Feed Management Plan Template (Draft 9 22 06)

Producer's Name: _____
Address: _____

Address: _____
Town, State, Zip: _____

Farm Name: _____
Phone: _____
Fax: _____
e-mail: _____

Consultant's Name: _____
Address: _____
Address: _____
Town, State, Zip: _____

Business Name: _____
Phone: _____
Fax: _____
e-mail: _____

Planner's Name: _____
Address: _____
Address: _____
Town, State, Zip: _____

Business Name: _____
Phone: _____
Fax: _____
e-mail: _____

General Purpose and Background

Feed management is one of six components of a Comprehensive Nutrient Management Plan (CNMP) as defined by the Natural Resource Conservation Service. Feed management practices may reduce the volume and nutrient content of manure and may be an effective approach to minimizing the import of nutrients to the farm. Feed Management as part of a CNMP should be viewed as a "consideration" but not a "requirement" as some practices will not be economical on some dairies. The Feed Management Plan (FMP) is designed to assist the producer with documentation of those practices that affect whole farm nutrient management and contribute towards achieving nutrient balance at a whole farm level. Nitrogen and phosphorus are the two nutrients that are required to be managed as part of a FMP in a CNMP. When nitrogen and phosphorus imports exceed nitrogen and phosphorus exports there is an imbalance at a whole farm level. These imbalances may lead to impaired water quality in nearby water bodies due to both surface runoff or leaching of nutrients to ground water. Excess nitrogen can also be volatilized and contribute to impaired air quality. Potassium is a nutrient that can lead to production and health problems if it is not monitored in dairy rations, therefore it is included as a nutrient to monitor.

Specific Purpose

- ☐ **Supply the quantity of available nutrients required by livestock and poultry for maintenance, production, performance, and reproduction; while reducing the quantity of nutrients, especially nitrogen and phosphorus, excreted in manure by minimizing the over-feeding of these and other nutrients.**
- ☐ **Improve net farm income by feeding nutrients more efficiently.**

Date Plan Written: _____

The Plan will be reviewed at (what interval, i.e. yearly) and by whom: _____

Specific Farm Information

Dairy Cattle: Animal information	**Group 1**	**Group 2**	**Group 3**	**Group 4**	**Group 5**	**Group 6**	**Group 7**
RHA		-	-	-	-	-	-
Define Groups (i.e. production level, dry, heifers)							
Average Number of animals in groups							
Average Milk Production							
Average Milk True Protein %							
Facility Housing Animals: name/ description							
Portion of Manure collected %							
Manure Total Solids (%)*:							
Manure: Solid or Liquid?							
Ration Information							
Ration ID							
Indicate how the following information will be reported -Wet or Dry basis?							
Feed intake							
Ash							
Dietary CP							
Dietary P							
Dietary K							

Manure Management and Application

Producer's name of animal facility or location ***Identify most closely matching manure system:***	**Facility 1**	**Facility 2**	**Facility 3**	**Facility 4**
Open lot or feedlot - scraped or stockpiled solids				
Open lot or feedlot - composted solids				
Manure pack under roof				
Manure pack under roof –composted				
Bedded pack for swine (e.g. hoop building)[1]				
Bedded pack & compost for swine1 (e.g. hoop building).				
Solid/semi-solid manure & bedding held in roofed storage				
Solid/semi-solid manure & bedding held in unroofed storage				
Liquid/slurry storage in covered storage				
Liquid/slurry storage in uncovered storage				
Storage (pit beneath slatted floor)				
Poultry manure stored in pit beneath slatted floor				
Poultry manure on shavings or sawdust held in housing				
Poultry manure on shavings or sawdust held in housing - Composted				
1-Cell anaerobic treatment lagoon				
Multi-cell anaerobic treatment lagoon				
Is runoff Collected? Yes/No				
Additional Notes:				

Manure Application Choices	**Facility 1**	**Facility 2**	**Facility 3**	**Facility 4**
Feedlot spreading order 1=closest 4=longest				
Selected Application Equipment Complement				
Truck Mounted -				
3000 gallon tanker				
5000 gallon tanker				
7000 gallon tanker				
16 ton spreader				
20 ton spreader				
22 ton spreader				
28 ton spreader				

Tractor Pulled -				
3000 gallon tanker surface				
3000 gallon tanker injection				
4200 gallon tanker surface				
4200 gallon tanker injection				
6000 gallon tanker surface				
6000 gallon tanker injection				
9500 gallon tanker surface				
9500 gallon tanker injection				
10 ton spreader				
16 ton spreader				
20 ton spreader				
22 ton spreader				
Terragator				
Travelling Gun -Alum pipe - 300 gpm, 250' width				
Travelling Gun -Alum pipe - 400 gpm, 300' width				
Travelling Gun -Delivery Hose - 300 gpm, 250' width				
Travelling Gun -Delivery Hose - 400 gpm, 300' width				
Application Method				
Injection				
Immediate Incorporation				
Sprinkler Irrigation				
Surface Broadcast				
Days from Broadcasting to Incorporation				
Soil Conditions				
Warm, Dry Soils				
Warm, Wet Soils				
Cool Soils				
Equipment Operating Parameters				
Road Speed (mph)/Pipe laydown speed				
Field Speed (mph)/Single irrigation application rate				
Swath Width (feet)				
Nurse tank/truck hauling to field? Yes/No				
Manure transportation for long distances				
Liquid tanker truck				
OTR Nurse truck - 10 tons dry haul				
OTR Nurse truck - 15 tons dry haul				
OTR Nurse truck - 20 tons dry haul				
Number of Spreader Rigs				

Type of Manure Liquid/Solid				
Traveling Gun Option specific input:				
Number of passes before TG moved to next field				
TG per pass setup (hours)				
Irrigation supply method				
Aluminum pipe				
Delivery hose				
Additional Notes:				

Summary of Feeding Practices and Equipment/Technologies utilized on the farm

Narrative of those practices that have been adopted and/or insert the completed Feed Management Plan Checklist.

Include how diet formulation was achieved, to what standards (i.e., NRC or proprietary recommendations, etc).

Indicate when lab analyses were conducted on feeds and by what lab.

Indicate if nutrient analysis of drinking water was included in diet formulation.

Note the expected volume of manure excreted on manure storage requirements.

Note the potential of any feed byproducts fed and their impact on nutrients in manure.

Note the impact of feed management practices, animal management practices, and diet manipulation on manure odors, pathogens, animal health and well-being.

Note use of manure on farm for production of forages and crops.

Make note of use of manure analysis (as excreted or stored) to estimate the impact of feeding strategies.

Record of Feed Sampling and Feed Analysis

Describe routine feed analysis plan.

- What feeds need to be sampled and when
- What analyses need to be performed

Note why feeding rates for N and P may differ from recommendations (i.e. it is less expensive).

The following records need to be kept for five years:

- Feed analysis
- Ration formulation, including initial ration formulation prior to development of FMP.
- Initial estimate of the impact of adopted feed strategies on manure content.
- Record of any manure analysis that was done after the feeding strategy was implemented.

Recommendations:

This section should summarize the feed management practices that need to be implemented.

Dairy Feed Management Plan Template (Draft 9 22 06)

Producer's Name:	A & J Werks
Address:	18125 Loop Drive
Address:	
Town, State, Zip:	Eeornom, WA 00123
Farm Name:	A & J Werks Dairy
Phone:	345-906-9087
Fax:	
e-mail:	
Consultant's Name:	D Wilks, PhD PAS and J Harrison
Address:	Dan Emmott, WA 99089
Address:	
Town, State, Zip:	
Business Name:	Nutrition for Profit and Stewardship
Cell Phone:	890-786-1234
Fax:	
e-mail:	
Planner's Name:	Lara, Ron, Becca, and Mike
Address:	
Address:	Helens View Lane
Town, State, Zip:	Oly, WA 76539
Business Name:	Nutrient Management Advocates Inc
Phone:	
Fax:	
e-mail:	

General Purpose and Background

Feed management is one of six components of a Comprehensive Nutrient Management Plan (CNMP) as defined by the Natural Resource Conservation Service. Feed management practices can reduce the volume and nutrient content of manure and contribute to minimize the import of nutrients to the farm. Feed Management as part of a CNMP should be viewed as a "consideration" but not a "requirement" as some practices will not be economical on some dairies. The Feed Management Plan (FMP) is designed to assist the producer with documentation of those practices that affect whole farm nutrient management and contribute towards achieving nutrient balance at a whole farm level. Nitrogen and phosphorus are the two nutrients that are required to be managed as part of a FMP in a CNMP. When nitrogen and phosphorus imports exceed nitrogen and phosphorus exports there is an imbalance at a whole farm level. These imbalances may lead to impaired water quality in nearby water bodies due to both surface runoff or leaching of nutrients to ground water. Excess nitrogen can also be volatilized and contribute to impaired air quality. Potassium is a nutrient that can lead to production and health problems if it is not monitored in dairy rations, therefore it is included as a nutrient to monitor.

Specific Purpose

X	Supply the quantity of available nutrients required by livestock and poultry for maintenance, production, performance, and reproduction; while reducing the quantity of nutrients, especially nitrogen and phosphorus, excreted in manure by minimizing the over-feeding of these and other nutrients.
X	Improve net farm income by feeding nutrients more efficiently.

Date Plan Written:	June 21, 2006
The Plan will be reviewed at (what interval, i.e. yearly) and by whom:	Yearly in June

Specific Farm Information

Dairy Cattle: Animal information	**Group 1**	**Group 2**	**Group 3**	**Group 4**	**Group 5**	**Group 6**	**Group 7**
RHA	Herd 29,000 #	-	-	-	-	-	-
Define Groups (i.e. production level, dry, heifers)	Fresh	Pen 1	Pen 2	Pen 3	Pen 5	Pen 6	Pen 7 mastitis
Average Number of animals in groups	66	128	130	94	91	91	89
Average Milk Production	95	100	98	82	76	85	80
Average Milk True Protein %	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Facility Housing Animals: name/ description							
Portion of Manure collected %	100	100	100	100	100	100	100
Manure Total Solids (%)*:	9	9	9	9	9	9	9
Manure: Solid or Liquid?	L	L	L	L	L	L	L
Ration Information							
Ration ID							
Indicate how the following information will be reported -Wet or Dry basis?	DM	DM	DM	DM	DM	DM	DM
Feed intake	41	61	61	56	53	56	59
Ash	8	8	8	8	8	8	8
Dietary CP	18.5	18.5	18.5	18.5	18.5	18.5	18.5
Dietary P	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Dietary K	1.51	1.51	1.51	1.51	1.51	1.51	1.51

Dairy Cattle: Animal information	**Group 8**	**Group 9**	**Group 10**	**Group 11**	**Group 12**	**Group 13**	**Group 14**
RHA	Herd 29,000 #	-	-	-	-	-	-
Define Groups (i.e. production level, dry, heifers)	Heifers to 400#	Dry Cows					
Average Number of animals in groups	246	90					
Average Milk Production							
Average Milk True Protein %							
Facility Housing Animals: name/ description							
Portion of Manure collected %	100	100					
Manure Total Solids (%)*:	2.4	5.0					
Manure: Solid or Liquid?	L	L					
Ration Information							
Ration ID							
Indicate how the following information will be reported -Wet or Dry basis?	DM	DM	DM	DM	DM	DM	DM
Feed intake	9	32					
Ash	8	8					
Dietary CP	13	14					
Dietary P	0.28	0.35					
Dietary K	0.5	1.18					

Manure Management and Application

Producer's name of animal facility or location ***Identify most closely matching manure system:***	**Facility 1**	**Facility 2**	**Facility 3**	**Facility 4**
Open lot or feedlot - scraped or stockpiled solids				
Open lot or feedlot - composted solids				
Manure pack under roof				
Manure pack under roof -composted				
Bedded pack for swine (e.g. hoop building)[1]				
Bedded pack & compost for swine1 (e.g. hoop building).				
Solid/semi-solid manure & bedding held in roofed storage				
Solid/semi-solid manure & bedding held in unroofed storage				
Liquid/slurry storage in covered storage				
Liquid/slurry storage in uncovered storage				
Storage (pit beneath slatted floor)				
Poultry manure stored in pit beneath slatted floor				
Poultry manure on shavings or sawdust held in housing				
Poultry manure on shavings or sawdust held in housing - Composted				
1-Cell anaerobic treatment lagoon	XXXXX			
Multi-cell anaerobic treatment lagoon				
Is runoff Collected? Yes/No				
Additional Notes:				

Manure Application Choices	**Facility 1**	**Facility 2**	**Facility 3**	**Facility 4**
Feedlot spreading order 1=closest 4=longest				
Selected Application Equipment Complement				
Truck Mounted -				
3000 gallon tanker				
5000 gallon tanker				
7000 gallon tanker				
16 ton spreader				
20 ton spreader				
22 ton spreader				
28 ton spreader				

Tractor Pulled -				
3000 gallon tanker surface				
3000 gallon tanker injection				
4200 gallon tanker surface				
4200 gallon tanker injection				
6000 gallon tanker surface				
6000 gallon tanker injection				
9500 gallon tanker surface				
9500 gallon tanker injection				
10 ton spreader				
16 ton spreader				
20 ton spreader				
22 ton spreader				
Terragator				
Travelling Gun -Alum pipe - 300 gpm, 250' width				
Travelling Gun -Alum pipe - 400 gpm, 300' width				
Travelling Gun -Delivery Hose - 300 gpm, 250' width				
Travelling Gun -Delivery Hose - 400 gpm, 300' width				
Application Method				
Injection	XXXXX			
Immediate Incorporation				
Sprinkler Irrigation				
Surface Broadcast				
Days from Broadcasting to Incorporation				
Soil Conditions				
Warm, Dry Soils				
Warm, Wet Soils				
Cool Soils				
Equipment Operating Parameters				
Road Speed (mph)/Pipe laydown speed				
Field Speed (mph)/Single irrigation application rate				
Swath Width (feet)				
Nurse tank/truck hauling to field? Yes/No				
Manure transportation for long distances				
Liquid tanker truck				
OTR Nurse truck - 10 tons dry haul				
OTR Nurse truck - 15 tons dry haul				
OTR Nurse truck - 20 tons dry haul				
Number of Spreader Rigs				

Type of Manure Liquid/Solid				
Traveling Gun Option specific input:				
Number of passes before TG moved to next field				
TG per pass setup (hours)				
Irrigation supply method				
Aluminum pipe				
Delivery hose				
Additional Notes:				

Summary of Feeding Practices and Equipment/Technologies utilized on the farm

Narrative of those practices that have been adopted and/or insert the completed Farm Plan Assessment Checklist. See checklist for practices that have been adopted.

Include how diet formulation was achieved, to what standards (ie., NRC or proprietary recommendations, etc).

Diets are formulated according to NRC Nutrient requirements of Dairy Cattle, 2001 and adjusted based on field experience with high producing herds (30,000#).

Lactating – There are seven groups of lactating cows. The lactating cows are grouped as follows: Fresh pen – fresh cows less than 30-40 DIM and at 80% pen capacity; Pen 1 & 2 – large cows and > than 40 DIM; Pens 3, 5, 6 – heifers and small cows; and, Pen 7 – mastitis cows that are segregated. The lactating cows are fed the same TMR and based on DMI. Trace minerals and vitamins are formulated for production and health. Cows are offered a TMR once per day and feed is pushed up 4 times per day. Cows are fed for minimal feed refusal, 5% refusal rate. Feed bunks are cleaned daily. Feed is loaded into the mixer wagon equipped with load cells in the sequence based on manufacturer recommendations and modified based on quality of alfalfa hay. Commodity feeds are stored in 30 ton commodity bays and mixed twice per week into a complete mixed grain for daily use in the TMR mix. On a daily basis, alfalfa hay, corn silage, complete mixed grain, molasses, and water are mixed to form the TMR. Individual feeds currently used consist of: processed corn silage, alfalfa hay, wheat straw, whole cotton seed, steam rolled corn, beet pulp, canola meal, soybean meal, porcine blood meal, dried distillers grains, molasses, and vitamin-mineral pre-mix. In addition, yeast and rumensin, are fed, and rBST is administered.

Tools – Monitoring tools include: MUN, N intake/N Output, water quality, and feed efficiency (lbs milk/lbs DMI).

Forage Management practices include: maximizing use of home grown corn silage, harvest crop at optimum maturity, silage storage BMPs, storing hay according to quality, processing corn silage, and analyzing silages and hay for quality parameters.

Dry cows – Three to 4 weeks prepartum dry cows are fed corn silage, low potassium and low DCAD hay and a complete grain formulated with the forage analyses. The grain contains protein sources, corn, beet pulp along with all vitamins, minerals and yeast needed by close-up cows. At dry off until 3 to 4 weeks prepartum, cows are fed push out from the lactating herds along with feeder quality hay.

Calves – Calves are milk fed (pasteurized waste milk) at a rate of 4 qts twice a day for 7 weeks and offered starter grain at 2-3 days of age. Calves are weaned at 8 weeks of age.

Heifers – Heifers from 2 months of age until 400 # are fed calf grower grain and high quality hay. Heifers are transported to a heifer raiser from 8 months to 21 months of age. Water troughs are cleaned twice per week.

Indicate when lab analyses were conducted on feeds and by what lab.

Lab analyses are conducted on commodity feeds every 6 months by Custom Dairy Services in Lynden, WA. Commodities are analyzed for moisture, protein, ADF, NDF and macro minerals.

Alfalfa is purchased based on test and analyzed on a monthly basis.
Corn silage is analyzed for DM every few days upon opening a new pit and then approximately every 4 months. Corn silage is analyzed more frequently at the beginning of the bunk. As analyses become consistent, the frequency is reduced to approximately every 4 to 6 months. Both alfalfa and corn silage are analyzed for moisture, protein, NDF, macro minerals along with sulfur and chlorine.

Indicate if nutrient analysis of drinking water was included in diet formulation.

Water is analyzed for nitrates. Nutrients that may be in the water are not formulated into diets.

Note the expected volume of manure excreted on manure storage requirements.

Expected volume of manure is 93,499, 572 # or 1,497,961 cu ft and based upon the ASAE manure excretion estimator.

Note the potential of any feed byproducts fed and their impact on nutrients in manure.

No high phosphorus byproducts are currently fed and no phosphorus is added to either the lactating or dry cow minerals.

Note the impact of feed management practices, animal management practices, and diet manipulation on manure odors, pathogens, animal health and well-being.

Animals are fed according to 2001 NRC Nutrient requirements for dairy cattle. No specific additional feed management practices have been adopted for odors or pathogens. Animals are housed in free-stalls of sizes according to industry standards. Animals are housed in capacity of 100 – 120 % of stall numbers.

Note use of manure on farm for production of forages and crops.

Manure solids and manure laden sand is exported off-farm. All liquid manure is used for production of corn silage.

Make note of use of manure analysis (as excreted or stored) to estimate the impact of feeding strategies.

As excreted nutrients in manure were estimated with the ASAE manure excretion estimator. See on-farm file for specific values.

Record of Feed Sampling and Feed Analysis

Describe routine feed analysis plan.

- What feeds need to be sampled and when
- What analyses need to be preformed
-

Alfalfa hay is purchased based on test for NDF and CP.

Corn silage is tested for protein, NDF, macro minerals and sulfur and chlorine every 4 months.

Commodity feeds are tested for moisture, protein, ADF, NDF and macro minerals every 6 months.

Water is tested monthly for nitrates.

DM of corn silage is tested weekly on-farm.

Note why feeding rates for N and P may differ from recommendations (i.e. it is less expensive).

No additional sources of P are included in the ration. Higher levels of phosphorus have been fed in the past with no reduction in performance when removed from the ration.

Nitrogen is adjusted based on MUN levels in the milk over time.

<u>The following records need to be kept for five years</u>:

- Feed analysis
- Ration formulation, including initial ration formulation prior to development of FMP.
- Initial estimate of the impact of adopted feed strategies on manure content.
- Record of any manure analysis that was done after the feeding strategy was implemented.

Recommendations:

This section should summarize the feed management practices that need to be implemented.

- It is recommended if economics are favorable that the following practices be implemented:
- Reduce diet CP by 1 % unit with addition of quality RUP sources and amino acid supplements.
- Increase particle size of processed corn silage.

Consider growing grass silage to replace some import of feed nit