LIVESTOCK PRODUCTION AND MANAGEMENT

1. Total livestock population in India according to 19th livestock census is **:- 512.05 M. (India rank 1st).**
2. Share of world livestock population in India **15 %.**
3. Cattle population in **India 190.9 Million (India rank – 2nd).**
4. Buffalo population **108.7 million (India rank – 1nd).**
5. Sheep population **65 Million (India rank – 3nd).**
6. **Goat** population **108.7 Million (India rank – 2nd).**
7. **Goat** is known as Poor man's cow.
8. Sheep is known as **Poor man's mobile bank.**
9. Total livestock contributes to gyer all GDP is **4.1 %** and Agricultural GDP IS **28 %.**
10. **Bullocks** are called as backbone on India Agriculture.
11. Per capita availability of milk in India is **355 gms/day.**
12. Gestation period of cow is **282 days.**
13. Gestation period of buffalo is **310.**
14. Chromosome no of cow is **60.**
15. Chromosome no of Buffalo is **50.**
16. Meat of cow is called **Beef.**
17. Meat of Buffalo is called **Buffen.**
18. Cattle species called as **Bovine.**

19. Cattle belongs to
    - **a) Phylum :- Chordata**
    - **b) Class :- Mammalian**
    - **c) Order :- Artiodactyla**
    - **d) Suborder :- Ruminant**
    - **e) Family :- Bavidae**
    - **f) Genus :- Bas**
    - **g) Species :- Indicus (humped cattle)**
      Taurus (Without humped)

20. **Breed** is a group of animals related by descent and similar in most characteristics like general appearance feature, size and configuration.

21. Milch purpose cows are high yielder and their range varies from **1500 to 2500**

22. Lola, Mantgomery, lambi – bar multani are synonyms of **sahiwal** breed.

23. Central and southern dry area of Punjab particularly in mongomery is the origin of **sahiwal** breed.

24. Sahiwal breed is called as Lola because it has **loose skin.**

25. Red sindhi, sindhi and red Karachi are synonyms of **Red Sindhi.**

26. Karachi and Hyderabad are home of Red Sindhi is **deep dark red.**

27. Kathiawarti, surti, deccan are the synonyms of **Gir** breed.

28. Origin of Gir breed is **Gir forest of south Kathiawar.**

29. Half moon shaped horns are the characteristics feature of **Gir.**

30. Tail of Gir cattle is long with a **black** switch.

31. Thari, gray sindhi and white sindhi are synonymes of **Tharparkar.**

32. Origin of tharparkar breed is **Tharparkar** district in Hyderabad.

33. Origin of hariyana brred is in **cast Punjab.**
34. Synonyms of kamkrij are **Bannai, Vagadia, Naga and Sahihare.**

35. Kankrej has its origination in **Gujarat**.

36. **Sawai-chal** is characteristic feature of Kankrej breed.

37. Kankrej is the **heaviest** breed.

38. Ahamdnagar ,Nasik, Bansda, Sonkhid, region of Maharashtra **are home tract of Dangi Breed.**

39. Skin of Dangi cattle is **oily.**

40. **Karnataka** is home / home track of Amritmahal.

41. **Amritmahal** is a best draught purpose breed.

42. **Gaolao** cattle has its home track in **southern MP, Maharashtra.**

43. Karan swiss is developed from a cross of **sahiwal** and **brown swiss.**

44. **Karan fries** is developed from a cross of tharparkar and Holstein-friesian.

45. **Phule triven** is a triple cross of Gir, Jersy and Holstein-friesian.

46. **Jersy** is originated in Jersy island.

47. Holstein-friesian is originated in **Holland.**

48. Milk production H.F. ranges from **6150 kg** .

IMPORTANT BREED OF BUFFALO IN INDIA

1) GENUS :- Bubalus
2) FAMILY :- Bovidae
3) SUB-FAMILY :- Bovinae
4) Buffalo commonly known as an - Asian animal
5) Water Buffalo is recognized as – Milk machine

SOME COMMON TERMS IN RELATION TO BUFFALO

1) Species called as – Bovine of bubalis
2) Group of animal – Herd
3) Adult male – Buffalo Bull
4) Adult Female – She- Buffalo
5) Young male – Buffalo bull calf
6) Young female – Buffalo heifer calf
7) New born one – Buffalo calf
8) Castrated male – Buffalo Bullock
9) Castrated female – Spayed
10) Female with its offspring – Calf At Foot
11) Act of parturition – Calving
12) Act of mating – Serving
13) Sound produced – Bellowing
14) Pregnancy – Gestation

CHROMOSOME NO

1) The swamp Buffalo – (chromosomes, 2n = 48)
2) The river Buffalo – (chromosomes, 2n = 50)

- **Wallowing** it means rolling or floundering in mud or in water**.**

BREED OF INDIAN BUFFALO

1) MURRAH GROUP :-

a) Murrah :-

I. Synonyms :- Delhi buffalo
II. Origin :- Punjab and Delhi
III. Popular colour :- Jet black
IV. Fat (%) :- 7 %

b) Nili – Ravi :-

I. Synonym :- Nil
II. Origin :- valley of montgomery
III. Special character :- Pink marking on udder and brisket
IV. Name :- due to deep blue color (Nili) of sutlej River

2) GUJARAT GROUP :-

a) Surti :-

I. Synonym :- Nil
II. Origin :- south western part of Gujarat state
III. Fat (%) :-7.5 %

IV. Sickle shape horn

b) Jafffarabadi :-

I. Synonym :- Nil
II. Origin :- Gir forest of Katiyawar
III. Special character :- head is bigger than other

c) Mehsana :-

I. Synonym :-
II. Origin :- North of Gujarat state
III. Special character :- it is cross of murrah and surti
= Murrha × surti

3) UTTERPRADESH GROUP :-

a) Bhadawari :-

I. Synonym :-
II. Origin :- Agra District And Adjoining area of Gwalior and Etawah
III. Fat (%) :- 13 %

4) SOUTH INDIA GROUP :-

a) Toda :-

I. Synonym :- Nil
II. Origin :- Toda tribes of Tamilnadu state which Toda is under Nilgiri Hills
III. Fat (%) :- 7 %

PRINCIPAL OF MAXIMASATION OF LIVESTOCK PRODUCTION

1) Extensive use of artificial insemination technology which is most successful method of breeding
2) Bull is the most important player in dairy development.
3) Cost of feed and fodder constitutes **65 – 70 %** of total cost of livestocks production .
4) Proper ratio of green to dry **(4:1)** fodder should be maintain
5) In dairy animal 3 kg of water is required for the production of 1 kg milk
6) Feed colostrums to calves at **10 %** of body weight within 2 hrs of birth

OBJECTIVES

CALF

1) Cut the navel cord__ away from the body.
   Ans :- 3 cm
2) The two system of calf rearing are------
   Ans :- Suckling system and weaning system.
3) Two two four calves of similar age and vigour kept in a stall pen with one cow which is called as--------
   Ans:- Nurse cow
4) ------- is the natural system of feeding
   Ans :-Suckling
5) _____ is the first milk of cow immediately after calving
   Ans:- colostrums
6) Colostrums contains antibodies named _____
   Ans :- Gammaglobulin
7) Colostrums should be fed _____ of calfs body weight per day
   Ans :- 10%
8) Colostrums should be fed of calf within _____
   Ans 2 hrs
9) Colostrums should be given in _____ to _____ divided dose in a day
   Ans :- 2 to 30
10) Feeding of _____ lower the cost of raising calves
    Ans:- Skim milk
11) The milk replacer should be reconsistueted with warm water in the proportion of _____
    Ans:- 1:8
12) When calves are approximately _____ old they start to eat dry feed
    Ans :- 10 days
13) An ideal calves starter contain about_____ DCP and about _____ TDN.
    Ans:- 20 -23 %, 70%
14) The concentrate should have _____ DCP & _____ TDN
    Ans:- 18% & 60 %
15) 20 -25 square feet /calf below the age of _____
    Ans:- 3 Month
16) Dehorning should be done when calf is _____
    Ans:- 4 to 10 days old

HEIFER

17) A young female of cattle and buffalo over one year which has not calved is called _____
Ans :-Heifer

18) Heifer can be reared by two methods_____
Ans:- grazing method and stallfeeding methods

19) Extra amount of concentrate should be fed during last half of the pregnancy is called _____
Ans:- steaming up

20) 1.5 kg concentrate mixture for heifer should be given daily half _____ DCP _____ TDN
Ans:- 18 % & 65 – 70 %

21) Flooring should heifer should be _____
Ans:- non slippery

22) Periodical spraying of insecticide is necessary to avoid _____
Ans:- Ectoparacites

23) During initial period of pregnancy concentrate mixture should be given _____ kg per day for deshi cow and _____ kg/day for cross breed cow
Ans:- 1.25 kg, 1.50 kg

24) Give injection of _____ 20 million I.U. intramuscularly a week before pasturation to avoid milk fever.

25) Calving box for pregnant cow should have an are about _____ sq.ft.
Ans:- 100 to 150 sq.ft

26) _____ and_____ should provide through bonemeal or mineral mixture to avoid milk fever

27) At about 15 day calving give slightly more quantity of concentrate than actual called _____
Ans:- lead feeding or challenge feeding

28) The udder and teats should be washed with warm water mixed with _____ solution and wiped to dry before milking
Ans:- $KMnO_4$ soluation

29) Down callver must get larger dose of vitamin D during 4-5 get days before calving to provinant milk fever after _____
Ans:- Pasturation

30) After water atleast _____ a day for drinking and groomed daily
Ans:- twice

31) Bullocks on an avagare consumed 2 kg dry matter per _____ kg

Ans:- 100 kg

32) Bull calves intended to be converted in bullock should be castrated when they are between _____ year old
Ans:- 1 to 105

33) During summer, working hours may be _____ hrs in the morning and _____ hrs in the evening
Ans:- 3 to 10 & 16 to 19

34) _____ of work should be given to the male calves at earlier age by experience trainer
Ans:- training

35) The bull is said to be _____
Ans:- half of the herd

36) a ration of young growing bull must contain _____ % DCP &70 TDN
Ans:- 12 to 15

37) legume hay may be given _____ body weight of breeding bull
Ans:- 100kg

38) feeding excess of silage or hay is undesirable as it will make the bull paunchy and less efficient in _____
Ans:- matting

39) Ring is made up of _____ 2 diameter
Ans:- copper and aluminium 2.5 inch

40) ring should be put in the nose bull at age _____
Ans:-1 year only

41) The healthy bull may be used up to _____ age for service
Ans:-11 years

42) _____ to the bull is avoided
Ans:- Teasing

FERTILITY, STERILITY AND PRODUCTIVITY REPRODUCTIVE BEHAVIOR VIZ. OESTROM AND PARTUTATION

Important term :-

1) **Puberty :-** it is the age at which first of physical change through which calfs body mature into an adult body capable of sexual reproduction.
2) **Sexual reproduction :-** it is a stage when female is able to bear fetus. At this stage, there is full development of reproduction organs
3) **Oestrous cycle :-** it is the chain of physical that begins at one oestrous period and end at the next.

4) **Heat/oestrous :-** it is the period of intense or high wexual desire or sexual excitement in female
5) **Fertilization:-** fertilization means union of male (sperm) & female (ova) gamets.
6) **Ovulation :-** a process of release of ova/egg from the matured graffion follicle.
7) **Spermatogenesis :-** Is a process of formation of sperm in moles.
8) **Oogenesis:-** a process of formation of ova in female
9) **Ova :-** is a female gamete.
10) **Sperm :-** is a male gamete.
11) **Zygote :-** zygote is a fertilized ovum
12) **Gestation period :-** it is the period between conception (fertilization) and parturition
13) **Parturition :-** it is the act giving birth to young onr
14) **Pregnancy :-** it is the condition of female characterized by presence of developing young in her uterus.
15) **Fertilization:-** fertilization is the ability of an animal to produce large number of living young. This term applies to both males and females.
16) **Infertility :-** infertility means a temporary inability of the animal to reduce.
17) **Sterility :-** the condition in which animal has lost reproductive capacity permanently and it cannot be cured. OR
    Sterility means a permanent inability of the animal to reproduce.

- **Oestrus cycle :-**
  Phases of oestrus cycle

1) Proestrus stage
   i) Duration of proestrus in cow is 2 to3 days

2) Oestrus cycle
   i) Duration of oestrus in cow is 1 day or 24 hours.

3) Metaester cycle
   i) Duration in metaistrus in cow is 2 to 3 days

4) Diaestrus cycle (it is the longest phase)
   i) Duration of dioestrus in cow is 15 days

- **Parturition :-**
  Divided in to four stage
  1) First stage :- Preximinary stage
  2) Second stage :- Dilation of cervix
  3) Third stage :- Expultion of etus

4) Fourth stage :- Expulsion of placenta

A) Preliminary stage :-

1) This stage last for some hour or day
2) In preliminary stage teats fill with colostrums
3) In preliminary stage temperature of cow body is decress.

B) Second stage :-Dilation stage of cervix

1) This stage last for 2 to 6 hours in cow.
2) It is the period between onset of uterine contraction and dilation of cervix

C) Third stage:- expulsion of fetus

1) This stage last for 2 hour to 1 hour in cow
2) It is period between dilation of cervix and passed vulva

D) Fourth stage:- Expulsion of placenta

1) This stage is last for ½ hous to 8 hour in cow
2) This is period between expulsion of fetus and expulsion of placenta.
3) Uterin contraction help in expulsion in placenta

- **Sterility :-**
  1) Sterility couse by defect in **a reproductive tract** in anatomical abnormalities
  2) In anestrus absence of sexual cycle due to **infertile overy**
  3) Silent estrus are occure more in **summer session**
  4) **Irregular cycle** is important sign of infertility
  5) **Metritis** and **early embryonic death** is associated with irregular estrus.
  6) Deficiency of **vitamin E** cause reproductive failure
  7) Deficiency of **iodine ratio of ca:p** is reproductive for failure reproduction
  8) **Bacterial brucellosis** is found in a pregnant uterous and leptospirosis causes abortion
  9) **Lethal genes** bring abnormal development of foetus
  10) **Lethal gens** cause death young during pregnancy
- **Fertility :-**
  1) **Sperm** form high fertile bulls fertilize more eggs.
  2) Buffalo bulls less fertile during **summer season**.
  3) Breeding cow at first heat after **50 days** of calving.
  4) Age fertility declines with **advanced age.**

OBJECTIVES

1) Testes are suspended in **scrotum**
2) Testes are **10 to 16 cm** in length and **5 to 8 cm** in width
3) Average weight of adult testes is **300 to 500 gms**
4) Testes produce **sperms**
5) Bull produces an average **10 billion** sperms per day
6) Scrotum is a pouch in which **testis** located.
7) Scrotum is protects the **testis**
8) In adult bull scrotum is **20 to 25 cm** long
9) Temperature testis is less by **$1C^{O}$ to $2C^{o}$** than body temp.
10) Epididymis is **33 to 35 meter** long in bull
11) Vas deferense starting from **epididymis** to the urethra
12) **Vas deferense** transport of sperm from epididymis to urethra
13) Terminal portion of vas deferense called as **ampulla**
14) Urethra extended from **neck of bladder** to tip of glans penis.
15) The function of urethra is common passage way for **urine** and **semen**
16) Pents in **3 feet** long and **1 inch** diameter
17) Pents is **'S'** shaped curved
18) Length of seminal vesicle is **10 to 12 cm**

19) Average length of prostate gland is **2 cm**

20) Prostate gland is approximately **30** ducts drain secretion

OBJECTIVES

1) Overies present in 2 number i.e. **right** and **left** overy

2) Overy are **avoid** in shape.

3) Weight of overy is **10 to 20 gm** each

4) **Right** overy is slighty larger than left

5) Number of fertile in each overy are **75000 to 300000**

6) Overies secretion of **estrogen and progesterone**

7) Oviduct are cylinder and zig-zag tube of **20 to 25 cm** in length and **2mm** in width

8) Oviduct extend from **overies** to **uterous.**

9) Middle part of fallopian tube / oviduct are called **ampula**

10) Uterous is **'Y'** shaped sack

11) Uterous maintain the **pregnancy**

12) The function of uterous is transport of sperm towards the **falopisn tube**

13) Cervix present in the cow is about **10 cm** long and **25 cm** width.

14) Vagina is about **20 to 25 cm** long

15) Urethra opens on **floor** of vagina

16) Vagina is responsible for secretion of the **mucus.**

- **Loose skin called as –Lola**

- **Horn shape of Gir cattle – Half moon shape**
- **Forehead of Gir cattle – Bulging type**
- **Eyes of Gir cattle – Almond shape**
- **Origin of sahiwal – Punjab montegmory dist in Pakistan**
- **Origin of Gir – Gir forest in Gujarat**
- **Origin of Red Sindhi – Karachi & Hyderabad**
- **Origin of Jersey – Island of jersey in the English channel**
- **Origin of H. F. – Holland**

Best ,milch purpose breed – Sahiwal
Best dual purpose breed – Hariyana
Best dual purpose breed – Amritmahal
Walking style of Kankrej breed – sawai chal use of Nirori cattle – lifting of irrigation water

OBJECTIVES

1) _____ is the largest group of protein found in milk.
   Ans:- Casein (80%)

2) In A1 milk bet casein is 209 amino acid chain in _____ no. position_____ bond present.
   Ans:- 67 and Histidine respectively.

3) In A2 milk amino acid chain in _____ no position _____ bond present .
   Ans:- 67 and proline

4) Histidine hold _____ bond with BCM 7.
   Ans:- Week

5) Protein is _____ bonded to a small protein called DCM 7
   Ans:- strongly

Bacterial Disease :-

1) H.S. :- Hemorphogic septicemia
2) B. Q. :-Black Quarters
3) Antrax :-
4) **Bracellosis :-**

Viral Disease :- Rinderpest, FDM
Protozoan :- Surra, theileviosis

1) **H. S. (Hemorrbagic septicemia)**
   Synonyme :- shipping fever, Ghatsurp
   Etiology or C. O. :- Pasteurella multocida

2) **Black Quarter (B. Q.) :- Black leg, Farrya, sujaa**
   Etiology or C. O. :- Clostridium Chuvoei

3) **Rinderpest :-**
   Synonyme :- Bulkandi, Cattle plouge
   Etiology or C. O. :- Paramyxo virus

4) **Anthrax :-**
   Synonyme :- Splenic fever, zoonotic disease
   Etiology or C. O. :- bacillus anthraces

5) **Foot and mouth disease :-**
   Etiology or C. O. :- Picorna Virus

6) **Mastitis :- Mastitis is denoting on in inflamation of the udder**
   Synonyme :- Dagadi

- Cattle disease that is communication to man is :- **Anthrax**
- Hormone responsible for let down of milk is :-**Oxytocin**
- A pregnant cow doesn't come in heat due to presence of **carpus luteum**
- **Latogenesis :-** (initiative of milk secretiion):- a process by which mammary alveolar cells acquire the ability to secrete milk.
- **Galactopoiesis & Lactopoisis :-** maintenance of lactation after initiation for a certain period is knoen as galactopoisis or lactopoisis
- **Milk ejection (milk let down) :-** milk ejection is the thrown out of the synthesized milk from the alveoli ducts portion of the gland by squeezing action of the hormone oxytocin.
- Small muscle fibers called **Myoepithelial cells** also surround each alveolus.

- For production of 1ml of milk **400-500 ml** of blood must be pass through the udder.

- The blood is carried to the udder through following **three** arteries
  1) **External pudic arteries**
  2) **Mammary artery**
  3) **Perineal artery**