

# Animal Science (2023)

Analyze historic and current trends impacting the animal system industry. [AFNR.HS.11.1](#)

- a** Identify and summarize the origin, significance, distribution, and domestication of different animal species. [AFNR.HS.11.1.A](#)
- b** Compare and contrast animal production methods for use in animal systems based upon their effectiveness and impacts. [AFNR.HS.11.1.B](#)
- c** Research and summarize major components of animal systems (e.g., livestock, companion animals). [AFNR.HS.11.1.C](#)

Evaluate animals based on anatomical and physiological characteristics. [AFNR.HS.11.2](#)

- a** Classify animals according to taxonomic classification systems and use (e.g., companion, production). [AFNR.HS.11.2.A](#)
- b** Identify and summarize the properties, locations, functions, and types of animal cells, tissues, organs, and body systems. [AFNR.HS.11.2.B](#)
- c** Apply knowledge of anatomical and physiological characteristics of animals to select animals for specific purposes (e.g., meat animals, breeding animals, seedstock). [AFNR.HS.11.2.C](#)

Critique best-practice protocols based upon animal behaviors for animal husbandry and welfare. [AFNR.HS.11.3](#)

- a** Explain the implications of animal welfare and animal rights for animal systems. [AFNR.HS.11.3.A](#)
- b** Summarize the challenges involved in working with animals and resources available to overcome them (e.g., tools, technology, equipment, facilities, animal behavior signals). [AFNR.HS.11.3.B](#)
- c** Evaluate animal welfare procedures used to ensure safety and maintain low stress when moving and restraining animals. [AFNR.HS.11.3.C](#)

Apply reproductive principles to animal selection, breeding, and production. [AFNR.HS.11.4](#)

- a** Identify and categorize reproductive organs of major animal species. [AFNR.HS.11.4.A](#)
- b** Identify and summarize inheritance and terms related to inheritance within animal breeding (e.g., dominant, co-dominant, recessive, homozygous, heterozygous). [AFNR.HS.11.4.B](#)
- c** Compare and contrast various breeding systems (e.g., artificial insemination, embryo transfer, hand breeding). [AFNR.HS.11.4.C](#)
- d** Assess and describe factors that lead to reproductive maturity. [AFNR.HS.11.4.D](#)

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**e Evaluate and select animals for reproductive readiness.** [AFNR.HS.11.4.E](#)

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**Analyze the nutritional needs of animals.** [AFNR.HS.11.5](#)

**a Identify and summarize essential nutrients required for animal health.** [AFNR.HS.11.5.A](#)

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**b Analyze each nutrient's role in growth and performance.** [AFNR.HS.11.5.B](#)

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**c Differentiate between nutritional needs of animal species based on a variety of factors (e.g., types of digestive systems, production goals, management system, growth stage, reproductive stage).** [AFNR.HS.11.5.C](#)