WS 6-X
311/08

## Producer's Planned Actions and Schedule

Dairy: Schaffner Dairy Prepared by: R Cernansky Date: 04/08/2009

| Change / Action | Field(s) or Location(s) | Planned month /year |
|---|---|---|
| **To Address: Manure and Wastewater Handling and Storage (Section 2, including WS 3-2)** | | |
| | | |
| | | |
| | | |
| **To Address: Land Treatment (Section 4, including WS 4-C)** | | |
| | | |
| | | |
| | | |
| **To Address: Soil and Risk Assessment Analysis (Section 5, including WS 3-5)** | | |
| | | |
| | | |
| **To Address: Farm Wide Nutrient Balance (Table 6.11, PDFA, ADFA)** | | |
| | | |
| | | |
| | | |
| **To Address: Nutrient Management (Section 6, including WS 4-6 and WS 3-4)** | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Evaluate outcome of management annually and adjust for next season. | All | Annually |
| **To Address: Other (Sections 3, 7, and 8)** | | |
| None | | |

WS 5-3
2/8/08

**Issues and Alternatives for Improvements**

Dairy: Schaffner Dairy Prepared by: Richard Cernansky Date: 04/08/2009

| Issues (Brought forward from evaluations) | *Producer Priority | Alternatives Discussed |
|---|---|---|
| **Manure and Wastewater Handling and Storage (Section 2, including WS 3-2)** | | |
| Wastewater storage ponds calculated to have less than 30 day capacity. | | - Ponds can be managed with less than 30 days of storage through diligent implementation of proposed Nutrient Management Plan included in this CNMP.<br>- Evaluate/Reduce barnwater usage.<br>- Enlarge existing or install new storage pond. |
| No backflow prevention between IID and wastewater distributed through irrigation canal. | | - Install backflow prevention. |
| | | |
| **Land Treatment (Section 4, including WS 4-C)** | | |
| None | | |
| **Soil and Risk Assessment Analysis (Section 5, including WS 3-5)** | | |
| Irrigation Tailwater and tile drains connect to IID drain to Salton Sea | | - Manage nutrients according to Nutrient Management Plan to minimize nutrient runoff.<br>- Other options?<br>- |
| | | |
| **Farm Wide Nutrient Balance (Table 6.11, PDFA, ADFA)** | | |
| None | | - |
| **Nutrient Management (Section 6, including WS 4-6 and WS 3-4)** | | |
| Does not know actual Nutrient Application Rate. | | - Install flowmeter and V-notch gate valve to record and control application rates.<br>- Perform nutrient analyses of liquid manure quarterly/yr and solid manure twice/yr.<br>- Keep accurate volume records of commercial fertilizer, and liquid and solid manure applied to fields. |
| Does not set target Nutrient Application Rate | | - Collect tissue samples at harvest and set target seasonal application rates for N.<br>- Calculate desired application rate and apply at calculated rate using flowmeter and Nitrogen test kit (N applied should not exceed 1.6 times Nitrogen harvested with crop).<br>- Evaluate outcome of management annually and adjust for next season. |
| | | - |
| **Other (Sections 3, 7, and 8)** | | |
| None | | |

* Use 1 through 4 with 1 the highest priority

NRCS Natural Resources Conservation Service

# Comprehensive Nutrient Management Plan
## (California NRCS Version 1, 4/22/2008)

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity document for information about day-to-day management activities and recordkeeping. Both this document and the Producer Activity document shall remain in the possession of the producer/landowner.

**Farm contact information:** Schaffner Dairy
c/o Rudy Schaffner
2796 Casey Road Inc.
Holtville, CA 92250
(760) 356-5679

**Plan Period:** Sep. 2008 - Aug. 2009

**Latitude/Longitude:**

**Total Facility Acreage:** 20.8

**Total Cropland Acreage (Owned/Leased):** 1177 owned

**Operation Type (Dairy, Heifer, Other):** Dairy

**Approximate date that confined animal operations first began at this location:**

**Date that the facility began operations at this location under the current ownership:**

**Owner/Operator's Initial Manure Management Objectives:** Apply manure to crops according to crop needs in order to maximize crop production and minimize nutrient leaching.

**Owner/Operator**

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: Rudy Schaffner Date: 4-21-09

Name:

## Conservation Planner

As a Conservation Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and *Producer Nutrient Management Activities* documents for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: Kevin O. Carpenter Date: 4/16/09

Name: Kevin Carpenter Title: Soil Conservationist

Certification Credentials: NRCS Certified Conservation Planner

## Section 2. Manure and Wastewater Handling and Storage

Signature: Richard Cernansky Date: 4/10/09

Name: Richard Cernansky Title: Engineer

Certification Credentials: NRCS Certified CNMP Specialist in Manure and Wastewater Handling and Storage

## Sections 4. Land Treatment

Signature: Date: 04-10-09

Name: Azizur Rahman Title: Agronomist

Certification Credentials: NRCS Certified CNMP Specialist in Land Treatment Practices

## Section 6. Nutrient Management

The Nutrient Management component of this plan meets the California Nutrient Management 590 and Waste Utilization 633 Conservation Practice Standards.

Signature: Date: 04-10-09

Name: Azizur Rahman Title: Agronomist

Certification Credentials: NRCS Certified CNMP Specialist in Nutrient Management

## Section 7. Feed Management (if applicable)

Signature: N/A Date:

Name: Title:

Certification Credentials:

## Section 8. Other Utilization Options (if applicable)

Signature: N/A Date:

Name: Title:

Certification Credentials:

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# Section 1. Background and Site Information

## 1.1. General Description of Operation (NRCS CA, WS3-1)

All 1500 Milk Cows and support stock at Schaffner Dairy are housed in a scraped drylot system. The corrals are scraped daily and stockpiled. Stockpiles are composted and applied to fields not receiving wastewater one to two times per year.

Rainfall runoff from corrals is minimal due to arid climate. If runoff should occur, it is diverted and captured on 13 acres of field 5202. Storage calculations for rainfall runoff assume direct rainfall onto field 5202 to be zero due to infiltration. Normal evaporation exceeds normal runoff so containment is calculated for the 25 year 24 hour storm runoff only. Due to the corrals being scraped daily, the nutrient load in the runoff to 5202 would be minimal and can be readily used by the crop.

Milk parlor wastewater is diverted by pipeline to two storage ponds. The East Pond and West Pond are estimated to have a holding capacity of 1.50 Ac. ft. and 1.75 Ac. ft., respectively. Ponds are rotated out of operation for drying and removal of solids as needed. Wastewater storage ponds do not have the capacity to store 30 days of winter storage. However due to the year round availability of crops in accessible fields and the arid climate, the wastewater can be applied at agronomic rates to fields in order to maintain needed storage capacity.

Wastewater from ponds is mixed with irrigation water in concrete ditch and applied to fields 5202, 5209, 5210, and 5218.

## 1.2. Sampling, Calibration and Other Statements

- Manure sampling frequency
- Soil testing frequency
- Equipment calibration method and frequency
- Clean water diversion
- Measures to prevent direct contact of animals with water

## 1.3. Resource Concerns

If checked, the indicated resource concerns have been identified and have been addressed in this plan.

### Soil Quality Concerns

| | *Soil Quality Concern* | *Fields* |
|---|---|---|
| | Ephemeral Gully Erosion | |
| | Gully Erosion | |
| | Sheet and Rill Erosion | |
| | Stream/Ditchbank Erosion | |
| | Wind Erosion | |
| | | |
| | | |

### Water Quality Concerns

| | *Water Quality Concern* | *Fields* |
|---|---|---|
| | Facility Wastewater Runoff | |
| X | Manure Runoff (Field Application) | |
| | Manure Runoff (From Facilities) | |
| X | Nutrients in Groundwater | |
| | Nutrients in Surface Water | |
| | Silage Leachate | |
| | Excessive Soil Test Phosphorus | |
| | Tile-Drained Fields | |
| | | |
| | | |

### Other Concerns Addressed

| | *Other Concern* | *Fields* |
|---|---|---|
| | Acres Available for Manure Application | |
| | Aesthetics | |
| X | Maximize Nutrient Utilization | |
| | Minimize Nutrient Costs | |
| | Neighbor Relations | |
| | Profitability | |
| X | Regulations | |
| | Soil Compaction | |
| | Time Available for Manure Application | |
| | Odors | |
| | Air Quality | |
| | Biosecurity | |
| | | |
| | | |

## 1.4. List of Permits (NRCS CA, WS3-3)

| Permitting Agency | Permit Number | Date Issued | Expiration Date (if any) | Storage Location for Permit |
|---|---|---|---|---|
| RWQCB | WDR 7A-137777012 | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

# Section 2. Manure and Wastewater Handling and Storage

## 2.1. Map(s) of Production Area

Soil Map—Imperial County, California, Imperial Valley Area
(Scha[illegible] Dairy)

## MAP LEGEND

**Area of Interest (AOI)**

- Area of Interest (AOI)

**Soils**

- Soil Map Units

**Special Point Features**

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

**Special Line Features**

- Gully
- Short Steep Slope
- Other

**Political Features**

- Cities

**Water Features**

- Oceans
- Streams and Canals

**Transportation**

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

## MAP INFORMATION

Map Scale: 1:4,150 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 11N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Date(s) aerial images were photographed: 5/30/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

MAP SCALE 1" = 2000'

00 0 2000 4000

FEET

METE

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1750C

# FIRM

## FLOOD INSURANCE RATE MAP

## IMPERIAL COUNTY, CALIFORNIA

### AND INCORPORATED AREAS

**PANEL 1750 OF 2300**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| IMPERIAL COUNTY, UNINCORPORATED AREAS | 060065 | 1750 | C |

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject

**MAP NUMBER**
**06025C1750C**

**EFFECTIVE DATE**
**SEPTEMBER 26, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

# Conservation Plan Map

Date: 1/21/2009

Customer(s): SCHAFFNER DAIRY INC
District: IMPERIAL IRRIGATION DISTRICT RCD

Field Office: EL CENTRO SERVICE CENTER
Agency: USDA NRCS
Assisted By: Carpenter, Kevin O

Location:
of Section 16
T15S R15E SBBM
3 1/4 miles NNW of Holtville California

1 Milk Parlor
2 Shade

**Legend**

- wastewater ditch
- Corrals
- manure transfer line
- Feed Storage
- wastewater ponds

0 95 190 380 570 760 Feet

N

# Map Unit Legend

| Imperial County, California, Imperial Valley Area (CA683) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| 114 | IMPERIAL SILTY CLAY, WET | 48.1 | 68.3% |
| 115 | IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES | 3.1 | 4.4% |
| 116 | IMPERIAL-GLENBAR SILTY CLAY LOAMS, 2 TO 5 PERCENT SLOPE S | 0.1 | 0.2% |
| 118 | INDIO LOAM, WET | 0.1 | 0.1% |
| 119 | INDIO-VINT COMPLEX | 0.5 | 0.7% |
| 122 | MELOLAND VERY FINE SANDY LOAM, WET | 17.6 | 25.0% |
| 142 | VINT LOAMY VERY FINE SAND, WET | 0.3 | 0.4% |
| 144 | VINT AND INDIO VERY FINE SANDY LOAMS, WET | 0.6 | 0.9% |
| **Totals for Area of Interest** | | **70.3** | **100.0%** |

## 2.2. Production Area Conservation Practices

## 2.3. Manure Storage

| Storage ID | Type of Storage | Pumpable or Spreadable Capacity | Annual Manure Collected | Maximum Days of Storage |
|---|---|---|---|---|
| Dairy stalls | Open feedlot | 18,000 Tons | 6,210 Tons | 1,058 |
| Wastewater pond | Storage pond, <50% dilution | 982,523 Gal | 16,049,200 Gal | 22 |

## 2.4. Animal Inventory

| Animal Group | Type or Production Phase | Number of Animals | Average Weight (Lbs) | Confinement Period | Manure Collected (%) | Storage Where Manure Will Be Stored |
|---|---|---|---|---|---|---|
| Milk Cow-pond | Milk cow (dairy) | 1,500 | 1,400 | Jan Early - Dec Late | 15 | Wastewater pond |
| Milk Cow-dry | Milk cow (dairy) | 1,500 | 1,400 | Jan Early - Dec Late | 85 | Dairy stalls |
| Dry Cow | Dry cow (dairy) | 50 | 1,500 | Jan Early - Dec Late | 100 | Dairy stalls |
| Bred Heifers | Breeding heifer (dairy) | 250 | 600 | Jan Early - Dec Late | 100 | Dairy stalls |
| Heifers | Weaned heifer/steer (dairy) | 175 | 500 | Jan Early - Dec Late | 100 | Dairy stalls |

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.
(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

## 2.5. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. The disposal of dead animals at a dairy facility is prohibited except when federal, state, or local officials declare a State of Emergency.

### Plan for Proper Management of Dead Animals

The following table describes how you plan to manage normal animal mortality in a manner that protects surface and ground water quality.

Temporarily store dead animals at (location) until picked up by rendering company within 24 hours.

**Contact Information:**
B A Glenn Phone Number: 928-627-4772

## 2.6. Planned Manure Exports off the Farm

| Month-Year | Manure Source | Amount | Receiving Operation | Location |
|---|---|---|---|---|

(None)

## 2.7. Planned Manure Imports onto the Farm

| Month-Year | Manure's Animal Type | Amount | Originating Operation | Location |
|---|---|---|---|---|

(None)

## 2.8. Planned Internal Transfers of Manure

| Month-Year | Manure Source | Amount | Manure Destination |
|---|---|---|---|

(None)

## 2.9. Waste Storage Pond Capacity Evaluation (NRCS CA, Dairy Planning Tool)

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - Parlor Water
Date: 04/02/09

Entered by: RC
Checked by:

| | Flushed Freestall | Flushed Lanes | Scraped Freestall | Scraped Drylot | Animal Weight lbs | Daily Waste $ft^3$/day |
|---|---|---|---|---|---|---|
| Milking Cows | | | | 1500 | 1,400 | 2,879 |
| Dry Cows | | | | 50 | 1,500 | 103 |
| Bred Heifers | | | | 250 | 600 | 206 |
| Heifers, 1 year to breeding | | | | 175 | 500 | 120 |
| Calves, 3 months to 1 year | | | | | 500 | |
| Calves, birth to 3 months | | | | | 150 | |

| | | |
|---|---|---|
| Design Storage Period | 30 | days |
| Net Daily Water Use per Milking Cow | | gal/cow/day |
| Other Daily Fresh Water added to the pond | 46,660 | gal/day |
| Tailwater or Dilution Water added to the pond | | gallons during Design Storage Period |
| 25 year 24 hour Storm Rainfall | 2.5 | inches |
| Normal Rainfall Multiplication Factor | 1.0 | |
| Manured surfaces draining to the pond | | acres |
| Concrete surfaces draining to the pond | | $ft^2$ |
| Roof surfaces draining to the pond | | $ft^2$ |

## Storage Volume Calculations

**1) Animal Waste Volume**

| | | | | |
|---|---|---|---|---|
| Manure Waste to be stored in the Pond | | | 496 | $ft^3$/day |
| Manure Waste handled dry and not stored in the Pond | | | 2811 | $ft^3$/day |
| Total Animal Waste Volume for the storage period of | 30 | days = | 14,880 | $ft^3$ |

**2) Barn Water Volume**

| | | | | |
|---|---|---|---|---|
| Wash Water used during the Storage Period of | 30 | days = | | $ft^3$ |
| Other Fresh Water used during the Storage Period of | 30 | days = | 187,114 | $ft^3$ |
| Total Barn Water Volume for the storage period of | 30 | days = | 187,114 | $ft^3$ |

**3) Tailwater or Dilution Water Volume**

| | | | | |
|---|---|---|---|---|
| Total Tailwater/Dilution Water for the storage period of | 30 | days = | | $ft^3$ |

**4) Rainfall and Runoff Volume**

| | 25 YR.STORM | 1.0 x NORMAL | |
|---|---|---|---|
| Runoff Volume from Manured Surfaces | | | $ft^3$ |
| Runoff Volume from Concrete Surfaces | | | $ft^3$ |
| Runoff Volume from Roof Surfaces | | | $ft^3$ |
| Rainfall on Pond Surface | 10,225 | 2,061 | $ft^3$ |
| Rainfall Subtotals | 10,225 | 2,061 | $ft^3$ |
| Total Rainfall Influence (25 Yr.+ 1.0 x Normal) | | 12,287 | $ft^3$ |
| Evaporation Credit | | 11,614 | $ft^3$ |

**5) Accumulated Residual Solids Volume**

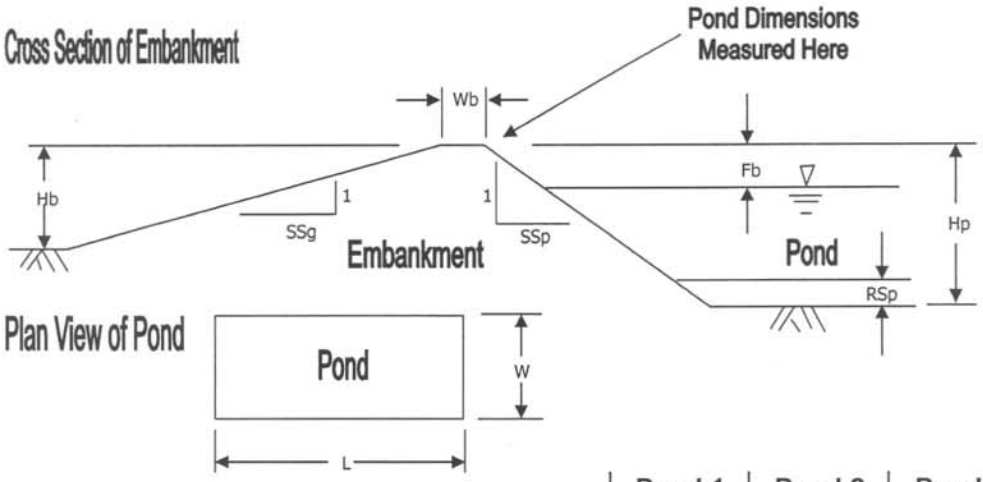
| | | |
|---|---|---|
| Total Residual Solids Volume for pond depths specified on pg. 2 | | $ft^3$ |

**6) Total Required Volume** **202,666** **$ft^3$**

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - Parlor Water
Date: 04/02/09

Entered by: RC
Checked by:




| | | | Pond 1 | Pond 2 | Pond 3 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | 1 | 1 | |
| Hp | Depth of Pond (freeboard + design depth) | ft | 5 | 4.5 | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | 2 | 2 | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut : Fill Ratio | 'X' Cut:1 Fill | | | |

| | | | Pond 4 | Pond 5 | Pond 6 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | | | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut : Fill Ratio | 'X' Cut:1 Fill | | | |

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - Parlor Water
Date: 04/02/09

Entered by: RC
Checked by:

| Volumes | Pond 1 | Pond 2 | Pond 3 | |
|---|---|---|---|---|
| Pond Storage Capacity | 65,340 | 76,230 | | $ft^3$ |
| Additional Required Storage | 137,326 | 61,096 | | $ft^3$ |
| Cumulative Storage is: | Inadequate | Inadequate | | |
| **Dimensions** | | | | |
| Footprint Length | | | | ft |
| Footprint Width | | | | ft |
| Bottom Length | -20 | -18 | | ft |
| Bottom Width | -20 | -18 | | ft |
| Bank Full Surface Area | 17,000 | 31,500 | | $ft^2$ |
| Surface Area at Max Capacity | 16,476 | 31,091 | | $ft^2$ |
| **Earthwork** | | | | |
| Total Cut | 25 | 18 | | cy |
| Potential Available Fill | | | | cy |
| Total Fill Needed | | | | cy |
| Excess Material* | | | | cy |

* Negative numbers indicate imported material is required.

| Volumes | Pond 4 | Pond 5 | Pond 6 | |
|---|---|---|---|---|
| Pond Storage Capacity | | | | $ft^3$ |
| Additional Required Storage | | | | $ft^3$ |
| Cumulative Storage is: | | | | |
| **Dimensions** | | | | |
| Footprint Length | | | | ft |
| Footprint Width | | | | ft |
| Bottom Length | | | | ft |
| Bottom Width | | | | ft |
| Bank Full Surface Area | | | | $ft^2$ |
| Surface Area at Max Capacity | | | | $ft^2$ |
| **Earthwork** | | | | |
| Total Cut | | | | cy |
| Potential Available Fill | | | | cy |
| Total Fill Needed | | | | cy |
| Excess Material* | | | | cy |

* Negative numbers indicate imported material is required.

## Summary Conclusion:

| | | |
|---|---|---|
| Combined Pond Capacity | 141,570 | $ft^3$ |
| Required Pond Capacity | 202,666 | $ft^3$ |

**Combined Pond Capacity is NOT ADEQUATE**

| | | |
|---|---|---|
| Pumpable Capacity* | 982,523 | gal |

* For entry into MMP Storage Tab (Combined Pond Capacity - 25yr storm subtotals - Residual Solids Volume)

# Data Used in Farm Wide Initial Nitrogen Balance Assessment

Producer: Schaffner Dairy - Parlor Water  Date: 4/2/2009  Entered by: RC
Checked by:

| Animal Description | Number of Animals | Estimated Avg weight |
|---|---|---|
| Milking Cows | 1500 | 1400 |
| Dry Cows | 50 | 1500 |
| Bred Heifers | 250 | 600 |
| Heifers, 1 year to breeding | 175 | 500 |
| Calves, 3 months to 1 year | 0 | 500 |
| Calves, birth to 3 months | 0 | 150 |

2,413 Total 1000 lb. AUs
1,975 Total Animals

Breed of Cows
Holstein

| Animal Housing<br>The sum of each row should equal 100%. | % of animals in each facility type | | | |
|---|---|---|---|---|
| | Flushed Freestall | Scraped Freestall | Flushed Lanes | Scraped Drylot |
| Milking Cows | | | | 100% |
| Dry Cows | | | | 100% |
| Bred Heifers | | | | 100% |
| Heifers, 1 year to breeding | | | | 100% |
| Calves, 3 months to 1 year | | | | 100% |
| Calves, birth to 3 months | | | | 100% |

**Waste Use and Treatment**

| | | |
|---|---|---|
| Percent of dry manure used off dairy | 0% | |
| Percent of waste water used off dairy | 0% | |
| Tons of N imported with bedding per year | 0.0 | N, Tons/yr |
| Double cropped acres used to dispose of waste onsite | | Acres |
| Single cropped acres used to dispose of waste onsite | | Acres |
| Cost per unit of commercial Nitrogen | | $/lb. - N |

**Current Cropping data**

| Crop Code | Crop Name | Acres | Yield (tons/ac) | % Moisture | % Protein | Fertilizer N lbs/ac. | Irrigation N lbs/ac. | Legume N lbs/ac |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

Include acres for each crop of double or triple cropped fields on separate rows of the table. For example, a 40 acre field used to grow corn silage and small grain silage in the same year would appear in this table as 40 acres of corn silage and 40 acres of small grain silage.

## Data Used in Storage Pond Calculations

Entered by: RC

Producer: Schaffner Dairy - Parlor Water  Date: 4/2/2009  Checked by:

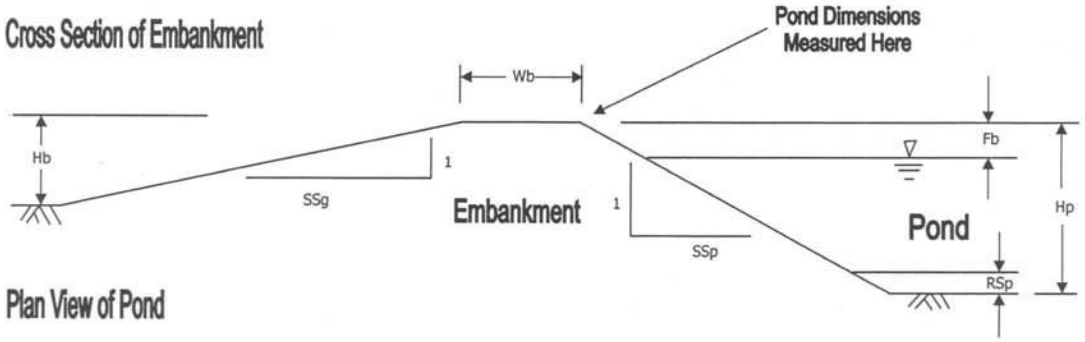
### Pond Design Data

| | | |
|---|---|---|
| Design Storage Period | 30 | days |
| Net Daily Water Use per Milking Cow | | gal/cow/day |
| Other Daily Fresh Water added to the pond | 46,660 | gal/day |
| Tailwater or Dilution Water added to the pond | | gallons during Design Storage Period |
| Manured surfaces draining to the pond | 0.0 | acres |
| Concrete surfaces draining to the pond | 0 | $ft^2$ |
| Roof surfaces draining to the pond | 0 | $ft^2$ |

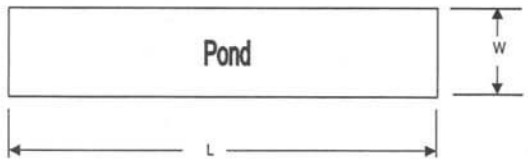
| | | | Pond 1 | Pond 2 | Pond 3 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | 1.0 | 1.0 | |
| Hp | Depth of Pond (freeboard + design depth) | ft | 5.0 | 4.5 | |
| RSp | Residual Solids Accumulation | ft | 0.0 | 0.0 | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | 2.0 | 2.0 | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut:Fill Ratio | 'X' Cut:1 Fill | | | |

| | | | Pond 4 | Pond 5 | Pond 6 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | | | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut:Fill Ratio | 'X' Cut:1 Fill | | | |

### Cross Section of Embankment




### Plan View of Pond



## Data Used in Dairy Waste Management Calculations

Producer: Schaffner Dairy - Parlc

Date: 4/2/2009

| Crop Code | Crop Name | Units | Average Yield | % Moisture (typical) | % Protein (typical) | N LB/Unit |
|---|---|---|---|---|---|---|
| 1 | Alfalfa hay | tons | 8 | (10%) | 18%-24% (21%) | 60 |
| 2 | Barley (grain) | tons | 2.5 | | | 64 |
| 3 | Barley Silage, boot stage | tons | 8 | (70%) | 15%-19% (17%) | 16 |
| 4 | Barley Silage, soft dough | tons | 16 | (70%) | 8%-12% (10%) | 10 |
| 5 | Bermudagrass, hay | tons | 8 | (10%) | 9% - 13% (11%) | 35 |
| 6 | Corn (grain) | tons | 5 | | | 48 |
| 7 | Corn (silage) | tons | 30 | (70%) | 8%-11% (9%) | 8 |
| 8 | Cotton | bale | 3 | | | 80 |
| 9 | Clover-grass, hay | tons | 6 | (10%) | 10%- 14% (12%) | 38 |
| 10 | Oats (grain) | tons | 1.6 | | | 100 |
| 11 | Oats silage, soft dough | tons | 12 | (70%) | 8%-15% (12%) | 10 |
| 12 | Oats (hay) | tons | 4 | (10%) | 8%-15% (12%) | 40 |
| 13 | Tall Fescue, hay | tons | 6 | (10%) | 8%-12%(10%) | 32 |
| 14 | Safflower | tons | 2 | | | 100 |
| 15 | Sorghum | tons | 4 | (10%) | | 50 |
| 16 | Sudan silage | tons | 8/cutting | (70%) | 8%-12% (10%) | 11 |
| 17 | Sudan hay | tons | 8 | (10%) | 8%-12% (10%) | 32 |
| 18 | Sugar Beets | tons | 30 | | | 9 |
| 19 | Triticale, boot stage | tons | 12 | (70%) | 14%-18% (16%) | 15 |
| 20 | Triticale, soft dough | tons | 22 | (70%) | 8%-12% (10%) | 10 |
| 21 | Wheat (grain) | tons | 3 | (10%) | | 58 |
| 22 | Wheat Silage, boot stage | tons | 10 | (70%) | 15%-19% (17%) | 16 |
| 23 | Wheat Silage, soft dough | tons | 18 | (70%) | 9%-13% (11%) | 11 |
| 24 | Orchardgrass, hay | tons | 6 | (10%) | 9%-14% (11%) | 35 |
| 25 | Ryegrass, hay | tons | 6 | (10%) | 8%-12% (10%) | 32 |
| 26 | Timothy, hay | tons | 6 | (10%) | 9%-14% (11%) | 35 |
| 99 | Other | | | | | |

| Estimate of daily winter Barn Water Usage | Typical Volume | Estimated Volume | Units | Number per milking | Total gallons/day |
|---|---|---|---|---|---|
| Bulk Tank: | | | | | |
| Automatic, 3 cycle wash | 60-110 | | gal/wash | once/day | 0 |
| Manual Wash | 30-50 | | gal/wash | once/day | 0 |
| Pipeline in Parlor: | | | | | |
| (Higher for long Flat Barns) | 75-150 | | gal/wash | | 0 |
| Milkhouse and Parlor floors | 300-700 | | gal/wash | | 0 |
| Plate Coolers | | | gallons/milking | | 0 |
| Bucket milkers | 0 - 40 | | gallons/milking | | 0 |
| Miscellaneous | 0 - 50 | | gallons/milking | | 0 |
| Cow Preparation Wash: | Flow from Drop Hoses at each cow | | | | |
| Automatic | 0-4.5 | | gal/wash/cow | 1500 | 0 |
| Manual | 0 -.5 | | gal/wash/cow | 1500 | 0 |
| Wash Pen Sprinklers: | | | | | |
| Flow rate | 2 - 7 | | gal/min/sprinkler | | 0 |

Milkings per Day =
Strings/Milking =

Sprinklers/pen =
Minutes/Wash =
Washes/String =

Total gallons per day = 0
Total gallons less sprinklers = 0
Wash Pen use, gallons/cow = 0.0

**Do not double count water used for more than one purpose.**

- When using this table, enter "Total Gallons per day" (pink) into "Other Daily Fresh Water added to the pond" (N8) and leave "Net Daily Water Use per Milking Cow" (N7) blank.
- Do not include plate cooler water if it is reused and accounted for elsewhere in the milk barn water volumes.
- If all water is cycled through storage tanks, you may use the tank volumes along with fill/drain cycles to estimate water usage per day, rather than this table. Enter the result as "Other Daily Fresh Water added to the pond" (N8), and leave "Net Daily Water Use per Milking Cow" (N7) blank. ***Be certain to add extra water that is pumped for washing in the winter.***
- "Net Daily Water Use per Milking Cow" (N7) is used when the best water use estimate available is in terms of Gallons per Milk Cow and neither this chart or the storage tank volume method of estimation are practical to use.
- Sprinkler flow rates vary with nozzle size and operating pressure. To estimate, consult design tables or measure flow rates.
- Separating sprinkler pen water from other water can be useful when planning for storage needs. Sprinkler pen water

## Concrete, Roof, Manured, and Bare Areas Drained to the Pond

or Water

Producer: Schaffner Dairy - Parlor Water

Entered by: RC

Checked by: _____

Date: 4/2/2009

| Roof areas that may drain to pond | | | | | |
|---|---|---|---|---|---|
| Label | Width | Length | Area | Diverted | Diverted |
| | Ft | Ft | $Ft^2$ | (y or n) | Area |
| 1 | | | 0 | | 0 |
| 2 | | | 0 | | 0 |
| 3 | | | 0 | | 0 |
| 4 | | | 0 | | 0 |
| 5 | | | 0 | | 0 |
| 6 | | | 0 | | 0 |
| 7 | | | 0 | | 0 |
| 8 | | | 0 | | 0 |
| 9 | | | 0 | | 0 |
| 10 | | | 0 | | 0 |
| 11 | | | 0 | | 0 |
| 12 | | | 0 | | 0 |
| 13 | | | 0 | | 0 |
| 14 | | | 0 | | 0 |
| 15 | | | 0 | | 0 |
| 16 | | | 0 | | 0 |
| 17 | | | 0 | | 0 |
| 18 | | | 0 | | 0 |
| 19 | | | 0 | | 0 |
| 20 | | | 0 | | 0 |
| 21 | | | 0 | | 0 |
| 22 | | | 0 | | 0 |
| 23 | | | 0 | | 0 |
| 24 | | | 0 | | 0 |
| 25 | | | 0 | | 0 |
| 26 | | | 0 | | 0 |
| Total Roof Area = | | | 0 SqFt | | |
| Diverted Roof Area = | | | 0 SqFt | | |
| Undiverted Roof Area = | | | 0 SqFt | | |

| Concrete areas NOT under a roof | | | |
|---|---|---|---|
| Label | Width | Length | Area |
| | Ft | Ft | $Ft^2$ |
| A | | | 0 |
| B | | | 0 |
| C | | | 0 |
| D | | | 0 |
| E | | | 0 |
| F | | | 0 |
| G | | | 0 |
| H | | | 0 |
| J | | | 0 |
| K | | | 0 |
| L | | | 0 |
| M | | | 0 |
| N | | | 0 |
| O | | | 0 |
| P | | | 0 |
| Q | | | 0 |
| R | | | 0 |
| S | | | 0 |
| T | | | 0 |
| U | | | 0 |
| V | | | 0 |
| W | | | 0 |
| X | | | 0 |
| Y | | | 0 |
| Z | | | 0 |
| Total Area (SqFt) = | | | 0 |

**Manured and bare areas draining to the pond:**

Measure the total potential area drained to the pond. The spreadsheet will subtract the concrete and roof areas to determine the manured and bare areas.

| | | |
|---|---|---|
| Total Area drained to the pond = | 0 | SqFt |
| Total Roof Area = | 0 | SqFt |
| Concrete Areas = | 0 | SqFt |
| Total manured and bare areas = | 0.00 | Acres |

# Criteria used to evaluate Manure Management System

Producer: Schaffner Dairy - Parlor Water Entered by: RC
Date: 4/2/2009 Checked by:

## Limits for land application as set by regulatory agency

**(Note: This section is no longer used by the program)**

| | | |
|---|---|---|
| Maximum allowable non-N salts to apply per double cropped acre per year | 3000 | lb./ac./yr. |
| Maximum allowable non-N salts to apply per single cropped acre per year | 2000 | lb./ac./yr. |
| Maximum Nitrogen allowed per double cropped acre per year | 425 | lb./ac./yr. |
| Maximum Nitrogen allowed per single cropped acre per year | 250 | lb./ac./yr. |

## Manure storage site as determined by housing type

% of waste entering liquid waste stream or handled dry for each housing system*:

| | | Pond | Dry |
|---|---|---|---|
| Flushed | Freestall | 80% | 20% |
| Flushed | Lanes | 35% | 65% |
| Scraped | Freestall | 15% | 85% |
| Scraped | Drylot | 15% | 85% |

## Nitrogen and Salt Excreted per Day per unit of Body Weight

| | | per 1000 lb. | per 1400 lb. | per animal |
|---|---|---|---|---|
| Milking Cows | lbs. N/day | 0.728 | 1.02 | 1.02 |
| Dry Cows | lbs. N/day | 0.450 | 0.63 | 0.68 |
| Bred Heifers | lbs. N/day | 0.450 | 0.63 | 0.27 |
| Heifers, 1 year to breeding | lbs. N/day | 0.450 | 0.63 | 0.23 |
| Calves, 3 months to 1 year | lbs. N/day | 0.450 | 0.63 | 0.23 |
| Calves, birth to 3 months | lbs. N/day | 0.450 | 0.63 | 0.07 |
| Non-Nitrogen salt | lbs. /day | 1.282 | 1.79 | |

## Nitrogen behavior after excretion of manure

| | |
|---|---|
| Total % Nitrogen lost from dilute liquid manure | 0% |
| Total % Nitrogen lost from solid manure | 0% |
| % Nitrogen lost from land application of dilute liquid manure | 0% |
| % Nitrogen lost during storage of dilute liquid manure | 0% |
| % Nitrogen lost from land application of solid manure | 0% |
| % Nitrogen lost during storage of solid manure | 0% |

# Pond Design Factors

Producer: Schaffner Dairy - Parlor Water  Entered by: RC
Date: 04/02/09  Checked by:

| | | |
|---|---|---|
| Percent moisture in fresh manure | 88% | |
| Total waste, cu.ft./day per 1000 lb. animal | 1.37 | cu.ft./day |
| Total waste (wet), lb./day per 1000 lb. animal | 85 | lb./day |
| Density of fresh waste, feces and urine | 62 | lb./cu.ft. |
| Runoff Curve Number for manured areas | 90 | |
| Runoff Curve Number for concrete areas | 97 | |
| Runoff Curve Number for roof areas | 100 | |
| 25 Year 24 Hour Storm Rainfall | 2.5 | inches |
| Normal Rainfall Multiplication Factor | 1 | |

**Location:** El Centro 2 ssw

**Normal Runoff Determination Chart - Enter values ONLY for months waste water must be stored.**

| Month* | Monthly* Precip. in. | Monthly* Evap. in. | % Runoff** Corral Surfaces % | Runoff Corral Surfaces in. | % Runoff** Concrete Surfaces % | Runoff Concrete Surfaces in. | % Runoff** Roofed Surfaces % | Runoff Roofed Surfaces in. |
|---|---|---|---|---|---|---|---|---|
| January | 0.51 | 2.93 | 20 | 0.10 | 50 | 0.26 | 100 | 0.51 |
| February | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| March | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| April | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| May | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| June | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| July | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| August | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| September | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| October | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| November | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| December | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| Total (in.) | 0.51 | 2.93 | | 0.10 | | 0.26 | | 0.51 |

*Input Normal Rainfall data for design storage period months only.

**Use runoff percentage values from the NRCS Agricultural Waste Handbook, 10C, (5-31).

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - Yearly Production
Date: 04/02/09

Entered by: RC
Checked by:

| | Flushed Freestall | Flushed Lanes | Scraped Freestall | Scraped Drylot | Animal Weight lbs | Daily Waste $ft^3$/day |
|---|---|---|---|---|---|---|
| Milking Cows | | | | 1500 | 1,400 | 2,879 |
| Dry Cows | | | | 50 | 1,500 | 103 |
| Bred Heifers | | | | 250 | 600 | 206 |
| Heifers, 1 year to breeding | | | | 175 | 500 | 120 |
| Calves, 3 months to 1 year | | | | | 500 | |
| Calves, birth to 3 months | | | | | 150 | |

| | | |
|---|---|---|
| Design Storage Period | 365 | days |
| Net Daily Water Use per Milking Cow | | gal/cow/day |
| Other Daily Fresh Water added to the pond | 46,660 | gal/day |
| Tailwater or Dilution Water added to the pond | | gallons during Design Storage Period |
| 25 year 24 hour Storm Rainfall | 2.5 | inches |
| Normal Rainfall Multiplication Factor | 1.0 | |
| Manured surfaces draining to the pond | | acres |
| Concrete surfaces draining to the pond | | $ft^2$ |
| Roof surfaces draining to the pond | | $ft^2$ |

## Storage Volume Calculations

**1) Animal Waste Volume**

| | | | | |
|---|---|---|---|---|
| Manure Waste to be stored in the Pond | | | 496 | $ft^3$/day |
| Manure Waste handled dry and not stored in the Pond | | | 2811 | $ft^3$/day |
| Total Animal Waste Volume for the storage period of | 365 | days = | 181,040 | $ft^3$ |

**2) Barn Water Volume**

| | | | | |
|---|---|---|---|---|
| Wash Water used during the Storage Period of | 365 | days = | | $ft^3$ |
| Other Fresh Water used during the Storage Period of | 365 | days = | 2,276,554 | $ft^3$ |
| Total Barn Water Volume for the storage period of | 365 | days = | 2,276,554 | $ft^3$ |

**3) Tailwater or Dilution Water Volume**

| | | | | |
|---|---|---|---|---|
| Total Tailwater/Dilution Water for the storage period of | 365 | days = | | $ft^3$ |

**4) Rainfall and Runoff Volume**

| | 25 YR.STORM | 1.0 x NORMAL | |
|---|---|---|---|
| Runoff Volume from Manured Surfaces | | | $ft^3$ |
| Runoff Volume from Concrete Surfaces | | | $ft^3$ |
| Runoff Volume from Roof Surfaces | | | $ft^3$ |
| Rainfall on Pond Surface | 10,225 | 11,963 | $ft^3$ |
| Rainfall Subtotals | 10,225 | 11,963 | $ft^3$ |
| Total Rainfall Influence (25 Yr.+ 1.0 x Normal) | | 22,189 | $ft^3$ |
| Evaporation Credit | | 334,317 | $ft^3$ |

**5) Accumulated Residual Solids Volume**

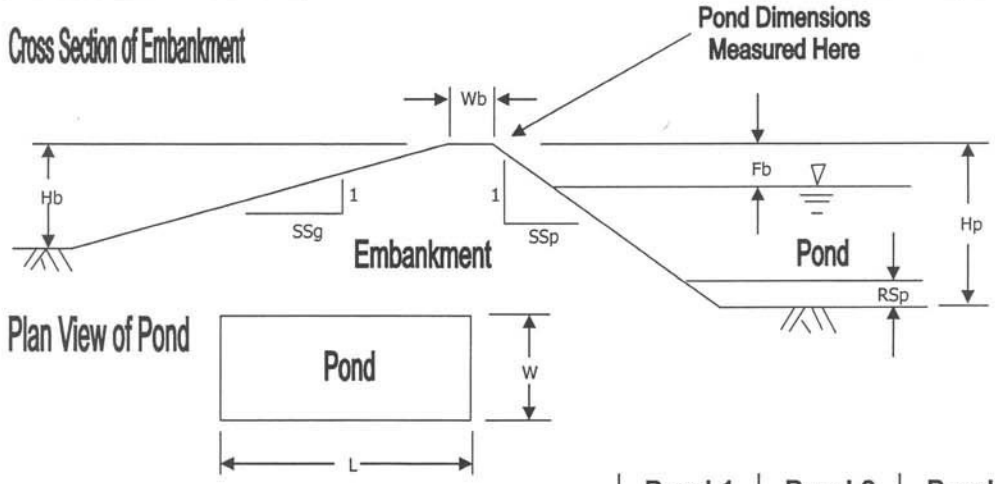
| | | |
|---|---|---|
| Total Residual Solids Volume for pond depths specified on pg. 2 | | $ft^3$ |

**6) Total Required Volume** **2,145,466** $ft^3$

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - Yearly Production
Date: 04/02/09

Entered by: RC
Checked by:




| | | | Pond 1 | Pond 2 | Pond 3 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | 1 | 1 | |
| Hp | Depth of Pond (freeboard + design depth) | ft | 5 | 4.5 | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | 2 | 2 | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut : Fill Ratio | 'X' Cut:1 Fill | | | |

| | | | Pond 4 | Pond 5 | Pond 6 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | | | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut : Fill Ratio | 'X' Cut:1 Fill | | | |

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - Yearly Production
Date: 04/02/09

Entered by: RC
Checked by:

| Volumes | Pond 1 | Pond 2 | Pond 3 | |
|---|---|---|---|---|
| Pond Storage Capacity | 65,340 | 76,230 | | $ft^3$ |
| Additional Required Storage | 2,080,126 | 2,003,896 | | $ft^3$ |
| Cumulative Storage is: | Inadequate | Inadequate | | |
| **Dimensions** | | | | |
| Footprint Length | | | | ft |
| Footprint Width | | | | ft |
| Bottom Length | -20 | -18 | | ft |
| Bottom Width | -20 | -18 | | ft |
| Bank Full Surface Area | 17,000 | 31,500 | | $ft^2$ |
| Surface Area at Max Capacity | 16,476 | 31,091 | | $ft^2$ |
| **Earthwork** | | | | |
| Total Cut | 25 | 18 | | cy |
| Potential Available Fill | | | | cy |
| Total Fill Needed | | | | cy |
| Excess Material* | | | | cy |

* Negative numbers indicate imported material is required.

| Volumes | Pond 4 | Pond 5 | Pond 6 | |
|---|---|---|---|---|
| Pond Storage Capacity | | | | $ft^3$ |
| Additional Required Storage | | | | $ft^3$ |
| Cumulative Storage is: | | | | |
| **Dimensions** | | | | |
| Footprint Length | | | | ft |
| Footprint Width | | | | ft |
| Bottom Length | | | | ft |
| Bottom Width | | | | ft |
| Bank Full Surface Area | | | | $ft^2$ |
| Surface Area at Max Capacity | | | | $ft^2$ |
| **Earthwork** | | | | |
| Total Cut | | | | cy |
| Potential Available Fill | | | | cy |
| Total Fill Needed | | | | cy |
| Excess Material* | | | | cy |

* Negative numbers indicate imported material is required.

## Summary Conclusion:

| | | |
|---|---|---|
| Combined Pond Capacity | 141,570 | $ft^3$ |
| Required Pond Capacity | 2,145,466 | $ft^3$ |

**Combined Pond Capacity is NOT ADEQUATE**

| | | |
|---|---|---|
| Pumpable Capacity* | 982,523 | gal |

* For entry into MMP Storage Tab (Combined Pond Capacity - 25yr storm subtotals - Residual Solids Volume)

# Data Used in Farm Wide Initial Nitrogen Balance Assessment

Producer: Schaffner Dairy - Yearly Producti  Date: 4/2/2009  Entered by: RC
Checked by:

| Animal Description | Number of Animals | Estimated Avg weight |
|---|---|---|
| Milking Cows | 1500 | 1400 |
| Dry Cows | 50 | 1500 |
| Bred Heifers | 250 | 600 |
| Heifers, 1 year to breeding | 175 | 500 |
| Calves, 3 months to 1 year | 0 | 500 |
| Calves, birth to 3 months | 0 | 150 |

2,413 Total 1000 lb. AUs
1,975 Total Animals

Breed of Cows
Holstein

| Animal Housing<br>The sum of each row should equal 100%. | % of animals in each facility type | | | |
|---|---|---|---|---|
| | Flushed Freestall | Scraped Freestall | Flushed Lanes | Scraped Drylot |
| Milking Cows | | | | 100% |
| Dry Cows | | | | 100% |
| Bred Heifers | | | | 100% |
| Heifers, 1 year to breeding | | | | 100% |
| Calves, 3 months to 1 year | | | | 100% |
| Calves, birth to 3 months | | | | 100% |

**Waste Use and Treatment**

| | | |
|---|---|---|
| Percent of dry manure used off dairy | 0% | |
| Percent of waste water used off dairy | 0% | |
| Tons of N imported with bedding per year | 0.0 | N, Tons/yr |
| Double cropped acres used to dispose of waste onsite | | Acres |
| Single cropped acres used to dispose of waste onsite | | Acres |
| Cost per unit of commercial Nitrogen | | $/lb. - N |

**Current Cropping data**

| Crop Code | Crop Name | Acres | Yield (tons/ac) | % Moisture | % Protein | Fertilizer N lbs/ac. | Irrigation N lbs/ac. | Legume N lbs/ac |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

Include acres for each crop of double or triple cropped fields on separate rows of the table. For example, a 40 acre field used to grow corn silage and small grain silage in the same year would appear in this table as 40 acres of corn silage and 40 acres of small grain silage.

## Data Used in Storage Pond Calculations

Entered by: RC

Producer: Schaffner Dairy - Yearly Production  Date: 4/2/2009  Checked by: _____

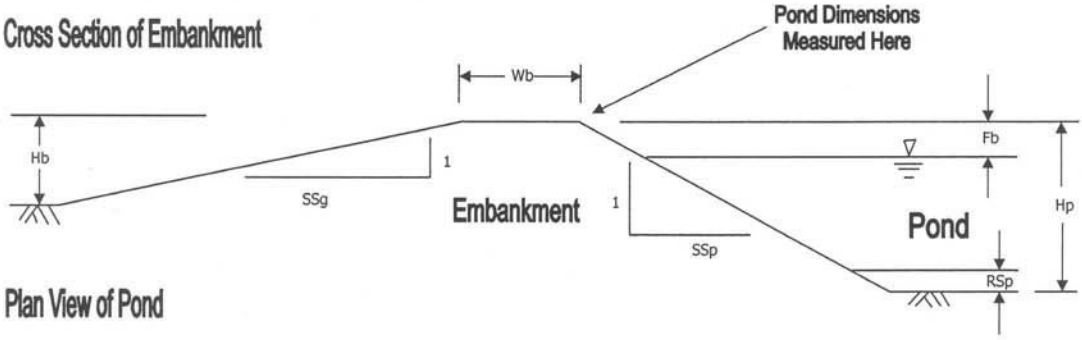
### Pond Design Data

| | | |
|---|---|---|
| Design Storage Period | 365 | days |
| Net Daily Water Use per Milking Cow | | gal/cow/day |
| Other Daily Fresh Water added to the pond | 46,660 | gal/day |
| Tailwater or Dilution Water added to the pond | | gallons during Design Storage Period |
| Manured surfaces draining to the pond | 0.0 | acres |
| Concrete surfaces draining to the pond | 0 | $ft^2$ |
| Roof surfaces draining to the pond | 0 | $ft^2$ |

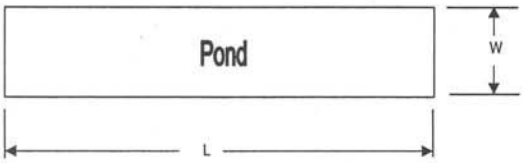
| | | | Pond 1 | Pond 2 | Pond 3 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | 1.0 | 1.0 | |
| Hp | Depth of Pond (freeboard + design depth) | ft | 5.0 | 4.5 | |
| RSp | Residual Solids Accumulation | ft | 0.0 | 0.0 | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | 2.0 | 2.0 | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut:Fill Ratio | 'X' Cut:1 Fill | | | |

| | | | Pond 4 | Pond 5 | Pond 6 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | | | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut:Fill Ratio | 'X' Cut:1 Fill | | | |

### Cross Section of Embankment




### Plan View of Pond



## Data Used in Dairy Waste Management Calculations

Producer: Schaffner Dairy - Year

Date: 4/2/2009

| Crop Code | Crop Name | Units | Average Yield | % Moisture (typical) | % Protein (typical) | N LB/Unit |
|---|---|---|---|---|---|---|
| 1 | Alfalfa hay | tons | 8 | (10%) | 18%-24% (21%) | 60 |
| 2 | Barley (grain) | tons | 2.5 | | | 64 |
| 3 | Barley Silage, boot stage | tons | 8 | (70%) | 15%-19% (17%) | 16 |
| 4 | Barley Silage, soft dough | tons | 16 | (70%) | 8%-12% (10%) | 10 |
| 5 | Bermudagrass, hay | tons | 8 | (10%) | 9% - 13% (11%) | 35 |
| 6 | Corn (grain) | tons | 5 | | | 48 |
| 7 | Corn (silage) | tons | 30 | (70%) | 8%-11% (9%) | 8 |
| 8 | Cotton | bale | 3 | | | 80 |
| 9 | Clover-grass, hay | tons | 6 | (10%) | 10%- 14% (12%) | 38 |
| 10 | Oats (grain) | tons | 1.6 | | | 100 |
| 11 | Oats silage, soft dough | tons | 12 | (70%) | 8%-15% (12%) | 10 |
| 12 | Oats (hay) | tons | 4 | (10%) | 8%-15% (12%) | 40 |
| 13 | Tall Fescue, hay | tons | 6 | (10%) | 8%-12%(10%) | 32 |
| 14 | Safflower | tons | 2 | | | 100 |
| 15 | Sorghum | tons | 4 | (10%) | | 50 |
| 16 | Sudan silage | tons | 8/cutting | (70%) | 8%-12% (10%) | 11 |
| 17 | Sudan hay | tons | 8 | (10%) | 8%-12% (10%) | 32 |
| 18 | Sugar Beets | tons | 30 | | | 9 |
| 19 | Triticale, boot stage | tons | 12 | (70%) | 14%-18% (16%) | 15 |
| 20 | Triticale, soft dough | tons | 22 | (70%) | 8%-12% (10%) | 10 |
| 21 | Wheat (grain) | tons | 3 | (10%) | | 58 |
| 22 | Wheat Silage, boot stage | tons | 10 | (70%) | 15%-19% (17%) | 16 |
| 23 | Wheat Silage, soft dough | tons | 18 | (70%) | 9%-13% (11%) | 11 |
| 24 | Orchardgrass, hay | tons | 6 | (10%) | 9%-14% (11%) | 35 |
| 25 | Ryegrass, hay | tons | 6 | (10%) | 8%-12% (10%) | 32 |
| 26 | Timothy, hay | tons | 6 | (10%) | 9%-14% (11%) | 35 |
| 99 | Other | | | | | |

| Estimate of daily winter Barn Water Usage | Typical Volume | Estimated Volume | Units | Number per milking | Total gallons/day |
|---|---|---|---|---|---|
| Bulk Tank: | | | | | |
| Automatic, 3 cycle wash | 60-110 | | gal/wash | once/day | 0 |
| Manual Wash | 30-50 | | gal/wash | once/day | 0 |
| Pipeline in Parlor: | | | | | |
| (Higher for long Flat Barns) | 75-150 | | gal/wash | | 0 |
| Milkhouse and Parlor floors | 300-700 | | gal/wash | | 0 |
| Plate Coolers | | | gallons/milking | | 0 |
| Bucket milkers | 0 - 40 | | gallons/milking | | 0 |
| Miscellaneous | 0 - 50 | | gallons/milking | | 0 |
| Cow Preparation Wash: | Flow from Drop Hoses at each cow | | | | |
| Automatic | 0-4.5 | | gal/wash/cow | 1500 | 0 |
| Manual | 0 -.5 | | gal/wash/cow | 1500 | 0 |
| Wash Pen Sprinklers: | | | | | |
| Flow rate | 2 - 7 | | gal/min/sprinkler | | 0 |

Milkings per Day =
Strings/Milking =

Sprinklers/pen =
Minutes/Wash =
Washes/String =

Total gallons per day = 0
Total gallons less sprinklers = 0
Wash Pen use, gallons/cow = 0.0

**Do not double count water used for more than one purpose.**

- When using this table, enter "Total Gallons per day" (pink) into "Other Daily Fresh Water added to the pond" (N8) and leave "Net Daily Water Use per Milking Cow" (N7) blank.
- Do not include plate cooler water if it is reused and accounted for elsewhere in the milk barn water volumes.
- If all water is cycled through storage tanks, you may use the tank volumes along with fill/drain cycles to estimate water usage per day, rather than this table. Enter the result as "Other Daily Fresh Water added to the pond" (N8), and leave "Net Daily Water Use per Milking Cow" (N7) blank. ***Be certain to add extra water that is pumped for washing in the winter.***
- "Net Daily Water Use per Milking Cow" (N7) is used when the best water use estimate available is in terms of Gallons per Milk Cow and neither this chart or the storage tank volume method of estimation are practical to use.
- Sprinkler flow rates vary with nozzle size and operating pressure. To estimate, consult design tables or measure flow rates.
- Separating sprinkler pen water from other water can be useful when planning for storage needs. Sprinkler pen water

## Concrete, Roof, Manured, and Bare Areas Drained to the Pond

·ly Production

Producer: Schaffner Dairy - Yearly Production

Entered by: RC

Checked by: _____

Date: 4/2/2009

| Roof areas that may drain to pond | | | | | |
|---|---|---|---|---|---|
| Label | Width | Length | Area | Diverted | Diverted |
| | Ft | Ft | $Ft^2$ | (y or n) | Area |
| 1 | | | 0 | | 0 |
| 2 | | | 0 | | 0 |
| 3 | | | 0 | | 0 |
| 4 | | | 0 | | 0 |
| 5 | | | 0 | | 0 |
| 6 | | | 0 | | 0 |
| 7 | | | 0 | | 0 |
| 8 | | | 0 | | 0 |
| 9 | | | 0 | | 0 |
| 10 | | | 0 | | 0 |
| 11 | | | 0 | | 0 |
| 12 | | | 0 | | 0 |
| 13 | | | 0 | | 0 |
| 14 | | | 0 | | 0 |
| 15 | | | 0 | | 0 |
| 16 | | | 0 | | 0 |
| 17 | | | 0 | | 0 |
| 18 | | | 0 | | 0 |
| 19 | | | 0 | | 0 |
| 20 | | | 0 | | 0 |
| 21 | | | 0 | | 0 |
| 22 | | | 0 | | 0 |
| 23 | | | 0 | | 0 |
| 24 | | | 0 | | 0 |
| 25 | | | 0 | | 0 |
| 26 | | | 0 | | 0 |
| Total Roof Area = | | | 0 SqFt | | |
| Diverted Roof Area = | | | 0 SqFt | | |
| Undiverted Roof Area = | | | 0 SqFt | | |

| Concrete areas NOT under a roof | | | |
|---|---|---|---|
| Label | Width | Length | Area |
| | Ft | Ft | $Ft^2$ |
| A | | | 0 |
| B | | | 0 |
| C | | | 0 |
| D | | | 0 |
| E | | | 0 |
| F | | | 0 |
| G | | | 0 |
| H | | | 0 |
| J | | | 0 |
| K | | | 0 |
| L | | | 0 |
| M | | | 0 |
| N | | | 0 |
| O | | | 0 |
| P | | | 0 |
| Q | | | 0 |
| R | | | 0 |
| S | | | 0 |
| T | | | 0 |
| U | | | 0 |
| V | | | 0 |
| W | | | 0 |
| X | | | 0 |
| Y | | | 0 |
| Z | | | 0 |
| Total Area (SqFt) = | | | 0 |

**Manured and bare areas draining to the pond:**

Measure the total potential area drained to the pond. The spreadsheet will subtract the concrete and roof areas to determine the manured and bare areas.

| | | |
|---|---|---|
| Total Area drained to the pond = | 0 | SqFt |
| Total Roof Area = | 0 | SqFt |
| Concrete Areas = | 0 | SqFt |
| Total manured and bare areas = | 0.00 | Acres |

# Criteria used to evaluate Manure Management System

Producer: Schaffner Dairy - Yearly Produ Entered by: RC
Date: 4/2/2009 Checked by:

## Limits for land application as set by regulatory agency

**(Note: This section is no longer used by the program)**

| | | |
|---|---|---|
| Maximum allowable non-N salts to apply per double cropped acre per year | 3000 | lb./ac./yr. |
| Maximum allowable non-N salts to apply per single cropped acre per year | 2000 | lb./ac./yr. |
| Maximum Nitrogen allowed per double cropped acre per year | 425 | lb./ac./yr. |
| Maximum Nitrogen allowed per single cropped acre per year | 250 | lb./ac./yr. |

## Manure storage site as determined by housing type

% of waste entering liquid waste stream or handled dry for each housing system*:

| | | Pond | Dry |
|---|---|---|---|
| Flushed | Freestall | 80% | 20% |
| Flushed | Lanes | 35% | 65% |
| Scraped | Freestall | 15% | 85% |
| Scraped | Drylot | 15% | 85% |

## Nitrogen and Salt Excreted per Day per unit of Body Weight

| | | per 1000 lb. | per 1400 lb. | per animal |
|---|---|---|---|---|
| Milking Cows | lbs. N/day | 0.728 | 1.02 | 1.02 |
| Dry Cows | lbs. N/day | 0.450 | 0.63 | 0.68 |
| Bred Heifers | lbs. N/day | 0.450 | 0.63 | 0.27 |
| Heifers, 1 year to breeding | lbs. N/day | 0.450 | 0.63 | 0.23 |
| Calves, 3 months to 1 year | lbs. N/day | 0.450 | 0.63 | 0.23 |
| Calves, birth to 3 months | lbs. N/day | 0.450 | 0.63 | 0.07 |
| Non-Nitrogen salt | lbs. /day | 1.282 | 1.79 | |

## Nitrogen behavior after excretion of manure

| | |
|---|---|
| Total % Nitrogen lost from dilute liquid manure | 0% |
| Total % Nitrogen lost from solid manure | 0% |
| % Nitrogen lost from land application of dilute liquid manure | 0% |
| % Nitrogen lost during storage of dilute liquid manure | 0% |
| % Nitrogen lost from land application of solid manure | 0% |
| % Nitrogen lost during storage of solid manure | 0% |

# Pond Design Factors

Producer: Schaffner Dairy - Yearly Produc Entered by: RC
Date: 04/02/09 Checked by:

| | | |
|---|---|---|
| Percent moisture in fresh manure | 88% | |
| Total waste, cu.ft./day per 1000 lb. animal | 1.37 | cu.ft./day |
| Total waste (wet), lb./day per 1000 lb. animal | 85 | lb./day |
| Density of fresh waste, feces and urine | 62 | lb./cu.ft. |
| Runoff Curve Number for manured areas | 90 | |
| Runoff Curve Number for concrete areas | 97 | |
| Runoff Curve Number for roof areas | 100 | |
| 25 Year 24 Hour Storm Rainfall | 2.5 | inches |
| Normal Rainfall Multiplication Factor | 1 | |

**Location:** El Centro

**Normal Runoff Determination Chart - Enter values ONLY for months waste water must be stored.**

| Month* | Monthly* Precip. in. | Monthly* Evap. in. | % Runoff** Corral Surfaces % | Runoff Corral Surfaces in. | % Runoff** Concrete Surfaces % | Runoff Concrete Surfaces in. | % Runoff** Roofed Surfaces % | Runoff Roofed Surfaces in. |
|---|---|---|---|---|---|---|---|---|
| January | 0.51 | 2.93 | 20 | 0.10 | 50 | 0.26 | 100 | 0.51 |
| February | 0.36 | 3.96 | 20 | 0.07 | 50 | 0.18 | 100 | 0.36 |
| March | 0.31 | 6.22 | 20 | 0.06 | 50 | 0.16 | 100 | 0.31 |
| April | 0.05 | 8.14 | 20 | 0.01 | 50 | 0.03 | 100 | 0.05 |
| May | 0.03 | 10.20 | 20 | 0.01 | 50 | 0.02 | 100 | 0.03 |
| June | 0.01 | 11.30 | 20 | 0.00 | 50 | 0.01 | 100 | 0.01 |
| July | 0.06 | 11.30 | 20 | 0.01 | 50 | 0.03 | 100 | 0.06 |
| August | 0.32 | 10.20 | 20 | 0.06 | 50 | 0.16 | 100 | 0.32 |
| September | 0.36 | 8.14 | 20 | 0.07 | 50 | 0.18 | 100 | 0.36 |
| October | 0.36 | 5.85 | 20 | 0.07 | 50 | 0.18 | 100 | 0.36 |
| November | 0.17 | 3.54 | 20 | 0.03 | 50 | 0.09 | 100 | 0.17 |
| December | 0.42 | 2.56 | 20 | 0.08 | 50 | 0.21 | 100 | 0.42 |
| Total (in.) | 2.96 | 84.34 | | 0.59 | | 1.48 | | 2.96 |

*Input Normal Rainfall data for design storage period months only.

**Use runoff percentage values from the NRCS Agricultural Waste Handbook, 10C, (5-31).

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - rainfall runoff
Date: 04/02/09

Entered by: RC
Checked by:

| | Flushed Freestall | Flushed Lanes | Scraped Freestall | Scraped Drylot | Animal Weight lbs | Daily Waste $ft^3$/day |
|---|---|---|---|---|---|---|
| Milking Cows | | | | | 1,400 | |
| Dry Cows | | | | | 1,500 | |
| Bred Heifers | | | | | 600 | |
| Heifers, 1 year to breeding | | | | | 500 | |
| Calves, 3 months to 1 year | | | | | 500 | |
| Calves, birth to 3 months | | | | | 150 | |

| | | |
|---|---|---|
| Design Storage Period | 120 | days |
| Net Daily Water Use per Milking Cow | | gal/cow/day |
| Other Daily Fresh Water added to the pond | | gal/day |
| Tailwater or Dilution Water added to the pond | | gallons during Design Storage Period |
| 25 year 24 hour Storm Rainfall | 2.5 | inches |
| Normal Rainfall Multiplication Factor | 1.0 | |
| Manured surfaces draining to the pond | 17.7 | acres |
| Concrete surfaces draining to the pond | | $ft^2$ |
| Roof surfaces draining to the pond | | $ft^2$ |

## Storage Volume Calculations

**1) Animal Waste Volume**

| | | | | |
|---|---|---|---|---|
| Manure Waste to be stored in the Pond | | | | $ft^3$/day |
| Manure Waste handled dry and not stored in the Pond | | | | $ft^3$/day |
| Total Animal Waste Volume for the storage period of | 120 | days = | | $ft^3$ |

**2) Barn Water Volume**

| | | | | |
|---|---|---|---|---|
| Wash Water used during the Storage Period of | 120 | days = | | $ft^3$ |
| Other Fresh Water used during the Storage Period of | 120 | days = | | $ft^3$ |
| Total Barn Water Volume for the storage period of | 120 | days = | | $ft^3$ |

**3) Tailwater or Dilution Water Volume**

| | | | | |
|---|---|---|---|---|
| Total Tailwater/Dilution Water for the storage period of | 120 | days = | | $ft^3$ |

**4) Rainfall and Runoff Volume**

| | 25 YR.STORM | 1.0 x NORMAL | |
|---|---|---|---|
| Runoff Volume from Manured Surfaces | 51,811 | 20,533 | $ft^3$ |
| Runoff Volume from Concrete Surfaces | | | $ft^3$ |
| Runoff Volume from Roof Surfaces | | | $ft^3$ |
| Rainfall on Pond Surface | | | $ft^3$ |
| Rainfall Subtotals | 51,811 | 20,533 | $ft^3$ |
| Total Rainfall Influence (25 Yr.+ 1.0 x Normal) | | 72,344 | $ft^3$ |
| Evaporation Credit | | 713,659 | $ft^3$ |

**5) Accumulated Residual Solids Volume**

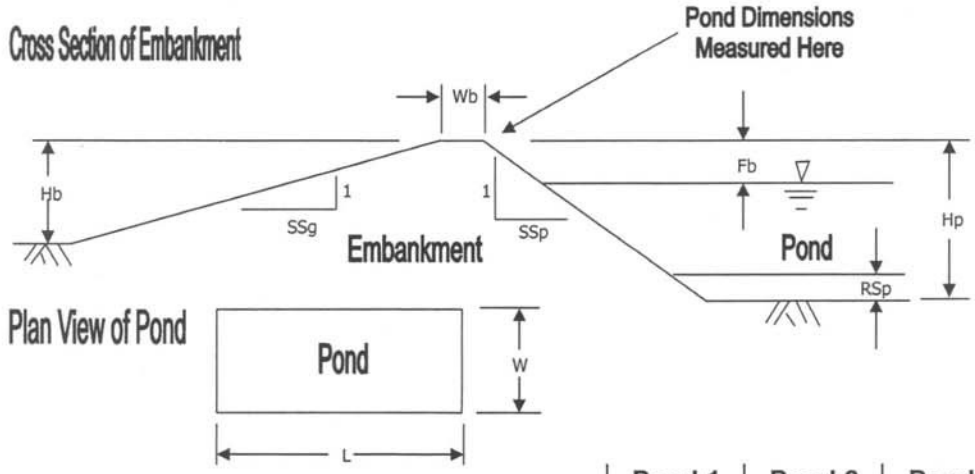
| | | |
|---|---|---|
| Total Residual Solids Volume for pond depths specified on pg. 2 | | $ft^3$ |

**6) Total Required Volume** **51,811** **$ft^3$**

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - rainfall runoff
Date: 04/02/09

Entered by: RC
Checked by:




| | | | Pond 1 | Pond 2 | Pond 3 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | 1.0 | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | 1.1 | | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | 2 | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | 650 | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | 850 | | |
| C:F | Cut : Fill Ratio | 'X' Cut:1 Fill | | | |

| | | | Pond 4 | Pond 5 | Pond 6 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | | | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut : Fill Ratio | 'X' Cut:1 Fill | | | |

# Dairy Waste Storage Pond Design

Producer: Schaffner Dairy - rainfall
Date: 04/02/09

Entered by: RC
Checked by:

| Volumes | Pond 1 | Pond 2 | Pond 3 | |
|---|---|---|---|---|
| Pond Storage Capacity | 54,622 | | | $ft^3$ |
| Additional Required Storage | none | | | $ft^3$ |
| Cumulative Storage is: | Adequate | | | |
| **Dimensions** | | | | |
| Footprint Length | 650 | | | ft |
| Footprint Width | 850 | | | ft |
| Bottom Length | 646 | | | ft |
| Bottom Width | 846 | | | ft |
| Bank Full Surface Area | 552,500 | | | $ft^2$ |
| Surface Area at Max Capacity | 546,516 | | | $ft^2$ |
| **Earthwork** | | | | |
| Total Cut | 22,375 | | | cy |
| Potential Available Fill | | | | cy |
| Total Fill Needed | | | | cy |
| Excess Material* | | | | cy |

* Negative numbers indicate imported material is required.

| Volumes | Pond 4 | Pond 5 | Pond 6 | |
|---|---|---|---|---|
| Pond Storage Capacity | | | | $ft^3$ |
| Additional Required Storage | | | | $ft^3$ |
| Cumulative Storage is: | | | | |
| **Dimensions** | | | | |
| Footprint Length | | | | ft |
| Footprint Width | | | | ft |
| Bottom Length | | | | ft |
| Bottom Width | | | | ft |
| Bank Full Surface Area | | | | $ft^2$ |
| Surface Area at Max Capacity | | | | $ft^2$ |
| **Earthwork** | | | | |
| Total Cut | | | | cy |
| Potential Available Fill | | | | cy |
| Total Fill Needed | | | | cy |
| Excess Material* | | | | cy |

* Negative numbers indicate imported material is required.

## Summary Conclusion:

| | | |
|---|---|---|
| Combined Pond Capacity | 54,622 | $ft^3$ |
| Required Pond Capacity | 51,811 | $ft^3$ |

**Combined Pond Capacity is ADEQUATE**

| | | |
|---|---|---|
| Pumpable Capacity* | 21,026 | gal |

* For entry into MMP Storage Tab (Combined Pond Capacity - 25yr storm subtotals - Residual Solids Volume)

# Data Used in Farm Wide Initial Nitrogen Balance Assessment

Producer: Schaffner Dairy - rainfall runoff  Date: 4/2/2009  Entered by: RC
Checked by:

| Animal Description | Number of Animals | Estimated Avg weight |
|---|---|---|
| Milking Cows | 0 | 1400 |
| Dry Cows | 0 | 1500 |
| Bred Heifers | 0 | 600 |
| Heifers, 1 year to breeding | 0 | 500 |
| Calves, 3 months to 1 year | 0 | 500 |
| Calves, birth to 3 months | 0 | 150 |

0 Total 1000 lb. AUs
0 Total Animals

Breed of Cows
Holstein

| Animal Housing<br>The sum of each row should equal 100%. | % of animals in each facility type | | | |
|---|---|---|---|---|
| | Flushed Freestall | Scraped Freestall | Flushed Lanes | Scraped Drylot |
| Milking Cows | | | | 100% |
| Dry Cows | | | | 100% |
| Bred Heifers | | | | 100% |
| Heifers, 1 year to breeding | | | | 100% |
| Calves, 3 months to 1 year | | | | 100% |
| Calves, birth to 3 months | | | | 100% |

**Waste Use and Treatment**

| | | |
|---|---|---|
| Percent of dry manure used off dairy | 0% | |
| Percent of waste water used off dairy | 0% | |
| Tons of N imported with bedding per year | 0.0 | N, Tons/yr |
| Double cropped acres used to dispose of waste onsite | | Acres |
| Single cropped acres used to dispose of waste onsite | | Acres |
| Cost per unit of commercial Nitrogen | | $/lb. - N |

**Current Cropping data**

| Crop Code | Crop Name | Acres | Yield (tons/ac) | % Moisture | % Protein | Fertilizer N lbs/ac. | Irrigation N lbs/ac. | Legume N lbs/ac |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

Include acres for each crop of double or triple cropped fields on separate rows of the table. For example, a 40 acre field used to grow corn silage and small grain silage in the same year would appear in this table as 40 acres of corn silage and 40 acres of small grain silage.

## Data Used in Storage Pond Calculations

Entered by: RC

Producer: Schaffner Dairy - rainfall runoff  Date: 4/2/2009  Checked by: _____

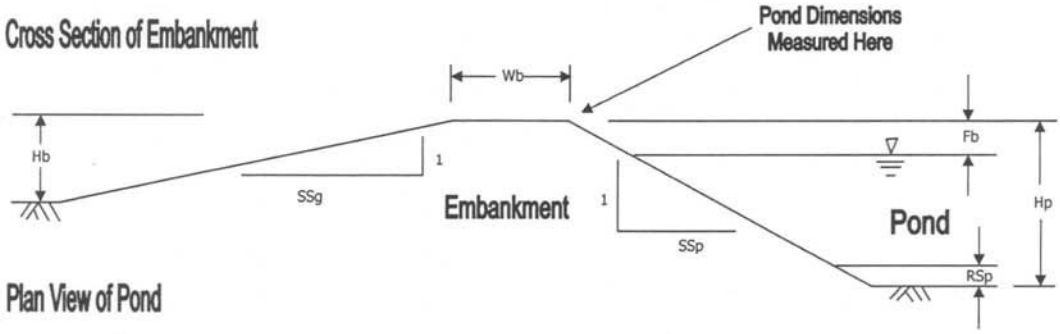
### Pond Design Data

| | | |
|---|---|---|
| Design Storage Period | 120 | days |
| Net Daily Water Use per Milking Cow | 0 | gal/cow/day |
| Other Daily Fresh Water added to the pond | 0 | gal/day |
| Tailwater or Dilution Water added to the pond | | gallons during Design Storage Period |
| Manured surfaces draining to the pond | 17.7 | acres |
| Concrete surfaces draining to the pond | 0 | $ft^2$ |
| Roof surfaces draining to the pond | 0 | $ft^2$ |

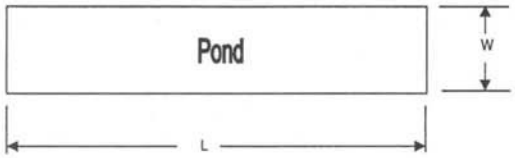
| | | | Pond 1 | Pond 2 | Pond 3 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | 1.0 | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | 1.1 | | |
| RSp | Residual Solids Accumulation | ft | 0.0 | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | 2.0 | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | 650 | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | 850 | | |
| C:F | Cut:Fill Ratio | 'X' Cut:1 Fill | | | |

| | | | Pond 4 | Pond 5 | Pond 6 |
|---|---|---|---|---|---|
| Hb | Embankment Height | ft | | | |
| Wb | Embankment Top Width | ft | | | |
| Fb | Freeboard | ft | | | |
| Hp | Depth of Pond (freeboard + design depth) | ft | | | |
| RSp | Residual Solids Accumulation | ft | | | |
| SSg | Side Slope (Ground Side) | 'X' Horiz:1 Vert | | | |
| SSp | Side Slope (Pond Side) | 'X' Horiz:1 Vert | | | |
| L | Pond Length (measured at top inside edge of embankment) | ft | | | |
| W | Pond Width (measured at top inside edge of embankment) | ft | | | |
| C:F | Cut:Fill Ratio | 'X' Cut:1 Fill | | | |

**Cross Section of Embankment**




**Plan View of Pond**



## Data Used in Dairy Waste Management Calculations

Producer: Schaffner Dairy - rainf

Date: 4/2/2009

| Crop Code | Crop Name | Units | Average Yield | % Moisture (typical) | % Protein (typical) | N LB/Unit |
|---|---|---|---|---|---|---|
| 1 | Alfalfa hay | tons | 8 | (10%) | 18%-24% (21%) | 60 |
| 2 | Barley (grain) | tons | 2.5 | | | 64 |
| 3 | Barley Silage, boot stage | tons | 8 | (70%) | 15%-19% (17%) | 16 |
| 4 | Barley Silage, soft dough | tons | 16 | (70%) | 8%-12% (10%) | 10 |
| 5 | Bermudagrass, hay | tons | 8 | (10%) | 9% - 13% (11%) | 35 |
| 6 | Corn (grain) | tons | 5 | | | 48 |
| 7 | Corn (silage) | tons | 30 | (70%) | 8%-11% (9%) | 8 |
| 8 | Cotton | bale | 3 | | | 80 |
| 9 | Clover-grass, hay | tons | 6 | (10%) | 10%- 14% (12%) | 38 |
| 10 | Oats (grain) | tons | 1.6 | | | 100 |
| 11 | Oats silage, soft dough | tons | 12 | (70%) | 8%-15% (12%) | 10 |
| 12 | Oats (hay) | tons | 4 | (10%) | 8%-15% (12%) | 40 |
| 13 | Tall Fescue, hay | tons | 6 | (10%) | 8%-12%(10%) | 32 |
| 14 | Safflower | tons | 2 | | | 100 |
| 15 | Sorghum | tons | 4 | (10%) | | 50 |
| 16 | Sudan silage | tons | 8/cutting | (70%) | 8%-12% (10%) | 11 |
| 17 | Sudan hay | tons | 8 | (10%) | 8%-12% (10%) | 32 |
| 18 | Sugar Beets | tons | 30 | | | 9 |
| 19 | Triticale, boot stage | tons | 12 | (70%) | 14%-18% (16%) | 15 |
| 20 | Triticale, soft dough | tons | 22 | (70%) | 8%-12% (10%) | 10 |
| 21 | Wheat (grain) | tons | 3 | (10%) | | 58 |
| 22 | Wheat Silage, boot stage | tons | 10 | (70%) | 15%-19% (17%) | 16 |
| 23 | Wheat Silage, soft dough | tons | 18 | (70%) | 9%-13% (11%) | 11 |
| 24 | Orchardgrass, hay | tons | 6 | (10%) | 9%-14% (11%) | 35 |
| 25 | Ryegrass, hay | tons | 6 | (10%) | 8%-12% (10%) | 32 |
| 26 | Timothy, hay | tons | 6 | (10%) | 9%-14% (11%) | 35 |
| 99 | Other | | | | | |

| Estimate of daily winter Barn Water Usage | Typical Volume | Estimated Volume | Units | Number per milking | Total gallons/day |
|---|---|---|---|---|---|
| Bulk Tank: | | | | | |
| Automatic, 3 cycle wash | 60-110 | | gal/wash | once/day | 0 |
| Manual Wash | 30-50 | | gal/wash | once/day | 0 |
| Pipeline in Parlor: | | | | | |
| (Higher for long Flat Barns) | 75-150 | | gal/wash | | 0 |
| Milkhouse and Parlor floors | 300-700 | | gal/wash | | 0 |
| Plate Coolers | | | gallons/milking | | 0 |
| Bucket milkers | 0 - 40 | | gallons/milking | | 0 |
| Miscellaneous | 0 - 50 | | gallons/milking | | 0 |
| Cow Preparation Wash: | Flow from Drop Hoses at each cow | | | | |
| Automatic | 0-4.5 | | gal/wash/cow | 0 | 0 |
| Manual | 0 -.5 | | gal/wash/cow | 0 | 0 |
| Wash Pen Sprinklers: | | | | | |
| Flow rate | 2 - 7 | | gal/min/sprinkler | | 0 |

Milkings per Day =
Strings/Milking =

Sprinklers/pen =
Minutes/Wash =
Washes/String =

Total gallons per day = 0
Total gallons less sprinklers = 0
Wash Pen use, gallons/cow =

**Do not double count water used for more than one purpose.**

- When using this table, enter "Total Gallons per day" (pink) into "Other Daily Fresh Water added to the pond" (N8) and leave "Net Daily Water Use per Milking Cow" (N7) blank.
- Do not include plate cooler water if it is reused and accounted for elsewhere in the milk barn water volumes.
- If all water is cycled through storage tanks, you may use the tank volumes along with fill/drain cycles to estimate water usage per day, rather than this table. Enter the result as "Other Daily Fresh Water added to the pond" (N8), and leave "Net Daily Water Use per Milking Cow" (N7) blank. ***Be certain to add extra water that is pumped for washing in the winter.***
- "Net Daily Water Use per Milking Cow" (N7) is used when the best water use estimate available is in terms of Gallons per Milk Cow and neither this chart or the storage tank volume method of estimation are practical to use.
- Sprinkler flow rates vary with nozzle size and operating pressure. To estimate, consult design tables or measure flow rates.
- Separating sprinkler pen water from other water can be useful when planning for storage needs. Sprinkler pen water

## Concrete, Roof, Manured, and Bare Areas Drained to the Pond

all runoff

Producer: Schaffner Dairy - rainfall runoff

Entered by: RC

Checked by: _____

Date: 4/2/2009

| Roof areas that may drain to pond | | | | | |
|---|---|---|---|---|---|
| Label | Width | Length | Area | Diverted | Diverted |
| | Ft | Ft | $Ft^2$ | (y or n) | Area |
| 1 | 675 | 40 | 27000 | | 27000 |
| 2 | 700 | 40 | 28000 | | 28000 |
| 3 | 125 | 32 | 4000 | | 4000 |
| 4 | 125 | 32 | 4000 | | 4000 |
| 5 | 125 | 32 | 4000 | | 4000 |
| 6 | 100 | 32 | 3200 | | 3200 |
| 7 | 275 | 32 | 8800 | | 8800 |
| 8 | 275 | 32 | 8800 | | 8800 |
| 9 | 400 | 16 | 6400 | | 6400 |
| 10 | 200 | 52 | 10400 | | 10400 |
| 11 | 450 | 24 | 10800 | | 10800 |
| 12 | 450 | 32 | 14400 | | 14400 |
| 13 | 125 | 50 | 6250 | | 6250 |
| 14 | | | 0 | | 0 |
| 15 | | | 0 | | 0 |
| 16 | | | 0 | | 0 |
| 17 | | | 0 | | 0 |
| 18 | | | 0 | | 0 |
| 19 | | | 0 | | 0 |
| 20 | | | 0 | | 0 |
| 21 | | | 0 | | 0 |
| 22 | | | 0 | | 0 |
| 23 | | | 0 | | 0 |
| 24 | | | 0 | | 0 |
| 25 | | | 0 | | 0 |
| 26 | | | 0 | | 0 |
| Total Roof Area = | | | 136050 SqFt | | |
| Diverted Roof Area = | | | 136050 SqFt | | |
| Undiverted Roof Area = | | | 0 SqFt | | |

| Concrete areas NOT under a roof | | | |
|---|---|---|---|
| Label | Width | Length | Area |
| | Ft | Ft | $Ft^2$ |
| A | | | 0 |
| B | | | 0 |
| C | | | 0 |
| D | | | 0 |
| E | | | 0 |
| F | | | 0 |
| G | | | 0 |
| H | | | 0 |
| J | | | 0 |
| K | | | 0 |
| L | | | 0 |
| M | | | 0 |
| N | | | 0 |
| O | | | 0 |
| P | | | 0 |
| Q | | | 0 |
| R | | | 0 |
| S | | | 0 |
| T | | | 0 |
| U | | | 0 |
| V | | | 0 |
| W | | | 0 |
| X | | | 0 |
| Y | | | 0 |
| Z | | | 0 |
| Total Area (SqFt) = | | | 0 |

**Manured and bare areas draining to the pond:**

Measure the total potential area drained to the pond. The spreadsheet will subtract the concrete and roof areas to determine the manured and bare areas.

| | | |
|---|---|---|
| Total Area drained to the pond = | 906052 | SqFt |
| Total Roof Area = | 136050 | SqFt |
| Concrete Areas = | 0 | SqFt |
| Total manured and bare areas = | 17.68 | Acres |

# Criteria used to evaluate Manure Management System

Producer: Schaffner Dairy - rainfall runofl Entered by: RC
Date: 4/2/2009 Checked by:

## Limits for land application as set by regulatory agency

**(Note: This section is no longer used by the program)**

| | | |
|---|---|---|
| Maximum allowable non-N salts to apply per double cropped acre per year | 3000 | lb./ac./yr. |
| Maximum allowable non-N salts to apply per single cropped acre per year | 2000 | lb./ac./yr. |
| Maximum Nitrogen allowed per double cropped acre per year | 425 | lb./ac./yr. |
| Maximum Nitrogen allowed per single cropped acre per year | 250 | lb./ac./yr. |

## Manure storage site as determined by housing type

% of waste entering liquid waste stream or handled dry for each housing system*:

| | | Pond | Dry |
|---|---|---|---|
| Flushed | Freestall | 80% | 20% |
| Flushed | Lanes | 35% | 65% |
| Scraped | Freestall | 15% | 85% |
| Scraped | Drylot | 15% | 85% |

## Nitrogen and Salt Excreted per Day per unit of Body Weight

| | | per 1000 lb. | per 1400 lb. | per animal |
|---|---|---|---|---|
| Milking Cows | lbs. N/day | 0.728 | 1.02 | 1.02 |
| Dry Cows | lbs. N/day | 0.450 | 0.63 | 0.68 |
| Bred Heifers | lbs. N/day | 0.450 | 0.63 | 0.27 |
| Heifers, 1 year to breeding | lbs. N/day | 0.450 | 0.63 | 0.23 |
| Calves, 3 months to 1 year | lbs. N/day | 0.450 | 0.63 | 0.23 |
| Calves, birth to 3 months | lbs. N/day | 0.450 | 0.63 | 0.07 |
| Non-Nitrogen salt | lbs. /day | 1.282 | 1.79 | |

## Nitrogen behavior after excretion of manure

| | |
|---|---|
| Total % Nitrogen lost from dilute liquid manure | 0% |
| Total % Nitrogen lost from solid manure | 0% |
| % Nitrogen lost from land application of dilute liquid manure | 0% |
| % Nitrogen lost during storage of dilute liquid manure | 0% |
| % Nitrogen lost from land application of solid manure | 0% |
| % Nitrogen lost during storage of solid manure | 0% |

# Pond Design Factors

Producer: Schaffner Dairy - rainfall runoff Entered by: RC
Date: 04/02/09 Checked by:

| | | |
|---|---|---|
| Percent moisture in fresh manure | 88% | |
| Total waste, cu.ft./day per 1000 lb. animal | 1.37 | cu.ft./day |
| Total waste (wet), lb./day per 1000 lb. animal | 85 | lb./day |
| Density of fresh waste, feces and urine | 62 | lb./cu.ft. |
| Runoff Curve Number for manured areas | 78 | |
| Runoff Curve Number for concrete areas | 97 | |
| Runoff Curve Number for roof areas | 100 | |
| 25 Year 24 Hour Storm Rainfall | 2.5 | inches |
| Normal Rainfall Multiplication Factor | 1 | |

**Location:** El Centro 2 SSW

**Normal Runoff Determination Chart - Enter values ONLY for months waste water must be stored.**

| Month* | Monthly* Precip. in. | Monthly* Evap. in. | % Runoff** Corral Surfaces % | Runoff Corral Surfaces in. | % Runoff** Concrete Surfaces % | Runoff Concrete Surfaces in. | % Runoff** Roofed Surfaces % | Runoff Roofed Surfaces in. |
|---|---|---|---|---|---|---|---|---|
| January | 0.51 | 2.93 | 20 | 0.10 | 50 | 0.26 | 100 | 0.51 |
| February | 0.36 | 3.96 | 20 | 0.07 | 50 | 0.18 | 100 | 0.36 |
| March | 0.31 | 6.22 | 20 | 0.06 | 50 | 0.16 | 100 | 0.31 |
| April | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| May | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| June | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| July | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| August | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| September | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| October | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| November | | | 20 | 0.00 | 50 | 0.00 | 100 | 0.00 |
| December | 0.42 | 2.56 | 20 | 0.08 | 50 | 0.21 | 100 | 0.42 |
| Total (in.) | 1.60 | 15.67 | | 0.32 | | 0.80 | | 1.60 |

*Input Normal Rainfall data for design storage period months only.

**Use runoff percentage values from the NRCS Agricultural Waste Handbook, 10C, (5-31).

## 2.10. Initial Production Area / Facilities Evaluation (NRCS CA, WS3-2)

# Initial Production Area / Facilities Evaluation

(For each component, select the rank value of the description that best describes conditions on the dairy.)

**COMPONENTS THAT RANK 1 OR 2 SHOULD BE ADDRESSED**

Facility Name: Schaffner Dairy Name of Preparer: Richard Cernansky Date: 2/25/2009

| Component | Low Risk (Rank 4) | Mod-Low Risk (Rank 3) | Mod-High Risk (Rank 2) | High Risk (Rank 1) | Rank |
|---|---|---|---|---|---|
| **Storm water Control** | | | | | |
| Storm water Runoff Management | Storm water is either diverted around feed storage areas and manured areas, or captured and stored for later land application. Facilities are well maintained and function | Storm water is either diverted around feed storage areas and manured areas, or captured and stored for later land application. Facilities are in need of some maintenance. | Storm water typically crosses feed storage areas or manured areas some rainy seasons and is retained in corrals or on cropland. | Storm water typically crosses feed storage or manured areas each rainy season and may then flow into drainage courses that lead off the property or to waterways. | 4 |
| | Comment or describe concerns if rank is 1 or 2:<br><br>Stormwater runoff is collected and distributed on field to West of facilities via drop box and distribution ditch. Due to dry climate, stormwater runoff is rare. | | | | |
| Protection of areas with manure from inundation by a waterway overflow | Whole facility is outside of any historic floodplain | All housing, corrals, ponds, and other areas with manure are protected from overflow of waterways during a 100-yr, 24-hr storm event. | Manure storages, corrals or other manured areas are likely to be protected from overflow of waterways during a 20-yr, 24-hr storm event. | Manure storages, corrals or other manured areas are likely to become inundated during storms smaller than a 20-yr, 24-hr storm event. | 4 |
| | Comment or describe concerns if rank is 1 or 2:<br><br>Whole facility is outside of 100 yr. flood zone. See attached map. | | | | |
| Management of Corrals (and other areas with manure) | Corrals and other uncovered and unpaved manured areas are sloped and free of low spots in order to prevent ponding of rainfall and other water. Soils are fine-textured and compacted. | Corrals and other uncovered and unpaved manured areas have depressions that will likely cause ponding over 10% of the surface. Soils are not compacted. | Corrals and other uncovered and unpaved manured areas have depressions that will likely cause ponding over 20% of the surface. Soils are loam to sandy loam in texture and not compacted. | Corrals and other uncovered and unpaved manured areas have depressions that will likely cause ponding over 30% of the surface. Soils are sandy loam or coarser. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |

| Component | Low Risk (Rank 4) | Mod-Low Risk (Rank 3) | Mod-High Risk (Rank 2) | High Risk (Rank 1) | Rank |
|---|---|---|---|---|---|
| **Manure Transfer** | | | | | |
| Wastewater Collection from:<br>• Milkbarn washwater<br>• Corral runoff and other stormwater that has contacted manure or feed<br>• Feed storage leachate | All needed alleys, berms, curbs, ditches, pipelines and other drainage features are in place and in good working condition with no sign of over topping or other forms of failure. | All needed alleys, berms, curbs, pipelines and other drainage features are in place. There are signs of poor maintenance or occasional over topping or other forms of failure. | Manure or stormwater that has contacted manure or feeds seasonally runs onto fields or pastures operated by the producer. | Manure or stormwater that has contacted manure regularly runs onto land at the facility or seasonally runs off the property. | 3 |
| | Comment or describe concerns if rank is 1 or 2:<br><br>Corral runoff is not diverted to waste water storage ponds. Corral runoff is collected and distributed on field to West of facilities via drop box and distribution ditch. Due to dry climate, corral runoff is rare. | | | | |
| Manure Transport (hauling equipment for manure solids and conveyances for wastewater) | Pipelines, ditches, vehicles are in place and appear to be in good working condition to transfer manure to all land application areas required to achieve nutrient balance | Pipelines, ditches, vehicles are in place to transfer manure to all land application areas required to achieve nutrient balance, but there are a few maintenance problems. | There is limited access to some fields needed to achieve nutrient balance. | No access to some of the land required to achieve nutrient balance | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Wastewater pumps and pipelines | Available, appear to be of adequate capacity, and in good working condition | Available, capacity may be inadequate, and may need maintenance. | Sometimes unavailable and part of the system is in poor repair | Major components of the system are absent or inoperable | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| **Manure Storage** | | | | | |

| Component | Low Risk (Rank 4) | Mod-Low Risk (Rank 3) | Mod-High Risk (Rank 2) | High Risk (Rank 1) | Rank |
|---|---|---|---|---|---|
| Management of Ponds (solids ponds, holding ponds, and tailwater ponds containing manure) | No evidence or history of pond overflows. Ponds are pumped when timing is right for nutrient applications to pasture or cropland. Solids are not a problem. | No evidence or history of pond overflows. Liquids must occasionally be pumped to cropland at undesirable times. Only minor accumulation of solids. | Periodic overflows occur; ponds are occasionally full during the winter, or liquids must regularly be pumped to cropland at undesirable times. Large accumulation of solids. | Overflows occur most winters and ponds are often full throughout the winter. Water that is pumped to land and may subsequently flow off the property. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Pond Capacity (Determined using Dairy Planning Tool or equivalent) | Capacity of existing storage ponds meets or exceeds the calculated volume needed for wastewater retention and proper land application. | Capacity of existing storage ponds meets or exceeds the calculated volume needed for wastewater retention. | Capacity of existing storage ponds is less than 90% of the calculated volume needed for wastewater retention | Capacity of existing storage ponds is less than 75% of the calculated volume needed for wastewater retention | 1 |
| | Comment or describe concerns if rank is 1 or 2:<br>The capacity of the existing parlor wastewater storage ponds was calculated to be less than 30 days for a 1500 milk cow herd and parlor freshwater usage of 46,660 gal/day. Pond volumes were estimated from 1996 Grading Plan and freshwater usage was estimated by producer. | | | | |
| Pond Design (separation distance between pond bottom and high water table) | No regulatory requirement or there is documentation showing that separation is greater than is required by regulation | Regulation exists and there is not any documentation showing that separation is greater than is required by regulation | Separation is less than is required by regulation and underlying soils are clay loam or finer. | Separation is less than is required by regulation and underlying soils are loam or coarser. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Pond Construction | Ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Sidewalls have few cracks, rodent holes, or other maintenance problems | Ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Sidewalls have many cracks, rodent holes, or other maintenance problems | No data showing that ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Soils are loam or finer. | No data showing that ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Soils are sandy loam or coarser. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |

| Component | Low Risk (Rank 4) | Mod-Low Risk (Rank 3) | Mod-High Risk (Rank 2) | High Risk (Rank 1) | Rank |
|---|---|---|---|---|---|
| Pond Operation (pond has 25-year, 24-hr stormwater capacity marker) | Permanent marker is in place and functions satisfactorily. | Temporary marker is being used | No marker is in place but there is no evidence of pond overflows or emergency releases. | No marker is in place and there is evidence of pond overflows or emergency releases. | 2 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| **Manure Treatment** | | | | | |
| Manure Treatment (settling ponds, mechanical separators, digesters, composting, etc.) | Treatment components are in place and meet the intended purpose. | Needed treatment components are in place but do not always meet the intended purpose | Needed treatment components are in place but do not meet the intended purpose | Needed treatment components are not in place | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| **Land Application Facilities** | | | | | |
| Measurement of Manure Applied to Cropland | Liquid or solids measuring equipment or methods are used to quantify volumes or rates to within 10% of the target amount. | Methods of measurement are used to quantify volumes or rates to within 20% of the target amount. | Methods are in place but the accuracy is not known or is inadequate to quantify volumes or rates to within 20% of the target amount. | Methods are in place but are not used or there is not any reliable or accurate method to measure amount of manure applied to land | 1 |
| | Comment or describe concerns if rank is 1 or 2:<br><br>Liquid manure volume applied to cropland is not quantified. No flowmeter in place. | | | | |
| Controlling Rate of Manure Application to Cropland | Valves, calibrated spreaders, or other equipment is adequate to control the rate of manure application. | Devices are available to control the application rate but are used infrequently or are sometimes unreliable. | Controlling devices are in place but are not used or are unreliable or often unsatisfactory. | There is no reliable or accurate method to control the rate of manure application. | 1 |
| | Comment or describe concerns if rank is 1 or 2:<br><br>Solid manure spreader can be calibrated to determine application rate. No accurate method in place to control rate of liquid manure application. | | | | |

| Component | Low Risk (Rank 4) | Mod-Low Risk (Rank 3) | Mod-High Risk (Rank 2) | High Risk (Rank 1) | Rank |
|---|---|---|---|---|---|
| Mixing Manure Pond water and Irrigation Water prior to application to cropland | Manure pond water and irrigation water are well mixed in a pond prior to application to cropland. | Manure pond water and irrigation water are mixed prior to entering distribution (turnout) pipelines or ditches prior to application to | Manure pond water and irrigation water enters at opposite ends of distribution (turnout) pipelines or ditches. | There is limited or no means of mixing manure pond water with irrigation water prior to application to cropland.. | 3 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Backflow Prevention (Keeping wastes out of irrigation water supply sources) | Direct connected irrigation supplies are protected by "chemigation" check valve, and discharges to standpipes have two-pipe diameter air gaps. | Direct connected irrigation supplies are protected by "chemigation" check valve, but discharges to standpipes have less than two-pipe diameter air gaps. | Irrigation water supply discharges against a "head" of water containing manure (side inlet to a stand or box), and a check valve is in place but no chemigation valve. | Irrigation water supply discharges against a "head" of water containing manure (side inlet to a stand or box), and there is no check valve or chemigation valve. | 1 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Potential for rainfall runoff or other liquid to accumulate or run over well head site | No wells or no potential for water containing manure or silage leachate to flow near well sites. | Low potential for water containing manure or silage leachate to flow near well sites or run over well head site. | Surface topography is likely to cause wastewater to flow over a well head. | Surface depression is likely to cause accumulation of liquids at a well head. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Land Application Equipment (for wastewater and manure solids) | There is a method to apply manure to all land needed to achieve nutrient balance, and all equipment is in good working condition. | There is a method to apply manure to all land needed to achieve nutrient balance, but equipment needs maintenance. | There is no documented method to apply nutrients, or equipment is in place but is not reliable or needs repair. | There is no documented method to apply nutrients, or equipment needed for land application is missing or unrepairable. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Cropland Management for Irrigation - Furrow and Border Irrigation | Field slopes are appropriate and uniform. Field lengths are appropriate for flow rates and soil types. | Field slope is uneven and in some areas is not appropriate. Field lengths are appropriate. | Field slopes are generally appropriate and uniform, but field lengths are somewhat excessive. | Low spots in the field impede water advance. Field lengths are excessive for flow rates and soil types. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |

| Component | Low Risk (Rank 4) | Mod-Low Risk (Rank 3) | Mod-High Risk (Rank 2) | High Risk (Rank 1) | Rank |
|---|---|---|---|---|---|
| Cropland Management for Irrigation - Contour flood irrigation | Distribution ditches and turnout points (cuts) provide uniform coverage to 90% or more of the field surfaces. | Distribution ditches and turnout points provide uniform coverage on 80% to 90% of the field surfaces. | Distribution ditches and turnout points provide uniform coverage on 70% to 80% of the field surfaces. | Distribution ditches and turnout points provide uniform coverage on less than 70% of the field surfaces. | N/A |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Solid Manure Containment During Application to Cropland | Setbacks, physical controls, screens or other means are used to keep manure onsite during application. As a result, the application process is not difficult to manage. | Setbacks, physical controls, screens or other means are used but inadequate. Careful management of application is necessary to prevent manure movement off the site. | Physical controls and management practices are inadequate to prevent manure movement off the site, but such movement does not threaten water quality. | Manure movement off the site occurs. | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |
| Liquid Manure Containment During Application to Cropland | Irrigation runoff is prevented, or a tailwater recovery system is in place, is of adequate capacity, and is in good working condition. | Irrigation runoff is confined to fields by using berms, ditches, berms, etc. There is no runoff to waterways. | Tailwater is confined to fields using ditches, berms, etc. Runoff to waterways sometimes occurs but waste constituents are at low levels. | Tailwater is allowed to run onto neighboring property or into drainage courses leading to waterways. | 1 |
| | Comment or describe concerns if rank is 1 or 2:<br><br>Irrigation Tailwater allowed to drain into IID drain to Salton Sea. This is standard operating procedure in Imperial. | | | | |
| Rainfall or irrigation induced erosion from land where manure is applied | No evidence of erosion from fields and no noted potential for such erosion to occur. | Noted potential for erosion from fields but no evidence that such erosion has occurred. | Evidence of minor rilling or other forms of erosion from fields | Evidence of significant rilling or other forms of erosion from fields | 4 |
| | Comment or describe concerns if rank is 1 or 2: | | | | |

| Component | Low Risk (Rank 4) | Mod-Low Risk (Rank 3) | Mod-High Risk (Rank 2) | High Risk (Rank 1) | Rank |
|---|---|---|---|---|---|
| **Animal Access to Waterways** | | | | | |
| Animal Access to Waters that Flow Through the Site | There are no waterbodies that transect the site, or animals do not have access to such waterbodies. | Facilities to prevent animals from accessing waterbodies are poorly designed or maintained. | Animals routinely have access to waterbodies that only flow off site during storm events. | Animals routinely have access to perennial flowing waterbodies. | **4** |
| | Optional; Comment or describe concerns if rank is 1 or 2: | | | | |

# Section 3. Farmstead Safety and Security

## 3.1. Emergency Response Plan

### In Case of an Emergency Storage Facility Spill, Leak or Failure

**Implement the following first containment steps:**

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

### In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

**Implement the following first containment steps:**

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

**Emergency Contacts**

| Department / Agency | Phone Number |
|---|---|
| Fire | 911 |
| Rescue services | 911 |
| Veterinarian – Dr. Thompson | 760-352-4222 |
| Sheriff or local police | |
| | |
| | |

**Nearest available excavation equipment/supplies for responding to emergency**

| Equipment Type | Contact Person | Phone Number |
|---|---|---|
| Loader | On-site | n/a |
| | | |
| | | |

**Contacts to be made by the owner or operator within 24 hours**

| Organization | Phone Number |
|---|---|
| Colorado River Basin Regional Water Quality Control Board-RB7 | (760) 776-8967 |
| County Health Department | (760) 482-4438 |
| Office of Emergency Services | (760) 482-2400 |

**Be prepared to provide the following information:**

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

## 3.2. Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.

## 3.3. Catastrophic Mortality Management

Catastrophic animal mortality handling methods shall be utilized only when federal, state, or local officials declare a State of Emergency.

### Plan for Catastrophic Animal Mortality Handling

The following table describes how you plan to manage catastrophic loss of animals in a manner that protects surface and ground water quality. You must follow all national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health.

| |
|---|
| Refer to official declaring a State of Emergency for guidance in catastrophic mortality management. In an emergency, guidance is also provided by the CAL/EPA *Emergency Animal Disease Regulatory Guidance for Disposal and Decontamination* (October 20, 2004) |

***Important!*** In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name: Refer to official declaring a State of Emergency for guidance in carcass disposal.
Contact name
Phone number

## 3.4. Chemical Handling

If checked, the indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

| | |
|---|---|
| | This is not a regulatory-agency permitted facility. This section does not apply. |

| | *Measure* |
|---|---|
| | All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label. |
| | Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area. |
| | Chemical storage areas are covered to prevent chemical contact with rain or snow. |
| | Emergency procedures and equipment are in place to contain and clean up chemical spills. |
| | Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems. |
| | All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems. |

# Section 4. Land Treatment

## 4.1. Map(s) of Fields and Conservation Practices

# Conservation Plan Map

Date: 1/21/2009

Customer(s): SCHAFFNER DAIRY INC
strict: IMPERIAL IRRIGATION DISTRICT RCD

Dairy Location:
3 1/4 miles NNW
of Holtville California
Imperial County

Field Office: EL CENTRO SERVICE CENTER
Agency: USDA NRCS
Assisted By: Carpenter, Kevin O

0 0.25 0.5 1 1.5 2
Miles

N

# Conservation Plan Map

Date: 1/21/2009

Customer(s): SCHAFFNER DAIRY INC

District: IMPERIAL IRRIGATION DISTRICT RCD

Location:
T15S R15E SBBM

Field Office: EL CENTRO SERVICE CENTER
Agency: USDA NRCS
Assisted By: Carpenter, Kevin O

1,100 0 1,100 2,200 3,300 4,400
Feet

N

# Conservation Plan Map

Date: 1/21/2009

Customer(s): SCHAFFNER DAIRY INC

strict: IMPERIAL IRRIGATION DISTRICT RCD

Location:
T15S R15E SBBM

Field Office: EL CENTRO SERVICE CENTER
Agency: USDA NRCS
Assisted By: Carpenter, Kevin O

1,500 0 1,500 3,000 4,500 6,000 Feet

N

# Conservation Plan Map

Date: 1/21/2009

Customer(s): SCHAFFNER DAIRY INC
strict: IMPERIAL IRRIGATION DISTRICT RCD

Location:
T15S R14E SBBM

Field Office: EL CENTRO SERVICE CENTER
Agency: USDA NRCS
Assisted By: Carpenter, Kevin O

650 0 650 1,300 1,950 2,600
Feet

N

## 4.2. Land Treatment Conservation Practices

## 4.3. Irrigation System / Management Evaluation (NRCS CA, WS4-C)

Schaffner Dairy receives irrigation water from Imperial Irrigation District at a predetermined volume and flowrate. Schaffner Dairy must manage irrigation according to the schedule imposed by Imperial Irrigation District, therefore NRCS did not perform an irrigation system evaluation.

## 5.2. Predicted Soil Erosion

| Field | Predominant Soil Type | Slope (%) | Water (Ton/A/Yr) | Wind (Ton/A/Yr) | Irrigation (Ton/A/Yr) | Gully (Ton/A/Yr) | Ephemeral (Ton/A/Yr) | Total (Ton/A/Yr) |
|---|---|---|---|---|---|---|---|---|
| Redwood 25 (4594) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Redwood 25 (4595) | 142 (Vint LVFS) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Redwood 25 (4596) | 142 (Vint LVFS) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Palm 34 (5167) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Palm 34 (5168) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Peach 38-2&3 * (5202) | 114 (Imperial SIC) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Peach 39 * (5209) | 144 (Vint VFSL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Peach 30A * (5210) | 118 (Indio L) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Peach 40 * (5218) | 142 (Vint LVFS) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Palmetto 38 (5230) | 142 (Vint LVFS) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Palmetto 38 (5231) | 114 (Imperial SIC) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Palmetto 38 (5233) | 114 (Imperial SIC) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Palm 33 (T5701) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Palm 32 (T5703) | 114 (Imperial SIC) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Plum 30 (T5713) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Plum 30 (T5714) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Peach 38-1 (T5715) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Redwood 30 (T4592) | 115 (Imperial SICL) | | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |

# Section 5. Soil and Risk Assessment Analysis

## 5.1. Soil Information

| Field | Map Unit | Soil Component Name | Surface Texture | Slope Range (%) | OM Range (%) | Bedrock Depth (in.) |
|---|---|---|---|---|---|---|
| Redwood 25 (4594) | 115 | Imperial | SICL | 0-2% | 0-1% | |
| Redwood 25 (4595) | 142 | Vint | LVFS | 0-2% | 0.25-1% | |
| Redwood 25 (4596) | 142 | Vint | LVFS | 0-2% | 0.25-1% | |
| Palm 34 (5167) | 115 | Imperial | SICL | 0-2% | 0-1% | |
| Palm 34 (5168) | 115 | Imperial | SICL | 0-2% | 0-1% | |
| Peach 38-2&3 * (5202) | 114 | Imperial | SIC | 0-2% | 0-1% | |
| Peach 39 * (5209) | 144 | Vint | VFSL | 0-2% | 0.5-1% | |
| Peach 30A * (5210) | 118 | Indio | L | 0-2% | 0-1% | |
| Peach 40 * (5218) | 142 | Vint | LVFS | 0-2% | 0.25-1% | |
| Palmetto 38 (5230) | 142 | Vint | LVFS | 0-2% | 0.25-1% | |
| Palmetto 38 (5231) | 114 | Imperial | SIC | 0-2% | 0-1% | |
| Palmetto 38 (5233) | 114 | Imperial | SIC | 0-2% | 0-1% | |
| Palm 33 (T5701) | 115 | Imperial | SICL | 0-2% | 0-1% | |
| Palm 32 (T5703) | 114 | Imperial | SIC | 0-2% | 0-1% | |
| Plum 30 (T5713) | 115 | Imperial | SICL | 0-2% | 0-1% | |
| Plum 30 (T5714) | 115 | Imperial | SICL | 0-2% | 0-1% | |
| Peach 38-1 (T5715) | 115 | Imperial | SICL | 0-2% | 0-1% | |
| Redwood 30 (T4592) | 115 | Imperial | SICL | 0-2% | 0-1% | |

## 5.3. Nitrogen and Phosphorus Risk Analysis

California Phosphorus Index

| Field | P Index | Risk Interpretation |
|---|---|---|
| Redwood 25 (4594) | | |
| Redwood 25 (4595) | | |
| Redwood 25 (4596) | | |
| Palm 34 (5167) | | |
| Palm 34 (5168) | | |
| Peach 38-2&3 * (5202) | | |
| Peach 39 * (5209) | | |
| Peach 30A * (5210) | | |
| Peach 40 * (5218) | | |
| Palmetto 38 (5230) | | |
| Palmetto 38 (5231) | | |
| Palmetto 38 (5233) | | |
| Palm 33 (T5701) | | |
| Palm 32 (T5703) | | |
| Plum 30 (T5713) | | |
| Plum 30 (T5714) | | |
| Peach 38-1 (T5715) | | |
| Redwood 30 (T4592) | | |

## 5.4. Additional Field Data Required by Risk Assessment Procedure

| Field | Distance to Water (Feet) | | |
|---|---|---|---|
| Redwood 25 (4594) | 674 | | |
| Redwood 25 (4595) | 1,000 | | |
| Redwood 25 (4596) | 671 | | |
| Palm 34 (5167) | 925 | | |
| Palm 34 (5168) | 2,064 | | |
| Peach 38-2&3 * (5202) | 1,176 | | |
| Peach 39 * (5209) | 942 | | |
| Peach 30A * (5210) | 2,086 | | |
| Peach 40 * (5218) | 901 | | |
| Palmetto 38 (5230) | 800 | | |
| Palmetto 38 (5231) | 1,265 | | |
| Palmetto 38 (5233) | 870 | | |
| Palm 33 (T5701) | 1,814 | | |
| Palm 32 (T5703) | 1,890 | | |
| Plum 30 (T5713) | 783 | | |
| Plum 30 (T5714) | 2,257 | | |
| Peach 38-1 (T5715) | 837 | | |
| Redwood 30 (T4592) | 1,502 | | |

## 5.5. Crop Land Risk Assessment (NRCS CA, WS3-5)

# Worksheet 3-5: Crop Land Risk Assessment

(THE SIGNIFICANCE OF ALL "YES" ANSWERS SHOULD EVALUATED FOR TRIGGERING THE APPROPRIATE LEVEL OF ACTION)

Facility Name: Schaffner Dairy Name of Preparer: KC Date: 8/9/2008 Page 1 of 1.

| | | | | | | Soil Test Levels (if available) | | | Risk of Runoff and Erosion | | | | High Risk Area in Field? | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field-Subfield ID | Acres | Predominant Soil | [1]Runoff Class | Does field have tile drainage ? | Historical depth to ground-water 5' or less? | pH | P (ppm) | K (ppm) | Irrigation Tailwater Drains Offsite? | Runoff of Manure with Rainfall likely? | Are there signs of erosion from rain or irrigation? | | Highly permeable soils? | Adjacent Waterbody ** |
| Redwood 25-4594 | 59 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Mesquite |
| Redwood 25-4595 | 37 | Vint LVFS 142 0-2% | Negligible | Yes | No | | | | Low | No | Negligible | | Moderately. Rapid | Mesquite |
| Redwood 25-4596 | 45 | Vint LVFS 142 0-2% | Negligible | Yes | No | | | | Low | No | Negligible | | Moderately. Rapid | Mesquite |
| Palm 34-5167 | 71 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pomelo |
| Palm 34-5168 | 77 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pomelo |
| Peach 38-2&3-5202 | 42 | Imperial SICL 114 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Plum |
| Peach 39-5209 | 36 | Vint LVFS 144 0-2% | Negligible | Yes | No | | | | Low | No | Negligible | | Moderately. Rapid | Alamo River |
| Peach 30A-5210 | 24 | Indio L 118 0-2% | Negligible | Yes | No | | | | Low | No | Negligible | | Moderate | Plum |
| Peach 40-5218 | 57 | Vint LVFS 142 0-2% | Negligible | Yes | No | | | | Low | No | Negligible | | Moderately. Rapid | Alamo River |
| Palmetto 38-5230 | 31 | Vint LVFS 142 0-2% | Negligible | Yes | No | | | | Low | No | Negligible | | Moderately. Rapid | Pampas |
| Palmetto 38-5231 | 80 | Imperial SICL 114 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pampas |
| Palmetto 38-5233 | 38 | Imperial SICL 114 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pampas |
| Palm 33-T5701 | 148 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pomelo |
| Palm 33-T5703 | 144 | Imperial SICL 114 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pomelo |
| Plum 30-T5713 | 59 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pine |
| Plum 30-T5714 | 73 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Pine |
| Peach 38-1-T5715 | 35 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Plum |
| Redwood 30-T4592 | 121 | Imperial SICL 115 0-2% | Low | Yes | No | | | | Low | No | Negligible | | Slow | Mesquite |

** - All adjacent waterbodies are Imperial Irrigation District (IID) surface drains.

[1] Runoff Class is available in the soil survey and is not needed unless Phosphorous Index is to be used

# Section 6. Nutrient Management

## 6.1. Field Information

| Field ID | Sub-field ID | Total Acres | Spread-able Acres | FSA Farm | FSA Tract | FSA Field | Predominant Soil Type | Slope (%) |
|---|---|---|---|---|---|---|---|---|
| Redwood 25 | 4594 | 59.0 | 39.0 | 11085 | 4594 | 1 | 115 (Imperial SICL) | |
| Redwood 25 | 4595 | 37.0 | 25.0 | 11085 | 4595 | 1 | 142 (Vint LVFS) | |
| Redwood 25 | 4596 | 45.0 | 31.0 | 11085 | 4596 | 1 | 142 (Vint LVFS) | |
| Palm 34 | 5167 | 71.0 | 50.0 | 11085 | 5167 | 1 | 115 (Imperial SICL) | |
| Palm 34 | 5168 | 77.0 | 56.0 | 11085 | 5168 | 1 | 115 (Imperial SICL) | |
| Peach 38-2&3 * | 5202 | 42.0 | 28.0 | 11085 | 5202 | 1 | 114 (Imperial SIC) | |
| Peach 39 * | 5209 | 36.0 | 25.0 | 11085 | 5209 | 1 | 144 (Vint VFSL) | |
| Peach 30A * | 5210 | 24.0 | 16.0 | 11085 | 5210 | | 118 (Indio L) | |
| Peach 40 * | 5218 | 57.0 | 43.0 | 11085 | 5218 | 1 | 142 (Vint LVFS) | |
| Palmetto 38 | 5230 | 31.0 | 20.0 | 11085 | 5230 | 1 | 142 (Vint LVFS) | |
| Palmetto 38 | 5231 | 80.0 | 62.0 | 11085 | 5231 | 1 | 114 (Imperial SIC) | |
| Palmetto 38 | 5233 | 38.0 | 27.0 | 11085 | 5233 | 1 | 114 (Imperial SIC) | |
| Palm 33 | T5701 | 148.0 | 123.0 | 11198 | 5701 | 1 | 115 (Imperial SICL) | |
| Palm 32 | T5703 | 144.0 | 120.0 | 11085 | 5703 | 1 | 114 (Imperial SIC) | |
| Plum 30 | T5713 | 59.0 | 43.0 | 11085 | 5713 | 1 | 115 (Imperial SICL) | |
| Plum 30 | T5714 | 73.0 | 56.0 | 11085 | 5714 | 1 | 115 (Imperial SICL) | |
| Peach 38-1 | T5715 | 35.0 | 22.0 | 11085 | 5715 | 1 | 115 (Imperial SICL) | |
| Redwood 30 | T4592 | 121.0 | 99.0 | 11085 | 4592 | 1 | 115 (Imperial SICL) | |

## 6.2. Manure Application Setback Distances

| Feature | Distance (feet) |
|---|---|
| Dwelling (non-owned) | 0 |
| Drinking water well or intake (non-vegetative buffer) | 100 |
| Drinking water well or intake (vegetative buffer) | 35 |
| Stream (non-vegetative buffer) | 100 |
| Stream (vegetative buffer) | 35 |
| Property boundary | 0 |
| Drinking water lake (non-vegetative buffer) | 100 |
| Drinking water lake (vegetative buffer) | 35 |
| Other lake (non-vegetative buffer) | 100 |
| Other lake (vegetative buffer) | 35 |
| Sinkhole (non-vegetative buffer) | 100 |
| Sinkhole (vegetative buffer) | 35 |
| Slope restriction | 0 |

Source: Code of Federal Regulations (40 CFR 412.4)

## 6.3. Soil Test Data

| Field | Test Year | OM (%) | P Test Used | P | K | Mg | Ca | Na | Units | Soil pH | Buffer pH | CEC (meq/ 100g) | $NO_3$-N (ppm) | EC (mmhos/ cm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Redwood 25 (4594) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Redwood 25 (4595) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Redwood 25 (4596) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Palm 34 (5167) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Palm 34 (5168) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Peach 38-2&3 * (5202) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Peach 39 * (5209) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Peach 30A * (5210) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Peach 40 * (5218) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Palmetto 38 (5230) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Palmetto 38 (5231) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Palmetto 38 (5233) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Palm 33 (T5701) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Palm 32 (T5703) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Plum 30 (T5713) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Plum 30 (T5714) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Peach 38-1 (T5715) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |
| Redwood 30 (T4592) | 2008 | | Olsen | 17 | 238 | | | | ppm | | | | 19.0 | 3.20 |

## 6.4. Manure Nutrient Analysis

| Manure Source | Dry Matter (%) | Total N | $NH_4$-N | Total $P_2O_5$ | Total $K_2O$ | Avail. $P_2O_5$ | Avail. $K_2O$ | Units | Analysis Source and Date |
|---|---|---|---|---|---|---|---|---|---|
| Dairy stalls | | 40.5 | 8.1 | 40.7 | 47.4 | 40.7 | 47.4 | Lb/Ton | MMP Estimate |
| Wastewater pond | | 3.6 | 0.7 | 2.6 | 2.9 | 2.6 | 2.9 | Lb/1000Gal | Dairy Planning Tool Yearly Production Calculation |

(1) Entered analysis may be the average of several individual analyses.
(2) California assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in California, see NRCS AWMFH (adapted) if not manured annually, otherwise 100% of total N if manured annually (ftp://ftp.wcc.nrcs.usda.gov/downloads/wastemgmt/AWMFH/awmfh-chap11.pdf).

## 6.5. Planned Crops and Fertilizer Recommendations

| Field | Crop Year | Planned Crop | Yield Goal (per Acre) | N Rec (Lbs/A) | $P_2O_5$ Rec (Lbs/A) | $K_2O$ Rec (Lbs/A) | N Removed (Lbs/A) | $P_2O_5$ Removed (Lbs/A) | $K_2O$ Removed (Lbs/A) |
|---|---|---|---|---|---|---|---|---|---|
| Redwood 25 (4594) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Redwood 25 (4594) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Redwood 25 (4595) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Redwood 25 (4595) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Redwood 25 (4596) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Redwood 25 (4596) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Palm 34 (5167) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Palm 34 (5167) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Palm 34 (5168) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Palm 34 (5168) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Peach 38-2&3 * (5202) | 2009 | Alfalfa, hay | 8 Ton | 315 | 93 | 375 | 450 | 93 | 375 |
| Peach 39 * (5209) | 2009 | Alfalfa, hay | 8 Ton | 315 | 93 | 375 | 450 | 93 | 375 |
| Peach 30A * (5210) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Peach 40 * (5218) | 2009 | Alfalfa, hay | 8 Ton | 315 | 93 | 375 | 450 | 93 | 375 |
| Palmetto 38 (5230) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Palmetto 38 (5230) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Palmetto 38 (5231) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Palmetto 38 (5231) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Palmetto 38 (5233) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Palmetto 38 (5233) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Palm 33 (T5701) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Palm 33 (T5701) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Palm 32 (T5703) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |

| Field | Crop Year | Planned Crop | Yield Goal (per Acre) | N Rec (Lbs/A) | $P_2O_5$ Rec (Lbs/A) | $K_2O$ Rec (Lbs/A) | N Removed (Lbs/A) | $P_2O_5$ Removed (Lbs/A) | $K_2O$ Removed (Lbs/A) |
|---|---|---|---|---|---|---|---|---|---|
| Palm 32 (T5703) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Plum 30 (T5713) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Plum 30 (T5713) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Plum 30 (T5714) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Plum 30 (T5714) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Peach 38-1 (T5715) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Peach 38-1 (T5715) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |
| Redwood 30 (T4592) | 2009 | Wheat, grain | 4 Ton | 325 | 88 | 210 | 203 | 88 | 210 |
| Redwood 30 (T4592) | 2009 | Corn, silage | 25 Ton | 320 | 88 | 200 | 200 | 88 | 200 |

## 6.6. Manure Application Planning Calendar – September 2008 through August 2009

| Field | Total Acres | Spread Acres | Predominant Soil Type | Primary 2009 Crop (Prev. Primary Crop) | Sep '08 | Oct '08 | Nov '08 | Dec '08 | Jan '09 | Feb '09 | Mar '09 | Apr '09 | May '09 | Jun '09 | Jul '09 | Aug '09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Redwood 25 (4594) | 59.0 | 39.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | 26 | | | | | |
| Redwood 25 (4595) | 37.0 | 25.0 | 142 (Vint LVFS) | Corn, silage (same) | | | | | | | 17 | | | | | |
| Redwood 25 (4596) | 45.0 | 31.0 | 142 (Vint LVFS) | Corn, silage (same) | | | | | | | 18 | | | | | |
| Palm 34 (5167) | 71.0 | 50.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | 33 | | | | | |
| Palm 34 (5168) | 77.0 | 56.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | 37 | | | | | |
| Peach 38-2&3 * (5202) | 42.0 | 28.0 | 114 (Imperial SIC) | Alfalfa, hay (same) | | | | | | | | | | | | |
| Peach 39 * (5209) | 36.0 | 25.0 | 144 (Vint VFSL) | Alfalfa, hay (same) | | | | | | | | | | | | |
| Peach 30A * (5210) | 24.0 | 16.0 | 118 (Indio L) | Corn, silage (same) | | | | | | | | | | | | |
| Peach 40 * (5218) | 57.0 | 43.0 | 142 (Vint LVFS) | Alfalfa, hay (same) | | | | | | | | | | | | |
| Palmetto 38 (5230) | 31.0 | 20.0 | 142 (Vint LVFS) | Corn, silage (same) | | | | | | | 13 | | | | | |
| Palmetto 38 (5231) | 80.0 | 62.0 | 114 (Imperial SIC) | Corn, silage (same) | | | | | | | 41 | | | | | |
| Palmetto 38 (5233) | 38.0 | 27.0 | 114 (Imperial SIC) | Corn, silage (same) | | | | | | | 18 | | | | | |
| Palm 33 (T5701) | 148.0 | 123.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | | | | | | |
| Palm 32 (T5703) | 144.0 | 120.0 | 114 (Imperial SIC) | Corn, silage (same) | | | | | | | | | | | | |
| Plum 30 (T5713) | 59.0 | 43.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | 29 | | | | | |
| Plum 30 (T5714) | 73.0 | 56.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | | | | | | |
| Peach 38-1 (T5715) | 35.0 | 22.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | | | | | | |
| Redwood 30 (T4592) | 121.0 | 99.0 | 115 (Imperial SICL) | Corn, silage (same) | | | | | | | | | | | | |
| *Total* | *1,177.0* | *885.0* | | | *X* | *X* | *X* | *X* | *X* | *X* | *233 X* | *X* | *X* | *X* | *X* | *X* |

No. indicates total loads
"X" indicates other manure apps

**This plan is general in nature, and must be adjusted during the growing season to account for variation of manure nutrient content and crop nutrient uptake patterns that may significantly affect the timing, amount, and method of application.**

## 6.7. Planned Nutrient Applications (Manure-spreadable Area)

| Field | App. Month | Target Crop | Manure Source or Fertilizer Analysis | Manure Application Equipment and Days to Incorporation -or- Fertilizer Application Method | Rate/Acre | Rate Basis | Loads, Speed or Time | Acres Cov. | Total Amount Applied | Avail. N (Lbs/A) | Avail. $P_2O_5$ (Lbs/A) | Avail. $K_2O$ (Lbs/A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Redwood 25 (4594) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 26 Lds | 39.0 | 390 Ton | 82 | 407 | 474 |
| Redwood 25 (4595) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 16.7 Lds | 25.0 | 250.5 Ton | 82 | 407 | 474 |
| Redwood 25 (4596) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 18.2 Lds | 27.3 | 273 Ton | 82 | 407 | 474 |
| Palm 34 (5167) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 33.4 Lds | 50.1 | 501 Ton | 82 | 407 | 474 |
| Palm 34 (5168) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 37.4 Lds | 56.1 | 561 Ton | 82 | 407 | 474 |
| Peach 38-2&3 * (5202) | Sep 2008 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 3360 Min | 28.0 | 336,000 Gal | 18 | 31 | 35 |
| Peach 38-2&3 * (5202) | Oct 2008 | Alfalfa, hay | Wastewater pond | Pump | 10,000 Gal | Custom | 2800 Min | 28.0 | 280,000 Gal | 15 | 26 | 29 |
| Peach 38-2&3 * (5202) | Nov 2008 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 4200 Min | 28.0 | 420,000 Gal | 22 | 39 | 44 |
| Peach 38-2&3 * (5202) | Dec 2008 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 4200 Min | 28.0 | 420,000 Gal | 22 | 39 | 44 |
| Peach 38-2&3 * (5202) | Jan 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 4200 Min | 28.0 | 420,000 Gal | 22 | 39 | 44 |
| Peach 38-2&3 * (5202) | Feb 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 4200 Min | 28.0 | 420,000 Gal | 22 | 39 | 44 |
| Peach 38-2&3 * (5202) | Mar 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 4200 Min | 28.0 | 420,000 Gal | 22 | 39 | 44 |
| Peach 38-2&3 * (5202) | Apr 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 2262 Min | 15.1 | 226,200 Gal | 22 | 39 | 44 |
| Peach 38-2&3 * (5202) | May 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 3360 Min | 28.0 | 336,000 Gal | 18 | 31 | 35 |
| Peach 38-2&3 * (5202) | Jun 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 1548 Min | 12.9 | 154,800 Gal | 18 | 31 | 35 |
| Peach 38-2&3 * (5202) | Jul 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 3360 Min | 28.0 | 336,000 Gal | 18 | 31 | 35 |
| Peach 38-2&3 * (5202) | Aug 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 3360 Min | 28.0 | 336,000 Gal | 18 | 31 | 35 |
| Peach 39 * (5209) | Sep 2008 | Alfalfa, hay | Wastewater pond | Pump | 8,000 Gal | Custom | 2000 Min | 25.0 | 200,000 Gal | 12 | 21 | 23 |
| Peach 39 * (5209) | Oct 2008 | Alfalfa, hay | Wastewater pond | Pump | 10,000 Gal | Custom | 2500 Min | 25.0 | 250,000 Gal | 15 | 26 | 29 |
| Peach 39 * (5209) | Nov 2008 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 3750 Min | 25.0 | 375,000 Gal | 22 | 39 | 44 |
| Peach 39 * (5209) | Dec 2008 | Alfalfa, hay | Wastewater pond | Pump | 14,000 Gal | Custom | 3500 Min | 25.0 | 350,000 Gal | 21 | 36 | 41 |

| Field | App. Month | Target Crop | Manure Source or Fertilizer Analysis | Manure Application Equipment and Days to Incorporation -or- Fertilizer Application Method | Rate/Acre | Rate Basis | Loads, Speed or Time | Acres Cov. | Total Amount Applied | Avail. N (Lbs/A) | Avail. $P_2O_5$ (Lbs/A) | Avail. $K_2O$ (Lbs/A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peach 39 * (5209) | Jan 2009 | Alfalfa, hay | Wastewater pond | Pump | 10,000 Gal | Custom | 2500 Min | 25.0 | 250,000 Gal | 15 | 26 | 29 |
| Peach 39 * (5209) | Feb 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 3000 Min | 25.0 | 300,000 Gal | 18 | 31 | 35 |
| Peach 39 * (5209) | Mar 2009 | Alfalfa, hay | Wastewater pond | Pump | 10,000 Gal | Custom | 2500 Min | 25.0 | 250,000 Gal | 15 | 26 | 29 |
| Peach 39 * (5209) | Apr 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 3750 Min | 25.0 | 375,000 Gal | 22 | 39 | 44 |
| Peach 39 * (5209) | May 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 3750 Min | 25.0 | 375,000 Gal | 22 | 39 | 44 |
| Peach 39 * (5209) | Jun 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 3750 Min | 25.0 | 375,000 Gal | 22 | 39 | 44 |
| Peach 39 * (5209) | Jul 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 3750 Min | 25.0 | 375,000 Gal | 22 | 39 | 44 |
| Peach 39 * (5209) | Aug 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 3750 Min | 25.0 | 375,000 Gal | 22 | 39 | 44 |
| Peach 30A * (5210) | Apr 2009 | Corn, silage | Wastewater pond | Pump | 7,000 Gal | Custom | 1120 Min | 16.0 | 112,000 Gal | 10 | 18 | 20 |
| Peach 30A * (5210) | May 2009 | Corn, silage | Wastewater pond | Pump | 7,000 Gal | Custom | 1120 Min | 16.0 | 112,000 Gal | 10 | 18 | 20 |
| Peach 30A * (5210) | Jun 2009 | Corn, silage | Wastewater pond | Pump | 12,000 Gal | Custom | 1920 Min | 16.0 | 192,000 Gal | 18 | 31 | 35 |
| Peach 30A * (5210) | Jul 2009 | Corn, silage | Wastewater pond | Pump | 12,000 Gal | Custom | 1920 Min | 16.0 | 192,000 Gal | 18 | 31 | 35 |
| Peach 30A * (5210) | Aug 2009 | Corn, silage | Wastewater pond | Pump | 8,000 Gal | Custom | 1280 Min | 16.0 | 128,000 Gal | 12 | 21 | 23 |
| Peach 40 * (5218) | Sep 2008 | Alfalfa, hay | Wastewater pond | Pump | 18,000 Gal | Custom | 7740 Min | 43.0 | 774,000 Gal | 27 | 47 | 52 |
| Peach 40 * (5218) | Oct 2008 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 6450 Min | 43.0 | 645,000 Gal | 22 | 39 | 44 |
| Peach 40 * (5218) | Nov 2008 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 6450 Min | 43.0 | 645,000 Gal | 22 | 39 | 44 |
| Peach 40 * (5218) | Dec 2008 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 6450 Min | 43.0 | 645,000 Gal | 22 | 39 | 44 |
| Peach 40 * (5218) | Jan 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 6450 Min | 43.0 | 645,000 Gal | 22 | 39 | 44 |
| Peach 40 * (5218) | Feb 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 6450 Min | 43.0 | 645,000 Gal | 22 | 39 | 44 |
| Peach 40 * (5218) | Mar 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 6450 Min | 43.0 | 645,000 Gal | 22 | 39 | 44 |
| Peach 40 * (5218) | Apr 2009 | Alfalfa, hay | Wastewater pond | Pump | 15,000 Gal | Custom | 6450 Min | 43.0 | 645,000 Gal | 22 | 39 | 44 |

| Field | App. Month | Target Crop | Manure Source or Fertilizer Analysis | Manure Application Equipment and Days to Incorporation -or- Fertilizer Application Method | Rate/Acre | Rate Basis | Loads, Speed or Time | Acres Cov. | Total Amount Applied | Avail. N (Lbs/A) | Avail. $P_2O_5$ (Lbs/A) | Avail. $K_2O$ (Lbs/A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peach 40 * (5218) | May 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 5160 Min | 43.0 | 516,000 Gal | 18 | 31 | 35 |
| Peach 40 * (5218) | Jun 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 5160 Min | 43.0 | 516,000 Gal | 18 | 31 | 35 |
| Peach 40 * (5218) | Jul 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 5160 Min | 43.0 | 516,000 Gal | 18 | 31 | 35 |
| Peach 40 * (5218) | Aug 2009 | Alfalfa, hay | Wastewater pond | Pump | 12,000 Gal | Custom | 5160 Min | 43.0 | 516,000 Gal | 18 | 31 | 35 |
| Palmetto 38 (5230) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 13.4 Lds | 20.1 | 201 Ton | 82 | 407 | 474 |
| Palmetto 38 (5231) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 41.4 Lds | 62.1 | 621 Ton | 82 | 407 | 474 |
| Palmetto 38 (5233) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 18 Lds | 27.0 | 270 Ton | 82 | 407 | 474 |
| Plum 30 (T5713) | Mar 2009 | Corn, silage | Dairy stalls | Speader, Not incorporated | 10 Ton | Custom | 28.7 Lds | 43.0 | 430.5 Ton | 82 | 407 | 474 |

**This plan is general in nature, and must be adjusted during the growing season to account for variation of manure nutrient content and crop nutrient uptake patterns that may significantly affect the timing, amount, and method of application.**

Columns **"Avail. N, P2O5, and K2O"** show the estimated **nutrients** to be applied during the **"Application Month"**. Use these values plus current manure nutrient content estimates to help set manure application rates (Example: Nutrient needed / Manure nutrient content per ton = tons of manure to apply).

**"Total Amount Applied"** is the estimated amount of manure to apply to the field during the **"Application Month"** based on the manure nutrient content assumed in MMP. **"Rate/Acre"** is the **"Total Amount Applied"** divided by **"Ac. Covered"**, which is the acres material is applied to during the **"Application Month"**. **"Loads, Speed, or Time"** shows the estimated units of time, speed, or loads to use to apply the manure amount shown in **"Total Amount Applied"**. **"Rate/Acre", "Loads, Speed, or Time",** and **"Total Amount Applied"** should be adjusted based on laboratory tests of manure or plant tissue at or near the time of application, and other crop development considerations.

If **"Ac. Covered"** is less than the spreadable field acres, then MMP predicts there will be insufficient manure to cover the entire field at the time and rate scheduled. If this is found to be the case during application, a shortfall can be managed in several ways. Alternatives could be: 1) note the area of the field that did not receive manure as scheduled and apply the amount of nutrients needed to balance it with the rest of the field as soon as practical; 2) reduce the rate so the entire field receives a consistent but smaller amount of manure, and add fertilizer to the current application; or 3) reduce the rate so the entire field receives a consistent but smaller amount of manure and increase the next application when compatible with crop demand and soil retention.

## 6.8. Field Nutrient Balance (Manure-spreadable Area)

| Year | Field | Size | Crop | Yield Goal | Fertilizer Recs[1] | | | Nutrients Applied[2] | | | Balance After Recs[3] | | | Balance After Removal[4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acres | | /Acre | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A |
| 2009 | Redwood 25 (4594) | 39.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 25 (4594) | 39.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 407 | 474 | -563 | 231 | 64 | 232 | 64 |
| **Total** | **Redwood 25 (4594)** | **39.0** | | | **645** | **176** | **410** | **82** | **407** | **474** | | | | | |
| 2009 | Redwood 25 (4595) | 25.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 25 (4595) | 25.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 407 | 474 | -563 | 231 | 64 | 232 | 64 |
| **Total** | **Redwood 25 (4595)** | **25.0** | | | **645** | **176** | **410** | **82** | **407** | **474** | | | | | |
| 2009 | Redwood 25 (4596) | 31.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 25 (4596) | 31.0 | Corn, silage | 25 | 645 | 176 | 410 | 72 | 358 | 417 | -573 | 182 | 7 | 183 | 7 |
| **Total** | **Redwood 25 (4596)** | **31.0** | | | **645** | **176** | **410** | **72** | **358** | **417** | | | | | |
| 2009 | Palm 34 (5167) | 50.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 34 (5167) | 50.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 408 | 475 | -563 | 232 | 65 | 233 | 65 |
| **Total** | **Palm 34 (5167)** | **50.0** | | | **645** | **176** | **410** | **82** | **408** | **475** | | | | | |
| 2009 | Palm 34 (5168) | 56.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 34 (5168) | 56.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 408 | 475 | -563 | 232 | 65 | 233 | 65 |
| **Total** | **Palm 34 (5168)** | **56.0** | | | **645** | **176** | **410** | **82** | **408** | **475** | | | | | |
| 2009 | Peach 38-2&3 * (5202) | 28.0 | Alfalfa, hay | 7.5 | 315¤ | 93¤ | 375¤ | 217 | 380 | 429 | -98 | 287 | 54 | 287 | 54 |
| **Total** | **Peach 38-2&3 * (5202)** | **28.0** | | | **315** | **93** | **375** | **217** | **380** | **429** | | | | | |
| 2009 | Peach 39 * (5209) | 25.0 | Alfalfa, hay | 7.5 | 315¤ | 93¤ | 375¤ | 228 | 400 | 450 | -87 | 307 | 75 | 307 | 75 |
| **Total** | **Peach 39 * (5209)** | **25.0** | | | **315** | **93** | **375** | **228** | **400** | **450** | | | | | |
| 2009 | Peach 30A * (5210) | 16.0 | Corn, silage | 25 | 320 | 88 | 200 | 68 | 119 | 133 | -252 | 31 | -67 | 32 | -67 |
| **Total** | **Peach 30A * (5210)** | **16.0** | | | **320** | **88** | **200** | **68** | **119** | **133** | | | | | |
| 2009 | Peach 40 * (5218) | 43.0 | Alfalfa, hay | 7.5 | 315¤ | 93¤ | 375¤ | 253 | 444 | 500 | -62 | 351 | 125 | 351 | 125 |
| **Total** | **Peach 40 * (5218)** | **43.0** | | | **315** | **93** | **375** | **253** | **444** | **500** | | | | | |
| 2009 | Palmetto 38 (5230) | 20.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palmetto 38 (5230) | 20.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 409 | 476 | -563 | 233 | 66 | 234 | 66 |
| **Total** | **Palmetto 38 (5230)** | **20.0** | | | **645** | **176** | **410** | **82** | **409** | **476** | | | | | |
| 2009 | Palmetto 38 (5231) | 62.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palmetto 38 (5231) | 62.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 408 | 475 | -563 | 232 | 65 | 233 | 65 |

| Year | Field | Size | Crop | Yield Goal | Fertilizer Recs[1] | | | Nutrients Applied[2] | | | Balance After Recs[3] | | | Balance After Removal[4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acres | | /Acre | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A |
| **Total** | **Palmetto 38 (5231)** | **62.0** | | | **645** | **176** | **410** | **82** | **408** | **475** | | | | | |
| 2009 | Palmetto 38 (5233) | 27.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palmetto 38 (5233) | 27.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 407 | 474 | -563 | 231 | 64 | 232 | 64 |
| **Total** | **Palmetto 38 (5233)** | **27.0** | | | **645** | **176** | **410** | **82** | **407** | **474** | | | | | |
| 2009 | Palm 33 (T5701) | 123.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 33 (T5701) | 123.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palm 33 (T5701)** | **123.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Palm 32 (T5703) | 120.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 32 (T5703) | 120.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palm 32 (T5703)** | **120.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Plum 30 (T5713) | 43.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Plum 30 (T5713) | 43.0 | Corn, silage | 25 | 645 | 176 | 410 | 82 | 407 | 474 | -563 | 231 | 64 | 232 | 64 |
| **Total** | **Plum 30 (T5713)** | **43.0** | | | **645** | **176** | **410** | **82** | **407** | **474** | | | | | |
| 2009 | Plum 30 (T5714) | 56.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Plum 30 (T5714) | 56.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Plum 30 (T5714)** | **56.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Peach 38-1 (T5715) | 22.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Peach 38-1 (T5715) | 22.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Peach 38-1 (T5715)** | **22.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Redwood 30 (T4592) | 99.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 30 (T4592) | 99.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Redwood 30 (T4592)** | **99.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |

## Field Nutrient Balance (Non-manure-spreadable Area)

| Year | Field | Size | Crop | Yield Goal | Fertilizer Recs[1] | | | Nutrients Applied[2] | | | Balance After Recs[3] | | | Balance After Removal[4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acres | | /Acre | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A |
| 2009 | Redwood 25 (4594) | 20.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 25 (4594) | 20.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |

| Year | Field | Size | Crop | Yield Goal | Fertilizer Recs[1] | | | Nutrients Applied[2] | | | Balance After Recs[3] | | | Balance After Removal[4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acres | | /Acre | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A |
| **Total** | **Redwood 25 (4594)** | **20.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Redwood 25 (4595) | 12.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 25 (4595) | 12.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Redwood 25 (4595)** | **12.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Redwood 25 (4596) | 14.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 25 (4596) | 14.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Redwood 25 (4596)** | **14.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Palm 34 (5167) | 21.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 34 (5167) | 21.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palm 34 (5167)** | **21.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Palm 34 (5168) | 21.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 34 (5168) | 21.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palm 34 (5168)** | **21.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Peach 38-2&3 * (5202) | 14.0 | Alfalfa, hay | 7.5 | 315¤ | 93¤ | 375¤ | 0 | 0 | 0 | -315 | -93 | -375 | -93 | -375 |
| **Total** | **Peach 38-2&3 * (5202)** | **14.0** | | | **315** | **93** | **375** | **0** | **0** | **0** | | | | | |
| 2009 | Peach 39 * (5209) | 11.0 | Alfalfa, hay | 7.5 | 315¤ | 93¤ | 375¤ | 0 | 0 | 0 | -315 | -93 | -375 | -93 | -375 |
| **Total** | **Peach 39 * (5209)** | **11.0** | | | **315** | **93** | **375** | **0** | **0** | **0** | | | | | |
| 2009 | Peach 30A * (5210) | 8.0 | Corn, silage | 25 | 320 | 88 | 200 | 0 | 0 | 0 | -320 | -88 | -200 | -88 | -200 |
| **Total** | **Peach 30A * (5210)** | **8.0** | | | **320** | **88** | **200** | **0** | **0** | **0** | | | | | |
| 2009 | Peach 40 * (5218) | 14.0 | Alfalfa, hay | 7.5 | 315¤ | 93¤ | 375¤ | 0 | 0 | 0 | -315 | -93 | -375 | -93 | -375 |
| **Total** | **Peach 40 * (5218)** | **14.0** | | | **315** | **93** | **375** | **0** | **0** | **0** | | | | | |
| 2009 | Palmetto 38 (5230) | 11.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palmetto 38 (5230) | 11.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palmetto 38 (5230)** | **11.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Palmetto 38 (5231) | 18.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palmetto 38 (5231) | 18.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palmetto 38 (5231)** | **18.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Palmetto 38 (5233) | 11.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palmetto 38 (5233) | 11.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |

| Year | Field | Size | Crop | Yield Goal | Fertilizer Recs[1] | | | Nutrients Applied[2] | | | Balance After Recs[3] | | | Balance After Removal[4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acres | | /Acre | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | N Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A | $P_2O_5$ Lb/A | $K_2O$ Lb/A |
| **Total** | **Palmetto 38 (5233)** | **11.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Palm 33 (T5701) | 25.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 33 (T5701) | 25.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palm 33 (T5701)** | **25.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Palm 32 (T5703) | 24.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Palm 32 (T5703) | 24.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Palm 32 (T5703)** | **24.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Plum 30 (T5713) | 16.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Plum 30 (T5713) | 16.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Plum 30 (T5713)** | **16.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Plum 30 (T5714) | 17.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Plum 30 (T5714) | 17.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Plum 30 (T5714)** | **17.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Peach 38-1 (T5715) | 13.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Peach 38-1 (T5715) | 13.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Peach 38-1 (T5715)** | **13.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |
| 2009 | Redwood 30 (T4592) | 22.0 | Wheat, grain | 3.5 | | | | | | | | | | | |
| 2009 | Redwood 30 (T4592) | 22.0 | Corn, silage | 25 | 645 | 176 | 410 | 0 | 0 | 0 | -645 | -176 | -410 | -175 | -410 |
| **Total** | **Redwood 30 (T4592)** | **22.0** | | | **645** | **176** | **410** | **0** | **0** | **0** | | | | | |

[1] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[2] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[3] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applicaitions. For $P_2O_5$ and $K_2O$, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

[4] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

¤ Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

[a] Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

† Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

## 6.10. Fertilizer Material Annual Summary

| Product Analysis | Plan Period | Product Needed Sep - Dec | Product Needed Jan - Aug | Total Product Needed | Units |
|---|---|---|---|---|---|

## 6.9. Manure Inventory Annual Summary

| Manure Source | Plan Period | On Hand at Start of Period | Total Generated | Total Imported | Total Trans-ferred In | Total Applied | Total Exported | Total Trans-ferred Out | On Hand at End of Period | Units |
|---|---|---|---|---|---|---|---|---|---|---|
| Dairy stalls | Sep '08 - Aug '09 | 0 | 6,210 | 0 | 0 | 3,498 | 0 | 0 | 2,712 | Ton |
| Wastewater pond | Sep '08 - Aug '09 | 0 | 16,049,200 | 0 | 0 | 16,044,000 | 0 | 0 | 5,200 | Gal |

## 6.11. Whole-farm Nutrient Balance (Manure-spreadable Area)

| | N (Lbs) | $P_2O_5$ (Lbs) | $K_2O$ (Lbs) |
|---|---|---|---|
| Total Manure Nutrients on Hand at Start of Plan[1] | 0 | 0 | 0 |
| Total Manure Nutrients Collected[2] | 309,195 | 295,053 | 340,506 |
| Total Manure Nutrients Imported[3] | 0 | 0 | 0 |
| Total Manure Nutrients Exported[4] | 0 | 0 | 0 |
| Total Manure Nutrients on Hand at End of Plan[5] | 109,855 | 110,392 | 128,564 |
| Total Manure Nutrients Applied[6] | 199,318 | 183,973 | 212,644 |
| Available Manure Nutrients Applied[7] | 52,423 | 183,973 | 212,644 |
| Commercial Fertilizer Nutrients Applied[8] | 0 | 0 | 0 |
| Available Nutrients Applied[9] | 52,423 | 183,973 | 212,644 |
| Nutrient Utilization Potential[10] | 533,945 | 146,384 | 356,130 |
| Nutrient Balance of Spreadable Acres[11*] | -481,522 | 37,589 | -143,486 |
| Average Nutrient Balance per Spreadable Acre per Year[12*] | -544 | 42 | -162 |

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate total manure nutrients present in storage(s) at the end of plan.
6. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
7. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 6) after accounting for state-specific nutrient losses due to rate, time and method of application.
8. Values indicate nutrients applied as commercial fertilizers.
9. Values are the sum of available manure nutrients applied (row 7) and commercial fertilizer nutrients applied (row 8).
10. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. $P_2O_5$ and $K_2O$ values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
11. Values indicate available nutrients applied (row 9) minus crop nutrient utilization potential (row 10). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
12. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 11) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for $P_2O_5$ and or $K_2O$ do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low risk of P loss potential based on the risk assessment tool used by the state. Negative values for $P_2O_5$ and $K_2O$ indicate that planned applications to some fields are less than crop removal rates.

## Whole-farm Nutrient Balance (Non-manure-spreadable Area)

| | N (Lbs) | $P_2O_5$ (Lbs) | $K_2O$ (Lbs) |
|---|---|---|---|
| Commercial Fertilizer Nutrients Applied[1] | 0 | 0 | 0 |
| Nutrient Utilization Potential[2] | 172,870 | 47,451 | 116,675 |
| Nutrient Balance of Non-spreadable Acres[3*] | -172,870 | -47,451 | -116,675 |
| Average Nutrient Balance per Non-spreadable Acre per Year[4*] | -592 | -163 | -400 |

1. Values indicate nutrients applied as commercial fertilizers.
2. Values indicate nutrient utilization potential of crops grown based on crop fertilizer recommendations.

3. Values indicate commercial fertilizer nutrients applied (row 1) minus crop nutrient utilization potential (row 2). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
4. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of non-spreadable acres (row 3) by number of non-spreadable acres in plan. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. Positive values for $P_2O_5$ and or $K_2O$ do not necessarily indicate that the plan was not developed properly. For example, multiple year applications may have been planned during the final plan year(s) and these nutrients will not be utilized by crops in the current plan. Negative values for $P_2O_5$ and $K_2O$ indicate that applications to some fields may have been delayed to allow the producer to apply the nutrients in accordance with their fertilization schedule.

## 6.12. Evaluation of Nutrient Management (NRCS CA, WS4-6)

Producer: Schaffner Dairy Date: 9/9/2008 **WS 4-6**

| Evaluation of Nutrient Management | | | |
|---|---|---|---|
| **Management Principle** | **Desirable Management** | **Current Management** | **Change Needed? Y/N** |
| **Estimating Application Amounts Seasonally or for the next Application** | | | |
| Estimate crop nutrient needs | Collect actual yield data; take tissue samples at harvest for N. Test for K as needed. | Occasionally, not always | Y |
| Sample for soil nutrient content | Test for P and K every 3 years. For N: pre-application tests in-season or pre-plant as needed | Not yet | Y |
| Account for all nutrient sources | Consider nitrogen from irrigation water, legume plow down, other significant sources | Some time discounts commercial fertilizer (10-42-0) in budget | Y |
| Set target seasonal or in-season application rates | Consider measured harvest N removal, all N sources, reasonable N losses, in-season plant uptake patterns, and regulatory guidelines | Yes, manure management by crop performance. No precise plan in use | Y |
| **Calculate, Time, and Control Manure Applications** | | | |
| Know manure nutrient content | Analyze nutrient content of manure from each source before each application | No | Y |
| Calculate Desired application rate | Use nutrient content of manure and target N application amount to estimate the total weight or volume of manure to apply | No | Y |
| Know manure application rate | Measure the weight or volume of manure applied by field and application. | Yes for solid manure (@10t/a)<br>No for liquid manure | Y |
| Correctly time manure and fertilizer applications | No large pre-plant liquid manure applications, use several in-season applications that match crop uptake patterns, apply solids in the spring, etc | No | Y |
| Control application rate and destination | Manure applications can be adjusted to apply desired amounts. Desired fields receive desired amounts. | Traditional systems need modernization | Y |
| Distribute manure evenly among fields | Manure is distributed to all fields, no field receives excessive amounts relative to other fields | None yet | Y |
| Distribute manure evenly on fields | Liquid and solid manure is applied evenly on the whole field each application | As much as possible, room for improvements | Y |

| Management Principle | Desirable Management | Current Management | Change Needed? Y/N |
|---|---|---|---|
| **Record, Evaluate, and Plan Future Applications** | | | |
| Record important information | Record all fertilizer and manure applications by field, type, amount, date, nutrient content, plant and harvest dates. | Not field specific | Y |
| Monitor crop growth in-season | Observe crop conditions, sample tissue and soil as needed. Adjust application plan as needed. | No tissue samples | Y |
| Evaluate outcome of management annually | Compare nutrients applied to crop use, use post harvest deep soil test for N | No | Y |
| Adjust application plan for next season | Consider crop yields, crop planting plan, soil data, past applications, expected manure inventory, etc to plan next season applications | No | Y |

## 6.13. Evaluation of Manure Distribution on Cropland (NRCS CA, WS3-4)

Worksheet 3-4

revised 4/3/06

# Evaluation of Manure Distribution on Cropland

Facility Name: Schaffner Dairy  Name of Preparer: Richard Cernansky  Date: 3/16/2009  Page 1 of 1

| | Solid Manure Application (Y = Yes; N = No) | | | | Liquid Manure Application (Y = Yes; N = No) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Field | Application Equipment Access? | Solid Manure Applied? | [1]Evidence of Poor On-field Distribution? | [2]Evidence of Excessive Application Rate? | Equipment or Irrigation Access? | Liquid Manure Applied? | Head to Head Flows When Mixing with Irrigation Water? | Dilution Water Available All Year? | [3]Evidence of Uneven Distribution Across Field? | Sludge from Pond Cleanout Applied? |
| 5202 | Y | N | N | N | Y | Y | N | Y | N | N |
| 5209 | Y | N | N | N | Y | Y | N | Y | N | N |
| 5210 | Y | N | N | N | Y | Y | N | Y | N | N |
| 5218 | Y | N | N | N | Y | Y | N | Y | N | N |
| 4594, 4595, 4596, 5167, 5168, 5210, 5230, 5231, 5233, 5701, 5703, 5713, 5714, 5715, 4592 | Y | Y | N | N | N | N | N | N | N | N |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

[1] Example: Areas of varying manure accumulation and/or poor crop performance
[2] Example: Poor crop performance
[3] Example: Areas of varying manure accumulation and/or poor crop performance

# Section 7. Feed Management

# Section 8. Other Utilization Options

# Section 10. References

## 10.1. Publications

### Crop Fertilizer Recommendations

Western Fertilizer Handbook & Roland Meyer (UCCE) & Inter-agency CNMP Development Committee (2002)
*http://efotg.nrcs.usda.gov/references/public/CA/590std-10-02.pdf*

### Manure Nutrient Availability

NRCS AWMFH (adapted) if not manured annually, otherwise 100% of total N if manured annually
*ftp://ftp.wcc.nrcs.usda.gov/downloads/wastemgmt/AWMFH/awmfh-chap11.pdf*

### Practice Standards

California NRCS Nutrient Management Standard (590), October 2002
*http://efotg.nrcs.usda.gov/references/public/CA/590std-10-02.pdf*

## 10.2. Software and Data Sources

| | |
|---|---|
| MMP Version | MMP 0.2.3.0 |
| MMP Plan File | 4/2/2009 2:51:02 PM |
| MMP Initialization File for California | 5/3/2007 |
| MMP Soils File for California | 2/27/2007 |
| Phosphorus Index Tool Version | n/a |
| NRCS Conservation Plan(s) | |

## 10.3. Appendix

# NOWData - NOAA ine Weather Data

EL CENTRO 2 SSW (042713)
Monthly Totals/Averages
Precipitation (inches)
Years: 1971-2000

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average | 0.51 | 0.36 | 0.31 | 0.05 | 0.03 | 0.01 | 0.06 | 0.32 | 0.36 | 0.36 | 0.17 | 0.42 | 2.96 |

**Official data and data for additional locations and years are available from the Regional Climate Centers and the National Climatic Data Center.**

# POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

**EL CENTRO 2 SSW, SOUTHERN CALIFORNIA (04-2713) 32.7669 N 115.5617 W -26 feet**

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Mon Mar 9 2009



## Precipitation Frequency Estimates (inches)

| ARI* (years) | 5 min | 10 min | 15 min | 30 min | 60 min | 120 min | 3 hr | 6 hr | 12 hr | 24 hr | 48 hr | 4 day | 7 day | 10 day | 20 day | 30 day | 45 day | 60 day |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.10 | 0.14 | 0.18 | 0.24 | 0.30 | 0.40 | 0.45 | 0.56 | 0.65 | 0.72 | 0.74 | 0.75 | 0.79 | 0.81 | 0.89 | 0.96 | 1.05 | 1.11 |
| 2 | 0.13 | 0.20 | 0.25 | 0.34 | 0.42 | 0.56 | 0.63 | 0.78 | 0.88 | 0.99 | 1.02 | 1.04 | 1.09 | 1.13 | 1.24 | 1.34 | 1.47 | 1.56 |
| 5 | 0.22 | 0.33 | 0.41 | 0.56 | 0.69 | 0.92 | 1.01 | 1.20 | 1.36 | 1.51 | 1.58 | 1.60 | 1.68 | 1.75 | 1.92 | 2.08 | 2.27 | 2.43 |
| 10 | 0.29 | 0.45 | 0.56 | 0.75 | 0.93 | 1.22 | 1.33 | 1.55 | 1.73 | 1.93 | 2.04 | 2.06 | 2.15 | 2.24 | 2.46 | 2.64 | 2.87 | 3.09 |
| 25 | 0.42 | 0.64 | 0.80 | 1.07 | 1.33 | 1.69 | 1.81 | 2.06 | 2.26 | 2.53 | 2.71 | 2.73 | 2.83 | 2.94 | 3.22 | 3.44 | 3.70 | 3.99 |
| 50 | 0.54 | 0.82 | 1.01 | 1.37 | 1.69 | 2.13 | 2.23 | 2.49 | 2.71 | 3.02 | 3.29 | 3.30 | 3.39 | 3.53 | 3.84 | 4.08 | 4.37 | 4.72 |
| 100 | 0.67 | 1.03 | 1.27 | 1.71 | 2.12 | 2.62 | 2.72 | 2.97 | 3.19 | 3.56 | 3.94 | 3.98 | 4.01 | 4.18 | 4.51 | 4.77 | 5.07 | 5.49 |
| 200 | 0.84 | 1.28 | 1.58 | 2.13 | 2.64 | 3.21 | 3.28 | 3.52 | 3.71 | 4.15 | 4.66 | 4.71 | 4.76 | 4.89 | 5.24 | 5.50 | 5.79 | 6.30 |
| 500 | 1.10 | 1.68 | 2.08 | 2.81 | 3.48 | 4.13 | 4.21 | 4.33 | 4.47 | 5.01 | 5.75 | 5.81 | 5.87 | 5.92 | 6.29 | 6.55 | 6.82 | 7.43 |
| 1000 | 1.35 | 2.06 | 2.56 | 3.44 | 4.26 | 4.97 | 5.05 | 5.17 | 5.31 | 5.73 | 6.69 | 6.75 | 6.82 | 6.89 | 7.15 | 7.41 | 7.64 | 8.35 |

* These precipitation frequency estimates are based on a partial duration series. **ARI** is the Average Recurrence Interval.
Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting forces estimates near zero to appear as zero.

## * Upper bound of the 90% confidence interval Precipitation Frequency Estimates (inches)

| ARI** (years) | 5 min | 10 min | 15 min | 30 min | 60 min | 120 min | 3 hr | 6 hr | 12 hr | 24 hr | 48 hr | 4 day | 7 day | 10 day | 20 day | 30 day | 45 day | 60 day |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.12 | 0.18 | 0.22 | 0.30 | 0.37 | 0.48 | 0.54 | 0.66 | 0.75 | 0.83 | 0.86 | 0.86 | 0.90 | 0.94 | 1.02 | 1.10 | 1.20 | 1.26 |
| 2 | 0.16 | 0.24 | 0.30 | 0.41 | 0.51 | 0.68 | 0.75 | 0.92 | 1.03 | 1.14 | 1.18 | 1.19 | 1.25 | 1.30 | 1.43 | 1.53 | 1.66 | 1.77 |
| 5 | 0.27 | 0.41 | 0.51 | 0.68 | 0.85 | 1.09 | 1.20 | 1.42 | 1.58 | 1.74 | 1.82 | 1.83 | 1.92 | 2.01 | 2.21 | 2.37 | 2.57 | 2.76 |
| 10 | 0.36 | 0.55 | 0.68 | 0.91 | 1.13 | 1.44 | 1.57 | 1.83 | 2.00 | 2.22 | 2.35 | 2.36 | 2.46 | 2.57 | 2.83 | 3.00 | 3.25 | 3.49 |
| 25 | 0.52 | 0.78 | 0.97 | 1.31 | 1.62 | 2.00 | 2.12 | 2.42 | 2.62 | 2.90 | 3.13 | 3.16 | 3.25 | 3.38 | 3.69 | 3.91 | 4.19 | 4.52 |
| 50 | 0.66 | 1.00 | 1.24 | 1.67 | 2.07 | 2.50 | 2.64 | 2.94 | 3.16 | 3.47 | 3.80 | 3.84 | 3.91 | 4.07 | 4.43 | 4.65 | 4.94 | 5.36 |
| 100 | 0.82 | 1.25 | 1.55 | 2.09 | 2.59 | 3.10 | 3.23 | 3.52 | 3.73 | 4.09 | 4.58 | 4.63 | 4.65 | 4.85 | 5.22 | 5.45 | 5.75 | 6.24 |
| 200 | 1.03 | 1.57 | 1.95 | 2.63 | 3.25 | 3.81 | 3.92 | 4.18 | 4.39 | 4.78 | 5.46 | 5.51 | 5.57 | 5.71 | 6.09 | 6.31 | 6.60 | 7.20 |
| 500 | 1.37 | 2.08 | 2.58 | 3.47 | 4.30 | 4.95 | 5.08 | 5.21 | 5.36 | 5.80 | 6.80 | 6.86 | 6.93 | 6.98 | 7.35 | 7.57 | 7.83 | 8.59 |
| 1000 | 1.69 | 2.57 | 3.19 | 4.30 | 5.32 | 6.01 | 6.18 | 6.31 | 6.40 | 6.66 | 7.96 | 8.04 | 8.12 | 8.20 | 8.47 | 8.63 | 8.84 | 9.70 |

* The **upper** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **greater** than.
** These precipitation frequency estimates are based on a partial duration series. **ARI** is the Average Recurrence Interval.

Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

## * Lower bound of the 90% confidence interval Precipitation Frequency Estimates (inches)

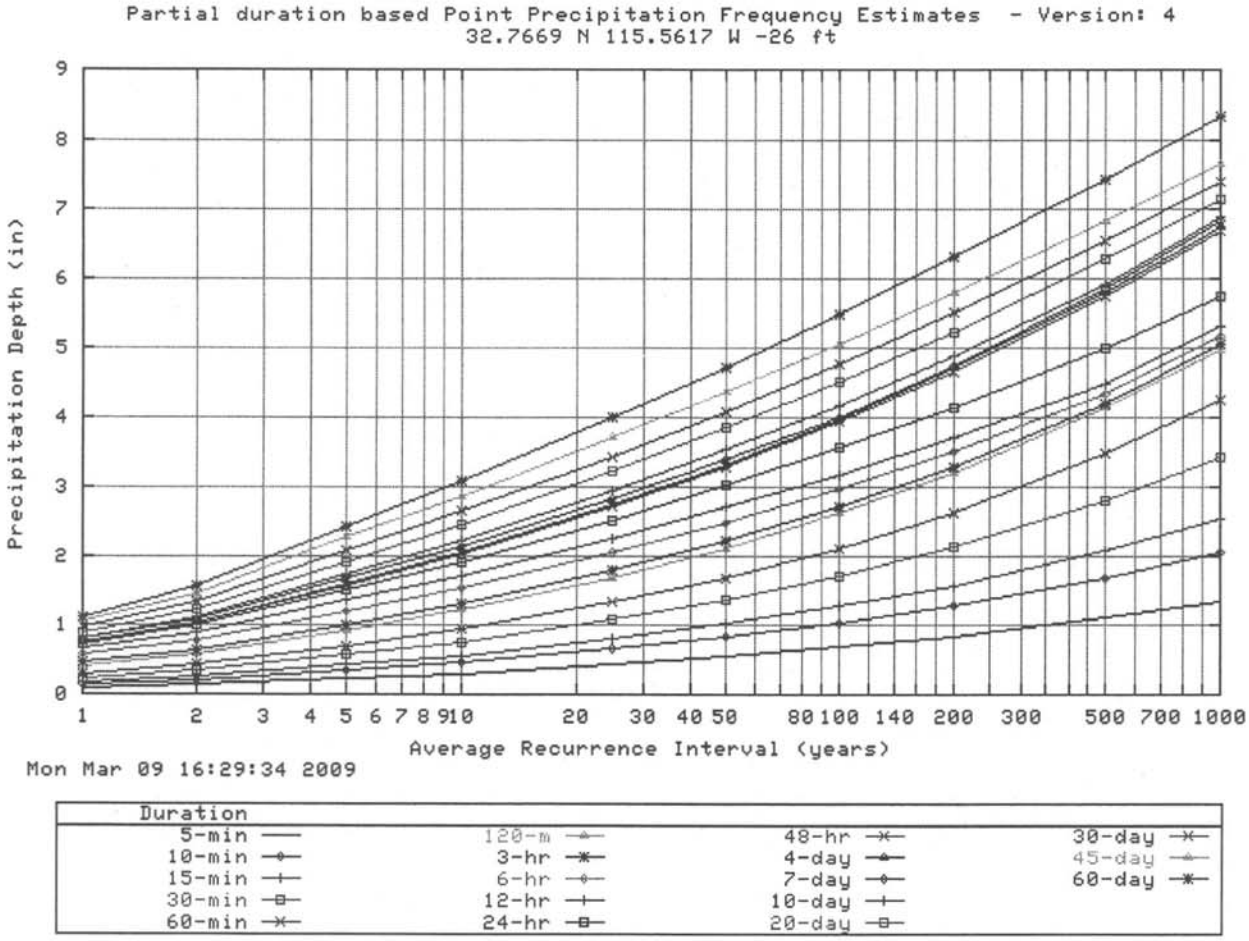
| A (y | 5 min | 10 min | 15 min | 30 min | 60 min | 120 min | 3 hr | 6 hr | 12 hr | 24 hr | 48 hr | 4 day | 7 day | 10 day | 20 day | 30 day | 45 day | 60 day |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.08 | 0.12 | 0.15 | 0.20 | 0.25 | 0.33 | 0.38 | 0.47 | 0.55 | 0.63 | 0.64 | 0.65 | 0.68 | 0.71 | 0.78 | 0.84 | 0.92 | 0.97 |
| 2 | 0.11 | 0.17 | 0.21 | 0.28 | 0.35 | 0.47 | 0.52 | 0.66 | 0.75 | 0.86 | 0.89 | 0.90 | 0.95 | 0.99 | 1.08 | 1.17 | 1.28 | 1.36 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5** | 0.18 | 0.28 | 0.34 | 0.46 | 0.57 | 0.76 | 0.84 | 1.02 | 1.17 | 1.32 | 1.38 | 1.39 | 1.46 | 1.52 | 1.67 | 1.82 | 1.99 | 2.13 |
| **10** | 0.24 | 0.37 | 0.46 | 0.62 | 0.77 | 1.00 | 1.09 | 1.30 | 1.46 | 1.67 | 1.77 | 1.78 | 1.87 | 1.95 | 2.13 | 2.30 | 2.50 | 2.70 |
| **25** | 0.34 | 0.52 | 0.65 | 0.87 | 1.08 | 1.36 | 1.46 | 1.71 | 1.90 | 2.17 | 2.34 | 2.34 | 2.44 | 2.54 | 2.76 | 2.97 | 3.19 | 3.47 |
| **50** | 0.43 | 0.65 | 0.81 | 1.09 | 1.34 | 1.67 | 1.78 | 2.03 | 2.25 | 2.57 | 2.81 | 2.84 | 2.90 | 3.01 | 3.27 | 3.50 | 3.75 | 4.08 |
| **100** | 0.52 | 0.80 | 0.99 | 1.33 | 1.65 | 2.01 | 2.13 | 2.39 | 2.62 | 3.01 | 3.33 | 3.36 | 3.39 | 3.54 | 3.80 | 4.07 | 4.32 | 4.71 |
| **200** | 0.64 | 0.97 | 1.20 | 1.62 | 2.00 | 2.41 | 2.52 | 2.78 | 3.01 | 3.47 | 3.88 | 3.92 | 3.92 | 4.08 | 4.36 | 4.65 | 4.89 | 5.36 |
| **500** | 0.81 | 1.23 | 1.53 | 2.06 | 2.55 | 3.01 | 3.13 | 3.36 | 3.56 | 4.12 | 4.66 | 4.71 | 4.75 | 4.85 | 5.14 | 5.46 | 5.70 | 6.23 |
| **1000** | 0.97 | 1.48 | 1.83 | 2.46 | 3.05 | 3.54 | 3.67 | 3.96 | 4.15 | 4.65 | 5.33 | 5.38 | 5.44 | 5.47 | 5.78 | 6.08 | 6.33 | 6.91 |

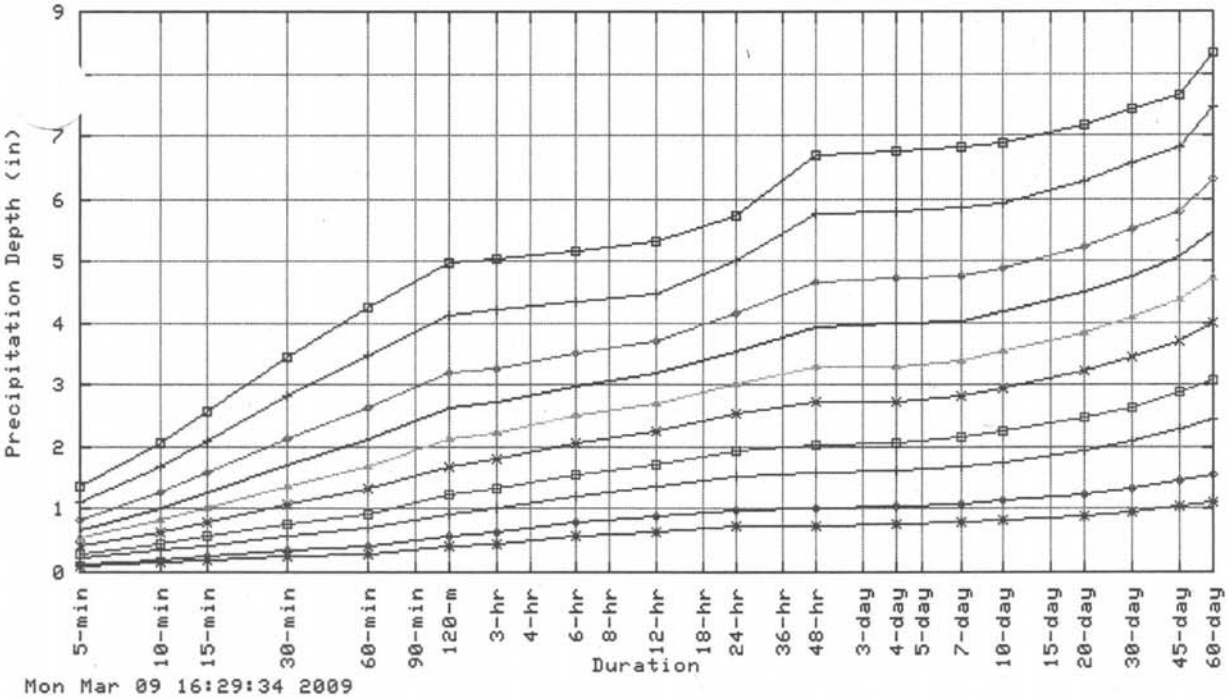
* The **lower** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **less** than.
** These precipitation frequency estimates are based on a partial duration maxima series. **ARI** is the Average Recurrence Interval.

Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

Text version of tables



Partial duration based Point Precipitation Frequency Estimates - Version: 4
32.7669 N 115.5617 W -26 ft

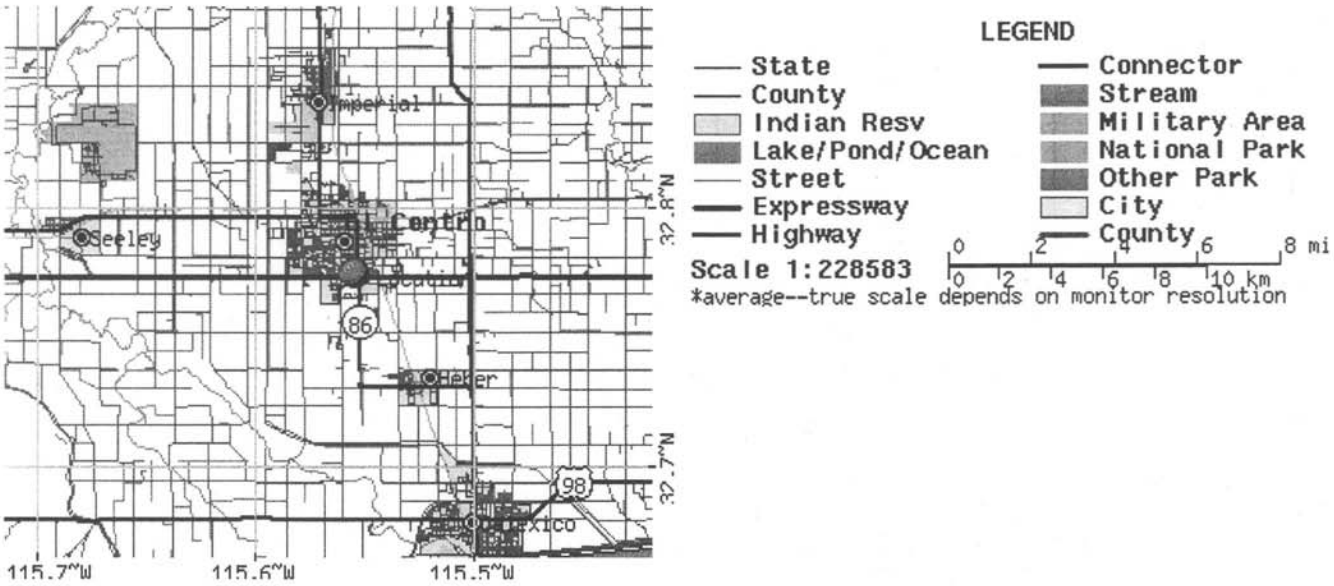



Mon Mar 09 16:29:34 2009

## Maps -

These maps were produced using a direct map request from the U.S. Census Bureau Mapping and Cartographic Resources Tiger Map Server.

*Please read disclaimer for more information.*




## Other Maps/Photographs -

View USGS digital orthophoto quadrangle (DOQ) covering this location from TerraServer; **USGS Aerial Photograph** may also be available
from this site. A DOQ is a computer-generated image of an aerial photograph in which image displacement caused by terrain relief and camera tilts has been removed. It combines the image characteristics of a photograph with the geometric qualities of a map. Visit the USGS for more information.

## Watershed/Stream Flow Information -

Find the Watershed for this location using the U.S. Environmental Protection Agency's site.

## Climate Data Sources -

*Precipitation frequency results are based on data from a variety of sources, but largely NCDC. The following links provide general information*
*about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study,*
*please refer to NOAA Atlas 14 Document.*

Using the **National Climatic Data Center's (NCDC)** station search engine, locate other climate stations within:

+/-30 minutes ...OR... +/-1 degree of this location (32.7669/-115.5617). Digital ASCII data can be obtained directly from **NCDC**.

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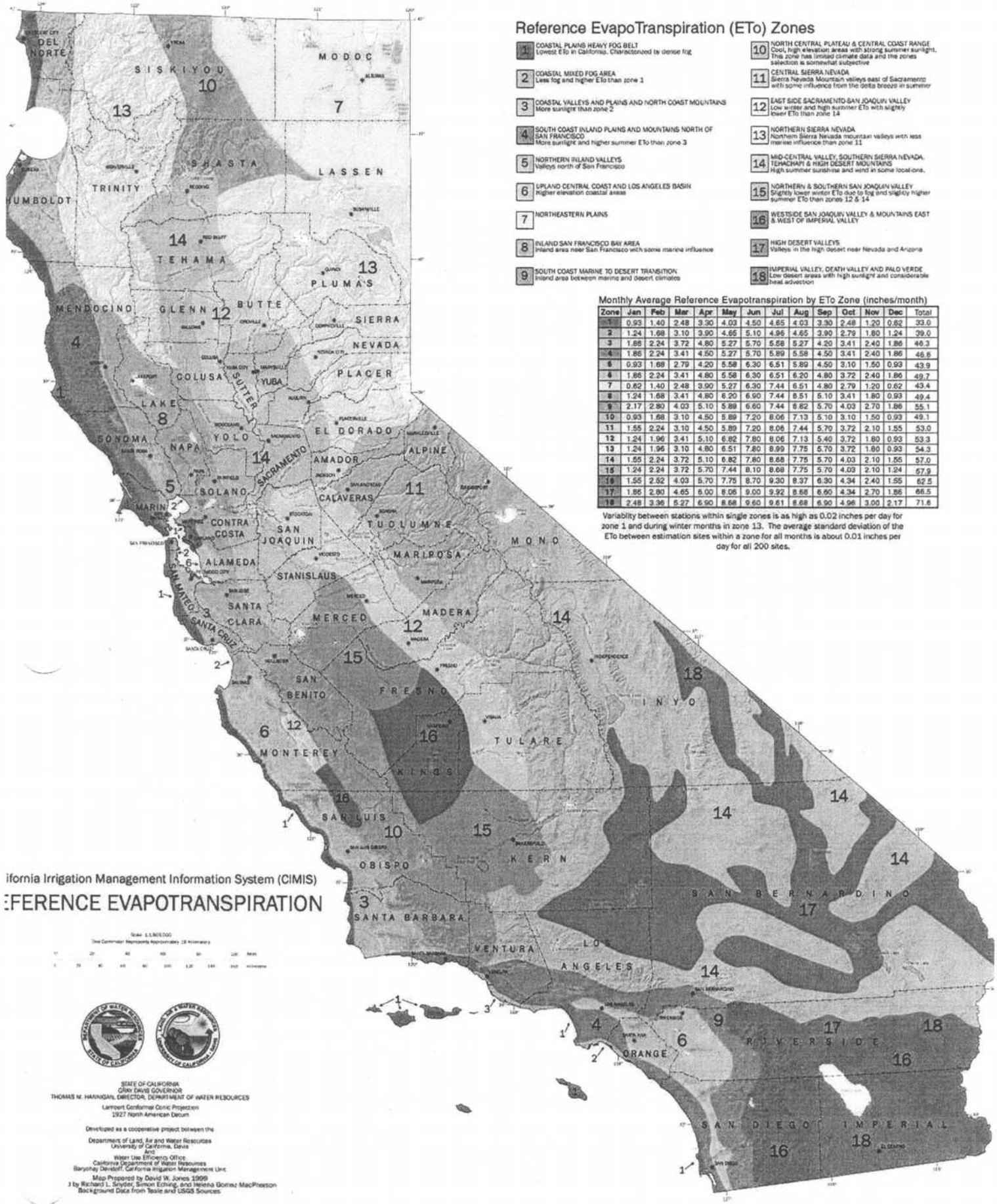
**Hydrometeorological Design Studies Center**
**DOC/NOAA/National Weather Service**
**1325 East-West Highway**
**Silver Spring, MD 20910**

**(301) 713-1669**
Questions?: HDSC.Questions@noaa.gov

Disclaimer




## Reference EvapoTranspiration (ETo) Zones

1. COASTAL PLAINS HEAVY FOG BELT — Lowest ETo in California. Characterized by dense fog
2. COASTAL MIXED FOG AREA — Less fog and higher ETo than zone 1
3. COASTAL VALLEYS AND PLAINS AND NORTH COAST MOUNTAINS — More sunlight than zone 2
4. SOUTH COAST INLAND PLAINS AND MOUNTAINS NORTH OF SAN FRANCISCO — More sunlight and higher summer ETo than zone 3
5. NORTHERN INLAND VALLEYS — Valleys north of San Francisco
6. UPLAND CENTRAL COAST AND LOS ANGELES BASIN — Higher elevation coastal areas
7. NORTHEASTERN PLAINS
8. INLAND SAN FRANCISCO BAY AREA — Inland area near San Francisco with some marine influence
9. SOUTH COAST MARINE TO DESERT TRANSITION — Inland area between marine and desert climates
10. NORTH CENTRAL PLATEAU & CENTRAL COAST RANGE — Cool, high elevation areas with strong summer sunlight. This zone has limited climate data and the zones selection is somewhat subjective
11. CENTRAL SIERRA NEVADA — Sierra Nevada Mountain valleys east of Sacramento with some influence from the delta breeze in summer
12. EAST SIDE SACRAMENTO-SAN JOAQUIN VALLEY — Low winter and high summer ETo with slightly lower ETo than zone 14
13. NORTHERN SIERRA NEVADA — Northern Sierra Nevada mountain valleys with less marine influence than zone 11
14. MID-CENTRAL VALLEY, SOUTHERN SIERRA NEVADA, TEHACHAPI & HIGH DESERT MOUNTAINS — High summer sunshine and wind in some locations.
15. NORTHERN & SOUTHERN SAN JOAQUIN VALLEY — Slightly lower winter ETo due to fog and slightly higher summer ETo than zones 12 & 14
16. WESTSIDE SAN JOAQUIN VALLEY & MOUNTAINS EAST & WEST OF IMPERIAL VALLEY
17. HIGH DESERT VALLEYS — Valleys in the high desert near Nevada and Arizona
18. IMPERIAL VALLEY, DEATH VALLEY AND PALO VERDE — Low desert areas with high sunlight and considerable heat advection

Monthly Average Reference Evapotranspiration by ETo Zone (inches/month)

| Zone | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.93 | 1.40 | 2.48 | 3.30 | 4.03 | 4.50 | 4.65 | 4.03 | 3.30 | 2.48 | 1.20 | 0.62 | 33.0 |
| 2 | 1.24 | 1.68 | 3.10 | 3.90 | 4.65 | 5.10 | 4.96 | 4.65 | 3.90 | 2.79 | 1.80 | 1.24 | 39.0 |
| 3 | 1.86 | 2.24 | 3.72 | 4.80 | 5.27 | 5.70 | 5.58 | 5.27 | 4.20 | 3.41 | 2.40 | 1.86 | 46.3 |
| 4 | 1.86 | 2.24 | 3.41 | 4.50 | 5.27 | 5.70 | 5.89 | 5.58 | 4.50 | 3.41 | 2.40 | 1.86 | 46.6 |
| 5 | 0.93 | 1.68 | 2.79 | 4.20 | 5.58 | 6.30 | 6.51 | 5.89 | 4.50 | 3.10 | 1.50 | 0.93 | 43.9 |
| 6 | 1.86 | 2.24 | 3.41 | 4.80 | 5.58 | 6.30 | 6.51 | 6.20 | 4.80 | 3.72 | 2.40 | 1.86 | 49.7 |
| 7 | 0.62 | 1.40 | 2.48 | 3.90 | 5.27 | 6.30 | 7.44 | 6.51 | 4.80 | 2.79 | 1.20 | 0.62 | 43.4 |
| 8 | 1.24 | 1.68 | 3.41 | 4.80 | 6.20 | 6.90 | 7.44 | 6.51 | 5.10 | 3.41 | 1.80 | 0.93 | 49.4 |
| 9 | 2.17 | 2.80 | 4.03 | 5.10 | 5.89 | 6.60 | 7.44 | 6.82 | 5.70 | 4.03 | 2.70 | 1.86 | 55.1 |
| 10 | 0.93 | 1.68 | 3.10 | 4.50 | 5.89 | 7.20 | 8.06 | 7.13 | 5.10 | 3.10 | 1.50 | 0.93 | 49.1 |
| 11 | 1.55 | 2.24 | 3.10 | 4.50 | 5.89 | 7.20 | 8.06 | 7.44 | 5.70 | 3.72 | 2.10 | 1.55 | 53.0 |
| 12 | 1.24 | 1.96 | 3.41 | 5.10 | 6.82 | 7.80 | 8.06 | 7.13 | 5.40 | 3.72 | 1.80 | 0.93 | 53.3 |
| 13 | 1.24 | 1.96 | 3.10 | 4.80 | 6.51 | 7.80 | 8.99 | 7.75 | 5.70 | 3.72 | 1.80 | 0.93 | 54.3 |
| 14 | 1.55 | 2.24 | 3.72 | 5.10 | 6.82 | 7.80 | 8.68 | 7.75 | 5.70 | 4.03 | 2.10 | 1.55 | 57.0 |
| 15 | 1.24 | 2.24 | 3.72 | 5.70 | 7.44 | 8.10 | 8.68 | 7.75 | 5.70 | 4.03 | 2.10 | 1.24 | 57.9 |
| 16 | 1.55 | 2.52 | 4.03 | 5.70 | 7.75 | 8.70 | 9.30 | 8.37 | 6.30 | 4.34 | 2.40 | 1.55 | 62.5 |
| 17 | 1.86 | 2.80 | 4.65 | 6.00 | 8.06 | 9.00 | 9.92 | 8.68 | 6.60 | 4.34 | 2.70 | 1.86 | 66.5 |
| 18 | 2.48 | 3.36 | 5.27 | 6.90 | 8.68 | 9.60 | 9.61 | 8.68 | 6.90 | 4.96 | 3.00 | 2.17 | 71.6 |

Variablity between stations within single zones is as high as 0.02 inches per day for zone 1 and during winter months in zone 13. The average standard deviation of the ETo between estimation sites within a zone for all months is about 0.01 inches per day for all 200 sites.

ifornia Irrigation Management Information System (CIMIS)

:FERENCE EVAPOTRANSPIRATION

Scale 1:1,905,000

STATE OF CALIFORNIA
GRAY DAVIS GOVERNOR
THOMAS M. HANNIGAN, DIRECTOR, DEPARTMENT OF WATER RESOURCES

Lambert Conformal Conic Projection
1927 North American Datum

Developed as a cooperative project between the

Department of Land, Air and Water Resources
University of California, Davis
and
Water Use Efficiency Office
California Department of Water Resources
Baryohay Davidoff, California Irrigation Management Unit

Map Prepared by David W. Jones 1999
J by Richard L. Snyder, Simon Eching, and Helena Gomez MacPherson
Background Data from Teale and USGS Sources

**Estimated Pan Evaporation within Reference Evapotranspiration (ETo) Zone 18**

Producer: Schaffner Dairy
Date: 3/9/2009

Entered by: RC
Checked by:

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Average ETo | 2.48 | 3.36 | 5.27 | 6.90 | 8.68 | 9.60 | 9.61 | 8.68 | 6.90 | 4.96 | 3.00 | 2.17 | 71.61 |
| Estimated Pan Evaporation (~1.18 x ETo) | 2.93 | 3.96 | 6.22 | 8.14 | 10.2 | 11.3 | 11.3 | 10.2 | 8.14 | 5.85 | 3.54 | 2.56 | 84.50 |

# Field Nutrient Status Details

**Plan File:** C:\home\richards files\Field Office Files\El Centro\Schaffner Dairy\SchafnerDairy_04_09_rev.mmp **Last Saved:** 4/2/2009
**Operation:** Schaffner Dairy **State:** California **Init. File Rev:** 5/3/2007

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 25 | 4594 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 39 | 325 | 88 | 210 |
| 2009 | Redwood 25 | 4594 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 39 | 320 | 88 | 200 |
| 2009 | Redwood 25 | 4594 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 39 | 203 | 88 | 210 |
| 2009 | Redwood 25 | 4594 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 39 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Redwood 25 | 4594 | Manure App | Dairy stalls | Speader | 10 Ton | 39.0 | 82 | 407 | 474 |
| 2009 | Redwood 25 | 4594 | Total Nutrients Applied | Spreadable Area | | | 39 | 82 | 407 | 474 |
| 2009 | Redwood 25 | 4594 | Balance After Recs | Spreadable Area | | | 39 | -563 | 231 | 64 |
| 2009 | Redwood 25 | 4594 | Balance After Removal | Spreadable Area | | | 39 | -321 | 232 | 64 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 25 | 4594 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 20 | 325 | 88 | 210 |
| 2009 | Redwood 25 | 4594 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 20 | 320 | 88 | 200 |
| 2009 | Redwood 25 | 4594 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 20 | 203 | 88 | 210 |
| 2009 | Redwood 25 | 4594 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 20 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| 2009 | Redwood 25 | 4594 | Total Nutrients Applied | Non-spreadable Area | | | 20 | 0 | 0 | 0 |
| 2009 | Redwood 25 | 4594 | Balance After Recs | Non-spreadable Area | | | 20 | -645 | -176 | -410 |
| 2009 | Redwood 25 | 4594 | Balance After Removal | Non-spreadable Area | | | 20 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 25 | 4595 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 25 | 325 | 88 | 210 |
| 2009 | Redwood 25 | 4595 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 25 | 320 | 88 | 200 |
| 2009 | Redwood 25 | 4595 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 25 | 203 | 88 | 210 |
| 2009 | Redwood 25 | 4595 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 25 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Redwood 25 | 4595 | Manure App | Dairy stalls | Speader | 10 Ton | 25.0 | 82 | 407 | 474 |
| 2009 | Redwood 25 | 4595 | Total Nutrients Applied | Spreadable Area | | | 25 | 82 | 407 | 474 |
| 2009 | Redwood 25 | 4595 | Balance After Recs | Spreadable Area | | | 25 | -563 | 231 | 64 |
| 2009 | Redwood 25 | 4595 | Balance After Removal | Spreadable Area | | | 25 | -321 | 232 | 64 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 25 | 4595 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 12 | 325 | 88 | 210 |
| 2009 | Redwood 25 | 4595 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 12 | 320 | 88 | 200 |
| 2009 | Redwood 25 | 4595 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 12 | 203 | 88 | 210 |
| 2009 | Redwood 25 | 4595 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 12 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| 2009 | Redwood 25 | 4595 | Total Nutrients Applied | Non-spreadable Area | | | 12 | 0 | 0 | 0 |
| 2009 | Redwood 25 | 4595 | Balance After Recs | Non-spreadable Area | | | 12 | -645 | -176 | -410 |
| 2009 | Redwood 25 | 4595 | Balance After Removal | Non-spreadable Area | | | 12 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 25 | 4596 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 31 | 325 | 88 | 210 |
| 2009 | Redwood 25 | 4596 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 31 | 320 | 88 | 200 |
| 2009 | Redwood 25 | 4596 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 31 | 203 | 88 | 210 |
| 2009 | Redwood 25 | 4596 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 31 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Redwood 25 | 4596 | Manure App | Dairy stalls | Speader | 10 Ton | 27.3 | 82 | 407 | 474 |
| 2009 | Redwood 25 | 4596 | Total Nutrients Applied | Spreadable Area | | | 31 | 72 | 358 | 417 |
| 2009 | Redwood 25 | 4596 | Balance After Recs | Spreadable Area | | | 31 | -573 | 182 | 7 |
| 2009 | Redwood 25 | 4596 | Balance After Removal | Spreadable Area | | | 31 | -331 | 183 | 7 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 25 | 4596 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 14 | 325 | 88 | 210 |
| 2009 | Redwood 25 | 4596 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 14 | 320 | 88 | 200 |
| 2009 | Redwood 25 | 4596 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 14 | 203 | 88 | 210 |
| 2009 | Redwood 25 | 4596 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 14 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| 2009 | Redwood 25 | 4596 | Total Nutrients Applied | Non-spreadable Area | | | 14 | 0 | 0 | 0 |
| 2009 | Redwood 25 | 4596 | Balance After Recs | Non-spreadable Area | | | 14 | -645 | -176 | -410 |
| 2009 | Redwood 25 | 4596 | Balance After Removal | Non-spreadable Area | | | 14 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 34 | 5167 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 50 | 325 | 88 | 210 |
| 2009 | Palm 34 | 5167 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 50 | 320 | 88 | 200 |
| 2009 | Palm 34 | 5167 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 50 | 203 | 88 | 210 |
| 2009 | Palm 34 | 5167 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 50 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Palm 34 | 5167 | Manure App | Dairy stalls | Speader | 10 Ton | 50.1 | 82 | 407 | 474 |
| 2009 | Palm 34 | 5167 | Total Nutrients Applied | Spreadable Area | | | 50 | 82 | 408 | 475 |
| 2009 | Palm 34 | 5167 | Balance After Recs | Spreadable Area | | | 50 | -563 | 232 | 65 |
| 2009 | Palm 34 | 5167 | Balance After Removal | Spreadable Area | | | 50 | -321 | 233 | 65 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 34 | 5167 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 21 | 325 | 88 | 210 |
| 2009 | Palm 34 | 5167 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 21 | 320 | 88 | 200 |
| 2009 | Palm 34 | 5167 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 21 | 203 | 88 | 210 |
| 2009 | Palm 34 | 5167 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 21 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| 2009 | Palm 34 | 5167 | Total Nutrients Applied | Non-spreadable Area | | | 21 | 0 | 0 | 0 |
| 2009 | Palm 34 | 5167 | Balance After Recs | Non-spreadable Area | | | 21 | -645 | -176 | -410 |
| 2009 | Palm 34 | 5167 | Balance After Removal | Non-spreadable Area | | | 21 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 34 | 5168 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 56 | 325 | 88 | 210 |
| 2009 | Palm 34 | 5168 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 56 | 320 | 88 | 200 |
| 2009 | Palm 34 | 5168 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 56 | 203 | 88 | 210 |
| 2009 | Palm 34 | 5168 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 56 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Palm 34 | 5168 | Manure App | Dairy stalls | Speader | 10 Ton | 56.1 | 82 | 407 | 474 |
| 2009 | Palm 34 | 5168 | Total Nutrients Applied | Spreadable Area | | | 56 | 82 | 408 | 475 |
| 2009 | Palm 34 | 5168 | Balance After Recs | Spreadable Area | | | 56 | -563 | 232 | 65 |
| 2009 | Palm 34 | 5168 | Balance After Removal | Spreadable Area | | | 56 | -321 | 233 | 65 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 34 | 5168 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 21 | 325 | 88 | 210 |
| 2009 | Palm 34 | 5168 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 21 | 320 | 88 | 200 |
| 2009 | Palm 34 | 5168 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 21 | 203 | 88 | 210 |
| 2009 | Palm 34 | 5168 | Crop Nutrient Removal | Corn, silage | 25 Ton | 21 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 34 | 5168 | Total Nutrients Applied | Non-spreadable Area | | | 21 | 0 | 0 | 0 |
| 2009 | Palm 34 | 5168 | Balance After Recs | Non-spreadable Area | | | 21 | -645 | -176 | -410 |
| 2009 | Palm 34 | 5168 | Balance After Removal | Non-spreadable Area | | | 21 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 38-2&3 * | 5202 | Crop Fertilizer Recs | Alfalfa, hay | 7.5 Ton | 28 | 315¤ | 93 | 375 |
| 2009 | Peach 38-2&3 * | 5202 | Crop Nutrient Removal | Alfalfa, hay | 7.5 Ton | 28 | 450 | 93 | 375 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep 08 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 12,000 Gal | 28.0 | 18 | 31 | 35 |
| Oct 08 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 10,000 Gal | 28.0 | 15 | 26 | 29 |
| Nov 08 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 15,000 Gal | 28.0 | 22 | 39 | 44 |
| Dec 08 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 15,000 Gal | 28.0 | 22 | 39 | 44 |
| Jan 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 15,000 Gal | 28.0 | 22 | 39 | 44 |
| Feb 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 15,000 Gal | 28.0 | 22 | 39 | 44 |
| Mar 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 15,000 Gal | 28.0 | 22 | 39 | 44 |
| Apr 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 15,000 Gal | 15.1 | 22 | 39 | 44 |
| May 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 12,000 Gal | 28.0 | 18 | 31 | 35 |
| Jun 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 12,000 Gal | 12.9 | 18 | 31 | 35 |
| Jul 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 12,000 Gal | 28.0 | 18 | 31 | 35 |
| Aug 09 | Peach 38-2&3 * | 5202 | Manure App | Wastewater pond | Pump | 12,000 Gal | 28.0 | 18 | 31 | 35 |
| 2009 | Peach 38-2&3 * | 5202 | Total Nutrients Applied | Spreadable Area | | | 28 | 217 | 380 | 429 |
| 2009 | Peach 38-2&3 * | 5202 | Balance After Recs | Spreadable Area | | | 28 | -98 | 287 | 54 |
| 2009 | Peach 38-2&3 * | 5202 | Balance After Removal | Spreadable Area | | | 28 | -233 | 287 | 54 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 38-2&3 * | 5202 | Crop Fertilizer Recs | Alfalfa, hay | 7.5 Ton | 14 | 315¤ | 93 | 375 |
| 2009 | Peach 38-2&3 * | 5202 | Crop Nutrient Removal | Alfalfa, hay | 7.5 Ton | 14 | 450 | 93 | 375 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 38-2&3 * | 5202 | Total Nutrients Applied | Non-spreadable Area | 14 | 0 | 0 | 0 |
| 2009 | Peach 38-2&3 * | 5202 | Balance After Recs | Non-spreadable Area | 14 | -315 | -93 | -375 |
| 2009 | Peach 38-2&3 * | 5202 | Balance After Removal | Non-spreadable Area | 14 | -450 | -93 | -375 |

| *Year* | *Field ID* | *Sub ID* | *Nutrient Needs* | *Crop* | *Yield Goal* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 39 * | 5209 | Crop Fertilizer Recs | Alfalfa, hay | 7.5 Ton | 25 | 315¤ | 93 | 375 |
| 2009 | Peach 39 * | 5209 | Crop Nutrient Removal | Alfalfa, hay | 7.5 Ton | 25 | 450 | 93 | 375 |

| *Date* | *Field ID* | *Sub ID* | *Nutrient Activity* | *Source* | *Equipment/Method* | *Rate* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep 08 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 8,000 Gal | 25.0 | 12 | 21 | 23 |
| Oct 08 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 10,000 Gal | 25.0 | 15 | 26 | 29 |
| Nov 08 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 15,000 Gal | 25.0 | 22 | 39 | 44 |
| Dec 08 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 14,000 Gal | 25.0 | 21 | 36 | 41 |
| Jan 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 10,000 Gal | 25.0 | 15 | 26 | 29 |
| Feb 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 12,000 Gal | 25.0 | 18 | 31 | 35 |
| Mar 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 10,000 Gal | 25.0 | 15 | 26 | 29 |
| Apr 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 15,000 Gal | 25.0 | 22 | 39 | 44 |
| May 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 15,000 Gal | 25.0 | 22 | 39 | 44 |
| Jun 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 15,000 Gal | 25.0 | 22 | 39 | 44 |
| Jul 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 15,000 Gal | 25.0 | 22 | 39 | 44 |
| Aug 09 | Peach 39 * | 5209 | Manure App | Wastewater pond | Pump | 15,000 Gal | 25.0 | 22 | 39 | 44 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 39 * | 5209 | Total Nutrients Applied | Spreadable Area | 25 | 228 | 400 | 450 |
| 2009 | Peach 39 * | 5209 | Balance After Recs | Spreadable Area | 25 | -87 | 307 | 75 |
| 2009 | Peach 39 * | 5209 | Balance After Removal | Spreadable Area | 25 | -222 | 307 | 75 |

| *Year* | *Field ID* | *Sub ID* | *Nutrient Needs* | *Crop* | *Yield Goal* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 39 * | 5209 | Crop Fertilizer Recs | Alfalfa, hay | 7.5 Ton | 11 | 315¤ | 93 | 375 |
| 2009 | Peach 39 * | 5209 | Crop Nutrient Removal | Alfalfa, hay | 7.5 Ton | 11 | 450 | 93 | 375 |

| *Date* | *Field ID* | *Sub ID* | *Nutrient Activity* | *Source* | *Equipment/Method* | *Rate* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 39 * | 5209 | Total Nutrients Applied | Non-spreadable Area | | | 11 | 0 | 0 | 0 |
| 2009 | Peach 39 * | 5209 | Balance After Recs | Non-spreadable Area | | | 11 | -315 | -93 | -375 |
| 2009 | Peach 39 * | 5209 | Balance After Removal | Non-spreadable Area | | | 11 | -450 | -93 | -375 |

| *Year* | *Field ID* | *Sub ID* | *Nutrient Needs* | *Crop* | *Yield Goal* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 30A * | 5210 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 16 | 320 | 88 | 200 |
| 2009 | Peach 30A * | 5210 | Crop Nutrient Removal | Corn, silage | 25 Ton | 16 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Apr 09 | Peach 30A * | 5210 | Manure App | Wastewater pond | Pump | 7,000 Gal | 16.0 | 10 | 18 | 20 |
| May 09 | Peach 30A * | 5210 | Manure App | Wastewater pond | Pump | 7,000 Gal | 16.0 | 10 | 18 | 20 |
| Jun 09 | Peach 30A * | 5210 | Manure App | Wastewater pond | Pump | 12,000 Gal | 16.0 | 18 | 31 | 35 |
| Jul 09 | Peach 30A * | 5210 | Manure App | Wastewater pond | Pump | 12,000 Gal | 16.0 | 18 | 31 | 35 |
| Aug 09 | Peach 30A * | 5210 | Manure App | Wastewater pond | Pump | 8,000 Gal | 16.0 | 12 | 21 | 23 |
| 2009 | Peach 30A * | 5210 | Total Nutrients Applied | Spreadable Area | | | 16 | 68 | 119 | 133 |
| 2009 | Peach 30A * | 5210 | Balance After Recs | Spreadable Area | | | 16 | -252 | 31 | -67 |
| 2009 | Peach 30A * | 5210 | Balance After Removal | Spreadable Area | | | 16 | -132 | 32 | -67 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 30A * | 5210 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 8 | 320 | 88 | 200 |
| 2009 | Peach 30A * | 5210 | Crop Nutrient Removal | Corn, silage | 25 Ton | 8 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 30A * | 5210 | Total Nutrients Applied | Non-spreadable Area | | | 8 | 0 | 0 | 0 |
| 2009 | Peach 30A * | 5210 | Balance After Recs | Non-spreadable Area | | | 8 | -320 | -88 | -200 |
| 2009 | Peach 30A * | 5210 | Balance After Removal | Non-spreadable Area | | | 8 | -200 | -88 | -200 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 40 * | 5218 | Crop Fertilizer Recs | Alfalfa, hay | 7.5 Ton | 43 | 315¤ | 93 | 375 |
| 2009 | Peach 40 * | 5218 | Crop Nutrient Removal | Alfalfa, hay | 7.5 Ton | 43 | 450 | 93 | 375 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep 08 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 18,000 Gal | 43.0 | 27 | 47 | 52 |
| Oct 08 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 15,000 Gal | 43.0 | 22 | 39 | 44 |
| Nov 08 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 15,000 Gal | 43.0 | 22 | 39 | 44 |
| Dec 08 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 15,000 Gal | 43.0 | 22 | 39 | 44 |
| Jan 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 15,000 Gal | 43.0 | 22 | 39 | 44 |
| Feb 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 15,000 Gal | 43.0 | 22 | 39 | 44 |
| Mar 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 15,000 Gal | 43.0 | 22 | 39 | 44 |
| Apr 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 15,000 Gal | 43.0 | 22 | 39 | 44 |
| May 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 12,000 Gal | 43.0 | 18 | 31 | 35 |
| Jun 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 12,000 Gal | 43.0 | 18 | 31 | 35 |
| Jul 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 12,000 Gal | 43.0 | 18 | 31 | 35 |
| Aug 09 | Peach 40 * | 5218 | Manure App | Wastewater pond | Pump | 12,000 Gal | 43.0 | 18 | 31 | 35 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5231 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 62 | 325 | 88 | 210 |
| 2009 | Palmetto 38 | 5231 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 62 | 320 | 88 | 200 |
| 2009 | Palmetto 38 | 5231 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 62 | 203 | 88 | 210 |
| 2009 | Palmetto 38 | 5231 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 62 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Palmetto 38 | 5231 | Manure App | Dairy stalls | Speader | 10 Ton | 62.1 | 82 | 407 | 474 |
| 2009 | Palmetto 38 | 5231 | Total Nutrients Applied | Spreadable Area | | | 62 | 82 | 408 | 475 |
| 2009 | Palmetto 38 | 5231 | Balance After Recs | Spreadable Area | | | 62 | -563 | 232 | 65 |
| 2009 | Palmetto 38 | 5231 | Balance After Removal | Spreadable Area | | | 62 | -321 | 233 | 65 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5231 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 18 | 325 | 88 | 210 |
| 2009 | Palmetto 38 | 5231 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 18 | 320 | 88 | 200 |
| 2009 | Palmetto 38 | 5231 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 18 | 203 | 88 | 210 |
| 2009 | Palmetto 38 | 5231 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 18 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| 2009 | Palmetto 38 | 5231 | Total Nutrients Applied | Non-spreadable Area | | | 18 | 0 | 0 | 0 |
| 2009 | Palmetto 38 | 5231 | Balance After Recs | Non-spreadable Area | | | 18 | -645 | -176 | -410 |
| 2009 | Palmetto 38 | 5231 | Balance After Removal | Non-spreadable Area | | | 18 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5233 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 27 | 325 | 88 | 210 |
| 2009 | Palmetto 38 | 5233 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 27 | 320 | 88 | 200 |
| 2009 | Palmetto 38 | 5233 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 27 | 203 | 88 | 210 |
| 2009 | Palmetto 38 | 5233 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 27 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Palmetto 38 | 5233 | Manure App | Dairy stalls | Speader | 10 Ton | 27.0 | 82 | 407 | 474 |
| 2009 | Palmetto 38 | 5233 | Total Nutrients Applied | Spreadable Area | | | 27 | 82 | 407 | 474 |
| 2009 | Palmetto 38 | 5233 | Balance After Recs | Spreadable Area | | | 27 | -563 | 231 | 64 |
| 2009 | Palmetto 38 | 5233 | Balance After Removal | Spreadable Area | | | 27 | -321 | 232 | 64 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 40 * | 5218 | Total Nutrients Applied | Spreadable Area | | 43 | 253 | 444 | 500 |
| 2009 | Peach 40 * | 5218 | Balance After Recs | Spreadable Area | | 43 | -62 | 351 | 125 |
| 2009 | Peach 40 * | 5218 | Balance After Removal | Spreadable Area | | 43 | -197 | 351 | 125 |

| *Year* | *Field ID* | *Sub ID* | *Nutrient Needs* | *Crop* | *Yield Goal* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 40 * | 5218 | Crop Fertilizer Recs | Alfalfa, hay | 7.5 Ton | 14 | 315¤ | 93 | 375 |
| 2009 | Peach 40 * | 5218 | Crop Nutrient Removal | Alfalfa, hay | 7.5 Ton | 14 | 450 | 93 | 375 |

| *Date* | *Field ID* | *Sub ID* | *Nutrient Activity* | *Source* | *Equipment/Method* | *Rate* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 40 * | 5218 | Total Nutrients Applied | Non-spreadable Area | | | 14 | 0 | 0 | 0 |
| 2009 | Peach 40 * | 5218 | Balance After Recs | Non-spreadable Area | | | 14 | -315 | -93 | -375 |
| 2009 | Peach 40 * | 5218 | Balance After Removal | Non-spreadable Area | | | 14 | -450 | -93 | -375 |

| *Year* | *Field ID* | *Sub ID* | *Nutrient Needs* | *Crop* | *Yield Goal* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5230 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 20 | 325 | 88 | 210 |
| 2009 | Palmetto 38 | 5230 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 20 | 320 | 88 | 200 |
| 2009 | Palmetto 38 | 5230 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 20 | 203 | 88 | 210 |
| 2009 | Palmetto 38 | 5230 | Crop Nutrient Removal | Corn, silage | 25 Ton | 20 | 200 | 88 | 200 |

| *Date* | *Field ID* | *Sub ID* | *Nutrient Activity* | *Source* | *Equipment/Method* | *Rate* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mar 09 | Palmetto 38 | 5230 | Manure App | Dairy stalls | Speader | 10 Ton | 20.1 | 82 | 407 | 474 |
| 2009 | Palmetto 38 | 5230 | Total Nutrients Applied | Spreadable Area | | | 20 | 82 | 409 | 476 |
| 2009 | Palmetto 38 | 5230 | Balance After Recs | Spreadable Area | | | 20 | -563 | 233 | 66 |
| 2009 | Palmetto 38 | 5230 | Balance After Removal | Spreadable Area | | | 20 | -321 | 234 | 66 |

| *Year* | *Field ID* | *Sub ID* | *Nutrient Needs* | *Crop* | *Yield Goal* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5230 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 11 | 325 | 88 | 210 |
| 2009 | Palmetto 38 | 5230 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 11 | 320 | 88 | 200 |
| 2009 | Palmetto 38 | 5230 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 11 | 203 | 88 | 210 |
| 2009 | Palmetto 38 | 5230 | Crop Nutrient Removal | Corn, silage | 25 Ton | 11 | 200 | 88 | 200 |

| *Date* | *Field ID* | *Sub ID* | *Nutrient Activity* | *Source* | *Equipment/Method* | *Rate* | *Acres* | *N* | *$P_2O_5$* | *$K_2O$* |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5230 | Total Nutrients Applied | Non-spreadable Area | | | 11 | 0 | 0 | 0 |
| 2009 | Palmetto 38 | 5230 | Balance After Recs | Non-spreadable Area | | | 11 | -645 | -176 | -410 |
| 2009 | Palmetto 38 | 5230 | Balance After Removal | Non-spreadable Area | | | 11 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 32 | T5703 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 120 | 325 | 88 | 210 |
| 2009 | Palm 32 | T5703 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 120 | 320 | 88 | 200 |
| 2009 | Palm 32 | T5703 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 120 | 203 | 88 | 210 |
| 2009 | Palm 32 | T5703 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 120 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| 2009 | Palm 32 | T5703 | Total Nutrients Applied | Spreadable Area | | | 120 | 0 | 0 | 0 |
| 2009 | Palm 32 | T5703 | Balance After Recs | Spreadable Area | | | 120 | -645 | -176 | -410 |
| 2009 | Palm 32 | T5703 | Balance After Removal | Spreadable Area | | | 120 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 32 | T5703 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 24 | 325 | 88 | 210 |
| 2009 | Palm 32 | T5703 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 24 | 320 | 88 | 200 |
| 2009 | Palm 32 | T5703 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 24 | 203 | 88 | 210 |
| 2009 | Palm 32 | T5703 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 24 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| 2009 | Palm 32 | T5703 | Total Nutrients Applied | Non-spreadable Area | | | 24 | 0 | 0 | 0 |
| 2009 | Palm 32 | T5703 | Balance After Recs | Non-spreadable Area | | | 24 | -645 | -176 | -410 |
| 2009 | Palm 32 | T5703 | Balance After Removal | Non-spreadable Area | | | 24 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Plum 30 | T5713 | Crop Fertilizer Recs | Wheat, grain | | 3.5 Ton | 43 | 325 | 88 | 210 |
| 2009 | Plum 30 | T5713 | Crop Fertilizer Recs | Corn, silage | | 25 Ton | 43 | 320 | 88 | 200 |
| 2009 | Plum 30 | T5713 | Crop Nutrient Removal | Wheat, grain | | 3.5 Ton | 43 | 203 | 88 | 210 |
| 2009 | Plum 30 | T5713 | Crop Nutrient Removal | Corn, silage | | 25 Ton | 43 | 200 | 88 | 200 |
| **Date** | **Field ID** | **Sub ID** | **Nutrient Activity** | **Source** | **Equipment/Method** | **Rate** | **Acres** | **N** | **$P_2O_5$** | **$K_2O$** |
| Mar 09 | Plum 30 | T5713 | Manure App | Dairy stalls | Speader | 10 Ton | 43.0 | 82 | 407 | 474 |
| 2009 | Plum 30 | T5713 | Total Nutrients Applied | Spreadable Area | | | 43 | 82 | 407 | 474 |
| 2009 | Plum 30 | T5713 | Balance After Recs | Spreadable Area | | | 43 | -563 | 231 | 64 |
| 2009 | Plum 30 | T5713 | Balance After Removal | Spreadable Area | | | 43 | -321 | 232 | 64 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5233 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 11 | 325 | 88 | 210 |
| 2009 | Palmetto 38 | 5233 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 11 | 320 | 88 | 200 |
| 2009 | Palmetto 38 | 5233 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 11 | 203 | 88 | 210 |
| 2009 | Palmetto 38 | 5233 | Crop Nutrient Removal | Corn, silage | 25 Ton | 11 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palmetto 38 | 5233 | Total Nutrients Applied | Non-spreadable Area | | | 11 | 0 | 0 | 0 |
| 2009 | Palmetto 38 | 5233 | Balance After Recs | Non-spreadable Area | | | 11 | -645 | -176 | -410 |
| 2009 | Palmetto 38 | 5233 | Balance After Removal | Non-spreadable Area | | | 11 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 33 | T5701 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 123 | 325 | 88 | 210 |
| 2009 | Palm 33 | T5701 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 123 | 320 | 88 | 200 |
| 2009 | Palm 33 | T5701 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 123 | 203 | 88 | 210 |
| 2009 | Palm 33 | T5701 | Crop Nutrient Removal | Corn, silage | 25 Ton | 123 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 33 | T5701 | Total Nutrients Applied | Spreadable Area | | | 123 | 0 | 0 | 0 |
| 2009 | Palm 33 | T5701 | Balance After Recs | Spreadable Area | | | 123 | -645 | -176 | -410 |
| 2009 | Palm 33 | T5701 | Balance After Removal | Spreadable Area | | | 123 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 33 | T5701 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 25 | 325 | 88 | 210 |
| 2009 | Palm 33 | T5701 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 25 | 320 | 88 | 200 |
| 2009 | Palm 33 | T5701 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 25 | 203 | 88 | 210 |
| 2009 | Palm 33 | T5701 | Crop Nutrient Removal | Corn, silage | 25 Ton | 25 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Palm 33 | T5701 | Total Nutrients Applied | Non-spreadable Area | | | 25 | 0 | 0 | 0 |
| 2009 | Palm 33 | T5701 | Balance After Recs | Non-spreadable Area | | | 25 | -645 | -176 | -410 |
| 2009 | Palm 33 | T5701 | Balance After Removal | Non-spreadable Area | | | 25 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Plum 30 | T5713 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 16 | 325 | 88 | 210 |
| 2009 | Plum 30 | T5713 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 16 | 320 | 88 | 200 |
| 2009 | Plum 30 | T5713 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 16 | 203 | 88 | 210 |
| 2009 | Plum 30 | T5713 | Crop Nutrient Removal | Corn, silage | 25 Ton | 16 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Plum 30 | T5713 | Total Nutrients Applied | Non-spreadable Area | | | 16 | 0 | 0 | 0 |
| 2009 | Plum 30 | T5713 | Balance After Recs | Non-spreadable Area | | | 16 | -645 | -176 | -410 |
| 2009 | Plum 30 | T5713 | Balance After Removal | Non-spreadable Area | | | 16 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Plum 30 | T5714 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 56 | 325 | 88 | 210 |
| 2009 | Plum 30 | T5714 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 56 | 320 | 88 | 200 |
| 2009 | Plum 30 | T5714 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 56 | 203 | 88 | 210 |
| 2009 | Plum 30 | T5714 | Crop Nutrient Removal | Corn, silage | 25 Ton | 56 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Plum 30 | T5714 | Total Nutrients Applied | Spreadable Area | | | 56 | 0 | 0 | 0 |
| 2009 | Plum 30 | T5714 | Balance After Recs | Spreadable Area | | | 56 | -645 | -176 | -410 |
| 2009 | Plum 30 | T5714 | Balance After Removal | Spreadable Area | | | 56 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Plum 30 | T5714 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 17 | 325 | 88 | 210 |
| 2009 | Plum 30 | T5714 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 17 | 320 | 88 | 200 |
| 2009 | Plum 30 | T5714 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 17 | 203 | 88 | 210 |
| 2009 | Plum 30 | T5714 | Crop Nutrient Removal | Corn, silage | 25 Ton | 17 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Plum 30 | T5714 | Total Nutrients Applied | Non-spreadable Area | | | 17 | 0 | 0 | 0 |
| 2009 | Plum 30 | T5714 | Balance After Recs | Non-spreadable Area | | | 17 | -645 | -176 | -410 |
| 2009 | Plum 30 | T5714 | Balance After Removal | Non-spreadable Area | | | 17 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 38-1 | T5715 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 22 | 325 | 88 | 210 |
| 2009 | Peach 38-1 | T5715 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 22 | 320 | 88 | 200 |
| 2009 | Peach 38-1 | T5715 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 22 | 203 | 88 | 210 |
| 2009 | Peach 38-1 | T5715 | Crop Nutrient Removal | Corn, silage | 25 Ton | 22 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 38-1 | T5715 | Total Nutrients Applied | Spreadable Area | | | 22 | 0 | 0 | 0 |
| 2009 | Peach 38-1 | T5715 | Balance After Recs | Spreadable Area | | | 22 | -645 | -176 | -410 |
| 2009 | Peach 38-1 | T5715 | Balance After Removal | Spreadable Area | | | 22 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 38-1 | T5715 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 13 | 325 | 88 | 210 |
| 2009 | Peach 38-1 | T5715 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 13 | 320 | 88 | 200 |
| 2009 | Peach 38-1 | T5715 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 13 | 203 | 88 | 210 |
| 2009 | Peach 38-1 | T5715 | Crop Nutrient Removal | Corn, silage | 25 Ton | 13 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Peach 38-1 | T5715 | Total Nutrients Applied | Non-spreadable Area | | | 13 | 0 | 0 | 0 |
| 2009 | Peach 38-1 | T5715 | Balance After Recs | Non-spreadable Area | | | 13 | -645 | -176 | -410 |
| 2009 | Peach 38-1 | T5715 | Balance After Removal | Non-spreadable Area | | | 13 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 30 | T4592 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 99 | 325 | 88 | 210 |
| 2009 | Redwood 30 | T4592 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 99 | 320 | 88 | 200 |
| 2009 | Redwood 30 | T4592 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 99 | 203 | 88 | 210 |
| 2009 | Redwood 30 | T4592 | Crop Nutrient Removal | Corn, silage | 25 Ton | 99 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 30 | T4592 | Total Nutrients Applied | Spreadable Area | | | 99 | 0 | 0 | 0 |
| 2009 | Redwood 30 | T4592 | Balance After Recs | Spreadable Area | | | 99 | -645 | -176 | -410 |
| 2009 | Redwood 30 | T4592 | Balance After Removal | Spreadable Area | | | 99 | -403 | -175 | -410 |

| Year | Field ID | Sub ID | Nutrient Needs | Crop | Yield Goal | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 30 | T4592 | Crop Fertilizer Recs | Wheat, grain | 3.5 Ton | 22 | 325 | 88 | 210 |
| 2009 | Redwood 30 | T4592 | Crop Fertilizer Recs | Corn, silage | 25 Ton | 22 | 320 | 88 | 200 |
| 2009 | Redwood 30 | T4592 | Crop Nutrient Removal | Wheat, grain | 3.5 Ton | 22 | 203 | 88 | 210 |
| 2009 | Redwood 30 | T4592 | Crop Nutrient Removal | Corn, silage | 25 Ton | 22 | 200 | 88 | 200 |

| Date | Field ID | Sub ID | Nutrient Activity | Source | Equipment/Method | Rate | Acres | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Redwood 30 | T4592 | Total Nutrients Applied | Non-spreadable Area | | | 22 | 0 | 0 | 0 |
| 2009 | Redwood 30 | T4592 | Balance After Recs | Non-spreadable Area | | | 22 | -645 | -176 | -410 |
| 2009 | Redwood 30 | T4592 | Balance After Removal | Non-spreadable Area | | | 22 | -403 | -175 | -410 |

**Notes**

(1) If a field has a non-spreadable area, it is listed in a separate section following the field's spreadable area.
(2) Yield Goal, Rate, N, P2O5 and K2O values are all per acre.
(3) The crop's N fertilizer rec accounts for any N credit from a previous legume crop.
(4) If a field has more than one manure application in the same crop year, or if the total area covered that year is less than or greater than the field's area, a field average is used in calculating balances. This field average is the sum of each manure application's area times its per-acre amount of nutrient applied, divided by the field's area.
(5) Any positive P2O5 or K2O balance is carried over to the next year. Available N not utilized in the current crop year is assumed lost.
¤ Indicates a custom fertilizer recommendation in the Crop Fertilizer Recs columns.
[a] Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.