

# FLAWLESS IMMUNIZATION

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## **Definition of Immunization:**

Establishment of resistance in the body by way of application of vaccines with balanced nutrition in a hygienic area.

## **Purpose:**

To protect the birds from diseases.

## **Factors affecting immunization:**

Vaccination and immunization are not synonyms. They are two different words. Vaccination means mere application of a vaccine to the bird. Vaccination is a part of immunization while immunization is the end result of various factors like vaccination, hygiene, nutrition etc. In short Immunization = Hygiene + Vaccination + Nutrition

The factors responsible for immunization can be broadly classified as under:

- 1) **Biosecurity**
- 2) **Nutrition**
- 3) **Management**

## **1) Biosecurity:**

It means security of the health of the birds from the disease causing pathogens. It involves.

- A) Hygiene    B) Vaccination

## **Hygiene:**

It means reducing the pathogenic load in the farm to a level where the immune system of the birds will be able to generate immunity solid enough to withstand any onslaught. High pathogenic load may result in diseases at an early age (Ex. coryza in chicks) resulting in poor growth. Incinerator for disposal of carcasses is must.

Hygiene involves thorough cleaning and disinfection of the sheds. It is essential to maintain dryness of the land around the shed as the dampness help breed the pathogens. After achieving the decontamination of the premises, it is essential to maintain strict vigil at the main entrance.

The movement of men & material shall be restricted and thorough hygiene shall be observed ensuring that the area doesn't get contaminated again.

**Vaccination:**

It is application of vaccine to the bird. For successful vaccination, following points are very very important.

- a) Age                      b) Vaccination schedule                      c) Vaccine strain
- 1) Accurate dose      Frequent checking
- 2) Frequent change of Needle
- 3) Frequent application of spirit to needles

**Drinking Water vaccination:**

- 1) No sanitizer 2 days before and after vaccination
- 2) Procurement of ice, skimmed milk powder (SMP) a day in advance.
- 3) A day before add SMP @ 2gm/Lit to calculate the quantity of water required for vaccination.
- 4) On the day of vaccination, add sufficient quantity of Ice to the water in the tank ensuring the water temperature comes down to Zero degree celcius. Now add SMP @ 3gm/Lit and double the dose of Vaccine than the No. of birds (10,000 doses for 5000 birds). Mix well ensuring there are no more ice cubes left. Now feed the birds. It shall take place within half an hour. Now flush the tank water till the moment the white milky colour water appears at the other end of the shed in the glass.

**Water :**

A chicken is 70% water and a loss of only 10% of that water will result in death. It means water quality (Chemical and bacterial) is very very important for immunization.

**Water quality guides for Poultry**

Contaminants	Acceptable Levels	Maximum	Comments
Acceptable	Comments		
Total bacteria (per MI)	0	100	0/ml is desirable
Coliform bacteria (per MI)	0	50	0/ml is desirable
Nitrates (mg/l)	10	25	Performance may be affected by levels above 10 mg/ml
pH	6.8 to 7.5		High or low pH levels can affect performance
Total hardness (ppm)	60 to 180	110	

## 2) Nutrition :

Nutrition plays an important role in immunization. The nutrients recognized as having an important role in immunity are as follows:

- 1) Energy.
- 2) Protein.
- 3) Vitamins : A,E,C, D , B 12, Folic acid. Choline.
- 4) Minerals : Selenium, Zinc, Copper, Manganese, Iron

### Energy :

The immune system is influenced by various hormones. Carbohydrates and fats influence the immune system by changing hormonal secretions within the body. Ex. Thyroxine, Corticosteroides, insulin, glucagons etc. Dietary fats affect immunocompetance by altering the cell membrane structure or by modulating the synthesis of prostaglandins.

### Protein:

Protein is especially important for empowering the immune system as antibodies and T cells are made up of protein and need a constant supply to make sure that the chicken's body is well defended.

It is of prime importance to supply the required quantity of protein at an early age of the bird growth as both the important organs of the immune system i. e. Bursa and Thymus grow at a faster rate than the bird's own body. Any deficiency of protein at this stage leads to improper development of these organs leading to immunological stress to the birds and increases susceptibility to diseases.

### Vitamins:

Vitamins like A,E,D,B(biotin,pyridoxine),C are well known for their role in immune system. Dietary supplementation of superior levels of vitamins are recommended for poultry to maintain a high level of immune protection in the face of stress and the considerable infectious pressure in the endemic area.

### Minerals:

Sl. No.	Name of Minerals	Role in body or Deficiency symptoms
1)	Zinc	Hypoplasia of thymus, spleen, lymphnode and lymphoid organs.
2)	Selenium	@ 1 mg/ Kg. diet has immunostimulatory role.
3)	Copper	Many of the Copper dependent enzymes play a role in the immune system.
4)	Manganese	Development , repair and maintenance of epithelial tissues which is the first line of defense.

### **Chemicals:**

Biological chemicals like aflatoxin , biogenic amines beyond tolerable limit can have immunosuppressive effect.

### **3) Management:**

The stressors increase the level of corticosteroids in the blood. They are immunosuppressive in nature. Freedom from stress help built up immunity. A farm manager must pay attention to the following stressors.

Brooding temperature First two weeks of life are very very important . During this period the chicks need utmost attention as they can't maintain there body temperature because the thermoregulatory centre in the brain is not yet fully matured.

Baby drinkers very useful for the gout problem.

- \* Spacing
- \* Ventilation
- \* Environmental stress
- \* Litter quality
- \* Ammonia level

### **Conclusion:**

The flawless immunization is an end result of combination of various factors like Biosecurity, Nutrition , Management etc. If we have a disease problem at our farm, we shall look at the problem from these angles. I am sure this tip well definitely help you in having total piece of mind. Remember I am talking out of experience !!!