GENERAL INFORMATION

BACKGROUND AND SITE INFORMATION

Peterson Dairy is located approximately a two miles west of Tillamook, Oregon in Tillamook County. It is located in the Tillamook River watershed which drains to Tillamook Bay. The Tillamook River and its tributaries are heavily used recreational streams and provide important habitat for endangered fish species and other wildlife.

Peterson Dairy is owned and managed by Eric Peterson and is permitted for 295 milking and dry cows and 240 heifers and calves on this dairy. The milk cows, dry cows and heifers are typically confined from Mid-November through Mid-March and are out on pasture from Mid-March through Mid-November each year as weather and soil conditions permit. The calves are confined from January through December.

The headquarters (HQ) sits on about 3.2 acres. The barns are scraped and manure is stored in one of two covered dry storage areas which is shown on the Production Area map on page 2-7 which offers 27 days of storage each with additional storage in the hay storage area if needed that provides another 27 days. Liquids are stored in three tanks at the dairy HQ shown on the Production Area map on page 2-7. A 30x 8 foot below ground tank in the heifer barn collects all the liquid from the parlor and barn seepages which is then pumped to the 100x16 foot uncovered outside tank shown. Excess liquid storage can be stored in the 60x10 foot uncovered tank if needed. ORAWM estimates 262 days of liquid manure storage. Manure is spread over the fields when soil and climatic conditions are favorable. Liquid manure is spread at the dairy with a Nuhn 4000 gallon tank wagon and solids are spread with a Gehl 425 solids spreader.

Peterson Dairy consists of 158 farmable acres of USDA Tract 256 used to produce forage for the dairy livestock. The crop rotation for the Peterson Dairy consists of 5 to 7 years of perennial grass that is harvested by grazing livestock and for hay. The estimated yields for the grass harvested by grazing livestock and as hay is 6 tons per acre at 85% dry matter. All of the pastures at the dairy are in good condition. As the dairy has no irrigation rights, a minimum target yield of 6 tons of dry matter per acre per year is attainable in most years although more yield may be attained in any given year depending on rainfall amounts during the summer and fall. There are small drainage ditches which drain excess water to Tomlinson Slough which bisects the dairy north to south. Permanent fences have been built adjacent to all of the surface waters on the dairy that aid in creating buffer areas and also keeps the livestock out of direct contact with the water.

The soil concentration of phosphorus ranges from medium to high in the Peterson Dairy hay and pasture land fields. Applications of wastewater and solids containing manure are planned on a nitrogen basis on all fields and the soil phosphorus concentrations will be monitored using soil tests. Some solids containing manure may have to be exported off farm if the soil concentrations of phosphorus increase significantly in the future. It is estimated that the dairy produces enough manure to meet the nutrient demand for the hay and pasture land fields. Supplemental nutrient applications to the crop, hay and pasture land fields should be based on soil tests and fertilizer guides to prevent excess soil nutrient concentrations.

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SECTION 5 – REFERENCES

GENERAL INFORMATION

MANURE STORAGE AND NUTRIENT BALANCE SUMMARY

Manure Storage-

Storage Type:	Capacity	Estimated Storage Period
Tanks-	148770 CF	262 Days
Solids Storage-	11,550 CF	54 Days

Nutrient Balance-

Nutrients Generated:	N Generated (lbs) after Losses	P_2O_5 Generated (lbs) after Losses
Solid Manure-	3,481 lbs	3,394 lbs
Liquid Manure-	11,401 lbs	5,590 lbs
Pasture Manure-	29,224 lbs	16,023 lbs
Total-	**44,106 lbs**	**25,007 lbs**

Exported Nutrients:	N Exported (lbs) after Losses	P_2O_5 Exported (lbs) after Losses
Solid Manure-	0 lbs	0 lbs
Liquid Manure-	0 lbs	0 lbs
Total-	**0 lbs**	**0 lbs**

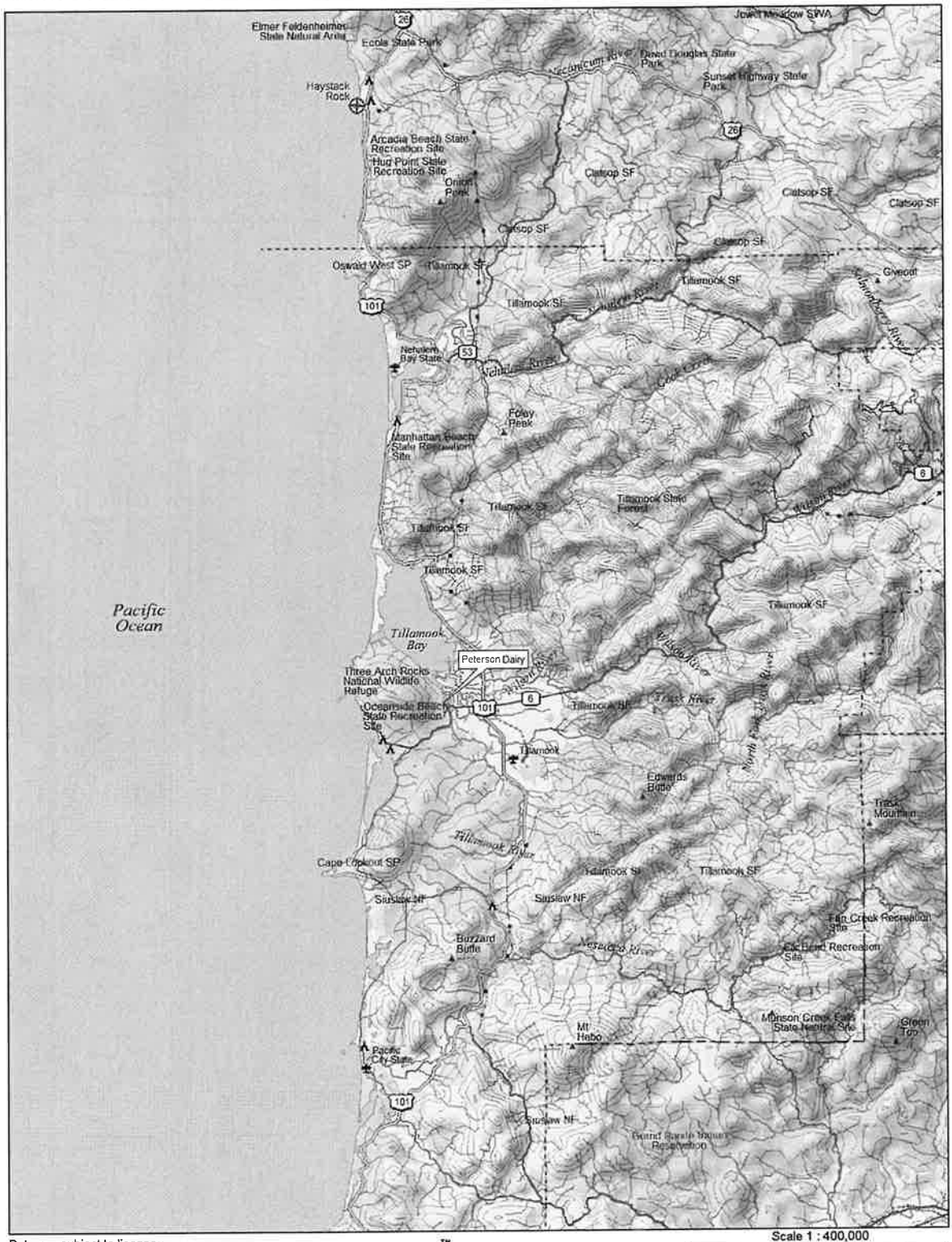
Crop Nutrient Removal:	N Utilized (lbs)	P_2O_5 Utilized (lbs)
Total-	**46,914 lbs**	**14,825 lbs**

Net Nutrients:	Nutrients Generated after Losses(lbs.)	Nutrients Removed by Crop and Exported after Losses (lbs)	Net Nutrient Balance after Losses (lbs)
Nitrogen (N)-	44,106 lbs	46,914 lbs	-2,808 lbs
Phosphate (P_2O_5)-	25,007 lbs	14,825 lbs	10,182 lbs

System Losses:	Nutrients Generated (lbs)	Nutrients Remaining after Losses (lbs)	Nutrients Lost in System (lbs)
Nitrogen (N)-	76,496 lbs	44,106 lbs	32,391 lbs
Phosphate (P_2O_5)-	26,371 lbs	25,007 lbs	1,364 lbs

GENERAL INFORMATION

LOCATION MAP FOR PETERSON DAIRY



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PRODUCTION AREA

ANIMAL NUMBERS

Peterson Dairy is planning to milk 265 cows on this dairy. The number of replacement livestock planned to be cared for on Peterson Dairy consists of 30 dry cows, 120 heifers, and 120 calves. The milk cows, dry cows and heifers are typically confined to the livestock barns in the winter months and are out on pasture in the spring, summer and fall each year as soil and weather conditions permit. The calves are confined for the year.

This plan was written based on the animal numbers for the land base described in this plan.

ANIMAL MORTALITY MANAGEMENT

Currently animal mortalities for the Peterson Dairy are being disposed of by a service provided by the Tillamook Creamery Association. Other methods of dealing with mortalities may be employed by Peterson Dairy as needed.

Having dead animals sent to an acceptable disposal site is the best method to deal with animal mortalities. A list of landfills and phone numbers can be found on the internet at http://www.deq.state.or.us/lq/sw/disposal/permittedfacilities.html. If a local landfill is not permitted to accept animal carcasses, the Oregon Department of Environmental Quality (DEQ) may grant an exception. Phone numbers to local DEQ offices can be found in most phone books or on the internet at http://www.deq.state.or.us/about/locations.html.

Under no circumstances are animal mortalities to be disposed of in any type of liquid manure storage facility.

COLLECTION OF MANURE, PROCESS WATER AND RUNOFF

Manure, bedding and wasted feed is collected in the barns. The estimated volume of Manure bedding and wasted feed that will be collected annually was generated using the ORAWM workbook located in Section 5.

All rainfall runoff from roofs is collected using gutters and downspouts and directed to drainage ditches using underground pipelines.

All process water from the dairy operation is directed to catch basins that drain to wastewater collection tank. The estimated volume of process water that will be collected annually was generated using the ORAWM workbook located in Section 5.

TREATMENT FACILITIES

There are no treatment facilities on this operation.

PRODUCTION AREA

OPERATION AND MAINTENANCE CONSIDERATIONS

WASTEWATER STORAGE TANKS-

The wastewater storage tanks shown on the Production Area Map on page 2-7 is used to collect and store wastewater containing manure generated by the Peterson Dairy. The storage capacity and estimated storage period for the wastewater storage tanks are shown on the ORAWM workbook storage worksheet located in Section 5. Emptying of the wastewater storage tanks should begin when the tanks reach 75 percent of their capacity and applied to the hay and pasture fields as soil and weather conditions permit in accordance with the guidance given in Section 3, Utilization Area. To function properly and have the greatest management flexibility, the wastewater storage tanks must be as empty as possible in the fall before the fall and winter rainy season begins. Any annual buildup of solids in the wastewater storage tanks must be removed to maintain design capacity and applied to land application areas in accordance with guidance given in Section 3, Utilization Area.

Inspect all tanks weekly to insure structural integrity. If the structural integrity of a tank is compromised, immediately empty the tank to determine the cause and make necessary repairs before putting the tank back into service. Do not allow equipment that exceeds the design limit of the tanks on or within 20 feet of the structure.

Inspect all uncovered tanks on a biweekly basis to insure at least 1 foot of freeboard is being maintained to accommodate excess rainfall such as a 25 year-24hour storm and prevent overtopping of the tank.

Keep pumps, agitators, piping, valves and all other electrical and mechanical equipment in good condition by following the manufacturer's recommendations. Maintain grounding rods and wiring for all electrical equipment in good condition. Immediately remove all foreign debris within the structure that may cause damage to pumps or agitators.

Pump the wastewater storage tanks completely empty during the summer months and cleanout any debris and other solid materials that may have accumulated in the tanks. Inspect the tanks for structural damage and if structural damage to a tank is discovered seek the services of a qualified engineer to assess the damage and recommend necessary repairs before putting the tank back into service. Follow the guidance given in Section 3, Utilization Area, when applying wastewater to fields.

Do not dispose of animal carcasses in any wastewater storage tank. It is against the law to do so.

Maintain all fences, railings, and/or warning signs to provide warning and/or prevent unauthorized human or livestock entry. Immediately repair vandalism, vehicular or livestock damage to the structure, earthen areas surrounding the structure, or any appurtenances. Maintain lids, grates and shields on openings.

Provide proper ventilation before entering the tank, for any reason what so ever. Provide and use self - contained breathing apparatus (scuba) equipment when entering a tank. No persons should enter the tank unless safety ropes are used and someone else capable of providing rescue assistance is outside the tank.

Do not assume any tank, including open top tanks, are well ventilated.

PRODUCTION AREA

Clean the entire system periodically and remove moss, algae growth, and/or sludge. Chemicals such as copper sulfate and chlorine can be used to prevent moss and algae growth. Local rules and regulations are to be followed when using chemicals to make sure they are safe for animals.

Where necessary maintain coverings and insulation to prevent damage by freezing.

Eradicate or otherwise remove all rodents or burrowing animals. Immediately repair any damage caused by their activity.

Immediately repair any vandalism, vehicular or livestock damage.

PIPELINES-

Drain the pipeline and components in areas that are subject to freezing. If parts of the pipeline cannot be drained, a non-toxic antifreeze solution may be added.

Check to make sure all valves and air vents are set at the proper operating condition so they can provide protection to the pipeline.

Inspect pipelines for signs of failure. Inspect risers and valves periodically for leaks or worn gaskets. Repair or replace pipeline, risers and valves as needed.

Eradicate or otherwise remove all rodents or burrowing animals. Immediately repair any damage caused by their activity.

PUMPS-

Operate and maintain pumps in accordance with good judgment and manufacture's manuals and recommendations.

Drain liquid manure from pumps during cold weather to prevent freezing. If parts of the system cannot be drained, a non-toxic antifreeze solution may be added.

Inspect pumps periodically and remove debris wrapped around shafts and impellers. Maintain foot valves and check valves for proper operation.

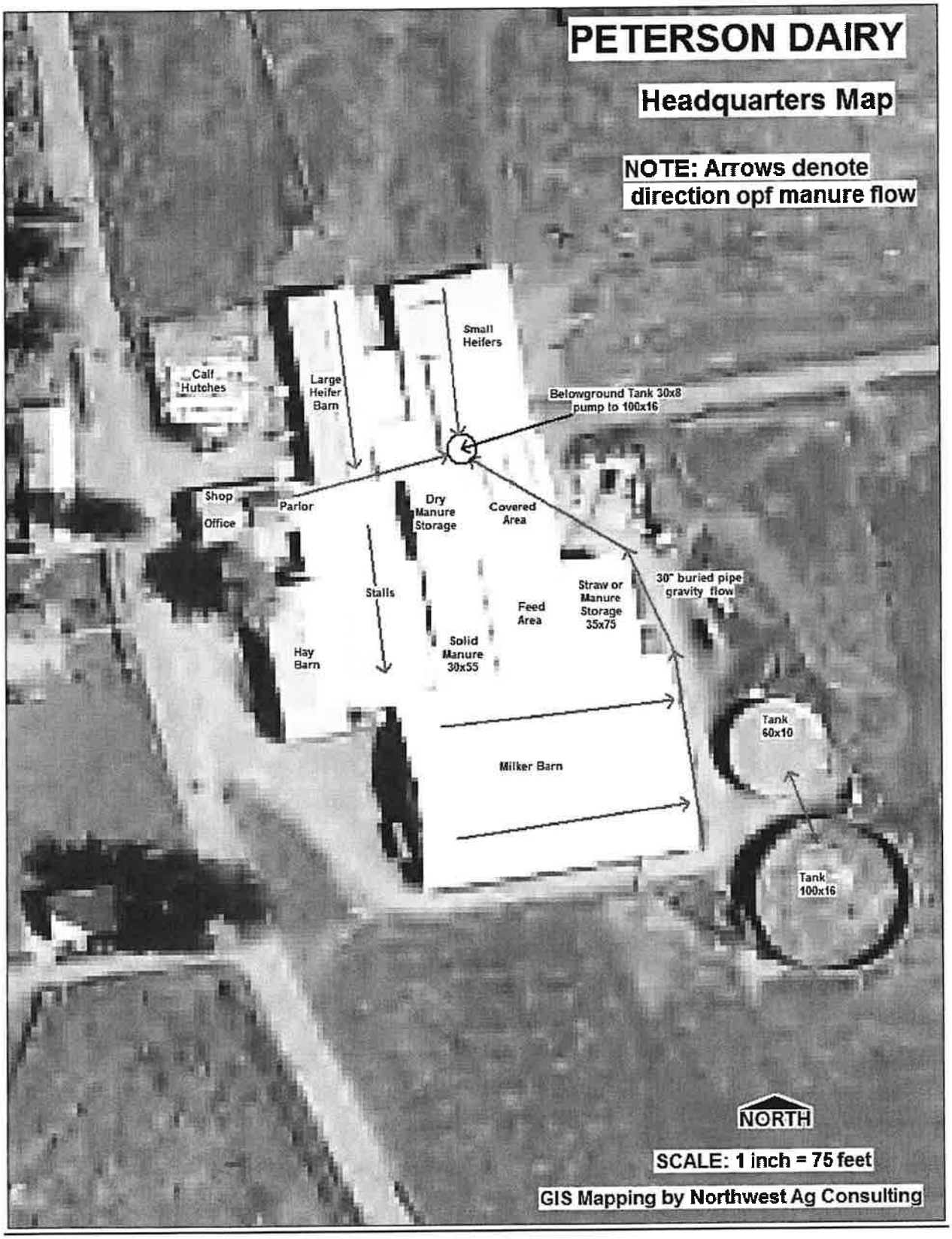
For proper operation of electric motors and controls, maintain lubrication for all bearings, keep electric panel free from obstructions and debris. Maintain electrical safety devices, assure all electrical contacts are tight, and lock main electrical switch to "OFF" position during non-use season. Maintain adequate shade and ventilation for pump motors.

For proper operation of pumps, maintain lubrication for all bearings and pump shafts, assure belts are adjusted properly, maintain safety covering devices on open shafts and belt drives, check to make sure all safety valves and devices are set at proper operating conditions so they may provide protection to the pump and power unit. For centrifugal pumps, periodically measure tolerance between pump impeller and pump casing (i.e. wearing) and replace wear ring as needed to help restore new pump operating characteristics.

Use portable pressure gauge (preferably a liquid filled gauge) to monitor pump performance.

PRODUCTION AREA

PRODUCTION AREA MAP FOR PETERSON DAIRY



UTILIZATION AREA

CROPPING SYSTEM

The acres of hay and pasture land area available for utilization of the nutrients and organics contained in the wastewater and solids produced from the Peterson Dairy is shown on the utilization worksheet in ORAWM located in Section 5. Yield data and nutrient utilization rates for the crops grown are also shown on the inventory worksheet in ORAWM located in Section 5.

Irrigated and nonirrigated crop yield data from the Tillamook County Soil Survey referenced in Section 5 indicates the yield data used in developing this plan is within the range of the given crop yields for well managed fields.

The hay and pasture land fields on Peterson Dairy are not irrigated.

UTILIZATION AREA

UTILIZATION AREA

- **Fields that are subsurface (TILE) drained require additional precautions** when manure is applied. Any pre-application tillage should leave as much residue as possible on the soil surface. Water control structures installed in subsurface drainage systems should be managed to prevent discharge of manure and wastewater during periods of application.
- **Be aware of the location of sensitive areas, concerns of neighbors or concerns of the public**, which require special application procedures. To reduce odor problems, apply wastewater and solids containing manure in mid-morning when temperatures are warming and air is rising rather than in the afternoon or evening when air is cooling and settling. Avoid applications during periods of fog.
- **Calibrate application equipment** to insure uniform distribution and accurate application rates in accordance with guidance given in the Considerations for Manure Applications starting on page 3-6. Refer to page 3-17 for guidance on the calibration of application equipment.
- **Maintain setbacks for manure application from any surface waters.** The following table shows minimum setback requirements for manure applications. The management goal is to allow no manure to enter surface waters at any time.

  Manure applications in fields adjacent to the river dike can take place up to the toe of the dike during the wet or dry season.

Field	Manure type	Application Equipment	Season	
			Wet	Dry
LA-LG, R1-R7, 15-19, X	Liquid	Tank Wagon	50 feet	10 feet
LA-LG, R1-R7, 15-19, X	Solid	Spreader	50 feet	10 feet

  Note:
  a. Setbacks are the distance between open waterways and manure application area.
  b. Setback requirements will generally increase for manures which are applied aerially (such as a traveling big gun) versus manures applied lower to the ground (such as a splash bar) due to potential for drift from wind or splashing.
- **Record applications, transfers or exports of nutrients (manure and fertilizer)** and maintain them for at least 5 years. The CAFO Recordkeeping Calendar or the tools and forms referenced in Section 5 may be used to record this information.

UTILIZATION AREA

- **Fields that are subsurface (TILE) drained require additional precautions** when manure is applied. Any pre-application tillage should leave as much residue as possible on the soil surface. Water control structures installed in subsurface drainage systems should be managed to prevent discharge of manure and wastewater during periods of application.
- **Be aware of the location of sensitive areas, concerns of neighbors or concerns of the public**, which require special application procedures. To reduce odor problems, apply wastewater and solids containing manure in mid-morning when temperatures are warming and air is rising rather than in the afternoon or evening when air is cooling and settling. Avoid applications during periods of fog.
- **Calibrate application equipment** to insure uniform distribution and accurate application rates in accordance with guidance given in the Considerations for Manure Applications starting on page 3-6. Refer to page 3-17 for guidance on the calibration of application equipment.
- **Maintain setbacks for manure application from any surface waters.** The following table shows minimum setback requirements for manure applications based on Oregon Department of Agriculture (ODA) regulations. The ODA minimum setbacks are 35 feet from open water based if you maintain a vegetated buffer and 100 feet for a non-vegetated buffer. Setback requirements will generally increase for manures which are applied aerially (such as a traveling big gun) versus manures applied lower to the ground (such as a splash bar) due to potential for drift from wind or splashing. The management goal is to allow no manure to enter surface waters at any time.

Typical Manure application setbacks:

Manure type	Application Equipment	Season	
		Late Fall, Winter	Spring, Summer, Early Fall
Liquid	Big gun	70 feet	35 feet
Solid	Spreader	70 feet	20 feet

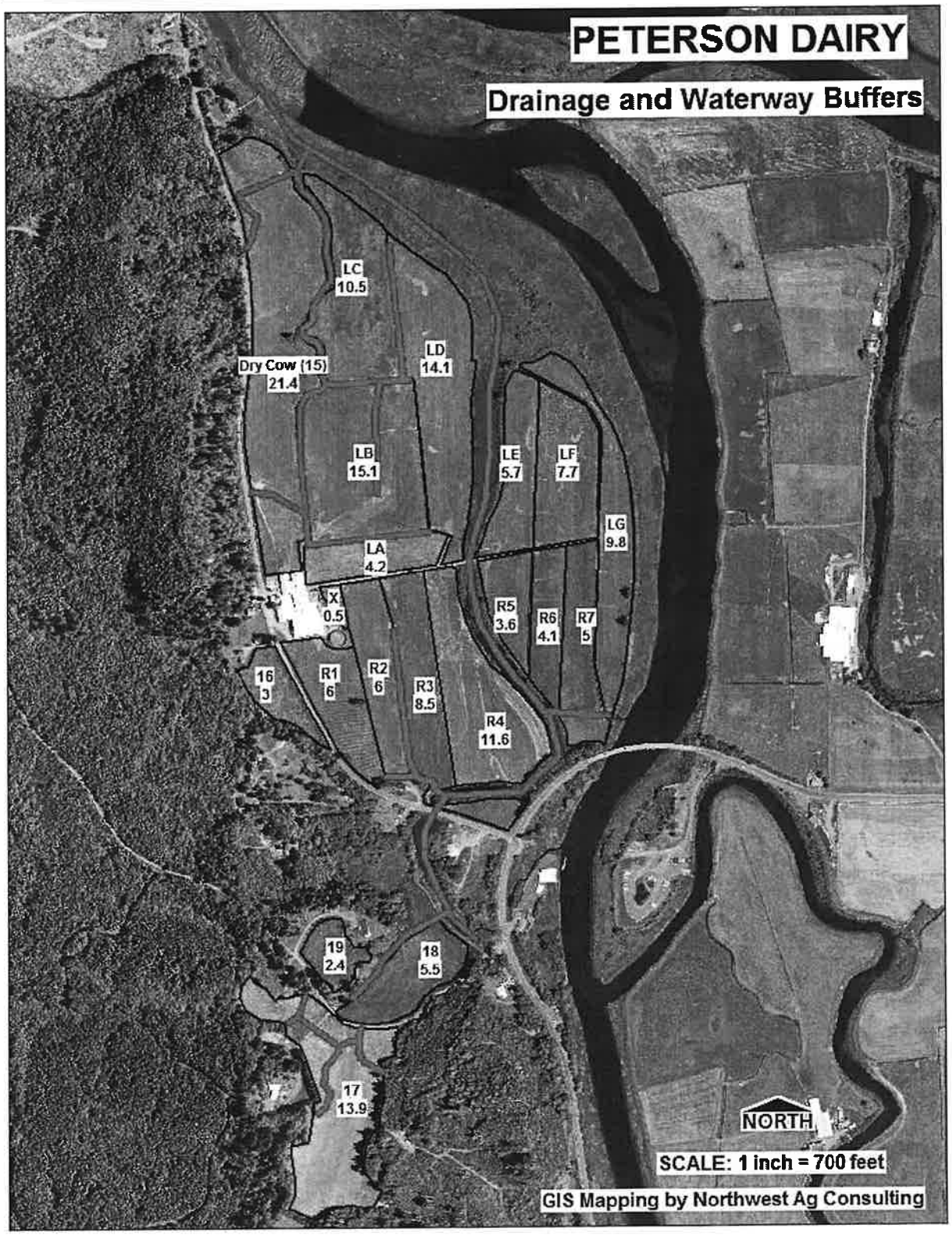
The following table is a manure application setback schedule specifically designed for Peterson Dairy:

Field	Manure type	Application Equipment	Season	
			Late Fall, Winter	Spring, Summer, Early Fall
LA-LG, R1-R7, 15-19, X	Liquid	Tank Wagon	30 feet	5 feet
LA-LG, R1-R7, 15-19, X	Solid	Spreader	30 feet	5 feet

A higher level of management and record keeping will be required to implement the manure application setback distances designed for Peterson Dairy and will carry greater risks and potentially more severe repercussions if manure is found entering waters of the State.

UTILIZATION AREA

SETBACK MAP(S) FOR PETERSON DAIRY



UTILIZATION AREA

MANURE AND SOIL SAMPLING FREQUENCY

If no samples of liquids and solids containing manure have been taken, take a sample of liquids and solids during applications in early spring **once a year for three consecutive years** to develop a cumulative manure analysis history as a basis for nutrient allocation to the fields**.** If there is a sampling history of liquids and solids containing manure, take a sample of liquids and solids during applications in early spring **once every 5 years or whenever a significant change in animal numbers or in the manure handling system occurs.** Have each sample analyzed for Total Nitrogen (TKN), Ammonium Nitrogen (NH_4-N), Phosphorus (P) and Potassium (K) plus percent moisture. Ask the lab to report results in pounds per ton for the solids containing manure and in pounds per thousand gallons for liquids containing manure. Analyses of solids and liquids containing manure should be performed by a laboratory that meets the requirements and performance standards of the Manure Testing Laboratory Certification Program (MTLCP), http://www.mda.state.mn.us/licensing/pestfert/manurelabs.htm.

Collect soil samples from all fields receiving solids or liquids containing manure **within a 5 year period** in the fall (September 15-October 15) in accordance with **Pacific Northwest (PNW) Extension publication 570-E, "Monitoring Soil Nutrients Using a Management Unit Approach"** referenced in Section 5. Have the soil samples analyzed for Total Nitrogen (TKN) and Phosphorus (P) and ask the lab to report results in parts per million (ppm). Soil test analyses should be performed by laboratories that meet the requirements and performance standards of the North American Proficiency Testing Program (NAPT) Proficiency Assessment Program (PAP); http://www.naptprogram.org/pap/.

HOW TO SAMPLE LIQUID MANURE

Obtain a composite following one of the procedures listed below and thoroughly mix. Using a plunger, an up-and-down action works well for mixing liquid manure in a five-gallon bucket. Fill a one-quart plastic bottle not more than three-quarters full with the composite sample. Store sample in freezer if not delivered to the lab immediately.

Procedure 1. Sampling from storage- Agitate storage facility thoroughly before sampling. Collect at least five samples from the storage facility or during loading using a five-gallon bucket. Place a sub sample of the composite sample in a one-quart plastic container. Sampling a liquid manure storage facility without proper agitation (2-4 hrs. minimum) is not recommended due to nutrient stratification, which occurs in liquid systems. If manure is sampled from a lagoon that was not properly agitated, typically the nitrogen and potassium will be more concentrated in the top liquid, while the phosphorus will be more concentrated in the bottom solids.

Procedure 2. Sampling during application- Place buckets around field to catch manure from spreader or irrigation equipment. Combine and mix samples into one composite sub sample in a one-quart plastic container.

HOW TO SAMPLE SOLID MANURE

Collect a composite sample by following one of the procedures listed below. A method for mixing a composite sample is to pile the manure and then shovel from the outside to the inside of the pile until well mixed. Fill a one-gallon plastic heavy-duty zip lock bag

UTILIZATION AREA

MANURE TESTS

PETERSON DAIRY — SOLID MANURE ANALYSIS REPORT — As Received

LAB NO.	DATE	SAMPLE I.D.	UNIT	Total N	P2O5	K2O	NH4-N	Sol.Salts	Moisture	Solids
			Long Term Average	***8.88***	***4.97***	***11.50***	***2.82***	***6.67***	***81.98***	***18.02***
2012										
M1990(901)	06/07/12	Solids	%	0.415	0.261	0.610	0.119	0.33	81.80	18.20
			lb/ton	8.300	5.224	12.191	2.380	6.670		
2013										
M2929-3364	05/02/13	Solids	%	0.473	0.236	0.541	0.163		82.17	17.83
			lb/ton	9.460	4.720	10.817	3.260			

PETERSON DAIRY — LIQUID MANURE ANALYSIS REPORT — As Received

LAB NO.	DATE	SAMPLE I.D.	UNIT	Total N	P2O5	K2O	NH4-N	Sol.Salts	Moisture	Solids
			Long Term Average	***16.05***	***4.84***	***14.84***	***8.54***	***23.26***	***97.22***	***2.78***
1995										
M1060-8486	07/27/95	Unknown	%	0.201	0.046	0.193		0.48	98.44	1.56
			lb/1000 gal.	16.74	3.82	16.02		40.36		
2012										
M1990(894)	06/07/12	Tank	%	0.203	0.062	0.053	0.095	0.07	94.79	5.21
			lb/1000 gal.	16.910	5.165	4.415	7.914	6.16		
2013										
M2922-3356	5/2/2013	Tank	%	0.174	0.066	0.289	0.11		98.43	1.57
			lb/1000 gal.	14.494	5.535	24.082	9.163			

Manure analyses should be performed by a laboratory that meets the requirements and performance standards of the Manure Testing Laboratory Certification Program (MTLCP), http://www.mda.state.mn.us/licensing/pestfert/manurelabs.htm.

Manure should be analyzed annually for a minimum of three (3) consecutive years to develop a cumulative manure analysis history as a basis for nutrient allocation to the fields.

UTILIZATION AREA

How to Sample Soils

Current soil tests must be used in the development and editing of nutrient management plans. A current soil test is one that is no older than 5 years that is used to represent the nutrient status of the entire field. Soil analysis must be performed by laboratories successfully meeting the requirements and performance standards of the North American Proficiency Testing Program-Performance Assessment Program (NAPT-PAP). Results of these analysis will be used to determine application rates for manure, litter, and process wastewater. Guidance for soil sampling can be found in the Pacific Northwest (PNW) Extension publication 570-E, "Monitoring Soil Nutrients Using a Management Unit Approach". Oregon State university Extension publication EC1478, "Soil Test interpretation Guide" provides guidance on how to determine soil nutrient concentrations and how to adjust soil pH to improve nutrient availability.

Field Area. A composite soil sample should represent a uniform field area. Each area should have similar crop and fertility history. Soil characteristics (color, slope, texture, drainage) should be similar. Exclude small areas within a field that are obviously different. The field area represented by a single composite sample should represent no more than 40 irrigated acres or 100 dry land acres.

Sampling Depth. Laboratory tests are calibrated to specific depths. It is vital to collect samples from appropriate depths. Sampling depth for most soils is the rooting depth in 6-inch intervals. In Oregon, as a minimum, soil samples should be collected from the 0-12" depth and from the 12-24" depth. The 0-6" surface soil samples are normally used for conventional tests of organic matter, nitrogen, phosphorus, potassium, pH and salt levels. Additionally, subsurface samples from the 6-24" depth are needed to estimate nitrogen availability for crops.

UTILIZATION AREA

SOIL TESTS

PETERSON DAIRY

SOIL TEST RESULTS

Report	Lab	Test Date	Field	Depth	NO3-N	NH4-N	P	K	Ca	Mg	TB	pH	SMP	OM
					ppm	ppm	ppm	ppm	ppm	ppm	meq			%
				GOAL	<30		<100	<800				>5.5		
2012														
S6322	AgriCheck	10/11/12	17-18-19	6"	12	36	24	647	8.5	6.3	16.5	5.1	5.3	
S6322	AgriCheck	10/11/12	ISLAND	6"	36	49	45	1642	15.6	9.1	28.9	5.7	5.9	
S6322	AgriCheck	10/11/12	LA-D + Dry Cow	6"	18	44	35	1257	12.3	8.2	23.7	5.5	5.7	
S6322	AgriCheck	10/11/12	R 1-4	6"	27	48	50	1669	16.1	9.1	29.5	6.1	6.1	
				Mean	***23***	***44***	***39***	***1304***	***13.1***	***8.2***	***24.7***	***5.6***	***5.8***	
2004														
S364	AgriCheck	11/22/04	Dry Cow	6"	13	15	34	742	12.9	7.4	22.2	5.4	5.5	
S364	AgriCheck	11/22/04	LB+LC	6"	25	22	21	1203	15.4	6.3	24.8	5.6	5.4	
S364	AgriCheck	11/22/04	LD+LE	6"	20	25	41	1378	16.0	7.8	27.3	5.7	5.8	
S364	AgriCheck	11/22/04	LG	6"	9	21	20	773	10.2	8.1	20.3	5.5	5.3	
S364	AgriCheck	11/22/04	R1-2-3	6"	24	35	45	1047	16.8	8.7	28.2	6.0	6.1	
S364	AgriCheck	11/22/04	R4-5	6"	30	32	34	1279	20.1	8.1	31.5	5.9	6.0	
S364	AgriCheck	11/22/04	R6+LF	6"	18	18	37	1719	18.9	8.4	31.7	5.9	5.9	
				Mean	***20***	***24***	***33***	***1163***	***15.8***	***7.8***	***26.6***	***5.7***	***5.7***	
1999														
S813	AgriCheck	10/08/99	LB+LC	6"	19	33	15	623	13.8	7.7	23.1	5.0	5.1	
S813	AgriCheck	10/08/99	LD+LE	6"	9	31	34	1056	16.9	7.1	26.7	5.3	5.4	
S813	AgriCheck	10/08/99	LG	6"	7	33	19	645	12.3	7.8	21.7	5.0	5.1	
S813	AgriCheck	10/08/99	R1-2	6"	7	37	33	885	13.3	6.4	22.0	5.4	5.6	11.0
S813	AgriCheck	10/08/99	R4-5	6"	12	30	42	1236	17.8	7.1	28.1	5.5	5.6	
S813	AgriCheck	10/08/99	R6+LF	6"	37	39	37	1203	20.6	6.0	29.7	5.6	5.7	12.4
				Mean	***15***	***34***	***30***	***941***	***15.8***	***7.0***	***25.2***	***5.3***	***5.4***	***11.7***

Soil test analyses should be performed by laboratories that meet the requirements and performance standards of the North American Proficiency Testing Program (NAPT) Proficiency Assessment Program (PAP); http://www.naptprogram.org/pap/.

UTILIZATION AREA

HOW TO CALIBRATE APPLICATION EQUIPMENT

Calibration of application equipment is a critical part of nutrient management. Calibration should be completed at least annually to insure manure and fertilizer will be uniformly applied. There are two basic approaches for calibrating a manure spreader – the load area and the weight area methods. The load area method is more accurate and can be used for both liquid and solid manure. The weight area method works only with solid or semi-solid manure.

Irrigation System Calibration

Place 3-5 buckets throughout the irrigation spray pattern and collect samples while operating the pump at a given rpm and pressure (for a traveling gun record the travel speed also). At the end of the planned sample period measure the amount of liquid collected in inches (average the samples). The following chart shows how many gallons per acre applied per inch of liquid applied:

Inches Liquid Manure Applied via Irrigation:	Gallons per Acre:
0.20	5,431
0.30	8,146
0.40	10,862
0.50	13,577
0.75	20,366
1.00	27,154
1.25	33,943
1.50	40,731

Soft Hose Injection System with Irrigation Hose:

Alternative 1. Use a flow meter mounted on the injector system and calculate the distance and width to determine amount applied over a measured area. Example the flow meter measures 1,000 gallons over a distance of 600 feet and 10 feet wide.

Formula:

Application Rate (7,260 gallons/acre) = (Gallons Applied (1,000 gal) X 43,560 sq. ft/acre) divided by (Distance traveled (600 ft) X Application width (10 ft))

Alternative 2. (Requires a 10-20 gallon graduated measuring container)

Step 1) In the field, measure the flow out of one injector for 5 seconds into the graduated measuring container and record gallons, repeat three (3) times and average the results.

Step 2) Multiply the average amount collected from one injector by the number of injectors (equals amount applied for the whole system for 5 seconds).

Step 3) Multiply the results of Step 2 times 12 to get gallons per minute.

Step 4) Place the injector in the soil at the planned depth and operating speed and record the distance traveled in 1 minute (average 3 different measurements).

Step 5) Determine the effective application width (number of injectors X injector spacing in feet).

UTILIZATION AREA

Load-Area Method:
The load-area method is the most accurate and can be used for both liquid and soild manure. The load area method is a 3-step process:

Step 1) Determine the amount of manure in the spreader. The most accurate way to determine the amount of manure in a spreader is weighting the spreader when it is empty and again when it is full. For a reliable estimate of spreader capacity, weigh several representative loads (at least five) to determine the average gross weight. Subtract the empty spreader weight. Then, calculate the average net loaded weight.

Step 2) Determine the area of spread using the method at the right. Width measurements near the beginning and end of the spread pattern should be avoided because the spreader may not be operating at full capacity.

Step 3) Calculate the application rate. The application rate is calculated using the formula for either liquid or solid manure.

> **Formula for Solid Manure Equals Tons/Acre**
> (Average Loaded Weight (lbs) x 21.81) divided by (Distance Traveled (ft) x Width of Spread (ft))
>
> **Formula for Liquid Manure Equals Gal/Acre**
> (Tank Volume (gal) x 43,560) divided by (Distance Traveled (ft) x Width of Spread (ft))

Weight-Area Method:
The weight-area method can only be used with solid or semi-solid manure. When a scale is not available, the application rate of a box spreader can be determined by collecting manure on a tarp or piece of heavy material. The weight area method is less accurate than the load area method.

This method consists of eight steps:
Step 1) Prepare/cut three 56-inch square tarps or pieces of heavy material (this size equals 1/2,000 of an acre). The pounds of manure collected on 56 inches square equals tons applied per acre.

Step 2) Weigh one of the clean tarps and a large bucket on a platform scale. Record the weight.

Step 3) Anchor the three tarps in the field ahead of the spreader near the beginning, middle, and end of the area that will be spread with one load.

Step 4) Drive over the three tarps at a normal speed to collect a representative manure sample.

Step 5) Fold and place the first tarp into the empty bucket without spilling the manure. Weigh the bucket, tarp, and manure. Subtract the weight of the clean tarp and bucket recorded in step 2.

UTILIZATION AREA

AMOUNT OF MANURE TO APPLY FOR CROPS GROWN

The timing and frequency of applications of wastewater and solids containing manure for utilization by crops shown in the table below are based on information provided in Oregon State University Extension publications listed in Section 5.

The formulas for determining the total nutrient application rate per unit yield for each crop shown in the table below are as follows:

Total N to apply in pounds = N in pounds per yield unit from the table for the crop grown X percent (%) dry matter (DM) of harvested crop/100 X planned or measured yield per yield unit

Total P_2O_5 to apply in pounds = P in pounds per yield unit from the table for the crop grown X 2.291 P_2O_5/P X percent (%) dry matter (DM) of harvested crop/100 X planned or measured yield per yield unit

Total K_2O to apply in pounds = K in pounds per yield unit from the table for the crop grown X 1.205 K_2O/K X percent (%) dry matter (DM) of harvested crop/100 X planned or measured yield per yield unit

The following table shows the crops that may be grown on this farm:

				Nutrient Removal (lb/yield unit)		
FRUIT OR VEGETABLES	**Yield Unit**	**lb/Unit**	**% DM**	**N**	**P**	**K**
Beans, dry edible	cwt	100	100	3.13	0.45	0.85
Caneberries	ton	2000	100	11.43	7.42	11.43
Corn, Sweet	ton	2000	100	17.80	4.8	11.6
Mixed Vegetables & Fruit	ton	2000	100	8.33	2.08	10.20
Onions	cwt	100	100	0.30	0.06	0..22
Orchard, Fruit	ton	2000	100	13.00	2.00	16.00
Pea, edible	ton	2000	100	73.60	8.00	18.00
Potatoes	ton	2000	100	6.60	1.20	10.33

UTILIZATION AREA

HAY AND PASTURE CROPS	Yield Unit	lb/Unit	% DM	Nutrient Removal (lb/yield unit) N	P	K
Alfalfa, Hay	ton	2000	100	64.00	8.00	42.00
Alta Fescue Hay/Pasture	ton	2000	100	33.00	6.90	37.60
Grass Legume Hay/Pasture	ton	2000	100	33.90	5.50	34.40
Meadow Fescue Hay/Pasture	ton	2000	100	41.60	8.80	47.40
Oats Hay/Pasture	ton	2000	100	60.00	10.20	14.80
Orchardgrass Hay/Pasture	ton	2000	100	53.20	8.60	18.60
Perennial Hay/Pasture (Low Intensity)	ton	2000	100	32.00	6.00	38.00
Perennial Hay/Pasture (Low-Med Intensity)	ton	2000	100	38.00	6.00	38.00
Perennial Hay/Pasture (Medium Intensity)	ton	2000	100	48.00	7.00	38.00
Perennial Hay/Pasture (Med- High Intensity)	ton	2000	100	58.00	8.00	40.00
Perennial Hay/Pasture (High Intensity)	ton	2000	100	64.00	8.00	40.00
Ryegrass Hay	ton	2000	100	33.40	5.40	28.40
Ryegrass, Perennial Pasture	ton	2000	100	58.00	8.00	48.00
Tall Fescue Hay/Pasture	ton	2000	100	39.40	4.00	40.00

SILAGE AND HAYLAGE CROPS	Yield Unit	lb/Unit	% DM	Nutrient Removal (lb/yield unit) N	P	K
Corn for Silage	ton	2000	100	25.00	4.00	20.00
Crimson Clover forage	ton	2000	100	40.00	4.41	32.98
Field Pea, Forage	ton	2000	100	73.60	8.00	18.00
Oat haylage	ton	2000	100	60.00	10.20	14.80
Oats & Peas/ Green Beans	ton	2000	100	32.03	5.58	18.65
Red Clover forage	ton	2000	100	40.00	4.41	32.98
Ryegrass Haylage	ton	2000	100	50.00	8.00	42.67
Sorghum-Sudan Haylage	ton	2000	100	54.33	6.33	58.00
Triticale Haylage	ton	2000	100	49.00	6.80	11.40
Wheatgrass Hay/Pasture	ton	2000	100	28.40	5.40	53.60

UTILIZATION AREA

SOLID MANURE APPLICATION CHART

MANURE ANALYSIS
(As received lb/ton)

Total N	P_2O_5	K_2O
8.90	5.00	11.50

Test Date: Avg 2012 & 2013
Source: Solids Pile

Manure Nutrient Content

Manure Applied	Thickness to apply	Total N	P_2O_5	K_2O
(Tons/Ac)	(inches/Ac)	(lb/A)	(lb/A)	(lb/A)
1.00	0.013	9	5	12
1.50	0.020	13	8	17
2.00	0.026	18	10	23
2.50	0.033	22	13	29
3.00	0.039	27	15	35
3.50	0.046	31	18	40
4.00	0.052	36	20	46
4.50	0.059	40	23	52
5.00	0.066	45	25	58
5.50	0.072	49	28	63
6.00	0.079	53	30	69
6.50	0.085	58	33	75
7.00	0.092	62	35	81
7.50	0.098	67	38	86
8.00	0.105	71	40	92
8.50	0.111	76	43	98
9.00	0.118	80	45	104
9.50	0.124	85	48	109
10.00	0.131	89	50	115
10.50	0.138	93	53	121

LIQUID MANURE APPLICATION CHART

MANURE ANALYSIS
(As received lb/1000 gal)

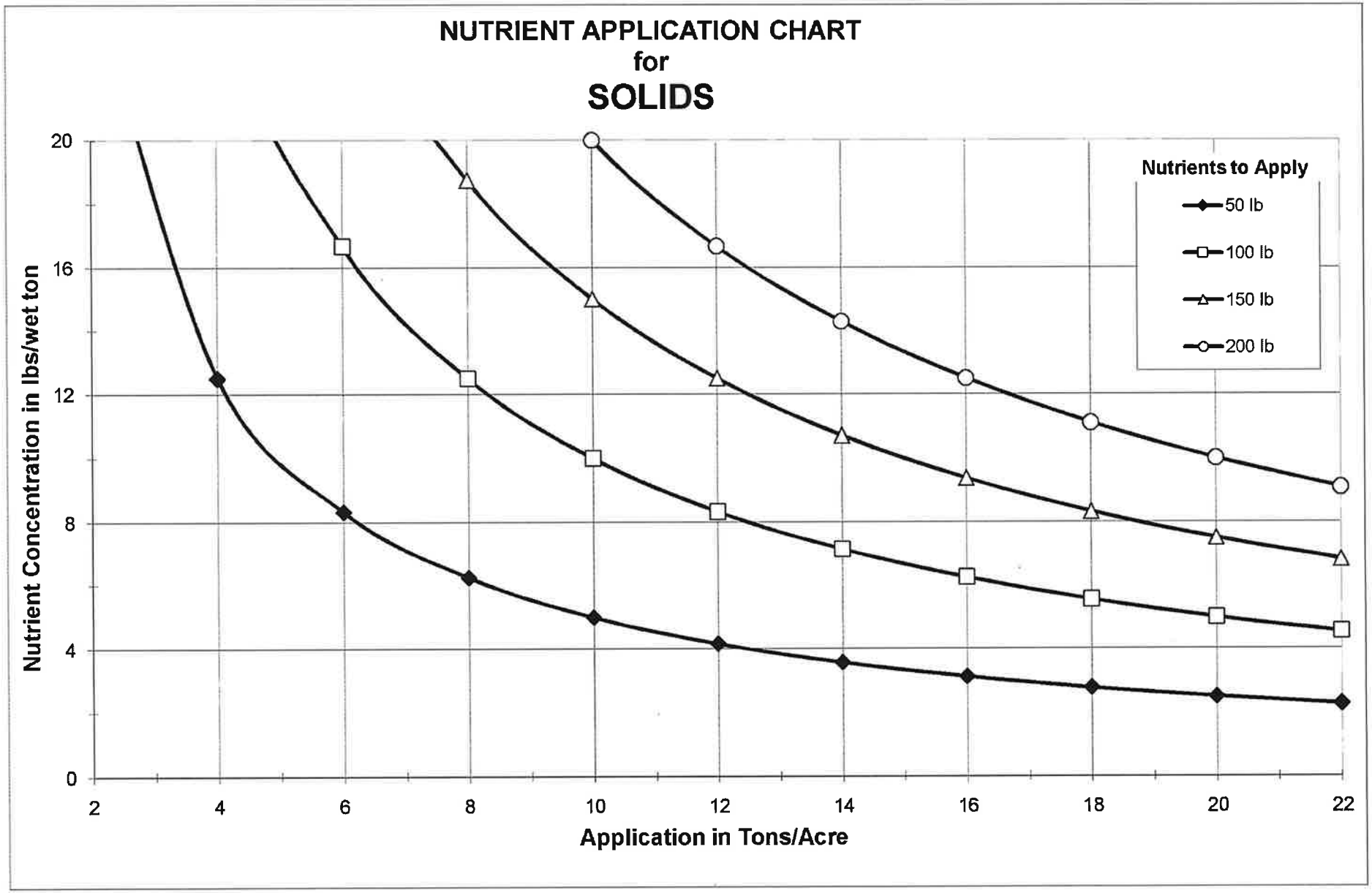
Total N	P_2O_5	K_2O
16.10	4.80	14.80

Test Date: Avg 1995-2013
Source: Tank

Manure Nutrient Content

Manure Applied	Thickness to apply	Total N	P_2O_5	K_2O
(Gallons/Ac)	(inches/Ac)	(lb/A)	(lb/A)	(lb/A)
2,715	0.10	44	13	40
5,431	0.20	87	26	80
8,146	0.30	131	39	121
10,862	0.40	175	52	161
13,577	0.50	219	65	201
16,292	0.60	262	78	241
19,008	0.70	306	91	281
21,723	0.80	350	104	322
24,439	0.90	393	117	362
27,154	**1.00**	**437**	**130**	**402**
29,869	1.10	481	143	442
32,585	1.20	525	156	482
35,300	1.30	568	169	522
38,016	1.40	612	182	563
40,731	1.50	656	196	603
43,446	1.60	699	209	643
46,162	1.70	743	222	683
48,877	1.80	787	235	723
51,593	1.90	831	248	764
54,308	2.00	874	261	804

UTILIZATION AREA



SOIL AND RISK ASSESSMENT

SOIL MAP(S)

Soil Map—Tillamook County, Oregon
(Peterson Dairy)

Map Scale: 1:11,600 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 150, 300, 600, 900

Feet: 0, 500, 1000, 2000, 3000

Map projection: Web Mercator Corner coordinates: WGS84

SOIL AND RISK ASSESSMENT

SOIL REPORTS

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Tillamook County, Oregon

Map Unit: 2A—Fluvaquents-Histosols complex, 0 to 1 percent slopes

Component: Fluvaquents (60%)

The Fluvaquents component makes up 60 percent of the map unit. Slopes are 0 to 1 percent. This component is on tidal marshes, lowlands. The parent material consists of estuarine deposits. Depth to a root restrictive layer, strongly contrasting textural stratification, is 30 to 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is very frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 8 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The soil has a very slightly saline horizon within 30 inches of the soil surface.

Component: Histosols (35%)

The Histosols component makes up 35 percent of the map unit. Slopes are 0 to 1 percent. This component is on tidal marshes, lowlands. The parent material consists of organic material over estuarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is very frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 90 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The soil has a very slightly saline horizon within 30 inches of the soil surface.

moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Component: Flowerpot (20%)

The Flowerpot component makes up 20 percent of the map unit. Slopes are 5 to 30 percent. This component is on mountains, hillslopes, mountain slopes. The parent material consists of colluvium and residuum derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 14 inches during January, February. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is
6e. This soil does not meet hydric criteria.

Map Unit: 57B—Condorbridge gravelly medial loam, 0 to 7 percent slopes

Component: Condorbridge (85%)

The Condorbridge component makes up 85 percent of the map unit. Slopes are 0 to 7 percent. This component is on fans, river valleys. The parent material consists of alluvium and/or debris flow deposits derived from igneous and sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 20 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Hebo (5%)

Generated brief soil descriptions are created for major components. The Hebo soil is a minor component.

Map Unit: 77A—Nestucca-Brenner silt loams, 0 to 3 percent slopes

Component: Nestucca (55%)

The Nestucca component makes up 55 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, river valleys. The parent material consists of alluvium derived from igneous and sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 14 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 8 percent. Nonirrigated land capability classification is 3w. Irrigated land capability classification is 3w. This soil does not meet hydric criteria.

Component: Brenner (40%)

The Brenner component makes up 40 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains, river valleys. The parent material consists of alluvium derived from igneous and sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April,

Map Unit: W—Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Data Source Information

Soil Survey Area:	Tillamook County, Oregon
Survey Area Data:	Version 4, Sep 14, 2012

SOIL AND RISK ASSESSMENT

PREDICTED SOIL EROSION

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info:

Owner name	*Tract #*	*Field name*
Peterson Dairy	**256**	**16, R1**

Location	*Soil*	*T value, t/ac/yr*	*Slope length (horiz), ft*	*Avg. slope steepness, %*
Oregon\Tillamook County\OR_Tillamook_R80-90	57B Condorbridge gravelly medial loam, 0 to 7 percent slopes\Condorbridge gravelly medial loam 85%	5.0	500	7.0

Alternatives:

Description	*Management*	*Contouring*	*Strips / barriers*	*Diversion/terrace, sediment basin*	*Cons. plan. soil loss*	*Soil conditioning index (SCI)*	*STIR value*	*Wind & irrigation-induced erosion for SCI, t/ac/yr*	*Equiv. diesel use, gal/ac*	*Energy use, BTU/ac*	*Fuel cost, US$/ac*
Erosion on Pasture	a.Single Year/Single Crop Templates\Pasture, yr1 fall plant; manure appl., Z71	a. rows up-and-down hill	(none)	(none)	2.1	0.9	94.9	0	15	2000000	44

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

SOIL AND RISK ASSESSMENT

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Info:

Owner name	Tract #	Field name
Peterson Dairy	256	18, Dry Cow, LA-LG, R2-R7, X

Location	Soil	T value, t/ac/yr	Slope length (horiz), ft	Avg. slope steepness, %
Oregon\Tillamook County\OR_Tillamook_R80-90	103A Coquille silt loam, 0 to 1 percent slopes, diked\Coquille silt loam 85%	5.0	900	1.0

Alternatives:

Description	Management	Contouring	Strips / barriers	Diversion/terrace, sediment basin	Cons. plan. soil loss	Soil conditioning index (SCI)	STIR value	Wind & irrigation-induced erosion for SCI, t/ac/yr	Equiv. diesel use, gal/ac	Energy use, BTU/ac	Fuel cost, US$/ac
Erosion on Pasture	a.Single Year/Single Crop Templates\Pasture, yr1 fall plant; manure appl., Z71	a. rows up-and-down hill	(none)	(none)	0.49	1.0	94.9	0	15	2000000	44

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

SOIL AND RISK ASSESSMENT

OREGON PHOSPHORUS INDEX (WEST)

FIELD SUMMARY & WESTERN OREGON P INDEX

Enter data in gray cells and select best choice from drop down menus.
Cells with blue font are completed automatically.

Grower:	Peterson Dairy
Application Plan by:	Tom Thomsen, NW Ag Consulting
Date:	December 7, 2014

	Field	16	17	18	19	Dry Cow (15)	LA	LB	LC
	Acres	3.0	13.9	5.5	2.4	21.4	4.2	15.1	10.5
	Soil	57B, Condorbridge	77A, Nestucca	103A,Coquille	32D, Munsoncreek	103A,Coquille	103A,Coquille	103A,Coquille	103A,Coquille
	Soil test date	October 11, 2012	October 11, 2012	October 11, 2012	October 11, 2012	October 11, 2012	October 11, 2012	October 11, 2012	October 11, 2012
	Bray 1 P (ppm)	40	24	24	24	35	35	35	35
	Acetate K (ppm)	556	647	647	647	1,257	1,257	1,257	1,257
	pH	5.7	5.1	5.1	5.1	5.5	5.5	5.5	5.5
	SMP	5.8	5.3	5.3	5.3	5.7	5.7	5.7	5.7
	TRANSPORT FACTORS								
	Sheet & rill erosion (tons/ac-yr)	1-3	1-3	<1	<1	<1	<1	<1	<1
	Irrigation erosion (tons/ac-yr)	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated
	Runoff Class	high	medium	low	medium	low	low	low	low
	Flooding Frequency	none	frequent	rare	none	rare	rare	rare	rare
	Distance to stream (ft)	300-500 ft	300-500 ft	100-199 ft	300-500 ft	<100 ft	<100 ft	<100 ft	<100 ft
	Buffers	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.
	Drainage	no tiles	no tiles	no tiles	no tiles	no tiles	no tiles	no tiles	no tiles
	SOURCE FACTORS								
	Commercial P2O5 rate (lbs/ac)	0	0	0	0	0	0	0	0
	Commercial P2O5 method	None applied	None applied	None applied	None applied	None applied	None applied	None applied	None applied
	Commercial P2O5 timing	None applied	None applied	None applied	None applied	None applied	None applied	None applied	None applied
	Organic P2O5 rate (lbs/ac)	214	130	147	186	147	160	153	119
	Organic P2O5 method	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days
	Organic P2O5 timing	All months possible	All months possible	All months possible	All months possible	All months possible	All months possible	All months possible	All months possible
	SCORE	17.8	17.1	12.7	13.7	12.7	13.0	12.8	12.1
	P RUNOFF RISK RATING	Medium	Medium	Low	Medium	Low	Low	Low	Low

COMMENTS

SOIL AND RISK ASSESSMENT

FIELD SUMMARY & WESTERN OREGON P INDEX

Enter data in gray cells and select best choice from drop down menus.
Cells with blue font are completed automatically.

Grower:	Peterson Dairy
Application Plan by:	Tom Thomsen, NW Ag Consulting
Date:	December 7, 2014

Field	R5	R6	R7	X				
Acres	3.6	4.1	5.0	0.5				
Soil	103A,Coquille	103A,Coquille	103A,Coquille	103A,Coquille				
Soil test date	October 11, 2012	October 11, 2012	October 11, 2012	October 11, 2012				
Bray 1 P (ppm)	45	45	45	50				
Acetate K (ppm)	1,642	1,642	1,642	1,669				
pH	5.7	5.7	5.7	6.1				
SMP	5.9	5.9	5.9	6.1				
TRANSPORT FACTORS								
Sheet & rill erosion (tons/ac-yr)	<1	<1	<1	<1	<1	<1	<1	<1
Irrigation erosion (tons/ac-yr)	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated	not irrigated
Runoff Class	low	low	low	low	none	none	none	none
Flooding Frequency	rare	rare	rare	rare	none	none	none	none
Distance to stream (ft)	<100 ft	<100 ft	<100 ft	100-199 ft	<100 ft	<100 ft	<100 ft	<100 ft
Buffers	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.	> 30 ft or NRCS spec.
Drainage	no tiles	no tiles	no tiles	no tiles	no tiles	no tiles	no tiles	no tiles
SOURCE FACTORS								
Commercial P2O5 rate (lbs/ac)	0	0	0	0	0	0	0	0
Commercial P2O5 method	None applied	None applied	None applied	None applied	None applied	None applied	None applied	None applied
Commercial P2O5 timing	None applied	None applied	None applied	None applied	None applied	None applied	None applied	None applied
Organic P2O5 rate (lbs/ac)	86	167	152	160	0	0	0	0
Organic P2O5 method	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days	Not incorp. in 5 days	None applied	None applied	None applied	None applied
Organic P2O5 timing	All months possible	All months possible	All months possible	All months possible	None applied	None applied	None applied	None applied
SCORE	12.0	13.6	13.3	14.0	0.0	0.0	0.0	0.0
P RUNOFF RISK RATING	Low	Medium	Medium	Medium	Low	Low	Low	Low

COMMENTS

SOIL AND RISK ASSESSMENT

Oregon Phosphorus Index Risk Interpretation

P Index rating	Interpretation	Recommended Nutrient Limitation
West PI Score<13 East PI Score<30	Low potential for P movement from this site given current management practices and site characteristics. There is a low probability of an adverse impact to surface waters from P losses on this site. Soil test P and P losses are likely to increase in future due to N-based nutrient management from animal manure.	Nitrogen
West PI Score 13-25 East PI Score 30-100	Medium potential for P movement from this site given current management practices and site characteristics. Practices should be introduced to reduce P losses by surface runoff, subsurface flow, and erosion. Soil test P and P losses are likely to increase in future due to N-based nutrient management from animal manure.	Nitrogen
West PI Score >25-50 East PI Score >100-400	High potential for P movement from this site given current management practices and site characteristics. All practicable management practices to reduce P losses through surface runoff, subsurface flow, or erosion should be implemented.	Phosphorus
West PI Score >50 East PI Score >400	Very high potential for P movement from this site given current management practices and site characteristics. Active remediation techniques should be implemented in an effort to reduce the P loss potential from this site.	No manure

REFERENCES

Notice of Registration and Oregon Confined Animal Feeding Operation (CAFO)
National Pollutant Discharge Elimination System (NPDES) General Permit Summary

Overview of CAFO General Permit Summary

The Oregon CAFO General Permit No. 1-2009 (permit) was issued by the Oregon Department of Agriculture (ODA) and Department of Environmental Quality (DEQ) and became effective on **June 29, 2009.** The permit expires on **May 31, 2014.** A copy of the permit is enclosed. This Notice of Registration describes your specific permit registration information and an overview of permit requirements.

Your permit registration was renewed to CAFO Permit No. 1-2009 on **October 5, 2009,** based on information provided by you as follows:

Master Address No. AG-P0063429CAFG **EPA Registration No. ORG010093**

	Operator	Legal owner, if different
Name	ERIC PETERSON	ERIC AND LORETTA PETERSON
Business Name		
Mailing Address	105 BAYOCEAN RD NW TILLAMOOK, OR 97141	SAME
Facility Address	105 BAYOCEAN RD NW TILLAMOOK, OR 97141	
Phone Main	503/842/5276	
E-mail Address	lepete@pacifier.com	
Maximum Number of Animals	The maximum number of animals that may be held at this **dairy** CAFO is **535** animals, based on the following population: **295 milking and dry cows and 240 heifers and calves.** You may not exceed this number by more than 10% or 25 animals, whichever is greater, without first providing ODA with a revised Animal Waste Management Plan (AWMP) and receiving written ODA approval.	
Facility Classification	Based on the type and size of your operation, ODA has determined that you operate a **Medium Confined CAFO.** *Note: Large Concentrated CAFOs have additional requirements. Please see general permit.*	

Annual Permit Fee

Each fiscal year, you will be assessed an annual compliance fee of $25.00 to maintain your registration under this general permit.

For Questions/ Additional Information

If you have questions, call your regional livestock water quality specialist for **Area I** at **(503) 842-6278** or the Salem office at **(503) 986-4699.** Additional CAFO program information is available on the internet at http://oregon.gov/ODA/NRD/cafo_front.shtml

General Permit Conditions

The operator must be in compliance with <u>all</u> terms and conditions of the permit (not only this summary of the permit) at all times.

Prohibited Discharges
See permit section S2, p. 9 & 10 for full text.

The following types of discharges are prohibited:

- Contaminated runoff from confinement or waste accumulation areas;
- Overflow or discharges from waste storage facilities;
- Discharges due to improper land application activities from surface drainages or field tile outlets;
- Discharges due to equipment failure; and
- Leakage or seepage from facilities in the production area in excess of approved designs.

When Discharge is Allowed
Permit sections S2.B, p. 9; S2.C, pp. 9 & 10.

Production Area: Discharges of process waste water to surface waters of the state are generally prohibited except:

- When rainfall events cause an overflow of process waste water from a facility designed, constructed, operated, and maintained to contain all process-generated waste waters plus the runoff and direct precipitation from a 25-year, 24-hour rainfall event provided these discharges do not cause or contribute to a violation of state water quality standards; or
- In the event of an upset or bypass condition. *These conditions are further defined in the permit.*

All authorized discharges from the production area must be properly land applied or otherwise handled in a way that minimizes impacts on surface water and groundwater sources.

OREGON CONFINED ANIMAL FEEDING OPERATION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
GENERAL PERMIT NUMBER 01-2009

State of Oregon
Department of Agriculture
Natural Resources Division
and
Department of Environmental Quality
Water Quality Division

In compliance with the provisions of Oregon Revised Statutes (ORS) Chapter 468B,
Oregon Administrative Rules (OAR) Chapter 603, Division 74,
The Federal Water Pollution Control Act as Amended (The Clean Water Act),
Title 33 United States Code, Section 1251 et seq., and
The National Pollutant Discharge Elimination System (NPDES) program.

Until this permit expires, is modified, or revoked, permittees who have properly obtained coverage under this permit are authorized to discharge to waters of the state in accordance with the special and general conditions the follow.

Ray Jaindl
Administrator
Natural Resources Division
Oregon Department of Agriculture

Neil Mullane
Administrator
Water Quality Division
Oregon Department of Environmental Quality

DEFINITIONS

1. "25-year, 24-hour rainfall event" means an event with a probable recurrence interval of once in twenty-five years as defined by the National Weather Service in Technical Paper Number 40, "Rainfall Frequency Atlas of the United States," May 1961, or equivalent regional or state rainfall probability information developed from this source.
2. "40 CFR means Title 40 of the Code of Federal Regulations (2008).
3. "Animal waste management plan" or "AWMP" means a written document containing the minimum elements necessary to manage manure, litter, and process waste water from operations covered by this permit in accordance with the terms and conditions of this permit. See S3.C, p. 12, for specific plan elements.
4. "CAFO" or "Confined animal feeding operation" as defined in OAR 603-074-0010(3) and OAR 340-051-0010(2) means:
   (a) The concentrated confined feeding or holding of animals or poultry, including but not limited to horse, cattle, sheep, or swine feeding areas, dairy confinement areas, slaughterhouse or shipping terminal holding pens, poultry and egg production facilities and fur farms;
      (i) In buildings or in pens or lots where the surface has been prepared with concrete, rock or fibrous material to support animals in wet weather; or
      (ii) That have wastewater treatment works; or
      (iii) That discharge any wastes into waters of the state; or
   (b) An animal feeding operation that is subject to regulation as a concentrated animal feeding operation pursuant to 40 CFR §122.23.
5. "Director" means the director of the State of Oregon Department of Environmental Quality and the Department of Agriculture or their authorized designee(s).
6. "Discharge" when used without qualification means the "discharge of a pollutant." "Discharge of a pollutant" is defined at 40 CFR §122.2.
7. "Frozen soil" means soil that has a soil temperature of 32° F (or 0° C) or less in 3 continuous inches of the top twelve (12) inches of soil.
8. "Groundwater" means water in a saturated zone or stratum beneath the surface of land or below a surface water body.
9. "Manure" means manure or other material (e.g., bedding, compost, litter, feed waste, silage leachate, raw materials such as feed or silage) that comes into contact with manure.
10. "Medium confined animal feeding operation" means a confined animal feeding operation that meets the animal numbers specified in any of the following categories. A state medium confined animal feeding operation is only required to apply for this permit if it confines for more than four (4) months and has a waste water control facility or disposal system for wet *or* dry wastes. (See *Table 1: CAFOs Requiring Permit Coverage.*)
    (a) 200 to 699 mature dairy cattle, whether milked or dry;
    (b) 300 to 999 veal calves;
    (c) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs;
    (d) 750 to 2,499 swine each weighing 55 pounds or more;
    (e) 3,000 to 9,999 swine each weighing less than 55 pounds;
    (f) 150 to 499 horses;
    (g) 3,000 to 9,999 sheep or lambs;
    (h) 16,500 to 54,999 turkeys;
    (i) 9,000 to 29,999 laying hens or broilers, if the operation uses waste water control facilities for wet waste;
    (j) 37,500 to 124,999 chickens (other than laying hens), if the operation uses waste water control facilities for wet waste;
    (k) 25,000 to 81,999 laying hens, if the operation does not use waste water control facilities for wet waste;
    (l) 10,000 to 29,999 ducks if the operation does not use waste water control facilities for wet waste; or
    (m) 1,500 to 4,999 ducks if the operation uses waste water control facilities for wet waste.
    (n) For other animal types, ODA will determine the appropriate animal numbers by comparing the operation to the most similar animal type listed above.

SPECIAL CONDITIONS

S1. PERMIT COVERAGE

S1.A. When is a Permit Required?

1. Pursuant to ORS 468B.200, it is the policy of the State of Oregon to protect the quality of groundwater and surface waters of Oregon by preventing animal wastes from discharging into waters of the state. To implement this policy, ORS 468B.050(1)(d) requires that any person who owns or operates a *confined animal feeding operation* (CAFO) listed in S1.A.2 below obtain a permit from ODA and DEQ. As a result, there is no state process to certify that a CAFO does not discharge or propose to discharge to waters of the state and permit coverage is required regardless of discharge status. Coverage under this general permit is required for all CAFOs listed in S!.A.2 unless application is made for an individual permit or an individual permit is required by ODA and DEQ.

2. Any person who owns or operates a CAFO defined as follows is required by ORS 468B.050(1)(d) to obtain coverage under this permit (see Table 1 below for more detail):
   (a) *State small confined animal feeding operation* that confines animals for more than four (4) months and has a waste water control facility or disposal system for wet *or* dry wastes.
   (b) *State medium confined animal feeding operation* that confines animals for more than four (4) months and has a waste water control facility or disposal system for wet *or* dry wastes.
   (c) *Small, medium, or large concentrated animal feeding operation* defined in 40 CFR §122.23(b).

Table 1: CAFOs Requiring Permit Coverage

Type of confined animal feeding operation requiring permit coverage	CONFINED		CONCENTRATED		
	• Confines more than one animal for more than 4 months on prepared surface		• Stabled or confined and fed or maintained for total of 45 days or more in any 12-month period • Crops, vegetation, forage growth, or post-harvest residues not sustained in normal growing season in lot or facility		
	Small Confined • Waste water control facility or disposal system for wet wastes	***Medium Confined*** • Waste water control facility or disposal system for wet *or* dry wastes	***Small Concentrated*** • Significant contributor of pollutants to waters of the U.S. • Designated by Director [40 CFR §122.23(b)(9)]	***Medium Concentrated*** • Discharging pollutants to waters of the U.S. [40 CFR §122.23(b)(6)]	***Large Concentrated*** [40 CFR §122.23(b)(4)]
mature dairy cows[1]	<200	200-699	<200	200-699	≥700
veal calves	<300	300-999	<300	300-999	≥1,000
cattle[2]	<300	300-999	<300	300-999	≥1,000
swine ≥ 55 lbs	<750	750-2,499	<750	750-2,499	≥2,500
swine < 55 lbs	<3,000	3,000-9,999	<3,000	3,000-9,999	≥10,000
horses	<150	150-499	<150	150-499	≥500
sheep or lambs	<3,000	3,000-9,999	<3,000	3,000-9,999	≥10,000
turkeys	<16,500	16,500-54,999	<16,500	16,500-54,999	≥55,000
chickens, including laying hens or broilers w/wet waste system	<9,000	9,000-29,999	<9,000	9,000-29,999	≥30,000
laying hens w/dry waste system	NA	25,000-81,999	<25,000	25,000-81,999	≥82,000
Broiler chickens w/dry waste system	NA	37,500-124,999	<37,500	37,500-124,999	≥125,000
ducks w/other than wet waste system	<10,000	10,000-29,999	<10,000	10,000-29,999	≥30,000
ducks w/wet waste system	<1,500	1,500-4,999	<1,500	1,500-4,999	≥5,000
other animal type	As determined by ODA[3]		Designated by director.	NA	NA

[1] Whether milked or dry
[2] Other than mature dairy cows or veal calves, cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.
[3] To determine the number of animals that require permit coverage, ODA will compare the operation to the most similar animal type in the table.

2. This permit does not cover disposal of human wastes or waste water control systems that mix human and animal wastes. Any person owning or operating such a system must apply to DEQ for coverage under an individual or general permit issued pursuant to ORS 468B.050. This general permit for CAFOs may be used in addition to an individual or general permit issued by DEQ pursuant to ORS 468B.050.

3. Except for any toxic effluent standards and prohibitions imposed under section 307 of the federal Clean Water Act (CWA) and groundwater protection requirements established under OAR 340-040, a permittee in compliance with this permit during its term is considered to be in compliance, for purposes of enforcement, with state water quality laws and relevant sections of the CWA, as provided in 40 CFR §122.5. The specific effect of permit compliance on enforcement authority is set out in OAR 340-045-0080.

S1.E. Request for Cancellation

1. Any permittee may request in writing to ODA that coverage under this permit be cancelled if:
   (a) Conditions or standards have changed so that the CAFO no longer qualifies for or is required to have coverage under this permit; or
   (b) The CAFO no longer has animals on site and all waste storage and control facilities have been decommissioned in accordance with Natural Resources Conservation Service (NRCS) conservation practice standard, code 360, entitled *Closure of Waste Impoundments (Jan. 2006)*; and
   (c) The permittee certifies that it will not commence operation of a CAFO regulated by this permit at the same location without making a new application for registration under this general permit and is granted coverage or applies for and is issued an individual permit.

2. ODA will respond to the request for cancellation by conducting a site inspection and a review of the permittee's file. ODA will notify the permittee in writing of termination of coverage under this permit or deny the request with an explanation of why the request was denied.

S1.F. Individual Permit Coverage

1. When appropriate, the director may require any person to obtain an individual permit pursuant to OAR 340-0033(10). In such cases, the person will be notified in writing by the director. This written notice will include the reason why an individual permit is being required, an application form, the amount of the permit fee due at application, and application due date.

2. If coverage under this permit has been obtained prior to the requirement for an individual permit, this permit will remain effective until the individual permit is issued provided the application for individual permit was properly made.

S1.G. Request for Confidentiality

The name and address of an NPDES permit applicant or permittee, NPDES permit applications (e.g., *ODA ATRs*) and their attachments (e.g., AWMPs), NPDES permits, and NPDES permit discharge data cannot be kept confidential pursuant to 40 CFR §122.7(b) and (c). For other information, the permittee may request that the director evaluate claims of confidentiality according to the procedures established in ORS 468.095(2).

S1.H. Public Notice and Participation Requirement

1. Prior to approving new permit coverage, renewing permit coverage, or approving proposed substantial changes to an AWMP, ODA will provide public notice and participation in Table 2 below.

2. ODA may batch multiple notices as regionally appropriate.

3. Application and permit documents (e.g., *ODA ATR*, renewal application, AWMP) will be available for public review at ODA headquarters and appropriate field offices. If available, electronic copies of documents will be provided upon request.

4. Public hearings will be scheduled if written requests for public hearing are received during the comment period from at least ten persons or from an organization or organizations representing at least ten persons. If a hearing is scheduled, ODA will provide at least 30 days notice before the hearing is held. The public comment period will remain open for additional comments for at least 7 days after the public hearing.

S2. DISCHARGE LIMITATIONS AND OPERATING REQUIREMENTS

S2.A. Discharge Limitations

The permittee is prohibited from discharging manure, litter, or process wastes to surface waters and groundwaters of the state, except as allowed in S2.B and S2.C and provided these discharges allowed in S2.B and S2.C do not cause or contribute to a violation of state water quality standards. Discharges to surface water due to upset or bypass are authorized only in accordance with applicable requirements in G16 Bypass [40 CFR §122.41(m)], p. 23 and G17 Upset [40 CFR §122.41(n)], p. 24.

Types of discharge that are prohibited include but are not limited to: contaminated runoff from confinement or waste accumulation areas; overflow or discharges from waste storage facilities; discharges due to improper land application activities from surface drainages or field tile outlets, discharges due to equipment failure; or leakage or seepage from facilities in the production area in excess of approved designs.

S2.B. Production Area Limitations

1. For all *small and medium confined animal feeding operations* and *small, medium, and large concentrated animal feeding operations*, except new source swine, poultry, and veal *large concentrated animal feeding operations*:
   The permittee is prohibited from discharging manure, litter, or process waste water to surface waters of the state from the production area, except when:
   (a) Rainfall events cause an overflow of waste management and storage facilities designed, constructed, operated, and maintained to contain all manure, litter, and process waste waters including the contaminated runoff and direct precipitation from a 25-year, 24-hour rainfall event; and
   (b) The production area is operated in accordance with the applicable inspection, maintenance, recordkeeping, and reporting requirements of this permit.

2. For new source swine, poultry, and veal *large concentrated feeding operations*:
   The permittee is prohibited from discharging manure, litter, or process waste water to surface waters of the state.

3. The permittee must properly land apply or otherwise handle authorized discharges from the production area in a way that minimizes impacts on surface water or groundwater of the state and complies with state water quality standards.

4. The permittee must not exceed the seepage design rates approved by ODA for waste storage or animal confinement facilities and seepage to groundwater from these facilities must not violate state groundwater quality protection standards.

S2.C. Land Application Limitations

1. When applying manure, litter, and process waste water to lands, the permittee must apply at agronomic rates in accordance with the permittee's ODA-approved AWMP. Land application areas include land under the control of the permittee, whether it is owned, rented, or leased, to which manure, litter, or process waste water from the production area is or may be applied.

2. The permittee's discharges to groundwater due to seepage below the root zone of the crop or by other means must not violate state groundwater quality protection standards.

3. The permittee is allowed to apply manure, litter, or process waste water to frozen soil provided:
   (a) Its AWMP addresses such applications [see S3.C.3(j)];
   (b) Discharge to surface waters and groundwaters of the state will not occur, except as allowed in S2.B and S2.C; and
   (c) Land applications do not cause or contribute to a violation of state water quality standards.

S2.J. Setback Requirement

The permittee must develop a setback for any mechanical application of manure, litter, or process waste water occurring in the land application area(s) adjacent to any surface waters, open tile intake structures, sinkholes, well heads, or other conduits to surface or ground waters where manure, litter, and other process waste waters are prohibited. The setback distances must be included in the permittee's AWMP. For *large concentrated animal feeding operation*, this setback must be 100 feet or as a compliance alternative and if demonstrated to the satisfaction of ODA in the AWMP, the permittee for the *large concentrated animal feeding operation* may:

1. Establish a 35-foot vegetated buffer where manure, litter, and other process waste waters are prohibited; or

2. Demonstrate that a setback or vegetated buffer is not necessary or may be reduced because implementation of alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100 foot setback.

S2.K. Manure, Litter, or Process Waste Water Transfers

1. The permittee retains responsibility of the manure, litter, or process waste water until the transfer or export is completed with the required documentation.

2. The permittee must maintain manure, litter, or process waste water transfer or export records as required by S4.C.2(d), p. 17.

3. Prior to transferring manure, litter, or process waste water to other persons, the permittee with a *large concentrated animal feeding operation* must provide the recipient of manure, letter, or process waste water with the a manure nutrient analysis conducted within the previous 12 months.

S2.L. Proper Disposal of Other Wastes

Chemicals, contaminants, and other wastes may not be disposed of in any treatment or storage system for contaminated storm water from the production area, manure, litter, or process waste water unless the system is designed to treat such chemicals, contaminants, or wastes and the chemical, contaminants, or other wastes are identified in the AWMP. In addition, chemicals, contaminants, and other wastes may not be disposed of in any system designed for diversion of uncontaminated storm water.

application rate must be calculated for the most limiting nutrient (from Technical Note #26) and must account for all other nitrogen and phosphorus sources.

(ii) Expected crop yields.

(iii) Calculations showing the total nitrogen and phosphorus to be applied annually to each field, including sources other than manure, litter, or process waste water.

(iv) Annual manure application rates and an explanation of the basis for determining these rates. For *large concentrated animal feeding operations*, these rates must be based on actual test data. For other operations, data or "book values" from established reference sources (e.g., Oregon Animal Waste Management program) may be used instead of actual testing.

(v) Method(s) used to apply manure, litter, or process waste water.

(h) For *large concentrated animal feeding operations*, protocols for appropriate testing of manure, litter, process waste water, and soil. For other operations, references used instead of actual testing data or test protocols if testing.

(i) If applicable, an Agricultural Compost Management Plan as required by OAR 340-096.

(j) Frozen soil application procedures if applications of manure, litter, or process waste water will be made to frozen soil. At a minimum, the following must be provided:

(i) Description of the potential receiving field(s), estimates of waste amounts and types, and estimated timing of applications.

(ii) Aerial photo(s) identifying all areas and surface water bodies within 1,000 ft. of the boundaries of the receiving field(s).

(iii) Soil map(s) identifying soil types for receiving field(s).

(iv) Topographic map(s) for receiving field(s).

(v) Description of the structural practices in place to ensure that no discharges to surface water occur during application and after the soil thaws.

(vi) Description of the method used to determine when soil is frozen and management practices to be followed when planning an application and during and after an application to frozen soil.

(vii) Description of monitoring and reporting requirements to ensure that the permittee is in compliance with frozen soil application procedures.

(k) Procedures for transfer or export of manure, litter, or process waste water.

(l) Identification of specific records that will be maintained to document the implementation and management of the minimum elements described above.

S3.D. AWMP Changes

1. Requirements for *small or medium confined animal feeding operations* (see Table 3,p. 15, for an overview)

(a) *Substantial changes.* The permittee must submit any proposal to make substantial changes to its AWMP to ODA for approval at least 45 days in advance of the proposed changes. ODA will public notice the proposal as described in S1.H, p. 7. ODA will notify the permittee of its final decision concerning the proposed changes after the public notice period ends. The permittee may not implement a proposed change until ODA has approved it. The following types of changes to an AWMP are considered substantial:

(i) A change in the type of manure system including but not limited to switching from a dry to a liquid manure system, switching from a liquid to a dry manure system, or changing the manure system to accommodate an animal species or type of operation not included in the scope of the current AWMP.

(ii) An increase in maximum allowed animal numbers such that the operation becomes defined as a *large concentrated animal feeding operation*.

(b) *Non-substantial changes.* Public notice of non-substantial changes (described below) to an AWMP is not required; however, the permittee must submit its proposal to make such a change to ODA for approval at least 45 days in advance of the proposed change unless a different timeframe is allowed by ODA. ODA will notify the permittee of its final decision concerning the proposed change after reviewing the proposal. The permittee may not implement a proposed change until ODA has approved it. The following changes to an AWMP are considered non-substantial provided they do not result in a substantial modification listed in paragraph (a) above:

Table 3: Overview of Requirements for Proposed Changes to AWMPs

	SMALL OR MEDIUM CONFINED		SMALL, MEDIUM OR LARGE CONCENTRATED	
	Substantial Change	***Non-Substantial Change***	***Substantial Change***	***Non-Substantial Change***
Description of proposed change	1. A change in the type of manure system including but not limited to switching from a dry to a liquid manure system, switching from a liquid to a dry manure system, or changing the manure system to accommodate an animal species or type of operation not included in the scope of the current AWMP. 2. An increase in maximum allowed animal numbers such that the operation becomes defined as a large concentrated animal feeding operation.	The following are considered non-substantial provided they do not result in a substantial change: 1. An increase in animal numbers greater than 10% of the registrant's maximum allowed animal numbers. 2. When facility expansions, production increases, or process modifications will result in new or increased generation of waste, litter, or process waste water beyond the scope of the current AWMP.	1. Addition of new land application areas not previously included in the AWMP, unless the land application area is covered by an existing AWMP that has already been incorporated into an existing NPDES permit and the application of manure, litter, or process waste water on the newly added land application area is in accordance with that existing NPDES permit. 2. Any changes to the field-specific maximum annual rates for land application. 3. Any changes to the maximum amounts of nitrogen and phosphorus derived from all sources for each crop. 4. Addition of any crop or other uses not included in the AWMP and corresponding field-specific rates of application. 5. A change in the type of manure system including but not limited to switching from a dry to a liquid manure system, switching from a liquid to a dry manure system, or changing the manure system to accommodate an animal species or type of operation not included in the scope of the current AWMP. 6. Any changes that are likely to increase the risk of nitrogen and phosphorus transport to surface waters or groundwaters.	The following are considered non-substantial provided they do not result in a substantial change: 1. An increase in animal numbers greater than 10% of the registrant's maximum allowed animal numbers. 2. When facility expansions, production increases, or process modifications will result in new or increased generation of waste, litter, or process waste water beyond the scope of the current AWMP.
Timeline to submit proposal to ODA	Submit at least 45 days in advance of proposed change(s).	Submit at least 45 days in advance of proposed change(s) unless a different timeframe allowed by ODA.	Submit at least 60 days in advance of proposed change(s).	Submit at least 60 days in advance of proposed change(s) unless a different timeframe allowed by ODA.
Public notice process	ODA will public notice as described in S1.H, p. 7.	Not required.	ODA will public notice as described in S1.H, p. 7.	Not required.
ODA approval	ODA will notify the permittee of its final decision concerning the proposed change(s) after the public notice period ends.	ODA will notify the permittee of its final decision concerning the proposed change(s) after reviewing the proposal.	ODA will notify the permittee of its final decision concerning the proposed change(s) after the public notice period ends.	ODA will notify the permittee of its final decision concerning the proposed change(s) after reviewing the proposal.

S4.B. Inspection Requirements

1. The permittee must conduct the following inspections:

Item	Large Concentrated	Other Operations
(a) Stormwater diversion devices, runoff diversion structures, animal waste storage structures, and devices channeling contaminated storm water to the waste water and manure storage and containment structures.	Weekly and record results	Periodically
(b) Water lines, including drinking water or cooling water lines.	Daily and record results	Periodically
(c) Equipment used for land application of manure, litter, or process waste water	Daily when equipment is in use and record results	Periodically when equipment is in use
(d) Liquid impoundments for manure and process waste water	Weekly and record depth of manure and process waste water according to depth marker required by S2.E.3, p. 10	Periodically

2. Any deficiencies found as a result of these inspections must be corrected as soon as possible. The permittee with a *large concentrated animal feeding operation* must record any actions taken to correct these deficiencies and, if deficiencies are not corrected within 30 days, provide an explanation of the factors preventing immediate correction.

S4.C. Recordkeeping and Availability Requirements

1. The permittee must maintain all information required by this permit at the facility for at least five (5) years and make this information available to ODA upon request.
2. Upon obtaining permit coverage, must record the following information. (Note: If any of the following information is provided in the permittee's AWMP, a separate record keeping effort is not required.)

Item	Large Concentrated	Other Operations
(a) Date, amount, and nutrient loading of manure, litter, or process waste water applied to each field.	Required	Required
(b) Weather conditions at the time of application and 24 hours before and after application.	Required	Not required
(c) Total amount of nitrogen and phosphorus actually applied annually to each field, including documentation of calculations of the total amount applied.	Required	Required
(d) Total amount of manure or waste water transferred or exported to other persons.	Required. Also include: (i) Date and amount of each transfer or export (ii) Name and address of each recipient (iii) Copy of the manure nutrient analysis conducted provided to the recipient [see S2.K.3, p. 11	Required
(e) Description of actions taken to correct deficiencies discovered during inspections.	Required (see S4.B.2, p. 17)	Not required

S4.E. Additional Monitoring

1. ODA may establish specific monitoring requirements in addition to those contained in this permit by administrative order. An administrative order is an agency action expressed in writing directed to a named person or named persons (ORS 183.310).

2. If a permittee experiences two or more discharges within a 24-month period that are not associated with a 25-year, 24-hour or greater rainfall event, ODA may require surface water and/or groundwater quality monitoring or transfer the permittee to an individual permit. Monitoring for the following parameters may be required: bacteria, total suspended solids, total Kjeldahl nitrogen, biochemical oxygen demand, and other nutrient indicators. If ODA waives the additional monitoring requirements because such monitoring would be impracticable or not likely to produce useful information, ODA will set out the basis for the decision in writing and make the decision available to interested parties.

corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(b) The following must be included as information which must be reported within 24 hours under this paragraph.
  (i) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See §122.41(g) or condition G16, p. 23.)
  (ii) Any upset which exceeds any effluent limitation in the permit. (See §122.41(n) or condition G17, p. 24.)
  (iii) Violation of a maximum daily discharge limitation for any of the pollutants listed by the director in the permit to be reported within 24 hours. (See §122.44(g).)

(c) The director may waive the written report on a case-by-case basis for reports under paragraph G2.6(b) of this section if the oral report has been received within 24 hours.

7. *Other noncompliance.* The permittee shall report all instances of noncompliance not reported under paragraphs G2.4, 5, and 6 of this section, at the time monitoring reports are submitted. The reports must contain the information listed in paragraph G2.6 of this section.
8. *Other information.* Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the director, it shall promptly submit such facts or information.

G3. Duty to comply [40 CFR §122.41(a)]

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

1. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
2. The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.
3. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000.

compliance with this permit. The permittee shall also furnish to the director upon request, copies of records required to be kept by this permit.

G13. Inspection and entry [40 CFR §122.41(i)]

The permittee shall allow the director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or state law, any substances or parameters at any location.

G14. Monitoring and records [40 CFR §122.41(j)]

1. Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.
2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which must be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the director at any time.
3. Records of monitoring information must include:
   (a) The date, exact place, and time of sampling or measurements;
   (b) The individual(s) who performed the sampling or measurements;
   (c) The date(s) analyses were performed;
   (d) The individual(s) who performed the analyses;
   (e) The analytical techniques or methods used; and
   (f) The results of such analyses.
4. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 unless another method is required under 40 CFR subchapters N or O.
5. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

G15. Signatory requirement [40 CFR §122.21(k)]

1. All applications, reports, or information submitted to the director shall be signed and certified. (See §122.22)
2. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

G16. Bypass [40 CFR §122.41(m)]

1. *Definitions.*
   (a) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.
   (b) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

REFERENCES

PUBLICATIONS AND SOFTWARE

Crop Fertilizer Recommendations

Nutrient Requirements for Dairy Cattle 7th Ed, 2001 Natl. Research Council
http://www.nap.edu/openbook.php?isbn=0309069971

OSU EM8978-E, June 2009 (w. of Cascades); PNW615, 2010 (e. of Cascades)
http://extension.oregonstate.edu/catalog/details.php?sortnum=0134&name=Fertilizer+Guides

Extension Service Publications

Field Corn, Eastern Oregon-East of the Cascades, FG 71, January 2000
http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20643/fg71-e.pdf

Nitrogen Uptake and Utilization by Pacific Northwest Crops, PNW 513, December 1999
http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20719/pnw513.pdf

Manure Application Rates for Forage Production, OSU EM 8585-E, July 2007
http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20536/em8585-e.pdf

Monitoring Soil Nutrients Using a Management Unit Approach, PNW 570-E, October 2003, *http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20762/pnw570-e.pdf*

Post-Harvest Soil Nitrate Testing for Manured Croppings Systems, EM 8832-E, May 2003, *http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20221/em8832-e.pdf*

Silage Corn, Western Oregon, EM 8978-E, June 2009
http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20610/em8978-e.pdf

Soil Test Interpretation Guide, OSU EC 1478, August 1999
http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/22023/ec1478.pdf

Feed Management

Feed Management, A tool for balancing nutrients on dairies and other livestock operations, EM 8913-E, July 2006
http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20501/em8913-e.pdf

Manure Application Setback Features/Distances

CAFO General Permit #1
http://oregon.gov/ODA/NRD/docs/pdf/cafo_gnlpmt.pdf

Manure Nutrient Availability

Waste Utilization Jobsheet 633 OR-JS, Oregon USDA-NRCS, May 2003
http://efotg.sc.egov.usda.gov/references/public/OR/633js042707.pdf

REFERENCES

ORAWM WORKBOOK

OREGON ANIMAL WASTE MANAGEMENT DESIGN AID (ORAWM)

Version 4.8

1/7/2014

CLIENT: PETERSON DAIRY - Permitted Herd

ASSISTED BY: Northwest Ag Consulting - Tom Thomsen

ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

ANIMAL INVENTORY

Type of Animal	Number of Animals	Average Weight (lbs.)	Animal Units (1,000 lb.)	Milk Production in Pounds/Cow/Day= 60						Manure CF/D/AU	Annual		
				Nutrient Production									
				(lbs./day/1000 lb. Animal Unit)			(lbs./day)				Days Confined	Days Grazed	Days Off Farm
				N	P	K	N	P	K				
MILKER (Jersey)	265	900	238.5	0.80	0.13	0.46	190.32	31.79	109.76	1.82	174	191	0
MILKER (DRY)	30	900	27.0	0.30	0.04	0.10	8.10	1.13	2.70	0.92	238	127	0
HEIFERS (12-24 Months)	120	600	72.0	0.27	0.05	0.12	19.15	3.28	8.64	0.90	131	234	0
CALVES (1-12 Months)	120	300	36.0	0.42	0.05	0.11	15.12	1.94	3.96	1.34	365	0	0
Totals/Averages-	535	675	373.5	0.62	0.10	0.33	232.7	38.1	125.1	1.5			

GRAZING PERIOD

Type of Animal	Percent of Month and Number of Animals Grazing												AU-YR.
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
MILKER (Jersey)	80%	33%	0%	0%	0%	33%	80%	80%	80%	80%	80%	80%	
	265	265	265	265	265	265	265	265	265	265	265	265	1,493
MILKER (DRY)	50%	33%	0%	0%	0%	33%	50%	50%	50%	50%	50%	50%	
	30	30	30	30	30	30	30	30	30	30	30	30	112
HEIFERS (12-24 Months)	100%	33%	0%	0%	0%	33%	100%	100%	100%	100%	100%	100%	
	120	120	120	120	120	120	120	120	120	120	120	120	552
CALVES (1-12 Months)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	120	120	120	120	120	120	120	120	120	120	120	120	0
													0
													0
													0
													0
													0
													0
Total AUM's Available>	0	0	0	0	0	0	0	0	0	0	0	0	0
Total AUM's Needed>>>	276	111	0	0	0	111	276	276	276	276	276	276	2,157
Total AUM's>>>>>>>>>>	-276	-111	0	0	0	-111	-276	-276	-276	-276	-276	-276	-2,157

REFERENCES

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ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

BEDDING VOLUME

Type of Animal	Type of Bedding Facility	Bedding Material	Unit Weight Lbs/CF	Amount Needed Lbs/Day/AU	Volume CF/Day/AU	Total Volume CF/Day	Total Weight Lbs/Day
MILKER (Jersey)	Free Stall	Chopped Straw	7.00	1.50	0.21	51	358
MILKER (DRY)	Free Stall	Chopped Straw	7.00	1.50	0.21	6	41
HEIFERS (12-24 Months)	Free Stall	Chopped Straw	7.00	1.50	0.21	15	108
CALVES (1-12 Months)	Confined	Loose Straw	2.50	5.00	2.00	72	180

SOLIDS SEPARATION FACTOR

Type of Animal	Type of Separator	Separation Factor %	Volume of Solids Separated CF/Day	Volume of Solids in Liquids CF/Day	Volume of Manure in Liquids CF/Day	Volume of Manure in Solids CF/Day	Accumulated Sludge in Storage CF/Day	Density of Separated Solids Lbs/CF	Weight of Separated Solids Lbs/Day
MILKER (Jersey)	Dry Scrape System	50%	242	242	217	217	186	36	8,719
MILKER (DRY)	Dry Scrape System	50%	15	15	12	12	3	36	551
HEIFERS (12-24 Months)	Dry Scrape System	50%	40	40	32	32	15	36	1,444
CALVES (1-12 Months)	Dry Scrape System	100%	120	0	0	48	0	36	4,329
Total Solids>>>			418	298	261	310	205		15,043

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ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

MONTHLY NUTRIENT PRODUCTION

Month	Pounds of Nutrients from LIQUIDS			Pounds of Nutrients from SOLIDS			Pounds of Nutrients from GRAZING			Total Pounds of Nutrients from ALL SOURCES		
	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
October	922	227	699	374	165	356	5,439	2,079	3,653	6,735	2,472	4,708
November	3,090	769	2,356	880	417	983	2,154	821	1,445	6,123	2,007	4,783
December	4,765	1,187	3,633	1,280	613	1,471	0	0	0	6,045	1,800	5,104
January	4,765	1,187	3,633	1,280	613	1,471	0	0	0	6,045	1,800	5,104
February	4,304	1,072	3,282	1,156	554	1,329	0	0	0	5,460	1,626	4,610
March	3,193	795	2,434	909	431	1,015	2,226	848	1,493	6,327	2,074	4,942
April	893	220	677	362	160	344	5,264	2,012	3,535	6,518	2,392	4,556
May	922	227	699	374	165	356	5,439	2,079	3,653	6,735	2,472	4,708
June	893	220	677	362	160	344	5,264	2,012	3,535	6,518	2,392	4,556
July	922	227	699	374	165	356	5,439	2,079	3,653	6,735	2,472	4,708
August	922	227	699	374	165	356	5,439	2,079	3,653	6,735	2,472	4,708
September	893	220	677	362	160	344	5,264	2,012	3,535	6,518	2,392	4,556
Annual	**26,483**	**6,577**	**20,165**	**8,085**	**3,771**	**8,725**	**41,928**	**16,023**	**28,156**	**76,496**	**26,371**	**57,047**

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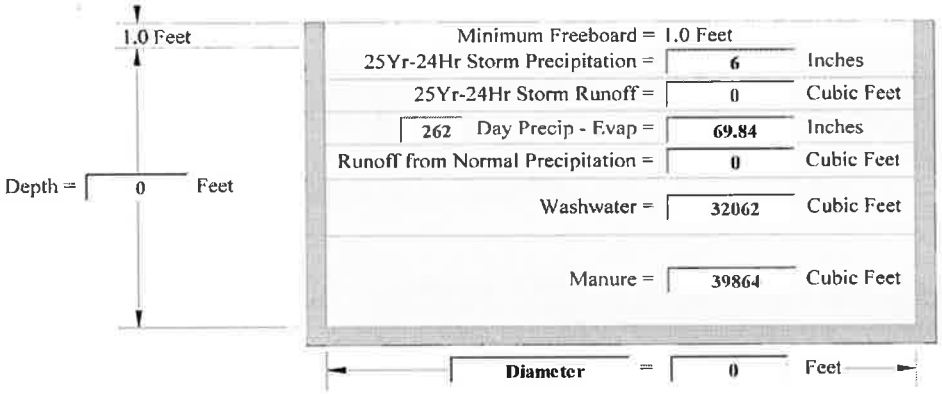
ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

Tank Parameters	Value
Storage Period, Days=	262
Tank Diameter, Feet=	0
Existing Storage, Cubic Feet=	148,770
Surface Area of Existing Storage, SF=	10,681
25 Year-24 Hour Storm Runoff, CF=	0
Volume Needed, Cubic Feet=	148,712
Design Volume, Cubic Feet=	0
Is Tank Covered?	NO
Tank Dimensions?	Circular

MONTHLY INFLOWS INTO TANK

Month	Number of days	Rain-Evap on Tank CF	Rain-Evap on Existing Storage, CF	Normal Runoff CF	Washwater CF	Solids CF	Waste to Store CF	Waste to Store Gallons
October	31	0	5,109	0	3,751	1,739	10,599	79,284
November	30	0	11,535	0	3,630	5,982	21,147	158,193
December	31	0	11,874	0	3,751	9,226	24,851	185,896
January	31	0	11,224	0	3,751	9,226	24,201	181,035
February	28	0	8,910	0	3,388	8,333	20,631	154,330
March	31	0	7,690	0	3,751	6,182	17,623	131,826
April	30	0	4,370	0	3,630	1,683	9,683	72,433
May	31	0	1,442	0	3,751	1,739	6,932	51,852
June	30	0	9	0	3,630	1,683	5,321	39,807
July	31	0	-2,020	0	3,751	1,739	3,469	25,951
August	31	0	-1,869	0	3,751	1,739	3,620	27,083
September	30	0	1,015	0	3,630	1,683	6,327	47,331
Annual	365	0	59,288	0	44,161	50,954	154,404	1,155,021



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REFERENCES

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ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

PERCENT OF MANURE TO BE APPLIED TO FIELD AND UTILIZATION ACRES NEEDED BASED ON NITROGEN, N

Field Number	Acres	Crop	LIQUIDS			SOLIDS			GRAZING		
			Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients
Dairy Fields	136.8	Perennial Hay/Pasture(Med-High Intensity)	86%	9,834	33	86%	3,002	10	86%	25,207	85
17-18-19	21.8	Perennial Hay/Pasture(Med-High Intensity)	14%	1,567	5	14%	478	2	14%	4,017	14
Off Farm			0%	0		0%	0		0%	0	
TOTALS-	**158.6**		**100%**	**11,401**	**39**	**100%**	**3,481**	**12**	**100%**	**29,224**	**99**

NUTRIENT BALANCE BASED ON AVAILABLE ACRES

Field Number	Acres	Crop	NUTRIENTS APPLIED			- NUTRIENTS REMOVED			= NUTRIENT BALANCE		
			Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre
Dairy Fields	136.8	Perennial Hay/Pasture(Med-High Intensity)	278	158	335	296	93	246	-18	64	89
17-18-19	21.8	Perennial Hay/Pasture(Med-High Intensity)	278	158	335	296	93	246	-18	64	89
Off Farm											