GLOSSARY

Aerophobia: *abnormal behaviour in dairy animals, wherein, they swallow air while eating or drinking.*

Anaerobic conditions in silage making: *growth and development of acetic acid producing bacteria that occurs during silage making, leading to fermentation of soluble carbohydrates, thereby, producing acetic acid.*

Barn: *building in a dairy farm used for various purposes, such as housing the livestock. Sometimes, a barn is also used for storing fodder, grains and equipment.*

Biogas: *gaseous fuel, including methane, produced after the fermentation of organic matter, such as animal farm waste and dung.*

Cannula: *a tube inserted into the body of an animal for the removal of harmful fluids and gases. It is also used for reducing bloating in animals.*

Castration: *depriving animals of their reproductive function either by removing the reproductive organs or making them dysfunctional in males.*

Colostrometer: *a device placed in a cylinder, containing colostrum, used for measuring specific gravity in milligrams per millilitre (mg/ml) of immunoglobulins (Ig).*

Colostrum: *a thick yellowish fluid secreted by the mammary glands of a cow or buffalo during parturition. It is rich is antibodies and minerals, and precedes the production of true milk.*

Concentrate: *feed that are easily digestible, high in energy and low in fibre.*

Cross-breeding: *crossing indigenous animals with foreign breeds.*

Culling: *the process of removing unproductive animals (aged, non-yielding, and sick) from a herd.*

Dam: *mother in case of dairy animals.*

Dehorning: *the process of removing horns in animals and preventing their growth.*

Dental pad: *a feature found in ruminants, lacking the upper incisors. Dental pad and tongue help in grasping fodder.*

Dentition: *the study of configuration of teeth with reference to their time of eruption through gums.*

Dry period: *the period from the end of lactation until the cow or buffalo gives birth.*

Ectoparasites: *organisms that live on the skin of farm animals, causing detrimental effect to their skin and health.*

Electrocution: *accidental injury or death of an animal after suffering an electric shock or current.*

Enema: *a treatment used for curing constipation in farm animals.*

Ensiling: *the process of conserving green fodder for later use.*

Exotic animals: *animals developed and reared in foreign countries. The two important exotic cow breeds in India are Jersey and Hostein Friesian.*

Fodder: *plants or parts of a plant eaten by livestock, for example hay, straw, etc.*

Forage: *plants or parts of a plant, mainly leaves and stem, eaten by domestic animals. It is eaten by the animals directly as pasture, crop residue or immature crops. It also includes hay and silage.*

Gestation period: *the period of development of foetus inside the womb of an animal between conception and birth.*

Gonads: *commonly, known as sex glands. In females, the reproductive cells are the egg cells, whereas, it is the sperm cells in case of males.*

Heifer: *a female dairy animal that has never given birth.*

Herbage: *herbaceous plants, whose edible parts are grazed by cattle.*

Hypothermia: *a problem in dairy animals related to heat stress, mainly observed in tropical and subtropical regions. It is manifested by high body temperature.*

Incisors: *the frontal teeth in ruminants only on the bottom jaw. The front of the upper jaw is a hard dental pad without teeth.*

Immunoglobulins: *antibodies produced by plasma cells (white blood cells) present in the colostrum. These strengthen a calf's immune system.*

Kicking trap: *a trap used to control aggressive milch animals that do not permit milking. A kicking trap is tied on the hind quarter of an animal before milking, allowing the milker to milk the animal.*

Lactation period: *the period from calving till the dairy animal is dried off, i.e., the time during which it is producing milk.*

Mastication: *the first step in breaking the feed by chewing. Mastication softens the feed and makes it easy for swallowing.*

Milker: *animal that produces milk or the person who milks the animal, depending on the context of use.*

Milk fever: *a metabolic disorder in dairy animals, when they are close to calving. It is caused by low blood calcium levels (hypocalcaemia) few days before or after calving. The affected animals suffer from tremors in the muscles of the head and limbs. They, then, go down to sitting position, and finally, lie flat on their side before circulatory collapse, coma or death. The animal needs to be treated as soon as possible by administering Calcium borogluconate solution (300 ml or more).*

Milking: *the act of drawing milk from dairy animals for human consumption.*

Milk let-down: *the process by which dairy animals release milk.*

Milkman's knot: *rope trap used to control dairy animals from kicking while milking. A milkman's knot is tied on an animal's hind legs to ensure unhindered milking.*

Milk stage in fodder crops: *a stage when the covering of a seed is green, and it contains liquid and milky starch.*

Molars: *large, flat teeth at the back of the mouth of ruminants. They help in grinding the food while chewing.*

Mucometra: *a condition when mucus is accumulated in the endometrial cavity of uterine horns with a thin uterine wall, resulting in the suppression of estrous cycle.*

Mucus: *a slippery, thick and sticky substance that coats, protects and moistens the linings of body passages like in nose, lungs and intestines. It is produced from cells found in the mucous glands.*

Nymphomania: *a vice common in high-yielding cows. Nymphomaniac cows behave like bulls and mount on other cows. However, they refuse to stand for being mounted by others.*

Open period: *the stage from calving to re-conception.*

Oesophagus: *a muscular tube, which connects mouth to the stomach in dairy animals.*

Oxytocin: *a neurohormone, whose main functions are to stimulate contractions of the uterus during labour and ejection of milk let-down during lactation in female animals. It also promotes maternal nurturing behaviour in them.*

Paddock: *a small enclosed field, often for grazing or training horses, usually, near a shed.*

Parturition: *the process of giving birth in animals. It occurs at the end of pregnancy.*

Persistency of milk yield: *the rate of change in yield between two different time intervals. Low individual persistency at any stage of lactation may be caused by various environmental, reproductive and health related factors.*

Placenta: *an organ that develops in an animal during pregnancy. It facilitates exchange of nutrients and wastes between the blood of the mother and foetus.*

Prehension: *the action of grasping or seizing food into the mouth by an animal. Cattle graep feed with the help of tongue.*

Premolars: *permanent teeth that come before molars in case of cattle. Premolars are used to crush and grind the feed.*

Posterior pituitary: *also called 'master gland', it produces hormones that regulate the functions of other important endocrine glands. Pituitary gland is divided into two parts — anterior and posterior. The posterior pituitary gland produces oxytocin hormone, which helps in milk let-down.*

Purgatives: *substances that are used to treat and prevent constipation and impaction in farm animals.*

Pyometra: *accumulation of pus in the uterus of animals. The affected animals do not exhibit any systemic sign of illness.*

Rendering: *the processing of a dead animal's body parts into useful products.*

Reticulum: *the second chamber in the alimentary canal of a ruminant. This, along with rumen, makes up 84 per cent of the total stomach volume.*

Roughage: *feed high in fibre (cellulose) that is less digestible and low in energy.*

NOTES

Notes

Rumen: *the first stomach in ruminants like cows and buffaloes that receives food or cud from oesophagus, and partly digests and passes it to the reticulum.*

Rumen fistula: *a tube having two ends, with one end inserted in the rumen of an animal and the other attached to a plug.*

Ruminants: *mammals having four compartments in the stomach — rumen, reticulum, omasum and abomasum.*

Silage: *fodder that is fermented and preserved in high moisture conditions, and usually, fed to ruminants.*

Silo: *a container, in which the green fodder is fermented for silage making.*

Streak canal: *entrance to the udder. Streak canal is surrounded by a band of muscle tissues that keep the canal closed.*

Sphincter muscles: *circular muscles that maintain constriction of body passage or orifice and relax when required for normal physiological functioning. When a dairy animal is milked, these muscles relax, allowing the orifice of the teat to open. The sphincter muscles always take some time to constrict the teat after milking.*

Suturing: *a process, in which a stitch is made to join the open parts of a wound in farm animals. It is, especially, done after an animal is operated upon.*

Teat: *nipple of the mammary gland in case of cows and buffaloes from where milk is suckled by a calf.*

Tedding: *a process, in which newly cut hay is spread out for drying.*

Trocar: *a veterinary surgical instrument used for withdrawing gases and fluids from the body of an animal.*

Tympany: *abnormal distension of rumen and reticulum caused by accumulation of gases in the rumen.*

Udder: *mammary gland in female cattle. The udder of cows and buffaloes has four teats.*

Ultrasonography: *the practice of using high-frequency (ultrasound) waves to produce an image for veterinarian analysis of an animal.*

Ultrasound: *a technology used for pregnancy detection, examining ovarian and other functions in farm animals.*

Weaning: *the process of separating a calf from the dam within few days of birth.*

Answer Key

Unit 1: Conservation of Forages
Session 1: Fodder Crops and their Harvesting

A. Multiple Choice Questions

1. (c) 2. (b) 3. (a) 4. (c) 5. (d)

B. Fill in the Blanks

1. *Sorghum bicolar* 2. *dhurrin* 3. 60–70
4. *Medicago sativa* 5. Cowpea

C. Mark 'True' or 'False'

1. True 2. True 3. True 4. False 5. True

D. Match the Columns

1. (d) 2. (e) 3. (a) 4. (b) 5. (c)

E. Crossword

Across

1. *Rabi* 3. *Kharif*
4. *Bajra* 5. Cowpea

Down

2. Barley

Session 2: Methods of Conservation of Forages and Assessing their Quality

A. Multiple Choice Questions

1. (d) 2. (c) 3. (b) 4. (a) 5. (d)

B. Fill in the Blanks

1. Hollow 2. 85 3. 60 to 70
4. greenish yellow 5. yellow, green

C. Mark 'True' or 'False'

1. False 2. False 3. True
4. False 5. True

D. Match the Columns

1. (e) 2. (a) 3. (b) 4. (c) 5. (d)

E. Crossword

Across

1. Baled 2. Curing 3. Green 4. Sickle

Down

1. Butyric

Unit 2: Maintaining Healthy Performance of Livestock

Session 1: Maintaining the Well-being of Dairy Animals

A. Multiple Choice Questions

1. (d) 2. (b) 3. (d) 4. (d) 5. (a)

B. Fill in the Blanks

1. welfare 2. Wind sucking 3. nymphomaniac
4. castration or endocrine implant
5. milkman's knot, kicking trap

C. Mark 'True' or 'False'

1. True 2. False 3. True 4. True 5. True

D. Match the Columns

1. (d) 2. (e) 3. (a) 4. (b) 5. (c)

E. Crossword

Across

1. Freedom 2. Vice

Down

3. Aerophagia 4. Sick

Session 2: Prevention and Control of Parasitic Infections

A. Multiple Choice Questions

1. (d) 2. (a) 3. (b) 4. (b) 5. (d)

B. Fill in the Blanks

1. Ectoparasites 2. blood 3. diseases
4. backline 5. subcutaneous

C. Mark 'True' or 'False'

1. True 2. False 3. False 4. True 5. False

D. Match the Columns

1. (d) 2. (e) 3. (a) 4. (b) 5. (c)

E. Crossword

Across

2. Morning 4. Fly 5. Hair

Down

1. Parasite 3. Worm

Session 3: Management Practices for maintaining Animal Productivity

A. Multiple Choice Questions

1. (c) 2. (d) 3. (b) 4. (c) 5. (d)

B. Fill in the Blanks

1. Dehorning 2. ear tags 3. 310 4. 21

C. Mark 'True' or 'False'

1. True 2. False 3. False 4. False 5. True

D. Match the Columns

1. (e) 2. (a) 3. (b) 4. (c) 5. (d)

E. Crossword

Across

4. Teaser

Down

1. Starter 2. Heat 3. Weaning 5. Record

Unit 3: Performing Hand and Machine Milking

Session 1: Structure of the Udder, Milk Let-down and Milking of Dairy Animals

A. Multiple Choice Questions

1. (b) 2. (c) 3. (d) 4. (d) 5. (a)

B. Fill in the Blanks

1. sweat 2. hormonal 3. adrenalin
4. left 5. six to eight

C. Mark 'True' or 'False'

1. True 2. False 3. False 4. True 5. True

D. Match the Columns

1. (d) 2. (e) 3. (a) 4. (b) 5. (c)

E. Crossword

Across

5. Adrenalin

Down

1. lukewarm 2. stripping 3. sweat 4. milk

Session 2: Clean Milk Production and Prevention of Mastitis in Dairy Animals

A. Multiple Choice Questions

1. (d) 2. (d) 3. (d) 4. (b)

B. Fill in the Blanks

1. Sick 2. Grooming 3. Abnormal 4. diseased

C. Mark 'True' or 'False'

1. True 2. False 3. True 4. True 5. True

D. Match the Columns

1. (e) 2. (a) 3. (b) 4. (c) 5. (d)

E. Crossword

Across

3. Dome 4. Grooming 5. Mastitis

Down

1. Fore milk 2. Somatic

Unit 4: Maintaining Health and Safety Standards at the Workplace

Session 1: Hygiene and Biosecurity at a Dairy Farm, and Disposal of Carcass

A. Multiple Choice Questions

1. (a) 2. (d) 3. (d) 4. (d) 5. (c)

B. Fill in the Blanks

1. Biosecurity 2. 100 3. Incinerator
4. Rendering 5. burial

C. Mark 'True' or 'False'

1. False 2. True 3. False 4. False 5. True

D. Match the Columns

1. (b) 2. (c) 3. (d) 4. (e) 5. (a)

E. Crossword

Across

3. Composting 4. Burial 5. Phenol

Down

1. Rendering 2. Apron

Session 2: First Aid for Dairy Animals

A. Multiple Choice Questions

1. (d) 2. (d) 3. (a) 4. (a) 5. (d)

B. Fill in the Blanks

1. sick 2. Poisoning 3. vagina
4. 150–300 5. Potassium permanganate

C. Mark 'True' or 'False'

1. True 2. True 3. False 4. True 5. True

D. Match the Columns

1. (c) 2. (e) 3. (a) 4. (b) 5. (d)

E. Crossword

Across

1. Prolapse 3. Burn 4. Tympany 5. Wound

Down

2. Poisoning

Unit 5: Entrepreneurship

Session 1: Fundamentals of Entrepreneurship in Dairy Business

A. Multiple Choice Questions

1. (d) 2. (c) 3. (d) 4. (d)

B. Fill in the Blanks

1. Risk 2. draft 3. dry 4. rainy 5. five to six

C. Mark 'True' or 'False'

1. True 2. True 3. False 4. True 5. True

D. Match the Columns

1. (d) 2. (e) 3. (a) 4. (b) 5. (c)

Session 2: Marketing of Inputs and Outputs in Dairy Business

A. Multiple Choice Questions

1. (d) 2. (c) 3. (d) 4. (d)

B. Fill in the Blanks

1. perishable 2. Finance 3. high
4. high 5. Information

C. Mark 'True' or 'False'

1. False 2. True 3. True 4. False

D. Match the Columns

1. (c) 2. (a) 3. (b) 4. (e) 5. (d)

E. Crossword

Across

1. Finance 2. Fat

Down

3. Perishable 4. Khoa 5. Paneer

NOTES

Suggested Readings

Books

Banerjee, G. C. 1998. *Textbook of Animal Husbandry. 8th Ed.* Oxford and IBH Publication, New Delhi.

ICAR. 2002. *Handbook of Animal Husbandry*. 3rd Ed. ICAR.

Jagdish, Prasad and N. S. Niraj. 2007. *Principles and Practices of Dairy Farm Management. 5th Ed.* Kalyani Publishers, Ludhiana.

Roy, Biswajit and Sudipta Ghosh. 2015. *Dairy Animal Production*. IBDC, Lucknow.

Singh, Ramadhar. 2009. *Essentials of Animal Production and Management*. Kalyani Publishers, Ludhiana.

Thomas, C. K. and N. S. R. Sastry. 1991. *Dairy Bovine Production*. Kalyani Publishers, Ludhiana.

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