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# EXPERIMENT 4 IDENTIFICATION AND MIXING OF MINERALS IN POULTRY FEED

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## 4.1 INTRODUCTION

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Minerals, though required in very small quantity in poultry ration, are essential nutrients as these have many physiological and reproductive functions such as blood clotting, bone and egg shell formation etc. About one per cent of the broiler meat and 11 per cent of eggs are made up of minerals, while bones contain about 40 per cent minerals. Almost all the feed ingredients that make poultry diets provide all essential minerals, but the mineral concentrations in various ingredients are variable due to several factors such as type of feedstuff, adulterants, agro-climatic conditions, toxic attributes, processing conditions etc. Minerals when fed less or excess in poultry diets leads to nutrient imbalance and cause various conditions such as delayed sexual maturity, disturbed reproduction, drop in egg production, embryonic death, poor feed conversion, stunted growth etc.

### Objectives

After performing this experiment, you will be able to:

- identify different mineral supplements; and
- demonstrate preparation of readymade mineral mixture and mixing in poultry feed.

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## 4.2 EXPERIMENT

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### 4.2.1 Principle

Minerals are very important nutrient in poultry rations. It has been seen that just by adding animal or vegetable feedstuffs to poultry diets, the requirements of various minerals may not be adequate and demand for extra supplementation with inorganic mineral sources and therefore a large number of mineral supplements are available in the market. The minerals need not be added individually. A large brand of commercial or ready made mineral mixture for poultry is available in the market.

## 4.2.2 Requirements

- Commercial or readymade mineral mixture
- Complete feed for broiler
- Ground maize or rice bran or wheat bran
- Individual mineral sources
- Jute bag or plastic drum
- Marker pen
- Paper or Plastic small bag
- Plastic or Polythene sheet
- Plastic tray
- Spatula or Spoon
- Weighing balance

## 4.2.3 Procedure

### (a) Identification of Mineral Supplements

- 1) Collect a few common sources of calcium such as chalk powder, limestone and marble chips in a plastic tray.
- 2) Identify them using the photographs given below (Fig. 4.1 to 4.3) or from the theory notebook.
- 3) Evaluate the wholesomeness of calcium supplements kept in the plastic tray by stirring them with the help of spatula or spoon.



Fig. 4.1: Chalk Powder



Fig. 4.2: Limestone



Fig. 4.3: Marble chips

- 4) Collect a few common combined sources of calcium and phosphorus such as bone meal and dicalcium phosphate in a plastic tray.
- 5) Identify them using the photographs given below (Fig. 4.4 to 4.5) or from the theory notebook.
- 6) Evaluate the wholesomeness of combined calcium and phosphorus supplements kept in the plastic tray by stirring them with the help of spatula or spoon.



Fig. 4.4: Bone meal



Fig. 4.5: Dicalcium phosphate

- 7) Collect a few commercial or ready made mineral mixture containing almost all essential major minerals such as calcium, phosphorus and sodium chloride and trace minerals such as copper, iodine, iron, manganese and zinc.
- 8) Pack the mineral supplements in a proper paper or plastic bag and mark them with their name using a marker and then store them in a plastic drum for longer use.

**(b) Mixing of Mineral Mixture in Poultry Feed**

- 1) After getting a commercial or readymade mineral mixture for poultry without salt (sodium chloride) from a local market, take 2 kg and 3 kg of mineral mixture by weighing on a balance and add into 98 kg and 97 kg of broiler and layer feed, respectively.
- 2) If the readymade mineral mixture does not contain salt (sodium chloride), weigh 300 to 400 g of finely powdered common salt or table salt and add into 4.7 kg or 4.6 kg of ground maize or rice bran or wheat bran spread over a plastic or polythene sheet and then finally mix it into 95 kg of broiler and layer feed, respectively.
- 3) As you know that the calcium and phosphorus are very much needed for skeleton development and formation of egg shell, it may be possible that the required amounts of these two essential minerals may not be met out by just adding readymade mineral mixture in broiler or layer ration. For this, take 2 kg and 6 kg of finely ground chalk powder or limestone or marble chips and add it into 98 kg and 94 kg of broiler and layer feed, respectively.
- 4) For providing additional phosphorus take 1 kg and 2 kg of bone meal or dicalcium phosphate and add it into 99 kg and 98 kg of broiler and layer feed, respectively.
- 5) Pack the mixed feed in a jute bag or plastic drum with proper marking (type of feed and its name with quantity and date of preparation).

**4.2.4 Observations**

- i) Common sources of calcium identified .....
- ii) Common sources of calcium and phosphorus identified .....

**4.2.5 Results**

Give your opinion on the mineral mixture prepared by you and how it can be improved?

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**4.3 PRECAUTIONS**

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- The mineral sources should be collected from reputed firm.
- It should not contain higher amount of moisture. It should be stored in dry place.
- Always prepare fresh mineral mixture.
- Mixing of mineral mixture should be done on the plastic sheet otherwise the premix will contain dust from the floor.