13	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	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	1.010	1246	518	2.2	2.5	1.00	0.06
5/23	05/29/14	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1246	187	6.3	2.1	0.67	0.09
5/29	06/13/14	1	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1246	165	5.6	1.7	0.87	0.08
6/13	06/28/14	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1691	117	33.0	0.8	0.87	0.23
6/28	07/13/14	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1691	163	32.0	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	1.475	1820	220	33.4	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	1.475	1820	1792	0.5	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	2.00	2468	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	2.00	2468	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	1.01	1246	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	1.01	1246	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	1246	2799	0.0	1.1	0.93	0.00
		0			2	10											
		0															
		0															
		0															

USDA NRCS Natural Resources Conservation Service

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-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Hg HARKEY LOAM\HARKEY 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)	0.16	
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.042	

Field DM-3

Years 1 thru 5

NMSU Annual Nutrient Manager Calculation
590 Nutrient Mgt. Jobsheet for Organic & Manure Land Application
USDA-NRCS PLANTS Crop Nutrient Tool
NRCS Phosphorus Index Worksheet for New Mexico
NRCS Irrigation Water Mgt. Conservation Practice Jobsheet 449
NRCS - WEQ Calculations
NRCS RUSLE2 Worksheet Erosion Calculation Record

Year 1

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		[redacted]	
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2009-2010				Goal/Real	Nutrient Needed	
Field_ID	DM-3						
Area (ac)	48						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'09-May'10	Oats for green chop (boot to early bloom 69%)		t/ac	20	21608	4034
2nd Crop	Jun'10-Oct'10	Alfalfa, for hay		t/ac	1	2419	227
						0	0
Total		Nutrient Needed				24,027	4,261
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		43	75.11
		Nutrient Still Needed				21,963	655
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	854	388
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				21,109	267
						Manure Analyses	
						N	P
Dry Manure Application		NM Dairy Cattle Net from J.S. 590 L&MLA		t/ac	31.4	21101	4612
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				8	-4,345
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**8**	**-4,345**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	48	Date:	11/2/2009	Field ID:	DM-3

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation: Oat Silage				Needed for field (acin):	13.68
Liquid Applied:	0.285	Acin/ac		(gal):	371,412
Solids Applied:	31.4	ton/ac		Needed for field (tons):	1507.2
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:		2.3	89	0.5	

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
Dairy Cattle (30% wet wt) NM (Aver	30	0	0	46	0.0	0.2	0	9	35	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
P dcast-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)
	16	7	28
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	14
P_2O_5	0.0	26	7
K_2O	0.0	205	28

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	455.3	224.1	944.5

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	48	Date:	11/2/2009	Field ID:	DM-3

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Alfalfa			Needed for field (acin):	20.496
Liquid Applied:	0.427	AcIn/ac		(gal):	556,466
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
adcast-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)
	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 48 acres.

Nitrogen	Phosphorus	Potassium
11760.7940	2020.3982	11189.1633

Element-Fertilizer Equivalents

Average NPK Percentages

«Contents»

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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)

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 48 acres.

Nitrogen	Phosphorus	Potassium
2418.8897	226.6397	1838.1084

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-3	Date:	Nov'09
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeablity (in/hr):	0.3	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			2
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	8
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				1.5
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:** 19.5

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 11/09 to 5/10) 0.30 t/ac + (RUSLE 2) 0.16 t/ac = 0.46 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-3	Date:	Jun'10
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.3	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			2
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				1.5
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: Low **Total Index Points:** 14.5

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 6/10 to 10/10) 0.41 t/ac + (RUSLE 2) 0.042 t/ac = 0.45 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 **Tract:** 1579
Planner: Chet Wyant **Field(s) No.:** DM-3
Current Land Use: Oat Silage / Alfalfa **Total Acres:** 48
Date: 11/20/2009 **Date to apply:** Nov'09

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 L; 23-36** Intake Family (in/hr): **0.30**

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	6.0	50%	3.0	6.3
Alfalfa, hay, southern; Las Cruces	Deep	4.0	8.0	50%	4.0	10.1

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	>1 Mo.	2.3	Sep		0.0
Apr	18	5.0	Oct		0.0
May	>1 Mo.	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	12	9.7
Feb		0.0	Aug	16	7.7
Mar	>1 Mo.	1.6	Sep	21	5.7
Apr	29	4.2	Oct	>1 Mo.	2.7
May	17	6.9	Nov		0.0
Jun	13	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	2	5.33	0.17	System meets CU for crop
Alfalfa, hay, southern; Las Cruces	9	5.33	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: Joaquin Domingez **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: Mesquite, NM | Tract: 1579 | Field: DM-3

Crop Rotation: Oat Silage / Alfalfa | 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.): 1308

Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 3 (1-7) | TWF: 1 (see instr.)

Sum Period Erosion (t/ac): 0.7 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: 0.7 (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"	"Krr"	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	11/02/09	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1321	0	20.9	0.2	1.00	0.03
11/2	12/02/09	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1321	1989	0.0	5.0	1.00	0.00
12/2	01/01/10	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1321	1989	0.0	7.4	0.97	0.00
1/1	01/31/10	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1321	1989	0.0	4.0	1.00	0.00
1/31	03/02/10	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1321	1989	0.0	24.7	0.97	0.00
3/2	03/17/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1321	1989	0.0	12.9	0.93	0.00
3/17	04/01/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1321	1989	0.0	12.9	1.00	0.00
4/1	04/16/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1321	1989	0.0	8.8	0.93	0.00
4/16	05/01/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1321	1989	0.0	8.8	1.00	0.00
5/1	05/16/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1321	3587	0.0	5.3	1.00	0.00
5/16	05/23/10	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.010	1321	518	2.3	2.5	1.00	0.06
5/23	05/29/10	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1321	187	6.5	2.1	0.83	0.12
5/29	06/13/10	1	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1321	165	5.8	1.7	0.93	0.09
6/13	06/28/10	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1792	117	33.6	0.8	0.93	0.25
6/28	07/13/10	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1792	163	32.5	0.3	0.93	0.10
7/13	07/28/10	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	1929	220	34.0	0.2	0.93	0.06
7/28	08/12/10	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	1929	1792	0.6	0.1	0.93	0.00
8/12	08/27/10	1	56	90.0	2	10	0.81	0.86	90.0	2.8	2.00	2616	5501	0.0	0.1	0.93	0.00
8/27	09/11/10	1	56	90.0	2	10	0.81	0.86	90.0	2.8	2.00	2616	5501	0.0	0.3	0.93	0.00
9/11	09/29/10	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.01	1321	2799	0.0	0.5	1.00	0.00
9/29	10/04/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.01	1321	2799	0.0	0.2	0.80	0.00
10/4	10/31/10	1	56	0.0	2	10	0.46	0.99	0.0	3.3	1.01	1321	2799	0.0	1.1	0.96	0.00
		0			2	10											
		0															
		0															
		0															

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: (alt) Oat Silage Nov'09 to May'10, Alfalfa Jun'10 to Oct'10

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-3

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Ge GLENDALE LOAM\GLENDALE 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)	0.16	
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.042	

Year 2

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			[redacted]
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2010-2011				Goal/Real	Nutrient Needed	
Field_ID	DM-3						
Area (ac)	48						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'10-Oct'11	Alfalfa, for hay		t/ac	12	29027	2720
2nd Crop						0	0
						0	0
Total		Nutrient Needed				29,027	2,720
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		43	75.11
		Nutrient Still Needed				26,963	-886
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	854	388
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				26,108	-1,273
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				26,108	-1,273
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**26,108**	**-1,273**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	**Acres:**	48	**Date:** 11/2/2009	**Field ID:** DM-3

Application Information (*enter the units that will be or has been applied to the field*):					
	Crop Rotation: Alfalfa			**Needed for field (acin):**	34.176
	Liquid Applied:	0.712	Acin/ac	**(gal):**	927,878
	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)**
	18.1	18.7	145.7

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)

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 12 ton yield level.

Nitrogen	Phosphorus	Potassium
604.7224	56.6599	459.5271

Nutrients removed in harvested part (lb/ton) at 12 ton yield level and 48 acres.

Nitrogen	Phosphorus	Potassium
29026.6768	2719.6768	22057.3002

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-3	Date:	Nov'10
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.3	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			2
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				1.5
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: Low **Total Index Points:** 14.5

Phosphorus Application Classification: N Based

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

Comments: Soil Erosion = (WEQ 11/10 to 10/11) 0.08 t/ac + (RUSLE 2) 0.042 t/ac = 0.12 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: Alfalfa
Date: 11/20/2009

Tract: 1579
Field(s) No.: DM-3
Total Acres: 48
Date to apply: Nov'10

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 L; 23-36** Intake Family (in/hr): **0.30**

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)
Alfalfa, hay, southern; Las Cruces	Deep	4.0	8.0	50%	4.0	10.1

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

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	12	9.7
Feb		0.0	Aug	16	7.7
Mar	>1 Mo.	1.6	Sep	21	5.7
Apr	29	4.2	Oct	>1 Mo.	2.7
May	17	6.9	Nov		0.0
Jun	13	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

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
Alfalfa, hay, southern; Las Cruces	9	5.33	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 Domingez **Date:** 11-23-2009

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

Completed by: [illegible] **Date:**

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: Dominguez Dairy #1 | Planner: Chet Wyant | Location: Mesquite, NM | Tract: 1579 | Field: DM-3

Crop Rotation: Alfalfa | 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.): 1308

Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 3 (1-7) | TWF: 1 (see instr.)

Sum Period Erosion (t/ac): 0.0 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: (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"	"Krr"	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	01/02/11	0	56	0.0	0	0	1.00	0.99	0.0	4.0	1.010	1321	0	62.7	12.6	1.00	0.08
1/2	01/17/11	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			2.0	1.00	
1/17	02/01/11	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			2.0	1.00	
2/1	02/16/11	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.7	0.93	
2/16	03/03/11	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.7	1.00	
3/3	03/18/11	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.9	0.93	
3/18	04/02/11	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.6	1.00	
4/2	04/17/11	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			8.8	0.93	
4/17	05/02/11	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			8.6	0.93	
5/2	05/17/11	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			5.3	1.00	
5/17	06/06/11	2	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			5.6	0.90	
6/6	06/21/11	0	56	22.5	0	0	1.00	0.94	22.5	1.2	1.370	1792			0.8	1.00	
6/21	07/11/11	2	56	22.5	0	0	1.00	0.94	22.5	1.2	1.370	1792			0.7	0.90	
7/11	07/26/11	0	56	67.5	0	0	1.00	0.94	67.5	1.1	1.475	1929			0.2	1.00	
7/26	08/15/11	2	56	67.5	0	0	1.00	0.94	67.5	1.1	1.475	1929			0.2	0.90	
8/15	08/30/11	0	56	90.0	0	0	1.00	0.94	90.0	2.8	2.000	2616			0.1	1.00	
8/30	09/19/11	2	56	90.0	0	0	1.00	0.94	90.0	2.8	2.000	2616			0.6	0.90	
9/19	11/01/11	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.01	1321			1.7	0.98	
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USDA NRCS

RUSLE2 Worksheet Erosion Calculation Record

Info: Alfalfa Nov'10 to Oct'11

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-3

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Ge GLENDALE LOAM\GLENDALE 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*
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.042	

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						
Crop_Year	2011-2012				N Loss	0%	
Field_ID	DM-3				Goal/Real	Nutrient Needed	
Area (ac)	48						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'11-Oct'12	Alfalfa, for hay		t/ac	12	29027	2720
2nd Crop						0	0
						0	0
Total		Nutrient Needed				29,027	2,720
						Soil Analyses	
						N	P
Texture by Feel		Clay				43	75.11
Nutrient Available in Soil				lb/ac		26,963	-886
		Nutrient Still Needed					
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	854	388
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				26,108	-1,273
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				26,108	-1,273
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**26,108**	**-1,273**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	48	Date:	11/2/2009	Field ID:	DM-3

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Alfalfa			Needed for field (acin):	34.176
Liquid Applied:	0.712	Acin/ac		(gal):	927,878
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
dcast-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)
	18.1	18.7	145.7

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)

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 12 ton yield level.

Nitrogen	Phosphorus	Potassium
604.7224	56.6599	459.5271

Nutrients removed in harvested part (lb/ton) at 12 ton yield level and 48 acres.

Nitrogen	Phosphorus	Potassium
29026.6768	2719.6768	22057.3002

Element-Fertilizer Equivalents

Average NPK Percentages

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Time Generated: Mon 4:10 PM - 11/30/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-3	Date:	Nov'11
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the appropate 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			2
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				1.5
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: Low **Total Index Points:** 14.5

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 11/11 to 10/12) 0.08 t/ac + (RUSLE 2) 0.042 t/ac = 0.12 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: Alfalfa
Date: 11/20/2009

Tract: 1579
Field(s) No.: DM-3
Total Acres: 48
Date to apply: Nov'11

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 L; 23-36** | Intake Family (in/hr): **0.30**

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)
Alfalfa, hay, southern; Las Cruces	Deep	4.0	8.0	50%	4.0	10.1

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

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	12	9.7
Feb		0.0	Aug	16	7.7
Mar	>1 Mo.	1.6	Sep	21	5.7
Apr	29	4.2	Oct	>1 Mo.	2.7
May	17	6.9	Nov		0.0
Jun	13	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

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
Alfalfa, hay, southern; Las Cruces	9	5.33	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:	Jose Domingez	**Date:**	11-23-2009
Conservationist:		**Date:**	11-23-09
Completed by:		**Date:**	

NRCS - WEQ CALCULATIONS

Version 9 03 11-19-2007

Producer: Dominguez Dairy #1 | Planner: Chet Wyant | Location: Mesquite, NM | Tract: 1579 | Field: DM-3

Crop Rotation: Alfalfa | 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.): 1308

Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 3 (1-7) | TWF: 1 (see instr.)

Sum Period Erosion (t/ac): 0.0 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: (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)	"Krr" (factor)	Dev. (deg)	Prep. (factor)	WED (factor)	"L" (ft)	"V" (lbs/ac)	"E" (t/ac)	EWE (%)	"If" (%)	Loss (t/ac)
11/1	01/02/12	0	56	0.0	0	0	1.00	0.99	0.0	4.0	1.010	1321	0	62.7	12.6	1.00	0.08
1/2	01/17/12	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			2.0	1.00	
1/17	02/01/12	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			2.0	1.00	
2/1	02/16/12	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.7	0.93	
2/16	03/02/12	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			11.9	1.00	
3/2	03/17/12	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.9	0.93	
3/17	04/01/12	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.9	1.00	
4/1	04/16/12	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			8.8	0.93	
4/16	05/01/12	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			8.8	0.93	
5/1	05/16/12	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			5.3	1.00	
5/16	06/05/12	2	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			5.9	0.90	
6/5	06/20/12	0	56	22.5	0	0	1.00	0.94	22.5	1.2	1.370	1792			0.8	1.00	
6/20	07/10/12	2	56	22.5	0	0	1.00	0.94	22.5	1.2	1.370	1792			0.7	0.90	
7/10	07/25/12	0	56	67.5	0	0	1.00	0.94	67.5	1.1	1.475	1929			0.2	1.00	
7/25	08/14/12	2	56	67.5	0	0	1.00	0.94	67.5	1.1	1.475	1929			0.2	0.90	
8/14	08/29/12	0	56	90.0	0	0	1.00	0.94	90.0	2.8	2.000	2616			0.1	1.00	
8/29	09/18/12	2	56	90.0	0	0	1.00	0.94	90.0	2.8	2.000	2616			0.5	0.90	
9/18	11/01/12	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.01	1321			1.7	0.98	
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Alfalfa Nov'11 to Oct'12

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-3

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Ge GLENDALE LOAM\GLENDALE 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*
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.042	

Year 4

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			[redacted]
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2012-2013				Goal/Real	Nutrient Needed	
Field_ID	DM-3						
Area (ac)	48						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-Oct'13	Alfalfa, for hay		t/ac	12	29027	2720
2nd Crop						0	0
						0	0
Total		Nutrient Needed				29,027	2,720
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		43	75.11
		Nutrient Still Needed				26,963	-886
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	854	388
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				26,108	-1,273
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				26,108	-1,273
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**26,108**	**-1,273**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	48	Date:	11/2/2009	Field ID:	DM-3

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Alfalfa			Needed for field (acin):	34.176
Liquid Applied:	0.712	Acin/ac		(gal):	927,878
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
dcast-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)
	18.1	18.7	145.7

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)

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 12 ton yield level.

Nitrogen	Phosphorus	Potassium
604.7224	56.6599	459.5271

Nutrients removed in harvested part (lb/ton) at 12 ton yield level and 48 acres.

Nitrogen	Phosphorus	Potassium
29026.6768	2719.6768	22057.3002

Element-Fertilizer Equivalents

Average NPK Percentages

«Contents»

Intellectual Property Statement / How to Cite the PLANTS Database

Disclaimers

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Time Generated: Mon 4:10 PM - 11/30/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	DM-3	Date:	Nov'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.3	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			2
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				1.5
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: Low **Total Index Points:** 14.5

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 11/12 to 10/13) 0.08 t/ac + (RUSLE 2) 0.042 t/ac = 0.12 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: Alfalfa
Date: 11/20/2009

Tract: 1579
Field(s) No.: DM-3
Total Acres: 48
Date to apply: Nov'12

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 L; 23-36** | Intake Family (in/hr): **0.30**

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)
Alfalfa, hay, southern; Las Cruces	Deep	4.0	8.0	50%	4.0	10.1

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

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	12	9.7
Feb		0.0	Aug	16	7.7
Mar	>1 Mo.	1.6	Sep	21	5.7
Apr	29	4.2	Oct	>1 Mo.	2.7
May	17	6.9	Nov		0.0
Jun	13	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

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 Applicalton Rate (in/day)**	**Needed Application Rate (in/day)**	**System Evaluation**
Alfalfa, hay, southern; Las Cruces	9	5.33	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: Juan Domingez **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 #1	Planner:	Chet Wyant	Location:	Mesquite, NM	Tract:	1579	Field:	DM-3
Crop Rotation:	Alfalfa	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.):	1308		
Irrigation (Y or N):	Y	Soil "I":	86	Wind Erodibility Group:	3 (1-7)	TWF:	1	(see instr.)	
Sum Period Erosion (t/ac):	0.0	No. Yrs in Rotation:	1.0	Av. Annual Wind Erosion:		(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)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
11/1	01/02/13	0	56	0.0	0	0	1.00	0.99	0.0	4.0	1.010	1321	0	62.7	12.6	1.00	0.08
1/2	01/17/13	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			2.0	1.00	
1/17	02/01/13	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			2.0	1.00	
2/1	02/16/13	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.7	0.93	
2/16	03/03/13	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.7	1.00	
3/3	03/18/13	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.9	0.93	
3/18	04/02/13	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			12.6	1.00	
4/2	04/17/13	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			8.8	0.93	
4/17	05/02/13	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			8.6	0.93	
5/2	05/17/13	0	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			5.3	1.00	
5/17	06/06/13	2	56	0.0	0	0	1.00	0.94	0.0	4.0	1.010	1321			5.6	0.90	
6/6	06/21/13	0	56	22.5	0	0	1.00	0.94	22.5	1.2	1.370	1792			0.8	1.00	
6/21	07/11/13	2	56	22.5	0	0	1.00	0.94	22.5	1.2	1.370	1792			0.7	0.90	
7/11	07/26/13	0	56	67.5	0	0	1.00	0.94	67.5	1.1	1.475	1929			0.2	1.00	
7/26	08/15/13	2	56	67.5	0	0	1.00	0.94	67.5	1.1	1.475	1929			0.2	0.90	
8/15	08/30/13	0	56	90.0	0	0	1.00	0.94	90.0	2.8	2.000	2616			0.1	1.00	
8/30	09/19/13	2	56	90.0	0	0	1.00	0.94	90.0	2.8	2.000	2616			0.6	0.90	
9/19	11/01/13	1	56	0.0	0	0	1.00	0.94	0.0	4.0	1.01	1321			1.7	0.98	
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USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Alfalfa Nov'12 to Oct'13

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: DM-3

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Ge GLENDALE LOAM\GLENDALE 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*
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.042	