

Feed Management Plan Template (01. 25. 09)

Producer's

Name: Anonymous Farm

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

Feeding 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- Collect for manure volume and nutrient excretion estimate

1) Enter animal information (Step 2)

A) Dairy Cattle:	Group 1	Group 2	Group 3
Define Groups (i.e. production level, dry, heifers)	Milking	Dry	Springing Heifers
<i>Group Animal Data:</i>			
Average weight	1350	1500	800
Average Milk True Protein %	3.0		
Average Milk Production lbs	80.0		
Average Number of animals in group	100	11	34
% Manure collected	100%	Hauled as needed	
<i>Group Ration Information:</i>			
Indicate how the following information will be reported -Wet or Dry basis?			
If Wet basis, what is the diet DM?	53%	61%	63%
Feed intake lbs/ cow/ day	50.5	33	17
Dietary %CP	16.4	14.5	12
Dietary %P	0.36	0.34	0.33
Dietary %K	1.44	1.26	1.7 gets additional grass hay
Ration cost (\$/hd/day)			

Rolling Herd Average? 25,000

Manure Management and Application- Additional data collection for FNMP\$ evaluation tool (*step # refers to step in FNMP\$ tool*). Manure storage and application information can be used to estimate storage nutrient losses and crop available nutrients.

List group numbers from above to matching facility types. Continue through data collection table describing each facility and how manure is managed.

2a) Producer's name of manure management facility/system or location (Step1)

Identify most closely matching manure system:

Choose One

<i>Group #s/ Producer's name</i>	EXAMPLE	Facility 1	Facility 2
	Slurry: groups 1&2 (lactating cows)	Milk cows	
Open lot or feedlot - scraped or stockpiled solids			
Open lot or feedlot - composted solids			
Runoff Collection System from Open Lot			
Manure pack under roof			
Manure pack under roof -composted			
Bedded pack for swine (e.g. hoop building)			
Bedded pack & compost for swine (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	X	X	
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			
Lagoon, solids removed annually for Dairy			

2b)

Is runoff Collected (feedlot only)? Yes/No (Step 2 cont)	NO	NO	
Additional Notes:			
Scrape before rain so not much runoff			

Only dry cows and heifers have access to outside

3) **Manure Application Method (Step 4)**

<i>Choose one</i>	EXAMPLE	Facility 1	Facility 2
Injection		X Most liquid goes this route	
Immediate Incorporation			
Sprinkler including pivot			
Big Gun Irrigation			
Flood irrigation			
Dragline with injection toolbar			
Dragline with Aerway toolbar			
<i>Surface Application:</i>			
Dragline- Surface application			
Surface Broadcast	X	X (2 loads/yr of liquid and heifer/DC)	

a. Days from application to Incorporation	1	1	
b. soil conditions: Cool Soils Warm, Wet Soils Warm, Dry Soils	COOL SOILS		

4) Manure characteristics (Step 3)

	EXAMPLE	Facility 1	Facility 2
% Ash (Optional)			
Harvested (after Storage; if sand or soil is added)	20%		
Dry weight of Bedding added (tons/ yr) <i>Excluding soil or sand</i>	Sand	Peanut hulls- MC Corn fodder- DC/heifers	
% Moisture	92%		
Liquid or slurry? Yes/ No	YES	YES	
Additional Manure Characteristics (Optional) (Step 4a&b)			
% N retention	unknown	unknown	

5) Equipment characteristics for manure application (Step 5)

Choose One: I, II, OR III

	EXAMPLE	Facility 1	Facility 2
<u>I. Spreader or Tanker Application:</u> Injection, immediate incorporation, OR surface broadcast			
a. Equipment (Choose One)			
Truck Mounted -			
3000 gallon tanker			
4000 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	X		
4200 gallon tanker injection			
6000 gallon tanker surface			
6000 gallon tanker injection		X	
9500 gallon tanker surface			
9500 gallon tanker injection			
10 ton spreader		X	
16 ton spreader			
20 ton spreader			
22 ton spreader			
<i>b. Operating parameters (**Optional)</i>			
Road Speed (mph)/Pipe laydown speed**	UNKNOWN		
Field Speed (mph)/Single irrigation application rate**			
Swath Width (feet)**	20		
Number of application rigs	2		

5) cont.

EXAMPLE

Facility 1

Facility 2

II. Towed Hose Application:			
Dragline with injection toolbar, Dragline with Aerway toolbar, OR Dragline- Surface application			
a. Equipment (Choose One)			
Liquid/ Slurry Supply method			
Aluminum Pipe			
Delivery hose			
Dragline hose			
b. Operating parameters (**Optional)			
Number of Rigs			
Pipe/hose laydown speed (hours/mile)**			
Average field speed (mph)**			
Application Swath Width (feet)**			
Number of passes before equipment is moved to next field**			
Setup time per subfield (hours)**			
Maximum application rate (1000 gal/acre/pass)**			
Length of dragline hose**			
III. Big Gun Application:			
a. Equipment (Choose One)			
Traveling Gun -Alum pipe - 300 gpm, 250' width			
Traveling Gun -Alum pipe - 400 gpm, 300' width			
Traveling Gun -Delivery Hose - 300 gpm, 250' width			
Traveling Gun -Delivery Hose - 400 gpm, 300' width			

<i>b. Operating parameters (**Optional)</i>			
Pipe/hose laydown speed (hrs/mile)**			
Average pull speed (hrs/mile)**			
Irrigation spray spread width (ft) **			
Number of passes before equipment is moved to next field**			
Setup time per subfield (hrs)**			
Maximum application rate (1000 gallons/acre/pass)**			
Length of travel for one pull**			
Liquid/Slurry Supply method (<i>choose one</i>)			
Aluminum Pipe			
Delivery hose			
Dragline hose			
Number of traveling guns			

**6) Equipment characteristics for Nurse Tank or Truck
(Spreader, Tanker, OR Towed Hose Application only)(Step 5)**

	EXAMPLE	Facility 1	Facility 2
Nurse tank/truck hauls manure to field? Yes/No	YES		
<i>If YES, Nurse Tank/ Truck for hauling to field: (choose one)</i>			
Liquid tanker truck	X		
OTR Nurse truck - 10 tons dry haul			
OTR Nurse truck - 15 tons dry haul			
OTR Nurse truck - 20 tons dry haul			
Number of Nurse tank/ truck rigs	1		

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.

Include how diet formulation was achieved, to what standards (ie., NRC or proprietary recommendations, etc). **Diets are formulated using the feed companies ration formulation software. Protein and phosphorus levels are formulated close to the animal's requirements. Lactating cows are housed in a tie-stall barn. The producer is capable of keeping the fresh cows in one quarter of the barn and top-dresses some extra grain.. The herd is fed a one group TMR. The nutritionist checks dry matters on the forages, however, samples are analyzed routinely when any obvious change occurs. Dry matter intake is monitored. Dry cows and heifers are housed at the farm. Their diets are adjusted routinely.**

Indicate when lab analyses were conducted on feeds and by what lab.
Feeds are analyzed when there is an obvious change in forages. The samples are sent to the company's lab in Minnesota.

Indicate if nutrient analysis of drinking water was included in diet formulation.
Water is added to the TMR and it is not included in the ration analysis but it is tested in addition to the milk company's testing.

Note the expected volume of manure excreted on manure storage requirements.
The expected manure excreted per year for the lactating cows is 5,678,744 lbs or 668,088 gallons. The manure storage holds 450,000 gallons.

Note the potential of any feed byproducts fed and their impact on nutrients in manure.
Distillers grains and baker product are being fed. At the current feeding level it is unlikely these byproducts will increase the P or N being excreted.

Note the impact of feed management practices, animal management practices, and diet manipulation on manure odors, pathogens, animal health and well-being.
There are no issues related to the above.

Note use of manure on farm for production of forages and crops.
It is land applied 2x/yr. In the fall they inject and then no-tilled in barley or rye. In spring they spread and incorporate in 1-2 days.

Make note of use of manure analysis (as excreted or stored) to estimate the impact of feeding strategies.
Fecal samples were taken from the lactating and dry cow group. Fecal P will be used to monitor ration P levels.

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:

Records of feed analysis and ration formulation, including initial ration formulation prior to development of FMP.

Record of the 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.

Record of Feed Sampling and Feed Analysis

Two groups of animals have been selected for the feed management plan, the lactating cow group and dry cows. Fecal samples will be taken from these 2 groups prior to the implementation of the feed plan. TMR samples will be taken. The herd has MUNs analyzed via the milk coop several times throughout the month. The fecal samples and the TMRs will be submitted to Cumberland Valley Analytical Lab. The TMRs will be analyzed for protein, protein fractions, fiber and minerals. Excluding the base line samples, samples will be taken 4 times per year to represent the various seasons.

The baseline data will be evaluated to examine opportunities for improvement based on nitrogen and phosphorus. The following information will be monitored and evaluated. If there appears to be discrepancies in the formulated ration vs. the actual rations, the reason for these will be investigated and the problem area corrected.

Information monitored:

- 1. Monitor dry matter intake. I will compare the amounts being fed to the groups and compare that to the dry matter percent from the TMR analysis to evaluate if there is good agreement.**
- 2. I will average 3 bulk tank pick-ups and compare that information to what is observed on DHIA and match the formulated ration more closely to actual milk production.**

- 3. I will monitor MUNs over time to evaluate if they are responding to ration changes.**
- 4. I will calculate dry matter intake efficiency on actual data. (#1)**
- 5. I will calculate milk nitrogen efficiency to evaluate if the herd is maintaining consistency and/or if improvements need to be made in protein and CHO nutrition.**
- 6. I will monitor the agreement in protein level in the formulated ration vs. the actual TMR analysis.**
- 7. I will monitor the phosphorus percent from the fecal samples to determine if ration changes are being reflected in the manure analysis.**
- 8. I will monitor P as a percent of requirement based on the formulated diet and the actual diet (DMI and TMR analysis).**

Opportunities based on baseline data:

Phosphorus:

- 1. Fecal P for the lactating cows is high at 0.96% of dry matter. The fecal P for the dry cows is in line.**
- 2. For the lactating cows, as a percent of requirement, P is around 100%. There is pretty good agreement between the formulated and the actual ration for both dry matter intake and P intake.**
- 3. Since the ration levels for P are in line, I will focus my attention on the cows I sample for manure analysis and work on ensuring a representative sample. I will also check that cows are not receiving any free-choice mineral or any additional grain that contains added P.**

Protein:

- 1. For the lactating group, protein status based on MUNs and MNE are good. Maintain these levels.**
- 2. The milk cow TMR protein tested right on with the formulated diet and the dry cows came back slightly lower than formulated. I will work with the producer to gain better control over the amounts being weighed and fed to the dry cows.**

General:

- 1. The dry matter intake efficiency is very good for the lactating. The dry matter intake for the dry cows was lower than formulated. This is probably due to the producer adding haylage when the formulated diet just had CS and hay.**