

# **GUIDELINE FOR ANIMAL FEED**



**You are in safe hands**

**FOOD SAFETY AND QUALITY AUTHORITY  
THE GAMBIA**

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# **1. INTRODUCTION**

Food safety-related hazards are numerous and can come from different sources and processes, including the feed offered to food-producing animals. Like other food products, feed is vulnerable to biological, chemical and physical hazards if not properly produced, processed, handled and stored. Microorganisms, naturally occurring toxins like mycotoxins and other non-desirable physical debris, are possible hazards that could endanger the safety and quality of animal feed and, by extension, endangers human safety. Hazards may be introduced with raw materials via carry-over or contamination of products during handling, storage and transportation. The presence of a hazard may also result from accidental or deliberate (e.g. fraud or bioterrorism) human intervention.

Proper management and prevention of these hazards in animal feed require the implementation of protective measures at all stages of the production and handling of animal feed. Among these, the production siting, physical Structure, personnel, packaging and handling tools are essential points that require the implementation of recognized levels of safety.

Animal feed production is still an infant industry in the Gambia. However, the elimination of trade barriers and the increased demand for animal-derived food (poultry, beef, dairy etc.) has led to increased production and importation of animal feed from different parts of the world. Unfortunately, due to the rudimentary nature of the industry and the porosity of the country's border points, a significant amount of this imported feed is not or properly inspected to ensure its compliance with international standards and established regulatory thresholds.

In response to these possible hazards and inspection deficiency, the Food Safety and Quality of The Gambia developed this simplified guide aimed at ensuring that animal feed is imported, produced, transported and stored in a way that will not compromise its safety and quality.

## **1.1 SCOPE AND OBJECTIVE**

This document is intended to guide producers, processors, distributors, retailers, importers and exporters of animal feed to produce and commercialize safe and quality feed that meet the local and international safety and quality standards and regulations.

## **1.2 FSQA REQUIREMENTS FOR IMPORTATION, EXPORTATION AND DISTRIBUTION OF FEED.**

As detailed in Part IX Section 32 of the Food Safety and Quality Act, all food business operators, including importers and exporters of feed, must register with the Food Safety and Quality Authority. Before the intended product is imported, the importer or distributor must have the appropriate storage facility to hold the product. Feed traders are directed to consult the FSQA import-export guidelines for detailed import and export requirements.

# **2. GENERAL PRINCIPLES AND REQUIREMENTS.**

Feed and related ingredients should be obtained and maintained in a stable condition protected from contamination by pests, chemicals, microbiological agents or other objectionable substances during production, handling, storage and transportation. The feed should be in good condition and meet

generally accepted safety and quality requirements. Where appropriate, good agricultural practices, good manufacturing practices (GMPs) and, where applicable, Hazard Analysis and Critical Control Point (HACCP) principles should be followed to control hazards that may occur in feed. Control measures against potential sources of contamination from the environment should be implemented. Parties that are involved in feed business as well as animal breeding, need to collaborate to identify potential hazards and their levels of risk to consumers' health. Such collaboration will enable the development and maintenance of appropriate risk management measures.

### **3. LOCATION AND SURROUNDING OF FEED PRODUCING SITES**

#### **3.1.0 Location and Surroundings:**

Potential sources of contamination should be considered when deciding where to locate feed production and storage facilities. The production site should be located away from areas that may be:

- 3.1.1** The Environmentally polluted or where industrial activities are undertaken
- 3.1.2** Prone to flooding and other hazards that may affect feed safety
- 3.1.3** Prone to the infestation of pests
- 3.1.4** Inadequately drained lands or wetlands
- 3.1.5** The production and storage facility boundaries should be identified with appropriate access control.
- 3.1.6** External perimeters should be kept clean, and a minimum of 18-24-inch (1.5 to 2 feet) vegetation-free barrier zone should be maintained around the building.
- 3.1.7** Hard paving of at least 45cm in width should surround the exterior of the production and storage buildings.
- 3.1.8** Receiving and dispatching areas and materials or products in transit should be protected against extreme weather conditions.

#### **3.2 Design of premises**

The internal design and layout of feed processing facilities should be easy to maintain, allow free and uninterrupted movement, and permit good hygiene practices during production, including protection against cross-contamination during operations.

#### **3.2.0 Storage Layout**

- 3.2.1** The storage area should be of sufficient size/capacity to allow the handling and storage of feed products in a manner that does not result in product contamination.
- 3.2.2** The building should provide adequate space with logical materials, products, and personnel flow. The storage areas should have adequate barriers to avoid direct exposure to the external environment and to facilitate access control.
- 3.2.3** The production facility layout should allow space for inward and outward vehicle movement.
- 3.2.4** Adequate provisions should be in place to allow the transfer of feed materials via machinery or equipment to minimize cross-contamination during handling. Proper signs should be provided for all storage and non-storage areas.
- 3.2.5** Storage of materials in bulk quantity should be done off the floor on pallets and away from the walls to ensure easy and adequate cleaning and prevent harboring of any insects, pests or rodents.

3.2.6 Stack numbering scheme (layout) should be displayed in each warehouse clearly labelling the location and number of each stack. Each material/lot should be stacked separately, ensuring no mix-ups.

3.2.7 FEFO / FIFO system should be followed while releasing materials from store

### **3.3 Internal structures & fittings:**

Structures within the feed production site should be built using durable materials. The Structure should be easy to maintain, clean and, where appropriate to be disinfected. The Specific requirements are:

**3.3.1 Walls and partitions** should have a smooth surface up to a height appropriate to the operation, free from flaking paint or plaster to prevent dust accumulation and minimize condensation and shedding of particles.

**3.3.2 Floors** shall be maintained in a sound condition to minimize the accumulation of dirt, spilled material or any undesirable spoilage and infestation.

**3.3.3 Floors** should be made of waterproof material, smooth, and allow adequate drainage and cleaning.

**3.3.4 General storage space** should be floored with a concrete slab to carry wheel loads and withstand the abrasion generated by the continual use of pallets and other movements within the facility

**3.3.5 Floor** should be levelled for appropriate stacking of food materials and for safe operation of material handling equipment.

**3.3.6 Ceilings and overhead fixtures** should be constructed to minimize the build- up of dirt and where necessary be fitted with removable and cleanable insect proof screens.

**3.3.7 The overhead fixtures** should be suitably protected so that they do not act as contaminants in case of breakage.

**3.3.8 Doors/shutters** should have smooth, non-absorbent surfaces and be easy to clean and where necessary disinfect.

**3.3.9 Entry/exit points** should be suitably protected with appropriate provisions such as PVC strip curtains/air curtains/ wire meshes/ doors with self-closing devices etc. to ensure dust, insects, birds and animals are kept out.

**3.3.10 The doors** should be able to be fully closed and not allow dust and pests.

**3.3.11 The gaps between the door and the floor**, if any should be closed with suitable material like rubber strips, polyurethane etc. to avoid pest entry.

**3.3.12 Ventilators/Windows** and all other openings to outside environment should be well screened with wire-mesh or insect proof screens as applicable to protect the facility from flies and other pests.

**3.3.13 The mesh/screen** should be constructed to minimize the accumulation of dirt and should be of such type which can be easily removed for cleaning.

**3.3.14 Working surfaces** that come into direct contact with feed and feed ingredient should be made of smooth and non-absorbent materials and should be in sound condition

## **4.0 FACILITIES AND UTILITIES**

- 4.1.1 Where necessary feed production facilities should have adequate potable water used for operation and cleaning needs
- 4.1.2 Water storage tanks should be cleaned at least every six months and records of the same should be maintained.
- 4.1.3 The tanks should be covered to prevent access by animals, birds, pests and other extraneous matter.
- 4.1.4 The manholes to the tanks should be locked and access should be granted to authorized personnel only.
- 4.1.5 Facilities should be in place for drainage and waste disposal designed and constructed in such a way as to minimize the risk of contamination of feed or potable water supply.

## **5.0 WASTE MANAGEMENT**

- 5.1.1 Drainages should be covered and be devoid of any water stagnation to prevent contamination and infestation of rodents and other animals.
- 5.1.2 Adequate control measures should be in place to prevent insects and rodents from entering the processing or storage areas from drains. Example: Covering the openings of the drain with wire mesh.
- 5.1.3 Waste disposal systems and facilities should be designed and constructed in manner that avoids risk of contamination.
- 5.1.4 Waste and other damaged goods should not be kept inside the production facility and should be disposed of periodically in an appropriate manner.
- 5.1.5 Discarded equipment and boxes should not be dumped around the building.
- 5.1.6 The garbage dump should not be located near the storage area.
- 5.1.7 Containers/bins used to carry waste materials should be dedicated and preferably colour-coded for identification and cleaned adequately on a regular basis.
- 5.1.8 Different types of waste should be segregated for correct disposal and to prevent contamination.
- 5.1.9 All waste from feed production facility should be taken to the identified location for disposal.

## **6.0 VENTILATION**

- 6.1.1 Adequate ventilation should be provided to minimize air borne contamination.
- 6.1.2 Ventilation systems shall be designed and constructed so that air does not flow from contaminated areas to clean areas.
- 6.1.3 The warehouse should be properly ventilated to prevent moisture condensation.

## **7.0 LIGHTENING**

- 7.1. Adequate artificial or natural lighting sources are required for proper visibility and to ensure good hygienic practices.
- 7.2. Lightings should be enclosed with shatterproof covers so as to ensure that feed or feed package surfaces are not contaminated during breakages

## **8.0 TRANSPORTATION OF RAW MATERIALS AND FINISHED PRODUCTS**

Transportation of feed and feed ingredients is a critical step that requires extra monitoring to ensure maintenance of the safety and quality of the feed or feed ingredients. For the maintenance of the required safety and quality standards the followed measures should be implemented:

- 8.1.1 The type of transport vessel and handling equipment should be selected based on the nature of the feed and the conditions under which it has to be transported
- 8.1.2 Feed transport vessels should be inspected for contamination, pest infestation vehicle damages which may jeopardize the safety of the products.
- 8.1.3 Feed transport vessel should be covered, and the inside structure should be intact, painted and where possible with locking/sealing facility.
- 8.1.4 The internal surfaces of the vessel body should be impervious to water, easy to clean and the vessel body should be sealed to avoid the entry of pests, exhaust fumes or other sources of contamination.
- 8.1.5 Loaded delivery vehicle should be covered with hygienic and infestation- free tarpaulin after loading the feed.
- 8.1.6 Doors and latches should be tight to prevent the entry of moisture and pests.
- 8.1.7 Broken or dirty pallets should not be used for transportation.
- 8.1.8 Feed and feed ingredients should be loaded, arranged or unloaded in a manner that prevents damage, contamination or deterioration of the feed and its packaging materials.
- 8.1.9 The load should be equally distributed on the vehicle. Records should be kept of daily checks and maintenance.

## **9.0 PRODUCTION AND PROCESSING OF FEED**

Feed producers must ensure that the different stages of production are carried out according to production logic flow. This must follow pre-established written procedures and instructions aimed at establishing and monitoring of the critical control points in the manufacturing process. Feed formulation should be done as per the nutritional requirement of the species and type of animal as specify by the relevant regulatory provisions. To avoid contamination during the feed manufacturing process the following steps should be taken:

- 9.1.1 Technical or organizational measures must be taken to avoid or minimize cross-contamination and errors.
- 9.1.2 There must be sufficient and appropriate means of monitoring during the manufacturing process.
- 9.1.3 Waste and un-sellable materials should be isolated and identified. Any such materials containing hazardous levels of veterinary drugs, contaminants or other

hazards shall be disposed of in an appropriate way and not used in the feed production.

**9.1.1 The use of veterinary antimicrobial drugs should be avoided the extent possible however, when antimicrobials are included in the formulation of feed and feed product the following measures should be considered;**

9.2.1 Good veterinary and animal husbandry practices and disease prevention practices such as vaccination and improvements in husbandry conditions should be the first option. It should be controlled by a veterinary professional or another personnel with the required expertise.

## **10.0 LABELLING**

Labeling should be clear and informative regarding how the user should handle, store and use feed and feed ingredients. Labeling should be done in accordance to the FSQA Act 2011 and other existing regulations. Labeling or accompanying documents of feed should contain, where appropriate:

- 10.1.1 Shall be in English and then any other additional language
- 10.1.2 Information about the species or category of animals for which the feed is intended;
- 10.1.3 The purpose for which the feed is intended;
- 10.1.4 A list of feed ingredients, including appropriate reference to additives, in descending order of proportion;
- 10.1.5 Contact information of manufacturer or registrant;
- 10.1.6 Directions and precautions for use;
- 10.1.7 Lot identification;
- 10.1.8 Manufacturing date;
- 10.1.9 “Best before” or expiry date.

## **11.0 TRACEABILITY/PRODUCT TRACING AND RECORD KEEPING OF FEED AND FEED INGREDIENTS**

Traceability/product tracing of feed and feed ingredients, including additives, should be enabled by proper record keeping for timely and effective withdrawal or recall of products if known or probable adverse effects on consumers' health are identified. Records should be maintained and readily available regarding the production, distribution and use of feed and feed ingredients to facilitate the prompt trace-back of feed and feed ingredients to the immediate previous source and trace-forward to the following subsequent recipients if known or probable adverse effects on consumers' health are identified through a well-documented traceability system that is capable of timely registering and processing of complaints.

## **12.0 FEED AND FEED INGREDIENTS**

Feed and feed ingredients should only be produced, commercialized, stored and used if they are safe and suitable for animal consumption. They should not pose any risk to the animals' and consumers' health when used as intended. Feed and feed ingredients contaminated with unacceptable levels of undesirable substances should be identified as unsuitable for animal feed and should not be marketed or used. Feed and feed ingredients should not be presented or marketed in a manner liable to mislead the user.

### **12.1 Feed Ingredients**

Feed ingredients' quality and safety are essential in producing safe and quality feed. The safety of feed ingredients should be assessed based on the Codex Principles for Risk Analysis before their use in animal feeding. Information should be provided so as to ensure that feed ingredients are appropriately used and stored, thus avoiding the introduction of food hazards in the food chain. Feed ingredients users should be sure that the ingredients they purchased for feed are free from contamination which would not ordinarily be removed by processing.

Product information allows for the following:

- 12.1.1 Better quality and process control due to the availability of information on raw materials;
- 12.1.2 Possibility of correlating product data with raw material characteristics and processing data;
- 12.1.3 Avoidance of uneconomic mixing of high and low-quality raw materials;
- 12.1.4 Ease of information retrieval in quality management audits.

12.2 Purchasers should evaluate suppliers based on their ability to supply products in accordance with pre-established specifications. Purchasing specifications should be established to define the product or service to be ordered clearly and may utilize official ingredient definitions. Suppliers can be evaluated through supplier visits, certification, purchase contracts, monitoring of the ingredient supplied or a combination of any. An ongoing sampling of feed ingredients should be carried out to be sure that quality and safety standards are met. Testing for suspected contaminants and constant effort at good housekeeping will minimize health problems attributable to animal feeding. Any feed ingredient suspected of contamination should not be used in animal feed production unless, through proper sampling and testing, it is found to be appropriate for the species and class of animal it is intended.

## ANNEX 1

### Summary of production site location and layout

<b>Pre-requisite</b>	<b>Requirements</b>	<b>Desired Outcome</b>
Location	Away from polluted areas prone to flooding, pest infestation and the presence of waste	Avoid feed contamination
Design and layout	Physical separation of activities that can cause contamination Protection and covering of intake and loading facilities Sufficient space to conduct operations Prevention against the entry of pest and contaminants	Enable good cleaning operations, prevent external and cross-contamination through weather, pest and other possible means
Internal Structure and fittings	Walls, doors and partitions with smooth surface Windows fitted with cleanable screens Floors with adequate drainage	Allow cleaning Avoid buildup of dirt
Equipment	Made of non-toxic material Control operation conditions efficiently Easy to disassemble clean and maintain Identify waste and dangerous substance containers	Avoid feed contamination and carry-over Monitor Critical Control Points efficiently Avoid accidental and malicious contamination
Water supply	Portable water where need According to WHO guidelines	Avoid feed and equipment contamination

	Monitor and control Chemical treatments	
Drainage and waste Disposal	Constructed not to cross-connect with portable water supply system Identify location of waste bins within the facility	Avoid feed and equipment contamination
Cleaning Facilities	Corrosion-resistant and easily cleanable material separated from production and storage areas	Prevent contamination Maintains utensils and small equipment in cleaned conditions
Hygiene Facilities	Provided with means to wash and dry hands Hand washing basins near toilets Constant supply of portable water Availability of protective clothings	Maintain adequate personal hygiene to avoid feed contamination Avoid people passing through unauthorised areas without washing their hands
Air Quality, Temperature and Ventilation	Control of temperature and ventilation where necessary Air flow from clean to contaminated areas	Minimise air-borne contamination of feed
Lighting	Adequate artificial or natural lighting sources Protection of lighting fixtures	Ensure hygienic procedures and inspection of production facilities Protect feed so that it is not contaminated by breakages

## 13.0 ANNEX 2

### Recommended Practices for On-Farm Production and Use of Feed And Feed Ingredients

Adherence to Good Agricultural Practices and Good Manufactured Practices are encouraged in the production of natural, improved and cultivated pastures, forage and cereal grain crops used as feed or feed ingredients for food producing animals.
Producers who choose to manufacture feed on the farm also accept responsibility for maintaining feed quality and other duties that come with it, such as maintaining feed safety.
Quality control begins with purchase of feed ingredients, continues through the feed manufacturing process and does not end until the animals have consumed the feed.
Animals should be fed with sufficient feed, based on their physiological needs and according to their age, body weight, stage of lactation, production level, growth, pregnancy, activity and climate.
If the animals are on poor quality pasture, additional forage or any kind of supplementation may be required to meet the animals' needs.
Adjust stocking rates and/or supplementary feeding to ensure adequate water, feed and fodder supply.
The grazing of pastures, croplands, ponds or other water bodies should be managed in a way that minimizes the contamination of livestock by biological and chemical food safety hazards.
Protect animals from access to toxic plants. Do not feed animals moulded feeds.
Animals should have free access to a clean fresh water supply. Regularly clean water troughs or drinkers and inspect them to ensure they are fully functional. The water supply should be adequate to meet peak animal requirements that is, drinkers should fill sufficiently quickly to avoid any animals in a group remaining thirsty. All reasonable steps should be taken to minimize the risks of the water supply freezing or overheating, as appropriate.
Design and construct buildings to be free of obstruction and hazards. Provide competent animal husbandry skills and appropriate training.
Protect animals from adverse weather conditions and the consequences thereof. Provide non-slippery floors.
Ensure animals are free from pain, injury and disease.
Have an effective animal health management programme in place and inspect animals regularly.
Provide competent animal husbandry skills and appropriate training.

## REFERENCES

- ❖ Codex Alimentarius Commission – Procedural manual
- ❖ Codex Principles for Traceability/Product Tracing as a tool within a Food Inspection and Certifications System (CAC/GL 60-2006)
- ❖ Codex Code of Hygiene Practice for Eggs and Egg Products (CAC/RCP 15-1976)
- ❖ Codex Code of Hygiene Practice for Milk and Milk Products (CAC/RCP 57-2004)
- ❖ Codex Code of practice on good animal feeding (CAC/ RCP 54–2004).
- ❖ Codex Code of Hygienic Practice for Meat(CAC/RCP 58-2005)
- ❖ CODEX STAN 193-1995. 1995. Codex General Standard for Food Contaminants and Toxins in Food.
- ❖ USDA. 2007. Guidelines for the Control of Aquatic Animal Health Hazards in Aquatic Animal Feeds, March 2007
- ❖ FIFE Trading Standards Service. 2000. Guidance for On-farm Mixers Producing Complete Feeds for their Own Use
- ❖ Codex Code of Practice to Minimise and Contain Antimicrobial Resistance (CAC/RCP 61-2005)
- ❖ Recommended International Code of Practice General Principles of Food Hygiene – CAC/RCP 1-1969, Rev 4 (2003)