

# **Guidance/Framework for Best Management Practices for Manufacturing, Packaging and Distributing Animal Feeds and Feed Ingredients**

## **I. Preamble**

This document provides guidance and a framework to respective segments of the industry for developing and implementing “best management practices” for the manufacturing, packaging and distribution of animal feeds and feed ingredients. Such practices can help ensure the continued safety of feed for animals and food products of animal origin, thereby preserving human/animal health and retaining consumer confidence.

This guidance/framework document is designed to be an educational tool and information resource that can be used and distributed by:

- feed regulatory officials, as part of ongoing inspection and education programs;
- industry trade associations, as part of their model quality-assurance programs and education/training programs for their respective sectors of the animal feed and feed ingredient industry; and
- individual companies engaged in the manufacturing, packaging and/or distribution of animal feed and feed ingredients, as a starting point for developing their own company-specific “best management practices.”

This guidance document is intentionally generic and performance-oriented, in recognition of the diverse nature of the animal feed and feed ingredient industries. The industries include a variety of ingredient suppliers and feed manufacturers, (including, but not limited, to oil seed meal producers and distributors; grain handlers and processors; animal protein renderers and suppliers; fat and oil suppliers; molasses processors and suppliers; vitamin and mineral suppliers; animal drug suppliers; commercial licensed mills; commercial non-licensed mills; on-farm mixer/feeders; large integrated operations; premixers; non-medicated laboratory diets; pet food manufacturers, etc.).

This guidance document provides a framework upon which industry-specific voluntary programs as discussed above can be developed. AAFCO encourages that it be used by all interested parties to focus on food safety issues important for respective segments of the industry.

## **II. Purpose**

To provide a framework/guidance for the manufacturing, packaging or distribution of animal feeds and feed ingredients. It is intended that this document may be used as a framework for the development of feed ingredient and/or animal feed-specific programs, where such additional guidance is needed. This guidance is designed to reflect the conditions of manufacturing currently accepted and generally practiced by the industry, and provides flexibility to manufacturers to develop specific procedures that work best for their individual operation(s).

### **III. Terms and Definitions**

The following terms and their corresponding definitions are used in this guidance document:

1. *Adulterated* means as defined within the Federal Food, Drug, and Cosmetic Act and Section 7 of the Association of American Feed Control Officials (AAFCO) Model Feed Bill.
2. *Feed(s)* means edible material(s) which are consumed by animals and contribute energy and/or nutrients to the animal's diet.
3. *Feed ingredient(s)* means each of the constituent materials making up a commercial feed.
4. *Lot* means the feed or feed ingredient produced during a specified period of time.
5. *Misbranding* means as defined in Section 6 of the Association of American Feed Control Officials Model Feed Bill.
6. *Pest* refers to any objectionable animals including, but not limited to bats, birds, cats, rodents, insects and insect larvae.
7. *Plant* means the building, facility, or parts thereof, used for or in connection with the manufacturing, packaging, labeling or storage of feeds or feed ingredients.
8. *Quality assurance program* means written procedures specifying necessary precautions, inspections, and/or testing to minimize feed from becoming adulterated and/or misbranded.
9. *Rework* means feed or feed ingredients that have been reconditioned by reprocessing into products suitable for use in feed.
10. *Supervision* means a performance by a qualified individual to oversee the work of others.

### **IV. Personnel**

Plant management should take all reasonable measures and precautions to ensure the following:

1. *Cleanliness.* All persons working in direct contact with feed and feed ingredients should conform to good hygienic practices. Personnel in contact with drugs and/or toxic materials should wash their hands prior to handling feed or feed ingredients.
2. *Education and training.* Employees should receive appropriate training in the quality-assurance issues applicable to their assigned responsibilities.
3. *Supervision.* Adequate supervision should be required to insure compliance with the quality assurance program.

### **V. Buildings, Facilities and Equipment**

#### **A. Plant and grounds.**

1. *Grounds.* The grounds of a feed or feed ingredient facility should be kept in a condition that will minimize the contamination of feed.
2. *Plant construction and design.* Plant buildings and structures should be suitable in size, construction and design to facilitate maintenance and cleaning opera-

tions for feed and feed ingredient-manufacturing purposes. Such design should include plans to minimize feed contamination.

### **B. Housekeeping operations**

1. *General maintenance.* Buildings, fixtures, and other physical facilities of the plant should be kept in repair, sufficient to minimize feed from becoming adulterated.
2. *Substances used in cleaning; storage of toxic materials.* Cleaning compounds, toxic materials (e.g. lubricants, etc.) and pesticides should be appropriate for use, used only in accordance with labeled instructions and stored to minimize potential contamination of feed or feed ingredients.
3. *Pest control.* Effective measures should be taken to exclude pests from feed processing and storage areas, and to protect against contamination of feed or feed ingredients

### **C. Equipment**

All equipment should be of suitable size, design, construction, precision and accuracy for its intended purpose and be capable of producing a product of uniform quality and safety. The equipment should be properly maintained, cleaned, inspected and operated in such a manner to minimize adulteration of feed or feed ingredients.

*Scales.* All scales and metering devices should be tested for accuracy upon installation and at least once a year thereafter, or as may be necessary to insure their intended purpose.

*Mixers.* All mixers used in the manufacture of feed or feed ingredients should be tested periodically to assure proper mixing and proper mixing times.

## **VI. Production and Process Controls**

The receipt, storage and inventory of feed ingredients used in manufacturing and processing of animal feeds and the production of such animal feeds should conform to the following:

### **A. Feed Ingredients**

Feed ingredients should be produced using procedures that minimize potential contaminants and promote appropriate product safety, quality and integrity, and meet all applicable standards for feed use. To help ensure product integrity, feed ingredients should be obtained from suppliers that have suitable quality assurance programs and procedures that minimize potential contaminants. This may be accomplished through any effective means; for example, supplier visits, supplier certification, purchase contracts, monitoring of the ingredient supplier or a combination thereof.

1. Bulk feed ingredients should be inspected as follows:
  - a. A representative sample should be taken and retained for an appropriate period of time from the truck (except as provided in subsection A. 1. c.) or rail car upon its arrival at the plant using appropriate sampling techniques con-

sistent with the methods published by the AOAC International, or in accordance with other generally recognized methods, to make a determination of compliance with the establishment's receiving standards prior to unloading or acceptance.

- b. Prior to unloading, the initial discharge from each compartment of each truck (except as provided in section c.) or rail car should be examined for contamination. If product safety or quality concerns are noted, appropriate action should be taken.
  - c. For ingredients delivered by conveyances in which sampling of the product at the destination is impractical (such as deliveries conveyed in pneumatic trucks), the supplier should provide assurances to the receiver that the conveyance was visibly free of contamination prior to shipment. In addition, the supplier should take and retain a representative sample of the ingredient loaded into the truck. The representative sample should be retained for an appropriate period of time.
2. Bagged ingredients should be examined as follows:
    - a. Packaging should be visually examined upon receipt and use for identity and damage that could cause unsafe contamination; and
    - b. The contents should be visually examined before use.
  3. Feed ingredients should be of merchantable quality; comply with appropriate state and federal regulatory definitions; meet appropriate state and federal action levels and regulatory limits established for contaminants; and comply with all other applicable local, state and federal laws.
  4. If a feed ingredient contains or may contain prohibited mammalian protein, federal regulation [21 CFR 589.2000] requires that it be properly labeled with the warning statement, "Do not feed to cattle or other ruminants." To prevent cross-contamination, appropriate equipment clean-out procedures are required to be implemented at facilities which receive prohibited mammalian protein and also manufacture feeds for ruminant animals.
    - a. Pet food sold or intended for sale at retail and feeds for non-ruminant laboratory animals are exempt from this labeling requirement.
    - b. If pet food products or feeds for non-ruminant laboratory animals are sold or intended for sale as distressed or salvage, then they must be labeled "Do not feed to cattle or other ruminants".
  5. Any feed ingredient suspected of possible contamination should not be used in the production of animal feed unless, through proper sampling and testing, it is found to be appropriate for the species and class of animal for which it is intended.
  6. All feed ingredients should be stored in suitable and clean bulk bins or containers that are properly and clearly identified.

## **B. Feed and Feed Ingredient Processing**

Written procedures should be implemented that adequately identifies the potential for mis-manufacture or other hazards associated with the products being manufac-

tured at the facility, and which establish practices to minimize the potential for compromising animal and human health. Such practices may range from visual review to verification of compliance with the established procedures.

1. All feed and feed ingredient manufacturing, including packaging, storage and delivery, should be performed under such conditions and controls as are necessary to minimize the potential for contamination.
2. Feed-in-process should be handled in a manner that minimizes the potential for contamination. Suggested procedures may include the following, as appropriate:
  - a. A means of identifying the formulation used in the manufacture of the product.
  - b. Batch records that provide the history for each batch or lot of product manufactured, including equipment used in production, storage, packaging and load out.
  - c. A means of linking the appropriate label to the proper production batch or lot of product.
  - d. Effective measures to protect against the inclusion of metal or other extraneous material in feed and feed ingredients. This may be accomplished by using sieves, traps, magnets, electronic metal detectors or other effective means.
  - e. Written procedures that specify appropriate sequencing, flushing or clean out between batches or lots of products where carryover from one lot to another could be unsafe to animals or humans. Appropriate documentation should be maintained concerning adherence with these written procedures. In the case of prohibited mammalian protein being used at facilities that manufacture feed for ruminant animals, this is a federal regulatory requirement [21 CFR 589.2000].
  - f. An appropriate permitted yield variation for products. Written procedures should be developed and implemented for calculating and comparing the actual versus the theoretical yield for each production run prior to shipment, unless bin-stocking procedures are used (in which case, it is advisable to use weekly cutoffs). If a significant discrepancy is discovered when comparing actual versus theoretical yield that exceeds the firm's established variation, a process should be established to identify the reason for the discrepancy before the feed is shipped to avoid compromising animal or human safety.
  - g. A means for identifying and storing rework materials.

### **C. Laboratory Controls**

Adequate specifications, testing procedures and methods should be implemented.

Analytical results, which do not meet product specifications, should be investigated to verify that the manufacturing process is in control, the product formulation is correct and/or nutrient values used in the products formulation are accurate.

Investigation of these results include the following:

1. Review of production records to verify if anything in the manufacturing history could be the cause of the result;

2. Review of the product formulation;
3. Review of the ingredient values used for formulation; and
4. Documentation of the review process and any corrective action taken.

#### **D. Warehousing and Distribution**

Feed or feed ingredients should be stored and transported under conditions that will protect such products from physical and chemical contamination.

1. Feed and feed ingredient storage practices should minimize the potential for contamination and provide for appropriate inventory rotation practices to minimize outdated inventory.
2. Trucks should be inspected at bulk load-out prior to loading to insure they are free of contamination.
3. Feed, feed ingredients or other articles that may cause contamination which may present a safety concern to animals or humans should not be loaded on the same vehicle unless precautions are taken to preclude the potential for cross contamination.
4. All feed and feed ingredients are to be appropriately labeled or otherwise identified at all times.

#### **E. Labeling**

1. Labels and labeling, including placards, should be received and stored in a manner that prevents labeling mix-ups and assures that correct labeling is used for feed and feed ingredients.
2. All feed and feed ingredients, including working inventories, are to be properly identified at all times.

#### **F. Records**

It is recommended that records of receiving, production and distribution be maintained for at least one year.

#### **G. Lot Numbers**

All feed and feed ingredients should contain a code that links the individual production lot to production records so as to provide a history of such product. The code should be contained either on the product packaging, labeling, or other distribution records that would accompany the shipment to enable recall of the product if necessary. If such code numbers are not lot-specific, then all product bearing that code number should be recalled in the event of a problem requiring such recall action.

#### **H. Recalls**

All recalls should be conducted in accordance with procedures outlined by the Food and Drug Administration [21 CFR part 7, subpart C].