

# Poultry Production

Poultry contributes to improved human nutrition and food security by being a leading source of high quality protein in form of eggs and meat. It acts as a key supplement to revenue from crops and other livestock enterprises, thus avoiding over dependency on traditional commodities with inconsistent prices. It has a high potential to generate foreign exchange earnings through export of poultry products to neighboring countries. Poultry is highly prized in many social-cultural functions such as dowry and festivities. Poultry production is divided into the production of meat (broilers) and eggs. Specific breeds have been developed for the production of poultry meat and specific breeds for the production of eggs and include the management and physical facilities required, diseases and their control and the treatment of sick birds. The book opens with an overview of the poultry industry and then discusses poultry anatomy and muscle biology as they relate to meat quality and potential problems associated with further processing.

**Contents:** Business Management Practice for Poultry Business • Requirements of the Poultry Industry • Hepatic Histopathology and Necropsy Findings • Testing Statistical Models • Health and Production in Poultry • Livestock Keepers Analysis • Inter-annual Differences: An Example • Farming of Organic Chicken

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## Preface

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Poultry contributes to improved human nutrition and food security by being a leading source of high quality protein in form of eggs and meat. It acts as a key supplement to revenue from crops and other livestock enterprises, thus avoiding over dependency on traditional commodities with inconsistent prices. It has a high potential to generate foreign exchange earnings through export of poultry products to neighboring countries. Poultry is highly prized in many social-cultural functions such as dowry and festivities. Poultry production is divided into the production of meat (broilers) and eggs. Specific breeds have been developed for the production of poultry meat and specific breeds for the production of eggs and include the management and physical facilities required, diseases and their control and the treatment of sick birds.

Broiler production is the production of poultry meat. The production cycle is usually six to seven weeks long, which is relatively short when compared with other forms of meat production. The normal method of producing broilers for the market involves purchasing the birds as day-old chicks and feeding them for a period of approximately six to seven weeks after which they are sold or slaughtered. Although this process appears to be very simple, it is essential that good management is applied, to ensure mortality levels are low and daily growth rate is maximized. Housing is one of the most important aspects of broiler production in that the type of house determines the number of birds which can be kept and the level of managerial input required. In order for chicks to learn to eat at an early age, a large area of feed must be supplied in the first few days. Usually the first feed is spread over a large flat container with a shallow edge of 2 to 3 cm in height. The achievement of maximum egg production per bird is depending on the provision of light. Birds should receive 16 hours light per day. This can easily be achieved if electricity is available, by simply having the lights come on before sunrise and remain on after sunset. In this way the desired "day length" may be achieved. It is important to know

that in most instances a veterinarian will be required to make a proper diagnosis and give relevant advice. Most diseases that kill chickens can be transmitted from one house to another house. In many cases these diseases are carried by humans, birds, other chickens and pet animals or rats which move from house to house. It is essential that the chickens are kept as isolated as possible to reduce the risk of disease transmission. The cleaning and disinfection of poultry houses are absolutely vital in giving the birds the best chance of survival. People living in urban areas often consume more eggs and chicken meat than those people living in remote areas, but these rural people often need these foods most. This is why it is so important to expand the poultry industry into the more remote areas of the country.

The book opens with an overview of the poultry industry and then discusses poultry anatomy and muscle biology as they relate to meat quality and potential problems associated with further processing.

— *Divyesh Pandey*

## Chapter 1

### Business Management Practice for Poultry Business

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There have been numerous strategies proposed to reduce  $\text{NH}_3$  and PM emissions from confined animal housing operations. The 4 main groupings of BMP and control methods are oil spraying, litter amendments, feed additives, and electrostatic precipitators. Each category of BMP has been investigated at both commercial broiler and layer houses by 1 or more research groups, and their results, in terms of percentage of reduction in  $\text{NH}_3$  and PM emissions. Note that studies have not considered the different size fractionations of PM, and consequently, PM size classifications as a collective grouping. Also, in some instances, the focus of the research group was placed on reducing the indoor levels of a pollutant, so only the percentage of reduction in its concentration was reported rather than its emission. It was therefore necessary to assume that a decrease in concentration would translate to the same decrease in emissions to the atmosphere.

#### Techniques of Oil Spraying

Oil spraying is primarily used to lower the PM concentrations in the house by causing the fine particles in the litter to conglomerate into larger particles. Some researchers, however, have begun demonstrating promising results for decreasing the volatilisation of  $\text{NH}_3$  as well. Unfortunately, no studies have reported a percentage of reduction for  $\text{NH}_3$  emissions for poultry operations.

In general, the oil solutions are not purely oil but a mixture consisting of a low percentage of oil in water. Researchers have tested different types of vegetable oil at various levels of dilution, which has resulted in inconsistent findings. Another possible reason for the inconsistencies in the reduction potential is the method of applying the oil solution. Oil can be applied by automated sprinkler systems, manual sprayers, ultrasonic sprayer, or foggers. Each method will produce a different mean diameter of the oil droplets, which will affect its efficacy to conglomerate fine particulates as well as the distribution of the oil on the litter. Patterson and

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