

BIHAR ANIMAL SCIENCES UNIVERSITY
BIHAR VETERINARY COLLEGE, PATNA
Department of Animal Nutrition

Class: M.V.Sc.

Course No.: ANN-603 (Unit-II)

Date: 23.11. 2020 & Time: 10.0 – 11.0 AM

Importance of quality control in feed industry

Dr. Kaushalendra Kumar
Assistant Professor, Animal Nutrition, BVC, BASU, Patna
e-mail- drkaushalbvc@gmail.com

Nutritional quality of feed ingredient is known by its ability to supply specific nutrients to the target animal & should be free from physical & chemical contaminants.

- ✓ **Nutrients content**
- ✓ **Nutrients availability**
- ✓ **Batch variation**
- ✓ **Ingredient variation**
- ✓ **Genetics, harvesting, processing, storage, transportation, adulterations etc.**

Objectives

- ❖ To ensure the manufacturing is functioning properly.
- ❖ To ensure the manufactured product is according to specifications of nutrients.
- ❖ To ensure the customer satisfaction as desired.
- ❖ To ensure the feed is palatable, has optimum medication level & free from contamination.

Benefits of Quality Control

- **Enhance profits**
- **Improve market share**
- **Minimize production cost**
- **Savings in customer services**
- **Less complaints**
- **Reduce compensation payments**
- **Enhance customer satisfaction**
- **Improve product quality image**
- **Better disciplined management**
- **Good industry/firm morale**

Feed Ingredients and their Analysis

Ingredients	Protein	Moisture	Fat	Fibre	Calcium	Phos.	Sodium	Afla - toxin	Urease Activity	Bacteria	Micro - scopic	Frequency
Maize	✓	✓						✓				W
Cereal Grain	✓	✓										E
Soyabean Meal	✓	✓		✓					✓			E
Corngluten Meal	✓											E
Fish Meal	✓				✓	✓	✓			✓	✓	E
Meat and Bone Meal	✓	✓			✓	✓	✓			✓	✓	E
Cotton Seed Meal	✓											E
Sunflower Seed	✓			✓								E
Flour Meal Products	✓	✓	✓	✓								E

☐ W → Weekly

☐ E → Every Load

Attributes in the Management of Quality Assurance

- ❖ Quality policy
- ❖ Specification system
- ❖ Setting standards
- ❖ Accept / reject decisions
- ❖ System improvement
- ❖ Administration / motivation

Assessment of Feed Quality

- ❖ **Variations in**
- ✓ **Incoming feed ingredients**
- ✓ **Feed mixing efficiency**
- ✓ **Efficiency of delivery of mixed feed**
- **Mixing point**
- **Animals**
- ✓ **Analytical procedures**

Assessment of Processing & Production Quality

- ✓ **Size of grains**
- ✓ **Size & color of pellets**
- ✓ **Smell of feed**
- ✓ **Mixing of ingredients**
- ✓ **Bagging – stitching – weight**
- ✓ **Cards – specifications**
- ✓ **Instructions**
- ✓ **Any contaminations – insects - weevils**

Assessment of Feedstuffs Quality

Physical Quality	Size, shape, Damage, Density, Moisture
Sanitary Quality	Foreign Material, Dust, Insects, Rodent excreta, Fungal infection
Intrinsic Quality	Non Visible attributes like Protein, Oil, Ash, Fiber etc.

Quality Control

1. Raw Materials

External.....

- ✓ **Signs of wetness / moldy / insect infection / smell / colour etc.**
- ✓ **Sampling – Microscopical – adulteration**
- ✓ **Check for CP / Fat / Ash / Toxins etc.**
- ✓ **Reject / Accept**

2. Finished Feed

- ❖ **Sampling every batch of production**
- ❖ **Check for granulation / mixing properties / pellet size / colour / smell / etc.**
- ❖ **Proximate analysis for.....**
 - ✓ **Protein**
 - ✓ **Moisture**
 - ✓ **Fibre**
 - ✓ **Fat**
 - ✓ **Ash**
 - ✓ **Ca**
 - ✓ **P**
 - ✓ **Salt**
 - ✓ **Toxin**
- ❖ **Analysis for Amino Acids, Vitamins / Drugs etc.**
- ❖ **Check against standards.**

Current Good Management Practice (CGMP)

Why ?

- ✓ **Adhere to current general standard of manufacturing**
- ✓ **Ensure the products to meet the intended specifications**
- ✓ **Maintain integrity of the product manufactured**
- ✓ **Maintain integrity of feed manufacturer**
- ✓ **Prevent non-permissible residue levels**

Storage of Feedstuffs?

- **Control the condition of storage**
- **Maintain original quality of the products**
- **Minimize deteriorative changes**

Factors affecting storage of feedstuffs

- ✓ **Moisture**
- ✓ **Temperature**
- ✓ **Oxygen supply**
- ✓ **Engineering aspects**
- ✓ **Bulk storage**
- ✓ **Physical barriers**
- ✓ **Rodents**
- ✓ **Micro-organisms**
- ✓ **Birds etc.**

Pests Control ?

- **Maintain storage cleanliness**
- **Remove & destroy all spillage**
- **Examine for excessive moisture content & insect infestation**
- **Any form of infestation – reject – fumigate**
- **Do not store infested commodities along with non infested commodities.**
- **Avoid long term storage**
- **Train warehouse staff in hygiene management**

Control of Rodents

- ✓ **General hygiene & proofing of premises**
- ✓ **Trapping**
- ✓ **Poisoning**
- ✓ **Treatment with anticoagulants**
- ✓ **Rodent tracking dusts**
- ✓ **Repellents**
- ✓ **Fumigation**
- ✓ **Record keeping**

Stocking Management

- **Well prepared**
- **First in - first out**
- **Routine maintenance of silo/store**
- **Dry before storage**
- **Vigilance for hot spot**
- **Proper ventilation of silo**

Sum up.....

- **Adequate drying before storage**
- **Suitable storage facilities**
- **Proper management of warehouse**
- **Regular inspection for infestation**
- **Application of residual insecticides**
- **Application of commodity protectants**
- **Fumigation at regular interval**

Discussion.....

Thank you