NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FEED MANAGEMENT

(No. of Systems and AUs Affected)

CODE 592

DEFINITION

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

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.
- Improve net farm income by feeding nutrients more efficiently.

CONDITIONS WHERE PRACTICE APPLIES

Livestock and poultry operations seeking to enhance nutrient efficiencies.

Confined 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.

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

Confined livestock and poultry operations that land apply manure and do not have a land base large enough to allow nutrients to be applied at rates recommended by soil test and utilized by crops in the rotation.

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:

- Standards outlined in the most current recommendations of the National Research Council (NRC).
- Recommendations of Iowa State University.
- 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 Iowa Department of Agriculture and Land Stewardship (IDALS). The procedure is outlined by the Association of Analytical Chemists International (AOAC). 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, professional nutritionists or other comparably qualified individuals.

Diets shall be formulated to provide the quantities and 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 maintain or improve health, well-being and productivity of the animal.

One or more of the following feed management practices and/or diet manipulation technologies shall be used to reduce nitrogen and phosphorus and other

excreted nutrients while maintaining the health, well-being and productivity of the animal.

- Formulating diets that meet animal requirements.
- Reducing protein and supplementing with amino acids (non-ruminants).
- Manipulating the crude protein and energy (carbohydrate and fat) content of the diet to enhance the availability of amino acids (ruminants).
- Using highly digestible feeds, as appropriate, in the diet.
- Using Phytase **and** reducing the supplemental phosphorus content of the diet (non-ruminants).
- Reducing the phosphorus content of the diet of ruminants when phosphorus is being overfed.
- Using selected enzymes or other products to enhance feed digestibility or feed use efficiency.
- Using growth promotants as allowed by law.
- Implementing phase feeding.
- Implementing split-sex feeding.
- Using other feed management or diet manipulation technologies that have demonstrated the ability to reduce manure nutrient content.
- Using feeding/feeder technologies that minimize feed waste.
- Determine the nutrient content as outlined in Nutrient Management (590) by analyzing the excreted manure or manure from storage facilities.

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 (National NRCS) for the specific animal species. Nutrient Management Technical Notes 1-5 http://www.nrcs.usda.gov/technical/ECS/nutrient/documents.html.

Analyze the drinking water consumed by the animals to determine its nutrient content adjusting the diet to account for the findings.

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

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

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

Consider when applicable, using concentrates and forages grown on the farm to minimize the quantity of nutrients imported to the farm, and to maximize the recycling of nutrients on the farm.

Determine manure nutrient content of feeding strategy changes by analyzing excreted manure or manure from storage facilities.

PLANS AND SPECIFICATIONS

Plans and specifications for feed management shall be in keeping with the requirements of this standard. They shall describe a menu of specific feed management practices and/or technologies that are planned for the operation.

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

- The type of technology, or technologies, and/or feeding practices that may be used on the operation.
- Feed analyses and ration formulation information prior to and after implementation of feed management on the operation, including:
  - ♦ The quantities and sources of nitrogen and phosphorus to be fed.
  - ♦ The estimated impact that feed management will have on manure nutrient content.

- The measured nutrient content of the manure prior to the implementation of feed management on the operation.
- The measured nutrient content of the manure following implementation of the feeding strategy.
- Guidance for how often the feed management plan shall be reviewed and potentially revised.
- Identification of the 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:

- Periodic plan review to determine if adjustments or modifications are needed.
- Routine feed analysis 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.
- Yearly manure analysis results or as required in Nutrient Management (590).
- Maintaining records to document plan implementation. As applicable, records include:
  - Records of feed analyses and ration formulation, including the record of ration formulation used prior to implementing the feeding strategy.
  - Records of the initial estimate of the impact the feeding strategy was expected to have on reducing manure nutrient content.
  - Records of manure analyses that was done after the feeding strategy was implemented to determine manure nutrient content.
  - Dates of review and person 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 other Federal, state, or local ordinances, program, or contract requirements.

REFERENCES

- NRCS National Environmental Compliance Handbook http://policy.nrcs.usda.gov/media/pdf/H_190_610.pdf
- NRCS Cultural Resources Handbook http://policy.nrcs.usda.gov/media/pdf/H_190_601_a.pdf
- NRCS Agricultural Waste Management Field Handbook http://www.wcc.nrcs.usda.gov/awm/awmfh.html
- NRCS Nutrient Management 590 Standard ftp://ftp-fc.sc.egov.usda.gov/IA/technical/N590(12-2006).pdf
- ASABE Standard D384.2 Mar2005– Manure Production and Characteristics http://asae.frymulti.com/request.asp?search=1&JID=2&AID=19432&CID=s2000&v=&i=&T=2
- Iowa State University – Extension Publication PM1811 – Managing Manure Nutrients for Crop Production http://www.extension.iastate.edu/Publications/PM1811.pdf
- Midwest Plan Service – Livestock and Poultry Environmental Stewardship Curriculum http://www.lpes.org/
- National Feed Management Technical Notes http://www.nrcs.usda.gov/technical/ECS/nutrient/documents.html
- National Feed Management for Livestock and Poultry Publications http://www.puyallup.wsu.edu/dairy/joeharrison/publications.asp