

# Participant Handbook

Sector  
**Agriculture and Allied**

Sub-Sector  
**Agriculture and allied activity**

Occupation  
**Small Poultry Farmer**

Reference ID: **AGR/Q4306**



**Small Poultry Farmer**

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Prime Minister of India

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If we have to move India towards  
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It is expected that this publication would meet the complete requirements of QP/NOS based training delivery, we welcome the suggestions from users, Industry experts and other stakeholders for any improvement in future.



## About this book

A small poultry farmer is a person who is responsible for various activities involved in rearing of small poultry birds such as chicken and duck. A small poultry farmer takes various decisions for the viability and sustainability of the poultry farm. He/ She ensures proper care of the poultry birds, their health and productivity, meat or egg production and marketing of the produce. A small poultry farmer should have the ability to make various operational and strategic decisions pertaining to his/her work. The person should be result oriented and be able to demonstrate skills to use various hand tools and other equipments essential for better productivity. The trainee will enhance his/her knowledge under the guidance of the trainer in the following skills:

- **Knowledge and Understanding:** Adequate operational knowledge and understanding to perform the required task
- **Performance Criteria:** Gain the required skills through hands on training and perform the required operations within the specified standards
- **Professional Skills:** Ability to make operational decisions pertaining to the area of work.

The handbook incorporates well-defined roles poultry farming like preparation of shed, handling of birds, feeding and water supply to birds, health maintenance of birds, entrepreneurship and documentation and record keeping etc. The participant should be result oriented and responsible for his/her own working and learning. The participant should also be able to demonstrate skills of using various tools and decision making for instant problem solving.

We wishes all the best for your future in the Poultry farming sector

## Symbols Used



Key Learning Outcomes



Steps



Time



Tips



Notes



Unit Objectives



Exercise









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# 1. Introduction

Unit 1.1 – Origin, domestication and History of poultry



## Key Learning Outcomes

- Understand and study the Scopes and Opportunities in the Poultry Industry
- Understand the Role of a Small Poultry Farmer

## UNIT 1.1: Origin, domestication and History of poultry

### Unit Objectives

At the end of this unit, you will be able to:

- To understand the status of poultry sector in India
- To understand the scopes and opportunities

### 1.1.1 Introduction

The poultry industry in India has been seeing an Annual rate of 15% for broilers and 10% for layers due to change in food habits of young people and general growth in disposable income of families. The term poultry is although very often used as synonymous to chicken, it includes a number of domesticated avian species such as chicken, duck, emu, geese, guinea fowl, Japanese quail, ostrich, pigeon, rhea, turkey. Most of these species known to thrive well in a variety of agro climatic conditions and can be raised successfully almost anywhere in the world, provided certain minimum management and nutritional requirements are met. Some of them are efficient converters of feed to animal protein, compared to other live stock species. Both chicken and ducks are used for commercial production of eggs and meat. Turkey, guinea utilized to produce meat. Emu and Ostrich for meat, oil, feather and leather.

The word poultry generally referred for chicken only, but it envisages all other avian species also including ducks, turkeys, guinea fowls, quails, emus, geese etc.



Fig 1.1.1 Small Poultry farming



*Fig 1.1.1 Duck birds*



*Fig 1.1.1 Turkey bird*



*Fig 1.1.1 Turkey Bird*



*Fig 1.1.1 Guinea Bird*



*Fig 1.1.1 Ostrich Bird*

In ancient times, domestic fowls were used as sacrificial birds. They were kept because of loud crowing of cocks and fighting qualities, which provided good source of entertainment. Much later, their egg laying potential recognized in comparison with other avian species, chicken hens noted for their efficient utilization of biological materials not suitable for human consumption for growth and egg production.

The word chicken originates from old English word 'icen' and Germanic language 'kivkenam' and cock (keuk) the red jungle fowl (RJF) *Gallus Gallus*, most closely resembles domestic fowl. According to Charles Darwin, the original chicken have descended id referred to as red jungle fowl (RJF). The sequence of domestic avian species has been made sequentially.

Sequence of domestication of domestic poultry		
Species	Period	Country(ies)
Chicken	5400BC 2500 to 2100 BC	China- Cishan culture but, the contribution 2500 to 2100 BC of these bird to modern birds doubtful From Harappan culture of Indus valley' may be main source of diffusion through the world.
Geese & Mallard Ducks	2500BC 1500 BC	China Egypt- separately domesticated in Mallard Ducks 1500BC the West. Mallard duck was not domesticated till Middle Ages
Ring-necked pheasants	1300BC	Greece
Turkeys	200 BCto 700 AD	Mexico
Muscovy Ducks	16th Century	Columbia, Peru
Japanese Quail	11th Century	Japan, China, Korea
Guinea Fowl	1500AD	West African birds introduced to Europe by Portuguese explorers

Table 1.1.1 Sequence of domestication of domestic poultry

Domestication of chicken occurred about 7,500 years ago. Coleman (1958) has presented a persuasive argument, on linguistic grounds about the spread of domestic fowl. He traces the gradual change of Sanskrit word "kukuta" from Indian across Asia and Central and Northern Europe until the word becomes "Chicken" and "Cock" in England. There are four known species of the wild jungle fowl. They are *Gallus gallus domesticus* (Red jungle fowl), *Gallus gallus sonneratii* (Grey jungle fowl), *Gallus lafayettii* (Ceylon jungle fowl) and *Gallus varius* (Javan jungle fowl) and they belong to same genus called 'Gallus' meaning cock.

The first avian species produced intensively was chicken, followed by turkey and guinea fowl. The art of domestication as first practiced on large scale in tropical regions of Asia. Black plumage fowl was known in India but not in Europe, Coleman points out that origin of domestic fowl in both East and West Africa have Indian roots. The Greeks bred their birds primarily for fighting and the Romans bred them for food. Darwin (1890) made inventing types of chicken known in Great Britain late in the 19th Century. Coleman has provided an illustrated description of the breeds and varieties grouped according to the area of origin. American, Asiatic, British and several new breeds were developed in Great Britain notably Sussex and Orpington. Similarly, in the US Plymouth Rock, Wyandotte, Rhode Island Red and New Hampshire were developed. Americans have been world leaders in poultry genetics and selection. Two completely independent events namely rediscovery of Mendel's Principles of Heredity and the development of a reliable and workable trap net between 1930 and 1950 have revolutionized the development of modern poultry and transform poultry progress from an art to science.

The concept of heritability, genetic correlation, selection differential and predictive equation was developed during this period and came in to the general use. Since 1950, the poultry industry narrowed its choice to the three distinct kinds of the stock such as layers, broilers and dual purpose. In all the three, the final commercial product is the multiple cross. White Leg Horn emerged as the exclusive breed in use for production of white shelled eggs; the Rhode Island Red, New Hampshire, Barred Plymouth Rock and Australorp are popularly known as brown eggers and as dual purpose birds. The crosses of White Cornish and White Plymouth Rock became the choice for broiler meat production at the beginning of the 20<sup>th</sup> Century.

### **PHEASANT FAMILY**

The whole group of birds called Aves (from the Latin avis, meaning a bird), comprises many orders and families, and according to the various characters, birds are classified. Chicken, pheasants, peafowl, guinea fowl and turkey belong to the order Galliformes. Chickens, pheasants and peafowl belong to the Phasianidae (pheasant-like) family and to the sub-family Phasianinae, since the molting of the tail feather is centripetal, the order of molt of feathers being from

the outside to the center of the tail. The chicken is the only member of the pheasant family with a fleshy comb, and so it is placed in the genus called Gallus (cock like with vertically folded tail).



### Origin and domestication of other avian species

The word duck originated from old English word and German language. "Ducan" which means to dive. Southeast Asia is home track of ducks. All of the duck breeds *have* originated from mallard or wild duck. Ducks are domesticated in China 3000 years ago. Duck are important both for egg and meat. Asia particularly China is the leading country both in respect of duck egg and meat production. 75% of all the ducks slaughtered and about 66% of all duck meat produced in the world is at China. Chinese prefer light weight duck for roasting. Commercially duck meat industry is based on 'Pekin' duck. Duck eggs are preferred in Asian countries such as China, Vietnam, Malaysia, Myanmar and Thailand and other South East Asian countries.

### Geese

Geese were domesticated about 2500 Be. The word geese originated from the word "gans and English word gas (ges)". China is the major producer of geese meat in the world. Geese like duck are raised for meat purpose. Goose feathers are source of extra income as it is used for bedding and clothing industry. Geese were raised entirely by small farmers who kept 10 or at the most 100 birds as a sideline to earn little extra income. In addition to meat, geese supply profitable high. value product like geese down which sold for as much as US \$ 75,000 per ton. Because of lightness and warmth it is used for manufacture of winter parkas, pillows, bed spreads and comfortable and many other high value textiles. Foie grass (fattening of liver) is largely a western delicacy with fatty liver produce and consumed in France. The taste of foie grass spread among Asian countries also.

Geese meat is 25 per cent cheaper to produce than beef and also alternative for meat consumers. The ability of geese to graze on pasture may reduce concentrated feed consumption by upto 30%. Species, annual egg production, average egg weight, incubation period and productive life of different avian species and description of sex, young.

### TURKEY

Turkeys are natives of North America. They were domesticated 2,200 years ago and discovered in 1498, U.s. is the leading producer of turkeys in the world. Turkeys are produced mainly for meat purpose. Turkey meat is the leanest meat. 7.2 per cent of global poultry meat production is turkey meat. U.s., France and Germany produce half of the turkey meat. There has been significant increase in production in Brazil, Poland and Hungary in recent years. Outside USA and UK, consumers prefer dark meat. Mexico, European Union and Russia imports turkey meat.

## **JAPANESE QUAIL**

### **(Coturnix coturnixjaponica)**

The word quail originated from old French word "caille" (Coturnix coturnix ).The Japanese quail belongs to family "Phasianidae." They were domesticated in 1910 and commercially used during 1930. The other variety of quail Bob quail (Colinus Virginian) is very common in western countries.

Quails reared for meat and eggs. Quail meat is an ideal food as authenticated in the holy Bible and Holy Quran.

Quail farming for egg and meat is quite popular in Japan, Hong Kong, Korea, France, Italy, Germany and Britain. Recently Brazil has shown keen interest in quail production. Japan is the leading producer of quail eggs. Spain and France produces the highest amount of quail meat. The Japanese quail is becoming popular worldwide. Quail farming is also growing in Britain. Quail was introduced to India in 1974 at CARI Izatnagar.

## **PIGEON**

The word pigeon is originated from English word "pigeon, Latin pipion". Pigeons were domesticated 5000 years ago and mainly used for meat. Chinese interest in increasing pigeons population as it is one of the popular dishes.

## **RATITES (Ostrich & Emu)**

**Ostrich:** The term ostrich originated from English and French word "ostrice." Ostriches nativity is Africa. Graham's town district of South Africa is known for domestication of Ostriches intensively on a large scale. Ostriches *have* been farmed in South Africa since 1857. Egyptian and Roman ladies of noble birth rode ostrich on ceremonial occasion. Greeks kept ostrich in captivity and fattened for table purpose. Increasing attention is being paid to produce low fat red meat. Western Australia is keeping ostrich for leather' production since 1987. It is the Largest living bird. Ostrich farming is spreading slowly but steadily throughout the world. Europeans tried Ostrich rearing for meat purpose during 1860. Export of ostrich feather to Europe from South Africa commenced in 1838. Ostrich farming has been successful in South Africa though Ostrich farming has been tried all over the world.

The word poultry generally referred for chicken only, but in envisages all other avian species also including ducks, turkeys, guinea fowls, quails, emus, geese etc.

Chicken farming includes broiler farming, layer farming and breeder farming which have developed into a commercial status. Rural varieties of chickens have been developed at various centers under government, university and private institutions which are having capabilities of high egg output and meat. These rural varieties are significant because of the reason that they look similar to 'Desi fowls'

in colors but egg production and meat weight gain is comparably high under the same rural low input technology conditions.

Small Scale Commercial Production System and the village or background system are typical representing smallholder poultry production. Although for typical family poultry the classification is widely adopted including south Asia.

Small –scale Poultry production system that may produce meat or eggs or both. The birds are purchased from breeding companies. The products are sold commercially. The farms keep that birds indoors continuously.

The traditional backyard poultry system is characterized by a very basic system with scavenging indigenous poultry, no cross breeds, rather meat production than egg production and part of a mixed farming system.

Poultry Production in India like other developing countries of Asia and Africa is characterized by simultaneously existence of traditional system of low input-low output back yard system of poultry keeping in rural areas and modern intensive system of poultry production which requires high external inputs and utilizes modern production technologies for maximizing productivity and increasing efficiency in urban and peri-urban areas. Both the systems do not complete rather complement each other in efficient utilization of locally available resources, increase job opportunities and provide product ion has become very popular and has achieved spectacular growth in size as well as in productivity, sophistication and quality during last 40 years. The primary business of poultry keeping has helped in the development of a number of supporting and allied industries like compound feed manufacturing, equipments and machinery, Pharmaceuticals and Biological and egg and meet processing.

**Rural Poultry Production:** The Rural Poultry Production is being recognized as an important component of socio-economic improvement among the weaker sections of the society. In addition to this, it generates self-employment, provides supplementary income and supplements protein rich food at relatively lower cost.

Depending on the number of birds and manage-mental methods the extensive rural poultry may be classified as,

- |                          |                   |
|--------------------------|-------------------|
| 1. Small scale units     | 5000-10000 birds  |
| 2. Small Backyard Units  | 1000 – 5000 birds |
| 3. Village Chicken Units | 10-50 birds       |
| 4. Family Poultry        | 2-10 birds        |

Out of the above, the village chicken production and family poultry are very popular in all most all the costal districts. This is otherwise called free range or scavenging system of poultry keeping.

<b>Traditional free – range (1-10 birds) Low input lo output</b>	<b>Improved free – range (50-200 birds) Low input/medium output</b>	<b>Small-scale Confined (50-200 birds) High input/high output</b>
Majority of rural families	Moderate number of rural families	Few rural families
Owned mostly by women	Owned by women and family	Businessmen, women
Home consumption	Home consumption and sale on local markets	
Small cash income	Family income	Business income
Social & cultural importance	Social Importance	Little social importance
Gifs, religious		
	Micro credit	Credit based on assets
Indigenous breeds	Indigenous/improved breeds	Hybrids(Broiler or layers)
High Mortality	Moderate Mortality	Low mortality
No feeding(Scavenging)	Low feed (Semi-Scavenging)	Balanced Feeds
No vaccination	New castle disease vaccination	Several vaccination schemes
No medication	Little medication/local remedies	Full medication
No housing	Simple housing	House with cages or deep litter
Egg production: 30-50 eggs/y/hen	Egg production : 50-150 eggs/y/hen	Egg production: 250-300 eggs/y/hen
Long broody periods	Short broody periods	No broodiness
Growth rate = 5-10 g/day	Growth rate = 10/20g/day	Growth rate = 50-55 g/day

Table 1.1.1 Poultry Farming