USDA
NATURAL RESOURCES
CONSERVATION SERVICE

MARYLAND CONSERVATION
PRACTICE STANDARD

FEED MANAGEMENT

CODE 592
(No. of Systems and AUs Affected)

DEFINITION

Managing the quantity of available nutrients fed to livestock and poultry for their intended purpose.

PURPOSE

This practice may be applied for one or both of the following purposes:

1. To 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;

2. To improve net farm income by feeding nutrients more efficiently.

CONDITIONS WHERE PRACTICE APPLIES

Any livestock and poultry operations with a whole farm nutrient imbalance, with more nutrients imported to the farm than are exported and/or utilized by cropping programs.

Any livestock and poultry operations that have a significant build up of nutrients in the soil due to land application of manure.

Any livestock and poultry operations that land apply manure and lacks sufficient acreage so that nutrients can be applied at rates that do not exceed Maryland's Nutrient Management regulations and University of Maryland Cooperative Extension crop production recommendations.

Livestock and poultry operations that seek to enhance nutrient efficiencies.

CONSIDERATIONS

Consider nutrient requirements for production based upon stage of growth, intended purpose of the animal and the type of production (e.g., meat, milk, eggs) involved.

Use management practices described in the NRCS Nutrient Management (Feed Management) Technical Notes for the specific animal species.

Analyzing the drinking water consumed by the animals to determine its nutrient content, and adjusting the diet to account for this source of nutrients

Consider the impacts of using different feed ingredients (e.g. by-products) on the nutrient content of excreted manure.

Consider the potential impact of feed management on the volume of manure excreted and on manure storage requirements.

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

Maximize the use of grains, forages and concentrates grown on the farm to minimize the quantity of nutrients imported to the farm, and to maximize the recycling of nutrients on the farm.

CRITERIA

General Criteria Applicable to All Purposes

The diets for specific species of animals shall be developed in accordance with recommendations from one of the following:

1. Standards outlined in the most current recommendations of the National Research Council (NRC);

2. Recommendations of a land grant university;

3. Standards developed by the professional nutritionists of livestock and poultry production companies, feed companies, and/or feed suppliers.

Laboratory analysis shall be done on the formulated diet, or on the feed ingredients used to formulate the diet, to determine its nutrient content.

Feed analyses shall be conducted by laboratories whose tests are accepted by the University of Maryland Cooperative Extension. Data from analyzed feed ingredients and/or appropriate historic feed analysis information for the operation will be used for adjustments of ration formulation.

Diets and feed management strategies shall be developed by professional animal scientists, independent professional nutritionists, or other professionals who are proficient in animal diet technologies and whose qualifications have been reviewed and approved by Maryland NRCS. When required by state policy or regulation, animal nutritionists shall be certified through a certification program recognized by the State of Maryland.

Diets shall be formulated to provide the quantities and correct relative ratios of available nutrients required by the animal species to meet the goals for which the plan is being developed.

Adjustments to nutrient levels shall be provided to meet specific genetic potential, environmental demands, and/or requirements to insure health, well-being and productivity.

One or more of the following feed management practices and/or diet manipulation technologies shall be used to reduce N, P and other excreted nutrients while maintaining the health, well-being and productivity of the animal:

1. Formulating diets closer to animal requirements;

2. Reducing protein and supplementing with amino acids (non-ruminants);

3. Manipulating the crude protein and energy (carbohydrate and fat) content of the diet to enhance the availability of amino acids (ruminants);

4. Using highly digestible feeds, as appropriate, in the diet;

5. Using phytase and reducing the supplemental phosphorus content of the diet (non-ruminants);

6. Reducing the phosphorus content of the diet of ruminants when it is being overfed;

7. Using selected enzymes or other products to enhance feed digestibility or feed use efficiency;

8. Using growth promotants as allowed by law;

9. Implementing phase feeding;

10. Implementing split-sex feeding;

11. Using other feed management or diet manipulation technologies that have demonstrated the ability to reduce manure nutrient content.

On-farm mixes of ingredients shall be individually weighed. Records shall document both planned and actual amounts of each ingredient mixed. Records shall show the name of the mixing operator.

Excreted manure or manure from storage facilities shall be analyzed to determine manure nutrient content and to evaluate the impact of the feeding strategy. The analysis shall be performed by laboratories whose results are accepted by the University of Maryland Cooperative Extension.

For nutrient analysis purposes, new diets shall be implemented following removal of manure from storage structures. This is necessary to avoid contamination with manure from earlier feeding strategies.

Note: Specific cost-sharing programs or other funding sources may dictate criteria in addition to, or more restrictive than, those specified in this standard.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail to ensure successful implementation of this practice. Documentation shall be in accordance with the section "Supporting Data and Documentation" in this standard.

The following components shall be included in the feed management plan:

1. The type of technology, or technologies, and/or feeding practices that will be used on the operation.

2. Feed analyses and ration formulation information prior to and after implementation of feed management on the operation.

3. The estimated, or measured, nutrient content of the manure prior to the implementation of feed management on the operation.

4. The estimated impact that feed management will have on manure nutrient content.

5. Guidance for how often the feed management plan shall be reviewed and potentially revised.

6. The quantities and sources of nitrogen and phosphorus that will be fed.

7. Identification of the qualified feed management specialist who developed the plan.

OPERATION AND MAINTENANCE

The producer/client is responsible for the operation and maintenance of the feed management plan. Operation and maintenance activities address the following:

1. The Feed Management plan shall be reviewed quarterly by the professional feed management specialist to determine if adjustments or modifications are needed. Reviews may need to occur sooner if ingredients or production conditions change;

2. Conduct routine feed analyses to document the rates at which nitrogen and phosphorus were actually fed. When actual rates fed differ from or exceed the planned rates, records will indicate the reasons for the differences. Exemption: For participants purchasing feed rations developed by companies with proprietary held feed rations, the company must provide a letter by the professional nutritionist employed by the company, which provides general details of the nitrogen and phosphorus manipulation/and or feed additives that reduce nutrient content of manures. The content of the letter must meet the intended purpose of the feed management standard.

Participating producers must maintain records to allow the certifying individual to document plan implementation. As applicable, records include:

1. Records of feed analysis and ration formulation, including the record of ration formulation used prior to implementing the feeding strategy. (Refer to exemption above for proprietary feed rations);

2. Records of the initial estimate of the impact of the feeding strategy was expected to have on reducing manure nutrient content;

3. Records of the manure analysis done before and after the feeding strategy was implemented to determine manure nutrient content;

4. Dates and name of the professional feed management specialist performing the review, and any recommendations that resulted from the review.

Records of plan implementation shall be maintained for five years, or for a period longer than five years if required by Federal, State, or local ordinances, program, or contract requirements.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

1. Location of the practice on the conservation plan map;

2. Copy of the feed management plan that includes proposed measurable results concerning the reduction of nitrogen and phosphorus in manure;

3. Assistance notes. The notes shall include dates of site visits, name or initials of the person who made the visit, specifics as to feed management plan adjustments or modifications made by the certified professional feed management specialist;

4. Copy of the routine feed analysis or a letter by the company nutritionist on staff (when proprietary feeds are an issue) to document changes at the rate of which nitrogen and phosphorus was fed and/or feed additives introduced that reduce nutrient content of manure;

5. Records of the initial and final manure analysis, before and after implementing each new feeding strategy;

6. Records of on-farm feed mixes. Records shall indicate both planned and actual amounts mixed of each ingredient. Records shall show the name of the mixing operator.

REFERENCES

1. Klopfenstein, Terry, Department of Animal Science, University of Nebraska – Lincoln, July 2002. *Animal Diet Modification to Decrease the Potential for Nitrogen and Phosphorus Pollution.* Council for Animal Science and Technology, IP Number 21.

2. National Association of the Departments of Agriculture, http://www.cnmpwatch.com (Select Feed Management Link).

3. Powers, W.I. and H.H. Van Horn, 2001. *Nutritional Implications for Manure Nutrient Management Planning.* Appl. Engng. Agric. 17 (1): 27-39.

4. USDA, NRCS, Ecological Science Division, January 2003. *Feed and Nutrient Management Technical Note*s, *001-005*.