Nebraska CTE

Agricultural Biotechnology (2021-)

Assess factors that have influenced the evolution of biotechnology in agriculture. AFNR.HS.2.1	**a** Summarize the evolution of biotechnology in agriculture. AFNR.HS.2.1.A
	b Summarize current work in biotechnology and the added value to agriculture and society. AFNR.HS.2.1.B
	c Compare and contrast the benefits and risks of biotechnology and conventional approaches to improving agriculture. AFNR.HS.2.1.C
Evaluate the scope and implications of bioethics, law, and public perceptions of biotechnology in agriculture. AFNR.HS.2.2	**a** Compare and contrast global regulatory systems for biotechnology in agriculture. AFNR.HS.2.2.A
	b Summarize the emergence, evolution, and implications of bioethics associated with biotechnology in agriculture. AFNR.HS.2.2.B
	c Describe the significance and impacts of legal issues related to biotechnology in agriculture. AFNR.HS.2.2.C
	d Investigate the impact of public perceptions on the application of biotechnology in different agriculture, food and natural resources (AFNR) systems. AFNR.HS.2.2.D
Apply appropriate laboratory skills to complete tasks in a biotechnology research and development environment (e.g., standard operating procedures, record keeping, aseptic technique, equipment maintenance). AFNR.HS.2.3	**a** Maintain and interpret records documented in a laboratory to ensure data accuracy and integrity (e.g., avoid bias, record any conflicts of interest, avoid misinterpreted results). AFNR.HS.2.3.A
	b Categorize and identify laboratory equipment according to its purpose in scientific research. AFNR.HS.2.3.B
	c Apply standard operating procedures for the safe handling, management, and disposal of biological and chemical materials in a laboratory according to standard operating procedures. AFNR.HS.2.3.C
	d Identify the steps necessary to perform simple genetic modification. AFNR.HS.2.3.D
Apply concepts of bio pr Food, and Natural	**a** Identify biotechnology principles, techniques, and processes to create transgenic pecies through genetic engineering. AFNR.HS.2.4.A

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Resources (AFNR) systems (e.g., bioengineering, food processing, waste management, horticulture, forestry, livestock, crops). AFNR.HS.2.4

b Explain biotechnology principles, techniques, and processes to enhance the production of food through the use of microorganisms and enzymes. AFNR.HS.2.4.B

c Apply biotechnology principles, techniques, and processes to protect the environment and maximize use of natural resources (e.g., biomass, bioprospecting, industrial biotechnology). AFNR.HS.2.4.C

d Apply biotechnology principles, techniques, and processes to enhance plant and animal care and production (e.g., selective breeding, pharmaceuticals, biodiversity). AFNR.HS.2.4.D

e Apply biotechnology principles, techniques and processes to produce biofuels (e.g., fermentation, transesterification, methanogenesis). AFNR.HS.2.4.E

f Apply biotechnology principles, techniques, and processes to improve waste management (e.g., genetically modified organisms, bioremediation). AFNR.HS.2.4.F