

10. Land Application Protocols

10.1 Permitted Approach - Narrative

This facility is proposing to use the Narrative Approach to address the permitting requirements of the New Mexico State General permit NMG010000, Part III and more specifically Part III.A.3.g.ii.

General Description: This facility will follow an annual decision making (planning) and documentation (actual history) protocol designed to collect the data necessary to calculate and document the past years crop history and manure, litter, wastewater or commercial fertilizer application rates and to plan for crop nutrient application rates during the coming year, on a field specific basis. Annual soil, manure and wastewater sampling and analysis will be conducted. Sampling and analysis will adhere to the protocol set out in Part 9 of this NMP. Soil samples will be collected from each field for which application(s) of manure, litter, or wastewater is planned in the coming year. If appropriate, plant material analysis may be used to establish farm specific nutrient removal rates. These analysis results may be used to modify the nutrient removal calculation factors.

At the beginning of each crop year, which may not be based on a calendar year, each field will be evaluated considering the next annual crop intention to determine the appropriate agronomic rate of nutrient application. The nutrient application rate will change from year to year and crop to crop for each field, in accordance with field specific conditions and organic source nutrient analysis available when the annual calculations are performed.

Refer to Sub-parts 10.9, 10.10 and 10.11 for details regarding the calculation and documentation work sheets to be used. This NMP approach follows guidance found at New Mexico (NM) Natural Resources Conservation Service (NRCS) Conservation Practice Standard Code 590.

In accordance with the current baseline field evaluation, land application of manure, litter, or wastewater will be based on nitrogen values. In the event that during the term of this permit, including any extensions, any annual field evaluation changes the application rate to phosphorus based, then all necessary and appropriate steps will be taken to calculate future manure, litter, or wastewater application rates based on phosphorus values, which will continue for that individual field until such time as the annual field evaluation shows that the application rate basis can return to nitrogen based. In accordance with Part III.A.6.of the Permit, this annual calculation of an application rate change does not require a notice to the Director of a change in the NMP.

10.2 Crop Rotation

The following crop rotation is presented in accordance with Part III.A.3.g.ii.(A)(3) and Part III.A.3.g.ii.(B) of the Permit. This is a projected rotation that accounts

for all of the potential crops to be grown at this facility and may not be the rotation that is actually implemented. Any of the crops can be rotated to any of the individual fields, at any time, as appropriate, so long as the protocol set out in this NMP is followed. No particular set of field crop rotations will be used by the Director in establishing site specific permit terms.

See Table 10.2 for the projected annual crop rotation and crop yield. Refer to Appendix A for field evaluation and crop rotation analysis worksheets.

10.3 Manure

Manure may be applied to any of the individual fields at this facility, as needed and appropriate. Protocols outlined in Part 9 and Sub-parts 10.1, 10.9 and 10.10 will be used to plan future application rates and to document past practices.

Manure solids will normally be applied prior (approximately 10 days) to preparing the soil for planting. This conservation practice incorporates the manure into the soil shortly after application. However, manure may be applied to any specific field at any agronomically appropriate stage in the crop cycle.

10.4 Wastewater

Wastewater may be applied to any of the individual fields at this facility, as needed and appropriate. Protocols outlined in Part 9 and Sub-parts 10.1, 10.9 and 10.10 will be used to plan future application rates and to document past practices.

10.5 Commercial fertilizer

Commercial fertilizers may be applied to any of the individual fields at this facility, as needed and appropriate. Protocols outlined in Part 9 and Sub-parts 10.1, 10.9 and 10.10 will be used to plan future application rates and to document past practices.

10.6 Inspection of Land Application Equipment

Wastewater is applied by gravity flow from the storage lagoon into a concrete ditch distribution system. All apparatus, including valves, meters and the ditch system will be inspected annually. Maintenance and repairs will be made as needed and a report of the maintenance will be prepared, refer to Appendix C of this NMP for an example of the maintenance record.

Manure solids are applied using spreader boxes designed for the purpose. This facility normally hires this job done and equipment inspection is conducted by the contract operator. This facility may decide to purchase or rent the necessary equipment to land apply manure solids, in which case the equipment will be properly calibrated in accordance with manufacturers instruction and it will be inspected at the beginning of each application event, approximately 2 times/year.

10.7 Nutrient Form, Source, Amount, Timing, and Method(s) of Application.

Nutrient Form: Nutrients in the form of manure solids, process wastewater or dry and liquid commercial fertilizer are all available to this facility.

Source: Manure and process wastewater are generated at and are available from this CAFO facility.

Amount, Annual: The estimated annual amount of manure solids and wastewater are as follows. Commercial sources are available in amounts as needed.

Manure Solids	18,565 tons/year
Process Wastewater	up to 41.45 acre feet/year

Timing: A fixed calendar schedule for process water retention structure (PWRS) de-watering and manure solids removal is not appropriate for this facility. The management practices do not accommodate a fixed schedule for these activities.

On-site application of manure solids will be timed to precede land preparation for a crop rotation so that the manure is incorporated into the soil just prior to replanting the field.

Manure solids off-site removal is timed by coordinating with the recipient based on their needs at the time. This typically results in the corrals at this facility being cleaned and the manure removed off-site an average of 3 times per year.

Process water retention structure de-watering is timed to coincide with crop needs and irrigation water applications. This management practice best mixes and distributes the wastewater evenly over the field. Periods where fields are inaccessible for application are less than 21 days.

Delivery and application of dry fertilizer is typically timed to coincide with field preparation so that it can be incorporated while tilling. Liquid fertilizer is timed so that it can be mixed with irrigation water during crop irrigation, based on crop needs.

Method of Application:

Manure Solids: Manure is applied to crop land with manufactured spreader boxes designed to apply manure solids to crop land. These spreader boxes are mounted on trucks or trailers.

Wastewater: Wastewater is applied by mixing it with irrigation well water and distributing it via concrete lined irrigation ditch system. The mixed water is released from the ditch through gates in the side of the ditch onto a laser leveled field where it spreads out along a discrete sub-area of the field.

Commercial Fertilizer: Dry fertilizer is broadcast over the field surface and then incorporated by tilling. If used, liquid fertilizer is mixed with irrigation water during an irrigation event that is timed to meet plant nutrient needs. The fertilizer company will establish the mixing rate based on the type of fertilizer, irrigation water flow rate and area and slope to be covered.

10.8 Determination of Maximum Application Rates for Nitrogen or Phosphorus

In accordance with the current baseline field evaluation (Refer to Appendix A), land application of manure, litter, or wastewater will be based on nitrogen values. The maximum nitrogen application has been projected for each field, each crop and each year of the permit using the NMSU Annual Nutrient Manager. These projections are only estimates based on the calculations performed using the current soil information. As such, these maximum application rate projections are not provided for use by the Director in establishing site specific permit terms for future application rates.

The plant available nitrogen (PAN) requirement projections (Appendix A) are zero sum calculations. In practice, the nitrogen application rate may be adjusted up as much as 115% of the zero sum rate to account for unpredictable growing season variables and to insure that the crop does not run short of nutrients at the end of the growing season.

Refer to Table 10.8. for the calculated total PAN application rate values. These amounts are taken from the USDA-NRCS Plants Crop Nutrient Tool.

10.9 Annual Determination of Crop, Soil, Yield, of the Proposed Next Year Crops

The following narrative describes the step-by-step procedures to be used in projecting and then documenting the annual field and crop nutrient application rates. These procedures may be refined to address minor changes in site specific facility conditions which will yield more useful or accurate information.

At the beginning of each crop year, this facility will determine the crops to be grown for next year on each field. A realistic yield goal will be set for each crop, using past farm history for that crop, or if the crop is new to the farm operation, established yield goals from other local operators or NMSU Extension Office assistance may be used.

Soil samples will be collected for analysis from each field that is to receive organic waste from the CAFO operation in the next crop year. Sampling and analysis will be in accordance with the protocols outlined in Part 9 of this NMP.

Manure and wastewater will be sampled and analyzed in accordance with the protocols outlined in Part 9 of this NMP.

The soil, manure and wastewater annual analysis will be entered into the NMSU

Annual Nutrient Manager which calculates the total amount of wastewater, manure and/or commercial fertilizer that is needed to meet the annual crop goals.

Each land application event is recorded on operation logs that are kept with this NMP. The information recorded on the logs is used to track the amount of organic and commercial sources of nutrients that are applied to each field throughout the crop year.

Application log and crop yield information is transferred to the NMSU Annual Nutrient Manager which creates the actual field/crop historic report for the NMP records. Then the process starts all over again for the next crop year.

10.10 Annual Documentation of Past Crop Year History

Annual documentation of the past year field and crop history will be created and placed in the facility operating record. As appropriate this information will also be used to generate the facility annual report to EPA Region 6, in accordance with Part V of the Permit.

The documentation will be taken from land application logs and crop yield information. This information will be entered into the NMSU Annual Nutrient Manager labeled as ACTUAL for each field, at the end of each year.

10.11 Documentation Methods

Various logs have been created to record the operational and decision making information needed to document implementation of the BMPs at this facility. Several of these logs have been described and/or referred to above.

Refer to Appendix C for an example of these logs. This facility may choose to revise these logs as needed to more appropriately capture the required information or better document implementation of BMPs.

11. Record Keeping and Reports

11.1 Record Keeping

This facility will maintain all records required for satisfactory documentation of compliance with the terms of this permit, for a period of not less than five (5) years.

The records contained in Appendix C are presented as an example of the kind record that will be kept by the facility to satisfy various permit documentation requirements. Some activity logs are designed to record information that is needed to support other areas of documentation and/or for the preparation of reports, such as the annual report. The record system that is finally installed at this facility will include at a minimum, but may not be limited to, the records presented here. All of the logs presented in Appendix C may not be needed to properly document operations and permit terms at this facility.

In many cases the content of these records has been taken from the EPA web site guidance. Other records have been held over from former NPDES-CAFO Permit compliance record systems. These records may not be the exact record form that is finally installed for permanent record keeping purposes and this facility reserves the right to add or modify any record to better suit it's needs.

The logs and records are to be used to document proper operation and maintenance of the management practices used at this facility to treat and store process wastewater, control and retain storm water, control off-site clean water run-on, control crop land run-off, manage dry manure and wastewater use on crop land and/or removal from the facility, calculate planned and year-end actual crop land use of dry manure and wastewater and document precipitation, employee training, incidental material spills and to report any discharges to Water of the U.S.

11.2 Schedule of Logs and Records

Refer to Appendix C for a copy of the forms.

Schedule of Logs and Records

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

Daily	Water Line Inspection Log
Weekly	Process Water & Runoff Control Structure Water Level & Visual Inspection Log
Annually	Annual Soil Analysis Annual Dry Manure Nutrient Analysis Annual Process Water Analysis Planned On Site Process/Runoff Water & Manure Application Rate Calculation Year-end On Site Process/Runoff Water & Manure Application Rate Calculation Employee Training Record Annual Report to EPA
As Needed	On Site Process Water Land Irrigation Log Precipitation Log Maintenance Report Off Site Manure/Wastewater Removal On Site Manure Application Log Nutrient Management Plan (NMP) Amendments Spill Log Spill Incident Report Discharge Log Discharge Report (EPA) Discharge Report (State) Five Year Structural Controls Review

Appendix A

Field Evaluation, Rotation & Nutrient Calculation

Field D-1

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	11/21/2009		Dairy Extension Program <small>NEW MEXICO STATE UNIVERSITY</small>	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		
Dairy	River Valley Dairy						
Crop_Year	2009-2010					N Loss	0%
Field_ID	D-1					Goal/Real	Nutrient Needed
Area (ac)	14.7						
	Month - Month	Crop		Unit	Yield	N	P
1 st Crop	Nov'09-Oct'10	Pecans 15%		lb/ac	1240	434	0
2 nd Crop						0	0
						0	0
Total		Nutrient Needed				434	0
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		49	132.75
		Nutrient Still Needed				-286	-1,951
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	178	119
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				-464	-2,070
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				-464	-2,070
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				-464	-2,070

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy Acres: 14.7 Date: 11/2/2009 Field ID: D-1

Application Information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Pecans		Needed for field (acin): 10.4664
	Liquid Applied: 0.712	AcIn/ac	(gal): 284,163
	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 ₂ O ₅ (%) (dry)		K ₂ O (%) (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 ₂ O ₅ (lbs/wet ton)		K ₂ O (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:										
Liquid	% Moisture		TKN (lbs/acin)		NH ₄ -N (lbs/acin)		P ₂ O ₅ (lbs/acin)		K ₂ O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.) ▼	99		0	46	0	26	35	0	256	0
			TKN (lbs/1000gal)		NH ₄ -N (lbs/1000gal)		P ₂ O ₅ (lbs/1000gal)		K ₂ O (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) NH ₄ -N
Liquid (type of application)	Type of Climate	Percent Remaining	NH ₄ -N Remaining
Surface Irr w/o incorp & w/crop canopy ▼	Warm Dry ▼	80 %	20.8 (lbs/acin) NH ₄ -N
			0.0 (lbs/1000gal) NH ₄ -N

Mineralization of N, P, & K

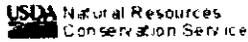
Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding ▼	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond ▼	40 %	75 %	80 %	Liquid Source
Solid	Organic N (lbs/ton)	P ₂ O ₅ (lbs/ton)	K ₂ O (lbs/ton)	
	0	0	0	
Liquid	Organic N (lbs/acin)	P ₂ O ₅ (lbs/acin)	K ₂ O (lbs/acin)	
	8	26	205	
	Organic N (lbs/100gal)	P ₂ O ₅ (lbs/1000gal)	K ₂ O (lbs/1000gal)	
	0.00	0.0	0.0	

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class <small>(See Survey Information)</small>	Percent Remaining (%)
<2 ▼	Excessively Well Drained ▼	94

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	27	0
P ₂ O ₅	0.0	26	0
K ₂ O	0.0	205	0
Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P ₂ O ₅ (lbs/ac)	K ₂ O (lbs/ac)
	19.4	18.7	145.7



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\(s\)](#)

Pecan (dry)
Tree and fruit
Carya illinoensis
Plant part harvested: Nut
Crop yield unit: lb of nut

Nutrients in harvested part (lb/lb of nut) at 15% moisture percentage.			Nutrients removed in harvested part (lb/acre) at 1240 lb of nut yield level.		
Nitrogen	Phosphorus	Potassium	Nitrogen	Phosphorus	Potassium
.0238			29.5120		

Nutrients removed in harvested part (lb/lb of nut) at 1240 lb of nut yield level and 14.7 acres.

Nitrogen	Phosphorus	Potassium
433.8264		

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Time Generated: Sat 7:18 AM - 11/21/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-1	Date:	Nov'09	
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Pecans	
Soil Permeability (in/hr):	0.75	Slope (%):	0.5	Planned/Exist.:	Exist	
Site Characteristic	Place an X In the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	8
				X		
Phosphorus (P₂O₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-60 lbs/ac P ₂ O ₅	>60-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O ₅	1
		X				
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	4
				X		
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	0
	X					
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	0
	X					
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	0
	X					
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	0
	X					
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	3
			X			
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	0
	X					
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	3
			X			
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 11/09 to 10/10) 0.00 t/ac + (RUSLE 2) 0.066 t/ac = 0.07 t/ac

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin:0;">Irrigation Water Management</h2> <h3 style="margin:0;">Conservation Practice Job Sheet 449</h3> <p style="margin:0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>
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Client: <u>Dominguez Dairy</u>	Tract: <u>1579</u>
Planner: <u>Chet Wyant</u>	Field(s) No.: <u>D-1</u>
Current Land Use: <u>Pecan</u>	Total Acres: <u>14.7</u>
Date: <u>11/20/2009</u>	Date to apply: <u>11'09</u>

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

Purposes (check all that apply)

- | | | |
|--|---|--|
| <input type="checkbox"/> Manage soil moisture to improve crops | <input checked="" type="checkbox"/> Optimize use of water | <input checked="" type="checkbox"/> Minimize Irrigation Erosion |
| <input type="checkbox"/> Decrease non-point source pollution | <input type="checkbox"/> Manage salt in the root zone | <input type="checkbox"/> 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: <u>Pajarito FSL; 144-52</u>	Intake Family (in/hr): <u>0.75</u>
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Soil Interpretations for Irrigation

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)
Pecan > 10yrs no cover, Las Cruces	Deep	4.0	5.0	50%	2.5	2.0

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

Crop:	Pecan > 10yrs no cover, Las Cruces	Total Irrigation Needed:	32.7 ac in/ac		
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	9	8.4
Feb		0.0	Aug	12	6.1
Mar		0.0	Sep	20	3.8
Apr	>1 Mo.	1.0	Oct	>1 Mo.	1.6
May	17	4.3	Nov	>1 Mo.	0.0
Jun	10	7.4	Dec		0.0

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled	System Efficiency (%):		80%
System Capacity (Ditch/Pump/Well):	6000	GPM		
Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Pecan > 10yrs no cover; Las Cruces	2	17.41	0.28	System meets CU for crop

Operation and Maintenance Requirements

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

Additional Requirements

Job Approval and Completion

Client:	<u>Isaac Dominguez</u>	Date:	<u>11-23-2009</u>
Conservationist:	<u>[Signature]</u>	Date:	<u>11-23-09</u>
Completed by:	<u>[Signature]</u>	Date:	_____



RUSLEZ Worksheet Erosion Calculation Record

Info: Pecans Nov'09 to Oct'10

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-1

Location: New Mexico\Donana County\NM_Dona Ana R 9

Soil: Bm BLUEPOINT LOAMY SAND, 1 TO 5 PERCENT SLOPES\BLUEPOINT loamy sand 75%

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. Multi-year Rotation Templates\Pecan, plant to full size, tilled clean	b. absolute row grade 0.5 percent	(none)	(none)	0.066	

Year 2

Dairy Annual Nutrient Manager

Date	11/21/2009		Dairy Extension Program <small>NEW MEXICO STATE UNIVERSITY</small>	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu; Tools vcabrera@nmsu.edu	PLANNED		
Dairy	River Valley Dairy						
Crop_Year	2010-2011						
Field_ID	D-1						
Area (ac)	14.7				N Loss	0%	
					Goal/Real	Nutrient Needed	
	Month - Month	Crop	Unit	Yield		N	P
1 st Crop	Nov'10-Oct'11	Pecans 15%	lb/ac	1240		434	0
2 nd Crop						0	0
						0	0
Total		Nutrient Needed				434	0
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil			lb/ac			49	132.75
		Nutrient Still Needed				-286	-1,951
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA	ac-in	0.712		178	119
			ac-in			0	0
			ac-in			0	0
		Nutrient Still Needed				-464	-2,070
						Manure Analyses	
						N	P
Dry Manure Application			t/ac			0	0
			t/ac			0	0
			t/ac			0	0
		Nutrient Still Needed				-464	-2,070
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied			lb/ac			0	0
			lb/ac			0	0
			lb/ac			0	0
		Annual Nutrient Balance				-464	-2,070

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy		Acres: 14.7	Date: 11/2/2009	Field ID: D-1	
Application Information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Pecans		Needed for field (acin): 10.4664		
	Liquid Applied: 0.712	Acin/ac	(gal): 284,163		
	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 ₂ O ₅ (%) (dry)		K ₂ O (%) (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 ₂ O ₅ (lbs/wet ton)		K ₂ O (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	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:										
Liquid	% Moisture		TKN (lbs/acin)		NH ₄ -N (lbs/acin)		P ₂ O ₅ (lbs/acin)		K ₂ O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
	NM Dairy Ponds (99-99.4% liq.) ▼	99	0	46	0	26	35	0	256	0
			TKN (lbs/1000gal)		NH ₄ -N (lbs/1000gal)		P ₂ O ₅ (lbs/1000gal)		K ₂ O (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) NH ₄ -N
Liquid (type of application)	Type of Climate	Percent Remaining	NH ₄ -N Remaining
Surface Irr w/o incorp & w/crop canopy ▼	Warm Dry ▼	80 %	20.8 (lbs/acin) NH ₄ -N
			0.0 (lbs/1000gal) NH ₄ -N

Mineralization of N, P, & K

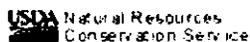
Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding ▼	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond ▼	40 %	75 %	80 %	Liquid Source
Solid	Organic N (lbs/ton)	P ₂ O ₅ (lbs/ton)	K ₂ O (lbs/ton)	
	0	0	0	
Liquid	Organic N (lbs/acin)	P ₂ O ₅ (lbs/acin)	K ₂ O (lbs/acin)	
	8	26	205	
	Organic N (lbs/100gal)	P ₂ O ₅ (lbs/1000gal)	K ₂ O (lbs/1000gal)	
	0.00	0.0	0.0	

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class	Percent Remaining (%)
<2 ▼	Excessively Well Drained ▼	94

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	27	0
P ₂ O ₅	0.0	26	0
K ₂ O	0.0	205	0
Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P ₂ O ₅ (lbs/ac)	K ₂ O (lbs/ac)
	19.4	18.7	145.7



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\(s\)](#)

Pecan (dry)
 Tree and fruit
 Carya illinoensis
 Plant part harvested: Nut
 Crop yield unit: lb of nut

Nutrients in harvested part (lb/lb of nut) at 15% moisture percentage.

Nutrients removed in harvested part (lb/acre) at 1240 lb of nut yield level.

Nitrogen	Phosphorus	Potassium
.0238		

Nitrogen	Phosphorus	Potassium
29.5120		

Nutrients removed in harvested part (lb/lb of nut) at 1240 lb of nut yield level and 14.7 acres.

Nitrogen	Phosphorus	Potassium
433.8264		

[Element-Fertilizer Equivalents](#)

[Average NPK Percentages](#)

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-1		Date:	Nov'10
Planner:	Chet Wyant	Location:	DonaAna		Crop:	Pecans
Soil Permeability (in/hr):	0.75	Slope (%):	0.5		Planned/Exist.:	Exist
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	8
				X		
Phosphorus (P₂O₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-60 lbs/ac P ₂ O ₅	>60-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O ₅	1
		X				
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	4
				X		
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	0
	X					
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	0
	X					
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	0
	X					
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	0
	X					
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	3
			X			
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	0
	X					
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	3
			X			
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 11/10 to 10/11) 0.00 t/ac + (RUSLE 2) 0.066 t/ac = 0.07 t/ac

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin: 0;">Irrigation Water Management</h2> <h3 style="margin: 0;">Conservation Practice Job Sheet 449</h3> <p style="margin: 0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>																					
<p>Client: <u>Dominguez Dairy</u></p> <p>Planner: <u>Chet Wyant</u></p> <p>Current Land Use: <u>Pecan</u></p> <p>Date: <u>11/20/2009</u></p>	<p>Tract: <u>1579</u></p> <p>Field(s) No.: <u>D-1</u></p> <p>Total Acres: <u>14.7</u></p> <p>Date to apply: <u>11'10</u></p>																					
<p>See the Conservation Plan map for the location of the field(s) to applying IWM.</p>																						
<p>Purposes (check all that apply)</p> <p> <input type="checkbox"/> Manage soil moisture to improve crops <input checked="" type="checkbox"/> Optimize use of water <input checked="" type="checkbox"/> Minimize Irrigation Erosion <input type="checkbox"/> Decrease non-point source pollution <input type="checkbox"/> Manage salt in the root zone <input type="checkbox"/> Manage air, soil, or plant microclimate </p>																						
<p>Conditions where practice applies</p> <p>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).</p>																						
<p>Soil (Series, Texture, and Map Unit) <i>Select the soil to manage for:</i></p>																						
<p>Critical soil to manage: <u>Pajarito FSL; 144-52</u></p>	<p>Intake Family (in/hr): <u>0.75</u></p>																					
<p>Soil Interpretations for Irrigation</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Crop Name</th> <th style="width:15%;">Rooting Depth</th> <th style="width:15%;">Moisture Replacement Depth (ft)</th> <th style="width:15%;">Water Holding Capacity (in)</th> <th style="width:15%;">Mgt Allowed Depletion (MAD) (%)</th> <th style="width:10%;">Net Water to Replace (in)</th> <th style="width:10%;">Time Needed to infiltrate (hrs)</th> </tr> </thead> <tbody> <tr> <td>Pecan > 10yrs no cover; Las Cruces</td> <td>Deep</td> <td>4.0</td> <td>5.0</td> <td>50%</td> <td>2.5</td> <td>2.0</td> </tr> <tr> <td> </td> </tr> </tbody> </table>		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)	Pecan > 10yrs no cover; Las Cruces	Deep	4.0	5.0	50%	2.5	2.0							
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)																
Pecan > 10yrs no cover; Las Cruces	Deep	4.0	5.0	50%	2.5	2.0																
<p>Crop Consumptive Use (CU) Information (inches/month needed)</p>																						
Crop:	Pecan > 10yrs no cover; Las Cruces	Total Irrigation Needed:	32.7 ac in/ac																			
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo																	
Jan		0.0	Jul	9	8.4																	
Feb		0.0	Aug	12	6.1																	
Mar		0.0	Sep	20	3.8																	
Apr	>1 Mo.	1.0	Oct	>1 Mo.	1.6																	
May	17	4.3	Nov	>1 Mo.	0.0																	
Jun	10	7.4	Dec		0.0																	
Crop:		Total Irrigation Needed:		ac in/ac																		
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo																	
Jan		0.0	Jul		0.0																	
Feb		0.0	Aug		0.0																	
Mar		0.0	Sep		0.0																	
Apr		0.0	Oct		0.0																	
May		0.0	Nov		0.0																	
Jun		0.0	Dec		0.0																	

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)				
Type of System:	Flood, controlled	System Efficiency (%):		80%
System Capacity (Ditch/Pump/Well):	6000	GPM		
Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Pecan > 10yrs no cover; Las Cruces	2	17.41	0.28	System meets CU for crop

Operation and Maintenance Requirements

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

Additional Requirements

Job Approval and Completion

Client:	<i>Jose Dominguez</i>	Date:	11-23-2009
Conservationist:	_____	Date:	11-23-09
Completed by:	_____	Date:	_____



RUSLE2 Worksheet Erosion Calculation Record

Info: Pecans Nov'10 to Oct'11

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-1

Location: New Mexico\Donana County\NM_Dona Ana R 9

Soil: Bm BLUEPOINT LOAMY SAND, 1 TO 5 PERCENT SLOPES\BLUEPOINT loamy sand 75%

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. Multi-year Rotation Templates\Pecan, plant to full size, tilled clean	b. absolute row grade 0.5 percent	(none)	(none)	0.066	

Year 3

Dairy Annual Nutrient Manager

Date	11/21/2009		Dairy	River Valley Dairy	Dairy Extension Program <small>Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu</small>	PLANNED	[Redacted]		
Crop_Year	2011-2012		Field_ID	D-1					
Area (ac)	14.7								
Month - Month	Crop	Unit	Yield	N Loss	0%				
1 st Crop	Nov'11-Oct'12	Pecans 15%	lb/ac	1400	490	Nutrient Needed			
2 nd Crop					0				
					0				
Total	Nutrient Needed				490	0			
						Soil Analyses			
Texture by Feel	Loam				N	P			
Nutrient Available in Soil			lb/ac		49	132.75			
	Nutrient Still Needed				-230	-1,951			
						Effluent Analyses			
Effluent Manure Application	NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	N	P			
			ac-in		178	119			
			ac-in		0	0			
	Nutrient Still Needed				0	0			
					-408	-2,070			
						Manure Analyses			
Dry Manure Application			t/ac		N	P			
			t/ac		0	0			
	Nutrient Still Needed		t/ac		0	0			
					-408	-2,070			
						Fertilizer Content			
Chemical Fertilizers Applied			lb/ac		N	P			
			lb/ac		0	0			
	Annual Nutrient Balance		lb/ac		0	0			
					-408	-2,070			

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy	Acres: 14.7	Date: 11/2/2009	Field ID: D-1
Application information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Pecans	Needed for field (acin): 10.4664	
	Liquid Applied: 0.712 acin/ac	(gal): 284,163	
	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 ₂ O ₅ (%) (dry)	K ₂ O (%) (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 ₂ O ₅ (lbs/wet ton)		K ₂ O (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:										
Liquid	% Moisture		TKN (lbs/acin)		NH ₄ -N (lbs/acin)		P ₂ O ₅ (lbs/acin)		K ₂ O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.) ▼		99		0		46		0		26
				0		26		35		0
				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) NH ₄ -N
Liquid (type of application)	Type of Climate	Percent Remaining	NH ₄ -N Remaining
Surface Irr w/o incorp & w/crop canopy ▼	Warm Dry ▼	80 %	20.8 (lbs/acin) NH ₄ -N
			0.0 (lbs/1000gal) NH ₄ -N

Mineralization of N, P, & K

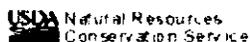
Manure Source	Percent Nutrient Available the 1st Year			Source
	Organic N	P	K	
Beef & Dairy Solid w/o bedding ▼	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond ▼	40 %	75 %	80 %	Liquid Source
Solid	Organic N (lbs/ton)	P ₂ O ₅ (lbs/ton)	K ₂ O (lbs/ton)	
	0	0	0	
Liquid	Organic N (lbs/acin)	P ₂ O ₅ (lbs/acin)	K ₂ O (lbs/acin)	
	8	26	205	
	Organic N (lbs/100gal)	P ₂ O ₅ (lbs/1000gal)	K ₂ O (lbs/1000gal)	
	0.00	0.0	0.0	

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class <small>(See Survey Information)</small>	Percent Remaining (%)
<2 ▼	Excessively Well Drained ▼	94

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	27	0
P ₂ O ₅	0.0	26	0
K ₂ O	0.0	205	0
Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P ₂ O ₅ (lbs/ac)	K ₂ O (lbs/ac)
	19.4	18.7	145.7



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\(s\)](#)

Pecan (dry)
 Tree and fruit
 Carya illinoensis
 Plant part harvested: Nut
 Crop yield unit: lb of nut

Nutrients in harvested part (lb/lb of nut) at 15% moisture percentage.

Nutrients removed in harvested part (lb/acre) at 1400 lb of nut yield level.

Nitrogen	Phosphorus	Potassium
.0238		

Nitrogen	Phosphorus	Potassium
33.3200		

Nutrients removed in harvested part (lb/lb of nut) at 1400 lb of nut yield level and 14.7 acres.

Nitrogen	Phosphorus	Potassium
489.8040		

[Element-Fertilizer Equivalents](#)

[Average NPK Percentages](#)

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Time Generated: Sat 7:21 AM - 11/21/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-1	Date:	Nov'11	
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Pecans	
Soil Permeability (in/hr):	0.75	Slope (%):	0.5	Planned/Exist.:	Exist	
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	8
				X		
Phosphorus (P₂O₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-90 lbs/ac P ₂ O ₅	>90-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O ₅	1
		X				
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	4
				X		
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	0
	X					
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	0
	X					
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	0
	X					
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	0
	X					
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<8 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>8 for very erodible soils	3
			X			
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 50% Dry Matter as Supplemental Feed	Pasture 50 to 100% Dry Matter as Supplemental Feed	0
	X					
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	3
			X			
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 11/11 to 10/12) 0.00 t/ac + (RUSLE 2) 0.066 t/ac = 0.07 t/ac

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin:0;">Irrigation Water Management</h2> <h3 style="margin:0;">Conservation Practice Job Sheet 449</h3> <p style="margin:0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>
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Client: <u>Dominguez Dairy</u>	Tract: <u>1579</u>
Planner: <u>Chet Wyant</u>	Field(s) No.: <u>D-1</u>
Current Land Use: <u>Pecan</u>	Total Acres: <u>14.7</u>
Date: <u>11/20/2009</u>	Date to apply: <u>11'11</u>

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

Purposes (check all that apply)

- | | | |
|--|---|--|
| <input type="checkbox"/> Manage soil moisture to improve crops | <input checked="" type="checkbox"/> Optimize use of water | <input checked="" type="checkbox"/> Minimize Irrigation Erosion |
| <input type="checkbox"/> Decrease non-point source pollution | <input type="checkbox"/> Manage salt in the root zone | <input type="checkbox"/> 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: <u>Pajarito FSL; 144-52</u>	Intake Family (in/hr):	<u>0.75</u>
--	------------------------	-------------

Soil Interpretations for Irrigation

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)
Pecan > 10yrs no cover; Las Cruces	Deep	4.0	5.0	50%	2.5	2.0

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

Crop:	Pecan > 10yrs no cover; Las Cruces	Total Irrigation Needed:	32.7 ac in/ac		
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	9	8.4
Feb		0.0	Aug	12	6.1
Mar		0.0	Sep	20	3.8
Apr	>1 Mo.	1.0	Oct	>1 Mo.	1.6
May	17	4.3	Nov	>1 Mo.	0.0
Jun	10	7.4	Dec		0.0

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Pecan > 10yrs no cover; Las Cruces	2	17.41	0.28	System meets CU for crop

Operation and Maintenance Requirements

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

Additional Requirements

Job Approval and Completion

Client:	<i>Joe Lopez Dominguez</i>	Date:	<i>11-23-2009</i>
Conservationist:	<i>[Signature]</i>	Date:	<i>11-23-09</i>
Completed by:	<i>[Signature]</i>	Date:	



RUSLE2 Worksheet Erosion Calculation Record

Info: Pecans Nov'11 to Oct'12

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-1

Location: New Mexico\DonaAna County\NM_Dona Ana R 9

Soil: Bm BLUEPOINT LOAMY SAND, 1 TO 5 PERCENT SLOPES\BLUEPOINT loamy sand 75%

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. Multi-year Rotation Templates\Pecan, plant to full size, tilled clean	b. absolute row grade 0.5 percent	(none)	(none)	0.066	

Year 4

Dairy Annual Nutrient Manager

Date	11/21/2009		Dairy Extension Program <small>1001 NINE Mile</small>	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		
Dairy	River Valley Dairy						
Crop_Year	2012-2013					N Loss	0%
Field_ID	D-1					Goal/Real	Nutrient Needed
Area (ac)	14.7						
	Month - Month	Crop		Unit	Yield	N	P
1 st Crop	Nov'12-Oct'13	Pecans 15%		lb/ac	1400	490	0
2 nd Crop						0	0
						0	0
Total		Nutrient Needed				490	0
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		49	132.75
		Nutrient Still Needed				-230	-1,951
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	178	119
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				-408	-2,070
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				-408	-2,070
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				-408	-2,070

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy Acres: 14.7 Date: 11/2/2009 Field ID: D-1

Application information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Pecans		Needed for field (acin): 10.4664		
	Liquid Applied: 0.712	AcIn/ac	(gal): 284,163		
	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 ₂ O ₅ (%) (dry)		K ₂ O (%) (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 ₂ O ₅ (lbs/wet ton)		K ₂ O (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:										
Liquid	% Moisture		TKN (lbs/acIn)		NH ₄ -N (lbs/acIn)		P ₂ O ₅ (lbs/acIn)		K ₂ O (lbs/acIn)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.) ▼	99		0	46	0	26	35	0	256	0
			TKN (lbs/1000gal)		NH ₄ -N (lbs/1000gal)		P ₂ O ₅ (lbs/1000gal)		K ₂ O (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) NH ₄ -N
Liquid (type of application)	Type of Climate	Percent Remaining	NH ₄ -N Remaining
Surface Irr w/o incorp & w/crop canopy ▼	Warm Dry ▼	80 %	20.8 (lbs/acIn) NH ₄ -N
			0.0 (lbs/1000gal) NH ₄ -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 ₂ O ₅ (lbs/ton)	K ₂ O (lbs/ton)
	0	0	0
Liquid	Organic N (lbs/acIn)	P ₂ O ₅ (lbs/acIn)	K ₂ O (lbs/acIn)
	8	26	205
	Organic N (lbs/100gal)	P ₂ O ₅ (lbs/1000gal)	K ₂ O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class <small>(See Survey Information)</small>	Percent Remaining (%)	
<2 ▼	Excessively Well Drained ▼	94	

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	27	0
P ₂ O ₅	0.0	26	0
K ₂ O	0.0	205	0
Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P ₂ O ₅ (lbs/ac)	K ₂ O (lbs/ac)
	19.4	18.7	145.7



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\(s\)](#)

Pecan (dry)
 Tree and fruit
 Carya illinoensis
 Plant part harvested: Nut
 Crop yield unit: lb of nut

Nutrients in harvested part (lb/lb of nut) at 15% moisture percentage.			Nutrients removed in harvested part (lb/acre) at 1400 lb of nut yield level.		
Nitrogen	Phosphorus	Potassium	Nitrogen	Phosphorus	Potassium
.0238			33.3200		

Nutrients removed in harvested part (lb/lb of nut) at 1400 lb of nut yield level and 14.7 acres.

Nitrogen	Phosphorus	Potassium
489.8040		

[Element-Fertilizer Equivalents](#)

[Average NPK Percentages](#)

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Time Generated: Sat 7:21 AM - 11/21/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-1	Date:	Nov'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Pecans
Soil Permeability (in/hr):	0.75	Slope (%):	0.5	Planned/Exist.:	Exist

Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
				X		8
Phosphorus (P ₂ O ₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-90 lbs/ac P ₂ O ₅	90-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O 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					0
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 <38% Dry Matter as Supplemental Feed	Pasture 38 to 86% Dry Matter as Supplemental Feed	Pasture 86 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3

P Hazard Class: Medium **Total Index Points:** 19.0

Phosphorus Application Classification: N Based

Notes:

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

Comments: Soil Erosion = (WEQ 11/12 to 10/13) 0.00 t/ac + (RUSLE 2) 0.066 t/ac = 0.07 t/ac

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin: 0;">Irrigation Water Management</h2> <h3 style="margin: 0;">Conservation Practice Job Sheet 449</h3> <p style="margin: 0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>
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Client: <u>Dominguez Dairy</u>	Tract: <u>1579</u>
Planner: <u>Chet Wyant</u>	Field(s) No.: <u>D-1</u>
Current Land Use: <u>Pecan</u>	Total Acres: <u>14.7</u>
Date: <u>11/20/2009</u>	Date to apply: <u>11'12</u>

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

Purposes (check all that apply)

- | | | |
|--|---|--|
| <input type="checkbox"/> Manage soil moisture to improve crops | <input checked="" type="checkbox"/> Optimize use of water | <input checked="" type="checkbox"/> Minimize Irrigation Erosion |
| <input type="checkbox"/> Decrease non-point source pollution | <input type="checkbox"/> Manage salt in the root zone | <input type="checkbox"/> 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: <u>Pajarito FSL; 144-52</u>	Intake Family (in/hr):	<u>0.75</u>
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Soil Interpretations for Irrigation

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)
Pecan > 10yrs no cover; Las Cruces	Deep	4.0	5.0	50%	2.5	2.0

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

Crop:	Pecan > 10yrs no cover; Las Cruces	Total Irrigation Needed:	32.7 ac in/ac		
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	9	8.4
Feb		0.0	Aug	12	6.1
Mar		0.0	Sep	20	3.8
Apr	>1 Mo.	1.0	Oct	>1 Mo.	1.6
May	17	4.3	Nov	>1 Mo.	0.0
Jun	10	7.4	Dec		0.0
Crop:		Total Irrigation Needed:	ac in/ac		
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled	System Efficiency (%):	80%	
System Capacity (Ditch/Pump/Well):	6000 GPM			
Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Pecan > 10yrs no cover; Las Cruces	2	17.41	0.28	System meets CU for crop

Operation and Maintenance Requirements

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

Additional Requirements

Job Approval and Completion

Client:	<i>Dr. Carlos Dominguez</i>	Date:	11-23-2009
Conservationist:		Date:	11-23-09
Completed by:		Date:	



RUSLE2 Worksheet Erosion Calculation Record

Info: Pecans Nov'12 to Oct'13

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-1

Location: New Mexico\DonaAna County\NM_Dona Ana R 9

Soil: Bm BLUEPOINT LOAMY SAND, 1 TO 5 PERCENT SLOPES\BLUEPOINT loamy sand 75%

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. Multi-year Rotation Templates\Pecan, plant to full size, tilled clean	b. absolute row grade 0.5 percent	(none)	(none)	0.066	

Year 5

Dairy Annual Nutrient Manager

Date	11/21/2009	 NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED			
Dairy	River Valley Dairy						
Crop_Year	2013-2014						
Field_ID	D-1						
Area (ac)	14.7						
	Month - Month	Crop	Unit	Yield	N Loss	Nutrient Needed	
1 st Crop	Nov'13-Oct'14	Pecans 15%	lb/ac	1600	0%	N P	
2 nd Crop						560 0	
						0 0	
						0 0	
Total		Nutrient Needed				560 0	
						Soil Analyses	
Texture by Feel	Loam				N	P	
Nutrient Available in Soil			lb/ac		49	132.75	
	Nutrient Still Needed				-161	-1,951	
						Effluent Analyses	
Effluent Manure Application	NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	N	P	
			ac-in		178	119	
			ac-in		0	0	
	Nutrient Still Needed				0	0	
					-338	-2,070	
						Manure Analyses	
Dry Manure Application			t/ac		N	P	
			t/ac		0	0	
			t/ac		0	0	
	Nutrient Still Needed				0	0	
					-338	-2,070	
						Fertilizer Content	
Chemical Fertilizers Applied			lb/ac		N	P	
			lb/ac		0	0	
			lb/ac		0	0	
	Annual Nutrient Balance				0	0	
					-338	-2,070	

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy		Acres: 14.7	Date: 11/2/2009	Field ID: D-1
Application Information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Pecans		Needed for field (acin): 10.4664	Needed for field (gal): 284,163
	Liquid Applied: 0.712	Acin/ac		
	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 ₂ O ₅ (%) (dry)	K ₂ O (%) (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 ₂ O ₅ (lbs/wet ton)		K ₂ O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Dairy Cattle (30% wet wt) NM (Aver ▼)		0		0		0.0		0		0
Liquid-Lab Report	NH ₃ -N (mg/L)		TKN (mg/L)		NO ₃ -N (mg/L)		Tot-PO ₄ (mg/L)		K (mg/L)	
Fill in Lab data:						205		0.17		
Liquid	% Moisture		TKN (lbs/acin)		NH ₄ -N (lbs/acin)		P ₂ O ₅ (lbs/acin)		K ₂ O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.) ▼	99		0	46	0	26	35	0	256	0
			TKN (lbs/1000gal)		NH ₄ -N (lbs/1000gal)		P ₂ O ₅ (lbs/1000gal)		K ₂ O (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) NH ₄ -N
Liquid (type of application)	Type of Climate	Percent Remaining	NH ₄ -N Remaining
Surface Irr w/o incorp & w/crop canopy ▼	Warm Dry ▼	80 %	20.8 (lbs/acin) NH ₄ -N
			0.0 (lbs/1000gal) NH ₄ -N

Mineralization of N, P, & K

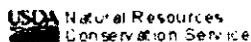
Manure Source	Percent Nutrient Available the 1st Year			
	Organic N	P	K	
Beef & Dairy Solid w/o bedding ▼	35 %	75 %	80 %	Solid Source
Lagoon or diluted Pond ▼	40 %	75 %	80 %	Liquid Source
Solid	Organic N (lbs/ton)	P ₂ O ₅ (lbs/ton)	K ₂ O (lbs/ton)	
	0	0	0	
Liquid	Organic N (lbs/acin)	P ₂ O ₅ (lbs/acin)	K ₂ O (lbs/acin)	
	8	26	205	
	Organic N (lbs/100gal)	P ₂ O ₅ (lbs/1000gal)	K ₂ O (lbs/1000gal)	
	0.00	0.0	0.0	

Denitrification of N

Organic Matter Content (%)	Soil Drainage Class <small>(See Survey Information)</small>	Percent Remaining (%)
<2 ▼	Excessively Well Drained ▼	94

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	27	0
P ₂ O ₅	0.0	26	0
K ₂ O	0.0	205	0
Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P ₂ O ₅ (lbs/ac)	K ₂ O (lbs/ac)
	19.4	18.7	145.7



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\(s\)](#)

Pecan (dry)
 Tree and fruit
 Carya illinoensis
 Plant part harvested: Nut
 Crop yield unit: lb of nut

Nutrients in harvested part (lb/lb of nut) at 15% moisture percentage.

Nutrients removed in harvested part (lb/acre) at 1600 lb of nut yield level.

Nitrogen	Phosphorus	Potassium
.0238		

Nitrogen	Phosphorus	Potassium
38.0800		

Nutrients removed in harvested part (lb/lb of nut) at 1600 lb of nut yield level and 14.7 acres.

Nitrogen	Phosphorus	Potassium
559.7760		

Element-Fertilizer Equivalents

Average NPK Percentages

[«Contents»](#)

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Time Generated: Sat 7:22 AM - 11/21/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-1	Date:	Nov'13	
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Pecans	
Soil Permeability (In/hr):	0.75	Slope (%):	0.5	Planned/Exist.:	Exist	
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
				X		8
Phosphorus (P₂O₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-90 lbs/ac P ₂ O ₅	>90-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O 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					0
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	<20 feet wide	No Buffer	
			X			3
P Hazard Class:	Medium			Total Index Points:	19.0	
Phosphorus Application Classification:				N Based		

Notes:

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

Comments: Soil Erosion = (WEQ 11/13 to 10/14) 0.00 t/ac + (RUSLE 2) 0.066 t/ac = 0.07 t/ac

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin: 0;">Irrigation Water Management</h2> <h3 style="margin: 0;">Conservation Practice Job Sheet 449</h3> <p style="margin: 0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>																																																																																												
<p>Client: <u>Dominguez Dairy</u></p> <p>Planner: <u>Chet Wyant</u></p> <p>Current Land Use: <u>Pecan</u></p> <p>Date: <u>11/20/2009</u></p>	<p>Tract: <u>1579</u></p> <p>Field(s) No.: <u>D-1</u></p> <p>Total Acres: <u>14.7</u></p> <p>Date to apply: <u>11'13</u></p>																																																																																												
<p>See the Conservation Plan map for the location of the field(s) to applying IWM.</p>																																																																																													
<p>Purposes (check all that apply)</p> <p> <input type="checkbox"/> Manage soil moisture to improve crops <input checked="" type="checkbox"/> Optimize use of water <input checked="" type="checkbox"/> Minimize Irrigation Erosion <input type="checkbox"/> Decrease non-point source pollution <input type="checkbox"/> Manage salt in the root zone <input type="checkbox"/> Manage air, soil, or plant microclimate </p>																																																																																													
<p>Conditions where practice applies</p> <p>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).</p>																																																																																													
<p>Soil (Series, Texture, and Map Unit) <i>Select the soil to manage for:</i></p> <p>Critical soil to manage: <u>Pajarito FSL; 144-52</u> Intake Family (in/hr): <u>0.75</u></p>																																																																																													
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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
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Jan		0.0	Jul		0.0
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Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Pecan > 10yrs no cover; Las Cruces	2	17.41	0.28	System meets CU for crop

Operation and Maintenance Requirements

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

Additional Requirements

Job Approval and Completion

Client:	<u><i>Jose Angel Dominguez</i></u>	Date:	<u>11-23-2009</u>
Conservationist:	<u><i>[Signature]</i></u>	Date:	<u>11-23-09</u>
Completed by:	<u><i>[Signature]</i></u>	Date:	<u> </u>



RUSLE2 Worksheet Erosion Calculation Record

Info: Pecans Nov'13 to Oct'14

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-1

Location: New Mexico\DonaAna County\NM_Dona Ana R 9

Soil: Bm BLUEPOINT LOAMY SAND, 1 TO 5 PERCENT SLOPES\BLUEPOINT loamy sand 75%

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. Multi-year Rotation Templates\Pecan, plant to full size, tilled clean	b. absolute row grade 0.5 percent	(none)	(none)	0.066	

Field D-2

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	11/25/2009		Dairy Extension Program Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu		PLANNED	
Dairy Crop_Year	Dominguez Dairy 2009-2010					
Field_ID	D-2				N Loss	0%
Area (ac)	85.2				Goal/Real	Nutrient Needed
	Month - Month	Crop	Unit	Yield	N	P
1 st Crop	Nov'09-Oct'10	Alfalfa, for hay	t/ac	10	42935	4023
2 nd Crop					0	0
					0	0
Total		Nutrient Needed			42,935	4,023
Soil Analyses						
Texture by Feel	Sandy Clay				N	P
Nutrient Available in Soil	Nutrient Still Needed		lb/ac		62	74.23
					37,653	-2,302
Effluent Analyses						
Effluent Manure Application	NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	N	P
			ac-in		1517	689
			ac-in		0	0
	Nutrient Still Needed				0	0
					36,136	-2,990
Manure Analyses						
Dry Manure Application			t/ac		N	P
			t/ac		0	0
			t/ac		0	0
	Nutrient Still Needed				0	0
					36,136	-2,990
Fertilizer Content						
Chemical Fertilizers Applied			lb/ac		N	P
			lb/ac		0	0
			lb/ac		0	0
	Annual Nutrient Balance				0	0
					36,136	-2,990

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy Acres: 85.2 Date: 11/2/2009 Field ID: D-2

Application Information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Alfalfa		Needed for field (acin):	60.6624
	Liquid Applied:	0.712 Acin/ac	(gal):	1,646,984
	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 ₂ O ₅ (%) (dry)		K ₂ O (%) (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 ₂ O ₅ (lbs/wet ton)		K ₂ O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM) ▼		0		0		0.0		0		0
Liquid-Lab Report	NH ₃ -N (mg/L)		TKN (mg/L)		NO ₃ -N (mg/L)		Tot-PO ₄ (mg/L)		K (mg/L)	
Fill in Lab data:										
			205		0.17					
Liquid	% Moisture		TKN (lbs/acin)		NH ₄ -N (lbs/acin)		P ₂ O ₅ (lbs/acin)		K ₂ O (lbs/acin)	
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NM Dairy Ponds (99-99.4% liq.) ▼	99		0	46	0	26	35	0	256	0
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			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) NH ₄ -N
Liquid (type of application)	Type of Climate	Percent Remaining	NH ₄ -N Remaining
Surface Irr w/o incorp & w/crop canopy ▼	Warm Dry ▼	80 %	20.8 (lbs/acin) NH ₄ -N 0.0 (lbs/1000gal) NH ₄ -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 ₂ O ₅ (lbs/ton)	K ₂ O (lbs/ton)
	0	0	0
Liquid	Organic N (lbs/acin)	P ₂ O ₅ (lbs/acin)	K ₂ O (lbs/acin)
	8	26	205
	Organic N (lbs/1000gal)	P ₂ O ₅ (lbs/1000gal)	K ₂ O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P ₂ O ₅	0.0	26	0
K ₂ O	0.0	205	0
Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P ₂ O ₅ (lbs/ac)	K ₂ O (lbs/ac)
	18.1	18.7	145.7



Nutrient Report Summary for the Crop(s) Selected

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

[Return to the crop list and make a new selection of crop\(s\)](#)

Alfalfa, for hay
Forage

Medicago sativa

Plant part harvested: Aboveground biomass
Crop yield unit: ton

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

Nutrients removed in harvested part (lb/acre) at 10 ton yield level.

Nitrogen	Phosphorus	Potassium	Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939	503.9354	47.2166	382.9392

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 85.2 acres.

Nitrogen	Phosphorus	Potassium
42935.2928	4022.8552	32626.4233

[Element-Fertilizer Equivalents](#)

[Average NPK Percentages](#)

[«Contents»](#)

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- [Disclaimers](#)
- [USDA non-discrimination policy](#)

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Time Generated: Tues 4:09 PM - 11/24/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy		Field(s):	D-2		Date:	Nov'09	
Planner:	Chet Wyant		Location:	DonaAna		Crop:	Alfalfa	
Soil Permeability (in/hr):	0.75		Slope (%):	0.5		Planned/Exist.:	planned	
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.							Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm			
			X			2		
Phosphorus (P₂O₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-90 lbs/ac P ₂ O ₅	>90-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O 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					0		
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils			
			X			3		
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed			
	X					0		
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer			
			X			3		
P Hazard Class:	Low			Total Index Points:		14.5		
Phosphorus Application Classification:				N Based				

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

Comments: Soil Erosion = (WEQ 11/09 to 10/10) 2.20 t/ac + (RUSLE 2) 0.032 t/ac = 2.23 t/ac

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin:0;">Irrigation Water Management</h2> <h3 style="margin:0;">Conservation Practice Job Sheet 449</h3> <p style="margin:0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>																																																																																												
<p>Client: <u>Dominguez Dairy</u></p> <p>Planner: <u>Chet Wyant</u></p> <p>Current Land Use: <u>Alfalfa</u></p> <p>Date: <u>11/20/2009</u></p>	<p>Tract: <u>1579</u></p> <p>Field(s) No.: <u>D-2</u></p> <p>Total Acres: <u>85.2</u></p> <p>Date to apply: <u>Nov'09</u></p>																																																																																												
<p>See the Conservation Plan map for the location of the field(s) to applying IWM.</p>																																																																																													
<p>Purposes (check all that apply)</p> <p> <input type="checkbox"/> Manage soil moisture to improve crops <input checked="" type="checkbox"/> Optimize use of water <input checked="" type="checkbox"/> Minimize Irrigation Erosion <input type="checkbox"/> Decrease non-point source pollution <input type="checkbox"/> Manage salt in the root zone <input type="checkbox"/> Manage air, soil, or plant microclimate </p>																																																																																													
<p>Conditions where practice applies</p> <p>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).</p>																																																																																													
<p>Soil (Series, Texture, and Map Unit) <i>Select the soil to manage for:</i></p> <p>Critical soil to manage: Pajarito FSL; 144-52 Intake Family (in/hr): 0.75</p>																																																																																													
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Mar		0.0	Sep		0.0
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Mar		0.0	Sep		0.0
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled	System Efficiency (%):		80%
System Capacity (Ditch/Pump/Well):	6000	GPM		
Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Alfalfa, hay, southern; Las Cruces	16	3.00	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:	<u>Isabel Dominguez</u>	Date:	<u>11-23-2009</u>
Conservationist:	<u>[Signature]</u>	Date:	<u>11-23-09</u>
Completed by:	<u>[Signature]</u>	Date:	_____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: Dominguez Dairy		Planner: Chet Wyant		Location: Mesquite, NM		Tract: 1579		Field: D-2	
Crop Rotation: Alfalfa		Climate Data Station: NM, LAS CRUCES		Site "C" Value: 150		Field Width (ft.): 1324			
Tillage Direction (NS/EW): NS		Length/width ratio: 2		Field Direction (NS/EW): NS		TWF: 1		(see instr.)	
Irrigation (Y or N): Y		Soil "I": 86		Wind Erodibility Group: 3		TWF: 2.2			
Sum Period Erosion (t/ac): 2.2		No. Yrs in Rotation: 1.0		Av. Annual Wind Erosion: 2.2					

Calculations and Output

Mgt Periods	Irr.	Soil	Ridge Roughness			Random Roughness			Unsheltered Distance			Erosion				
			Dev. (deg)	HL (in.)	Sp. (in.)	"K _r " (factor)	"K _r " (factor)	Dev. (deg)	Prop. (factor)	WED (factor)	"L" (ft)	"V" (tbs/ac)	"E" (t/ac)	EWE (%)	"IF" (%)	Loss (t/ac)
11/1	0	56	0.0	8	30	0.21	0.99	0.0	4.0	1.010	1337	0	8.6	12.6	1.00	1.08
1/2	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	5	6.7	2.0	1.00	0.13
1/17	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	47	6.4	2.0	1.00	0.13
2/1	1	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	104	6.1	12.7	0.93	0.73
2/16	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	1677	0.0	12.7	1.00	0.00
3/3	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	5385	0.0	12.9	1.00	0.00
3/18	1	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	5385	0.0	12.6	0.93	0.00
4/2	2	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	5385	0.0	8.8	0.87	0.00
4/17	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	5385	0.0	8.6	1.00	0.00
5/2	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	6999	0.0	5.3	1.00	0.00
5/17	0	56	0.0	8	30	0.21	0.80	0.0	4.0	1.010	1337	6999	0.0	5.3	0.87	0.00
6/1	2	56	22.5	8	30	0.47	0.80	22.5	1.2	1.370	1814	6999	0.0	0.8	1.00	0.00
6/16	0	56	22.5	8	30	0.47	0.80	22.5	1.2	1.370	1814	6999	0.0	0.8	0.87	0.00
7/1	2	56	67.5	8	30	0.51	0.80	67.5	1.1	1.475	1953	6999	0.0	0.2	1.00	0.00
7/16	0	56	67.5	8	30	0.51	0.80	67.5	1.1	1.475	1953	6999	0.0	0.2	0.87	0.00
7/31	2	56	67.5	8	30	0.74	0.80	90.0	2.8	2.000	2648	6999	0.0	0.1	1.00	0.00
8/15	2	56	90.0	8	30	0.74	0.80	90.0	2.8	2.000	2648	6999	0.0	0.1	0.87	0.00
8/30	0	56	90.0	8	30	0.74	0.99	90.0	2.8	2.000	2648	5476	0.0	0.4	1.00	0.00
9/15	1	56	0.0	4	13	0.24	0.52	0.0	4.0	1.01	1337	1295	0.0	0.2	0.86	0.00
9/22	0	56	0.0	1	18	0.83	0.49	0.0	4.0	1.01	1337	29	22.6	0.2	1.00	0.05
9/29	0	56	0.0	4	13	0.24	0.52	0.0	4.0	1.01	1337	5	4.7	0.2	1.00	0.01
10/4	1	56	0.0	8	30	0.24	0.99	0.0	3.3	1.01	1337	5	10.6	1.1	0.96	0.12
10/14	0	56	0.0	8	30	0.24	0.99	0.0	3.3	1.01	1337	5	10.6	1.1	0.96	0.12



RUSLE2 Worksheet Erosion Calculation Record

Info: Alfalfa Nov'09 to Oct'10

Tract #: 1579

Owner name: DOMINGUEZ DAIRY #1

Field name: D-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9

Soil: Pa PAJARITO FINE SANDY LOAM\PAJARITO fine sandy 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. Multi-year Rotation Templates\Alfalfa- Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.032	

Dairy Annual Nutrient Manager

Date	11/25/2009		Dairy Extension Program <small>by NMSU-DE</small>	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		
Dairy	Dominguez Dairy						
Crop_Year	2010-2011						
Field_ID	D-2					N Loss	0%
Area (ac)	85.2				Goal/Real	Nutrient Needed	
	Month - Month	Crop	Unit	Yield		N P	
1 st Crop	Nov'10-May'11	Oats for green chop (boot to early bloom 69%)	t/ac	20		38355 7160	
2 nd Crop	Jun'11-Oct'11	Alfalfa, for hay	t/ac	1		4294 402	
						0 0	
Total		Nutrient Needed				42,648 7,583	
						Soil Analyses	
Texture by Feel	Sandy Clay					N P	
Nutrient Available in Soil			lb/ac			82 74.23	
	Nutrient Still Needed					37,366 1,238	
						Effluent Analyses	
						N P	
Effluent Manure Application	NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712		1517 689	
			ac-in			0 0	
			ac-in			0 0	
	Nutrient Still Needed					35,849 550	
						Manure Analyses	
						N P	
Dry Manure Application	NM Dairy Cattle Net from J.S. 590 L&MLA		t/ac	30		35784 7821	
			t/ac			0 0	
			t/ac			0 0	
	Nutrient Still Needed					65 -7,272	
						Fertilizer Content	
						N P	
Chemical Fertilizers Applied			lb/ac			0 0	
			lb/ac			0 0	
			lb/ac			0 0	
	Annual Nutrient Balance					65 -7,272	

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy		Acres: 85.2		Date: 11/2/2009		Field ID: D-2					
Application Information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Oat Silage			Needed for field (acin): 24.282							
	Liquid Applied: 0.285		Acin/ac	(gal): 659,256							
	Solids Applied: 30		ton/ac	Needed for field (tons): 2556							
	Liquid Loads Applied: 1000gal/ac			Loads needed for field:							
Nutrient Content of Organic Material											
Solid-Lab Report	% Moisture		TKN (%) (dry)		NH₄-N (ppm) (dry)		P₂O₅ (%) (dry)		K₂O (%) (dry)		
Fill in Lab data:				2.3		89		0.5			
Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH₄-N (lbs/ton)		P₂O₅ (lbs/wet ton)		K₂O (lbs/wet ton)		
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test	
Dairy Cattle (30% wet wt) NM (Aver: ▼)		30	0	0	46	0.0	0.2	0	9	35	0
Liquid-Lab Report	NH₃-N (mg/L)		TKN (mg/L)		NO₃-N (mg/L)		Tot-PO₄ (mg/L)		K (mg/L)		
Fill in Lab data:				205		0.17					
Liquid	% Moisture		TKN (lbs/acin)		NH₄-N (lbs/acin)		P₂O₅ (lbs/acin)		K₂O (lbs/acin)		
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test	
NM Dairy Ponds (99-99.4% liq.) ▼		99		0	46	0	26	35	0	256	0
			TKN (lbs/1000gal)		NH₄-N (lbs/1000gal)		P₂O₅ (lbs/1000gal)		K₂O (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			NH₄-N Remaining		
Broadcast-incorporated in 4 days ▼			Warm Dry ▼			60 %			0 (lbs/ton) NH ₄ -N		
Liquid (type of application)			Type of Climate			Percent Remaining			20.8 (lbs/acin) NH₄-N		
Surface Irr w/o incorp & w/crop canopy ▼			Warm Dry ▼			80 %			0.0 (lbs/1000gal) NH ₄ -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)		P₂O₅ (lbs/ton)		K₂O (lbs/ton)				
			16		7		28				
Liquid			Organic N (lbs/acin)		P₂O₅ (lbs/acin)		K₂O (lbs/acin)				
			8		26		205				
			Organic N (lbs/1000gal)		P₂O₅ (lbs/1000gal)		K₂O (lbs/1000gal)				
			0.00		0.0		0.0				
Denitrification of N											
Organic Matter Content (%)			Soil Drainage Class			Percent Remaining (%)					
<2 ▼			Well Drained ▼			88					
Summary of Nutrients											
Net by Form as applied		lbs/1000gal		lbs/ac in		lbs/ton					
N		0.0		25		14					
P ₂ O ₅		0.0		26		7					
K ₂ O		0.0		205		28					
Total Nutrients Applied (net to the field)		All Forms N (lbs/ac)		P₂O₅ (lbs/ac)		K₂O (lbs/ac)					
		435.3		214.5		905.0					

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy		Acres: 85.2	Date: 11/2/2009	Field ID: D-2	
Application information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Alfalfa		Needed for field (acin): 36.3804		
	Liquid Applied: 0.427	Acin/ac	(gal): 987,728		
	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 ₂ O ₅ (%) (dry)		K ₂ O (%) (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 ₂ O ₅ (lbs/wet ton)		K ₂ O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM) ▼		0		0		0.0		0		0
Liquid-Lab Report	NH ₃ -N (mg/L)		TKN (mg/L)		NO ₃ -N (mg/L)		Tot-PO ₄ (mg/L)		K (mg/L)	
Fill in Lab data:										
				205		0.17				
Liquid	% Moisture		TKN (lbs/acin)		NH ₄ -N (lbs/acin)		P ₂ O ₅ (lbs/acin)		K ₂ O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.) ▼	99		0	46	0	26	35	0	256	0
			TKN (lbs/1000gal)		NH ₄ -N (lbs/1000gal)		P ₂ O ₅ (lbs/1000gal)		K ₂ O (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) NH ₄ -N
Liquid (type of application)	Type of Climate	Percent Remaining	NH ₄ -N Remaining
Surface Irr w/o incorp & w/crop canopy ▼	Warm Dry ▼	80 %	20.8 (lbs/acin) NH ₄ -N 0.0 (lbs/1000gal) NH ₄ -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 ₂ O ₅ (lbs/ton)	K ₂ O (lbs/ton)	
	0	0	0	
Liquid	Organic N (lbs/acin)	P ₂ O ₅ (lbs/acin)	K ₂ O (lbs/acin)	
	8	26	205	
	Organic N (lbs/100gal)	P ₂ O ₅ (lbs/1000gal)	K ₂ O (lbs/1000gal)	
	0.00	0.0	0.0	

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	25	0
P ₂ O ₅	0.0	26	0
K ₂ O	0.0	205	0
Total Nutrients Applied <small>(net to the field)</small>	All Forms N (lbs/ac)	P ₂ O ₅ (lbs/ac)	K ₂ O (lbs/ac)
	10.9	11.2	87.4



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.

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

Nitrogen	Phosphorus	Potassium	Nitrogen	Phosphorus	Potassium
12.2508	2.1046	11.6554	245.0165	42.0916	233.1076

Nutrients removed in harvested part (lb/ton) at 20 ton yield level and 85.2 acres.

Nitrogen	Phosphorus	Potassium
20875.4093	3586.2068	19860.7649

Element-Fertilizer Equivalents

Average NPK Percentages

[«Contents»](#)

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Nutrient Report Summary for the Crop(s) Selected

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

[Return to the crop list and make a new selection of crop\(s\)](#)

Alfalfa, for hay
Forage

Medicago sativa

Plant part harvested: Aboveground biomass

Crop yield unit: ton

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

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

Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939

Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939

Nutrients removed in harvested part (lb/ton) at 1 ton yield level and 85.2 acres.

Nitrogen	Phosphorus	Potassium
4293.5293	402.2855	3262.6423

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico							
Client Name:	Dominguez Dairy		Field(s):	D-2		Date:	Nov'10
Planner:	Chet Wyant		Location:	DonaAna		Crop:	Oat Silage
Soil Permeability (in/hr):	0.75		Slope (%):	0.5		Planned/Exist.:	planned
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.						Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm		
			X			2	
Phosphorus (P ₂ O ₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-60 lbs/ac P ₂ O ₅	>60-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O 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		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					0	
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils		
			X			3	
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed		
	X					0	
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer		
			X			3	
P Hazard Class:	Medium		Total Index Points:			20.0	
Phosphorus Application Classification:			N Based				
Notes:							
This evaluation has a Medium P hazard class and the nutrient application can be based on N.							
Comments: Soil Erosion = (WEQ 11/10 to 5/11) 0.25 t/ac + (RUSLE 2) 0.15 t/ac = 0.40 t/ac							

PHOSPHORUS INDEX WORKSHEET for New Mexico						
Client Name: Dominguez Dairy		Field(s): D-2		Date: Jun'11		
Planner: Chet Wyant		Location: DonaAna		Crop: Alfalfa		
Soil Permeability (in/hr): 0.75		Slope (%): 0.5		Planned/Exist.: planned		
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
			X			2
Phosphorus (P₂O₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-90 lbs/ac P ₂ O ₅	>90-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O 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		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					0
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:		21.5
Phosphorus Application Classification:				N Based		
Notes:						
This evaluation has a Medium P hazard class and the nutrient application can be based on N.						
Comments: Soil Erosion = (WEQ 6/11 to 10/11) 0.52 t/ac + (RUSLE 2) 0.032 t/ac = 0.55 t/ac						

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin:0;">Irrigation Water Management</h2> <h3 style="margin:0;">Conservation Practice Job Sheet 449</h3> <p style="margin:0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>
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Client: <u>Dominguez Dairy</u>	Tract: <u>1579</u>
Planner: <u>Chet Wyant</u>	Field(s) No.: <u>D-2</u>
Current Land Use: <u>Oat Silage / Alfalfa</u>	Total Acres: <u>85.2</u>
Date: <u>11/20/2009</u>	Date to apply: <u>Nov'10</u>

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

Purposes (check all that apply)

- | | | |
|--|---|--|
| <input type="checkbox"/> Manage soil moisture to improve crops | <input checked="" type="checkbox"/> Optimize use of water | <input checked="" type="checkbox"/> Minimize Irrigation Erosion |
| <input type="checkbox"/> Decrease non-point source pollution | <input type="checkbox"/> Manage salt in the root zone | <input type="checkbox"/> 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: <u>Pajarito FSL; 144-52</u>	Intake Family (in/hr):	<u>0.75</u>
--	------------------------	-------------

Soil Interpretations for Irrigation

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	4.0	50%	2.0	1.4
Alfalfa, hay, southern; Las Cruces	Deep	4.0	5.0	50%	2.5	2.0

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

Crop:	Oat, hay; Deming	Total Irrigation Needed:	9.4 ac in/ac		
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar	26	2.3	Sep		0.0
Apr	12	5.0	Oct		0.0
May	28	2.1	Nov		0.0
Jun		0.0	Dec		0.0

Crop:	Alfalfa, hay, southern; Las Cruces	Total Irrigation Needed:	47.7 ac in/ac		
Month	Est. Frequency (days between irr.)	In/Mo	Month	Est. Frequency (days between irr.)	In/Mo
Jan		0.0	Jul	8	9.7
Feb		0.0	Aug	10	7.7
Mar	>1 Mo.	1.6	Sep	13	5.7
Apr	18	4.2	Oct	28	2.7
May	11	6.9	Nov		0.0
Jun	8	9.3	Dec		0.0

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled	System Efficiency (%):		80%
System Capacity (Ditch/Pump/Well):	6000	GPM		
Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Oat, hay; Deming	3	3.00	0.17	System meets CU for crop
Alfalfa, hay, southern; Las Cruces	16	3.00	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:	<u>Do you Deming</u>	Date:	<u>11-23-2009</u>
Conservationist:	<u>[Signature]</u>	Date:	<u>11-23-09</u>
Completed by:	<u>[Signature]</u>	Date:	<u> </u>



RUSLE2 Worksheet Erosion Calculation Record

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

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9

Soil: Pa PAJARITO FINE SANDY LOAM\PAJARITO fine sandy 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)	0.12	
b. Multi-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.032	

Year 3

Dairy Annual Nutrient Manager

Date	11/25/2009		Dairy Extension Program <small>www.nmsu.edu</small>	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED	[REDACTED]	
Dairy	Dominguez Dairy				N Loss	0%	
Crop_Year	2011-2012				Goal/Real	Nutrient Needed	
Field_ID	D-2						
Area (ac)	85.2						
	Month - Month	Crop	Unit	Yield		N	P
1 st Crop	Nov'11-Oct'12	Alfalfa, for hay	t/ac	12		51522	4827
2 nd Crop						0	0
						0	0
Total		Nutrient Needed				51,522	4,827
						Soil Analyses	
Texture by Feel	Sandy Clay					N	P
Nutrient Available in Soil			lb/ac			62	74.23
	Nutrient Still Needed					46,240	-1,497
						Effluent Analyses	
						N	P
Effluent Manure Application	NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712		1517	689
			ac-in			0	0
			ac-in			0	0
	Nutrient Still Needed					44,723	-2,185
						Manure Analyses	
						N	P
Dry Manure Application			t/ac			0	0
			t/ac			0	0
			t/ac			0	0
	Nutrient Still Needed					44,723	-2,185
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied			lb/ac			0	0
			lb/ac			0	0
			lb/ac			0	0
	Annual Nutrient Balance					44,723	-2,185

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy		Acres: 85.2	Date: 11/2/2009	Field ID: D-2						
Application information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Alfalfa		Needed for field (acin): 60.6624							
	Liquid Applied: 0.712	Acin/ac	(gal): 1,646,984							
	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)	NH₄-N (ppm) (dry)	P₂O₅ (%) (dry)	K₂O (%) (dry)					
Fill in Lab data:										
Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		NH₄-N (lbs/ton)		P₂O₅ (lbs/wet ton)		K₂O (lbs/wet ton)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
Beef (DM) ▼	0		0		0.0		0		0	
Liquid-Lab Report	NH₃-N (mg/L)		TKN (mg/L)		NO₃-N (mg/L)		Tot-PO₄ (mg/L)		K (mg/L)	
Fill in Lab data:										
Liquid	% Moisture		TKN (lbs/acin)		NH₄-N (lbs/acin)		P₂O₅ (lbs/acin)		K₂O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.) ▼	99		0	46	0	26	35	0	256	0
			TKN (lbs/1000gal)		NH₄-N (lbs/1000gal)		P₂O₅ (lbs/1000gal)		K₂O (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			NH₄-N Remaining	
Broadcast-incorporated in 4 days ▼			Warm Dry ▼			60 %			0 (lbs/ton) NH ₄ -N	
Liquid (type of application)			Type of Climate			Percent Remaining			NH₄-N Remaining	
Surface Irr w/o incorp & w/crop canopy ▼			Warm Dry ▼			80 %			20.8 (lbs/acin) NH ₄ -N	
						80 %			0.0 (lbs/1000gal) NH ₄ -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)		P₂O₅ (lbs/ton)		K₂O (lbs/ton)			
			0		0		0			
Liquid			Organic N (lbs/acin)		P₂O₅ (lbs/acin)		K₂O (lbs/acin)			
			8		26		205			
			Organic N (lbs/1000gal)		P₂O₅ (lbs/1000gal)		K₂O (lbs/1000gal)			
			0.00		0.0		0.0			
Denitrification of N										
Organic Matter Content (%)			Soil Drainage Class <small>(See Survey Information)</small>			Percent Remaining (%)				
<2 ▼			Well Drained ▼			88				
Summary of Nutrients										
Net by Form as applied		lbs/1000gal	lbs/ac in		lbs/ton					
N		0.0	25		0					
P ₂ O ₅		0.0	26		0					
K ₂ O		0.0	205		0					
Total Nutrients Applied (net to the field)		All Forms N (lbs/ac)		P₂O₅ (lbs/ac)			K₂O (lbs/ac)			
		18.1		18.7			145.7			



Nutrient Report Summary for the Crop(s) Selected

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

[Return to the crop list and make a new selection of crop\(s\)](#)

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

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

Nutrients removed in harvested part (lb/acre) at 12 ton yield level.

Nitrogen	Phosphorus	Potassium	Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939	604.7224	56.6599	459.5271

Nutrients removed in harvested part (lb/ton) at 12 ton yield level and 85.2 acres.

Nitrogen	Phosphorus	Potassium
51522.3513	4827.4263	39151.7079

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico							
Client Name:	Dominguez Dairy		Field(s):	D-2		Date:	Jun'11
Planner:	Chet Wyant		Location:	DonaAna		Crop:	Alfalfa
Soil Permeability (in/hr):	0.75		Slope (%):	0.5		Planned/Exist.:	planned
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.						Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm		
			X			2	
Phosphorus (P ₂ O ₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-80 lbs/ac P ₂ O ₅	>80-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O 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		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 50-200 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					0	
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	>85-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer		
			X			3	
P Hazard Class:	Medium			Total Index Points:		20.0	
Phosphorus Application Classification:				N Based			
Notes:							
This evaluation has a Medium P hazard class and the nutrient application can be based on N.							
Comments: Soil Erosion = (WEQ 6/11 to 10/11) 0.52 t/ac + (RUSLE 2) 0.032 t/ac = 0.55 t/ac							

 <p>NRCS Natural Resources Conservation Service</p>	<h2 style="margin:0;">Irrigation Water Management</h2> <h3 style="margin:0;">Conservation Practice Job Sheet 449</h3> <p style="margin:0;">Natural Resources Conservation Service (NRCS) Jan, 2006</p>																																																																																												
<p>Client: <u>Dominguez Dairy</u> Tract: <u>1579</u></p> <p>Planner: <u>Chet Wyant</u> Field(s) No.: <u>D-2</u></p> <p>Current Land Use: <u>Alfalfa</u> Total Acres: <u>85.2</u></p> <p>Date: <u>11/20/2009</u> Date to apply: <u>Nov'11</u></p>																																																																																													
<p>See the Conservation Plan map for the location of the field(s) to applying IWM.</p>																																																																																													
<p>Purposes (check all that apply)</p> <p> <input type="checkbox"/> Manage soil moisture to improve crops <input checked="" type="checkbox"/> Optimize use of water <input checked="" type="checkbox"/> Minimize Irrigation Erosion <input type="checkbox"/> Decrease non-point source pollution <input type="checkbox"/> Manage salt in the root zone <input type="checkbox"/> Manage air, soil, or plant microclimate </p>																																																																																													
<p>Conditions where practice applies</p> <p>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).</p>																																																																																													
<p>Soil (Series, Texture, and Map Unit) <i>Select the soil to manage for:</i></p> <p>Critical soil to manage: <u>Pajarito FSL; 144-52</u> Intake Family (in/hr): <u>0.75</u></p>																																																																																													
<p>Soil Interpretations for Irrigation</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Crop Name</th> <th style="width:15%;">Rooting Depth</th> <th style="width:15%;">Moisture Replacement Depth (ft)</th> <th style="width:10%;">Water Holding Capacity (in)</th> <th style="width:10%;">Mgt Allowed Depletion (MAD) (%)</th> <th style="width:10%;">Net Water to Replace (in)</th> <th style="width:10%;">Time Needed to Infiltrate (hrs)</th> </tr> </thead> <tbody> <tr> <td>Alfalfa, hay, southern; Las Cruces</td> <td>Deep</td> <td>4.0</td> <td>5.0</td> <td>50%</td> <td>2.5</td> <td>2.0</td> </tr> <tr> <td> </td> </tr> <tr> <td> </td> </tr> </tbody> </table>		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	5.0	50%	2.5	2.0																																																																														
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Mar		0.0	Sep		0.0
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Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled		System Efficiency (%):		80%
System Capacity (Ditch/Pump/Well):	6000		GPM		
Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation	
Alfalfa, hay, southern; Las Cruces	16	3.00	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:	<i>Isaac Dominguez</i>	Date:	11-23-2009
Conservationist:	<i>[Signature]</i>	Date:	11-23-09
Completed by:	_____	Date:	_____



RUSLE2 Worksheet Erosion Calculation Record

Info: Alfalfa Nov'11 to Oct'12

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9

Soil: Pa PAJARITO FINE SANDY LOAM\PAJARITO fine sandy 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. Multi-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.032	

Year 4

Dairy Annual Nutrient Manager

Date	11/25/2009		Dairy Extension Program <small>UNIVERSITY OF NEBRASKA-LINCOLN</small>	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED	
Dairy	Dominguez Dairy				N Loss	0%
Crop_Year	2012-2013				Goal/Real	Nutrient Needed
Field_ID	D-2					
Area (ac)	85.2					
	Month - Month	Crop	Unit	Yield	N	P
1 st Crop	Nov'12-Oct'13	Alfalfa, for hay	t/ac	12	51522	4827
2 nd Crop					0	0
					0	0
Total		Nutrient Needed			51,522	4,827
Soil Analyses						
Texture by Feel	Sandy Clay				N	P
Nutrient Available in Soil			lb/ac		62	74.23
		Nutrient Still Needed			46,240	-1,497
Effluent Analyses						
Effluent Manure Application	NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	0.712	1517	689
			ac-in		0	0
			ac-in		0	0
		Nutrient Still Needed			44,723	-2,185
Manure Analyses						
Dry Manure Application			t/ac		0	0
			t/ac		0	0
			t/ac		0	0
		Nutrient Still Needed			44,723	-2,185
Fertilizer Content						
Chemical Fertilizers Applied			lb/ac		0	0
			lb/ac		0	0
			lb/ac		0	0
		Annual Nutrient Balance			44,723	-2,185

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name: Dominguez Dairy		Acres: 85.2	Date: 11/2/2009	Field ID: D-2	
Application information <i>(enter the units that will be or has been applied to the field):</i>	Crop Rotation: Alfalfa		Needed for field (acin): 60.6624		
	Liquid Applied: 0.712	AcIn/ac	(gal): 1,646,984		
	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)		NH₄-N (ppm) (dry)	
Fill in Lab data:					
Solid Book Values (select even if test values are used)	% Moisture		TKN (lbs/wet ton)		
	Book	Test	Book	Test	
Beef (DM) ▼		0	0	0.0	
Liquid-Lab Report	NH₃-N (mg/L)	TKN (mg/L)		NO₃-N (mg/L)	
Fill in Lab data:					
		205		0.17	
Liquid	% Moisture		TKN (lbs/acin)		
	Book	Test	Book	Test	
NM Dairy Ponds (99-99.4% liq.) ▼	99		0 46	0 26	
		TKN (lbs/1000gal)		NH₄-N (lbs/1000gal)	
		Book	Test	Book	
		0.0		0.0	
				P₂O₅ (lbs/1000gal)	
				Book	
				0.0	
				K₂O (lbs/1000gal)	
				Book	
				0.0	
N Volatilization					
Solid (type of application)		Type of Climate		Percent Remaining	
Broadcast-incorporated in 4 days ▼		Warm Dry ▼		60 %	
Liquid (type of application)		Type of Climate		Percent Remaining	
Surface Irr w/o incorp & w/crop canopy ▼		Warm Dry ▼		80 %	
				20.8 (lbs/acin) NH4-N	
				0.0 (lbs/1000gal) NH4-N	
Mineralization of N, P, & K					
Manure Source	Percent Nutrient Available the 1st Year				
	Organic N	P	K		
Beef & Dairy Solid w/o bedding ▼	35 %	75 %	80 %	Solid Source	
Lagoon or diluted Pond ▼	40 %	75 %	80 %	Liquid Source	
Solid	Organic N (lbs/ton)	P₂O₅ (lbs/ton)	K₂O (lbs/ton)		
	0	0	0		
Liquid	Organic N (lbs/acin)	P₂O₅ (lbs/acin)	K₂O (lbs/acin)		
	8	26	205		
	Organic N (lbs/100gal)	P₂O₅ (lbs/1000gal)	K₂O (lbs/1000gal)		
	0.00	0.0	0.0		
Denitrification of N					
Organic Matter Content (%)	Soil Drainage Class (See Survey Information)		Percent Remaining (%)		
<2 ▼	Well Drained ▼		88		
Summary of Nutrients					
Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton		
N	0.0	25	0		
P ₂ O ₅	0.0	26	0		
K ₂ O	0.0	205	0		
Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P₂O₅ (lbs/ac)	K₂O (lbs/ac)		
	18.1	18.7	145.7		



Nutrient Report Summary for the Crop(s) Selected

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

[Return to the crop list and make a new selection of crop\(s\)](#)

Alfalfa, for hay
Forage

Medicago sativa

Plant part harvested: Aboveground biomass

Crop yield unit: ton

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

Nutrients removed in harvested part (lb/acre) at 12 ton yield level.

Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939

Nitrogen	Phosphorus	Potassium
604.7224	56.6599	459.5271

Nutrients removed in harvested part (lb/ton) at 12 ton yield level and 85.2 acres.

Nitrogen	Phosphorus	Potassium
51522.3513	4827.4263	39151.7079

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	Dominguez Dairy	Field(s):	D-2	Date:	Nov'12	
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa	
Soil Permeability (in/hr):	0.75	Slope (%):	0.5	Planned/Exist.:	planned	
Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
			X			2
Phosphorus (P₂O₅) Application Rate	None Applied	<30 lbs/ac P ₂ O ₅	30-90 lbs/ac P ₂ O ₅	>90-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O 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					0
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>8 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 80% Dry Matter as Supplemental Feed	Pasture 80 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
			X			3
P Hazard Class:	Low		Total Index Points:		13.0	
Phosphorus Application Classification:			N Based			

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

Comments: Soil Erosion = (WEQ 11/12 to 10/13) .08 t/ac + (RUSLE 2) 0.032 t/ac = 0.11 t/ac

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

Type of System:	Flood, controlled		System Efficiency (%):		80%
System Capacity (Ditch/Pump/Well):	6000		GPM		
Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation	
Alfalfa, hay, southern; Las Cruces	16	3.00	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:	<i>Isabel Dominguez</i>	Date:	<i>11-23-2009</i>
Conservationist:	<i>[Signature]</i>	Date:	<i>11-23-09</i>
Completed by:	_____	Date:	_____



RUSLE2 Worksheet Erosion Calculation Record

Info: Alfalfa Nov'12 to Oct'13

Tract #: 1579

Owner name: DOMINGUEZ DAIRY

Field name: D-2

Location: New Mexico\DonaAna County\NM_Dona Ana R 9

Soil: Pa PAJARITO FINE SANDY LOAM\PAJARITO fine sandy 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. Multi-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.032	