



# Quality control and assurance in feed manufacturing for animals/poultry

**Dr. A Natarajan,** M.V.Sc., Ph.D.,

Professor and Head,  
Animal Feed Analytical and Quality Assurance Laboratory,  
Veterinary College and Research Institute,  
Namakkal – 637 002, Tamil Nadu

## Quality control and assurance in feed manufacturing for animals / poultry

- 1. Feed Sampling and Processing for Analysis**
- 2. Nutritional Quality Check of  
Raw Materials and Finished Feeds**
- 3. Feed Toxins, their analysis and interpretation**
- 4. Feed Analysis, current concepts,  
and developments**
- 5. NEAR INFRA RED SPECTROSCOPY  
– A Tool For Quick Feed Analysis**

## Why Feed/Feed Ingredients should be sampled and analyzed ?

- ▶ **Feed, which is a combination of many raw feed ingredients, is responsible for overall performance of modern animals that show constant improvement in their genetic potential over 4-5 decades**
  - ▶ **modern dairy - >25 litres/day,**
  - modern layer - 330 eggs/year**
  - modern broiler - 2.0 kg BW in 30 days**
- ▶ **The degree of quality of feed is the consistency in which the feed is formulated based on the nutrient profile**

## Why Feed/Feed Ingredients should be sampled and analyzed ?

- ▶ The **quality of raw materials should be controlled** in such a way the feed's quality is not compromised
- ▶ The content of the raw materials and feeds should be known to make balanced feeds
- ▶ To **prepare least cost feeds** without compromising the minimum specifications
- ▶ To maintain the **health of the animals**, and the **faith of feed producing organization** among the customers

## Why Feed/Feed Ingredients should be sampled and analyzed ?

- ▶ To **label the raw material lots** with the log cards (*to assist feed batch preparation so as to minimize the errors in feed manufacturing*)
- ▶ To achieve all of above, **SAMPLING of the raw materials and feed assumes importance**



## Ever increasing potential in layers.....

Year	In 52 weeks/One Year
1970s	270
1980s	285
1990s	310
2000s	325
2010s	335
2020s	336
2050s	345 ?





## Ever increasing potential in broilers.....

Year	Days to reach 2.0 kg BW
1970s	60
1980s	55
1990s	50
2000s	40
2010s	35
2020s	30
2050s	< 25 ?





## Production Efficiency of Cross Bred Animals

Year	Kg of Milk./Cycle of 305 days
1980s	3000
1990s	3600
2000s	3900
2020s	4200





## Why is sampling of feed ingredients and feeds important?

- 1 To know the physical and chemical status of the raw materials purchased
- 2 To know the nutrient profile and anti-nutritional contents by analysis
- 3 To assist on decision making on the use of such materials
- 4 To keep the samples of such lots for a fixed period of time for future reference in case of any disputes that may arise at a later time
- 5 To make payments as per the conditions laid between the consumer and supplier



## Pattern of Grains That Are Stacked and Labeled in Feed Mills





# Pattern of Soybean Meal That is Stacked and Labeled in Mills

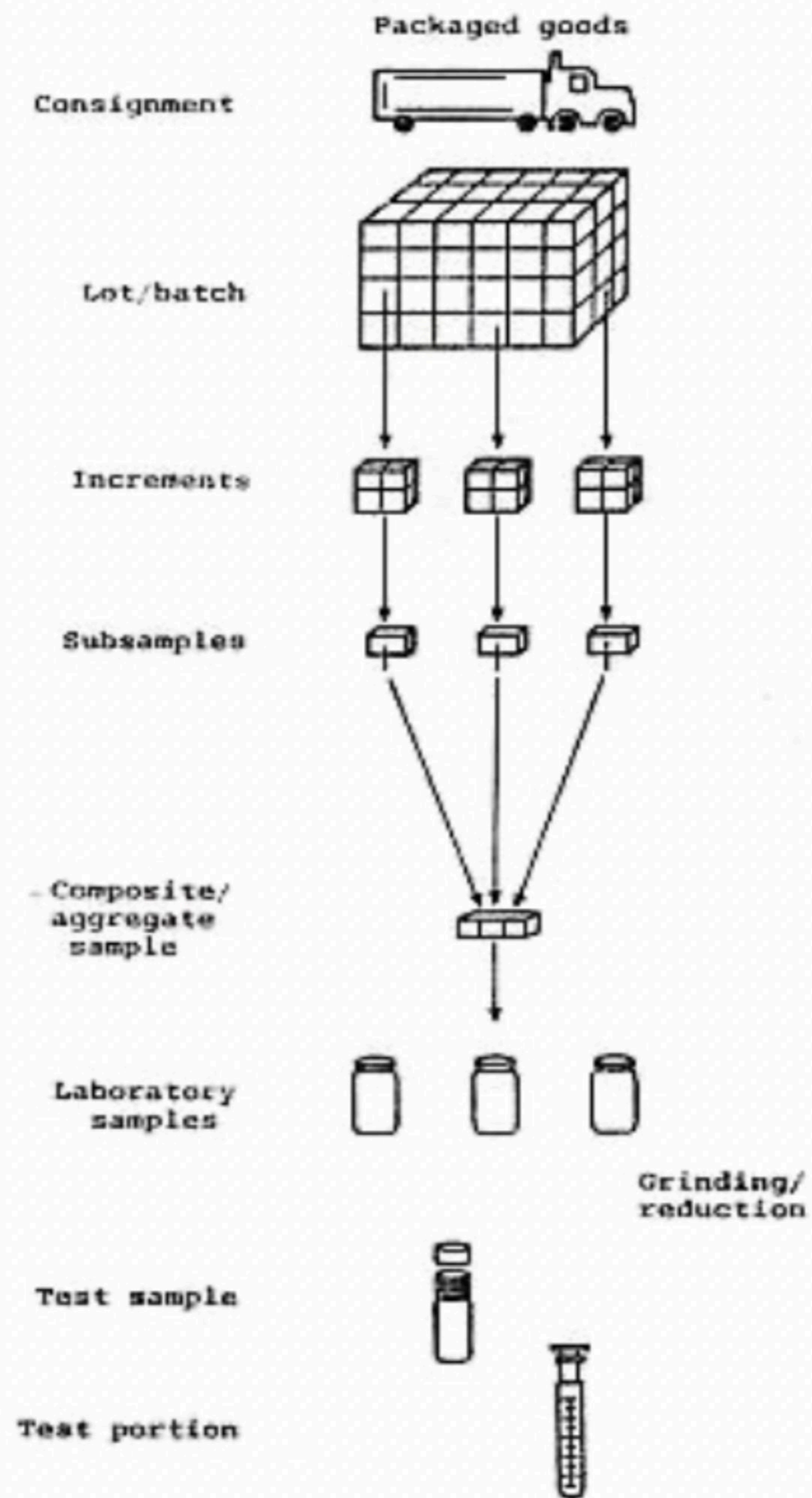


## General Requirements of Sampling

- 1 Care should be there in drawing samples from the lot that the properties of the ingredient/feed are not affected and should be the best representative
- 2 Sampling instrument should be the one for the type of material and should be cleaned before sample is taken
- 3 Sample should be taken representing the lot for which a recommendation is there and strictly follow the same
- 4 After the sample is drawn sufficiently to represent the lot, place it in tray-like vessel, mix well, spread evenly, quarter it and final three samples should be drawn

## General Requirements of Sampling

5	The three samples should be air-tight (to avoid reacting with air), sealed in self-locking bag or container (liquid), stored in safe, clean, dry and preferably light free storing place (Picture)
6	Each sample container should be carrying details of date of sampling, batch or code number, name of the supplier/manufacturer, and any other important details as deemed to be
7	Sampling should be done by a person agreed upon by the supplier, manufacturer, and buyer in the presence of the vendor and/or buyer representatives



**Schematic Illustration of  
how the samples are  
to be drawn  
from the truck**



# Samplers used for taking samples





# How to get sub-sample for lab analysis -Comminuted Sample of Maize



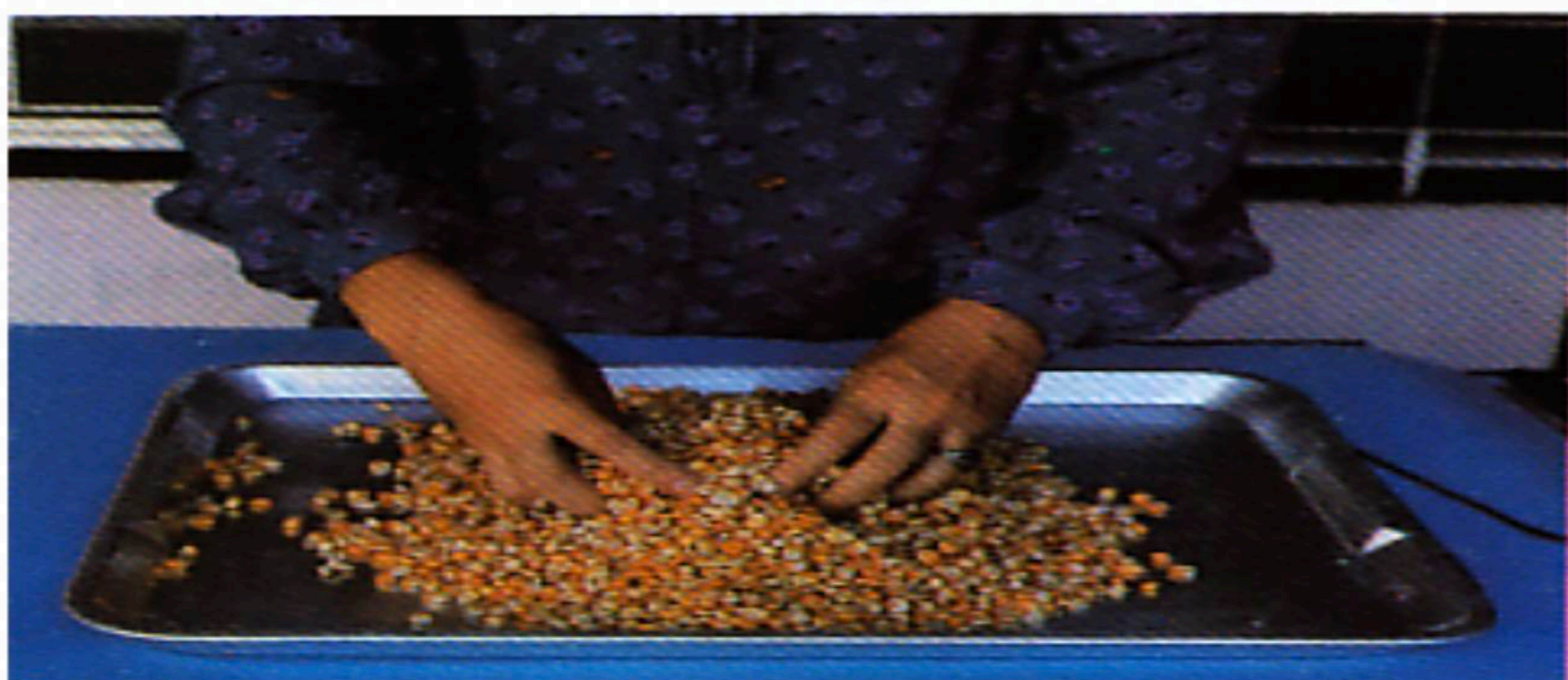
Step 1.



Step 2. (a)



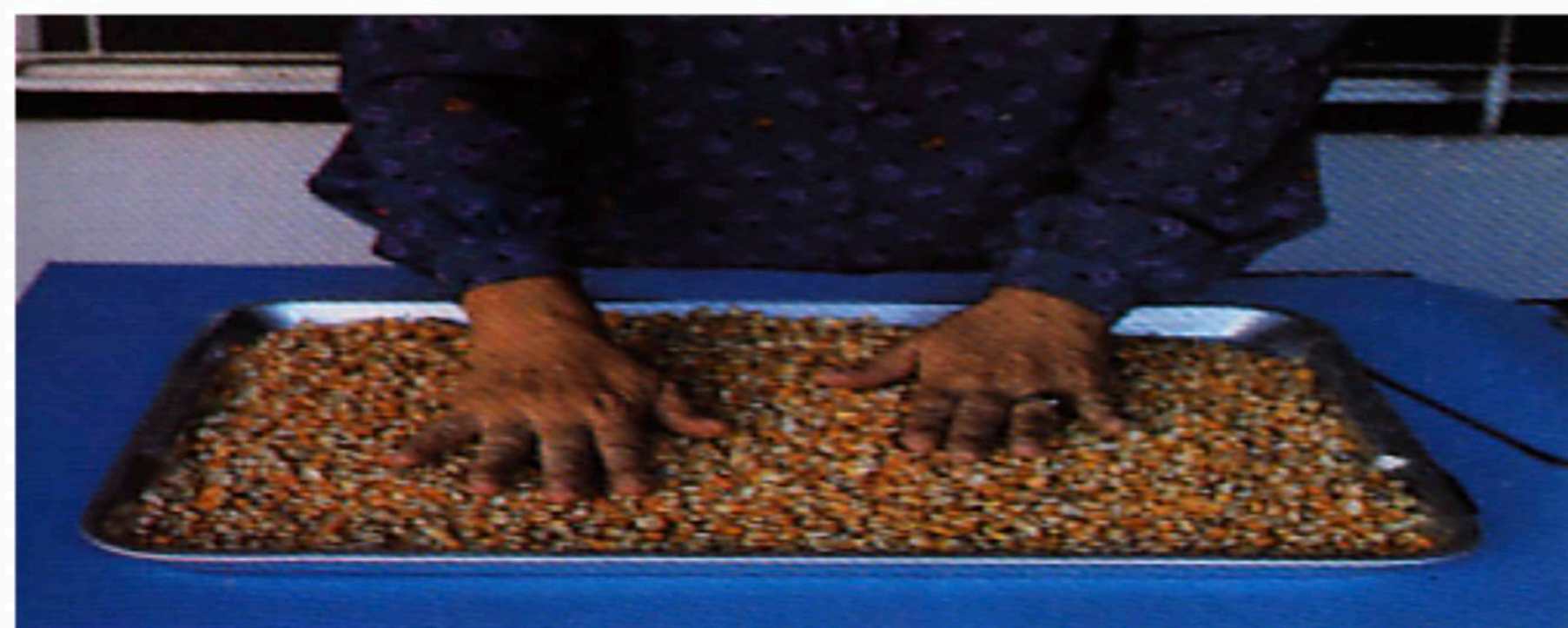
Step 2. (b)







# How to get sub-sample for lab analysis - Uniform spreading and dividing



Step 4. (a)



Step 4. (b)



Step 5. (a)



Step 5. (b)





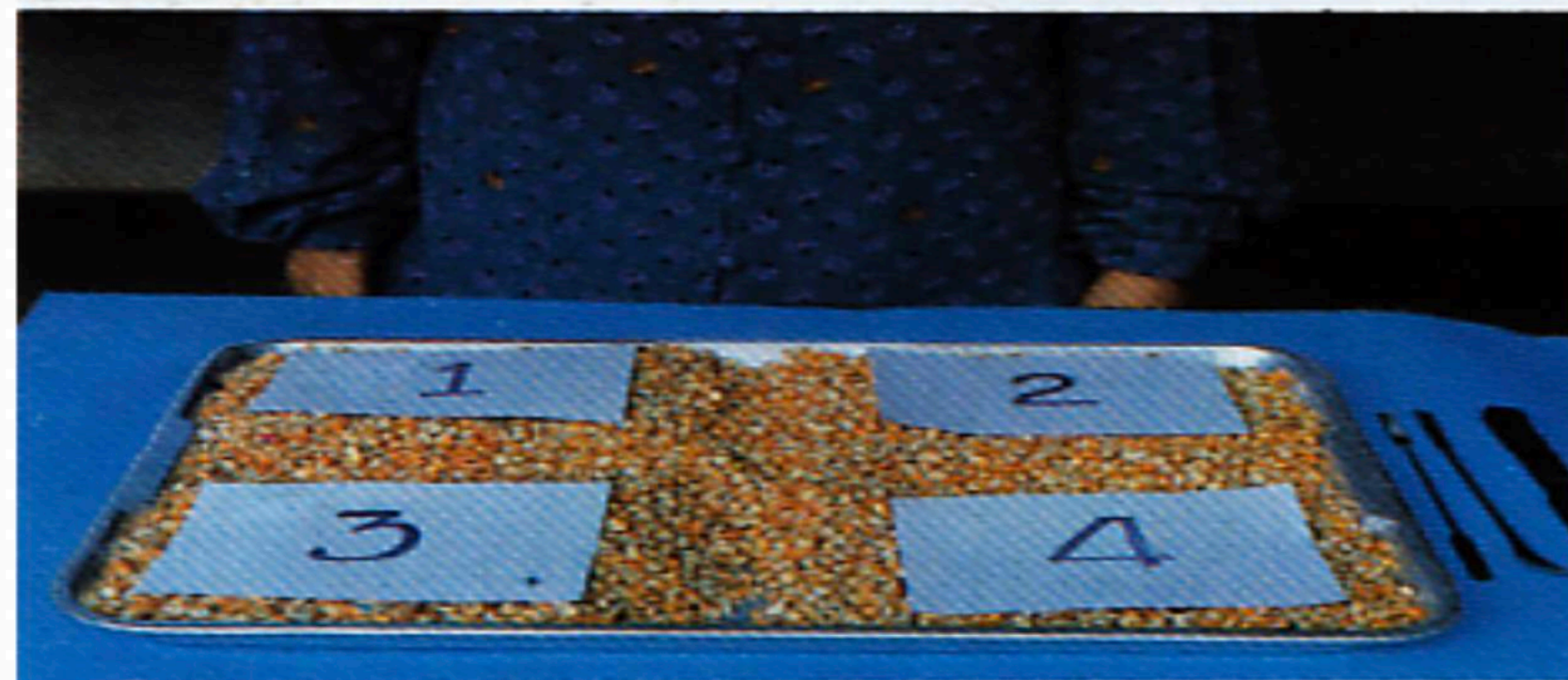
# How to get sub-sample for lab analysis - Quartering Method



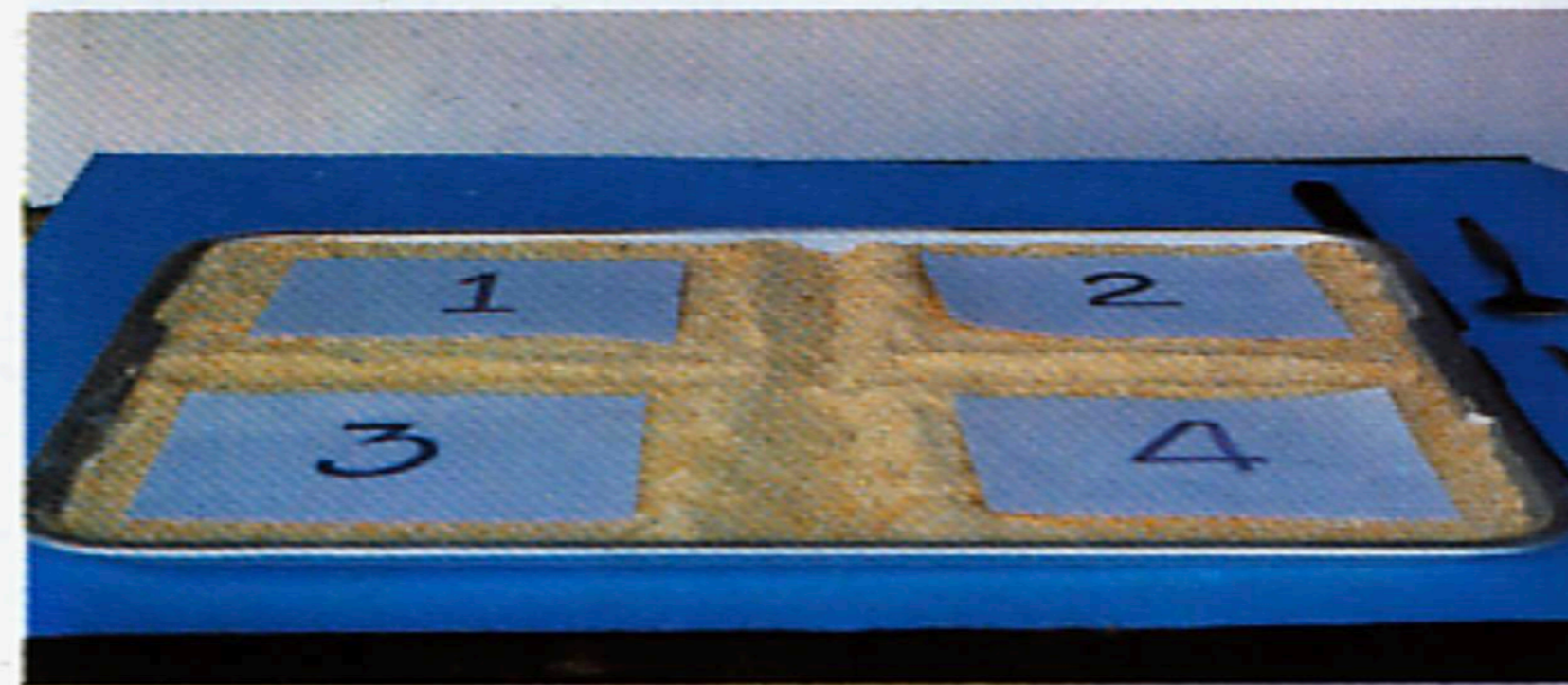
Step 7. (a)



Step 7. (b)



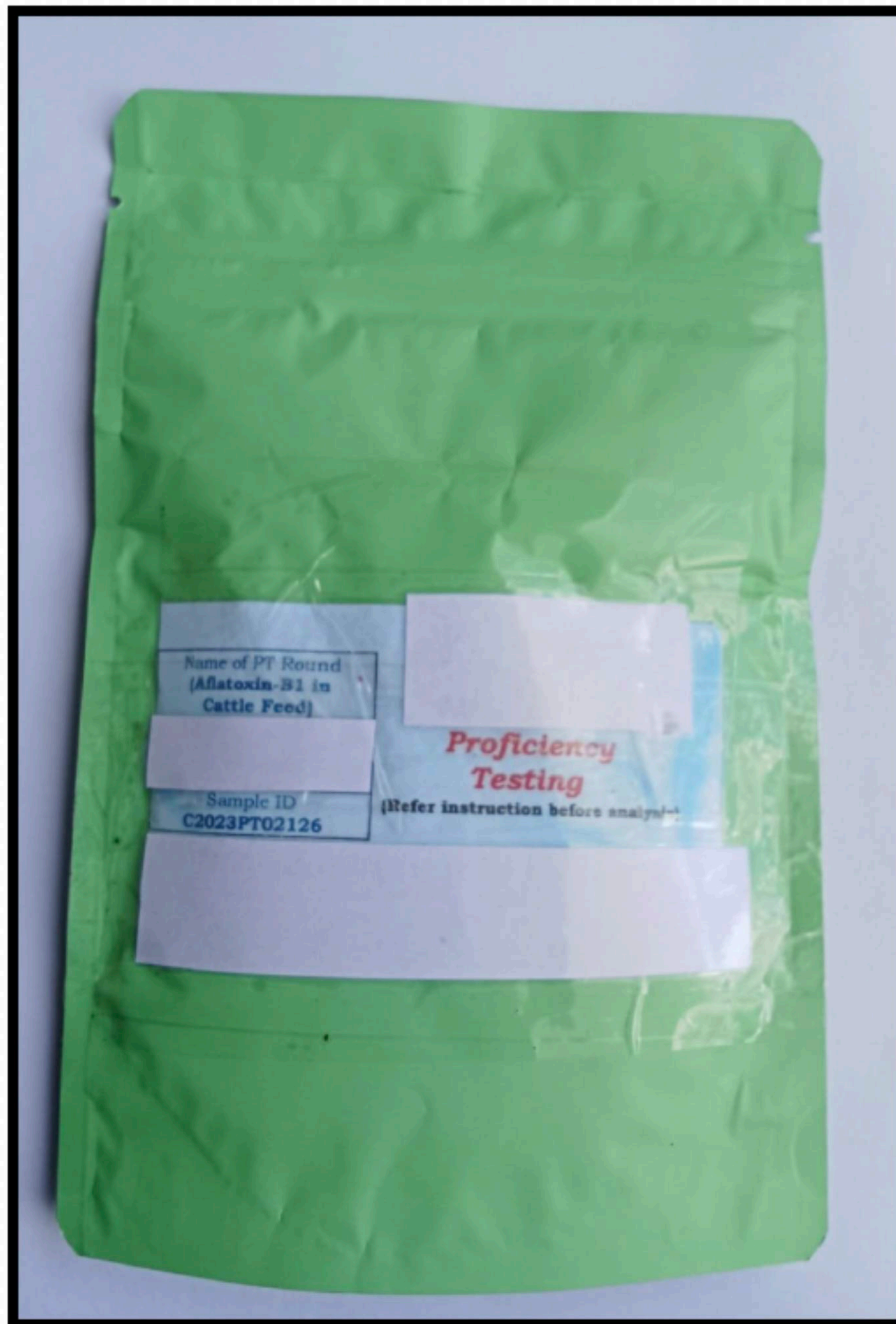
Step 8. (a)



Step 8. (b)



# Sample Cover with Label Requirements



Name of the firm	:
Nam of the sample	:
Sample marks	:
Date of sampling	:
Vehicle Details	:
Required Parameters	<ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3. and so on....</li> </ol>

## Concluding Remarks

- ▶ **Quality control of feed ingredients leads to quality assurance of final feeds**
- ▶ **Quality control starts with assessment of materials by physical and chemical methods**
- ▶ **Both requires examination with good and standard way of sampling**
- ▶ **A good representative sample gives a mean value of feed materials with least error possibility**



*Thank you*