Field B (LAA-B)

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	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED			[redacted]
Dairy	River Valley Dairy						
Crop_Year	2009-2010				N Loss	0%	
Field_ID	LAA-B						
Area (ac)	32				Goal/Real	Nutrient Needed	
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'09-May'10	Triticale (Wheat for green chop 70%)		t/ac	10	4485	595
2nd Crop	Jun'10-Oct'10	Sorghum/Sudangrass, for silage (70%)		t/ac	16	5032	645
						0	0
Total		Nutrient Needed				9,517	1,240
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		59	181.66
		Nutrient Still Needed				7,629	-4,573
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	3.65	3037	666
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				4,592	-5,239
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				4,592	-5,239
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	574	4592	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**0**	**-5,239**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B
pplication information (*enter the units that will be or has been applied to the field*):	Crop Rotation:	Triticale Silage		Needed for field (acin):		46.72	
	Liquid Applied:	1.46	Acin/ac	(gal):		1,268,448	
	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:	145.8	187.1	0.4	100	246.28

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 (>99.5% liq.) Ave.	99.5		0	42	0	33	0	17	0	67

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 Wet	80 %	0 (lbs/ton) NH4-N

Liquid (type of application)	Type of Climate	Percent Remaining	
..race Irr w/o incorp & w/crop canopy	Warm Dry	80 %	26.4 (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)
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	38.7	18.5	78.3

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B

pplication Information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Sudangrass Silage			Needed for field (acin):	70.08
	Liquid Applied:	2.19	Acln/ac	(gal):	1,902,672
	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:	145.8	187.1	0.4	100	250

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	42	0	33	0	17	0	68
			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 Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	26.4 (lbs/acin) NH4-N
..rface 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)
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	58.0	27.7	119.3

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)

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 10 ton yield level.

Nitrogen	Phosphorus	Potassium
140.1600	18.6000	

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 32 acres.

Nitrogen	Phosphorus	Potassium
4485.1200	595.2000	

Element-Fertilizer Equivalents | Average NPK Percentages

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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 16 ton yield level.

Nitrogen	Phosphorus	Potassium
157.2480	20.1600	250.5600

Nutrients removed in harvested part (lb/ton) at 16 ton yield level and 32 acres.

Nitrogen	Phosphorus	Potassium
5031.9360	645.1200	8017.9200

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Rock Valley Dairy	Field(s):	LAA-B	Date:	Nov'09
Planner:	Chet Wyant	Location:	DonaAna	Crop:	triticale sil.
Soil Permeablity (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
		X				1.5
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class:	Medium	Total Index Points:	20.5
Phosphorus Application Classification:	N Based		

Notes:

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

Comments: Soil Erosion = (WEQ 10/09 to 5/10) 0.09 t/ac + (RUSLE2) 0.17 t/ac = 0.26 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Rock Valley Dairy	Field(s):	LAA-B	Date:	Jun'10
Planner:	Chet Wyant	Location:	DonaAna	Crop:	sudan sil.
Soil Permeablity (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Exist

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
		X				1.5
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <80% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class: Medium **Total Index Points:** 20.5

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosin = (WEQ 6/10 to 10/10) 0.95 t/ac + (RUSLE2) 0.00069 t/ac = 0.95 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 735
Planner: Chet Wyant **Field(s) No.:** LAA-B
Current Land Use: Triticale Silage/ Sudangrass Silage **Total Acres:** 32
Date: 11/18/2009 **Date to apply:** 11/1/2009

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, Mimbres soils, Stellar SICL; 22-37, 221** Intake Family (in/hr): **0.30**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Wheat, winter, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	6.3
Sudangrass, hay or silage; Deming	Medium	3.0	6.0	65%	3.9	9.7

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

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

Month	Est. Frequency *(days between irr.)*	In/Mo	Month	Est. Frequency *(days between irr.)*	In/Mo
Jan	>1 Mo.	1.2	Jul		0.0
Feb	>1 Mo.	2.1	Aug		0.0
Mar	27	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

Crop: Sudangrass, hay or silage; Deming — **Total Irrigation Needed:** 14.1 ac in/ac

Month	Est. Frequency *(days between irr.)*	In/Mo	Month	Est. Frequency *(days between irr.)*	In/Mo
Jan		0.0	Jul	>1 Mo.	3.3
Feb		0.0	Aug	16	7.2
Mar		0.0	Sep	>1 Mo.	3.7
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	**Flood, controlled**	System Efficiency (%):	**80%**
System Capacity (Ditch/Pump/Well):	**1400**	GPM	

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	5	1.87	0.11	System meets CU for crop
Sudangrass, hay or silage; Deming	8	1.87	0.24	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: R Bonnett **Date:** 11-23-09

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: River Valley Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 735 | Field: LAA-B

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

Tillage Direction (NS/EW): NS | Length/width ratio: 3 | Field Direction (NS/EW): NS | Field Width (Ft.): 660

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

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

Calculations and Output

Mgt. Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SCs	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)
10/7	10/14/09	0	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	667	0	32.2	0.3	1.00	0.09
10/14	10/21/09	0	56	0.0	3	30	0.52	0.52	0.0	3.3	1.010	667	6999	0.0	0.3	1.00	0.00
10/21	11/01/09	0	56	0.0	4	11	0.26	0.52	0.0	3.3	1.010	667	3403	0.0	0.5	1.00	0.00
11/1	01/30/10	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.010	667	3312	0.0	16.3	0.98	0.00
1/30	02/14/10	2	56	0.0	2	30	0.69	0.86	0.0	4.0	1.010	667	6429	0.0	11.3	0.73	0.00
2/14	03/01/10	1	56	0.0	2	30	0.69	0.86	0.0	4.0	1.010	667	6552	0.0	12.7	0.87	0.00
3/1	05/01/10	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.010	667	6583	0.0	44.3	0.97	0.00
5/1	06/01/10	0	56	0.0	2	30	0.69	0.99	0.0	4.0	1.010	667	6999	0.0	11.0	1.00	0.00
6/1	06/11/10	0	56	22.5	3	30	0.67	0.52	22.5	1.2	1.370	904	1365	0.6	0.5	1.00	0.00
6/11	06/21/10	0	56	22.5	4	11	0.48	0.52	22.5	1.2	1.370	904	283	7.4	0.5	1.00	0.04
6/21	07/21/10	1	56	22.5	2	30	0.79	0.99	22.5	1.2	1.370	904	275	41.3	0.8	0.93	0.31
7/21	08/20/10	1	56	67.5	2	30	0.81	0.99	67.5	1.1	1.475	974	275	43.4	0.3	0.93	0.11
8/20	10/01/10	1	56	90.0	2	30	0.90	0.99	90.0	2.8	2.000	1320	275	52.2	1.0	0.95	0.49
10/1	10/07/10	1	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	667	6999	0.0	0.3	0.67	0.00
		0			2	30											
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USL NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Nov'09-May'10 Triticale Silage, Jun'10-Oct'10 Sundangrass Silage

Tract #: 735
Owner name: River Valley Dairy
Field name: LAA-B

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gf GLENDALE CLAY LOAM\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\Haygrazer, sudangrass, disk	b. absolute row grade 0.5 percent	(none)	(none)	0.00069	

Year 2

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		[redacted]	
Dairy	River Valley Dairy						
Crop_Year	2010-2011				N Loss	0%	
Field_ID	LAA-B				Goal/Real	Nutrient Needed	
Area (ac)	32						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'10-May'11	Wheat Silage (Wheat for green chop 70%)		t/ac	10	4485	595
2nd Crop	Jun'11-Oct 11	Corn-Field for Silage (dough 68%)		t/ac	24	6073	909
						0	0
Total		Nutrient Needed				10,558	1,505
						Soil Analyses	
						N	P
Texture by Feel		Loam					
Nutrient Available in Soil				lb/ac		59	181.66
		Nutrient Still Needed				8,670	-4,309
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	3.65	3037	666
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				5,634	-4,974
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				5,634	-4,974
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	704	5632	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				2	-4,974

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B

pplication Information (*enter the units that will be or has been applied to the field*):	Crop Rotation: Wheat Silage			Needed for field (acin):	46.72
	Liquid Applied:	1.46	Acin/ac	(gal):	1,268,448
	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:	145.8	187.1	0.4	100	246.28

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 (>99.5% liq.) Ave.	99.5		0	42	0	33	0	17	0	67
			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 Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	26.4 (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)**
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	38.7	18.5	78.3

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B
Application Information (enter the units that will be or has been applied to the field):	Crop Rotation: Corn Silage			Needed for field (acin):			70.08
	Liquid Applied:	2.19	Acin/ac	(gal):			1,902,672
	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:	145.8	187.1	0.4	100	250

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	42	0	33	0	17	0	68

	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 Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**26.4 (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)**
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	58.0	27.7	119.3

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)

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 10 ton yield level.

Nitrogen	Phosphorus	Potassium
140.1600	18.6000	

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 32 acres.

Nitrogen	Phosphorus	Potassium
4485.1200	595.2000	

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 24 ton yield level.

Nitrogen	Phosphorus	Potassium
189.7882	28.4160	159.7440

Nutrients removed in harvested part (lb/ton) at 24 ton yield level and 31 acres.

Nitrogen	Phosphorus	Potassium
5883.4330	880.8960	4952.0640

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-B	Date:	Nov'10
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Wheat Sil.
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

P Hazard Class: Medium **Total Index Points:** 20.5

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 10/10 to 5/11) 0.18 t/ac + (RUSLE 2) 0.092 t/ac = 0.27 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-B	Date:	Jun'11
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Sil.
Soil Permeability (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
		X				1.5
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

P Hazard Class:	Medium	Total Index Points:	19.0
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) 0.14 t/ac + (RUSLE 2) 0.088 t/ac = 0.23 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy
Planner: Chet Wyant
Current Land Use: Wheat Silage/ Corn Silage
Date: 11/18/2009

Tract: 735
Field(s) No.: LAA-B
Total Acres: 32
Date to apply: 11/1/2010

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, Mimbres soils, Stellar SICL; 22-37, 221** | Intake Family (in/hr): **0.30**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Wheat, winter, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	6.3
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	6.3

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

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

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan	>1 Mo.	1.2	Jul		0.0
Feb	>1 Mo.	2.1	Aug		0.0
Mar	27	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

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

Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	10	9.4
Feb		0.0	Aug	14	6.6
Mar		0.0	Sep		0.0
Apr	>1 Mo.	1.2	Oct		0.0
May	22	4.2	Nov		0.0
Jun	11	7.9	Dec		0.0

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled		System Efficiency (%):	80%
System Capacity (Ditch/Pump/Well):		1400	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	5	1.87	0.11	System meets CU for crop
Corn, silage; Las Cruces	16	1.87	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: R Bonert **Date:** 11-23-09

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Nov'10-May'11 Wheat Silage, Jun'11-Oct'11 Corn Silage

Tract #: 735
Owner name: River Valley Dairy
Field name: LAA-B

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gf GLENDALE CLAY LOAM\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	

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: River Valley Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 735 | Field: LAA-B

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

Tillage Direction (NS/EW): NS | Length/width ratio: 3 | Field Direction (NS/EW): NS | Field Width (Ft.): 660

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

Sum Period Erosion (t/ac): 0.3 | No. Yrs in Rotation: 1.1 | Av. Annual Wind Erosion: 0.3 (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)
10/1	11/02/10	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	667	5317	0.0	1.5	1.00	0.00
11/2	11/17/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	2.5	0.87	0.00
11/17	12/02/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	2.5	0.87	0.00
12/2	12/17/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	3.7	0.87	0.00
12/17	01/01/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	3.7	0.87	0.00
1/1	01/16/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	2.0	0.87	0.00
1/16	05/15/11	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	667	1667	0.1	75.1	0.93	0.10
5/15	05/22/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	4282	0.0	2.5	1.00	0.00
5/22	05/29/11	0	56	0.0	3	30	0.50	0.52	0.0	4.0	1.010	667	1473	0.0	2.5	1.00	0.00
5/29	06/29/11	0	56	0.0	4	11	0.22	0.68	0.0	4.0	1.010	667	210	3.2	2.6	1.00	0.08
6/29	07/14/11	0	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	904	159	27.3	0.3	1.00	0.07
7/14	07/29/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	974	163	29.8	0.2	0.87	0.05
7/29	08/13/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	974	658	16.7	0.1	0.87	0.02
8/13	08/28/11	1	56	90.0	2	10	0.81	0.86	90.0	2.8	2.000	1320	1551	2.3	0.1	0.87	0.00
8/28	09/12/11	1	56	90.0	2	10	0.81	0.86	90.0	2.8	2.000	1320	5336	0.0	0.4	0.87	0.00
9/12	10/01/11	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	667	6999	0.0	0.6	0.89	0.00
10/1	11/01/11	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	667	5317	0.0	1.3	1.00	0.00
		0			2	10											
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

Year 3

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY	Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED	[redacted]	
Dairy	River Valley Dairy						
Crop_Year	2011-2012						
Field_ID	LAA-B				N Loss	0%	
Area (ac)	32				Goal/Real	Nutrient Needed	
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'11-May'12	Barley-6 row, for green cut (boot 69%)		t/ac	10	4374	734
2nd Crop	Jun'12-Oct'12	Corn-Field for Salage (dough 68%)		t/ac	24	6073	909
						0	0
Total		Nutrient Needed				10,447	1,644
						Soil Analyses	
						N	P
Texture by Feel		Loam					
Nutrient Available in Soil				lb/ac		59	181.66
		Nutrient Still Needed				8,559	-4,169
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	3.65	3037	666
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				5,522	-4,835
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				5,522	-4,835
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied		22-0-0		lb/ac	690	5520	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				2	-4,835

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Barley Silage			Needed for field (acin):	46.72
Liquid Applied:	1.46	Acin/ac		(gal):	1,268,448
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:	145.8	187.1	0.4	100	246.28

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 (>99.5% liq.) Ave.	99.5		0	42	0	33	0	17	0	67

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 Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	26.4 (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	38.7	18.5	78.3

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: River Valley Dairy	**Acres:**	32	**Date:**	11/11/2009	**Field ID:** LAA-B

Application Information (*enter the units that will be or has been applied to the field*):					
	Crop Rotation: Corn Silage			**Needed for field (acin):**	70.08
	Liquid Applied:	2.19	Acin/ac	**(gal):**	1,902,672
	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:	145.8	187.1	0.4	100	250

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	42	0	33	0	17	0	68
			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 Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	26.4 (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	**Organic N (lbs/ton)**	**P_2O_5 (lbs/ton)**	**K_2O (lbs/ton)**
	0	0	0
Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	**All Forms N (lbs/ac)**	**P_2O_5 (lbs/ac)**	**K_2O (lbs/ac)**
	58.0	27.7	119.3

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)

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 10 ton yield level.

Nitrogen	Phosphorus	Potassium
136.6882	22.9512	97.8539

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 32 acres.

Nitrogen	Phosphorus	Potassium
4374.0229	734.4375	3131.3240

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 24 ton yield level.

Nitrogen	Phosphorus	Potassium
189.7882	28.4160	159.7440

Nutrients removed in harvested part (lb/ton) at 24 ton yield level and 31 acres.

Nitrogen	Phosphorus	Potassium
5883.4330	880.8960	4952.0640

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-B	Date:	Nov'11
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Barley Sil.
Soil Permeablity (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
		X				1.5
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<5 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>5 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				1.5

P Hazard Class:	Medium	Total Index Points:	19.0
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 10/11 to 5/12) 0.18 t/ac + (RUSLE 2) 0.092 t/ac = 0.27 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-B	Date:	Jun'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Sil.
Soil Permeability (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
		X				1.5
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				1.5

P Hazard Class: Medium **Total Index Points:** 20.5

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 6/12 to 10/12) 0.14 t/ac + (RUSLE 2) 0.088 t/ac = 0.23 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 735
Planner: Chet Wyant **Field(s) No.:** LAA-B
Current Land Use: Barley Silage/ Corn Silage **Total Acres:** 32
Date: 11/18/2009 **Date to apply:** 11/1/2011

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, Mimbres soils, Stellar SICL; 22-37, 221** Intake Family (in/hr): **0.30**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Wheat, winter, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	6.3
Corn, silage; Las Cruces	Medium	3.0	6.0	50%	3.0	6.3

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

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

Month	Est. Frequency *(days between irr.)*	In/Mo	Month	Est. Frequency *(days between irr.)*	In/Mo
Jan	>1 Mo.	1.2	Jul		0.0
Feb	>1 Mo.	2.1	Aug		0.0
Mar	27	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

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

Month	Est. Frequency *(days between irr.)*	In/Mo	Month	Est. Frequency *(days between irr.)*	In/Mo
Jan		0.0	Jul	10	9.4
Feb		0.0	Aug	14	6.6
Mar		0.0	Sep		0.0
Apr	>1 Mo.	1.2	Oct		0.0
May	22	4.2	Nov		0.0
Jun	11	7.9	Dec		0.0

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

System Capacity (Ditch/Pump/Well): **1400** GPM

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	5	1.87	0.11	System meets CU for crop
Corn, silage; Las Cruces	16	1.87	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: R. Bonesteel **Date:** 11-23-09

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Nov'11-May'12 Barley Silage, Jun'12-Oct'12 Corn Silage

Tract #: 735
Owner name: River Valley Dairy
Field name: LAA-B

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gf GLENDALE CLAY LOAM\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	

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: River Valley Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 735 | Field: LAA-B

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

Tillage Direction (NS/EW): NS | Length/width ratio: 3 | Field Direction (NS/EW): NS | Field Width (Ft.): 660

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

Sum Period Erosion (t/ac): 0.3 | No. Yrs in Rotation: 1.1 | Av. Annual Wind Erosion: 0.3 (t/ac/yr)

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SCe	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Krr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"IF"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
10/1	11/02/11	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	667	5317	0.0	1.5	1.00	0.00
11/2	11/17/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	2.5	0.87	0.00
11/17	12/02/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	2.5	0.87	0.00
12/2	12/17/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	3.7	0.87	0.00
12/17	01/01/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	3.7	0.87	0.00
1/1	01/16/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1667	0.1	2.0	0.87	0.00
1/16	05/15/12	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	667	1667	0.1	75.1	0.93	0.10
5/15	05/22/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	4282	0.0	2.5	1.00	0.00
5/22	05/29/12	0	56	0.0	3	30	0.50	0.52	0.0	4.0	1.010	667	1473	0.0	2.5	1.00	0.00
5/29	06/29/12	0	56	0.0	4	11	0.22	0.68	0.0	4.0	1.010	667	210	3.2	2.6	1.00	0.08
6/29	07/14/12	0	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	904	159	27.3	0.3	1.00	0.07
7/14	07/29/12	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	974	163	29.8	0.2	0.87	0.05
7/29	08/13/12	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	974	658	16.7	0.1	0.87	0.02
8/13	08/28/12	1	56	90.0	2	10	0.81	0.86	90.0	2.8	2.000	1320	1551	2.3	0.1	0.87	0.00
8/28	09/12/12	1	56	90.0	2	10	0.81	0.86	90.0	2.8	2.000	1320	5336	0.0	0.4	0.87	0.00
9/12	10/01/12	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	667	6999	0.0	0.6	0.89	0.00
10/1	11/01/12	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	667	5317	0.0	1.3	1.00	0.00
		0			2	10											
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

Year 4

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		[redacted]	
Dairy	River Valley Dairy						
Crop_Year	2012-2013				N Loss	0%	
Field_ID	LAA-B				Goal/Real	Nutrient Needed	
Area (ac)	32						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-May'13	Oats for green chop (boot to early bloom 69%)		t/ac	10	7203	1345
2nd Crop	Jun'13-Oct'13	Sorghum/Sudangrass, for silage (70%)		t/ac	16	5032	645
						0	0
Total		Nutrient Needed				12,235	1,990
						Soil Analyses	
						N	P
Texture by Feel		Loam				59	181.66
Nutrient Available in Soil				lb/ac		10,347	-3,823
		Nutrient Still Needed					
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	3.65	3037	666
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				7,310	-4,489
						Manure Analyses	
						N	P
Dry Manure Application		NM Dairy Cattle Net from J.S. 590 L&MLA		t/ac	20.7	7286	4630
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				23	-9,119
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				23	-9,119

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Oats Silage			Needed for field (acin):	46.72
Liquid Applied:	1.46	Acin/ac		(gal):	1,268,448
Solids Applied:	20.7	ton/ac		Needed for field (tons):	662.4
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:	11.51	2.0		1.2	3.1

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		12	0	35	0.4	0.0	0	21	0	54

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:	145.8	187.1	0.4	100	246.28

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 (>99.5% liq.) Ave.	99.5		0	42	0	33	0	17	0	67

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

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
adcast-incorporated in 4 days	Warm Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	26.4 (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	12	16	43
Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	4	13	54
	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	26	11
P_2O_5	0.0	13	16
K_2O	0.0	54	43

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	262.8	351.0	975.2

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Oats Silage			Needed for field (acin):	46.72
Liquid Applied:	1.46	Acin/ac		(gal):	1,268,448
Solids Applied:	20.7	ton/ac		Needed for field (tons):	662.4
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:	11.51	2.0		1.2	3.1

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		12	0	35	0.4	0.0	0	21	0	54

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:	145.8	187.1	0.4	100	246.28

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 (>99.5% liq.) Ave.	99.5		0	42	0	33	0	17	0	67

	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**	26.4 (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	Organic N (lbs/ton)	P_2O_5 (lbs/ton)	K_2O (lbs/ton)
	12	16	43
Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	4	13	54
	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	26	11
P_2O_5	0.0	13	16
K_2O	0.0	54	43

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	261.5	351.0	975.2

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Sudangrass Silage			Needed for field (acin):	70.08
Liquid Applied:	2.19	Acin/ac		(gal):	1,902,672
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:	145.8	187.1	0.4	100	250

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	42	0	33	0	17	0	68

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

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
adcast-incorporated in 4 days	Warm Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	26.4 (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	58.0	27.7	119.3

Dairy Annual Nutrient Manager

Date	6/28/2010	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		[redacted]	
Dairy	River Valley Dairy						
Crop_Year	2012-2013				N Loss	0%	
Field_ID	LAA-B				Goal/Real	Nutrient Needed	
Area (ac)	32						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-May'13	Oats for green chop (boot to early bloom 69%)		t/ac	10	7203	1345
2nd Crop	Jun'13-Oct'13	Sorghum grain (moisture 11.18%)		bu/ac	107	3180	567
						0	0
Total		Nutrient Needed				10,383	1,911
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		59	181.66
		Nutrient Still Needed				8,495	-3,902
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	3.65	3037	1518
		Irrigation		ac-in	36	1044	0
				ac-in		0	0
		Nutrient Still Needed				4,414	-5,420
						Manure Analyses	
						N	P
Dry Manure Application		NM Dairy Cattle Net from J.S. 590 L&MLA		t/ac	12.54	4414	2805
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				0	-8,225
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				0	-8,225

USDA United States Department of Agriculture
Natural Resources Conservation Service

NRCS

PLANTS

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State Search
Advanced Search
Search Help
PLANTS Topics
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PLANTS Posters
Related Tools
Crop Nutrient Tool
Ecological Site Information System
PLANTS Identification Keys
Plant Materials Web Site
Other NRCS Tech Resources

Crop Nutrient Results

Select Crops
About the Crop Nutrient Tool
Nutrient Data Sources
Download Crop Nutrient Database

Nutrient Details

The following is a detailed list of nutrient information based on each specific crop type chosen.

Sorghum, for grain

Crop type:	Cereal and oil
Scientific name:	Sorghum bicolor
Crop yield unit:	bu
Harvested plant part:	Caryopsis

Nutrients in harvested part (lb/bu) at 11.18% moisture percentage.

Nitrogen	Phosphorus	Potassium
0.9288	0.1655	0.1924

Nutrients removed in harvested part (lb/acre) at 107.0 bu yield level.

Nitrogen	Phosphorus	Potassium
99.3836	17.7086	20.5824

Element-Fertilizer Equivalents | Average NPK Percentages

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)

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 10 ton yield level.

Nitrogen	Phosphorus	Potassium
122.5083	21.0458	116.5538

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 32 acres.

Nitrogen	Phosphorus	Potassium
3920.2647	673.4661	3729.7211

Element-Fertilizer Equivalents | Average NPK Percentages

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Time Generated: Wed 3:32 PM - 11/18/2009

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 16 ton yield level.

Nitrogen	Phosphorus	Potassium
157.2480	20.1600	250.5600

Nutrients removed in harvested part (lb/ton) at 16 ton yield level and 32 acres.

Nitrogen	Phosphorus	Potassium
5031.9360	645.1200	8017.9200

Element-Fertilizer Equivalents | Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-B	Date:	Nov'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Sil.
Soil Permeablity (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
					X	8
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
			X			2
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
		x				1.5
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

P Hazard Class:	Medium	Total Index Points:	24.0
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 10/12 to 5/13) 0.09 t/ac + (RUSLE 2) 0.13 t/ac = 0.22 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-B	Date:	Jun'13
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Sudan Sll.
Soil Permeablity (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
		X				1.5
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				1.5

P Hazard Class: Medium **Total Index Points:** 20.5

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 6/13 to 10/13) 1.13 t/ac + (RUSLE 2) 0.00069 t/ac = 1.13 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 735
Planner: Chet Wyant **Field(s) No.:** LAA-B
Current Land Use: Oat Silage/ Sudangrass Silage **Total Acres:** 32
Date: 11/18/2009 **Date to apply:** 11/1/2012

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, Mimbres soils, Stellar SICL; 22-37, 221**	Intake Family (in/hr):	**0.30**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Oat, hay; Deming	Medium	3.0	6.0	50%	3.0	6.3
Sudangrass, hay or silage; Deming	Medium	3.0	6.0	65%	3.9	9.7

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:	Sudangrass, hay or silage; Deming		**Total Irrigation Needed:**	14.1 ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan		0.0	**Jul**	>1 Mo.	3.3
Feb		0.0	**Aug**	16	7.2
Mar		0.0	**Sep**	>1 Mo.	3.7
Apr		0.0	**Oct**		0.0
May		0.0	**Nov**		0.0
Jun		0.0	**Dec**		0.0

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	**Flood, controlled**	System Efficiency (%):	**80%**
System Capacity (Ditch/Pump/Well):	**1400**	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	5	1.87	0.17	System meets CU for crop
Sudangrass, hay or silage; Deming	8	1.87	0.24	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: R Bonet **Date:** 11-23-09

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Nov'12-May'13 Oat Silage, Jun'13-Oct'13 Sundangrass Silage

Tract #: 735
Owner name: River Valley Dairy
Field name: LAA-B

Location: New Mexico\DonaAna County\NM_Dona Ana R 9
Soil: Gf GLENDALE CLAY LOAM\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	
a.Single Year/Single Crop Templates\Haygrazer, sudangrass, disk	b. absolute row grade 0.5 percent	(none)	(none)	0.00069	

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: River Valley Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 735 | Field: LAA-B

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

Tillage Direction (NS/EW): NS | Length/width ratio: 3 | Field Direction (NS/EW): NS | Field Width (Ft.): 660

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

Sum Period Erosion (t/ac): 1.2 | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: 1.2 (t/ac/yr)

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SCs	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Krr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"F"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
10/7	10/14/12	0	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	667	0	32.2	0.3	1.00	0.09
10/14	10/21/12	0	56	0.0	3	30	0.52	0.52	0.0	3.3	1.010	667	6999	0.0	0.3	1.00	0.00
10/21	11/01/12	0	56	0.0	4	11	0.26	0.52	0.0	3.3	1.010	667	3403	0.0	0.5	1.00	0.00
11/1	01/30/13	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.010	667	3312	0.0	16.3	0.98	0.00
1/30	02/14/13	2	56	0.0	2	30	0.69	0.86	0.0	4.0	1.010	667	3312	0.0	11.3	0.73	0.00
2/14	03/01/13	1	56	0.0	2	30	0.69	0.86	0.0	4.0	1.010	667	3312	0.0	12.7	0.87	0.00
3/1	05/01/13	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.010	667	3312	0.0	44.3	0.97	0.00
5/1	06/01/13	0	56	0.0	2	30	0.69	0.99	0.0	4.0	1.010	667	2593	0.0	11.0	1.00	0.00
6/1	06/11/13	0	56	22.5	3	30	0.67	0.52	22.5	1.2	1.370	904	400	11.1	0.5	1.00	0.06
6/11	06/21/13	0	56	22.5	4	11	0.48	0.52	22.5	1.2	1.370	904	83	8.9	0.5	1.00	0.05
6/21	07/21/13	1	56	22.5	2	30	0.79	0.99	22.5	1.2	1.370	904	80	47.0	0.8	0.93	0.35
7/21	08/20/13	1	56	67.5	2	30	0.81	0.99	67.5	1.1	1.475	974	80	49.3	0.3	0.93	0.12
8/20	10/01/13	1	56	90.0	2	30	0.90	0.99	90.0	2.8	2.000	1320	80	59.1	1.0	0.95	0.55
10/1	10/07/13	1	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	667	6999	0.0	0.3	0.67	0.00
		0			2	30											
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Year 5

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY	Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED			[redacted]
Dairy	River Valley Dairy					N Loss	0%	
Crop_Year	2013-2014					Goal/Real	Nutrient Needed	
Field_ID	LAA-B							
Area (ac)	32				Unit	Yield	N	P
	Month - Month	Crop						
1st Crop	Nov'13-Oct'14	Alfalfa, for hay			t/ac	10	16126	1511
2nd Crop							0	0
							0	0
Total		Nutrient Needed					16,126	1,511
							Soil Analyses	
							N	P
Texture by Feel		Loam					59	181.66
Nutrient Available in Soil					lb/ac		14,238	-4,302
		Nutrient Still Needed						
							Effluent Analyses	
							N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA			ac-in	3.65	3037	666
					ac-in		0	0
					ac-in		0	0
		Nutrient Still Needed					11,201	-4,968
							Manure Analyses	
							N	P
Dry Manure Application					t/ac		0	0
					t/ac		0	0
					t/ac		0	0
		Nutrient Still Needed					11,201	-4,968
							Fertilizer Content	
							N	P
Chemical Fertilizers Applied					lb/ac		0	0
					lb/ac		0	0
					lb/ac		0	0
		Annual Nutrient Balance					11,201	-4,968

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	32	Date:	11/11/2009	Field ID:	LAA-B

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation: Alfalfa				Needed for field (acin):	116.8
Liquid Applied:	3.65	AcIn/ac		(gal):	3,171,120
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:	145.8	187.1	0.4	100	246.28

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 (>99.5% liq.) Ave.	99.5		0	42	0	33	0	17	0	67

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
ndcast-incorporated in 4 days	Warm Wet	80 %	0 (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	26.4 (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	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	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	96.7	46.2	195.9

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)

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 10 ton yield level.

Nitrogen	Phosphorus	Potassium
503.9354	47.2166	382.9392

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 32 acres.

Nitrogen	Phosphorus	Potassium
16125.9316	1510.9315	12254.0557

Element-Fertilizer Equivalents | Average NPK Percentages

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Intellectual Property Statement / How to Cite the PLANTS Database

Disclaimers

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Time Generated: Wed 3:32 PM - 11/18/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-B	Date:	Nov'13
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.3	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
			X			2
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
		x				1.5
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

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

Notes:

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

Comments: Soil Erosion = (WEQ 10/13 to 10/14) 0.04 t/ac + (RUSLE 2) 0.036 t/ac = 0.08 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 735
Planner: Chet Wyant **Field(s) No.:** LAA-B
Current Land Use: Alfalfa **Total Acres:** 32
Date: 11/18/2009 **Date to apply:** 11/1/2013

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, Mimbres soils, Stellar SICL; 22-37, 221** Intake Family (in/hr): **0.30**

Soil Interpretations for Irrigaiton

Crop Name	Rooting Depth	Moisture Replacement Depth (ft)	Water Holding Capacity (in)	Mgt Allowed Depletion (MAD) (%)	Net Water to Replace (in)	Time Needed to Infiltrate (hrs)
Alfalfa, hay, southern; Las Cruces	Deep	4.0	8.0	50%	4.0	10.1

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

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

Month	Est. Frequency *(days between irr.)*	In/Mo	Month	Est. Frequency *(days between irr.)*	In/Mo
Jan		0.0	Jul	12	9.7
Feb		0.0	Aug	16	7.7
Mar	>1 Mo.	1.6	Sep	21	5.7
Apr	29	4.2	Oct	>1 Mo.	2.7
May	17	6.9	Nov		0.0
Jun	13	9.3	Dec		0.0

Crop: **Total Irrigation Needed:** ac in/ac

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	**Flood, controlled**	System Efficiency (%):	**80%**
System Capacity (Ditch/Pump/Well):	**1400**	GPM	

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Alfalfa, hay, southern; Las Cruces	26	1.87	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: R Bonnet **Date:** 11-23-09

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Nov'13-Oct'14 Alfalfa

Tract #: 734
Owner name: River Valley Dairy
Field name: LAA-A

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*
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.036	

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: River Valley Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 735 | Field: LAA-A

Crop Rotation: 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.): 900

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

Sum Period Erosion (t/ac): #N/A | No. Yrs in Rotation: 1.0 | Av. Annual Wind Erosion: #N/A (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	"F"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
11/1	11/02/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	0	18.4	0.2	1.00	0.03
11/2	01/02/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	900	2094	0.0	12.5	1.00	0.00
1/2	01/17/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1582	0.3	2.0	1.00	0.01
1/17	02/01/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1651	0.2	2.0	1.00	0.00
2/1	02/16/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1722	0.1	12.7	1.00	0.00
2/16	03/03/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	3319	0.0	12.7	1.00	0.00
3/3	03/18/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	6994	0.0	12.9	1.00	0.00
3/18	06/16/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	900	6994	0.0	41.5	1.00	0.00
6/16	07/01/14	0	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	927	4124	0.0	0.8	1.00	0.00
7/1	07/16/14	0	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	927	2856	0.0	0.2	1.00	0.00
7/16	07/31/14	0	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	927	4124	0.0	0.2	1.00	0.00
7/31	08/15/14	0	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	927	2856	0.0	0.1	1.00	0.00
8/15	08/30/14	0	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	909	4124	0.0	0.1	1.00	0.00
8/30	09/14/14	0	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	909	2856	0.0	0.4	1.00	0.00
9/14	09/29/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	4124	0.0	0.5	1.00	0.00
9/29	10/14/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	2856	0.0	0.6	1.00	0.00
10/14	10/29/14	0	56	0.0	2	10	0.46	0.86	0.0	3.3	1.010	909	4124	0.0	0.6	1.00	0.00
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