NPDES State of New Mexico General Permit Application
Concentrated Animal Feeding Operation (CAFO)

For

River Valley Dairy, LLC

NMG010023

Submitted to:

US EPA Region 6
Water Quality Protection Division
Planning and Analysis Branch (6WQ-N)
1400 Ross Ave.
Dallas, TX 75202-2733

Submitted by:

River Valley Dairy, LLC
PO Box 1929
Anthony, NM 88021

November 2009

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	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

Field B	NMSU Annual Nutrient Manager Calculation
(LAA-B)	590 Nutrient Mgt. Jobsheet for Organic & Manure Land Application
	USDA-NRCS PLANTS Crop Nutrient Tool
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	NRCS Phosphorus Index Worksheet for New Mexico
	NRCS Irrigation Water Mgt. Conservation Practice Jobsheet 449
	NRCS - WEQ Calculations
	NRCS RUSLE2 Worksheet Erosion Calculation Record
Field D	NMSU Annual Nutrient Manager Calculation
(LAA-C)	590 Nutrient Mgt. Jobsheet for Organic & Manure Land Application
	USDA-NRCS PLANTS Crop Nutrient Tool
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	NRCS Irrigation Water Mgt. Conservation Practice Jobsheet 449
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Site Plan - Production Area
Site Plan - With Field Map
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NRCS Soil Map

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

15		TA	C
F	NMG010023		D
1	2 — 13	14	15

LABEL ITEMS	
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)	16	X 17	18	B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)	X 19	20	X 21
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	22	X 23	24	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)	25	X 26	27
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	28	X 29	30	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	31	X 32	33
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)	34	X 35	36	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	37	X 38	39
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)	40	X 41	42	J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)	43	X 44	45

III. NAME OF FACILITY

C		
1	SKIP	River Valley Dairy, LLC
15	16 – 29	30 — 69

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
C 2 Bonestroo, Bruce	(575) 233-2061
15 16 — 45	46 48 49 51 52 55

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX	
C 3 P. O. Box 1929	
15 16 — 45	

B. CITY OR TOWN	C. STATE	D. ZIP CODE
C 4 Anthony	NM	88021
15 16 — 40	41 42	47 51

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	
C 5 1400 Le Chuga Road	
15 16 — 45	

B. COUNTY NAME
Dona Ana
46 — 70

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
C 6			
15 16 — 40	41 42	47 51	52 54

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
0241 (specify) Dairy Farm	(specify)

C. THIRD	D. FOURTH
(specify)	(specify)

VIII. OPERATOR INFORMATION

A. NAME: River Valley Dairy, LLC

B. Is the name listed in Item VIII-A also the owner? ☑ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

P (specify)

D. PHONE *(area code & no.)*: A (575) 233-2061

E. STREET OR P.O. BOX: P. O. Box 1929

F. CITY OR TOWN: Anthony

G. STATE: NM

H. ZIP CODE: 88021

IX. INDIAN LAND: Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	D. PSD *(Air Emissions from Proposed Sources)*
9 N NMG010023	9 P
B. UIC *(Underground Injection of Fluids)*	**E. OTHER** *(specify)*
9 U	9 DP-167 (specify) NMED Ground Water Permit
C. RCRA *(Hazardous Wastes)*	**E. OTHER** *(specify)*
9 R	9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

Milk Production

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Bruce Bonestroo, Member	B Bonestroo	11-23-09

COMMENTS FOR OFFICIAL USE ONLY

EPA Form 3510-1 (8-90)

Form Approved
OMB No. 2040-0250
Approval expires 12-15-05

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
NMG010023

FORM 2B NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATIONS FOR PERMIT TO DISCHARGE WASTEWATER
CONCENTRATED ANIMAL FEEDING OPERATIONS AND AQUATIC ANIMAL PRODUCTION FACILITIES

I. GENERAL INFORMATION

Applying for: Individual Permit ☐ Coverage Under General Permit ☒

A. TYPE OF BUSINESS	B. CONTACT INFORMATION	C. FACILITY OPERATION STATUS
☒ 1. Concentrated Animal Feeding Operation (complete items B, C, D, and Section II) ☐ 2. Concentrated Aquatic Animal Production Facility (complete items B, C, and section III)	Owner/or Operator Name: River Valley Dairy, LLC Telephone: (575) 233-2061 Address: P. O. Box 1929 Facsimile: (575) 233-3000 City: Anthony State: NM Zip Code: 88021	☒ 1. Existing Facility ☐ 2. Proposed Facility

D. FACILITY INFORMATION

Name: River Valley Dairy, LLC Telephone: (575) 233-2061
Address: PO Box 1929 Facsimile: (575) 233-3000
City: Anthony State: NM Zip Code: 88021
County: Dona Ana Latitude: 32 06'33.00"N Longitude: 106 38'23.00"W

If contract operation: Name of Integrator: na
Address of Integrator: na

II. CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS

A. TYPE AND NUMBER OF ANIMALS

1. TYPE	2. ANIMALS: NO. IN OPEN CONFINEMENT	2. ANIMALS: NO. HOUSED UNDER ROOF
☒ Mature Dairy Cows	3000	
☒ Dairy Heifers	1500	
☐ Veal Calves		
☐ Cattle (not dairy or veal)		
☐ Swine (55 lbs. or over)		
☐ Swine (under 55 lbs.)		
☐ Horses		
☐ Sheep or Lambs		
☐ Turkeys		

B. Manure, Litter and/or Wastewater Production and Use

1) How much manure, litter and wastewater is generated annually by the facility? 14,48 tons 39.21ac- gallons

2) If land applied how many acres of land under the control of the applicant are available for applying the CAFOs manure/litter/wastewater? 97.1 acres

3) How many tons of manure or litter, or gallons of wastewater produced by the CAFO will be transferred annually to other persons? tons/gallons (*circle one*) 0-14,487 tons
0-39.21 ac-ft

❑ Chickens (Broilers)		
❑ Chickens (Layers)		
❑ Ducks		
❑ Other Specify Baby Calves	1,000	
3. TOTAL ANIMALS		

C. ☒ TOPOGRAPHIC MAP

D. TYPE OF CONTAINMENT, STORAGE AND CAPACITY

1. Type of Containment	Total Capacity (in gallons)
❑ Lagoon	
❑ Holding Pond	
❑ Evaporation Pond	
☒ Other: Specify Runoff Control Pond	10.81 ac-ft net 1' freeboard

2. Report the total number of acres contributing drainage: 48.39 acres

3. Type of Storage	Total Number of Days	Total Capacity (gallons/tons)
❑ Anaerobic Lagoon		
☒ Storage Lagoon	90	9.65 acft net 1.2' freeboard
❑ Evaporation Pond		
❑ Aboveground Storage Tanks		
❑ Belowground Storage Tanks		
❑ Roofed Storage Shed		
❑ Concrete Pad		
❑ Impervious Soil Pad		
❑ Other: Specify _____		

E. NUTRIENT MANAGEMENT PLAN

Note: Effective February 27, 2009, a permit application is not complete until a nutrient management plan is submitted to the Permitting Authority.

1. Please indicate whether a nutrient management plan has been included with this permit application. ☒ Yes ☐ No

2. If no, please explain:

3. Is a nutrient management plan being implemented for the facility? ☒ Yes ☐ No

4. The date of the last review or revision of the nutrient management plan. Date: 11/24/09

5. If not land applying, describe alternative use(s) of manure, litter, and or wastewater:

Part to all dry manure is removed to an unrelated off-site location, part to all process and runoff water is transfered to an unrelated off-site location or the manure and wastewater is used on crop land on-site.

Form Approved
OMB No. 2040-0250
Approval expires 12-15-05

F. LAND APPLICATION BEST MANAGEMENT PRACTICES
Please check any of the following best management practices that are being implemented at the facility to control runoff and protect water quality:

☒ Buffers ☒ Setbacks ☒ Conservation tillage ☐ Constructed wetlands ☐ Infiltration field ☐ Grass filter ☒ Terrace

III. CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY CHARACTERISTICS

A. For each outfall give the maximum daily flow, maximum 30-day flow, and the long-term average flow.

1. Outfall No.	2. Flow (*gallons per day*)		
	a. Maximum Daily	b. Maximum 30 Day	c. Long Term Average

B. Indicate the total number of ponds, raceways, and similar structures in your facility.

1. Ponds	2. Raceways	3. Other

C. Provide the name of the receiving water and the source of water used by your facility.

1. Receiving Water	2. Water Source

D. List the species of fish or aquatic animals held and fed at your facility. For each species, give the total weight produced by your facility per year in pounds of harvestable weight, and also give the maximum weight present at any one time.

1. Cold Water Species			2. Warm Water Species		
a. Species	b. Harvestable Weight (*pounds*)		a. Species	b. Harvestable Weight (*pounds*)	
	(1) Total Yearly	(2) Maximum		(1) Total Yearly	(2) Maximum

E. Report the total pounds of food during the calendar month of maximum feeding.

1. Month	2. Pounds of Food

IV. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. Name and Official Title (*print or type*)	B. Phone No. (575) 233-2061
Bruce Bonestroo, Member	
C. Signature	D. Date Signed 11-23-09

1. Signatures: Nutrient Management Plan (NMP)

Signature for River Valley Dairy, LLC

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

Bruce Bonestroo, Member — Date: 11-23-09

Signature for the Nutrient Management Planner

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

Chester Wyant — Date: 11-23-09

CNMP Planners in New Mexico
(current as of November 2009)

AREA	NRCS Planner	TSP Planner (potentially statewide)	Planner and New Mexico Professional Engineer
East	Rachel Armstrong-m,l,n,c	Mary Barron-m,l,n	
	Matt Wiseman-m,l,n	Mike Smith	Brad Wieck-m,l,n
	Mark Lewis-l,n	Kyle Keim-l,n,c	
	Johnna Wier-l,n	Chet Wyant –l	
	Sean Lewis - l,n		
	Dean Bruce – l, n	Jay Lazarus	
NW	Mark McKinley - m	John McCatharn-m,l,n	John McCatharn-m,l,n
	Hope Tran - m	Reddy Ganta –l	Mark McKinley-m
		Jordan Vaughn	
SE	Tom Marshall-l,n,c	Joy Wagner	
	Raquel Montoya – l, n	Loney Ashcraft-m,l,n	
	Louis King-m,l,n	Carroll French –c	
	Tim Henry-l,n	Brad Wieck-m,l,n	
	Dean Pritchett-m,l,n	Linda Armstrong	
SW	Santiago Misquez-l,n	Gill Sorg –m,l,n	
	Mary Sanchez – l, n	Darrel Reasner-l,n	
	Luis Garcia – l,n		
SO	Linda Scheffe-m,l,n		
	Rudy Garcia – l, n		

M= Manure Handling and Storage Specialist
L = Land Treatment Specialist
N = Nutrient Management Specialist
C = New Mexico Certified Crop Adviser

2. Facility Information

2.1 Identification & Location Information

Facility Name:	River Valley Dairy, LLC		
Contact Person:	Bruce Bonestroo		
Phone No.	(575) 233-2061	Fax No.	(575) 233-3000
Mailing Address:	PO Box 1929, Anthony, NM 88021		
Physical Address:	1400 Le Chuga Rd., Mesquite, NM 88048		
County:	Dona Ana		
GPS Location:	32° 06'33.00"N	106° 38'23.00"W	

2.2 Animal Inventory

This facility is operated as a dairy farm. The facility operates a milking center for milking cows, cooling, storage and shipping milk. There is also a baby calf starting and a replacement heifer growing program at this facility.

Based on an annual average inventory, this facility will have approximately:

Type of Animal	Number	Avg. Weight	Days Confined
Mature Cows	3,000	1325	365
Heifers	1,500	800	365
Baby Calves	1,000	200	365

Based on maximum animal inventory, this facility will have approximately:

Type of Animal	Number	Avg. Weight	Days Confined
Mature Cows	3,250	1325	365
Heifers	1,650	800	365
Baby Calves	1,150	200	365

2.3 Crop Land Inventory

There is 97.1 acres of crop land used at this facility. Refer to Table 2.3 in the Tables and Calculations section of this NMP.

2.4 Waters of the United States

Watershed Basin:	Rio Grande-Caballo
Hydrologic Unit Code #:	13030102

The closest Water of the United States is the Rio Grande River, which is approximately 4,300' away.

2.5 Surface Water Quality

This facility is located such that if a discharge ever does occur no Tier II or Tier III water will be affected. No nearby Tier II or Tier III water was listed at http:/www.epa.gov/npdes/stormwater/msgp.

2.6 Historic Preservation

This facility was constructed prior to April 14, 2003. There was no historic features or structures on the property.

Discharges from this facility do not have the potential to have an effect on historic properties and this facility is not constructing or installing new control measures on the site that will cause subsurface disturbance.

2.7 Endangered Species

All CAFO operations in the counties of Bernalillo, Chavez, Eddy, Sandoval, San Juan and Valencia must develop and implement an Emergency Action Plan (EAP), to minimize the likelihood of a discharge entering Water of the United States occupied by endangered species or their critical habitat (Part III.D.8.).

This EAP requirement does not apply to this facility. This facility is not located in one of the listed counties requiring and endangered species EAP.

2.8 Emergency Action Plan

Refer to the general incident Emergency Action Plan and Safety Precautions (EAP) located in Appendix B. This EAP is taken from the NM-NRCS CNMP program.

3. Storage Capacity

3.1 Storage Capacity; Process Wastewater & Storm Water Runoff

Estimated Total Annual Process Wastewater Production:*	39.21 ac-ft
Estimated Total Annual Storm Water Runoff:	Unknown

* Based on permitted volume under State Permit DP-167

Storage Capacity and Certification of liquid Retention and/or Control Structures

Control Unit	Date Certified	Total* Storage	Required** Storage	Liner Certification	Drainage Area
PWRS	2-25-09	9.65 ac-ft	2.26 ac-ft	2-25-09	na
RCS	2-25-09	10.81 ac-ft	8.88 ac-ft	2-25-09	48.39

* PWRS total storage is net 1.2' of freeboard space; and RCS total storage is net 1' of freeboard.
** Required storage volume is based on 21 days of storage at 35,000 gpd inflow.

Process wastewater from the milking center operations is treated by pumping the water over a screen to separate as much manure solids from the water as possible. This is done to conserve PWRS storage capacity. From the screen, process water is drained to the PWRS for temporary storage. Process water is typically stored in the PWRS for approximately 30 days and is then applied with irrigation water to one of the fields in the crop land program, or transferred off-site. There are crops growing at this facility year round.

The Runoff Control Structure (RCS) is not used for long term storage of runoff storm water. The RCS is designed to capture and detain only storm water runoff. The amount of storm water runoff collected in any given year is not predictable. As soon as possible, but within 14 days, any runoff detained in the RCS is de-watered to the PWRS and then to land application or transferred off-site.

3.2 No-hydrologic connection (liner) documentation

There are retention structure liner certification(s) to document no direct hydrologic connection via ground water to surface water. A copy of the certification is kept with the design and operating records for this facility.

3.3 Dry Manure Storage

Estimated Total Manure Solids Production Annually: 14,487 tons
Refer to the calculation worksheet in the Tables Section of this NMP
The dry manure solids storage capacity is greater than 14,487 tons.

Manure solids removal is not based on a pre-determined annual schedule. Dry manure solids are normally stored within the confinement pens until an off-site removal event is scheduled. At that time the manure is piled in the pen with a wheel loader. At the time of removal, the manure solids are loaded onto haul trucks and taken from the facility. Haul trucks may be weighed and a computerized record made of the removal. Small amounts, such as a pickup or small trailer loads may not be recorded.

At times some corral pens may need to be cleaned and the manure solids stored outside of the pen. In this event, manure solids are stored in an area just west or south of the corral system. Manure solids so stored are removed with other corral pen solids.

3.4 Schedule of De-watering and Manure Solids Removal.

De-watering of the RCS or PWRS is not performed on a pre-scheduled basis.

De-watering of the RCS to the PWRS or to crop land is conducted on an as needed basis. Refer to discussion in Sub-Part 3.1. De-watering of accumulated runoff is conducted as soon as possible after the storm event, normally within 7 to 10 days, but within 14 days.

De-watering of the PWRS is based on crop irrigation throughout the year. De-watering options occur approximately once a month. PWRS and RCS De-watering can occur at any time, except for brief periods of time following heavy precipitation.

Manure solids removal is not based on a pre-determined annual schedule. Refer to Section 3.3.

3.5 Composting

This facility does compost some mortality animals. This is done when local rendering services are not available. Mortality composting is managed in a location and in accordance with procedures designed to prevent contact with Water of the United States.

At this time there is no large scale manure solids composting operation at this facility. If a composting operation is implemented in the future it will be designed to prevent contact with Water of the United States.

3.6 Records/Certifications

A copy of the engineers certification(s) will be kept with the facility design and operation records for the term of this permit or a minimum of 5 years.

At least once in every 5 years, an independent professional or NRCS engineer will

review the liner maintenance record and conduct a site evaluation. A report on the review and evaluation will be prepared and entered into the records.

SOUTHWEST ENGINEERING, INC.

475 Archuleta Road
Las Cruces, New Mexico
88005

Phone 505-526-3381
Fax 505-526-1762

February 25, 2009

Mr. Chet Wyant
Envirocompliance Services, Inc.
212 Tucker Avenue
Clovis, New Mexico 88021

Re: Pond Re-certifications
River Valley Dairy, Mesquite, New Mexico
SEI23240

Dear Mr. Wyant;

At your request, Southwest Engineering, Inc. (SEI) has performed a visual inspection of the Runoff Control Structure and the Process Water Lagoon at the above referenced location. The purpose of this inspection was to re-certify the pond liners. The ponds liners were found to be in compliance with the following being a summary of our findings.

In late 2003 and early 2004, SEI performed a series of construction materials tests, as-built surveys and visual inspections of the two pond areas to determine if they were constructed per the original design. These tests and surveys found that the ponds were constructed per this design (See attached copies of these tests, surveys and inspections). On February 17, 2009, SEI performed a re-inspection of the ponding areas. The following was noted.

Runoff Control Structure – This is a clay lined pond located on the western edge of the dairy. This pond was found to be operating as originally designed with no erosion, fissures or root intrusion in the ponding area.

Process Water Lagoon – This is a geotextile lined pond located to the south of the Runoff Control Structure. This pond was found to be operating as originally designed with no rips or holes in the liner. Previously repaired areas within the pond were noted with all locations found to be properly repaired.

Should you have any questions or require any further information, please do not hesitate to contact our office.

Sincerely;

SOUTHWEST ENGINEERING, INC.

Paul J. Pompeo, P. E.
President

4. Mortality Animals and Veterinary Waste Management

4.1 Mortality Animals

Mortality animals are not disposed in any location that could provide direct access to Water of the United States.

Off-Site Removal: All deceased animals are removed from the facility by a processor. If the processor does not pick them up within 48 hours, they are composted in accordance with NMSU and/or NMED guidelines.

4.2 Veterinary Waste Management

Veterinary Waste is disposed through the services of a medical/veterinary waste disposal service. Waste materials are stored on-site in secure containers until removed from the facility for disposal by the service.

5. Diversion of Clean Water

There is no animal contact, animal waste contact or stored raw material contact with storm water runoff originating outside the facility production area.

Storm water runoff that originates off-site is diverted from entering the facility production area. In cooperation with New Mexico Department of Transportation (NMDOT) and the Dona Ana County Flood Control District, drainage control features have been established to divert and drain off-site storm water runoff around this facility. These control features are maintained as needed by this facility, NMDOT and Dona Ana County Flood Control District to assure proper operation. A site plan is included in Figures Section of this NMP.

Within the CAFO facility clean water from roof areas is not diverted from the surface drainage generated within the production area. This clean water is accounted for in the capacity of the runoff control structure (RCS).

6. Direct Animal Contact with Water of the United States

There is no direct animal contact with Water of the United States at this facility. All animals are confined by steel pipe and cable corral fences and are not allowed to roam freely about the facility property. All animals are confined such that they have no access to Water of the United States. Off-site storm water runoff is not allowed to enter or pass through this facility in any way that allows such runoff to come into contact with confined animals or animal waste.

A Site Plan is provided in the Figures section of this NMP. In addition, a copy of a section of the USGS Topographic map is also included for reference.

7. Chemicals and Other Contaminants Handling

7.1 Storage, use & disposal

All chemical compounds used at this facility are to be stored and used in accordance with manufacturer recommendations. Storage volume is generally limited to immediate use projected for the next 15 to 30 days. Storage is provided in a sheltered area or enclosed storeroom to prevent contact with storm water runoff.

All chemical compounds are to be used in accordance with manufacturer recommendations.

Unused portions of chemicals and empty container are disposed in accordance with manufacturer recommendations and are not disposed in any wastewater retention or runoff control structure.

The normal day-to-day use of any chemical compounds for, including but not limited to, equipment sanitizing, disinfection, animal health or facility cleaning, which by virtue of its use in the operation of this facility may enter wastewater or come in contact with manure or storm water within the production area does not constitute disposal of the product.

7.2 Other Contaminants (SPCC)

Other contaminants of special interest are fuels and lubricants. These materials are to be properly stored and managed in accordance with any applicable spill prevention rules.

Raw inputs or manure stockpiles are stored at this facility so that any storm water that has come in contact with them is captured in the RCS watershed.

7.3 Spill management

Refer to the Emergency Action Plan and Safety Precautions found in Appendix B of this NMP. This Plan is taken from the NM-NRCS CNMP program. The appropriate emergency contact number will be entered and up-dated as needed.

8. Conservation Practices

8.1 Site proximity to Water of US

It is approximately 4,300' from the land application areas at this facility to a Water of the US.

As a protective control, there are off-site run-on diversions maintained by this facility, NMDOT and the county flood control district.

8.2 Application Area Setback Requirements

There is a set back distance of 4.300' between the crop land and Water of the US.

8.3 Buffers, Vegetated Filter Strips

The crop fields are bounded by elevated levies and irrigation ditch berms such that field runoff is prevented. In addition, there are vegetated strips of land, approximately 20' to 30' wide along the west side of Fields A, B & C; and there are strips along the east and west sides of Field D.

8.4 Field Leveling

This facility uses flood irrigation techniques and the fields are leveled prior to planting to assure proper irrigation coverage.

8.5 Nutrient Transport Potential

Nutrient transport potential is minimal. All of the fields are leveled prior to planting. All of the fields are bordered by elevated levies or berms that prevent field runoff. In some areas the top of the levies or berms are 4.5' to 5.0' higher than the field surface.

8.6 Soil Type, Topography & Erosion Potential

This information is located in Appendix A and the Figures section of this NMP.

8.7 Tillage Practices

This information is located on the WEQ Worksheet which is with the field evaluation information in Appendix A. To the extent possible tillage practices are used that will leave crop residue on the surface to help prevent wind erosion.

9. Nutrient Sampling Protocols

9.1 Manure, Dry

Dry manure solids will be sampled annually. Nutrient analysis will be provided to all recipients who remove significant amounts of dry manure from the facility. Persons receiving small amounts, ie pickup load, will be provided a copy of the analysis upon request. The analysis will be used by this facility as a factor in calculating the on-site crop land nutrient application rates.

Sampling Protocol: Manure samples will be collected randomly from throughout the corral system and/or from manure stockpiles. A minimum of 10 sub-samples will be collected and combined to make a single composite sample for analysis.

Nutrient Analysis: Nutrient analysis will, at a minimum, be in accordance with the guideline set forth in Appendix D of the Permit, NM NRCS Conservation Practice Standard Code 590, *Additional Criteria Applicable to Manure or Other Organic By-Products Applied as a Plant Nutrient Source,* Nutrient Values.

9.2 Process Wastewater

Process wastewater will be sampled annually. The annual analysis will be used by this facility as a factor in calculating the on-site crop land nutrient application rates.

Sampling Protocol: Wastewater samples will be collected from the process water retention structure with a long handled dipper. Samples to be analyzed for nitrogen will be field preserved with H2SO4 and all sample bottles will be immediately placed on ice. The samples will be held on ice or refrigerated until shipping to the laboratory. Samples will be shipped on ice with an appropriate Chain of Custody.

Nutrient Analysis: Nutrient analysis will, at a minimum, be in accordance with the guideline set forth in Appendix D of the Permit, NM NRCS Conservation Practice Standard Code 590, *Additional Criteria Applicable to Manure or Other Organic By-Products Applied as a Plant Nutrient Source,* Nutrient Values.

9.3 Soil

Crop land under the control of this facility that receives manure solids and/or wastewater from this facility will be sampled and analyzed annually. The analysis will be used as a factor to calculate the crop land nutrient application rates.

Sampling Protocol: The sampling protocol will follow the procedures set forth in the NMSU Extension Service Guideline A114 or may be collected by a vehicle mounted hydraulic probe using a similar depth, frequency and commingling protocol.

Nutrient Analysis: Soil analysis will, at a minimum, be in accordance with the guideline set forth in Appendix D of the Permit, NM NRCS Conservation Practice Standard Code 590, Soil Samples. This facility is located in Dona Ana County and is not required to analyze soils for metals in accordance with Part III.D.8.

9.4 Plant tissue Sampling

Plant tissue sampling and analysis may, but is not required by this NMP, be performed, by this facility to establish farm specific crop nutrient removal values. These values may then be used to modify the annual land application calculation factors.

Sampling Protocol: Plant tissue sampling will be conducted in accordance with the NMSU Extension Guide A-123.

Analysis: Plant tissue samples will be shipped to a qualified laboratory for analysis. Samples will be analyzed for percent moisture and total nitrogen or crude protein which will be converted to a plant nitrogen value.

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 may 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	14,487 tons/year
Process Wastewater	up to 39.21 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. 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 PAN application rate values.

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.

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

11.3 Example Forms

An example of the of the following forms and logs are located in Appendix C. Refer to the following summary list of forms and logs.

Water Line Inspection Log
Process Water & Runoff Control Structure Water Level & Visual Inspection Log
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
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 A (LAA-A)

Years 1 thru 5

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

Year 1

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		
Dairy	River Valley Dairy				N Loss	0%
Crop_Year	2009-2010				Goal/Real	Nutrient Needed
Field_ID	LAA-A					
Area (ac)	15					
	Month - Month	Crop	Unit	Yield	N	P
1st Crop	Nov'09-May'10	Triticale (Wheat for green chop 70%)	t/ac	10	2102	279
2nd Crop	Jun'10-Oct'10	Sorghum/Sudangrass, for silage (70%)	t/ac	16	2359	302
					0	0
Total		Nutrient Needed			4,461	581
					Soil Analyses	
Texture by Feel		Loam			N	P
Nutrient Available in Soil			lb/ac		73	288.64
		Nutrient Still Needed			3,366	-3,748
					Effluent Analyses	
					N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA	ac-in	3.65	1424	312
			ac-in		0	0
			ac-in		0	0
		Nutrient Still Needed			1,943	-4,060
					Manure Analyses	
					N	P
Dry Manure Application			t/ac		0	0
			t/ac		0	0
			t/ac		0	0
		Nutrient Still Needed			1,943	-4,060
					Fertilizer Content	
					N	P
Chemical Fertilizers Applied		22-0-0	lb/ac	518	1943	0
			lb/ac		0	0
			lb/ac		0	0
		Annual Nutrient Balance			**0**	**-4,060**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	15	Date:	11/11/2009	Field ID:	LAA-A

Application Information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Triticale Silage			Needed for field (acin):	21.9
Liquid Applied:	1.46	AcIn/ac		(gal):	594,585
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

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

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

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

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	15	Date:	11/11/2009	Field ID:	LAA-A

Application Information (enter the units that will be or has been applied to the field):	Crop Rotation:	Sudangrass Silage		Needed for field (acin):	32.85
	Liquid Applied:	2.19	Acln/ac	(gal):	891,878
	Solids Applied:		ton/ac	Needed for field (tons):	
	Liquid Loads Applied:		1000gal/ac	Loads needed for field:	

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

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

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	58.0	27.7	117.5

USDA Natural Resources Conservation Service

PLANTS Crop Nutrient Tool

Nutrient Report Summary for the Crop(s) Selected

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

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

Used For Triticale

Wheat, for green chop

Forage

Triticum sp.

Plant part harvested: Aboveground biomass

Crop yield unit: ton

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

Nitrogen	Phosphorus	Potassium
14.0160	1.8600	

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

Nitrogen	Phosphorus	Potassium
140.1600	18.6000	

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
2102.4000	279	

Element-Fertilizer Equivalents

Average NPK Percentages

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USDA Natural Resources Conservation Service

PLANTS Crop Nutrient Tool

Nutrient Report Summary for the Crop(s) Selected

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

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

Sorghum/Sudangrass, for silage
Forage
Sorghum bicolor ssp. drummondii
Plant part harvested: Aboveground biomass
Crop yield unit: ton

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

Nitrogen	Phosphorus	Potassium
9.8280	1.2600	15.6600

Nutrients removed in harvested part (lb/acre) at 16 ton yield level.

Nitrogen	Phosphorus	Potassium
157.2480	20.1600	250.5600

Nutrients removed in harvested part (lb/ton) at 16 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
2358.7200	302.4000	3758.4000

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	**Field(s):**	LAA-A	**Date:**	Nov'09
Planner:	Chet Wyant	**Location:**	DonaAna	**Crop:**	Triticale Sil.
Soil Permeability (in/hr):	0.1	**Slope (%):**	0.5	**Planned/Exist.:**	Planned

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

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

Notes:

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

Comments: Soil Erosion = (WEQ 10/09 to 5/10) 0.10 t/ac + (RUSLE 2) 0.17 t/ac = 0.27 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

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

Site Characteristic	Place an X in the appropriate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

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

Notes:

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

Comments: Soil Erosion = (WEQ 6/10 to 10/10) 0.92 t/ac + (RUSLE 2) 0.00069 t/ac = 0.92 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 734
Planner: Chet Wyant **Field(s) No.:** LAA-A
Current Land Use: Triticale silage/ Sudangrass Silage **Total Acres:** 15
Date: 11/16/2009 **Date to apply:** 11/1/2009

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

Purposes (check all that apply)

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

Conditions where practice applies

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

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

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

Soil Interpretations for Irrigaiton

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

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

Crop:	Wheat, winter, silage; Las Cruces		Total Irrigation Needed:	10.2 ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan	>1 Mo.	1.2	Jul		0.0
Feb	22	2.1	Aug		0.0
Mar	14	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

Crop:	Sudangrass, hay or silage; Deming		Total Irrigation Needed:	14.1 ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan		0.0	Jul	18	3.3
Feb		0.0	Aug	8	7.2
Mar		0.0	Sep	16	3.7
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

Used Wheat Silage because Triticale silage is not listed.

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	3	3.98	0.11	System meets CU for crop
Sudangrass, hay or silage; Deming	4	3.98	0.24	System meets CU for crop

Operation and Maintenance Requirements

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

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

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

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

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

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

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

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

Additional Requirements

Job Approval and Completion

Client: R Bonnstetter **Date:** 11-23-09

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer:	River Valley Dairy	Planner:	Chet Wyant	Location:	Anthony, NM	Tract:	734	Field:	LAA-A		
Crop Rotation:	Triticale/Sundangrass	Climate Data Station:	NM, LAS CRUCES					Site "C" Value:	150		
Tillage Direction (NS/EW):	NS	Length/width ratio:	1	Field Direction (NS/EW):	NS			Field Width (Ft.):	900		
Irrigation (Y or N):	Y	Soil "I":	86	Wind Erodibility Group:	4L	(1-7)	TWF:	2	(see instr.)		
Sum Period Erosion (t/ac):	1.0	No. Yrs in Rotation:	1.0	Av. Annual Wind Erosion:	1.0	(t/ac/yr)					

Calculations and Output

Mgt. Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SCe	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Krr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"IF"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
10/7	10/14/09	0	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	909	0	35.5	0.3	1.00	0.10
10/14	10/21/09	0	56	0.0	3	30	0.52	0.52	0.0	3.3	1.010	909	6999	0.0	0.3	1.00	0.00
10/21	11/01/09	0	56	0.0	4	11	0.26	0.52	0.0	3.3	1.010	909	3403	0.0	0.5	1.00	0.00
11/1	01/30/10	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.000	900	3312	0.0	16.3	0.98	0.00
1/30	02/14/10	2	56	0.0	2	30	0.69	0.86	0.0	4.0	1.000	900	6429	0.0	11.3	0.73	0.00
2/14	03/01/10	1	56	0.0	2	30	0.69	0.86	0.0	4.0	1.000	900	6552	0.0	12.7	0.87	0.00
3/1	05/01/10	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.000	900	6583	0.0	44.3	0.97	0.00
5/1	06/01/10	0	56	0.0	2	30	0.69	0.99	0.0	4.0	1.000	900	6999	0.0	11.0	1.00	0.00
6/1	06/11/10	0	56	22.5	3	30	0.67	0.52	22.5	1.2	1.030	927	1365	0.6	0.5	1.00	0.00
6/11	06/21/10	0	56	22.5	4	11	0.48	0.52	22.5	1.2	1.030	927	283	7.5	0.5	1.00	0.04
6/21	07/21/10	1	56	22.5	2	30	0.79	0.99	22.5	1.2	1.030	927	275	41.6	0.8	0.93	0.31
7/21	08/20/10	1	56	67.5	2	30	0.81	0.99	67.5	1.1	1.030	927	275	42.8	0.3	0.93	0.11
8/20	10/01/10	1	56	90.0	2	30	0.90	0.99	90.0	2.8	1.010	909	275	49.1	1.0	0.95	0.46
10/1	10/07/10	1	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	909	6999	0.0	0.3	0.67	0.00
		0			2	30											
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USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

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

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

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

Alternatives:

Management	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss, t/ac/yr*	*Description*
a.Single Year/Single Crop Templates\Triticale, silage, plow, irr CT	b. absolute row grade 0.5 percent	(none)	(none)	0.17	
a.Single Year/Single Crop Templates\Haygrazer, sudangrass, disk	b. absolute row grade 0.5 percent	(none)	(none)	0.00069	

Year 2

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		
Dairy	River Valley Dairy				N Loss	0%
Crop_Year	2010-2011				Goal/Real	Nutrient Needed
Field_ID	LAA-A					
Area (ac)	15					
	Month - Month	Crop	Unit	Yield	N	P
1st Crop	Nov'10-May'11	Wheat Silage (Wheat for green chop 70%)	t/ac	10	2102	279
2nd Crop	Jun'11-Oct 11	Corn-Field for Silage (dough 68%)	t/ac	24	2847	426
					0	0
Total		Nutrient Needed			4,949	705
					Soil Analyses	
Texture by Feel		Loam			N	P
Nutrient Available in Soil			lb/ac		73	288.64
		Nutrient Still Needed			3,854	-3,624
					Effluent Analyses	
					N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA	ac-in	3.65	1424	312
			ac-in		0	0
			ac-in		0	0
		Nutrient Still Needed			2,431	-3,936
					Manure Analyses	
					N	P
Dry Manure Application			t/ac		0	0
			t/ac		0	0
			t/ac		0	0
		Nutrient Still Needed			2,431	-3,936
					Fertilizer Content	
					N	P
Chemical Fertilizers Applied		22-0-0	lb/ac	648	2430	0
			lb/ac		0	0
			lb/ac		0	0
		Annual Nutrient Balance			**1**	**-3,936**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	**Acres:**	15	**Date:**	11/11/2009	**Field ID:** LAA-A

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Wheat Silage			**Needed for field (acin):**	21.9
Liquid Applied:	1.46	AcIn/ac		**(gal):**	594,585
Solids Applied:		ton/ac		**Needed for field (tons):**	
Liquid Loads Applied:		1000gal/ac		**Loads needed for field:**	

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	**NH_3-N (mg/L)**	**TKN (mg/L)**	**NO_3-N (mg/L)**	**Tot-PO_4 (mg/L)**	**K (mg/L)**
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	**% Moisture**		**TKN (lbs/acin)**		**NH_4-N (lbs/acin)**		**P_2O_5 (lbs/acin)**		**K_2O (lbs/acin)**	
	Book	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

Solid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
Broadcast-incorporated in 4 days	Warm Wet	**80 %**	**0** (lbs/ton) NH4-N

Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
ace Irr w/o incorp & w/crop canopy	Warm Dry	**80 %**	**0.0** (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

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

Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	4	13	54
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	**lbs/1000gal**	**lbs/ac in**	**lbs/ton**
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

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

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	15	Date:	11/11/2009	Field ID:	LAA-A

Application Information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Corn Silage			Needed for field (acin):	32.85
Liquid Applied:	2.19	Acin/ac		(gal):	891,878
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Wet	80 %	0 (lbs/ton) NH4-N

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

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	58.0	27.7	117.5

PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

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

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

Nitrogen	Phosphorus	Potassium
14.0160	1.8600	

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

Nitrogen	Phosphorus	Potassium
140.1600	18.6000	

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
2102.4000	279	

Element-Fertilizer Equivalents | Average NPK Percentages

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USDA Natural Resources Conservation Service
PLANTS
Crops Nutrient Tool

Nutrient Report Summary for the Crop(s) Selected

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

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

Corn-Field, for silage (dough stage)
Forage
Zea mays ssp. mays
Plant part harvested: Aboveground biomass
Crop yield unit: ton

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

Nitrogen	Phosphorus	Potassium
7.9078	1.1840	6.6560

Nutrients removed in harvested part (lb/acre) at 24 ton yield level.

Nitrogen	Phosphorus	Potassium
189.7882	28.4160	159.7440

Nutrients removed in harvested part (lb/ton) at 24 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
2846.8224	426.2400	2396.1600

Element-Fertilizer Equivalents | Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

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

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

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

Notes:

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

Comments: Soil Erosion = (WEQ 10/10 to 5/11) 0.27 t/ac + (RUSLE 2) 0.092 t/ac = 0.36 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-A	Date:	Jun'11
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Sil.
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

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

Notes:

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

Comments: Soil Erosion = (WEQ 6/11 to 10/11) 0.15 t/ac + (RUSLE 2) 0.088 t/ac = 0.24 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 734
Planner: Chet Wyant **Field(s) No.:** LAA-A
Current Land Use: Wheat Silage/ Corn Silage **Total Acres:** 15
Date: 11/16/2009 **Date to apply:** 11/1/2010

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

Purposes (check all that apply)

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

Conditions where practice applies

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

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

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

Soil Interpretations for Irrigaiton

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

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

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

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

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

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	3	3.98	0.11	System meets CU for crop
Corn, silage; Las Cruces	7	3.98	0.31	System meets CU for crop

Operation and Maintenance Requirements

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

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

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

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

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

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

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

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

Additional Requirements

Job Approval and Completion

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

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer: River Valley Dairy | Planner: Chet Wyant | Location: Anthony, NM | Tract: 734 | Field: LAA-A

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

Tillage Direction (NS/EW): NS | Length/width ratio: 1 | Field Direction (NS/EW): NS | Field Width (Ft.): 900

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

Sum Period Erosion (t/ac): 0.4 | No. Yrs in Rotation: 1.1 | Av. Annual Wind Erosion: 0.4 (t/ac/yr)

Calculations and Output

Mgt Periods Dates		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SGe	Erosion			
Begin	End	No. of (#)	"I" (t/ac)	Dev. (deg)	Ht. (in.)	Sp. (in.)	"Krd" (factor)	"Krr" (factor)	Dev. (deg)	Prep. (factor)	WED (factor)	"L" (ft)	"V" (lbs/ac)	"E" (t/ac)	EWE (%)	"F" (%)	Loss (t/ac)
10/1	11/02/10	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	909	5317	0.0	1.5	1.00	0.00
11/2	11/17/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	2.5	0.87	0.00
11/17	12/02/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	2.5	0.87	0.00
12/2	12/17/10	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	3.7	0.87	0.00
12/17	01/01/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	3.7	0.87	0.00
1/1	01/16/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	2.0	0.87	0.00
1/16	05/15/11	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	900	1667	0.2	75.1	0.93	0.17
5/15	05/22/11	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	4282	0.0	2.5	1.00	0.00
5/22	05/29/11	0	56	0.0	3	30	0.50	0.52	0.0	4.0	1.000	900	1473	0.0	2.5	1.00	0.00
5/29	06/29/11	0	56	0.0	4	11	0.22	0.68	0.0	4.0	1.000	900	210	4.0	2.6	1.00	0.10
6/29	07/14/11	0	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	927	159	27.5	0.3	1.00	0.08
7/14	07/29/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	927	163	29.3	0.2	0.87	0.05
7/29	08/13/11	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	927	658	16.4	0.1	0.87	0.02
8/13	08/28/11	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	909	1551	2.0	0.1	0.87	0.00
8/28	09/12/11	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	909	5336	0.0	0.4	0.87	0.00
9/12	10/01/11	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	900	6999	0.0	0.6	0.89	0.00
10/1	11/01/11	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	909	5317	0.0	1.3	1.00	0.00
		0			2	10											
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		0															
		0															

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

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

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

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

Alternatives:

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

Year 3

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		
Dairy	River Valley Dairy				N Loss	0%
Crop_Year	2011-2012				Goal/Real	Nutrient Needed
Field_ID	LAA-A					
Area (ac)	15					

	Month - Month	Crop	Unit	Yield	N	P
1st Crop	Nov'11-May'12	Barley-6 row, for green cut (boot 69%)	t/ac	10	2050	344
2nd Crop	Jun'12-Oct'12	Corn-Field for Silage (dough 68%)	t/ac	24	2847	426
					0	0
Total		Nutrient Needed			4,897	771
					Soil Analyses	
Texture by Feel		Loam			N	P
Nutrient Available in Soil			lb/ac		73	288.64
		Nutrient Still Needed			3,802	-3,559
					Effluent Analyses	
					N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA	ac-in	3.65	1424	312
			ac-in		0	0
			ac-in		0	0
		Nutrient Still Needed			2,379	-3,871
					Manure Analyses	
					N	P
Dry Manure Application			t/ac		0	0
			t/ac		0	0
			t/ac		0	0
		Nutrient Still Needed			2,379	-3,871
					Fertilizer Content	
					N	P
Chemical Fertilizers Applied		22-0-0	lb/ac	634	2378	0
			lb/ac		0	0
			lb/ac		0	0
		Annual Nutrient Balance			**1**	**-3,871**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	15	Date:	11/11/2009	Field ID:	LAA-A

Application information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Barley Silage			Needed for field (acin):	21.9
Liquid Applied:	1.46	AcIn/ac		(gal):	594,585
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

Solid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Broadcast-incorporated in 4 days	Warm Wet	80 %	0 (lbs/ton) NH4-N

Liquid (type of application)	Type of Climate	Percent Remaining	NH_4-N Remaining
Surface Irr w/o incorp & w/crop canopy	Warm Dry	80 %	0.0 (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

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

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	**Acres:**	15	**Date:**	11/11/2009	**Field ID:**	LAA-A

Application Information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Corn Silage			**Needed for field (acin):**	32.85
Liquid Applied:	2.19	Acin/ac		**(gal):**	891,878
Solids Applied:		ton/ac	**Needed for field (tons):**		
Liquid Loads Applied:		1000gal/ac	**Loads needed for field:**		

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	**NH_3-N (mg/L)**	**TKN (mg/L)**	**NO_3-N (mg/L)**	**Tot-PO_4 (mg/L)**	**K (mg/L)**
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	**% Moisture**		**TKN (lbs/acin)**		**NH_4-N (lbs/acin)**		**P_2O_5 (lbs/acin)**		**K_2O (lbs/acin)**	
	Book	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

Solid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
Broadcast-incorporated in 4 days	Warm Wet	**80 %**	**0** (lbs/ton) NH4-N

Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
Surface Irr w/o incorp & w/crop canopy	Warm Dry	**80 %**	**26.4** (lbs/acin) NH4-N **0.0** (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

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

Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	4	13	54
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	**lbs/1000gal**	**lbs/ac in**	**lbs/ton**
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	**All Forms N (lbs/ac)**	**P_2O_5 (lbs/ac)**	**K_2O (lbs/ac)**
	58.0	**27.7**	**117.5**

USDA Natural Resources Conservation Service
PLANTS
Crop Nutrient Tool

Nutrient Report Summary for the Crop(s) Selected

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

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

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

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

Nitrogen	Phosphorus	Potassium
13.6688	2.2951	9.7854

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

Nitrogen	Phosphorus	Potassium
136.6882	22.9512	97.8539

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
2050.3232	344.2676	1467.8081

Element-Fertilizer Equivalents | Average NPK Percentages

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PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

Corn-Field, for silage (dough stage)
Forage
Zea mays ssp. mays
Plant part harvested: Aboveground biomass
Crop yield unit: ton

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

Nitrogen	Phosphorus	Potassium
7.9078	1.1840	6.6560

Nutrients removed in harvested part (lb/acre) at 24 ton yield level.

Nitrogen	Phosphorus	Potassium
189.7882	28.4160	159.7440

Nutrients removed in harvested part (lb/ton) at 24 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
2846.8224	426.2400	2396.1600

Element-Fertilizer Equivalents | Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-A	Date:	Nov'11
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Barley Sil.
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
		X				1
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
				X		4
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

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

Notes:

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

Comments: Soil Erosion = (WEQ 10/11 to 5/12) 0.27 t/ac + (RUSLE 2) 0.092 t/ac = 0.36 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-A	Date:	Jun'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Corn Sil.
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	Planned

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

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

Notes:

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

Comments: Soil Erosion = (WEQ 6/12 to 10/12) 0.15 t/ac + (RUSLE 2) 0.088 t/ac = 0.24 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 734
Planner: Chet Wyant **Field(s) No.:** LAA-A
Current Land Use: Barley Silage/ Corn Silage **Total Acres:** 15
Date: 11/16/2009 **Date to apply:** 11/1/2011

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

Purposes (check all that apply)

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

Conditions where practice applies

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

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

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

Soil Interpretations for Irrigaiton

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

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

Crop:	Wheat, winter, silage; Las Cruces		Total Irrigation Needed:	10.2 ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan	>1 Mo.	1.2	Jul		0.0
Feb	22	2.1	Aug		0.0
Mar	14	3.3	Sep	>1 Mo.	0.3
Apr		0.0	Oct	>1 Mo.	1.3
May		0.0	Nov	>1 Mo.	1.2
Jun		0.0	Dec	>1 Mo.	0.9

Crop:	Corn, silage; Las Cruces		Total Irrigation Needed:	29.3 ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan		0.0	Jul	5	9.4
Feb		0.0	Aug	7	6.6
Mar		0.0	Sep		0.0
Apr	>1 Mo.	1.2	Oct		0.0
May	11	4.2	Nov		0.0
Jun	6	7.9	Dec		0.0

Used Wheat Silage because Barley Silage is not Listed

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Wheat, winter, silage; Las Cruces	3	3.98	0.11	System meets CU for crop
Corn, silage; Las Cruces	7	3.98	0.31	System meets CU for crop

Operation and Maintenance Requirements

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

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

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

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

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

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

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

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

Additional Requirements

Job Approval and Completion

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

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer:	River Valley Dairy	Planner:	Chet Wyant	Location:	Anthony, NM	Tract:	734	Field:	LAA-A
Crop Rotation:	Barley Silage/Corn Silage	Climate Data Station:	NM, LAS CRUCES					Site "C" Value:	150
Tillage Direction (NS/EW):	NS	Length/width ratio:	1	Field Direction (NS/EW):	NS			Field Width (Ft.):	900
Irrigation (Y or N):	Y	Soil "I":	86	Wind Erodibility Group:	4L	(1-7)	TWF:	2	(see instr.)
Sum Period Erosion (t/ac):	0.4	No. Yrs in Rotation:	1.1	Av. Annual Wind Erosion:	0.4	(t/ac/yr)			

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SCe	Erosion				
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Kr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"IF"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
10/1	11/02/11	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	909	5317	0.0	1.5	1.00	0.00
11/2	11/17/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	2.5	0.87	0.00
11/17	12/02/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	2.5	0.87	0.00
12/2	12/17/11	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	3.7	0.87	0.00
12/17	01/01/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	3.7	0.87	0.00
1/1	01/16/12	1	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	1667	0.1	2.0	0.87	0.00
1/16	05/15/12	4	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	900	1667	0.2	75.1	0.93	0.17
5/15	05/22/12	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.000	900	4282	0.0	2.5	1.00	0.00
5/22	05/29/12	0	56	0.0	3	30	0.50	0.52	0.0	4.0	1.000	900	1473	0.0	2.5	1.00	0.00
5/29	06/29/12	0	56	0.0	4	11	0.22	0.68	0.0	4.0	1.000	900	210	4.0	2.6	1.00	0.10
6/29	07/14/12	0	56	22.5	2	10	0.62	0.86	22.5	1.2	1.030	927	159	27.5	0.3	1.00	0.08
7/14	07/29/12	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	927	163	29.3	0.2	0.87	0.05
7/29	08/13/12	1	56	67.5	2	10	0.65	0.86	67.5	1.1	1.030	927	658	16.4	0.1	0.87	0.02
8/13	08/28/12	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	909	1551	2.0	0.1	0.87	0.00
8/28	09/12/12	1	56	90.0	2	10	0.81	0.86	90.0	2.8	1.010	909	5336	0.0	0.4	0.87	0.00
9/12	10/01/12	1	56	0.0	2	10	0.44	0.99	0.0	4.0	1.000	900	6999	0.0	0.6	0.89	0.00
10/1	11/01/12	0	56	0.0	2	10	0.46	0.99	0.0	3.3	1.010	909	5317	0.0	1.3	1.00	0.00
		0			2	10											
		0															
		0															
		0															
		0															
		0															
		0															
		0															
		0															

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

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

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

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

Alternatives:

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

Year 4

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu	PLANNED		
Dairy	River Valley Dairy				N Loss	0%
Crop_Year	2012-2013				Goal/Real	Nutrient Needed
Field_ID	LAA-A					
Area (ac)	15					
	Month - Month	Crop	Unit	Yield	N	P
1st Crop	Nov'12-May'13	Oats for green chop (boot to early bloom 69%)	t/ac	10	3376	630
2nd Crop	Jun'13 - Oct'13	Sorghum/Sudangrass, for silage (70%)	t/ac	16	2359	302
					0	0
Total		Nutrient Needed			5,735	933
					Soil Analyses	
Texture by Feel		Loam			N	P
Nutrient Available in Soil			lb/ac		73	288.64
		Nutrient Still Needed			4,640	-3,397
					Effluent Analyses	
					N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA	ac-in	3.65	1424	312
			ac-in		0	0
			ac-in		0	0
		Nutrient Still Needed			3,217	-3,709
					Manure Analyses	
					N	P
Dry Manure Application		NM Dairy Cattle Net from J.S. 590 L&MLA	t/ac	19.4	3201	2034
			t/ac		0	0
			t/ac		0	0
		Nutrient Still Needed			16	-5,743
					Fertilizer Content	
					N	P
Chemical Fertilizers Applied			lb/ac		0	0
			lb/ac		0	0
			lb/ac		0	0
		Annual Nutrient Balance			**16**	**-5,743**

Dairy Annual Nutrient Manager

Date	6/28/2010	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu		PLANNED	
Dairy	River Valley Dairy				N Loss	0%
Crop_Year	2012-2013				Goal/Real	Nutrient Needed
Field_ID	LAA-A					
Area (ac)	15					
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'12-May'13	Oats for green chop (boot to early bloom 69%)		t/ac	10	3376	630
2nd Crop	Jun'13 - Oct'13	Sorghum grain (moisture 11.18%)		bu/ac	107	1491	261
						0	0
Total		Nutrient Needed				4,867	891
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		73	288.64
		Nutrient Still Needed				3,772	-3,439
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	5.4	2106	1053
		Irrigation		ac-in	36	489	0
				ac-in		0	0
		Nutrient Still Needed				1,177	-4,492
						Manure Analyses	
						N	P
Dry Manure Application		NM Dairy Cattle Net from J.S. 590 L&MLA		t/ac	7.13	1176	748
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				0	-5,239
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**0**	**-5,239**

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PLANTS

Crop Nutrient Results

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

Nutrient Details

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

Sorghum, for grain

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

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

Nitrogen	Phosphorus	Potassium
0.9288	0.1655	0.1924

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

Nitrogen	Phosphorus	Potassium
99.3836	17.7086	20.5824

Element-Fertilizer Equivalents | Average NPK Percentages

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	**Acres:**	15	**Date:**	11/11/2009	**Field ID:**	LAA-A

Application information (*enter the units that will be or has been applied to the field*):					
Crop Rotation:	Oats Silage			**Needed for field (acin):**	21.9
Liquid Applied:	1.46	AcIn/ac		**(gal):**	594,585
Solids Applied:	19.4	ton/ac	**Needed for field (tons):**		291
Liquid Loads Applied:		1000gal/ac	**Loads needed for field:**		

Nutrient Content of Organic Material

Solid-Lab Report	**% Moisture**	**TKN (%) (dry)**	**NH_4-N (ppm) (dry)**	**P_2O_5 (%) (dry)**	**K_2O (%) (dry)**
Fill in Lab data:	11.51	2.0		1.2	3.1

Solid Book Values (select even if test values are used)	**% Moisture**		**TKN (lbs/wet ton)**		**NH_4-N (lbs/ton)**		**P_2O_5 (lbs/wet ton)**		**K_2O (lbs/wet ton)**	
	Book	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**
Dairy Cattle (30% wet wt) NM (Aver		12	0	35	0.4	0.0	0	21	0	54

Liquid-Lab Report	**NH_3-N (mg/L)**	**TKN (mg/L)**	**NO_3-N (mg/L)**	**Tot-PO_4 (mg/L)**	**K (mg/L)**
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	**% Moisture**		**TKN (lbs/acin)**		**NH_4-N (lbs/acin)**		**P_2O_5 (lbs/acin)**		**K_2O (lbs/acin)**	
	Book	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

Solid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
Broadcast-incorporated in 4 days	Warm Dry	**60 %**	**0** (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**26.4** (lbs/acin) NH4-N
Surface Irr w/o incorp & w/crop canopy	Warm Dry	**80 %**	**0.0** (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

Solid	**Organic N (lbs/ton)**	**P_2O_5 (lbs/ton)**	**K_2O (lbs/ton)**
	12	16	43

Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	4	13	54
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	**lbs/1000gal**	**lbs/ac in**	**lbs/ton**
N	0.0	26	11
P_2O_5	0.0	13	16
K_2O	0.0	54	43

Total Nutrients Applied (net to the field)	**All Forms N (lbs/ac)**	**P_2O_5 (lbs/ac)**	**K_2O (lbs/ac)**
	247.5	**330.1**	**918.8**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	Acres:	15	Date:	11/11/2009	Field ID:	LAA-A

Application information (enter the units that will be or has been applied to the field):					
Crop Rotation:	Sudangrass Silage			Needed for field (acin):	32.85
Liquid Applied:	2.19	Acin/ac		(gal):	891,878
Solids Applied:		ton/ac	Needed for field (tons):		
Liquid Loads Applied:		1000gal/ac	Loads needed for field:		

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	NH_3-N (mg/L)	TKN (mg/L)	NO_3-N (mg/L)	Tot-PO_4 (mg/L)	K (mg/L)
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	% Moisture		TKN (lbs/acin)		NH_4-N (lbs/acin)		P_2O_5 (lbs/acin)		K_2O (lbs/acin)	
	Book	Test	Book	Test	Book	Test	Book	Test	Book	Test
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

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

Mineralization of N, P, & K

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

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

Liquid	Organic N (lbs/acin)	P_2O_5 (lbs/acin)	K_2O (lbs/acin)
	4	13	54
	Organic N (lbs/100gal)	P_2O_5 (lbs/1000gal)	K_2O (lbs/1000gal)
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	lbs/1000gal	lbs/ac in	lbs/ton
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

Total Nutrients Applied (net to the field)	All Forms N (lbs/ac)	P_2O_5 (lbs/ac)	K_2O (lbs/ac)
	58.0	27.7	117.5

USDA Natural Resources Conservation Service
PLANTS
Crop Nutrient Tool

Nutrient Report Summary for the Crop(s) Selected

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

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

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

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

Nitrogen	Phosphorus	Potassium
12.2508	2.1046	11.6554

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

Nitrogen	Phosphorus	Potassium
122.5083	21.0458	116.5538

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
1837.6241	315.6872	1748.3068

Element-Fertilizer Equivalents | Average NPK Percentages

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Time Generated: Sun 9:49 AM - 11/15/2009

USDA Natural Resources Conservation Service

PLANTS

Nutrient Report Summary for the Crop(s) Selected

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

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

Sorghum/Sudangrass, for silage
Forage
Sorghum bicolor ssp. drummondii
Plant part harvested: Aboveground biomass
Crop yield unit: ton

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

Nitrogen	Phosphorus	Potassium
9.8280	1.2600	15.6600

Nutrients removed in harvested part (lb/acre) at 16 ton yield level.

Nitrogen	Phosphorus	Potassium
157.2480	20.1600	250.5600

Nutrients removed in harvested part (lb/ton) at 16 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
2358.7200	302.4000	3758.4000

Element-Fertilizer Equivalents

Average NPK Percentages

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PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-A	Date:	Nov'12
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Oat Sil.
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	Planned

Site Characteristic	Place an X in the approprate box for each of the Site Characteristic listed below.					Sub Total
Soil Test P Level	Very Low <8 ppm	Low 8-15 ppm	Moderate >15-23 ppm	High >23-30 ppm	Very High >30 ppm	
					X	8
Phosphorus (P_2O_5) Application Rate	None Applied	<30 lbs/ac P_2O_5	30-90 lbs/ac P_2O_5	>90-150 lbs/ac P_2O_5	>150 lbs/ac P_2O_5	
					X	8
Organic Phosphorus Source Application Method	None Applied	Injected Deeper than 2 Inches	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
			X			2
Phosphorus Fertilizer Application Method	None Applied	Placed with Planter Deeper than 2 in.	Incorporated Immediately before Planting	Incorp. >3 Mo. Before Planting or Surface Applied <3 Mo. before Planting	Surface Applied >3 Months Before Planting	
	X					0
Proximity of Nearest Field Edge to Named Stream or Lake	Very Low >1000 feet	Low >500-1000 feet	Medium >200-500 feet	High 30-200 feet	Very High <30 feet	
	X					0
Soil Erosion (wind & water)	Very Low <1 t/ac	Low 1-3 t/ac	Medium >3-5 t/ac	High >5-15 t/ac	Very High >15 t/ac	
	X					0
Runoff Class (Runoff Class Table 2)	Very Low or Negligible	Low	Medium	High	Very High	
			X			3
Irrigation Erosion (See QS note)	Not Irrigated or No Furrow Irrigation	Tailwater Recovery or QS<6 for very erodible soils or QS<10 for resistant soils	QS>10 for erosion resistant soils	QS>10 for erodible soils	QS>6 for very erodible soils	
			X			3
Grazing Management	Not Grazed	Graze Crop Residues	Pasture <30% Dry Matter as Supplemental Feed	Pasture 30 to 60% Dry Matter as Supplemental Feed	Pasture 60 to 100% Dry Matter as Supplemental Feed	
	X					0
Vegetative Buffer	> 100 ft wide	>65-100 ft wide	20-65 feet wide	< 20 feet wide	No Buffer	
		X				1.5

P Hazard Class:	Medium	Total Index Points:	25.5
Phosphorus Application Classification:	N Based		

Notes:

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

Comments: Soil Erosion = (WEQ 10/12 to 5/13) 0.10 t/ac + (RUSLE 2) 0.13 t/ac = 0.23 t/ac

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	**Field(s):**	LAA-A	**Date:**	Jun'13
Planner:	Chet Wyant	**Location:**	DonaAna	**Crop:**	Sudan Sll.
Soil Permeability (in/hr):	0.1	**Slope (%):**	0.5	**Planned/Exist.:**	Planned

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

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

Notes:

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

Comments: Soil Erosion = (WEQ 6/13 to 10/13) 1.1 t/ac + (RUSLE 2) 0.00069 t/ac = 1.1 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet *449*

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 734

Planner: Chet Wyant **Field(s) No.:** LAA-A

Current Land Use: Oat Silage/ Sudangrass Silage **Total Acres:** 15

Date: 11/16/2009 **Date to apply:** 11/1/2012

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

Purposes (check all that apply)

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

Conditions where practice applies

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

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

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

Soil Interpretations for Irrigaiton

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

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

Crop:	Oat, hay; Deming		Total Irrigation Needed:	9.4 ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan		0.0	Jul		0.0
Feb		0.0	Aug		0.0
Mar	19	2.3	Sep		0.0
Apr	9	5.0	Oct		0.0
May	21	2.1	Nov		0.0
Jun		0.0	Dec		0.0

Crop:	Sudangrass, hay or silage; Deming		Total Irrigation Needed:	14.1 ac in/ac	
Month	**Est. Frequency** *(days between irr.)*	**In/Mo**	**Month**	**Est. Frequency** *(days between irr.)*	**In/Mo**
Jan		0.0	Jul	18	3.3
Feb		0.0	Aug	8	7.2
Mar		0.0	Sep	16	3.7
Apr		0.0	Oct		0.0
May		0.0	Nov		0.0
Jun		0.0	Dec		0.0

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Applicaiton Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Oat, hay; Deming	2	3.98	0.17	System meets CU for crop
Sudangrass, hay or silage; Deming	4	3.98	0.24	System meets CU for crop

Operation and Maintenance Requirements

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

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

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

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

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

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

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

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

Additional Requirements

Job Approval and Completion

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

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer:	River Valley Dairy	Planner:	Chet Wyant	Location:	Anthony, NM	Tract:	734	Field:	LAA-A
Crop Rotation:	Oat Silage/Sundangrass Silage	Climate Data Station:	NM, LAS CRUCES					Site "C" Value:	150
Tillage Direction (NS/EW):	NS	Length/width ratio:	1	Field Direction (NS/EW):	NS			Field Width (Ft.):	900
Irrigation (Y or N):	Y	Soil "I":	86	Wind Erodibility Group:	4L	(1-7)	TWF:	2	(see instr.)
Sum Period Erosion (t/ac):	1.2			No. Yrs in Rotation:	1.0		Av. Annual Wind Erosion:	1.2	(t/ac/yr)

Calculations and Output

Mgt. Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SCe	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Krr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"F"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
10/7	10/14/12	0	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	909	0	35.5	0.3	1.00	0.10
10/14	10/21/12	0	56	0.0	3	30	0.52	0.52	0.0	3.3	1.010	909	6999	0.0	0.3	1.00	0.00
10/21	11/01/12	0	56	0.0	4	11	0.26	0.52	0.0	3.3	1.010	909	3403	0.0	0.5	1.00	0.00
11/1	01/30/13	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.000	900	3312	0.0	16.3	0.98	0.00
1/30	02/14/13	2	56	0.0	2	30	0.69	0.86	0.0	4.0	1.000	900	3312	0.0	11.3	0.73	0.00
2/14	03/01/13	1	56	0.0	2	30	0.69	0.86	0.0	4.0	1.000	900	3312	0.0	12.7	0.87	0.00
3/1	05/01/13	1	56	0.0	2	30	0.69	0.99	0.0	4.0	1.000	900	3312	0.0	44.3	0.97	0.00
5/1	06/01/13	0	56	0.0	2	30	0.69	0.99	0.0	4.0	1.000	900	2593	0.0	11.0	1.00	0.00
6/1	06/11/13	0	56	22.5	3	30	0.67	0.52	22.5	1.2	1.030	927	400	11.2	0.5	1.00	0.06
6/11	06/21/13	0	56	22.5	4	11	0.48	0.52	22.5	1.2	1.030	927	83	9.1	0.5	1.00	0.05
6/21	07/21/13	1	56	22.5	2	30	0.79	0.99	22.5	1.2	1.030	927	80	47.3	0.8	0.93	0.35
7/21	08/20/13	1	56	67.5	2	30	0.81	0.99	67.5	1.1	1.030	927	80	48.7	0.3	0.93	0.12
8/20	10/01/13	1	56	90.0	2	30	0.90	0.99	90.0	2.8	1.010	909	80	55.6	1.0	0.95	0.52
10/1	10/07/13	1	56	0.0	2	30	0.70	0.86	0.0	3.3	1.010	909	6999	0.0	0.3	0.67	0.00
		0			2	30											
		0															
		0															
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USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

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

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

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

Alternatives:

Management	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss, t/ac/yr*	*Description*
a.Single Year/Single Crop Templates\Forage\Oats, hay and grain, conv till, irr, CMZ29	b. absolute row grade 0.5 percent	(none)	(none)	0.13	
a.Single Year/Single Crop Templates\Haygrazer, sudangrass, disk	b. absolute row grade 0.5 percent	(none)	(none)	0.00069	

Year 5

Dairy Annual Nutrient Manager

Date	11/18/2009	NM STATE UNIVERSITY Dairy Extension Program	Victor E. Cabrera Dairy Specialist dairy.nmsu.edu: Tools vcabrera@nmsu.edu		PLANNED		
Dairy	River Valley Dairy				N Loss	0%	
Crop_Year	2013-2014				Goal/Real	Nutrient Needed	
Field_ID	LAA-A						
Area (ac)	15						
	Month - Month	Crop		Unit	Yield	N	P
1st Crop	Nov'13-Oct'14	Alfalfa, for hay		t/ac	10	7559	708
2nd Crop						0	0
						0	0
Total		Nutrient Needed				7,559	708
						Soil Analyses	
Texture by Feel		Loam				N	P
Nutrient Available in Soil				lb/ac		73	288.64
		Nutrient Still Needed				6,464	-3,621
						Effluent Analyses	
						N	P
Effluent Manure Application		NM Dairy Ponds Net from J.S. 590 L&MLA		ac-in	3.65	1424	312
				ac-in		0	0
				ac-in		0	0
		Nutrient Still Needed				5,041	-3,933
						Manure Analyses	
						N	P
Dry Manure Application				t/ac		0	0
				t/ac		0	0
				t/ac		0	0
		Nutrient Still Needed				5,041	-3,933
						Fertilizer Content	
						N	P
Chemical Fertilizers Applied				lb/ac		0	0
				lb/ac		0	0
				lb/ac		0	0
		Annual Nutrient Balance				**5,041**	**-3,933**

590 Nutrient Mgt. Jobsheet for Organic and Manure Land Application

Client Name:	River Valley Dairy	**Acres:**	15	**Date:**	11/11/2009	**Field ID:** LAA-A
.pplication Information	**Crop Rotation:** Alfalfa			**Needed for field (acin):**		54.75
(enter the units that will	**Liquid Applied:**	3.65	AcIn/ac		**(gal):**	1,486,463
be or has been applied to	**Solids Applied:**		ton/ac	**Needed for field (tons):**		
***the field)*:**	**Liquid Loads Applied:**		1000gal/ac	**Loads needed for field:**		

Nutrient Content of Organic Material

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

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

Liquid-Lab Report	**NH_3-N (mg/L)**	**TKN (mg/L)**	**NO_3-N (mg/L)**	**Tot-PO_4 (mg/L)**	**K (mg/L)**
Fill in Lab data:	145.8	187.1	0.4	100	246.28

Liquid	**% Moisture**		**TKN (lbs/acin)**		**NH_4-N (lbs/acin)**		**P_2O_5 (lbs/acin)**		**K_2O (lbs/acin)**	
	Book	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**	**Book**	**Test**
NM Dairy Ponds (99-99.4% liq.)	99		0	42	0	33	0	17	0	67

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

N Volatilization

Solid (type of application)	**Type of Climate**	**Percent Remaining**	**NH_4-N Remaining**
Broadcast-incorporated in 4 days	Warm Dry	**60 %**	**0** (lbs/ton) NH4-N
Liquid (type of application)	**Type of Climate**	**Percent Remaining**	**26.4** (lbs/acin) NH4-N
..race Irr w/o incorp & w/crop canopy	Warm Dry	**80 %**	**0.0** (lbs/1000gal) NH4-N

Mineralization of N, P, & K

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

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

Liquid	**Organic N (lbs/acin)**	**P_2O_5 (lbs/acin)**	**K_2O (lbs/acin)**
	4	13	54
	Organic N (lbs/100gal)	**P_2O_5 (lbs/1000gal)**	**K_2O (lbs/1000gal)**
	0.00	0.0	0.0

Denitrification of N

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

Summary of Nutrients

Net by Form as applied	**lbs/1000gal**	**lbs/ac in**	**lbs/ton**
N	0.0	26	0
P_2O_5	0.0	13	0
K_2O	0.0	54	0

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

USDA Natural Resources Conservation Service

PLANTS

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

Adjust N Application To 60% of Crop Removal Per NRCS Standard Practice Code 590

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

Nitrogen	Phosphorus	Potassium
50.3935	4.7217	38.2939

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

Nitrogen	Phosphorus	Potassium
503.9354	47.2166	382.9392

Nutrients removed in harvested part (lb/ton) at 10 ton yield level and 15 acres.

Nitrogen	Phosphorus	Potassium
7559.0304	708.2492	5744.0886

Element-Fertilizer Equivalents | Average NPK Percentages

«Contents»

Intellectual Property Statement / How to Cite the PLANTS Database

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Time Generated: Sun 9:56 AM - 11/15/2009

PHOSPHORUS INDEX WORKSHEET for New Mexico

Client Name:	River Valley Dairy	Field(s):	LAA-A	Date:	Nov'13
Planner:	Chet Wyant	Location:	DonaAna	Crop:	Alfalfa
Soil Permeablity (in/hr):	0.1	Slope (%):	0.5	Planned/Exist.:	Planned

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

P Hazard Class:	Medium	Total Index Points:	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 10/13 to 10/14) 0.04 t/ac + (RUSLE 2) 0.036 t/ac = 0.08 t/ac

NRCS Natural Resources Conservation Service

Irrigation Water Management

Conservation Practice Job Sheet 449

Natural Resources Conservation Service (NRCS) Jan, 2006

Client: River Valley Dairy **Tract:** 734
Planner: Chet Wyant **Field(s) No.:** LAA-A
Current Land Use: Alfalfa **Total Acres:** 15
Date: 11/16/2009 **Date to apply:** 11/1/2013

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

Purposes (check all that apply)

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

Conditions where practice applies

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

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

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

Soil Interpretations for Irrigaiton

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

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

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

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

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

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

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

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

Farm Irrigation Rating System (FIRS, irrigation system efficiency)

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

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

Crop Grown	Days of Operation for CU by crop (days)	Est. System Application Rate (in/day)	Needed Application Rate (in/day)	System Evaluation
Alfalfa, hay, southern; Las Cruces	12	3.98	0.32	System meets CU for crop

Operation and Maintenance Requirements

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

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

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

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

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

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

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

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

Additional Requirements

Job Approval and Completion

Client: R Ernest **Date:** 11-23-09

Conservationist: _____ **Date:** _____

Completed by: _____ **Date:** _____

NRCS - WEQ CALCULATIONS

Version 9.03 11-19-2007

Producer:	River Valley Dairy	Planner:	Chet Wyant	Location:	Anthony, NM	Tract:	735	Field:	LAA-B		
Crop Rotation:	Alfalfa	Climate Data Station:	NM, LAS CRUCES					Site "C" Value:	150		
Tillage Direction (NS/EW):	NS	Length/width ratio:	3	Field Direction (NS/EW):	NS			Field Width (Ft.):	660		
Irrigation (Y or N):	Y	Soil "I":	86	Wind Erodibility Group:	4L	(1-7)		TWF:	2	(see instr.)	
Sum Period Erosion (t/ac):	#N/A			No. Yrs in Rotation:	1.0			Av. Annual Wind Erosion:	#N/A	(t/ac/yr)	

Calculations and Output

Mgt Periods		Irr.	Soil	Ridge Roughness				Random Roughness	Unsheltered Distance				SGe	Erosion			
Dates		No. of	"I"	Dev.	Ht.	Sp.	"Krd"	"Kr"	Dev.	Prep.	WED	"L"	"V"	"E"	EWE	"IE"	Loss
Begin	End	(#)	(t/ac)	(deg)	(in.)	(in.)	(factor)	(factor)	(deg)	(factor)	(factor)	(ft)	(lbs/ac)	(t/ac)	(%)	(%)	(t/ac)
11/1	11/02/13	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	0	15.7	0.2	1.00	0.03
11/2	01/02/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	667	2094	0.0	12.5	1.00	0.00
1/2	01/17/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1582	0.3	2.0	1.00	0.01
1/17	02/01/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1651	0.2	2.0	1.00	0.00
2/1	02/16/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	1722	0.1	12.7	1.00	0.00
2/16	03/03/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	3319	0.0	12.7	1.00	0.00
3/3	03/18/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	6994	0.0	12.9	1.00	0.00
3/18	06/16/14	0	56	0.0	2	10	0.44	0.99	0.0	4.0	1.010	667	6994	0.0	41.5	1.00	0.00
6/16	07/01/14	0	56	22.5	2	10	0.62	0.86	22.5	1.2	1.370	904	4124	0.0	0.8	1.00	0.00
7/1	07/16/14	0	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	974	2856	0.0	0.2	1.00	0.00
7/16	07/31/14	0	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	974	4124	0.0	0.2	1.00	0.00
7/31	08/15/14	0	56	67.5	2	10	0.65	0.86	67.5	1.1	1.475	974	2856	0.0	0.1	1.00	0.00
8/15	08/30/14	0	56	90.0	2	10	0.81	0.86	90.0	2.8	2.000	1320	4124	0.0	0.1	1.00	0.00
8/30	09/14/14	0	56	90.0	2	10	0.81	0.86	90.0	2.8	2.000	1320	2856	0.0	0.4	1.00	0.00
9/14	09/29/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	4124	0.0	0.5	1.00	0.00
9/29	10/14/14	0	56	0.0	2	10	0.44	0.86	0.0	4.0	1.010	667	2856	0.0	0.6	1.00	0.00
10/14	10/29/14	0	56	0.0	2	10	0.46	0.86	0.0	3.3	1.010	667	4124	0.0	0.6	1.00	0.00
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USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info: Nov'13-Oct'14 Alfalfa

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

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

Alternatives:

Management	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss, t/ac/yr*	*Description*
b.Mullti-year Rotation Templates\Alfalfa-Small Grain, 5yr, 5cuts CMZ 23	b. absolute row grade 0.5 percent	(none)	(none)	0.036	