



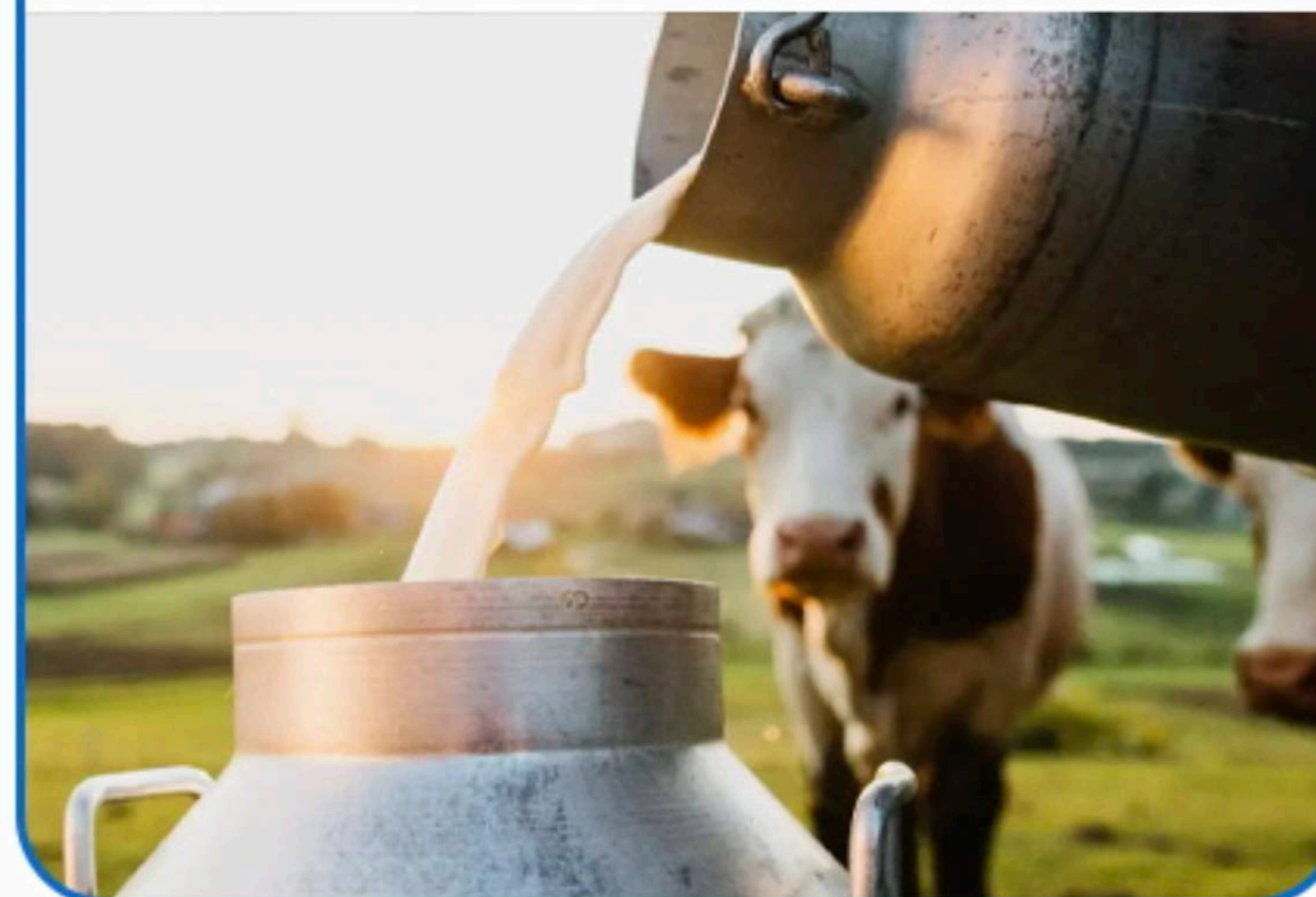
Nutritional Quality Check of Raw Materials and Finished Feeds

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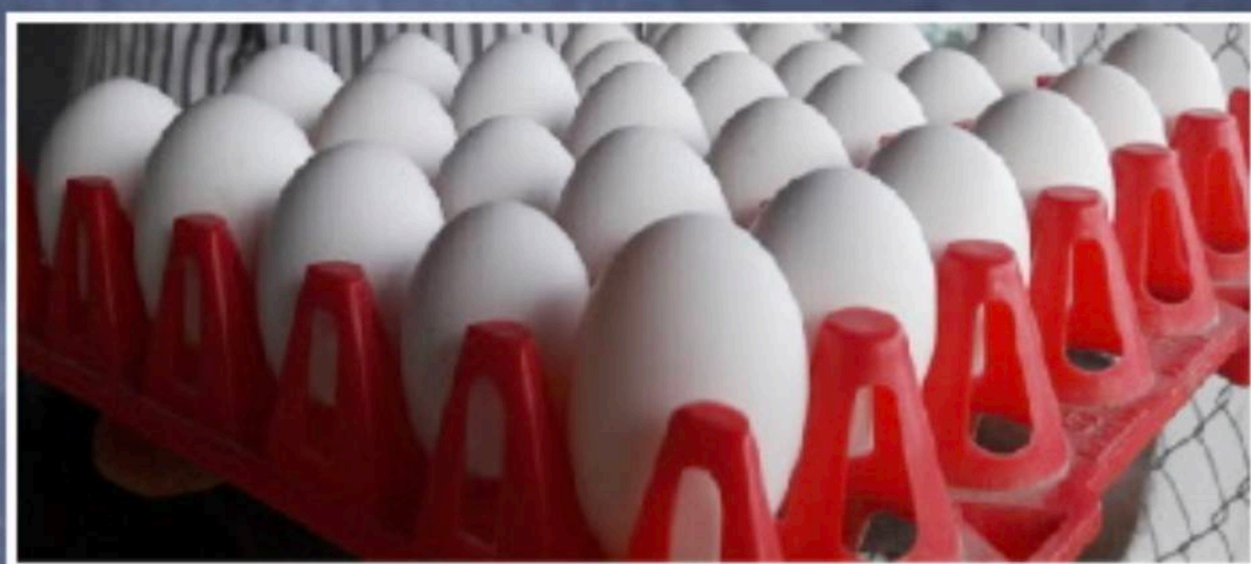


Performance challenges are there in today's modern animal rearing





Uniformity of Eggs is a challenge today





Growth Evolution of broilers

Period	Age (d)	Wt. (kg)	Feed: Gain
1950's	75	1.5	3.2
1960's	70	1.6	2.5
1970's	60	1.9	2.2
1980's	50	2.2	2.0
1990's	50	2.6	1.9
2000's	45	2.6	1.7
2010's	40	2.4	1.65
2020's	38	2.4	1.55





The key parts of a growing broiler bird





Ensure Contract Specifications

- ▶ **Cereals**
- ▶ **Oil cakes**
- ▶ **Filler materials**
- ▶ **Major minerals**
- ▶ **Trace Minerals**



Ensure Contract Specifications

- ▶ **Cereals - Moisture and mycotoxins**
- ▶ **Oil cakes - Crude Protein, Urea, Aflatoxin B1**
- ▶ **Filler materials - Protein, Fiber and Sand & Silica**
- ▶ **Major minerals - Minerals and S&S**
- ▶ **Trace Minerals - Specific minerals**

Physical Examination of Grains

Cereals - Look for dampness (<10%)

- ▶ Check for extent of damage
- ▶ Uniformity
- ▶ Acid Insoluble Ash
- ▶ Gross fungal attack
- ▶ Check for any warmth in the bags
- ▶ Check for any certified seed contamination
- ▶ Look for weevils
- ▶ Look for any discoloration

**Analyses - Moisture, Mycotoxins, Acid Insoluble Ash
Sometimes pesticide residues**



Corn – Normal Looking





Corn – The best lot to use and store





Single Kernal of Maize/Corn- normal





Maize- Normal and Fungal attacked



Infested and found in 1/165



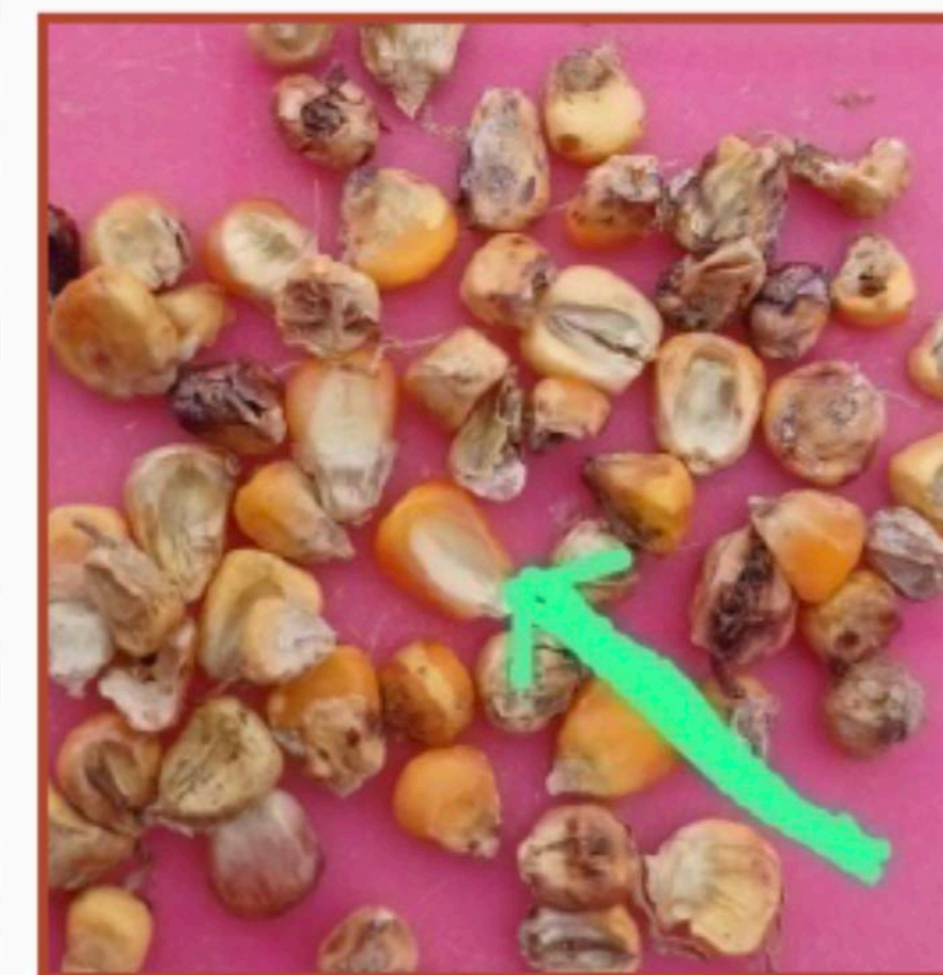


Corn with cob and dust



Grades of Maize

Grade	Bushel weight (g/litre)	Damaged kernels (%)	Broken kernels and foreign matter (%)
1	720	3	2
2	696	5	3
3	670	7	4
4	632	10	5



Physical Appearance and Energy

Corn description	ME (kcal/kg)
Very immature	3014
Immature	3100-3150
Mature	3315-3350

Physical Examination of Oil Cakes

- Cereals -** Look for any dampness
- ▶ Look for any warmth in the bag
 - ▶ Look for any change in color
 - ▶ Look for clumps
 - ▶ Look for possible fungal contamination
 - ▶ Smell for any off-odour
 - ▶ Sand and silica
- Analyses -** **Moisture**
- ▶ **Crude protein**
 - ▶ **Mycotoxins**
 - ▶ **Solubility of protein in soybean meal**
 - ▶ **Fibre**



Soybean Meal- Look at the colour and shape of SBM





A closer look





DOGNC-High Protein





GNE – Oil cake



81
100
17

Physical Examination of Dry Fish

Marine products - Check for presence of moisture

- ▶ Check for presence of marine products other than the specified
- ▶ Look discoloration
- ▶ Look for presence of any shell
- ▶ Look for sand and silica
- ▶ Look for oiliness

Analyses -

Moisture

- ▶ Crude protein
- ▶ Urea
- ▶ Acid Insoluble Ash
- ▶ Salt

Physical Examination of Minerals

Calcareous materials

- **Analyses**
 - ▶ **Calcium content**
 - ▶ **Acid Insoluble Ash**
 - ▶ **Magnesium for calcites**
 - ▶ **Phosphorus in DCP, MCP, TCP**



Calcite



SG good quality





Marble stones





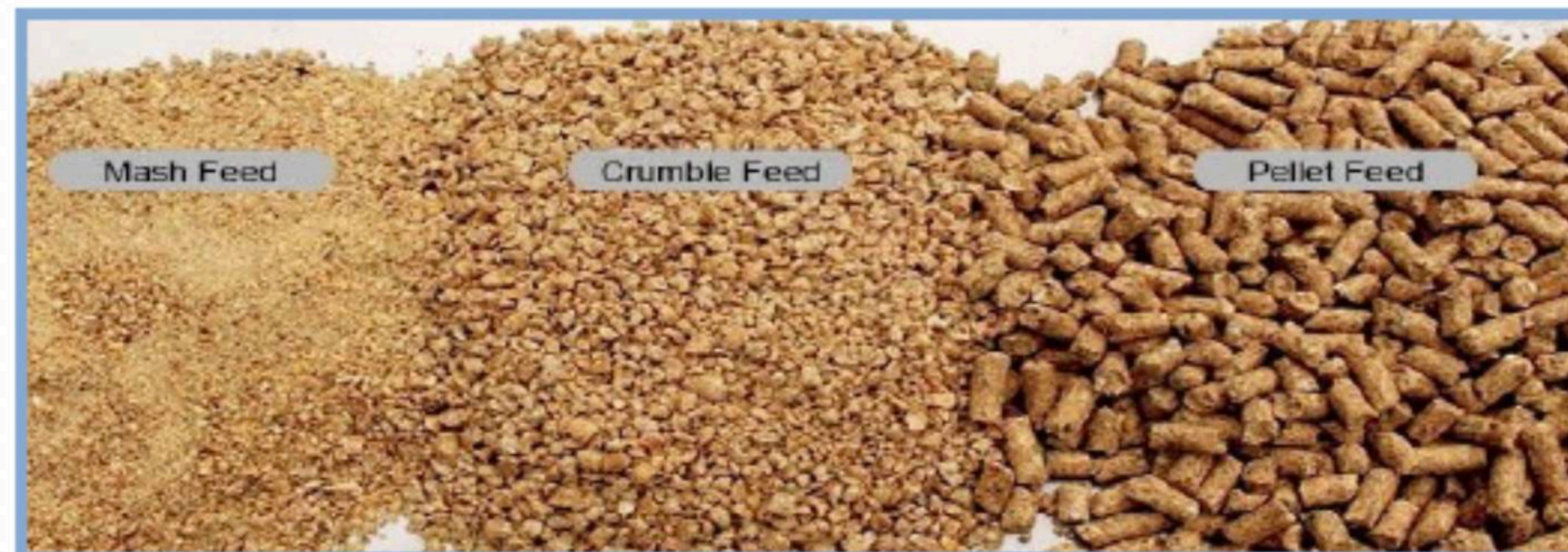
Hard shell, meal and grit



Type of Feed Ingredients and the recommendations

Raw Material	Primary Nutrients	Secondary Nutrients	Common Problems	Periodicity of testing
Cereals	Carbohydrate	Protein and Oil	Mycotoxins, Moisture, Immature cereals	Every Load
Plant Proteins	Protein	Oil, Fibre	Urea, Moisture, Mycotoxins	Every Load
Animal Proteins like Dry Fish etc	Protein, Oil	Calcium, Phosphorus and Salt	Moisture, Acid Insoluble Ash, Salt	Every Load
Other industrial by-products	Protein	Fibre, Acid Insoluble Ash	, Acid Insoluble Ash And Mycotoxins	Alternate Load

Evaluation of Finished Feeds for different animal feeding



Type of Finished Feed	Physical Evaluation	Chemical Evaluation
Mash	Presence of moistness, and odour	Proximate, Mycotoxins and adulterants
Crumble	Presence of moistness, odour and additionally fines	Proximate, Mycotoxins and adulterants
Pellet	Presence of moistness, and additionally fines	Proximate, Mycotoxins and adulterants

In nutshell

- ▶ **Physical and chemical evaluation are the important tools for maintaining the quality of finished feeds for achieving best performance in animals / poultry**



Thank you