

Handbook on Pig Farming and Pork Processing (Feeding Management, Breeding, Housing Management, Sausages, Bacon, Cooked Ham with Packaging) 2nd Revised Edition

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Pig farming is the raising and breeding of pigs. Among the various livestock species, piggery is most potential source for meat production and pigs are more efficient feed converters after the broiler. Pig rearing has traditionally been in the main occupational axis of the socially backward down-trodden class of Indian population since time immemorial. But at present commercial pig farming has greatly changed social scenario of this business in India. Now everyone is conscious about the economic importance of pig farming.

Pig farming for meat production is one of the best and profitable business ideas for people. There are several highly meat producing pig breeds available and Initial requirements of small investment, quick returns and utilization of bristles and manure further increase the importance of this animal.

This handbook is designed for use by everyone engaged in the pork production. The book explains about how to raise and care for pigs, by choosing the right breed, how to house, feed and breed them, butchering process, manufacturing process of various pork products and sample plant layouts & process flow sheets with machinery details. Major contents of the book are behavior of pigs, feeding management, pig breeding, housing management, diseases, pork processing, sausages, bacon, cooked ham, chilling and freezing of meat, meat packaging.

It will be a standard reference book for professionals, food technologists, entrepreneurs, and others interested in startup of pig farming and pork production.

1. Introduction

Advantages of Pig Farming in India

Physical Characteristics of Pigs

SWOT Analysis of Piggery Sector

Pig Breeds

(1) Large White Yorkshire

(2) Jangali Bandel/Wild Boar

(3) Pygmi Bandel

(4) Landrace

- (5) Middle White Yorkshire
- (6) Hurra
- (7) Chwanche
- (8) Banmpudke
- (9) Hampshire
- (10) Duroc

2. Behaviour of Pigs

Social Behaviour

Rooting Behaviour

Maternal Behaviour

Huddling Behaviour

Leadership

Sexual Behaviour

3. Feeding Management

Nutrition

Types of Nutrition

Feeding of Boars

Feeding of Female

Feeding of Farrowing Sow and Litter

Feeding for Piglets

Feeding of Growing and Finishing Pigs

Orphan Pigs

Weaners

Baconers

Gilts

4. Pig Breeding

Managing the Sows

Selection of Breeding Gilt

Recognising the Heat

Selecting the Boar

Managing the Boar

Feeding and Housing the Boar

Timing the Service

The Birth and Care of the New-Born Piglets

Preparation Measures

Birth

Care of the New Born Piglets

Problems Related to the Birth

Slow Delivery

Accidental Killing of the Piglets by the Sow

The Sow Becomes ill After Farrowing

5. Housing Management

Selection of Housing Location

Fencing

Construction Plan for a Good Pig House/Shed

Housing and Equipment

- The Boar and Boar Pen

- The Sow and Sow Pen

- The Dry Sow and Dry Sow Housing

- Farrowing Pens

- Weaners and Weaner Housing

- Grower and Finishing Pens

Different Models/Types of Pig House/Sheds

6. Diseases

Internal Parasites

(1) Roundworm

- Symptoms
- Prevention

(2) Tapeworm

- Symptoms
- Prevention

External Parasites

(1) Mange

- Symptoms
- Prevention
- Treatment

(2) Lice

- Symptoms
- Prevention
- Treatment

(3) Myiasis

- Symptoms
- Prevention and Treatment

(4) Anaphrodisias

- Symptoms
- Prevention
- Treatment

(5) Leptospirosis

- Symptoms
- Prevention and Treatment

(6) Brucellosis

- Symptoms
- Prevention and Treatment

(7) Uterine Prolapsed

- Symptoms
- Prevention and Treatment

(8) Mastitis

- Symptoms
- Prevention
- Treatment

(9) Endometritis (Bacteria)

- Symptoms
- Prevention and Treatment

Diseases and Disorders of Digestive Tract

(1) Birth Diarrhoea

- Symptoms
- Prevention
- Treatment

(2) Red Diarrhoea or Clostridial Enteritis

- Symptoms
- Prevention and Treatment

(3) Fat Diarrhea

- Symptoms
- Prevention and Treatment

(4) Post Diarrhea

- Symptoms

- Prevention and Treatment

(5) Salmonellosis

- Symptoms

- Prevention and Treatment

(6) Swine Dysentery

- Symptoms

- Prevention

- Treatment

(7) Post Weaning Syndrome (Oedema Disease)

- Symptoms

- Prevention and Treatment

Diseases of the Respiratory Tract

(1) Influenza

- Symptoms

- Prevention and Treatment

(2) Pleural Pneumonia

- Symptoms

- Prevention and Treatment

(3) Atrophic Rhinitis (Inflammation of the Nose)

- Symptoms

- Prevention and Treatment

(4) Pasteurellosis

- Symptoms

- Prevention and Treatment

(5) Porcine Respiratory and Reproductive Syndrome (PRRS)

- Symptoms

- Prevention and Treatment

Disease Causing Problems in Walking

(1) Arthritis

- Symptoms

- Prevention and Treatment

(2) Streptococcal Infections

- Symptoms

- Prevention and Treatment

Nutritional Disorders

(1) Anaemia

- Symptoms

- Control and Treatment

Other Diseases

(1) Foot and Mouth Disease (FMD)

- Symptoms

- Prevention and Treatment

(2) Hog Cholera

- Symptoms

- Control

(3) African Swine Fever

- Symptoms

- Control

(4) Swine Influenza

- Symptoms

- Control

(5) Transmissible Gastroenteritis (TGE)

- Control

(6) Enteric Colibacillosis

- Symptoms
- Control

(7) Salmonellosis

- Symptoms
- Control

(8) Erysipelas

- Symptoms
- Control

(9) Anthrax

- Symptoms
- Prevention and Treatment

Vaccination Schedule for Pigs

7. Pork Processing

Stunning

Stunning Methods

- Percussion Stunning
- Electrical Stunning
- Carbon Dioxide Gas Stunning

Bleeding

- Bleeding on a Rail
- Horizontal Bleeding
- Bleeding Without Stunning

Hair or Skin Removal

Skinning Method

Evisceration

Splitting and Head Removal

Chilling the Carcass

Carcass Cutting Equipment

Basic Equipment Needed for the Slaughtering Operation

Useful Additional Equipment

8. Sausages

Sausage Types

- (1) Fresh Sausage
- (2) Cooked Sausage
- (3) Dry & Semi-Dry Sausages
- (4) Luncheon Meats and Jellied Products

Sausage Ingredients

Sausage Recipes and Procedures

Fresh Pork Sausage

Italian Style Pork Sausage

Bratwurst

Nurnberger Bratwurst

Polish Sausage

Smoked Kielbasa

Coarse Ground Bologna

Frankfurters

Cooked Salami

Summer Sausage

Dry Beef Salami

Honey Loaf

Spiced Luncheon Loaf

Family Loaf

Main Types of Products Worldwide

- (1) Frankfurters (Wieners)
- (2) Grill Sausages
- (3) Bratwurst
- (4) Bologna
- (5) Mortadella
- (6) Mettwurst
- (7) Breakfast Sausage
- (8) Blood Sausage
- (9) Weisswurst
- (10) Liver Sausage

Processing Stages

- (1) Ingredients and Additives
- (2) Formulation
- (3) Comminution
- (4) Smoking/Cooking

Quality Aspects of the Finished Product

Safety Aspects

9. Bacon

Introduction

Processing Stages

- Traditional Wiltshire Curing
- Injection of Pork Sides
- Immersion in a “Live Brine”
- Maturation
- Modern Wiltshire Cured Bacon
- Modern Bacon Production
- Pig Production and Slaughter
- Slaughter and Chilling
- Immersion Curing (Tank Curing)
- Bag Curing
- Dry Curing
- Smoking
- Tempering and High-Speed Slicing
- Packaging
- Storage Instructions

10. Cooked Ham

Introduction

Types of Products

Raw Materials

Processing Technology

- Reception
- Brine Injection
- Massaging and/or Tumbling
- Cooking
- Cooling
- Final Product

Quality Aspects of the Finished Product

- Color
- Texture
- Flavor

Safety Aspects

11. Chilling and Freezing of Meat

Definitions
Effects of Freezing
Microbiological Effects
Mould Growth
Fat Rancidity
Physical Effects
Ice Formation – Mechanical and Chemical Effects
Effects on Meat Properties

- Colour
- Drip Losses
- Cooking Losses
- Fatty Tissue

Storage Life
Management of the Cold Chain
Types of Freezers
12. Meat Packaging
Advantages of Packaging
Purpose of Packaging
Requirements for Packaging Materials

- (1) Single-Layer Films
- (2) Multi-Layer Films

Types of Packaging

- (1) Controlled Atmosphere Packaging (CAP)
- (2) Vacuum-Packaging
- (3) Masterpack
- (4) Modified-Atmosphere Packaging

Packaging Guidelines for Meat and Meat Products
13. Sample Plant Layouts & Process Flow Sheets with Machinery Details

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