

Prerequisites to HACCP


Chapter 2
HACCP A Systematic Approach to Food Safety

OFFICE OF THE TEXAS STATE CHEMIST
Texas Feed and Fertilizer Control Service • Agriculture Analytical Service

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Outline: Prerequisite Program Introduction

1. Prerequisite program characteristics
2. Code of Practices on Good Animal Feeding
 - Buildings and Grounds
 - Equipment
 - Manufacturing control
 - Personnel
 - Sanitation and Pest Control
 - Transport



Prerequisite Programs and HACCP

- ❑ Prerequisite programs should be in place and performing effectively to ensure feed safety
- ❑ Prerequisite programs simplify HACCP development and maintenance

Prerequisite Programs and HACCP

Prerequisite programs

- Often deal with product quality in addition to feed and food safety
- General and applicable throughout the plant and across multiple product lines
- May not fit CCP criteria (failure to meet a prerequisite program seldom results in a food safety hazard).

Establishing Prerequisite Programs

- **Documentation**
Well written prerequisite programs including Standard Operating Procedures (SOPs) & Sanitary SOPs.
- **Employee Training**
Management must provide time for thorough education and training. Learning must be verified.
- **Verification**
Verify that the SOP is being performed correctly and that monitoring and record-keeping are completed.
- **Resources**

Verification of Prerequisite Programs

- ❑ Periodic review of the SOPs and audit reports to ensure that the programs are operating in a manner that should not require a change in the hazard analysis or HACCP plan

Establishing Prerequisite Programs

Verification

- Is the SOP performed in the manner intended?
- Are the procedures monitored?
- Are the appropriate records kept?
- Is there an independent audit?
- Are programs revised as necessary?

Establishing Prerequisite Programs

Resources

- Are the proper tools/equipment available?
- Are appropriate personnel available to perform the task effectively?
- Are systems adequate for monitoring and storing data?

Code of Practice for Building and Facilities

Location of feed mill

Establishments should normally be located away from:

- Environmentally polluted areas
- Areas subject to flooding
- Areas prone to infestations of pests
- Areas where wastes, either solid or liquid, cannot be removed effectively

Design and Layout

The internal design and layout should permit good hygiene practices, easy access for cleaning, and prevent entry of pests. Process flow should be designed to minimize feed contamination.

- surfaces of walls and floors should be made of impervious material
- surfaces of walls and floors should be smooth to enable cleaning
- overhead light fixtures should minimize dust accumulation and bulbs protected to avoid breakage

Code of Practice for Building and Facilities

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:

- Grain bins and hoppers prevent rodents and bird harborage.
- The grounds around the bins are free of debris and vegetation, and well drained.
- Grain bins and hoppers are protected from excessive moisture build-up (leaky roof, etc.)

Performance Check 2: Drug and Ingredient Store Rooms

• Doors to storage rooms be completely closed, are floors secure, and window covered by screens with 0.3 cm mesh to avoid rodent and bird entry?

• Storage area is free of agricultural chemicals, application equipment, and other potential sources of contamination such as batteries, spray paint, oil, etc.

Code of Practices for Production Equipment

Performance Check 1:

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

- Scales weigh accurately at the desired inclusion rate (e.g., for ingredients added at one kg, your scale should be accurate to 100 g).
- Scales are inspected for accuracy (calibrated) annually.

Performance Check 2:

Mixer: A thorough mix of all the ensures uniform distribution of micro-ingredients in each pellet or mouthful of feed.

- Mixer performance is evaluated annually.
- Procedures exist to avoid overfilling of the mixer.
- Mixer carryover between batches has been measured and cleanout, sequencing or flushing procedures developed and validated.
- Written procedure for ingredient addition to the mixer are prepared and validated.

Code of Practices for Manufacturing Controls

Performance Check 1:

Equipment Cleanout Procedures
Adequate procedures shall be established and used for all equipment used in the production and distribution of feeds.

- The inside of the mixer is routinely inspected for material build up (cleanliness) and mixer wear which may hinder mixer performance.
- Written procedures exist and are validated for sequencing feed or flushing the mixer (or both) to avoid cross-contamination of the subsequent batches.

Performance Check 2:

Pathogen Control: Procedures such as heat treatment or addition of authorized chemicals, should be used where appropriate and monitored at the applicable steps in the manufacturing process.

- Zoonotic diseases that could impact food safety are identified and controlled
- Procedures exist to prevent pathogen spread during feed delivery
- Employee bathroom and hand washing facilities are adequate to prevent the spread of parasites and pathogens
- Only use potable quality water

**Code of Practice:
Personnel**

Personnel Training

Training: personnel should be aware of their role in food safety.

- Sanitation and pest control
- Feed and feed ingredients, processing plants, storage
- Containers and equipment used for manufacturing, processing, transport, storage, conveying, handling and weighing
- Special precautions should be taken when cleaning equipment to avoid fungal growth

Personal Hygiene

People known or suspected to be suffering from or to be a carrier of a disease or illness likely to be transmitted through feed, should be prevented from contaminating feed. Symptoms include:

- Jaundice, Diarrhea, Vomiting, Fever, Visibly infected skin lesions*

**Code of Practice:
Sanitation**

- Feed and feed ingredients, processing plants, storage facilities and their immediate surroundings should be kept clean and effective pest control programs should be implemented.
- Containers and equipment used for manufacturing, processing, transport, storage, conveying, handling and weighing should be kept clean. Cleaning programs should be effective and minimize residues of detergents and disinfectants.
- Machinery coming into contact with dry feed or feed ingredients should be dried following any wet cleaning process.
- Special precautions should be taken when cleaning machinery used for moist and semi-moist feed and feed ingredients to avoid fungal and bacterial growth.

**Code of Practice:
Transport**

- This prerequisite program provides the foundation for all receiving, storage and distribution procedures throughout facility.
- List of Receiving, Storage and Distribution SOPs:
 - > Bulk Receiving
 - > Bulk Load-Out
 - > Warehouse Receiving
 - > Warehouse Load-Out
 - > Inventory
 - > Returns

Examples of Prerequisite Programs

- **Ingredient Specifications and Supplier Approval**
These two items are interrelated since the supplier approval process with measure their performance against ingredients specifications and their ability to fulfill contract requirements

Examples of Prerequisite Programs:

Ingredient Specifications and Supplier Approval: Criteria

- Program Title
- Purpose and Scope
- Policy statement by management
- Work instructions
- SOPs and SSOPs
- Employee training requirements
- Verification Activities including monitoring and record keeping
- Resources
- Plan for prerequisite program review

Examples of Prerequisite Programs:



Ingredient Specifications and Supplier Approval: SOPs

- A – Purchasing (SOP: Purchasing)
- B – Supplier Qualification (SOP: Supplier Qualification)
 - 1 – Supplier audits
 - 2 – Supplier requirements
 - 3 – New supplier (SOP: New Supplier Approval)
- C – Inspection of incoming trucks (SOP: Trailer/Van inspection)
- D – Sampling of raw ingredients (SOP: Sampling of materials)
- E – Analysis of raw ingredients (SOP: Required tests for raw material)
 - 1 – Specifications
 - 2 – Analysis (SOP: Laboratory test methods)
- F – Training (SOP: Annual Employee training, New employee training)
- G – Audit (SOP: Annual cGMP audit)

Examples of Prerequisite Programs

Ingredient Specifications

- ❑ Association of American Feed Control Officials
- ❑ Feed Additive Compendium

Examples of Prerequisite Programs

ISO 9001:2000

7.4.1 Purchasing Process

The organization shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product.

The organization shall evaluate and select suppliers based on their ability to supply product in accordance with the organization's requirements. Criteria for selection, evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained.

Examples of Prerequisite Programs:


- ❑ Pest Control and Sanitation
- ❑ Receiving, Storage, and Distribution
- ❑ Tracing and Recall
- ❑ Facilities
- ❑ Personnel
- ❑ Production Equipment
- ❑ Control of Raw Materials
- ❑ Environmental Monitoring
- ❑ Chemical Control
- ❑ Glass Control

Prerequisite program or HACCP?

- ❑ **Nature of the Hazard**
 - Kill step versus sanitation/pest control
- ❑ **Nature of the Control**
 - Quality versus food safety
 - Impact of the failure to control a prerequisite program
- ❑ **Overlap between Prerequisites and HACCP**
 - Dual purpose of a specific control
 - Conformance to a regulatory standards

Summary

- ❑ Criteria for a prerequisite program were discussed
- ❑ Types of prerequisite programs
- ❑ Standard Operating Procedures (SOPs)
- ❑ Sanitary Standard Operating Procedures (SSOPs)
- ❑ Prerequisite programs include conforming to regulatory requirements



END

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