

Beef Science 2015: Grades 11, 12

Adopted 2015

Introduction to the Beef Cattle Industry and Animal Selection

1.1 Research Beef production systems

1. List the three main types of beef production systems (Cow/calf, Stocker/back grounding, Feedlot) [1.1.1](#)
 2. Differentiate and describe the three main beef production systems. [1.1.2](#)
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1.2 Analyze factors in animal selection

1. Identify physical qualities needed in replacement females and males. (structural correctness, frame score, conformation) [1.2.1](#)
 2. Evaluate the importance and uses of EPD's (expected progeny difference) [1.2.2](#)
 3. Discuss & grade feeder and market animal selection and grading. (Frame-small, medium, large; muscling-1, 2, 3) [1.2.3](#)
 4. Analyze & apply USDA slaughter cattle grading. (prime, choice, select) [1.2.4](#)
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Nutrition and Feeding of Beef Cattle

2.1 Examine Cow/calf nutritional requirements

1. Explain & formulate nutritional requirements and options of a cow/calf herd in Fall and Winter [2.1.1](#)
 2. Explain & formulate nutritional requirements and options of a cow/calf herd in Spring and Summer [2.1.2](#)
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2.2 Assess herd bull nutritional requirements

1. Explain & formulate nutritional requirements and options for herd bulls in Fall and Winter [2.2.1](#)
 2. Explain & formulate nutritional requirements and options for herd bulls in Spring and Summer [2.2.2](#)
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2.3 Evaluate nutritional requirements for stocker, feeder, and finishing cattle

1. Evaluate nutritional requirements and options for stocker cattle [2.3.1](#)
 2. Evaluate nutritional requirements and options for feeder cattle [2.3.2](#)
 3. Evaluate nutritional requirements and options for finishing cattle [2.3.3](#)
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Create a Pasture and Forage Management Plan

3.1 Design a Forage Production Plan

1. Evaluate forage production in Arkansas [3.1.1](#)
 2. Compare and contrast the uses of cool and warm season grasses. (cool-wheat, ryegrass; warm-bermuda grass, bahia grass) [3.1.2](#)
 3. Compare and contrast options in obtaining and storing harvested forages and other feedstuffs. (hay, silage/baleage/haylage, commodity and by-products) [3.1.3](#)
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3.2 Analyze beef cattle grazing systems and soil fertility

1. Assess cattle grazing systems. (continuous grazing, rotational grazing, management intensive grazing) [3.2.1](#)
 2. Analyze soil fertility and conservation. (soil testing, fertilizers, limestone, erosion control) [3.2.2](#)
 3. Analyze soil fertility for forage production. [3.2.3](#)
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Herd Health and Reproduction

4.1 Assess common beef cattle diseases and parasites

1. Analyze common beef cattle diseases. [4.1.1](#)
 2. Assess common beef cattle parasites. [4.1.2](#)
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4.2 Research Herd Health care

1. Create a herd health plan for beef cattle. (vaccinations, sanitation) [4.2.1](#)
 2. Compare and contrast internal and external parasites and their control. (Flies and Lice, roundworm, coccidia) [4.2.2](#)
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4.3 Assess Beef Cattle Reproduction

1. Evaluate options and considerations for a beef cattle breeding schedule. (seasonal temperatures, calving conditions, forage availability, market dynamics) [4.3.1](#)
 2. Differentiate the signs of estrus in beef cattle. (standing when mounted or mounting another animal, swelling of the vulva, mucus discharge from the vulva) [4.3.2](#)
 3. Assess methods of pregnancy determination. (rectal palpation, ultrasound, blood test) [4.3.3](#)
 4. Identify patterns of approaching parturition. (fullness of the udder, restlessness and separation from herd, elevated tail head and significant swelling of vulva area) [4.3.4](#)
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Facilities and Equipment

5.1 Analyze Cattle Handling Facilities

1. Investigate facilities and equipment needed for safe and effective handling of beef cattle. (gathering pen, squeeze chute, crowding pen, loading chute) [5.1.1](#)
2. Discuss facilities and equipment as related to animal and human safety. [5.1.2](#)

5.2 Investigate Environmental Concerns

1. Research environmental concerns and equipment needed to handle waste in a beef cattle operation (Manure spreader, front end loader, compost shed, etc.) [5.2.1](#)
 2. Research and report environmental concerns for a beef cattle operation and relate to EPA and state regulations. (water quality, noise, odors, dust, chemicals) [5.2.2](#)
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Marketing and Promoting Beef

6.1 Assess the Marketing of Beef Cattle

1. Research marketing methods for beef cattle. (local, regional, and video auctions) [6.1.1](#)
 2. Interpret beef cattle market reports. [6.1.2](#)
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6.2 Analyze the current Beef Promotions

1. Describe the source and impact of the beef check off. [6.2.1](#)
2. Examine the influence of consumer preferences on beef production. [6.2.2](#)