Field D-4

Years 2 thru 5

Alternate Crop Options

Dairy Annual Nutrient Manager

Date	12/3/2009	NM STATE UNIVERSITY Dairy Extension Program [redacted]	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	D-4						
Area (ac)	49.8				Goal/Real	Nutrient Needed	
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'10-May'11	Triticale (Wheat for green chop 70%)		t/ac	20	13960	1853
2nd Crop	Jun'11-Oct'11	Cotton		lb/ac	1250	1892	237
						0	0
Total		Nutrient Needed				15,852	2,089
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		35	81.65
		Nutrient Still Needed				14,109	-1,977
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	886	402
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				13,223	-2,380
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				13,223	-2,380
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1062	13222	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				1	-2,380

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	49.8	Date:	11/2/2009	Field ID:	D-4

Application Information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Triticale Silage			Needed for field (acin):	14.193
Liquid Applied:	0.285	Acin/ac		(gal):	385,340
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
face 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:	49.8	Date:	11/2/2009	Field ID:	D-4

Application Information (Enter the units that will be or has been applied to the field):					
Crop Rotation:	Cotton			Needed for field (acin):	21.2646
Liquid Applied:	0.427	Acin/ac		(gal):	577,334
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
ace 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 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)

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 49.8 acres.

Nitrogen	Phosphorus	Potassium
13959.9360	1852.5600	

Element-Fertilizer Equivalents

Average NPK Percentages

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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)

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 49.8 acres.

Nitrogen	Phosphorus	Potassium
1891.7227	235.3175	281.2331

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Nov'10 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Triticale
Soil Permeability (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

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

P Hazard Class: Medium **Total Index Points:** 18.0

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 11/10 to 5/11) 0.33 t/ac + (RUSLE 2) 0.17 t/ac = 0.50 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Jun'11 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Cotton
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

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

P Hazard Class: Medium **Total Index Points:** 18.0

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 6/11 to 10/11) 0.40 t/ac + (RUSLE 2) 0.44 t/ac = 0.84 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.:** D-4
Current Land Use: Triticale Silage / Cotton **Total Acres:** 49.8
Date: 11/20/2009 **Date to apply:** Nov'10 alt

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

Purposes (check all that apply)

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

Conditions where practice applies

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

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

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

Soil Interpretations for Irrigaiton

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

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

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

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

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

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Applicaiton Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	2	5.14	0.11	System meets CU for crop
Cotton; Las Cruces	6	5.14	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: [illegible] Domingez **Date:** 11-23-2009

Conservationist: [illegible] **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: D-4

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

Tillage Direction (NS/EW): NS | Length/width ratio: 1 | Field Direction (NS/EW): NS | Field Width (Ft.): 1366

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

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

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SGe	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"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	1.000	1366	0	21.1	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	1.000	1366	3544	0.0	5.0	1.00	0.00
12/2	01/01/11	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	1366	3898	0.0	7.4	0.93	0.00
1/1	01/31/11	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	1366	6010	0.0	4.0	1.00	0.00
1/31	03/02/11	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	1366	6999	0.0	24.7	1.00	0.00
3/2	03/17/11	2	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	6999	0.0	12.9	0.73	0.00
3/17	04/01/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	3544	0.0	12.9	1.00	0.00
4/1	04/16/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	3544	0.0	8.8	0.87	0.00
4/16	05/01/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	3544	0.0	8.8	1.00	0.00
5/1	05/16/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	4282	0.0	5.3	1.00	0.00
5/16	05/23/11	1	56	0.0	4	13	0.24	0.52	0.0	4.0	1.000	1366	89	4.4	2.5	0.71	0.08
5/23	05/29/11	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.000	1366	27	7.6	2.1	0.67	0.11
5/29	06/13/11	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.000	1366	23	6.6	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	1.030	1407	16	33.6	0.8	0.87	0.23
6/28	07/13/11	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	1407	21	33.4	0.3	0.87	0.09
7/13	07/28/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	1407	203	31.5	0.2	0.87	0.05
7/28	08/12/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	1407	668	18.1	0.1	0.87	0.02
8/12	08/27/11	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.01	1380	1367	4.4	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	1.01	1380	2319	0.0	0.3	0.87	0.00
9/11	09/20/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.00	1366	943	5.0	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	1.00	1366	1178	2.3	0.0	1.00	0.00
9/21	10/31/11	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.00	1366	5304	0.0	1.6	1.00	0.00
		0			2	10											
		0															
		0															
		0															

NRCS

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: D-4

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

Alternatives:

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

Year 3

Dairy Annual Nutrient Manager

Date	11/28/2009	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 (alt)				N Loss	0%	
Field_ID	d-4				Goal/Real	Nutrient Needed	
Area (ac)	49.8						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'11-May'12	Barley-6 row, for green chop (boot)		t/ac	20	8937	1501
2nd Crop	Jun'12-Oct'12	Corn-Field for Silage (dough 68%)		t/ac	22	8664	1297
						0	0
Total		Nutrient Needed				17,601	2,798
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		35	81.65
		Nutrient Still Needed				15,858	-1,268
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	886	402
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				14,971	-1,671
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				14,971	-1,671
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1202	14965	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**6**	**-1,671**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	49.8	Date:	11/2/2009	Field ID:	D-4

Application information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Barley Silage			Needed for field (acin):	14.193
Liquid Applied:	0.285	AcIn/ac		(gal):	385,340
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
Face 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:	49.8	Date:	11/2/2009	Field ID:	D-4

pplication information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Corn Silage			Needed for field (acin):	21.2646
	Liquid Applied:	0.427	Acin/ac	(gal):	577,334
	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
ace 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 49.8 acres.

Nitrogen	Phosphorus	Potassium
13614.1463	2285.9366	9746.2458

Element-Fertilizer Equivalents | Average NPK Percentages

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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 49.8 acres.

Nitrogen	Phosphorus	Potassium
8663.8295	1297.1904	7292.3136

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Nov'11 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Barley Silage
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

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

P Hazard Class: Medium **Total Index Points:** 18.0

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 11/11 to 5/12) 0.26 t/ac + (RUSLE 2) 0.092 t/ac = 0.35 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Jun'12 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

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

P Hazard Class:	Medium	Total Index Points:	18.0
Phosphorus Application Classification:	N Based		

Notes:

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

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

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

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

Tract: 1579
Field(s) No.: D-4
Total Acres: 49.8
Date to apply: Nov'11 alt

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

Purposes (check all that apply)

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

Conditions where practice applies

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

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

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

Soil Interpretations for Irrigaiton

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

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

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

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

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

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	**Flood, controlled**		System Efficiency (%):	**80%**
System Capacity (Ditch/Pump/Well):	**6000**	GPM		
Crop Grown	**Days of Operation for CU by crop (days)**	**Est. System Applicalton Rate (in/day)**	**Needed Application Rate (in/day)**	**System Evaluation**
Wheat, winter, silage; Las Cruces	2	5.14	0.11	System meets CU for crop
Corn, silage; Las Cruces	6	5.14	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 Dominguez **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: Anthony, NM | Tract: 1579 | Field: D-4

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

Tillage Direction (NS/EW): NS | Length/width ratio: 1 | Field Direction (NS/EW): NS | Field Width (Ft.): 1366

Irrigation (Y or N): Y | Soil "I": 86 | Wind Erodibility Group: 3 (1-7) | TWF: 1 (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	1.000	1366	0	30.6	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	1.000	1366	3774	0.0	2.5	0.93	0.00
11/17	12/02/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	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	1.000	1366	3774	0.0	3.7	0.93	0.00
12/17	01/01/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	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	1.000	1366	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	1.000	1366	3774	0.0	75.1	0.98	0.00
5/15	05/22/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	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	1.000	1366	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	1.000	1366	285	6.0	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	1.000	1366	251	7.0	2.6	1.00	0.18
6/29	07/14/12	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.030	1407	237	34.6	0.3	0.93	0.09
7/14	07/29/12	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.030	1407	242	35.9	0.2	0.87	0.06
7/29	08/13/12	1	56	67.5	2	18	0.74	0.86	67.5	1.1	1.030	1407	763	18.5	0.1	0.93	0.02
8/13	08/28/12	1	56	90.0	2	18	0.86	0.86	90.0	2.8	1.010	1380	1671	1.9	0.1	0.93	0.00
8/28	09/12/12	1	56	90.0	2	18	0.86	0.86	90.0	2.8	1.010	1380	5473	0.0	0.4	0.93	0.00
9/12	10/01/12	0	56	0.0	2	18	0.58	0.99	0.0	4.0	1.000	1366	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	1380	5317	0.0	1.3	1.00	0.00
		0			2	18											
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USL NRCS Natural Resources Conservation Service

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: D-4

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

Alternatives:

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

(Wwheat used for Barley)

Year 4

Dairy Annual Nutrient Manager

Date	12/3/2009	NM STATE UNIVERSITY Dairy Extension Program [redacted]	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		[redacted]	
Dairy	Dominguez Dairy						
Crop_Year	2012-2013 (alt)				N Loss	0%	
Field_ID	D-4						
Area (ac)	49.8				Goal/Real	Nutrient Needed	
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-May'13	Wheat Silage (Wheat for green chop 70%)		t/ac	20	13960	1853
2nd Crop	Jun'13-Oct'13	Sorghum/Sudangrass, for silage (70%)		t/ac	21	10278	1318
						0	0
Total		Nutrient Needed				24,238	3,170
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		35	81.65
		Nutrient Still Needed				22,495	-896
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	886	402
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				21,609	-1,298
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				21,609	-1,298
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	1735	21601	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**8**	**-1,298**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	49.8	Date:	11/2/2009	Field ID:	D-4

Application Information (Enter the units that will be or has been applied to the field):	Crop Rotation: Winter Wheat Silage			Needed for field (acin):	14.193
	Liquid Applied:	0.285	Acin/ac	(gal):	385,340
	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
ace 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:	49.8	Date:	11/2/2009	Field ID:	D-4

Application information (enter the units that will be or has been applied to the field):	Crop Rotation: Sorghum Silage			Needed for field (acin):	21.2646
	Liquid Applied:	0.427	AcIn/ac	(gal):	577,334
	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
ace Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0
Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	8	26	205
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

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

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

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

Wheat, for green chop

Forage

Triticum sp.

Plant part harvested: Aboveground biomass

Crop yield unit: ton

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

Nitrogen	Phosphorus	Potassium
14.0160	1.8600	

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

Nitrogen	Phosphorus	Potassium
280.3200	37.2000	

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 49.8 acres.

Nitrogen	Phosphorus	Potassium
13959.9360	1852.5600	

Element-Fertilizer Equivalents

Average NPK Percentages

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Time Generated: Sun 10:36 AM - 11/29/2009

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 21 ton yield level.

Nitrogen	Phosphorus	Potassium
206.3880	26.4600	328.8600

Nutrients removed in harvested part (lb/ton) at 21 ton yield level and 49.8 acres.

Nitrogen	Phosphorus	Potassium
10278.1224	1317.7080	16377.2280

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Nov'12 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Wheat Silage
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

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

P Hazard Class: Medium **Total Index Points:** 18.0

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 11/12 to 5/13) 0.31 t/ac + (RUSLE 2) 0.092 t/ac = 0.40 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Jun'13 (alt)
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Sudangrass
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

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

P Hazard Class: Medium **Total Index Points:** 18.0

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 6/13 to 10/13) 0.13 t/ac + (RUSLE 2) 0.00069 t/ac = 0.13 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.:** D-4
Current Land Use: Winter Wheat Silage / Sorghum Silage **Total Acres:** 49.8
Date: 11/20/2009 **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 CL, Alkali, Hondale Mimbres complex, Alk** Intake Family (in/hr): **0.10**

Soil Interpretations for Irrigaiton

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

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

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

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

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

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled		System Efficiency (%):	80%
System Capacity (Ditch/Pump/Well):	6000	GPM		
Crop Grown	**Days of Operation for CU by crop (days)**	**Est. System Applicaiton Rate (in/day)**	**Needed Application Rate (in/day)**	**System Evaluation**
Wheat, winter, silage; Las Cruces	2	5.14	0.11	System meets CU for crop
Sorghum, silage; Deming	5	5.14	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: 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: Anthony, NM | Tract: 1579 | Field: D-4

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.): 1366

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	1380	0	21.2	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	1380	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	1380	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	1380	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	1380	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	1380	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	1380	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	1380	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	1380	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	1380	285	8.7	2.6	1.00	0.22
6/29	07/14/13	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	1871	202	32.1	0.3	0.87	0.08
7/14	07/29/13	2	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	2015	227	34.2	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	2015	313	31.6	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	2732	706	27.4	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	2732	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	1380	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	1380	6999	0.0	1.3	0.94	0.00
		0			2	10											
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

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: D-4

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

Alternatives:

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

Year 5

Dairy Annual Nutrient Manager

Date	11/28/2009	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	2013-2014(alt)					
Field_ID	D-4				N Loss	0%
Area (ac)	49.8				Goal/Real	Nutrient Needed
	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	22419	4185
2nd Crop	Jun'14-Oct'14	Alfalfa, for hay		t/ac	1	2510	235
						0	0
Total		Nutrient Needed				24,928	4,420
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		35	81.65
		Nutrient Still Needed				23,185	354
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	886	402
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				22,299	-48
						Manure Analyses	
						N	P
Dry Manure Application		NM Dairy Cattle Net from J.S. 590 L&MLA		t/ac	31.9	22241	4845
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				58	-4,893
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**58**	**-4,893**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	49.8	Date:	11/2/2009	Field ID:	D-4

Application information (enter the units that will be or has been applied to the field):	Crop Rotation: Oat Silage			Needed for field (acin):	14.193
	Liquid Applied:	0.285	Acin/ac	(gal):	385,340
	Solids Applied:	31.4	ton/ac	Needed for field (tons):	1563.72
	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
Beef (DM)	0	0	0	46	0.0	0.2	0	9	60	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
ace 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)
	16	7	48

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	48

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	1572.9

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	49.8	Date:	11/2/2009	Field ID:	D-4

Application information (enter the units that will be or has been applied to the field):					
	Crop Rotation: Alfalfa			Needed for field (acin):	21.2646
	Liquid Applied:	0.427	Acin/ac	(gal):	577,334
	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**	
ace 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

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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)

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 49.8 acres.

Nitrogen	Phosphorus	Potassium
12201.8238	2096.1631	11608.7569

Element-Fertilizer Equivalents | Average NPK Percentages

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Time Generated: Sun 10:24 AM - 11/29/2009

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

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 49.8 acres.

Nitrogen	Phosphorus	Potassium
2509.5981	235.1387	1907.0374

Element-Fertilizer Equivalents | Average NPK Percentages

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Time Generated: Sun 10:40 AM - 11/29/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Nov'13 alt
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
				X		4
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			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class: Medium **Total Index Points:** 23.0

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 11/13 to 5/14) 0.35 t/ac + (RUSLE 2) 0.036 t/ac = 0.39 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-4	Date:	Jun'14 alt
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	planned

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

P Hazard Class:	Medium	Total Index Points:	18.0
Phosphorus Application Classification:		N Based	

Notes:

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

Comments: Soil Erosion = (WEQ 6/11 to 10/11) 0.35 t/ac + (RUSLE 2) 0.036 t/ac = 0.39 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.:**	D-4
Current Land Use:	Alfalfa	**Total Acres:**	49.8
Date:	11/21/2009	**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 CL, Alkali, Hondale Mimbres complex, Alk** Intake Family (in/hr): **0.10**

Soil Interpretations for Irrigaiton

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

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

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

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

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

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled	System Efficiency (%):	80%
System Capacity (Ditch/Pump/Well):	6000	GPM	

Crop Grown	Days of Operation for CU by crop (days)	Est. System Applicaiton Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Oat, hay; Deming	2	5.14	0.17	System meets CU for crop
Alfalfa, hay, southern; Las Cruces	9	5.14	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: [illegible] **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:	Mesquite, NM	Tract:	1579	Field:	D-4		
Crop Rotation:	Oat Hay / Alfalfa	Climate Data Station:	NM, LAS CRUCES			Site "C" Value:	150				
Tillage Direction (NS/EW):	NS	Length/width ratio:	1	Field Direction (NS/EW):	NS	Field Width (Ft.):	1366				
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

Wgt 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	1.000	1366	0	21.1	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	1.000	1366	1989	0.0	5.0	1.00	0.00
12/2	01/01/14	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	1366	1989	0.0	7.4	0.93	0.00
1/1	01/31/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	1366	1989	0.0	4.0	1.00	0.00
1/31	03/02/14	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	1366	1989	0.0	24.7	0.93	0.00
3/2	03/17/14	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	1989	0.0	12.9	0.87	0.00
3/17	04/01/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	1989	0.0	12.9	1.00	0.00
4/1	04/16/14	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	1989	0.0	8.8	0.87	0.00
4/16	05/01/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	1989	0.0	8.8	1.00	0.00
5/1	05/16/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	1366	3587	0.0	5.3	1.00	0.00
5/16	05/23/14	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.000	1366	518	2.4	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	1.000	1366	187	6.6	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	1.000	1366	165	5.9	1.7	0.87	0.09
6/13	06/28/14	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	1407	117	31.4	0.8	0.87	0.22
6/28	07/13/14	1	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	1407	163	30.5	0.3	0.87	0.08
7/13	07/28/14	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	1407	220	31.1	0.2	0.87	0.05
7/28	08/12/14	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	1407	1792	0.4	0.1	0.87	0.00
8/12	08/27/14	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.01	1380	5501	0.0	0.1	0.87	0.00
8/27	09/11/14	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.01	1380	5501	0.0	0.3	0.87	0.00
9/11	09/29/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.00	1366	2799	0.0	0.5	1.00	0.00
9/29	10/04/14	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.00	1366	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	1380	2799	0.0	1.1	0.93	0.00
		0			2	10											
		0															
		0															
		0															

RUSLE2 Worksheet Erosion Calculation Record

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

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: D-4

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

Alternatives:

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

Field D-5

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

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	2009-2010				N Loss	0%	
Field_ID	D-5						
Area (ac)	81.2				Goal/Real	Nutrient Needed	
	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	36554	6824
2nd Crop	Jun'10-Oct'10	Corn-Field for Silage (dough 68%)		t/ac	22	14126	2115
						0	0
Total		Nutrient Needed				50,680	8,939
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		10	43.23
		Nutrient Still Needed				49,868	5,429
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1445	656
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				48,423	4,773
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				48,423	4,773
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	2385	48416	0
		0-18-36		lb/ac	747	0	4768
				lb/ac		0	0
		Annual Nutrient Balance				8	5

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	81.2	Date:	11/2/2009	Field ID:	D-5

`pplication Information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Oat Silage			Needed for field (acin):	23.142
	Liquid Applied:	0.285	Acin/ac	(gal):	628,305
	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
Dairy Cattle (30% wet wt) NM (Aver		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
ace 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:	81.2	Date:	11/2/2009	Field ID:	D-5

pplication Information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Corn Silage			Needed for field (acin):	34.6724
	Liquid Applied:	0.427	Acln/ac	(gal):	941,356
	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
ace Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0
Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	8	26	205
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

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

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

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

Oat, for green chop (boot to early bloom)

Forage

Avena sativa

Plant part harvested: Aboveground biomass

Crop yield unit: ton

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

Nitrogen	Phosphorus	Potassium
12.2508	2.1046	11.6554

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

Nitrogen	Phosphorus	Potassium
245.0165	42.0916	233.1076

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 81.2 acres.

Nitrogen	Phosphorus	Potassium
19895.3432	3417.8403	18928.3346

Element-Fertilizer Equivalents

Average NPK Percentages

«Contents»

Intellectual Property Statement / How to Cite the PLANTS Database

Disclaimers

USDA non-discrimination policy

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Time Generated: Sun 10:25 AM - 11/29/2009

USDA Natural Resources Conservation Service
PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

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 81.2 acres.

Nitrogen	Phosphorus	Potassium
14126.5654	2115.0976	11890.2784

Element-Fertilizer Equivalents | Average NPK Percentages

«Contents»

Intellectual Property Statement / How to Cite the PLANTS Database

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Nov'09
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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 11/09 to 5/10) 0.27 t/ac + (RUSLE 2) 0.16 t/ac = 0.43 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Jun'10
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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) 0.17 t/ac + (RUSLE 2) 0.10 t/ac = 0.27 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.:** D-5
Current Land Use: Oat Silage / Corn Silage **Total Acres:** 81.2
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:	Harkey L; 33-41	Intake Family (in/hr):	0.50

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	3.5
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	3.5

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:	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
Oat, hay; Deming	3	3.15	0.17	System meets CU for crop
Corn, silage; Las Cruces	9	3.15	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 Domingo **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:	D-5		
Crop Rotation:	Oat Hay/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.):	1370				
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		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	18	0.58	0.86	0.0	4.0	1.010	1384	0	30.7	0.2	1.00	0.05
11/2	11/17/09	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3774	0.0	2.5	0.87	0.00
11/17	12/02/09	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3820	0.0	2.5	1.00	0.00
12/2	12/17/09	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4012	0.0	3.7	1.00	0.00
12/17	01/01/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4721	0.0	3.7	0.87	0.00
1/1	01/16/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	6446	0.0	2.0	1.00	0.00
1/16	05/15/10	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1384	6999	0.0	75.1	0.93	0.00
5/15	05/22/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3587	0.0	2.5	1.00	0.00
5/22	05/29/10	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.010	1384	661	1.8	2.5	1.00	0.04
5/29	05/29/10	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1384	239	6.4	0.0	0.00	0.00
5/29	06/29/10	1	56	0.0	8	30	0.21	0.99	0.0	4.0	1.010	1384	210	7.3	2.6	0.94	0.18
6/29	07/14/10	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.370	1877	199	38.2	0.3	0.87	0.09
7/14	07/29/10	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	203	40.4	0.2	0.73	0.06
7/29	08/13/10	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	730	21.8	0.1	0.73	0.02
8/13	08/28/10	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	1639	2.7	0.1	0.87	0.00
8/28	09/12/10	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	5442	0.0	0.4	0.87	0.00
9/12	10/01/10	0	56	0.0	2	18	0.58	0.99	0.0	4.0	1.010	1384	6999	0.0	0.6	1.00	0.00
10/1	11/01/10	0	56	0.0	2	18	0.59	0.99	0.0	3.3	1.01	1384	5317	0.0	1.3	1.00	0.00
		0			2	18											
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USL NRCS

RUSLE2 Worksheet Erosion Calculation Record

Info: Oat Silage Nov'09 to May'10, Corn Silage Jun'10 to Oct'10

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: D-5

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	
a.Single Year/Single Crop Templates\Corn, silage, plow	b. absolute row grade 0.5 percent	(none)	(none)	0.10	

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	2010-2011				Goal/Real	Nutrient Needed	
Field_ID	D-5						
Area (ac)	81.2						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'10-May'11	Oats for green chop (boot to early bloom 69%)		t/ac	20	36554	6824
2nd Crop	Jun'11-Oct'11	Corn-Field for Silage (dough 68%)		t/ac	22	14126	2115
						0	0
Total		Nutrient Needed				50,680	8,939
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		10	43.23
		Nutrient Still Needed				49,868	5,429
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1445	656
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				48,423	4,773
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				48,423	4,773
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	2385	48416	0
		0-18-36		lb/ac	747	0	4768
				lb/ac		0	0
		Annual Nutrient Balance				**8**	**5**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy	Acres: 81.2	Date: 11/2/2009	Field ID: D-5		
Application information (enter the units that will be or has been applied to the field):	Crop Rotation: Oat Silage		Needed for field (acin):	23.142	
	Liquid Applied: 0.285	Acin/ac	(gal):	628,305	
	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
Dairy Cattle (30% wet wt) NM (Aver		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
ace 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:	81.2	Date:	11/2/2009	Field ID:	D-5

Application Information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Corn Silage			Needed for field (acin):	34.6724
Liquid Applied:	0.427	Acin/ac		(gal):	941,356
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
ace Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0
Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	8	26	205
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

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

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

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

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

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

Nitrogen	Phosphorus	Potassium
12.2508	2.1046	11.6554

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

Nitrogen	Phosphorus	Potassium
245.0165	42.0916	233.1076

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 81.2 acres.

Nitrogen	Phosphorus	Potassium
19895.3432	3417.8403	18928.3346

Element-Fertilizer Equivalents

Average NPK Percentages

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Time Generated: Sun 10:25 AM - 11/29/2009

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

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 81.2 acres.

Nitrogen	Phosphorus	Potassium
14126.5654	2115.0976	11890.2784

Element-Fertilizer Equivalents | Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Nov'10
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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 5/11) 0.27 t/ac + (RUSLE 2) 0.16 t/ac = 0.43 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Jun'11
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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 6/11 to 10/11) 0.17 t/ac + (RUSLE 2) 0.10 t/ac = 0.27 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.:** D-5
Current Land Use: Oat Silage / Corn Silage **Total Acres:** 81.2
Date: 11/20/2009 **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: **Harkey L; 33-41** Intake Family (in/hr): **0.50**

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	3.5
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	3.5

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: 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
Oat, hay; Deming	3	3.15	0.17	System meets CU for crop
Corn, silage; Las Cruces	9	3.15	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: [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: Anthony, NM | Tract: 1579 | Field: D-5

Crop Rotation: Oat Hay/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.): 1370

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	11/02/10	0	56	0.0	2	18	0.58	0.86	0.0	4.0	1.010	1384	0	30.7	0.2	1.00	0.05
11/2	11/17/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3774	0.0	2.5	0.87	0.00
11/17	12/02/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3820	0.0	2.5	1.00	0.00
12/2	12/17/10	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4012	0.0	3.7	1.00	0.00
12/17	01/01/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4721	0.0	3.7	0.87	0.00
1/1	01/16/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	6446	0.0	2.0	1.00	0.00
1/16	05/15/11	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1384	6999	0.0	75.1	0.93	0.00
5/15	05/22/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3587	0.0	2.5	1.00	0.00
5/22	05/29/11	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.010	1384	661	1.8	2.5	1.00	0.04
5/29	05/29/11	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1384	239	6.4	0.0	0.00	0.00
5/29	06/29/11	1	56	0.0	8	30	0.21	0.99	0.0	4.0	1.010	1384	210	7.3	2.6	0.94	0.18
6/29	07/14/11	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.370	1877	199	38.2	0.3	0.87	0.09
7/14	07/29/11	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	203	40.4	0.2	0.73	0.06
7/29	08/13/11	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	730	21.8	0.1	0.73	0.02
8/13	08/28/11	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	1639	2.7	0.1	0.87	0.00
8/28	09/12/11	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	5442	0.0	0.4	0.87	0.00
9/12	10/01/11	0	56	0.0	2	18	0.58	0.99	0.0	4.0	1.010	1384	6999	0.0	0.6	1.00	0.00
10/1	11/01/11	0	56	0.0	2	18	0.59	0.99	0.0	3.3	1.01	1384	5317	0.0	1.3	1.00	0.00
		0			2	18											
		0															
		0															
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		0															
		0															
		0															
		0															

USL NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Oat Silage Nov'10 to May'11, Corn Silage Jun'11 to Oct'11

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: D-5

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	
a.Single Year/Single Crop Templates\Corn, silage, plow	b. absolute row grade 0.5 percent	(none)	(none)	0.10	

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				N Loss	0%	
Field_ID	D-5						
Area (ac)	81.2				Goal/Real	Nutrient Needed	
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'11-May'12	Oats for green chop (boot to early bloom 69%)		t/ac	20	36554	6824
2nd Crop	Jun'12-Oct'12	Corn-Field for Silage (dough 68%)		t/ac	22	14126	2115
						0	0
Total		Nutrient Needed				50,680	8,939
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		10	43.23
		Nutrient Still Needed				49,868	5,429
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1445	656
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				48,423	4,773
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				48,423	4,773
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	2385	48416	0
		0-18-36		lb/ac	747	0	4768
				lb/ac		0	0
		Annual Nutrient Balance				8	5

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy	**Acres:** 81.2	**Date:** 11/2/2009	**Field ID:** D-5		
Application information (*enter the units that will be or has been applied to the field*):	**Crop Rotation:** Oat Silage		**Needed for field (acin):**	23.142	
	Liquid Applied:	0.285	AcIn/ac	**(gal):**	628,305
	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
Dairy Cattle (30% wet wt) NM (Aver		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
ace 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:	81.2	Date: 11/2/2009	Field ID: D-5

pplication information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Corn Silage			Needed for field (acin):	34.6724
	Liquid Applied:	0.427	Acin/ac	(gal):	941,356
	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
ace Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	0	0	0
Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	8	26	205
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

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

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

USDA Natural Resources Conservation Service
PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

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

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

Nitrogen	Phosphorus	Potassium
12.2508	2.1046	11.6554

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

Nitrogen	Phosphorus	Potassium
245.0165	42.0916	233.1076

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 81.2 acres.

Nitrogen	Phosphorus	Potassium
19895.3432	3417.8403	18928.3346

Element-Fertilizer Equivalents

Average NPK Percentages

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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 81.2 acres.

Nitrogen	Phosphorus	Potassium
14126.5654	2115.0976	11890.2784

Element-Fertilizer Equivalents | Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Nov'11
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeability (in/hr):	0.5	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				1
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			2
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:	15.5
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 5/12) 0.27 t/ac + (RUSLE 2) 0.16 t/ac = 0.43 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Jun'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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 6/12 to 10/12) 0.17 t/ac + (RUSLE 2) 0.10 t/ac = 0.27 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.:** D-5
Current Land Use: Oat Silage / Corn Silage **Total Acres:** 81.2
Date: 11/20/2009 **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:	Harkey L; 33-41	Intake Family (in/hr):	0.50

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	3.5
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	3.5

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:	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 Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Oat, hay; Deming	3	3.15	0.17	System meets CU for crop
Corn, silage; Las Cruces	9	3.15	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: Sandra Domingo **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: D-5

Crop Rotation: Oat Hay/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.): 1370

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	1384	0	30.7	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	1384	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	1384	3820	0.0	2.5	1.00	0.00
12/2	12/17/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4012	0.0	3.7	1.00	0.00
12/17	01/01/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4721	0.0	3.7	0.87	0.00
1/1	01/16/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	6446	0.0	2.0	1.00	0.00
1/16	05/15/12	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1384	6999	0.0	75.1	0.93	0.00
5/15	05/22/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3587	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	1384	661	1.8	2.5	1.00	0.04
5/29	05/29/12	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1384	239	6.4	0.0	0.00	0.00
5/29	06/29/12	1	56	0.0	8	30	0.21	0.99	0.0	4.0	1.010	1384	210	7.3	2.6	0.94	0.18
6/29	07/14/12	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.370	1877	199	38.2	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	2021	203	40.4	0.2	0.73	0.06
7/29	08/13/12	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	730	21.8	0.1	0.73	0.02
8/13	08/28/12	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	1639	2.7	0.1	0.87	0.00
8/28	09/12/12	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	5442	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	1384	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	1384	5317	0.0	1.3	1.00	0.00
		0			2	18											
		0															
		0															
		0															
		0															
		0															
		0															
		0															

RUSLE2 Worksheet Erosion Calculation Record

Info: Oat Silage Nov'11 to May'12, Corn Silage Jun'12 to Oct'12

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: D-5

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	
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	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	2012-2013				N Loss	0%	
Field_ID	D-5						
Area (ac)	81.2				Goal/Real	Nutrient Needed	
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-May'13	Oats for green chop (boot to early bloom 69%)		t/ac	20	36554	6824
2nd Crop	Jun'13-Oct'13	Corn-Field for Silage (dough 68%)		t/ac	22	14126	2115
						0	0
Total		Nutrient Needed				50,680	8,939
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		10	43.23
		Nutrient Still Needed				49,868	5,429
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1445	656
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				48,423	4,773
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				48,423	4,773
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	2385	48416	0
		0-18-36		lb/ac	747	0	4768
				lb/ac		0	0
		Annual Nutrient Balance				**8**	**5**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	81.2	Date:	11/2/2009	Field ID:	D-5

Application Information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Oat Silage			Needed for field (acin):	23.142
Liquid Applied:	0.285	Acin/ac		(gal):	628,305
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
Dairy Cattle (30% wet wt) NM (Aver		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
Face 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:	81.2	Date:	11/2/2009	Field ID:	D-5

`pplication Information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Corn Silage			Needed for field (acin):	34.6724
	Liquid Applied:	0.427	Acin/ac	(gal):	941,356
	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	
ace 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 81.2 acres.

Nitrogen	Phosphorus	Potassium
19895.3432	3417.8403	18928.3346

Element-Fertilizer Equivalents

Average NPK Percentages

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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 81.2 acres.

Nitrogen	Phosphorus	Potassium
14126.5654	2115.0976	11890.2784

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Nov'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeability (in/hr):	0.5	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				1
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			2
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:	15.5
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 5/13) 0.27 t/ac + (RUSLE 2) 0.16 t/ac = 0.43 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Jun'13
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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 6/13 to 10/13) 0.17 t/ac + (RUSLE 2) 0.10 t/ac = 0.27 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.:** D-5
Current Land Use: Oat Silage / Corn Silage **Total Acres:** 81.2
Date: 11/20/2009 **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: **Harkey L; 33-41** Intake Family (in/hr): **0.50**

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	3.5
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	3.5

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: 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
Oat, hay; Deming	3	3.15	0.17	System meets CU for crop
Corn, silage; Las Cruces	9	3.15	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: Sandra 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: Anthony, NM | Tract: 1360 | Field: D-5

Crop Rotation: Oat Hay/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.): 1370

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		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	18	0.58	0.86	0.0	4.0	1.010	1384	0	30.7	0.2	1.00	0.05
11/2	11/17/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3774	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	1384	3820	0.0	2.5	1.00	0.00
12/2	12/17/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4012	0.0	3.7	1.00	0.00
12/17	01/01/13	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4721	0.0	3.7	0.87	0.00
1/1	01/16/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	6446	0.0	2.0	1.00	0.00
1/16	05/15/13	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1384	6999	0.0	75.1	0.93	0.00
5/15	05/22/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3587	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	1384	661	1.8	2.5	1.00	0.04
5/29	05/29/13	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1384	239	6.4	0.0	0.00	0.00
5/29	06/29/13	1	56	0.0	8	30	0.21	0.99	0.0	4.0	1.010	1384	210	7.3	2.6	0.94	0.18
6/29	07/14/13	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.370	1877	199	38.2	0.3	0.87	0.09
7/14	07/29/13	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	203	40.4	0.2	0.73	0.06
7/29	08/13/13	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	730	21.8	0.1	0.73	0.02
8/13	08/28/13	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	1639	2.7	0.1	0.87	0.00
8/28	09/12/13	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	5442	0.0	0.4	0.87	0.00
9/12	10/01/13	0	56	0.0	2	18	0.58	0.99	0.0	4.0	1.010	1384	6999	0.0	0.6	1.00	0.00
10/1	11/01/13	0	56	0.0	2	18	0.59	0.99	0.0	3.3	1.01	1384	5317	0.0	1.3	1.00	0.00
		0			2	18											
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Oat Silage Nov'12 to May'13, Corn Silage Jun'13 to Oct'13

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: D-5

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	
a.Single Year/Single Crop Templates\Corn, silage, plow	b. absolute row grade 0.5 percent	(none)	(none)	0.10	

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						
Crop_Year	2013-2014				N Loss	0%	
Field_ID	D-5						
Area (ac)	81.2				Goal/Real	Nutrient Needed	
	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	36554	6824
2nd Crop	Jun'14-Oct'14	Corn-Field for Silage (dough 68%)		t/ac	22	14126	2115
						0	0
Total		Nutrient Needed				50,680	8,939
						Soil Analyses	
Texture by Feel		Clay				N	P
Nutrient Available in Soil				lb/ac		35	81.65
		Nutrient Still Needed				47,838	2,309
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1445	656
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				46,393	1,653
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				46,393	1,653
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	2308	46852	0
		0-18-36		lb/ac	259	0	1653
				lb/ac		0	0
		Annual Nutrient Balance				**-459**	**0**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	Dominguez Dairy	Acres:	81.2	Date:	11/2/2009	Field ID:	D-5

pplication Information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Oat Silage			Needed for field (acin):	23.142
	Liquid Applied:	0.285	Acin/ac	(gal):	628,305
	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
Dairy Cattle (30% wet wt) NM (Aver		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
ace 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:	81.2	Date:	11/2/2009	Field ID:	D-5

Application information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Corn Silage			Needed for field (acin):	34.6724
Liquid Applied:	0.427	Acin/ac		(gal):	941,356
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**
ace 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 81.2 acres.

Nitrogen	Phosphorus	Potassium
19895.3432	3417.8403	18928.3346

Element-Fertilizer Equivalents | Average NPK Percentages

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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)

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 81.2 acres.

Nitrogen	Phosphorus	Potassium
14126.5654	2115.0976	11890.2784

Element-Fertilizer Equivalents | Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Nov'13
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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 11/13 to 5/14) 0.27 t/ac + (RUSLE 2) 0.13 t/ac = 0.43 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-5	Date:	Jun'14
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Silage
Soil Permeablity (in/hr):	0.5	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				1
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			2
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:	15.5
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 6/14 to 10/14) 0.17 t/ac + (RUSLE 2) 0.10 t/ac = 0.27 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.:** D-5
Current Land Use: Oat Silage / Corn Silage **Total Acres:** 81.2
Date: 11/20/2009 **Date to apply:** Nov'13

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: **Harkey L; 33-41** Intake Family (in/hr): **0.50**

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	3.5
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	3.5

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: 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**
Oat, hay; Deming	3	3.15	0.17	System meets CU for crop
Corn, silage; Las Cruces	9	3.15	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: [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: D-5

Crop Rotation: Oat Hay/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.): 1370

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	11/02/13	0	56	0.0	2	18	0.58	0.86	0.0	4.0	1.010	1384	0	30.7	0.2	1.00	0.05
11/2	11/17/13	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3774	0.0	2.5	0.87	0.00
11/17	12/02/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3820	0.0	2.5	1.00	0.00
12/2	12/17/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4012	0.0	3.7	1.00	0.00
12/17	01/01/14	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	4721	0.0	3.7	0.87	0.00
1/1	01/16/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	6446	0.0	2.0	1.00	0.00
1/16	05/15/14	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	1384	6999	0.0	75.1	0.93	0.00
5/15	05/22/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	1384	3587	0.0	2.5	1.00	0.00
5/22	05/29/14	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.010	1384	661	1.8	2.5	1.00	0.04
5/29	05/29/14	1	56	0.0	4	30	0.37	0.50	0.0	4.0	1.010	1384	239	6.4	0.0	0.00	0.00
5/29	06/29/14	1	56	0.0	8	30	0.21	0.99	0.0	4.0	1.010	1384	210	7.3	2.6	0.94	0.18
6/29	07/14/14	1	56	22.5	2	18	0.71	0.86	22.5	1.2	1.370	1877	199	38.2	0.3	0.87	0.09
7/14	07/29/14	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	203	40.4	0.2	0.73	0.06
7/29	08/13/14	2	56	67.5	2	18	0.74	0.86	67.5	1.1	1.475	2021	730	21.8	0.1	0.73	0.02
8/13	08/28/14	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	1639	2.7	0.1	0.87	0.00
8/28	09/12/14	1	56	90.0	2	18	0.86	0.86	90.0	2.8	2.000	2740	5442	0.0	0.4	0.87	0.00
9/12	10/01/14	0	56	0.0	2	18	0.58	0.99	0.0	4.0	1.010	1384	6999	0.0	0.6	1.00	0.00
10/1	11/01/14	0	56	0.0	2	18	0.59	0.99	0.0	3.3	1.01	1384	5317	0.0	1.3	1.00	0.00
		0			2	18											
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RUSLE2 Worksheet Erosion Calculation Record

Info: Oat Silage Nov'13 to May'14, Corn Silage Jun'14 to Oct'14

Tract #: 1579
Owner name: DOMINGUEZ DAIRY
Field name: D-5

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	
a.Single Year/Single Crop Templates\Corn, silage, plow	b. absolute row grade 0.5 percent	(none)	(none)	0.10	