

Q1] Write in detail about Importance of livestock Indian Economy

→ \* Importance of livestock Indian Economy →

(1) Livestock sector is the fastest growing sector providing supplementary income for the livelihood of 3/4 rural Household in our country

ASD9 III

(2) The FAO survey (2003) in India has indicated that if a farmer having one cow or one buffalo it help to reduce his poverty to the extent 16 and 24% respectively.

(3) The livestock population of India is 185,97,61,124 million of cattle, buffaloes sheep and Goats respectively

(4) Milk production - 100.9 MT (2008)

(5) India ranks first in livestock population

(6) Per capita consumption of India is 246 g/day and Maharashtra 182 g/day.

(7) share and growth rate

- share of Agriculture GDP - 16-17%.

- share of livestock sector in Agriculture GDP - 27%.

- share of livestock sector ~~GDP - 70%~~ GDP - 6%.

- share in milk industry in livestock sector GDP - 70%.

(8) Employment in animal husbandary sector 22.45 million, which is 5.5% of the total working of the country

(9) Contribution of milk alone ₹ 144386  
Cror.

Q2] Define milk & Describe the factor affecting of milk

⇒ Def<sup>n</sup> **Milk** →

"Milk is defined as entire lacteal secretion of the mammary gland of mammals obtained by the process of milking excluding 3 days after calving or until it is free from colostrums."

\* **Factor affecting of milk** :-

- (1) species -
- (2) Breeds -
- (3) Individual animals -
- (4) stage of lactation -
- (5) Frequency of milking -
- (6) pregnancy -
- (7) Age -
- (8) Estrus -
- (9) Day period -
- (10) Temperature & Humidity -
- (11) feed -
- (12) stress -
- (13) Effect of milker -
- (14) Disease -

(1) **species** -

- Milk Yield varies from species to species
- Average milk yield / lactation of buffalo and cow are more than avg milk yield lactation of sheep and goat.

(2) **Breeds** -

- Breed is the one of the most important factor which affects milk yield.
- Animals belonging to milch breeds produce more milk.  
e.g Red sindhi (1135 litres / lactation)

### (3) Individuality of animals

- Milk yield of one individual differs from another individual.
- Larger cows normally secrete more milk.

### (4) stage of lactation

- The milk production decreases as the lactation period increase.
- Milk production in early lactation period is more than at the end of lactation period.

### (5) Frequency of milking

- As milk accumulates in the lumen of the alveoli and fills the storage areas of the udder, pressure develops inside those areas.

### (6) pregnancy

- The cows decline milk secretion from 5<sup>th</sup> month of pregnancy.

### (7) Age

- The milk secretion increases slightly after each calving till it reaches about 7 year of age due to additional growth of secreting cells of dairy cattle.

### (8) Estrus

- The cow in heat produces less milk than the normal condition, however, this is temporary.

### (9) Dry period

- A dry period of about 60 days is essential for replenishing body supplies including regeneration of secretory tissue.

(10) Temperature →

- High temperature affects on milk production, as water intake increases, feed consumption decreases.

(11) Feed →

- Balanced ration with good management practices helps in improving milk production.

(12) stress →

- Environmental stress, crowding stress, disease stress may reduce milk yield.

(13) Effect of milker →

- Due to change of milker, slight variation in milking process.

(14) Disease -

- During disease condition milk secretion rate is affected.

\* Factor affecting composition of milk \*

(1) species -

(2) Breed -

(3) Individuality -

(4) Interval between milking -

(5) Irregularity of milking -

(6) completeness of milking -

(7) frequency of milking -

(8) Day to day variation -

(9) Disease and abnormal conditions -

(10) portion of milking -

(11) yield

(12) season

(13) Excitement

(16) Condition of cow at calving

(14) stage of lactation (17) Administration of drugs

(15) Feeding

(18) Age -

Q3] What is management ? Describe care and management of newly born calf & Method of calf rearing.

⇒

### Management

"A management is the art and science of combining ideas, facilities, process, material and labour to produce and market a worthwhile product for services successfully".

### Care and Management of newly born calf

- (1) Immediately after birth remove the mucus from the nasal cavity
- (2) clean the body of the animals and make it dry, otherwise in winter season the calf may catch cold.
- (3) If calf feels difficulty in breathing stimulate the breathing by pressing and releasing the chest cavity.
- (4) cut the navel cord by leaving 2 inches distance from the body by using clean and sterilizer scissor or blade.
- (5) Apply tincture iodine on cut part of the navel cord.
- (6) Give colostrums to the calf within half an hour of its birth
- (7) Colostrums should be given @ 10% of its body weight
- (8) Colostrums should be divided into four parts and given at an interval of six hours.
- (9) Healthy calf will suck the mother within half an hour of its birth, but if it fails to get on its own assist the calf to get up and suck the mother.
- (10) protect the calf again sun, cold & rain & Record the birth weight of calf.



## \* Methods of calf rearing \*

(1) calf is allowed to stay with mother (sucking) →

In this method calf is allowed to stay with its mother and to suckle only a little before and after milking of animal.

(2) Weaning method →

- In this system the calf is taken away from its mother either just after the birth or after 2-3 days of birth.
- The feeding and management of the calf is entirely in hands of calf.

Q4] Define Estrus cycle, and Explain phases of Estrus cycle.



### Estrus cycle

Rhythmic sexual behaviour in cows is manifested from property and normality continue interval unit conception. The interval from first signs of estrus to start of next estrus called as "estrus cycle".

### \* Phases of Estrus cycle -

(1) Follicular or estrogenic phase -

a) proestrous -

b) estrous -

(2) Luteal or progestational phase -

a) meta Estrous

b) Diestrous.

(1) proestrous →

- This is first stage of estrous cycle.
- This marks the animal coming in Heat.

(2) Estrous →

- It is the period of sexual receptivity
- During estrus female exhibits symptoms of heat estrogen level increases.

(3) Metestrus →

- ovulation takes place during this period
- The corpus luteum formed on the ovary the level of progesterone increases.

(4) Diestrous →

- During this period CL grows and secretes more progesterone
- If pregnancy occurs CL continues to grow.
- If pregnancy does not occur CL regresses on 19-20 days of cycle & New cycle starts.

Q5] Write symptoms, cause, treatment, preventive measure Foot & Mouth Disease.

⇒ cause

Rhinovirus There are seven strain virus namely A, O, C, ASIA and SAT I, II & III. It generally affects pure breeds and cross breed animal.

symptoms

- (1) Increase in body temperature.
- (2) Ulcers are present on oral mucous membrane and their digital space.
- (3) There is profuse salivation.
- (4) Animal shows lameness.
- (5) Animal shows panting

(6) Anorexia is present -

(7) Animal gives less milk -

### Treatment

- Wash the lesions in mouth and on legs with 1% potassium permanganate.

- Apply boroglycerine on the oral mucous membrane and antiseptic ointment on foot lesions

- Give antibiotics to check secondary bacterial infection.

### Prevention

(1) Separate disease animals from healthy animals.

(2) Vaccinate all the healthy animals by using FMD vaccine.

Q6 classify different system animal breeding explain cross breeding & Grading-up.

### ⇒ classify different system animal breeding

(1) Inbreeding -

- Breeding is related to animal.

(2) outbreeding -

- Breeding is unrelated to animal.

\* Inbreed Again divided -

1) close breeding -

2) Line breeding -

\* outbreeding divided in five group -

1) out crossing -

2) cross breeding -

3) species Hybridization -

4) Grading up -

5) Hybridization -



## \* Cross breeding \*

It is the method of animal of different breeds.

### a) Cross crossing -

When two breeds are crossed alternatively, the method is known as cross crossing.

### b) Triple crossing -

In this system three breeds are crossed in a rotational manner is known as triple crossing.

### c) Back crossing -

Is the mating of a crossbred animal back to one of the pure parent which were used to produce it.

## \* Grading-up \*

i) Grading is the practice of breeding sires of a given breed to non-descript females and their offspring for generation after generation.

ii) The continued use of good pure bred sires for only a few generations are all that are required to bring the herd.

iii) The grading process does not create anything new but it may transfer the good qualities of an improved breed.

iv) For a grading up to use a breed that has thrived well under local condition.

In the 7<sup>th</sup> generation - 98% purity.

## Advantages / limitation grading.

i) purebreds can be obtained just after a few generations.

- ii) It is simple and economic method of establishing herd of purebreds.
- iii) It is good start for new breeders who can slowly change over to pure breed system.

### \* Limitations →

- i) purebreds are not always better than indigenous animals.
- ii) Male offsprings are not suitable for breeding purpose.

Q9] What is Silage? Write the characteristics of good silage and its Advantages of silage.

⇒

### Silage

Def<sup>n</sup> It is a fermented feed resulting from the storage of high moisture crop, usually green forage under anaerobic condition in a structure known as "silage".

### Characteristics of silage

- i) Good silage should have a mild, pleasant aroma an acid taste and slightly greenish colour. it should be free from sliminess and mold growth.
- ii) crop should contain adequate level of sugar for acid fermentation.
- iii) should have sufficient acid to prevent further degradation.
- iv) Exclude air from silage by proper press.

### Advantages of silage

- i) It is less risk from the weather than hay making
- ii) Retains higher proportion of nutrients.

- iii) Silage crops have more yield than hays.
- iv) Earlier cuttings at higher levels of digestibility is possible.
- v) The crop can be preserved as silage more cheaply more quickly with less labour.
- vi) It requires less storage space than hay
- vii) Fear of fire is avoid
- viii) practically any forage crop is fit for ensiling.
- ix) It is palatable and slightly laxative
- x) It is better source of protein and carotene.
- xi) Ensiling ensures better storage for a long time.

Q8] Enlist system of cattle Housing and explain Head to Head system and Tail to Tail system.



\* Housing system →

(1) Loose housing system -

(2) Conventional housing system -

a) Tail to tail system →

b) Head to Head system →

\* Head to head system -

(1) Floor space - 60 to 70 sq ft per adult cow

(2) Floor space - From manger to excreta channel - 1" to 1½"

(3) Wall - Inside wall smooth and Hard.  
- corners should be round and 4-5 ft in and height.

(4) Roof - Roof barn may be of asbestos sheet or tiles, a height of roof 8 ft at the side and 15 ft at the ridge.

## \* Advantages →

- 1) cows make a better showing for visitors
- 2) The cows feel easier to get into their stalls.
- 3) More exposed to sun-rays shine in the gutter.
- 4) Feeding of cow is easier.
- 5) It is better for narrow barns.

## \* Tail to tail system →

- In this system, animals are arranged in row with head facing outside
- There is a common passage between two rows called a central alley
- The central alley should of 6 feet width made of pakka RCC flooring exclusive of gutter
- It should have 1" slope from its centre to wards the either side
- Gutter running parallel to each other.
- The gutter should be about 4" deep and semi lunar in shape.
- Rectangular shape is often injurious - causing injury to hooves and pasterns of the animals.

## \* Advantages

- There is time saving system, maximum time of the labourers is spent behind the cow in cleaning washing and milk operation.
- cleaning of shed and milking is easier due to central alley.
- Chances of spread of disease are minimized.
- Animals are not distributed by each other as all the facing out.

## \* Disadvantages →

- I) Feeding require more time
- II) If not clean properly, it gives bad display to the visitors.
- III) Higher cost of construction and also for daily cleaning.

Q9] selection of site for dairy farm.

### → Selection of site for dairy farm -

- (1) Topography & Drainage -
- (2) soil type -
- (3) Exposure to the sun and protection -
- (4) Accessibility - From wind -
- (5) Durability & Attractiveness -
- (6) water supply -
- (7) surroundings -
- (8) Labour -
- (9) Marketing -
- (10) Electricity -

### (1) Topography and Drainage -

- The Dairy Building should be a Higher elevation for good drainage of rain water and wastes of Dairy.

### (2) soil type -

- fertile soil should be used for cultivation of fodder crop.

### (3) Exposure so that sun and protection from wind -

- The Dairy building should get maximum sunlight exposure so that the surface will dry as earliest.

#### (4) Accessibility -

- The easy accessibility is required  
It should be 100 meter away  
from main road.

\* Description refer's the Notes ASDS III \*

Q101 Define fertility & Give its factor affecting  
Fertility

⇒ Defn Fertility →

Fertility is defined as ability of  
an animal to produce young one.

\* Factor affecting fertility →

- (1) Abnormal estrus -
- (2) Anestrous -
- (3) Irregular estrus -
- (4) Silent estrus -
- (5) Prolonged estrus -
- (6) Time of breeding -
- (7) Method and technique of Insemination -
- (8) Environmental factors -
- (9) Pathological causes for Infertility -

(1) Anestrous →

- Under developed ovaries are often  
associated with anestrous.

(2) Irregular estrus cycle →

- cows normally undergo regular estrus  
cycle. But some animal shows irregular  
estrus cycle.

### (3) Silent Estrus

- In some of the animals ovulation occurs without full behavioural sign of heat
- The main problem in these cows are to detect the estrus.
- This condition is more prevalent -

\* Discription refer's the Notes Asps III \*

Q III What is breed? Enlist different indigeneous breeds of cattle and explain, Red sindhi, Gir, Sahiwal



### Breed

A group of animals related by descent and similar in most characters like general appearance feature, size, configuration etc is called "Breed"

### \* Breeds of cattle

(1) Milk purpose - I) Gir -

- 1) sahiwal -
- 11) Red sindhi -
- 12) Tharparkar -

(2) Duel purpose - I) Hariana -

- 11) ongole -
- 111) kankrej -
- 1v) Deoni -
- v) Nimari -
- vi) Dangi -
- vii) Merahi -
- viii) Rathi -

(3) Draft purpose - I) Hallikar -

- 11) khillar -
- 111) Amritmahal -
- 1v) Baggur -
- v) Nagori -
- vi) Bachour etc -

## [1] Red Sindhi

\* Home track → Sindh (Karachi)  
(Pakistan)

\* character → - Medium sized compact well proportioned body, extremely docile. Thick horns with blunt points.

- Deep Dark red colour.

- Heavy Hump.

- dewlaps and sheath

- capacious Udder.

\* Utility -

- one of the best dairy breed.

- Average lactational yield 2200 to 2500 litre.

- Age at first calving 3-3.5 year.

\* Utility →

- one of the best dairy breed

- Average Lactational yield 1500 to 1800 litres age at first calving 3 to 3.5 years.

## [2] SAHIWAL

\* Home track → Montgomery (Pakistan)

\* character →

- Deep Body

- wose skin

- short legs

- stumpy horns

- broad Head

- massive Hump.



\* Utility →

- one of the best dairy breed
- average lactational yield 2200 to 2500 litre.
- Age at first calving 3-3.5 Year.

\* Gir \*

\* Synonyms - Kathiwarhi, surti, Deccan.

\* Origin & distribution →

- The breed probably originated in Gir Forest of south Kathiwar.
- They are mainly found in Junagarh state of south Kathiwar & in some other state of western India.

\* Distinguishing characters -

- Appearance impressive well proportioned body robust constitution docile temperament
- The Head is moderately long but massive in appearances
- The Horns are big curved turning backwards.

\* Economic character →

- Average milk yield is recorded as 1590 kg/per Lactation.
- Highest milk yield is recorded as 3180 kg per lactation.

\* Tharparkar \*

\* Home track → district of Hyderabad.  
(Pakistan) Jodhpur.

\* character →

- colour white on light grey medium size deep built short legs.
- Broad poles fore head, slightly convex medium sized Horns
- Udder is moderately developed.

\* Utility →

- cow are good milk yield/days.
- Average milk yield is 1500 to 1700 kg.
- Highest yield 4763 recorded.

\* KHILLARI \*

\* Home track → Solapur, satara. (M.S.)

\* character →

- colour should be gray
- There are 4 type
  - 1) Atpadi khillar
  - 2) Mhaswad khillar
  - 3) Tapi khillar
  - 4) Nakli khillar -

- compact body with clean and features
- Horns are long, The body is cylindrical

\* Utility →

- Bullocks are highly valued as fast pace powerful draft animals.
- cows are poor milk yielder.
- average lactational yield is in between 300 to 400 kg.
- Khillar breed is highly valued as fast paced powerful drought animals through out the state of the Maharashtra.

Q12] Define Management? Enlist the routine management practices followed on organized dairy farm.



### Management

"Management is the art and science of combining ideas facilities process, materials and labour to produce and market a worth while product or service successfully."

#### \* Management practices -

- (1) Feeding of animals -
- (2) Breeding -
- (3) Milking -
- (4) Drying of animals -
- (5) Identification of marks -
- (6) Dehorning -
- (7) culling -
- (8) weaning -
- (9) castration -
- (10) Trimming of Hooves -
- (11) Milk disposal -
- (12) Daily inspection -
- (13) Deworming -
- (14) Record keeping etc. -
- (15) Grooming -
- (16) Exercise -
- (17) clipping hairs -

IMP Qutions → 1) Murrah, Jersey, White Leghorn.  
→ Feeding of pregnant cow.

Q13] Define the following terms.

1] Calving interval →

It is period between first calving to next successive calving.

2] Culling →

It is defined as selling of undesirable animals suffering from disease having stunted growth, poor milk yield and problem in breeding etc.

3] Steer →

The male cattle that is castrated when he is still a calf or before the development of sexual maturity is called "steer".

4] Mouthing → The process of shedding of old feathers and growth of new feathers in their place is called as mouthing.

5] Lactation period →

The period after parturition in which the animal produces milk.

6] Grooming →

Grooming is to massage the hair coat of animal for removing the loose hairs with body brush.

7] Castration →

Act of crushing the spermatic cord by Burdizzors castrator.

8] Debeaking →

The act of removing the beaks of the birds by an instrument called Debeaker.

9] Calf → A young animal of ~~cattle~~ bovine species under one year of age.

10] Free martin → A heifer, usually sterile, borne twine with a bull.

Q 14] Give the causal organism, symptoms, treatment and control measure of following disease



[1] Anthrax

- a) causal organism - Bacillus anthracis
- b) symptoms -
- i) sudden rise in body temperature -
  - ii) Loss of appetite -
  - iii) suspended rumination -
  - iv) Tympany / bloat -
  - v) Dyspnoea / difficult of breathing -
- c) Treatment -
- is effective in initial stages
  - penicillin @ 10,000 units/kg body weight
  - oxy/tetracycline @ 10 mg/kg body weight
- d) control measure -
- i) General measures -
    - Identification & isolation of affected ~~plant~~ animal
    - Deep burial of dead animal.
    - thorough disinfection of cattle shed by using 10% caustic soda.
  - ii) vaccination -
    - Anthrax spore vaccine @ 1ml every before onset of monsoon

[2] Black quarter - Bacteria

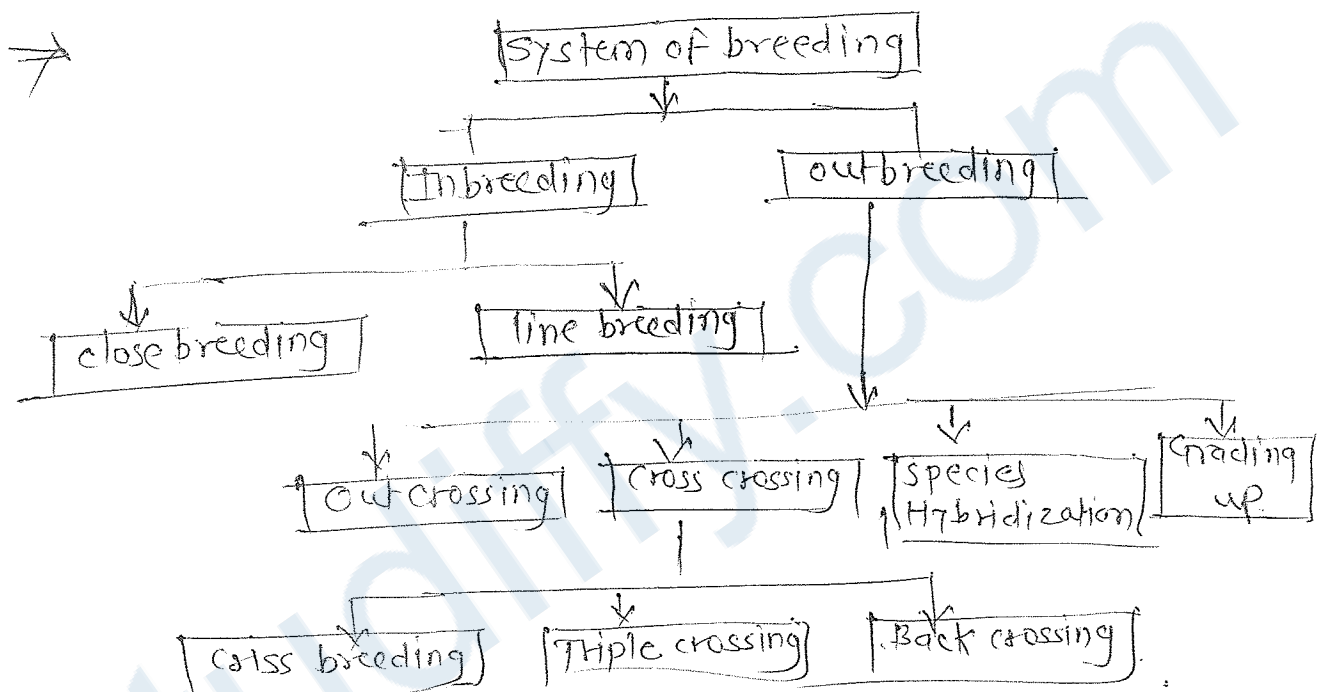
- a) causal organism - Clostridium chauvoei
- b) symptoms -
- Fever (106 to 108°F)
  - Loss of appetite -
  - Depression, dullness
  - Rapid heart and pulse rate
  - Lameness in affected leg
  - crepitant swelling over hip, back and shoulder.
- c) Treatment -
- penicillin @ 10,000 units/kg body weight

- oxy tetracycline in high doses i.e. 10 mg/kg body
- Fluid therapy - Injection PNSIV.

d) control measures -

- Alum precipitated B. & vaccine @ 5ml s/c year before
- The immunity develops in 2 to 3 weeks and remains for 6 months

Q15] classification of breeding system and advantages and disadvantages of Inbreeding



\* Advantages of Inbreeding →

- I) It increases homozygosity & decreases heterozygosity
- II) It helps to produce seed stock for cross breeding
- III) Helps to obtain purebred animals
- IV) It increases uniformity of productive character.

\* Disadvantages of Inbreeding →

- I) It decreases growth rate, body size and body weight
- II) It reduces reproductive efficiency
- III) It delays puberty in both sexes
- IV) It reduces vigour.

Q] Define breed Enlist the classification of breed and explain Utility based classification

⇒ Def<sup>n</sup> Breed →

It is group of individuals which is related by descent and similar in most of the character like general appearance body size, shape confirmation etc.

\* classification →

(1) zoological classification ←

(2) Morphological classification ←

i) Long Horned cattle (Mysore type) -  
e.g. Khillan, Hallikar.

ii) Long Ear cattle (Gir type) -  
e.g. Gir, Deoni, Dangi

iii) Large white type cattle of North India -

a) Broad Faced - e.g. Malvi, Tharparkar

b) Narrow Faced - e.g. Hariyana, Gujlo, Rathi

c) Loose skinned type cattle -

e.g. Red Sindhi, Sahiwal Gir.

iv) Dwarf Type -

v) Panny Type - e.g. Dhanny.

(3) Utility classification -

i) Milch or Dairy type -

- The cows of this group are best yielder

- Bullocks are of moderate size of average draft quality.

- The animal are generally pendulous in built, with pendulous dewlap and sheath and often short horns.

- e.g. Red Sindhi, Sahiwal, Gir.

## 2) Draft purpose Breeds -

- The cows of this group are poor yielder.
- Bullocks are excellent draft animals.
- They have well proportionate body with strong neck, muscular shoulder, strong limbs with light and long compact barrel.
- The skin and sheath are tight to body hooves are generally hard, waxy medium in size and black.
- e.g. Khillar, Amritmahal, Malvi, Hallikar, Dangi

## 3) Dual purpose Breeds -

- The cows of this group are average milk producer, while the bullocks are suitable for work with medium speed.
- e.g. Peoni, Kankrej, Tharparkar, Haryana, Ongal

## \* Management of calf before Birth

- The cows, which are not fed properly, will give birth to under nourished calves
- since the unborn calf makes most of its growth during the last 3 months before birth,
- special care in feeding of cow is required
- The additional food is Required

— ox — ox — ox —

BEST LUCK.....