

**SEMESTER-V**  
**COURSE 14 B: LIVE STOCK MANAGEMENT -I**  
**(BIOLOGY OF DAIRY ANIMALS)**

Theory

Credits: 3

3 hrs/week

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**LEARNING OUTCOMES:**

Students at the successful completion of the course will be able to

- Select the suitable breeds of livestock for rearing
- Relate the anatomy of udder with let-down of milk
- Identify and manipulate the reproductive behaviour of cattle
- Inspect economics of dairy farming
- Apprise the various breeding techniques employed in live stock

**SYLLABUS:**

**Unit 1:**

Livestock census; Breeds of Dairy cattle, Buffaloes and Goats. Indigenous, Exotic and Crossbred Cattle breeds

**Unit 2:**

Anatomy of Udder; Development of udder; Lactogenesis and Galactopoiesis; let-down of milk.

**Unit 3:**

Artificial insemination; Oestrous cycle; Symptoms of heat in cows and buffaloes. Conception, Pregnancy diagnosis in cattle. Multi ovulation and embryo transfer technique. Cloning.

**Unit 4:**

Economic traits of Dairy cattle. Methods of selection of dairy animals.

**Unit 5:**

Systems of Dairy cattle breeding. Inbreeding, out breeding, Cross breeding, grading up. Breeding systems (Cross breeding of cattle and grading up of buffaloes).

**REFERENCES:**

1. Textbook of Animal Husbandry-GC Benarjee
2. Handbook of Animal Husbandry –ICAR Edition
3. Principles and practices of Dairy Farm–Jagdish Prasad

**Web resources:**

4. <http://ecoursesonline.iasri.res.in/course/index.php?categoryid=42>
5. <https://vetsebooks.blogspot.com/p/e-books.html>
6. <https://www.basu.org.in/study-materials/veterinary-science/>
7. <https://vikaspedia.in/agriculture/livestock/cattle-buffalo/breeds-of-cattle-buffalo>

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**SEMESTER-V**  
**COURSE 14 B: LIVE STOCK MANAGEMENT -I**  
**(BIOLOGY OF DAIRY ANIMALS)**

Practical

Credits: 1

2 hrs/week

**LEARNING OUTCOMES:**

On successful completion of this practical course, student shall be able to

- Examine the points of dairy cow
- Understand the behavioral changes of cow during the reproductive period
- Differentiate the merits and demerits of cross breeds in cattle

**SYLLABUS:**

1. Points dairy cow. (Explanation with observation of charts- Model evaluation to be performed by the student in the laboratory)
2. Identification of different breeds of dairy cattle and buffaloes. (Observation of Charts of breeds in the laboratory- at least 3 breeds should be identified by the students in their locality with video, photo)
3. Male and female reproductive systems of cow – Model/ Chart (Student has to draw a labeled diagram of the male and female reproductive systems of cow – acquire skill to identify the parts).
4. Symptoms of heat in cow (Study and Understanding the physiological symptoms during heat).
5. Artificial in semi nation (Flow chart of implements – Procedure- precautions)
6. Pregnancy diagnosis in cattle.
7. Study comparative merits of cows and buffaloes; zebu and cross bred cows (Examination of merits)

**REFERENCES:**

1. Principles and practices of Dairy Farm–Jadish Prasad
2. Dairy cow points: <https://www.icar.org/Guidelines/05-Conformation-Recording.pdf>
3. Pregnancy test protocol:  
<https://cgspace.cgiar.org/bitstream/handle/10568/109408/Milk%20testing%20lab%20protocol.pdf?sequence=1&isAllowed=y>

**Co-Curricular Activities**

**a) Mandatory:**

- i. For Teacher: Training of students by the teacher in laboratory/field for not less than 15 hours on principles and practices of dairy industry- breeds –artificial insemination- reproductive behavior of cows etc. as per the syllabus above.
- ii. For Student: Students shall individually visit to any of the nearby cattle rearing centers/ veterinary hospital/Raithu Bharosa Kendra and make observations of the procedure and quality enhancement activities and submit a handwritten Fieldwork/Project work Report in 10 pages.
- iii. Max marks for Fieldwork/Project work Report: 05.
- iv. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations made, findings and acknowledgements
- v. (IE) Unit tests,

**b) Suggested Co-Curricular Activities:**

1. Collection of various cattle breed images from the web to prepare a album
  2. Visit the sites of Veterinary colleges in India and preparation of brief report on the videos and content/ employment details
  3. Sketch a model dairy farm with details
  4. Invited lecture and presentation on related topics by experts
  5. Seminar, Assignment, Group discussion. Quiz, Collection of Material, invited lectures, Video preparation etc.
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