

# PHILIPPINE NATIONAL STANDARD

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## Code of Good Animal Feeding



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**Foreword**

The Philippine National Standard (PNS) Code of Good Animal Feeding has been prepared by the Technical Working Group (TWG) as per Department of Agriculture Special Order No. 574 series of 2017 and approved by the Secretary of the Department of Agriculture.

The objective of this Code is to ensure the safety of food for human consumption through adherence to Good Animal Feeding Practice (GAFP) at the farm level and Good Manufacturing Practices (GMPs) during the procurement, handling, storage, processing and distribution of animal feed and feed ingredients for food-producing animals.

This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2.

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**Code of Good Animal Feeding**

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**1 Scope**

This Code is to establish a feed quality and safety system for food-producing animals which covers the whole feed chain, taking into account relevant aspects of animal health and its environment in order to minimize risks to consumer's health. This Code applies in addition to the principles of food hygiene already established by the Codex Alimentarius Commission, taking into account the special aspects of animal feeding.

This Code of Practice applies to the production and use of all materials for animal feed and feed ingredients at all levels whether produced industrially or on farm. It also applies to forage crop production and processing, and feeding management system such as, but not limited to grazing or free-range feeding. Environmental contaminants should be considered where the level of such substances in the feed and feed ingredients could present a risk to animals' health from the consumption of foods of animal origin.

Those issues of animal welfare are not covered.

**2 Objectives**

The objective of this Code is to ensure the safety of food for human consumption through adherence to Good Animal Feeding Practice (GAFP) at the farm level and Good Manufacturing Practices (GMPs) during the procurement, handling, storage, processing and distribution of animal feed and feed ingredients for food-producing animals.

While recognizing that, in its totality, a feed safety system would address animal health and environmental issues, in addition to consumers' health, this Code of Practice, in fulfilling the Codex mandate of consumer protection, only addresses feed safety. Notwithstanding this, best efforts have been made to ensure that the recommendations and practices in this Code of Practice will not be detrimental to the more general animal health and environmental aspects of animal feeding.

**3 Normative references**

There are no normative references in this document.

**4 Terms and definitions**

For the purpose of this document, the following terms and definitions apply:

**4.1****clean water**

water that does not compromise food safety in the circumstances of its use

**4.2**

**competent authority**

an entity/agency who has the knowledge, expertise and authority as designated by law

**4.3**

**feed (feedstuff)**

any single or multiple materials, whether processed, semi-processed or raw, which is intended to be fed directly to food-producing animals

**4.4**

**feed additive**

any intentionally added ingredient not normally consumed as feed by itself, whether or not it has nutritional value, which affects the characteristics of feed or animal products

**4.5**

**feed ingredients**

a component part or constituent of any combination or mixture making up a feed, whether or not it has a nutritional value in the animal's diet, including feed additives. Ingredients are of plant, animal or aquatic origin, or other organic or inorganic substances

**4.6**

**food-producing animals**

any animal or its by-products used as food such as, but not limited to livestock, poultry, fisheries, aquaculture and honeybee

**4.7**

**forage**

anything grown on the ground intended for use as animal feed, whether for grazing, cut-and-carry, ensiling or haying / vegetative material in a fresh, dried or ensiled state (pasture, hay or silage) that is fed to livestock

**4.8**

**medicated feed**

any feed which contains veterinary drugs primarily used for therapeutic purposes defined in the Codex Alimentarius Commission Procedural Manual

**4.9**

**potable water**

water which meets the quality standards of drinking water such as describe in the WHO guidelines for drinking water

#### **4.10**

##### **undesirable substances**

contaminants and other substances which are present in and/or on feed and feed ingredients and which constitute a risk to food-producing animals and human health, including food safety related animal health issues

## **5 General principles and requirements**

Feed and feed ingredients should be obtained and maintained in a stable condition so as to avoid contamination by pests, or by chemical, physical or microbiological contaminants or other objectionable substances during production, handling, storage and transport. Feed should be in good condition and meet generally accepted quality standards. Where appropriate, Good Agricultural Practices (GAP), 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 food. Potential sources of contamination from the environment should also be considered.

Establishments that produce feed or feed ingredients, (those that rear animals for use as food) and those that produce such animal products need to collaborate with the competent authority to identify potential hazards and their levels of risk to animal's health. Such collaboration will enable the development and maintenance of appropriate risk management options and safe feeding practices.

### **5.1 Feed ingredients**

Feed ingredients should be obtained from safe and reliable sources and be subjected to a risk analysis where the ingredients are derived from processes or technologies not hitherto evaluated from a food safety point of view. The procedure used should be consistent with the Working Principles for Risk Analysis for Application in the Framework of the Codex Alimentarius. Manufacturers of feed additives in particular should provide clear information to the user for correct and safe use. Monitoring of feed ingredients should include inspection, sampling and analysis for undesirable substances using risk-based protocols. Feed ingredients should meet acceptable and, if applicable, statutory standards for levels of pathogens, mycotoxins, pesticides and undesirable substances that may pose animal and human health hazards.

### **5.2 Labelling**

Labelling should be clear and informative as to how the user should handle, store and use feed and feed ingredients. Labelling should be consistent with any statutory requirements and should describe the feed and feed ingredients and provide

instructions for use. Labelling or the accompanying documents should contain, where appropriate:

- Information about the species or category of animals for which the feed is intended;
- The purpose for which the feed is intended;
- A list of feed ingredients, including appropriate reference to additives, in descending order of proportion;
- Guaranteed analysis (Crude Protein, Crude Fat, Crude Fiber, Calcium: Phosphorus percentage, Moisture)
- Net weight in metric equivalent of the contents
- Name, brand or trademark
- Contact information of manufacturer or registrant;
- Registration number
- Directions and precautions for use;
- Lot identification/Batch number
- Manufacturing date; and
- Expiration date (finish feeds) / Best before (feed ingredients, supplements, additives, etc.)

### **5.3 Traceability and record keeping of feed and feed ingredients**

Traceability of feed and feed ingredients, including additives, should be done by proper record keeping for timely and effective withdrawal or recall of products if known or probable adverse effects on animal's health are identified. Records on the production (origin of the ingredients), distribution and use of feed ingredients should be maintained and readily available to facilitate the prompt trace-back of feed and feed ingredients to the immediate previous source and trace-forward to the next subsequent recipients if known or probable adverse effects on animal's health are identified.

#### **5.3.1 Special conditions applicable to emergency situations**

Operators should, as soon as reasonable, inform the competent authorities in the country if they consider that a feed or feed ingredient does not satisfy the feed safety requirements established in this Code. The information should be as detailed as possible and should at least contain a description of the nature of the problem, a description of the feed and feed ingredients, the species for which it is intended, the lot identifier, the name of the manufacturer and place of origin. The competent authorities and operators should immediately take effective measures to ensure that those feed or feed ingredients do not pose any danger to animals' health.

As soon as it becomes likely that a particular feed or feed ingredient is to be traded internationally and may pose a danger to animal's health, the competent authorities of the exporting countries should notify, at least, the competent authorities of the



relevant importing countries. The notification should be as detailed as possible and should at least contain the particulars indicated in the previous paragraph.

#### **5.4 Inspection and control procedures**

Feed and feed ingredients manufacturers and other relevant parts of feed industry should practice self-regulation to secure compliance with required standards for production, storage and transport. It will also be necessary for risk-based official regulatory programmes to be established to verify that feed and feed ingredients are produced, distributed and used in such a way that foods of animal origin for human consumption are both safe and suitable. Inspection and control procedures should be routinely done to ensure that feed and feed ingredients meet the requirements to guarantee animal safety. Inspection systems should be designed and operated in the basis of objective risk assessment appropriate to the circumstances. Preferably the risk assessment methodology employed should be consistent with internationally accepted approaches. Risk assessment should be based on current available scientific evidence.

Monitoring of feed and feed ingredients, whether by industry or official inspection bodies, should include routine inspection, sampling and analysis to verify compliance to the standard guaranteed analysis set by the competent authority, to avoid adulteration and to detect unacceptable levels of undesirable substances

#### **5.5 Health hazards associated with animal feed**

All feed and feed ingredients should meet minimum safety standards. It is essential that levels of undesirable substances should be absent or within the acceptable limit set by competent authorities. Codex Maximum Residue Limits and Extraneous Maximum Residue Levels set for feed should be applied. Maximum residue limits set for food, such as those established by Codex Alimentarius Commission, may be useful in determining minimum safety standards for feed.

##### **5.5.1 Feed additives and veterinary drugs used in medicated feed**

Veterinary drugs used in medicated feed should comply with the provisions of the Codex Recommended International Code of Practice for the Control of the Veterinary Drugs.

Borderlines between feed additives and veterinary drugs used in medicated feed may be set to avoid misuse.

Feed additives should be received, handled and stored properly to maintain their integrity and to minimize misuse or unsafe contamination. Feed containing them should be used in strict accordance with clearly defined instructions for use.

Medicated feed should have a veterinary drug order coming from a licensed veterinarian.

### **5.5.2 Feed and feed ingredients**

Feed and feed ingredients should only be produced, marketed, stored and used if they are safe and suitable, and when used as intended, should not represent in any way an unacceptable risk to animals' health. In particular, tested feed and feed ingredients found to have unacceptable levels of undesirable substances should be clearly identified as unsuitable for animal feed and not be marketed or used.

Feed and feed ingredients should not be presented or marketed in a manner to mislead the user.

### **5.5.3 Undesirable substances**

The presence in feed and feed ingredients of undesirable substances such as industrial and environmental contaminants, pesticides, radionuclides, persistent organic pollutants, pathogenic agents and toxins such as mycotoxins should be identified, controlled and minimized. Animal by-products that could be a source of disease agent should not be used for feeding directly to, or for feed manufacturing. Control measures applied to reduce unacceptable level of undesirable substances should be assessed in terms of their impact on feed safety.

The risk of each undesirable substance to animals' health should be assessed and such assessment may lead to the setting of maximum limits for feed and feed ingredients or the prohibition of certain materials for animal feeding.

## **6 Production, processing, storage, transport and distribution of feed and feed ingredients**

The production, processing, storage, transport and distribution of safe and suitable feed and feed ingredients is the responsibility of all participants in the feed chain, including manufacturer, distributor, importer, truckers, etc. Each participant in the feed chain is responsible for all activities that are under their direct control, including compliance with any applicable statutory requirements.

Feed and feed ingredients should not be produced, processed, stored, transported or distributed in facilities or using equipment where incompatible operations may affect their safety and lead to adverse effect on animals' health. Due to the unique characteristics of fisheries and aquaculture, the application of these general principles shall consider the differences between fisheries, aquaculture and terrestrial-based production.

Where appropriate, operators should follow and properly implement GMPs and, where applicable, HACCP principles to control hazards that may affect feed safety. The aim is to ensure feed safety and in particular to prevent contamination of animal feed as far as this is reasonably achievable, recognizing that total elimination of hazards is often not possible.

## **6.1 Premises**

Buildings and equipment used to process feed and feed ingredients should be constructed in a manner that permits ease of operation, maintenance and cleaning and minimizes feed contamination. Process flow within the manufacturing facility should also be designed to minimize contamination.

Water used in feed manufacture should meet hygienic standards and be of suitable quality for animals. Tanks, pipes and other equipment used to store and convey water should be of appropriate materials which do not produce unsafe levels of contamination.

Sewage, waste and rain water should be disposed of in a manner which avoids contamination of equipment, feed and feed ingredients.

## **6.2 Receiving, storage and transportation**

Fertilizers, pesticides and other materials not intended for use in feed and feed ingredients should be stored separately to avoid manufacturing errors and contamination.

Manufactured feed should be stored separately from feed ingredients and appropriate packaging materials should be used. Feed and feed ingredients should be received, stored and transported in such a way so as to minimize the potential for any cross-contamination to occur at a level likely to have a negative impact on feed safety.

The presence of undesirable substances in feed and feed ingredients should be monitored and controlled.

Feed and feed ingredients should be delivered and used as soon as possible. All feed and feed ingredients should be stored and transported in a manner which minimizes quality deterioration.

Care should be taken to minimize deterioration and spoilage at all stages of handling, storage and transport of feed and feed ingredients. Special precautions should be taken to limit fungal and bacterial growth in moist and semi-moist feed and feed ingredients. Condensation should be minimized in feed and feed ingredient manufacturing and processing facilities. Feed and feed ingredients should be kept dry in order to limit fungal and bacterial growth.

Waste feed and feed ingredients and other material containing unsafe levels of undesirable substances or any other hazards should not be used as feed, but should be disposed of in an appropriate manner including compliance with any applicable statutory requirements.

### **6.3 Personnel training**

All personnel involved in the manufacture, storage and handling of feed and feed ingredients should be adequately trained and aware of their role and responsibility in promoting feed safety.

### **6.4 Sanitation and pest control**

Feed and feed ingredients, manufacturing establishments, storage facilities and their immediate surroundings should be kept clean and sanitized at all times, and effective pest control programmes should be implemented.

Containers and equipment used for manufacturing, processing, transport, storage, conveying, handling and weighing of feed and feed ingredients should be kept clean at all times. Cleaning and Sanitation programmes should be effective and properly implemented.

Machinery and equipment shall be dried prior to its use to avoid fungal and bacterial growth.

### **6.5 Equipment performance and maintenance**

All weighing scales and metering devices used in the manufacture of feed and feed ingredients should be appropriate for the range of weights and volumes to be measured, and be calibrated regularly for accuracy.

All mixers and hammermill used in the manufacture of feed and feed ingredients should be appropriate for the capacity and volumes being mixed and be capable of manufacturing suitable homogeneous mixtures and homogeneous dilutions, and be tested regularly to verify their performance.

All other equipment used in the manufacture of feed and feed ingredients should be appropriate for the capacity and volumes being processed, and should be monitored and calibrated regularly.

### **6.6 Manufacturing controls**

Manufacturing procedures should be used to avoid cross-contamination (for example flushing, sequencing and physical clean-out) between batches of feed and feed ingredients containing restricted or otherwise potentially harmful materials (such as

certain animal by-products meals, veterinary drugs). These procedures should also be used to minimize cross-contamination between medicated and non-medicated feed and other incompatible feed. In cases where the feed safety risk associated with cross-contamination is high and the use of proper flushing and cleaning methods is deemed insufficient, consideration should be given to the use of completely separate production lines, transfer, storage and delivery equipment.

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

## **6.7 Recalls**

Records and other information should be maintained as indicated in sub-section 5.3 of this Code. Feed and feed ingredients that pose a threat to animals' health shall be recalled immediately from the market.

## **7 On-farm production and use of feed and feed ingredients**

This section provides guidance on the cultivation, manufacture, management and use of feed and feed ingredients on the farms and in fisheries and aquaculture.

This section should be used in conjunction with the applicable requirements of Sections 5 and 6 of this Code.

To help ensure the safety of feed used for animal consumption, GAP should be applied on all stages of on-farm production of pastures, cereal grain and forage crops used as feed or feed ingredients for food producing animals. For aquaculture the same principles should apply, where applicable. Three types of contamination represent hazards at most stages of on-farm production of feed and feed ingredients, namely:

- Biological, such as bacteria, fungi and other microbial pathogens;
- Chemical, such as residues of medication, pesticides, fertilizer or other agricultural substances; and
- Physical, such as broken needles, parts of machineries and equipment and other foreign material.

### **7.1 Agricultural production of feed**

Adherence to GAP is encouraged in the production of natural, improved and cultivated pastures and in the production of forage and cereal grain crops used as feed or feed ingredients for food producing animals. Following GAP standards will prevent the risk of biological, chemical and physical contaminants entering the feed chain. If crop residuals and stubbles are grazed after harvest, or otherwise enter the

feed chain, they should also be considered as livestock, poultry, fisheries and aquaculture feed. Most livestock and poultry will consume a portion of their bedding. Crops that produce bedding material(s) such as straw or wood shavings should also be managed in the same manner as animal feed ingredients. Good Pasture Management Practices, such as rotational grazing and dispersion of manure, should be used to reduce cross-contamination between groups of animals.

### **7.1.1 Site selection**

Land used for production of animal feed and feed ingredients should not be located in close proximity to industrial operations where industrial pollutants from air, ground water or runoff from adjacent land would be expected to result in feed safety risks. Contaminants present in runoff from adjacent land and irrigation water should be below levels that present a feed safety risk.

### **7.1.2 Fertilizers**

Where manure fertilization of crops or pasture is practiced, an appropriate handling and storage system should be in place and maintained to minimize environmental contamination, which could negatively impact the safety of feeds. There should be adequate time between applying the manure and grazing or forage harvesting (silage and hay making) to allow the manure to decompose and to minimize contamination of feed ingredients.

Manure, compost and other plant nutrients should be properly used and applied to minimize biological, chemical and physical contamination of feeds and feed ingredients of the animal which could adversely affect feed safety.

Chemical fertilizers should be handled, stored and applied in a manner such that they do not have a negative impact on feed safety.

### **7.1.3 Pesticides and other agricultural chemicals**

Pesticides and other agricultural chemicals should be obtained from safe and reliable sources. Where a regulatory system is in place, any chemical used shall comply with the requirements of that system.

Pesticides should be stored according to the manufacturer's instructions and used in accordance with Good Agricultural Practice (GAP) in the use of pesticides. It is important that farmers carefully follow the manufacturer's instructions for use for all agricultural chemicals.

Pesticides and other agricultural chemicals should be disposed of responsibly in a manner that will not lead to contamination of any body of water, soil, feed or feed ingredients that may lead to the contamination of feeds.

## **7.2 Manufacturing of feed-on farm**

### **7.2.1 Feed ingredients**

On farm feed manufacturers should follow the applicable guidelines established in sub section 5.1 of this Code when sourcing feed ingredients off the farm.

Feed ingredients produced on the farm should meet the requirements established for feed ingredients sourced off the farm. For example, seed treated for planting should not be fed to the animals

### **7.2.2 Mixing**

On-farm feed manufacturers should follow the applicable guidelines established in Sections 5.5.1 and 6 of this Code. Particular attention should be given to sub-section 6.6 of this Code.

In particular, feed should be mixed in a manner that will minimize the potential for cross-contamination between feed or feed ingredients that may have an effect on the safety or shelf-life of the feed or feed ingredients. In addition, medicated feed should have a veterinary drug order coming from a licensed veterinarian.

### **7.2.3 Monitoring records**

Appropriate records of Feed Manufacturing Procedures followed by on-farm feed manufacturers should be maintained to assist in the investigations of possible feed-related contamination or disease events.

Records should be kept of incoming feed ingredients, date of receipt and batches of feed produced in addition to other applicable records set out in sub-section 5.3 of the Code.

## **7.3 Good animal feeding practice**

Good Animal Feeding Practices include those practices that help to ensure the proper use of feed and feed ingredients on-farm while minimizing biological, chemical and physical risks to animals.

### **7.3.1 Water**

Clean water for drinking or for aquaculture should be appropriate quality for the animals being produced. Where there is reason to be concerned about contamination of animals from the water, measures should be taken to evaluate and minimize the hazards.

### **7.3.2 Pasture grazing**

The grazing of pastures and crop lands should be managed in a way that minimizes contamination by biological, chemical and physical feed safety hazards.

Where appropriate, an adequate period should be observed before allowing livestock and poultry to graze on pasture, crops and crop residuals and between grazing rotations to minimize biological cross-contamination from manure.

Where agricultural chemicals are used, operators should ensure that the required withholding periods are observed.

### **7.3.3 Feeding**

It is important that the correct feed is fed to the appropriate animal species and that the directions for use are followed. Contamination should be minimized during feeding. Information should be available of what is fed to animals and when, to ensure that feed safety risks are managed.

Animals receiving medicated feed should be identified and managed appropriately until the correct withholding period (if any) has been reached and records of these procedures shall be maintained. Procedures to ensure that medicated feed are transported to the correct location and are fed to animals that require the medication should be followed. Feed transport vehicles and feeding equipment used to deliver and distribute medicated feed should be cleaned after use, if a different medicated feed or non-medicated feed or feed ingredient is to be transported next.

## **7.4 Stable feeding and lot/intensive feeding units**

The animal production unit should be located in an area that does not pose risk to safety of feed and feed ingredients. Care should be taken to avoid animal access to contaminated land, and to facilities with potential sources of toxicity.

### **7.4.1 Hygiene**

The animal production unit should be designed so that it can be adequately cleaned. The animal production unit and feeding equipment should be thoroughly cleaned regularly to prevent potential hazards to feed safety. Chemicals used should be appropriate for cleaning and sanitizing feed manufacturing equipment and should be used according to instruction. These products should be properly labelled and stored away from feed manufacturing, feed storage and feeding areas.

A pest control system should be put in place to control the access of pests to the animal production unit to minimize potential hazards to feed safety.



Operators and employees working in the animal production unit should observe appropriate hygiene requirements to minimize potential hazards to feed and feed ingredients.

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