4-H Beef Cattle Project Learning Outcomes

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The objective of this publication is to provide an overview of the learning outcomes for beginner-level youth who participate in the 4-H Beef Project. As the name implies, beginners are considered to be youth with little to no experience in the project. This publication serves as a reference for Extension 4-H agents, volunteers, parents and youth at this level, and provides guidelines for the desired knowledge, skills and activities that should be obtained or completed by beginners before moving on to the intermediate level of experience. Achieving these learning outcomes as a beginner will establish the foundation of knowledge necessary to achieve the intermediate- and advanced-level learning outcomes.

Fundamental Knowledge and Skills

Listed below are specific fundamental knowledge and skills that are relevant and important to achieving the beginner-level learning objectives of the 4-H Beef Project.

- **Industry**
  - Differentiate between commercial and seedstock beef cattle production.

- **Genetics and evaluation**
  - Differentiate between beef and dairy breeds.
  - Identify and distinguish between the following major breeds of beef cattle in the U.S.: Angus, Brahman, Charolais, Chianina, Gelbvieh, Hereford, Limousin, Maine Anjou, Red Angus, Shorthorn and Simmental.
  - Identify and distinguish between the following major breeds of dairy cattle in the U.S.: Ayrshire, Brown Swiss, Guernsey, Holstein, Jersey and Milking Shorthorn.
  - Visually distinguish between the following sexes: bull, cow, heifer and steer.
  - Label the following regions and parts of the body: back, brisket, ear, face, forehead, hindquarter, hoof, knee, loin, muzzle, poll, rib, rump, shoulder, switch, tail head, throat, topline, udder (cows and heifers), underline, testicles (bulls) and twist.

- Define the following terms: dominant, expected progeny differences (EPDs), heterozygous, homozygous and recessive.
- Describe the differences between the following EPDs: birth weight (BW), carcass weight (CW, CWT or HCW), fat thickness or rib fat (Fat or FT), marbling or marbling score (Marb, MB or MRB), maternal milk (MAT, Milk, MK, MLK or MM), mature height (MH), mature weight (MW or MCW), ribeye area (RE or REA), scrotal circumference (SC or SCR), weaning weight (WW or WWT), yearling height (YH), and yearling weight (YW or YWT).

- **Nutrition**
  - Differentiate between ruminant and non-ruminant livestock based upon digestive anatomy and function.
  - Distinguish between the following types of feed tags or labels: mineral supplement, concentrate feed, complete feed and milk replacer.
  - Identify and distinguish between the following forages and feedstuffs: corn silage, corn stalks, ground corn, hay, haylage, liquid molasses, shelled corn, soybean meal, whole cottonseed, whole ear corn and whole soybeans.
  - Describe the following nutrients or analyses: ash, crude fat or ether extract, crude fiber, crude protein, energy, medicated feed, minerals, protein, vitamins and water.

- **Reproduction**
  - Define the following terms: estrus, estrous cycle, gestation and parturition.
  - Distinguish between male and female reproductive tracts.

- **Health and welfare**
  - Distinguish between the following types of injection and the common location at which each is administered: intramuscular, intravenous and subcutaneous.
  - Define the following terms: antibiotic, antibody, bacteria, booster, colostrum, parasite, pesticide, vaccine, vaccination, veterinarian, veterinarian-client-patient relationship, veterinary technician, virus and withdrawal time.
  - Demonstrate the proper method of administering a pour-on.
  - Describe and distinguish between the following diseases or conditions: bovine respiratory disease, lice, pinkeye, ringworm and scours.
  - Distinguish between the following methods of identification: ear tag, freeze brand, hot iron brand, radiofrequency or electronic identification tag, and ear tattoo.

- **Carcass and beef products**
  - Differentiate between muscle, bone and fat on a beef carcass.
  - Identify and distinguish between the following wholesale cuts of a beef carcass: brisket, chuck, flank, shank, rib, round, short loin, plate and sirloin.
  - Differentiate between bone-in and boneless beef cuts.

- o Identify the following: ground beef, steak, cubed steak, roast, kabob meat and stew meat.
- o Distinguish between a normal carcass and a dark-cutter.

- **Performance measurements**
  - o Describe the procedures for and importance of collecting the following measurements: birth weight, hip height, mature weight, weaning weight and yearling weight.
  - o Measure or calculate the following for an individual animal: birth weight, hip height, weaning weight, yearling weight, weight per day of age and mature weight.
  - o Calculate the following for a herd or group of animals: average birth weight, average hip height, average weaning weight, average yearling weight and average mature weight.

- **Economics and marketing**
  - o Recognize the difference between profit and loss in a beef cattle enterprise.
  - o Differentiate between the USDA designations of thrifty and unthrifty for feeder cattle.
  - o Compare and contrast public auction, private treaty sales, graded feeder calf sales, alliance sales, video sales and retained ownership.
  - o Provide examples of fixed and variable expenses.

Educational Contests, Programs and Certifications

Listed below are specific activities that are relevant and important to achieving the beginner-level learning objectives of the 4-H Beef Project.

- Participation in a Skillathon contest

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