Arkansas CTE

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

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

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

2.2 Asses 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

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

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

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

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

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

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

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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

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

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