

Dairy

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For more information, contact:

Liz Eckelkamp, Dairy Extension Specialist, Department of Animal Science

Jennifer Richards, Tennessee 4-H Youth Development

Breeds

- Describe the origins of the seven main breeds of dairy cattle.
- Identify three commonly used dairy species and explain why they are commonly used.
- Identify and describe two minor dairy cattle breeds.

External and Skeletal parts, Conformation and Structure

- Name and locate 20 body parts.
- Identify the following three udder structures and describe their importance: median suspensory ligament, fore-udder attachment, rear-udder attachment.

Health and Disease

- Explain how animals develop immunity from vaccinations.
- Demonstrate how to give an intramuscular and subcutaneous injection.
- Identify all 10 parts of a medication insert.
- Define the following terms: resistance, susceptible, pathogens, scours, dehydration, dewormer, electrolyte, heat stress, necropsy, persistently infected, prevention, temperature-humidity index and treatment.
- Demonstrate the proper method of administering a drench.
- Understand quality assurance regarding injection sites, withdrawal times, residues and using a medication label.
- Differentiate between modified-live and killed vaccines.
- Explain the difference between a medication label and a medication insert.
- Identify terminology associated with biosecurity for a livestock operation or livestock project.
- Define the following: coccidiosis, cryptosporidiosis, acidosis, metritis, ketosis, milk fever, lameness, pneumonia, pinkeye, bloat and mastitis.
- Identify internal and external parasites in dairy cattle.
- Label the cross-section of a claw and the anatomical structures of a hoof.

Equipment and Records

- Identify 20 pieces of equipment used for dairy cattle.
- Demonstrate the uses of 20 pieces of dairy cattle equipment.
- Understand how to calculate average daily gain and rolling herd average.
- Understand how to interpret and keep health records.
- Discuss the importance of animal identification for traceability.



Nutrition and Feeding

- Understand the function of each part of a ruminant stomach.
- Label the digestive tract of a dairy cow.
- Identify and distinguish between the following forages and feedstuffs: soybean meal, whole soybeans, trace mineral salt, whole grain wheat, alfalfa, dried whey, fish meal, whole kernel corn, cracked corn, corn silage and haylage.
- Describe the importance of colostrum for calf health.
- Describe the following nutrients or nutrient analyses: carbohydrates, fat, fiber, nonprotein nitrogen, nonstarch polysaccharides, relative feed value, relative forage quality, starch, total digestible nutrients, net energy for lactation, and water-soluble or nonfibrous carbohydrates.
- Describe the following processes: creating a total mixed ration, top dressing, bottle feeding, rotational grazing and weaning.
- Identify the amount of grain a calf should be consuming at weaning.
- Describe the ideal weaning weight and height for a given dairy breed.
- Analyze a feed tag to determine if it contains a medication.
- Analyze a feed tag to determine the relative proportions of individual feed ingredients that make up the feed.

Genetics and Reproduction

- Define the following terms: genomics, anestrus, dystocia, estrus, estrous cycle, gestation, anestrous, prepartum and postpartum.
- Label the reproductive tract of both a male and female dairy cow.
- Describe the concept of a freemartin and explain why it occurs.
- Outline the basic processes and benefits of estrus synchronization, artificial insemination, embryo transfer and in vitro fertilization.
- Identify three sampling techniques for genomic testing.
- Read and interpret a sire summary.

Dairy Products and Processing

- Define pasteurization and explain why it is important.
- Describe three types of pasteurizations and the benefits of each.
- Describe the equipment used in processing the following dairy products: butter, milk, ice cream, hard cheese and soft cheese.
- List 10 retail nondairy products produced from dairy cattle.

Performance Measures

- Distinguish between voluntary and involuntary culls.
- Calculate the following: pregnancy rate, conception rate, heat detection rate, days to first service, calving interval, death-loss percentage, somatic cell score and stocking density.
- Define and apply the following scoring systems: body condition, hygiene score, lameness score and teat end score.

Economics and Marketing

- Describe the Federal Milk Marketing Order and its effect on milk prices.
- Describe the four classes of milk utilization and how it affects milk prices in your area.
- Identify three non-milk sources of dairy farmer income.
- Create a list of the incoming revenue and outgoing expenses on an average dairy farm.

Extra Learning Opportunities

- Dairy Skillathon Contest.
- Dairy Cattle Judging Contest.
- Dairy Cattle State Show and Showmanship Contest.
- 4-H Junior High Academic Conference.
- Receive Beef Quality Assurance certification.
- 4-H Portfolio.
- 4-H Round-Up.
- Dairy Quiz Bowl.
- Assist Younger Youth.
 - Encourage other youth to participate in the 4-H dairy project.
 - Help other youth with showmanship or with learning skillathon topics.



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