

class 22: Swine Husbandry –Common breeds of exotic origin-nomenclature alone-housing of pigs.

SWINE- PIG

Industry status

- 1.Primitive
- 2.Poor quality meat and low aesthetic value of meat produced.

Advantages

1. High Prolificacy : 6-12 no./litter
2. FCR –1:2.5 - 3
3. Short generation interval
4. More quantity of meat/unit weight
5. More energy / unit weight
6. High meat : Bone ratio
7. Easily adapted to integrated or mixed farming system.
8. Successfully maintained on discarded feed, garden waste and kitchen waste.
9. High dressing percentage
10. High growth rate : 10Kg./month
11. Early maturity : 9-10 month of age
12. Early puberty : 5-8months
- length of oestrus cycle : 21 days
- Oestrus period : 2-4 days
- Service : 2nd /3rd day of oestrus
- Rebreeding after parturition : 3-4 weeks after weaning.

Comparison between desi Vs. Exotic (India)

	Desi	Exotic
Litter size at birth	7.5	10
Birth weight (Kg.)	0.91	1.4

Weaning weight (kg.)	4.1	13.5
Weaning percentage	54	78.5
Dressing percentage	66	68
Maturity (Months)	14	8 - 10
Growth rate (gm)	70-100	over 300 gm.
Back fat thickness – (cm)	3-7	4-5

Nomen clature

Species : *Sus scrofa vittatus*

Sus scrofa indicus

Group : Stock / Drove

New Born : Piglets (Last born piglet- Runt)

Young male : Boarling

Yong female : Gilt

Adult Male : Boar

Adult female : Sow

Castrated male: stag / Hog

Parturition : Farrowing

Mating : Coupling

Sound : Grunting

Breeds: Large white Yorkshire : Chester white

Middle white Yorkshire : Tamworth

Berkshire : Landrace

Poland china

Spotted Poland china

Duroc

Hampshire

Large white Yorkshire : UK

White, occasionally black spots

Erect ears and dished fore head

Long and deep body

Snout length is medium

Mature body weight : Male : 300-400 Kg.

Female : 230 – 320 Kg.

Middle white Yorkshire : UK

Developed from crossing Small and Large White Yorkshire

Extensively used to upgrade desi pigs as it is smaller in size

Early maturity, rapid growth and can be raised on pasture

But not prolific as that of Large white Yorkshire

mature body weight Male : 250-350Kgs.

Female-180-270Kgs.

Land race : Denmark – Bacon Breed

White with blackspot,

Long snout

Excellent suited for upgrading desi pigs as it needs less feed resources for their maintenance and efficient converter of feed.

Suitable for breeding smaller desi pigs

Mature body weight : Male : 270 – 360 Female : 200-300

Swine Nutrition

Monogastric and omnivorous – low fibre, high quality protein (Animal sources)

Requirement : Energy, protein, mineral, vitamins and additives

Energy : Starch – grains

Fat - oils – upto 10% (normally 4-6%)

fibre – Should not exceed 5-6% if exceeds – low growth rate digestibility

Sources : Cereals, Millets, Byproducts – Bran, molasses – rich in Vit B complex .

Protein : High quality – essential Amino acids – 10

Animal source : rich in lysine % methionine ca, protein, Vit.B.

Vegetables source : rich in Tryptophan and limited in lysine and methionine (Grains – maize)

For effective growth rate : both animal protein sources and vegetable protein sources should be balanced.

By feeding leguminous fodder, we can save the protein requirement from concentrate

Minerals : Micro : Cu, Fe, Co, I, Mn, Se, Zn

Macro: Ca, P, Na, K, Mg.

Ca: P -2:1

‘P’ from plant sources, availability is low as they are in “phytate” form like wise any organic form so DCP, DFRP.

Nacl : 0.5% depending on fishmeal inclusion

Fe: 80 mg/ kg feed

Cu: 8 mg/Kg.feed

Co: essential for B₁₂ Synthesis

I₂: deficiency results in gritre, hari less piglets

Zn: Parakeratosis

Vitamins

Fat soluble vitamins (A,E & K) – corns, Legumes

D₃ – sunlight exposure

B-Complex – greens

B₁₂ -Animal protein sources.

Additives

1.Antibiotics

Water reqt: 2-3 times of feed (4-5 litres/ litre of milk)

2. Probiotics

3.Copper Sulphate

Ration formulation

Requirement

Age	Prewaning	Grower (20 – 90Kg.)	Adults
CP%	22%	18-13	14-15%
ME (k.cal/kg.)	3500	3500-3800	3300

Ca : 0.5 – 0.8%

P : 0.4 – 0.6%

Salt : 0.5%

Model composition

	Creep mixture	Grower	Adult
Maize	53	53	50
Cakes	22	16	7
Wheat Bran	7.5	17	35
Fishmeal	15	12.5	6.5
Mineral mixture	2	1	1
Salt	0.5	0.5	0.5

Allowance

Creep mixture : 0.2 – 0.6

Grower : 0.6 – 2.0

Adult : 2 - 3

Systems of feeding

1. Slope(wet mash) Vs dry mash
2. Restricted – lean meat Production
3. Pelleting
4. Frequency – 2-3 times
5. Fibre diet – Pelleting improves digestibility
6. FCR decreases as age advances – 1.2 – 2.8-3 kg feed / kg. gain during 60 days to

9months.

Breeding animals

Should not become fatty. Grower ration for breedable population. Pregnant animals;
Should gain 35 Kg – sows 55 kgs. – Gilts

Ration should ensure

1. Good growth rate in piglets
2. Regular Breeding
3. High quantity carcass
4. Good quality carcass
5. Resistance to diseases

High growth rate – deficiency

Soft fat Vs firm fat.

oil rich cakes, maize , Millet, animal protein sources

difficulty in handling

drip loss

During early age : maize and oil rich cakes

during marketing age – cereals and animal protein sources.

Garbage feeding : 1 kg concentrate can be replaced for every 10 kg of garbage (kitchen waste & market waste)

Pig sty :

1. Away from living (Human) dwellings and dairy plants
2. Good flooring – cement to avoid damage due to prodding / snouting
3. Easily cleanable
4. Provision of pen and run
5. Horizontal ventilation
6. Effective drainage
7. Provision for feeder and waterer in pen and run respectively
8. Two rows of house for effective labour management

Provisions

1. Separate Pens for Boar and Sows.
2. Farrowing Pen
3. Lactating Pen/nursing Pen.
4. Weaned piglets – Grower and finisher

Farrowing Pen

1. Guard Rails
2. Creep area
3. Brooder arrangement

Guard rails :

1. To avoid crushing of piglets.
2. To avoid eating of creep ration by sows.

Brooder

1. Piglets 'born naked'
2. 30-32°C – Heat supplementation for atleast first week of age.

Farrowing crates : To restrict movements of sows during the time of birth

Space 8' x 2'.

House for piglets

1. Grouped according to body weight
2. Housed in community Pen
3. Not more than 20 numbers.
4. Number reduced as age advances.

Wallows : 10' x 6' x 15"

1. To induce evaporative heat loss
2. Sparse hair

3. Limited sweat glands

4. High subcutaneous fat cover

Poor possibility of heat dissipation especially for breeding and fattening animals.

Slotted floor : metal / wooden slots

1. Avoids contact between animal and excreta 2. Complete confinement

Movable accommodation

] Simple fencing in pastures.

] Periodically changed

] Grouped into 20-30 sows / hectare of pasture

Space Allowance (sq.ft.)

Class of animal

Class of animal	Pen	Run
Growers		
20 Kg.	8	8
40 Kg.	12	12
60 Kg.	16	16
90 Kg.	20	20
Pregnant sows and boar	25	25
sow	40-60	35

Weaning : 56 days – 2 farrowings / year

based on weight

To avoid stress, gradual separation of piglets

Deworming

Piglet Anaemia

1. Under intensive system – no snouting of sand and accessibility to greens

2. Milk deficient in Fe & Cu

3. Large litters premature births

low liver storage of iron.

Symptoms : weak/runts – dyspepsia – edematous – death – distressed breathing - thumps.

Prevention :

1. Swabbing of udder – concentrated solution of FeSO_4 (0.5 kg / 10litres of water)
2. 1% FeSO_4 in creep mixture
3. Provision of run with mud and sand
4. Access to pasture
5. Injection Iron Dextron @ 100-150mg. at neck to avoid lameness at 3 weeks of age.

Breedable Population

Boar :

Selection : Masculine

1. Dam's characters (large (10-12) weaned litter)
2. High growth rate 90Kg. – 9months of age
3. High FCR
4. Adequate length, width
5. BFT : 3.2 cm Boar
4.0 cm Gilt
6. Free from physical defects.
7. High birth weight and weaning weight
8. Well descended testicles.

Housing : Individually 15 – 20 sq.ft.

Feeding: 2-2.5Kg (Cp-14%)

Puberty : 5-6 months of age

Maturity : 8-9 months of age

Sex ratio : 10-15 females – young boar

20-40 females – mature

4-5 mating / week - matured one

2-3 mating / week – young one

Mating : Hand mating

Pen mating with change of boar everyday

During first mating, better to allow matured sows rather than Gilts and excited sows to

avoid development of aversion and poor breeding efficiency of young boar.

- * Mating : cool hours evening and morning
- * Twice mating at 12 hours interval for better conception.
- * Careful handling to avoid viciousness in mature boar and timidity in young one.
- * Fertility checkup : Just prior to breeding season, allowing mating with marketable Gilts more returns – Poor fertility
- * Good exercise to have high virility
- * Trimming of feet to avoid lameness
- * Cutting of tusk to avoid damage during mating – once in year.

Gilt

Selection :

1. Pedigree records
2. Littermate performance
3. Her own performance
4. Progeny testing

Characters – Large litter – High growth rate – sows – 150 Kg. litter weight at weaning

Gilts – 120 kg. litter weight at weaning

Loin Eye area

BFT – 1 ½ - 2” away from vertebral column

No. of teats – 12-14

Free from physical deformities

Free from genital disease

good temperament

Age to breed : To get first litter by 12-14 months of age

Mating by 100 kg body weight

Mating by 3rd heat as ovulation rate increases

Oestrus identification : Oestrus discharge, swollen vulvas – pricked ear – frequent urination –

Grunting – pressing of Hindquarters against walls - restlessness.

Tests : Approaching hind quarters – no mobility.

Riding test : pressing over loin / croup region or even sitting over back will make no movement – standing heat – oestrus- By teasing – Teasers

Time to breed: II and III day or two mating at 12 hours interval.

After weaning : Heat by 2nd week – But it is better to breed after weaning – 2nd heat after weaning.

Feeding: 12-14% Cp.

Just prior to breeding enhanced feeding will increase ovulation rate and fertility rate.

Effective temperature control – Housing : group – 15-20 sq.ft.

Culling : Repeaters

1. After 5th – 6th Farrowing
2. Low fecundity
3. Poor mothering ability
4. Poor liter weight at birth and weaning (>1Kg at birth)

Pregnant Animal : Period : 114 days

Separate Pens : Groups initially and latter on just prior to Farrowing individuals

Balanced ration : 14 – 15% Cp

3-5 Kg concentrate

during last part of pregnancy to – recoup loss - Foetus growth – maintenance of themselves –

Growth of young glits – Gilts should gain 35-40 Kg during pregnancy. sows should gain 50-60

Kg during pregnancy – periodical exercise – House : 30-40 s.ft. – 40 – 60 s.ft. – good quality water.

Management during Farrowing

1. This period is critical as there is more mortality (20-30%)
2. Transferred to Farrowing pen atleast one week prior to expected Farrowing
3. Date is noted by date of service.

4. Before transferring, animal as well as should be cleaned and thoroughly disinfected.
5. Chopped straw to the tune of 4” is added. But unchopped straw is not advisable as piglets get entangled.
6. Daily exercise.
7. Time of Farrowing is noted by nervousness, tendency to form nest and colostrum secretion.
8. During Farrowing sows should not be disturbed as they become nervous. But attendants should be ready to save the piglets from crushing.
9. Farrowing happened within 2-4 hours and placenta shed within 2 hours.
10. Feeding prior to Farrowing should be restricted and laxative diet.
11. Space allowance : 40 – 60sq.ft.

Market Pigs

Lean meat production – market requirement

Port : 70-75 Kg. – low fat and high protein

Bacon : 75-90 Kg. – Moderate fat.

Heavy hog : 120-125 Kg. – High degree of fat.

Production of port is very economical

Law of diminishing return starts to operates in later stages.

FCR is low (1:1.2 – 1:4)

Proportionately low weight – in latter stages due to fat and high proportionate weight during early part due to accumulation of minerals, proteins and water.

Costly process of conversion of nutrients into fat operates in latter stages.

Pork:

Fat : 24.8%

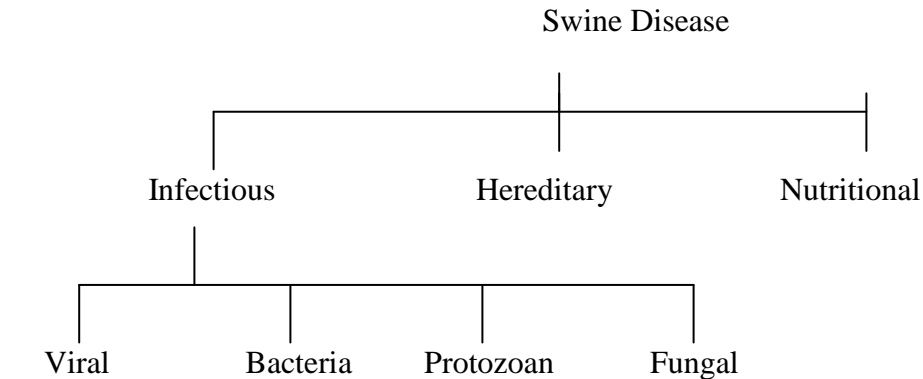
Protein : 17.1 %

Dressing percentage : 70 – 75%

Lactating animals

Housed in Farrowing pen or separate pen. space 40 – 60 sq.ft.

4-6 kg. concentrate with 14-15% CP gradually increased over a period to avoid digestive problem. under fed animals – low milk yield – poor growth rate – high plane of nutrition because highly concentrated form of milk. Protein 6%, fat - 6% and Lactose 6%, Thumb rule : 1.5Kg / sow, 0.5Kg /piglet. Allowing for good quality pasture. Prior to weaning, gradually reduce the feed allowance to reduce milk secretion otherwise stagnation of milk – mastitis.



Viral

Swine fever

1. Young animals more susceptible
2. Dark red or purple colour patches on neck and abdomen.
3. Sticky discharge from eyes
3. High mortality. – Prevention – vaccination –

Swine Pox,

FMD,

Swine influenza

Bacterial –

Swine Erysipelas – *Erysipelothrix thesiopathiae* – High fever – Reddish ‘diamond’ shaped discoloration on body. Prevention and vaccination –

Anthrax –

Brucellosis –

Tuberculosis.

Internal parasites : *Ascaris lumbricoides*

Ecto parasites : Sarcoptic mange

Nutritional : Avitaminosis – vitamin A –

Rickets –

Piglet anaemia

Control :

1. Clean environment
2. Well ventilated enclosure
3. Frequent removal of faeces
4. Regular vaccination and deworming .
5. Avoiding overcrowding.
6. Isolation of diseased.

Hog Cholera.

Swine Fever

Affects all age group-Viral Disease.

Transmission : Urine and Dung.

Symptom : Pyrexia 105-1080 F ,off feed, Drooping of Head, Arching of back, Cough, mucous discharge, from the eyes, nostrils, Pneumonia Symptoms .Diarrhea Reddening of Skin, Belly and thigh-Vomiting Death.

Control : Hygienic and Sanitation-Vaccination at 3 months.

Ecto and Endo Parasites are eradicated periodically.

Endo parasite affected animals show anaemia, pot belly, diarrhea, stunted growth, edema in the jowl etc.,

Ectoparasite ;

Scratching, discoloration of skin Albendazole, Fenbendazole or Narrow Spectrum Copper sulphate. Combination of drug (Ivermectin)of choice for both ecto and endo parasites.

1. Efficient Feed conversion
2. Prolificacy in Reproduction.
3. Mortgage lifters.
4. Generation interval –Less.
5. Pork- Cheaper.
6. Religious Taboo/ unhygienic
7. Quantity meat available from / unit is more
8. Live weight is greater.
9. More energy than any other meats/unit weight.
10. Returns over investment is quick.
11. Simple stomached animals-Requires grains
12. Marketing and feed supply are important.
13. 60-70 kgs within 180-210 days.

ECONOMIC TRAITS.

1. Litter Size.
2. Weight at Birth.
3. Weaning Weight.
4. Litter size at Weaning.
5. Growth rate:
 - a. Birth to Weaning --- Weaning wt.- –birth wt./ 56
 - b. Weaning to 154 days---Weight at 154 days-Weaning weigh/ 98 days
 - c. Weight at 154 days to 210 days ---Wt.at 210 days- Wt. at 154 days / 154 days.
6. Feed efficiency – Feed consumed per of kg of Live weight.
7. Mortality percentage.

Points to be considered in Breeding :

Maturity Age ; Male : 7 months, Female ; 6 months.

Optimum weight in Crossing Male : 80-110 kg ; Female 80-100 kgs.

Oestrus Cycle once in 21 days.

Signs of Oestrus :

a. Restlessness, b. Champing of jaws, c. Grinding of teeth, d. Mounting on other animals, e. Time for mating 24 hours after the onset of oestrus, f. Second crossing 8- 12 hours after first crossing ,

Gestation period : 114 days (3 months, 3 weeks and 3 days)

8. Suckling period : 56 days.

Management of Boar :

1. Off springs- Better producing parents.
2. Bigger litter size.
3. Heavier birth weight.
4. Weight at weaning --- 12 kg female ; Male—15 kgs.
5. Boars selected at 5 months Age : atleast 60 kg body weight.
6. No. of teats –Minimum 14 in number.
7. Male : Female = 1 : 5
8. Exercise should be given daily.
9. Boars are to be maintained separately.
10. Periodically tested for Brucellosis.

Management of Sows :

1. Balanced Ration –It should contain 14-16 % Protein.

Maize : 50 parts.

Groundnut Cake : 13 parts

Rice Polish : 10 parts.

Fish Meal : 05 parts.

Mineral Mixture : 1.5 parts.

Salt : 0.5 parts.

Vitamin premix : 2 gram / 10 kg feed; B-Complex- : 5 ml/ animal,.

2. Space requirement : 15-20 sq.ft.

3. Regular Exercise.

4. Do not mix with boars.

5. Sows and gilts are to be maintained separately.

6. Avoid over crowding.
7. During the third quarter sow should gain weight by 30-35 kg and gilt should gain weight by 40-45 kg.
8. Avoid Slippery ground.

Care and Management of New Born Piglet.

Clean and wipe with a towel and the mucous on the body, nostrils, etc.,

2. Naval cord- 1” –severed ligated-Tincture Iodine.
Clip the needle Teeth (wolf teeth)
3. Practice Colostrum feeding.
4. Iron injection-Avoid Piglet Anaemia or Thumps.
5. Allow piglet to suckle-5-6 times a day.
6. Creep Mixture- upto 8 weeks of age.
 - a. Crude Protein 22-24 %

Composition :

Maize	:50 parts.
Groundnut Cake	: 25 parts
Wheat Bran	: 13 parts.
Fish Meal	: 10 parts.
Mineral Mixture	: 2 parts.

Antibiotics—1 gram/ kg feed; Vitamin premix : 2 gram / kg feed

B-complex liquid : 3 ml / animal in Water.

- b. Easily digestible.
- c. Feed : 0-8 weeks. 100-600 grams / day up to 10 body weight
- d. **Orphan piglet**- Special ration with milk replacer containing 26-30 % Crude Protein.

Ground Maize	: 45 parts
Groundnut cake	:30 parts.
Fish meal	: 10 parts.

Lucerne Meal : 05 parts.

Molasses : 10parts.

Antibiotics—1 gram/ kg feed; Vitamin premix : 2 gram / kg feed

The feed is wetted with skim milk, antibiotics and vitamins.

Care and Management of Growing and Finishing pigs.

Period of 56 days to market age of (6-7 months) the animal should attain a body weight of 70-90 kg.or the weight gain should be a minimum of 10 kg / month.

Males- Castrated.Open method.

Unwanted gilts-Fattening.

Growers Group according to age size,body weight,etc.,

Space requirement 5-8 sq.feet.Feeder space 20-25 cm.and Water Space 15-20 cm.

Feed Efficiency

2.5 kg-50 kg body weight

: 1 : 2 ,

50 kg- 100kg body weight

: 1: 2.8,

Above 100 kg body weight

: 1 : 4

} Average : 1: 3

To get a body weight gain 60 kg : The animal will consume 180 kg feed.

GROWER MASH : 8- 12 weeks; 18-20 % Crude Protein

Maize : 55 Parts

groundnut Cake : 17 Parts

Wheat Bran : 20 Parts

Fish meal : 1.5 Parts

Mineral Mixture : 1.5 Parts

Salt : 0.5 Parts

