WIN²ME
Western Integrated Nutrition and Nutrient Management
Feed Management Education for the Agri-Professional

107 - Introduction to Feeding Management, NRCS Comprehensive Nutrient Management Planning, and Whole Farm Balance

Disclaimer
This fact sheet reflects the best available information on the topic as of the publication date.

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Introduction

Feeding management is one of six components of a Comprehensive Nutrient Management Plan (CNMP). In total, a CNMP includes: 1) Feed Management, 2) Manure and Wastewater Handling and Storage, 3) Nutrient Management, 4) Land Treatment, 5) Record Keeping, and 6) Other Manure and Wastewater Utilization Options. Guidance for the development of a CNMP can be found at http://www.nrcs.usda.gov/programs/afo/.

"Feed management activities may be dealt with as a planning consideration and not as a requirement"

"Feed management activities may be used to reduce the nutrient content of manure that may result in less land being required to effectively utilize the manure. Feed management activities may be dealt with as a **planning consideration** and **not as a requirement** that addresses specific criteria; however, AFO owners and/or operators are encouraged to incorporate feed management as part of their nutrient management strategy." NRCS http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/H_180_600_E_54.htm

Factors that might be considered under the topic of feeding management include: ration formulation, ration evaluation (nutrient analyses by a lab), routine forage and grain analyses, adoption of silage best management practices, use of production enhancers (rBST for dairy), phase feeding, drinking water quality, bunk management, amino acid supplementation, low phytic acid corn, and enzymes. Fact sheets have been developed by this project and can be requested from Joe Harrison at Harrison@puyallup.wsu.edu. Species specific fact sheets are available from the Federation of Animal Science Societies at http://www.fass.org/Factsheet.htm

Nutrient management at the whole farm level includes consideration of import of nutrients to the farm, movement and transformation of a given nutrient within the farm operation, and export of nutrients off-farm in the form of meat, milk, or eggs. In contrast to nitrogen, phosphorus (P) is not lost to the atmosphere and therefore, what isn't exported from the farm remains within the farmstead or possibly lost due to leaching.

Dairy Example

Dairy farms typically import P in several different products such as feed (grains, byproduct feeds, and forage), bedding such as straw or shavings, and fertilizer (see figure 1). Most dairies in the Northwest are met importers of nutrients since their land base for forage or grain production is not enough to meet the total dietary needs of the herd. In order to achieve balance, more emphasis will need to be placed on P export in manure.

A quick way to get an estimate of farm balance for P in a dairy operation is to compare milk export of P to farm import of P in feeds. If feed import of P = milk export of P, the farm theoretically is in balance. Milk export can be calculated by multiplying the % P in milk (0.09%). An example would be 500 cows x 85 pounds of milk/day x 0.09% P in milk = 38.25 pounds/day. For the farm to be in balance, the import of P would need to approximate 38 pounds per day.

Economics

Phosphorus is one of the more expensive nutrients to supplement. Feeding P at 100% of NRC recommendations vs 120% can result in substantial savings in feed costs. This can amount to $1400 to $1800 per 100 cows per year in some situations.

Summary

Achieving on-farm balance of nutrients will require the evaluation of all imports and exports to determine where opportunities exist for reductions. Key points to evaluate are: imported feedstuffs, home grown feeds, fertilizer, and export of manure. Each farm will have their own unique opportunities to develop a plan to achieve balance.

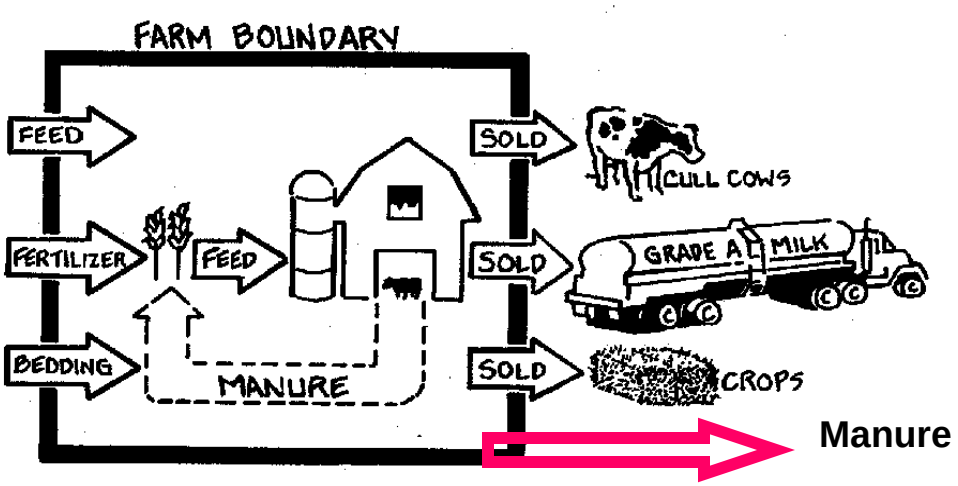

Figure 1. Whole Farm Nutrient Balance (source: Whatcom County BMP manual).

References:

Nutrient Requirements of Dairy Cattle. 7th revised edition, 2001. National Research Council. National Academy Press.

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Hart, J, M Gangwer, M Graham, and E Marx. 1996. Nutrient management for dairy production: Dairy manure as a fertilizer source. Oregon State University Extension Service, EM # 8586.

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