MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION
B. Sc. (Hons) Agriculture

Semester	: I (New)	Term : I	Academic Year : 2017-18
Course No.	: AHDS - 111	Title	: Livestock Production and Management
Credits	: 2 (1 + 1)		
Day & Date	:	Time :	Total Marks : 40

Model Answers with Marking Scheme

SECTION "A"

Q. 1. Write in detail the importance of livestock in national economy.

Ans: 4 mark

1. Integral part of Indian economy

1) India possesses largest livestock population in the world i.e. 512.06 million. Accounts nearly 19 to 20 per cent of the world.
2) Present livestock population in India (million) (Livestock Census 2012)
Cattle-190.9 , Buffaloes- 108.7 , Sheep- 61.06 , Goat-135.17 ,Pig- 10.29, Poultry- 729.2
3) Livestock sector contribute nearly 25.6 % to agril. GDP ,whereas 4.11% in the national GDP.
4) Value of output from livestock sector in 2012 – 13 is Rs. 537535 crore (Share of milk industry in livestock sector GDP is 67 %) , Meat group 18 %, poultry meat 8 %.

2. Milk production:

India ranks I st in the milk production with 155.5 million tonnes milk production in the year (2015-16). Per capita consumption -337 gms / day /capita.(2015-16).

3. Meat production :

Flesh foods are rich in protein and good source of vit.B 12. which helpful in the body building. Which absent in the plant food . Average meat production 7.02 MT, and produce 82.93 billion eggs (2015-16).

4. Fibre and Skins:

The livestock also contributes to the production of wool, hair, hides and pelts. Leather is the most important products which has a very high export potential. India is producing about 47.9 million Kg. of wool per annum.

5. Animal drought power:

The bullock pair back bone of agriculture. The horse power obtained from one bullock pair is about 0.75 HP, Mechanization of agriculture has been done only 30% . Draft animal power saves six million tones of fossil fuel per year, valued at Rs.12000 crores.

6. Farm yard manure for organic farming.

A minimum of 10 – 12 kg of dung is obtained on an average from every cow or buffalo

and excellent source of FYM or compost manure. Dung cakes used for fuel also. Helpful in the maintaining the soil fertility. Helpful in maintaining the carbon : nitrogen ratio.

7. Transportation:

About 2/3 of rural transportation is carried by bullock carts. Rural transportation is estimated to 25000 million ton km of freight per year saving 6 million of diesel worth Rs.4000 crores annually.

8. Livestock export:

India's export of animal products was Rs. 30,137.08 crores in 2015-16, the major products are buffalo meat Rs. 26681.56 crores, Sheep and Goat meat Rs.837.76 crores, Poultry products Rs. 768.72 crores, Dairy products Rs.754.20 crores, Animal casing Rs. 17.02 crores, processed meat Rs.6.18 crores.

9. Employment generation

Livestock sector provide or generate regular employment to millions of people. About 20.5 million people depend on livestock for their livelihood. Livestock provides livelihood to two-third of rural community.

Q. 2. Write home tract, important physical and economical characteristics of the following breeds (Any Two)
i) Deoni ii) Jersey iii) Murrah

Ans: **2 mark**

i) Deoni

Home tract: The home tract of Deoni is Latur district of Maharashtra and adjoining area of Andhra Pradesh and Karnataka.

Physical characters:

1. Deoni is a medium heavy animal.
2. Body colour is clear white in *Wannera* and *Balankya* strain, whereas irregular black spots are seen all over the white body in *Shevera*.
3. Head is masculine, alert, broad, slightly convex and held high on the apex of the neck with a majestic look.
4. Fore head is prominent, broad and slightly bulging.
5. Horns are medium, thick, apart, emerging from the sides of the poll behind and above the eyes in outward and again curving upwards directions.
6. Tail is long whip like, reaching below the hock joint with black and white mixed coloured switch.
7. Udder is well attached and medium in size.

Economic characters:

1. The average lactation milk yield is 860 kg.
2. The average age at first calving is 43 months.
3. The inter calving period is 447 days.

ii) Jersey

Home tract : Island Jersey in English Channel.

Physical characteristics

1. Body is compact with medium size.
2. The colour is fawn with or without white markings. The muzzle is black with light coloured encircling rings.
3. Head is comparatively tight, forehead is double dished.
4. The udder is large capacious with well placed teats.
5. The horns are small and tapering toward the tip and grow forward and curved inside at the tips.
6. Average body weight : Male - 675 kg, Female - 450 kg.

Economic characters:

1. Milk of this breed is in large demand in butter industries because milk is yellow in colour with fat globules large in size.
2. Average lactation milk yield is 4000 kg.
3. Age at first calving is 690 days.
4. The breed can withstand tropical humid climate more than other exotic breeds.

iii) Murrah: **2 mark**

Home tract: Haryana state. Rohtak, Hisar and Gurgaon districts and also in adjoining areas of Uttar Pradesh and Punjab.

Physical characters:

- The skin jet black.
- Horns short turning backward and upward and finally curling inward in the spiral form.
- The forehead is broad and prominent. The nostrils are wide, apart. Ears are small pendulous and thin.
- The udder is well developed with prominent milk vein.
- The tail long and flexible reaching to the fetlocks.
- The average body weight in male is 567 kg and female 430 kg.

Economic characters:

- The average milk yield is 1744 kg in 299 day of lactation period.
- The average age at first calving is 1319 days and inter calving period is 450 days.

Q. 3. Comment on care and management of newly born calf.

Ans: **4 mark**

- Immediately after birth of the calf, remove all the mucus of nostril, if required artificial respiration should be given.
- Cleaning of calf with clean cloth or dry, clean gunny bags.
- Cut the naval cord with sharp sterilized scissor and apply tincture of iodine and dust with boric acid powder.
- Assist the calf to stand and allow it to suckle. Give colostrum feeding within two hours from the birth.
- If colostrum not available give substitute.
- Colostrum feeding should be done under most hygienic condition @ 10 per cent of calf's body weight.
- Identification of the calf should be done with the help of suitable method.
- Dehorn the calf within 8 days after birth.

- Vaccination at the age of 03 months against Anthrax and then for Black Quar

Q. 4. Write down the cause, symptoms, treatment and prevention of Black Quarter.

Ans: **Cause:**

The disease is caused by anaerobic, gram +ve, spore forming, rod shaped bacteria- *Clostridium Chauvoei.* 1 r

Symptoms: 1 ma

- Fever (106 - 108^{0}F)
- Loss of appetite.
- Suspended rumination, difficult breathing.
- Acute lameness accompanied by depression and fever.
- Hot, painful swelling develops in heavy muscles. General symptoms like prostration, tremor, dyspnoea and high fever. Death usually occurs within 12 to 48 hours.

Treatment and Prevention: 2 mark

- Penicillin @ 10000 I.U. / Kg. body weight I/M and locally for 5-6 days.
- Oxytetracycline in high doses i.e.5-10 mg/Kg body weight I/M or I/V.
- Antiserum to affected and other animals in contact animals be given.
- Pre seasonal vaccination- control the disease and B.Q. vaccine 5 ml s/c. and vaccinate every year to animals as a protective measure.
- Carcasses should be buried or burnt along with infected bedding material.
- Disinfection of byres with 5 per cent phenol.
- Disallow the grazing of animals in affected area.

Q. 5. Write the functions of various organs of male reproductive system of cattle.

Ans: Male reproductive system of cattle comprises primary, secondary and accessory sex organs

I) **Primary sex organ**

a) Testes: 1 mark

Testes are two in number and perform two vital functions.

1. Production of viable, potential and fertile sperms.
2. Production of male sex hormones namely androgen/testosterone

b) Scrotum:

To protect the testes and maintain suitable temperature (i.e. 1-8 ^{0}F less than body cavity) for effective spermatogenesis.

II) **Secondary sex organs** 2 mark

a) Epididymis:- To make proper concentration, maturation and storage of viable sperms.

b) Vas deferens:- Transportation of viable sperms from epididymis to urethra.

c) Urethra:- It acts as a common passage for product of testes, urinary bladder and accessory sex organs.

d) Penis:- 1) Deposition of semen in female reproductive system at natural service and in artificial vagina. 2) Excretion of urine.

III) **Accessory sex organs:** 1 mark

a) Seminal vesicle:- To secrete seminal plasma

b) Prostate gland :- To secrete seminal fluid which is a source of male antaglutin and mineral content.

c) Cowper's gland:- To secrete viscid mucus like fluid for cleaning the passage of

urethra just before first fraction of ejaculation.

Q. 6. What is mean by organic livestock farming? Give the advantages of organic livestock farming.

Ans: Organic livestock farming **2 mark**

Organic livestock farming may be defined as a system of livestock production that promotes the use of organic and biodegradable inputs from the ecosystem in terms of animal nutrition, animal's health, animal housing and breeding. It deliberately avoids use of synthetic inputs such as drugs, feed additives and genetically engineered breeding inputs, while ensuring the welfare of animals.

Advantages of organic livestock farming: **2 mark**

a) It ensures strict animal welfare measures.

b) Recognize animal comfort and animal behavior.

c) It is better for environment.

d) Better sustainability of production.

e) Boost to traditional technologies.

f) It is free from antibiotics, chemicals, drugs, pesticide etc.

g) It has better protein quality.

b) Veterinary costs are generally significantly lower on organic farms than conventional farm.

Q.7. Explain in brief the care and management of breeding bull.

Ans: **4 mark**

It is expected to explain the following points in brief.

a. Selection of Bull

b. Feeding of Bull

c. Management:

i) Ringing of Bull

ii) Training of Bull

iii) Disbudding a Bull Calf

iv) Pen Housing

v) Exercise

vi) Care in Handling of Vicious Bull

vii) Breeding

viii) Miscellaneous

ix) Disposal of Bull

Q. 8. What is sterility? What are the main causes of sterility in farm animal?

1 mark

Ans: **Sterility:**

Denotes the condition in which animal has lost reproductive capacity permanently and it cannot be cured.

3 mark

Causes of Sterility:

The most common and important causes of sterility are grouped under following heads.

A) Anatomical causes

B) Accidental causes

C) Physiological causes

D) Nutritional causes

E) Pathological causes

F) Genetic causes

G) Psychological causes

H) Miscellaneous factor

I) Faults of Management

It is expected to describe these causes briefly.

Q. 9. Explain in brief the adaptation strategies for reducing the negative effect of climate change on livestock production.

Ans.

4 mark

In this respect adaptation is the process of reducing the negative effects of climate change through appropriate adjustment and changes. Following are the adaptation strategies for reducing the negative effect of climate change on livestock production.

a) Development of tolerant breeds.

b) Technology Integration

c) Nutritional management.

d) Shelter management.

e) Mitigating methane emission from livestock production system.

f) Prophylaxis

It is expected to describe these strategies briefly.

Q. 10. Write short notes on (Any Two)

i) Care and management of pregnant animal ii) Livestock development programme

iii) Integrated crop-livestock system

Ans:

i) Care and management of pregnant animal:

2 mark

The early stage or latter 1/3 period of the gestation period is important period in view

2 mark

iii) **Integrated crop-livestock system:**

An integrated crop-livestock system is a form of mixed production that utilizes crops and livestock in a way that they can complement one another through space and time. Livestock is the back bone of an integrated farming system, which graze a pasture to build up the soil. Eventually, sufficient soil organic matter builds up to the point where crops can be supported. Animal can also be used for farm operations and transport. While crop residues provide fodder for livestock and grain provides supplementary feed for productive animal.

Animals play key and multiple roles in the functioning of the farm and not only because they provide livestock products (meat, milk, egg, wool and hides) or can be converted into prompt cash in times of need. Animal transport plant energy into useful work. Livestock also provide manure and other types of animal waste. Animal excreta have two crucial roles in the overall sustainability of the system i.e. i) improving nutrient cycling and ii) providing energy for the production of biogas and energy for household use.

SECTION "B"

Q. 11. Define the following terms.

Ans: 4 mark

1) i) **Breed:** A group of animals related by decent and which are similar in most of the characters like general appearance, size, colour, horns it is called breed.

2) ii) **Lactogenesis:** Lactogenesis is a process of differentiation whereby the mammary alveolar cells acquire the ability to secrete milk.

3) iii) **Dam:** The female parent of the calf.

4) iv) **Ovulation :** A process of release of ova or egg from matured graffian follicle.

Q. 12. Do as directed.

Ans. 1) i) Sphincter muscle 4 mark

2) ii) False

3) iii) Histidine

4) iv) Breeding, Weeding, Feeding and Heeding

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