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Popular Article

# Extensive and Intensive Systems of Poultry Production

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## Introduction

Poultry has a major role in providing nutrition as well as employment to humans. The total Poultry population in the country is 851.81 million in 2019 which has been increased by 16.8% over previous census. The backyard poultry population of India is 317.07 million in 2019, increased by 45.8% over previous Census. Backyard poultry farming was initially limited to rural areas, but due to increasing demand of quality eggs and meat backyard/extensive poultry farming is expanding. Extensive poultry farming has several benefits which are quality of product (egg and meat), health of birds, welfare and economic input. Total egg production in the country is 129.60 billion and the total meat production in the country is 9.29 million tonnes for the year 2021-22, out of which maximum part comes from the intensive rearing systems. Increasing awareness about quality food in population drives poultry business towards extensive systems. In this article benefits of extensive system are discussed.

## Extensive rearing

Extensive rearing is a method of animal husbandry that provides animals with ample space and opportunities to engage in natural behaviours, including outdoor access and access to natural food sources. In this kind of rearing system, birds are not kept in cage and they are free to scavenge for food over a wide area. Rudimentary houses may be provided to birds but these shelters are not used necessarily. The birds are free roost outside and to make nest in the bush. The flock reared under extensive rearing may contains birds of different species and age.

## Importance of Extensive rearing



### 1. *Animal Welfare*

In extensive system of rearing, more space for movement and access to natural food sources is provided to birds decrease the stress level of birds hence improve the welfare of birds.

### 2. *Consumer demand*

The growing demand for meat and eggs produced from animals that are raised in free-range and pasture-based systems is the leading cause of extensive farming system. The awareness about health and diet has been increased after COVID pandemic, people prefer to quality food.

### 3. *Food security*

Small scale extensive poultry farming can be seen in villages, which is major source of protein for many people and can provide a sustainable and efficient means of producing high-quality meat and eggs.

### 4. *Economic benefit*

Since extensive farming is a low input enterprise, but poor production cannot be denied. Instead of poor production farmers can benefit from premium prices for free-range and pasture-raised products, as well as reduced feed costs due to birds having access to natural food sources.

### 5. *Environmental Sustainability*

Extensive systems may help in environmental sustainability by preserving natural resources, biodiversity, and ecosystem services.

### **Limitations of Extensive Poultry Production**

Since extensive system is beneficial for some extent but can not compete with intensive system in terms of production. There are some limitations discussed below associated with extensive production system.

#### ***Slow Growth***

India had achieved great milestones in poultry production, this is because of improved poultry strains as well as feeding standards. Market age of broiler has been reduced from 42 days to 35 days. But extensive farming is not able to achieve this target, reason behind it is improved strains are not suitable for extensive rearing as they have less disease and thermal resistance and indigenous poultry breeds are poor in production performance yet Central Avian Research Institute (CARI) had developed some strains and lines which have good production performance in extensive rearing system.

#### ***Low Body Weight***



The body weight of chickens varies according to variety, strain and breed. Improved commercial chicken varieties reared under intensive system have better ability to attain good weight gain at market age while birds reared under extensive system are not able to attain good body weight at market age hence fetch low prices.

### ***Late Sexual maturity***

Sexual maturity is one of the measures of production traits. Commercial layer attains sexual maturity at 20-22 week while it has been observed that birds kept in extensive systems attains late sexual maturity (at 24-26 weeks). Late sexual maturity leads to less number of egg production.

### ***Low Clutch Size***

Clutch is considered as the number of eggs laid by bird on consecutive days and the days where bird do not lay egg is called as pause. Birds reared in extensive production system have low clutch size which means that number of eggs produced will be less.

### ***Small Egg Size***

As we discussed earlier indigenous poultry is suitable for extensive poultry rearing but there are several lacunae associated with this kind of farming, one of them is size of egg. White leghorn has a standard egg weight of 56 gram while maximum indigenous breeds fail to reach these criteria. Small egg size could affect consumer acceptance of eggs.

### ***Prolonged Broodiness***

Indigenous breeds are most suitable for extensive poultry farming and character of broodiness is more observed in indigenous poultry. Once a bird starts brooding ability of laying egg is reduced while in birds reared under intensive systems their eggs are collected hence they are not able to sit on egg.

### ***Intensive Rearing***

Intensive rearing is a method of animal husbandry in which animals/birds are kept in confinement. In this kind of housing system birds are provided with feed and water at their place. As the demand of poultry and its product has been increased, with commercialization of poultry it has been shifted towards intensive system of rearing. In intensive type of system generally batch of bird having same age are kept for optimum production. Intensive farming system is land, labour and feed saving with high production. In this type of system environment is controlled by farmer. Product from intensive farming is cost effective and affordable for all.





(A) Deep litter system of intensive farming



(B) Extensive rearing system

### Advantage of Intensive Rearing

#### 1. Less Requirement of Resources

Intensive rearing of poultry birds requires less land and less input of resources, however in monetary terms it require more investment. In this type of system biosecurity of birds is ensured, require less labour and feed.

#### 2. Efficient Resource Management

Efficient resource management enables the efficient use of land and resources. In intensive farming system large number of birds can be reared in small space. High density production system allows farmers to efficiently use resources. This also reduce the labour cost.

#### 3. Enhanced production

Advance technology with automation has been introduced in intensive farming systems. Automatic feeding, automatic watering systems with temperature control and proper ventilation in poultry houses contributed in enhanced growth, good production with minimum mortality.

#### 4. Environmental Benefits

Intensive poultry farming release less carbon footprints when compared to extensive farming systems. Release of greenhouse gases from intensive farming system is less because of controlled waste management and optimized production process. Waste management system in intensive poultry farming facilitate recycling and reuse of poultry waste. Poultry manure is rich in macro and micro nutrients, using poultry manure as fertilizer reduce the dependency on synthetic fertilizers.

### Limitations of Intensive Poultry Production

#### 1. Animal Welfare

Intensive poultry production involves housing of large number of birds in confined space either cage to take their maximum production. This practice leads to welfare issues as animal is not free to move and cannot express its natural behaviour. Overcrowding leads to stress, aggressive



behaviour, risk of injury. Farmers should be aware of it and provide adequate space, ventilation feed and water so that birds can live freely.

## **2. Disease Outbreak**

In Intensive farming system birds are reared densely under single roof, where infectious disease like New Castle Disease, Avian Influenza can spread rapidly and cause severe mortality leading to economic loss. Strict biosecurity measures, proper vaccination and disease management are crucial steps to prevent birds from mass mortality.

## **3. Environment Pollution**

Poultry waste if not managed properly can lead to accumulation and lead to soil contamination and nutrient runoff into water sources. Farmers must adopt effective poultry waste management system including storage, treatment and utilization of poultry waste.

In conclusion it can be said that extensive farming has less production potential while intensive farming has good production potential. Despite of poor production potential in extensive farming system, this is now boosting because people are more attracted towards free range products of premium cost. Intensive poultry farming is an organized business with proper market chain and fulfil demand of market at economical price. Both systems have their own benefits and limitations which has been discussed in this article, taking these limitations in mind if farming done in right way, farmers can fetch maximum production and income.

