ON-FARM FEED MANUFACTURERS

QUALITY ASSURANCE

POCKET MANUAL

DATE ______________________________

NAME ______________________________

ADDRESS ___________________________

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Introduction

The goal of on-farm feed manufacturing is to produce feed that meets the intended specification (both nutritional and with the desired medication level) and is free of adulteration. The production of quality feed will enhance animal performance and improve the profitability of the livestock enterprise.

A set of guidelines for manufacturing feed, referred to as Good Manufacturing Practices (GMPs), are designed to prevent feed contamination and to provide reasonable assurance that medicated feed additives are used properly. These guidelines serve as Food and Drug Administration (FDA) regulations. Everyone involved in producing medicated or non-medicated feed, whether at a commercial off-farm plant or with an on-farm mill or grinder/mixer, must comply with the GMPs.

GMPs are those practices which reflect the current information and expertise available for manufacturing feed. In other words, **Good Manufacturing Practices are Good Business Practices**.

The following self-check and record-keeping system is designed to help on-farm feed manufacturers produce quality feed and comply with GMPs.

Instructions For Manual Use

This manual is designed specifically for individuals who produce (manufacture) feed on their farm. The Food and Drug Administration regulations are listed, verbatim, as they appear in the Code of Federal Regulations. These regulations apply to non-registered mills. The individual manufacturing feed who, either does not use medicated feed additives (drugs) or, who uses medicated feed additives is required to follow these regulations.

Listed under each regulation are a series of questions. The questions are written such that the correct answer is always yes. This portion of the manual will enable you to inspect your own feed production system.

Tables in the back of the manual are designed to assist you in keeping records during ingredient receipt and feed production.

Table 1 “Grain and Ingredient Quality” applies to incoming grain and soybean meal (or supplement).

Table 2 “Premix and Drug Article Inventory” should be completed as these ingredients are delivered to your farm. Recording information such as invoice number and lot number are essential if there is a product recall by the company producing these medicated articles.

Table 3 provides a mechanism for recording feed production on a daily basis. Daily production records are required by law. Feed production information also provides economic benefits to the feed manufacturer, such as calculating feed shrink (ingredients purchased minus pounds of feed produced) and feed to gain ratio.

Table 4 provides a place to record feed rations. The numerical identification of the ration can be entered in Table 3 under formula number.

This manual is supported by a series of extension publications and videos which review many facets of feed production. If you have a question regarding issues raised by this manual, further information is available through your extension office, commercial feed manufacturer, producer association or state grain and feed association.

Facilities and Equipment

Buildings and Grounds

Buildings used for production of medicated feed shall provide adequate space for equipment, processing, and orderly receipt and storage of medicated feed. Areas shall include access for routine maintenance and cleaning of equipment. Buildings and grounds shall be constructed and maintained in a manner to minimize vermin and pest infestation.

Performance Check 1: Grain and Soybean/Meal Supplement Storage

To prevent rodent, bird, grain beetles/weevils, and mold contamination of stored grain and soybean meal, consider the following check list:

- *Do grain bins and hoppers prevent rodents and bird harborage?*

  ____ YES ____ NO

- *Are the grounds around the bins free of debris and vegetation, and well drained?*

  ____ YES ____ NO

- *Are grain bins and hoppers protected from excessive moisture build-up (leaky roof, etc.)*

  ____ YES ____ NO

Performance Check 2:
Drug and Ingredient Store Rooms

- *Can the doors to storage rooms be completely closed, are floors secure, and window covered by screens with 1⁄8 inch mesh to avoid rodent and bird entry?*

  ____ **YES** ____ **NO**

- *Is storage area free of agricultural chemicals, application equipment, and other potential sources of contamination such as batteries, spray paint, oil, etc?*

  ____ **YES** ____ **NO**

Equipment

Equipment shall be capable of producing medicated feed of intended potency and purity and shall be maintained in a reasonably clean and orderly manner. Scales and liquid metering devices shall be accurate and of suitable size, design, construction, precision, and accuracy for their intended purposes. All equipment shall be designed, constructed, installed, and maintained so as to facilitate inspection and use of clean-out procedure(s).

Performance Check 1: Scales

Accurate measurement of ingredients, particularly micro-ingredients, is important to achieve optimum performance.

- *Does your scale weigh accurately at the desired inclusion rate (e.g., for ingredients added at less than 10 pounds, your scale should be accurate to .1 pound; for ingredients over 10 pounds, your scale should be accurate to 1 pound)?*

  ____ YES ____ NO

- *Do you inspect the accuracy of your scale at least once a year?*

  ____ YES ____ NO

Performance Check 2: Mixer

A thorough mix of all the ingredients after they have been added to the mixer is critical. Incomplete mixing may lead to insufficient ingredients for some animals and too much ingredients (which is wasteful or may lead to residue problems) fed to other animals.

- *Do you evaluate your mixer performance (feed uniformity) annually?*

  ____ YES ____ NO

  IF YES, DATE:________ CV:_________%

- *Do you avoid filling your mixer beyond the mixer blade (overfilling will reduce mixer performance)?*

  ____ YES ____ NO

- *Have you inspected your mixer following discharge and measured the amount of carryover material between batches?*

  ____ YES ____ NO

  IF YES, MIXER CLEAN-OUT MATERIAL WEIGHT:

  ___________POU NDS

Note: Clean-out material in excess of half a percent (.5%) of the batch size may lead to drug carryover, resulting in tissue residue problems.

- *Do you have a written procedure for ingredient addition to the mixer? Does this sequence of ingredient addition result in optimal dispersion of micro-ingredients throughout the feed?*

  ____ YES ____ NO

Note: The sequence of ingredient addition greatly influences the mixing process. The optimal sequence of ingredient addition differs between vertical and horizontal mixers.

Performance Check 3: Grinding

Particle size of ground grain is important for optimal animal performance and mixing efficiency.

- *Do you submit ground grain or complete feed for a particle size analysis annually?*

  ____ YES ____ NO

MATERIAL	DATE	PARTICLE SIZE

- *Do you perform a scheduled (e.g., monthly or after every 100 tons) inspection of your hammers and screen or rolls for wear?*

  ____ **YES** ____ **NO**

DATE	HAMMER APPEARANCE	SCREEN APPEARANCE	INITIALS

Have you established a pre-determined particle size (e.g., swine diets 600-800 microns) and are you using the proper screen size or roller setting?

____ **YES** ____ **NO**

NOTE: Always disengage power (lock out) your mixer and grinder before performing scheduled cleaning or maintenance.

Working and Storage Areas

Work areas and equipment used for the production or storage of medicated feeds or components thereof shall not be used for, and shall be physically separated from, work areas and equipment used for the manufacture and storage of fertilizers, herbicides, insecticides, fungicides, rodenticides, and other pesticides unless such articles are approved for use in the manufacture of animal feeds.

Performance Check 1: Drug Room

Medicated feed additives are the most expensive ingredient(s) in your feed. Are these ingredients stored separately and securely away from other agri-chemicals?

____ **YES** ____ **NO**

Performance Check 2: Work Area

Are work areas and equipment for manufacturing feed separate from and not used for handling agri-chemicals (e.g. pesticides, rodenticides)?

____ **YES** ____ **NO**

Product Quality Assurance

Components

Adequate procedures shall be established and maintained for the identification, storage, and inventory control (receipt and use) of all Type A medicated articles and Type B medicated feeds intended for use in the manufacture of medicated feeds to aid in assuring the identity, strength, quality, and purity of these drug sources. Packaged Type A medicated articles and Type B medicated feeds shall be stored in designated areas in their original closed containers. Bulk Type A medicated articles and bulk Type B medicated feeds shall be identified and stored in a manner such that their identity, strength, quality, and purity will be maintained. All Type A medicated articles and Type B medicated feeds shall be used in accordance with their labeled mixing directions.

Performance Check 1: Ingredient Receipt

All ingredients should be inspected and evaluated for quality. This may include visual inspection, detection of off odor, physical evaluation of grain for test weight and moisture, or lab analysis of protein level in soybean meal and grain.

- *Does grain meet the quality criteria established in purchase agreement including test weight and moisture and appear to be free of mold damage?*

  ____ YES ____ NO

- *Is soybean meal routinely (grain occasionally) inspected for the specified level of protein and moisture?*

  ____ YES ____ NO

- *Do all bagged ingredients arrive intact (bags not opened) and are they stored in their original container?*

  ____ YES ____ NO

Performance Check 2: Medicated Feed Additives

These feed components are the most expensive ingredient and should be protected from contamination. Consider the following check list items that pertain to your feed manufacturing system.

- *Are medicated feed additives kept in their original container to ensure identity and are containers closed when not in use?*

  ____ YES ____ NO

- *Are all drugs within their expiration date?*

  ____ YES ____ NO

Note: If drugs have past their expiration date they should be assayed for potency and used as soon as possible adjusting the inclusion rate for the current level of drug potency.

Laboratory Assays

Where the results of laboratory assays of drug components, including assays by state feed control officials, indicate that the medicated feed is not in accord with the permissible limits specified in this chapter, investigation and corrective action shall be implemented immediately by the firm and such records shall be maintained on the premises for a period of one year.

Performance Check 1:

Are drug assays performed annually and drug levels within acceptable tolerance?

____ YES ____ NO

ASSAY RESULTS:

____

____

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____

NOTE: For directions, contact your local feed ingredient supplier or Cooperative Extension Service for assistance.

Equipment Clean-Out Procedures

Adequate procedures shall be established and used for all equipment used in the production and distribution of medicated feeds to avoid unsafe contamination of medicated and non-medicated feeds.

Performance Check 1: Mixer

- *Do you routinely (once a month) inspect the inside of your mixer for material build up (cleanliness) and mixer wear which may hinder mixer performance?*

  ____ YES ____ NO

- *Do you have a written procedure for sequencing feed or flushing the mixer (or both) to avoid cross-contamination of the subsequent batch(es)?*

  ____ YES ____ NO

Performance Check 2: Batching

If medication is applied to your base mix and stored in a bulk bin (hopper bottom bin), are separate spouts/augers used for each bin to avoid cross contamination of feed?

____ YES ____ NO

NOTE: As little as one tablespoon of sulfamethazine per ton of feed can lead to residue problems in market hogs. Or, 20 pounds of feed containing sulfamethazine can contaminate 2000 pounds of feed in the subsequent batch which is enough to cause violative residues in marketed animals.

Labeling

Labels shall be received, handled, and stored in a manner that prevents label mix-ups and assures that the correct labels are used for the medicated feed. All deliveries of medicated feeds, whether bagged or in bulk, shall be adequately labeled to assure that the feed can be properly used.

Performance Check 1: Ingredients

- *Are all incoming ingredients accompanied by a label?*

  ____ YES ____ NO

- *Do all labels stay with their original bags until completely used?*

  ____ YES ____ NO

Performance Check 2: Toll Feed

If you manufacture feed for a neighbor, do you provide a label, adequately identifying the feed so it can be properly used?

____ YES ____ NO

If yes, please check with your respective state officials for feed licensing or registration requirements.

Note: When manufacturing feed for other than own use, you can record this information under the notes column in Table 3.

Records

Records shall be maintained identifying the formulation, date of mixing, and if not for own use, date of shipment. The records shall be adequate to facilitate the recall of specific batches of medicated feed that have been distributed. Such records shall be retained on the premises for one year following the date of last distribution.

Performance Check 1: Feed Manufacturing Records

- *Do you have a written record of formulas used for each feed manufactured?*

  ____ **YES** ____ **NO**

- *Do you maintain a product record for each feed ration manufactured including actual pounds of feed produced and drug used in each batch?*

  ____ **YES** ____ **NO**

- *Do your records permit you to reconcile drug use with the tons of feed produced?*

  ____ **YES** ____ **NO**

- *Are your records and ingredient inventory accurate enough to figure shrink?*

  ____ **YES** ____ **NO**

- *Are inventory records including drug name, supplier, and code, (lot number) kept and routinely checked?*

  ____ **YES** ____ **NO**

CONCLUSION

If the answer to any of the above questions is no, information about these procedures can be acquired from your extension service, commercial feed manufacturers, veterinarian, or producer group.

TABLE 1

Grain and Protein Quality

SAMPLE IDENTIFICATION			GRAIN/SOYBEAN MEAL QUALITY		
MATERIAL	SUPPLIER	DATE RECEIVED	TEST WEIGHT	MOISTURE	PROTEIN

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TABLE 2

Premix and Drug Article Inventory

DATE RECEIVED	SUPPLIER	INVOICE/LOT NUMBER	TYPE OF INGREDIENT	QUANTITY RECEIVED	DATE OF LAST BATCH

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TABLE 3

Feed Production Record

DATE	FORMULA NUMBER	NO. OF BATCHES	BATCH SIZE	DRUG NAME	LBS. OF DRUG PER TON/FEED (LBS./TON)	NOTES

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Feed Production Record

DATE	FORMULA NUMBER	NO. OF BATCHES	BATCH SIZE	DRUG NAME	LBS. OF DRUG PER TON/FEED	NOTES

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Animal Feed Rations

I.D.__________

Animal Feed Rations I.D.__________

Animal Feed Rations I.D.__________

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Animal Feed Rations

I.D.__________

Animal Feed Rations I.D.________

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Cooperative Extension Service
Kansas State University
Manhattan, Kansas

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