

## Introduction to Sustainable Agriculture Activity Sheet

What are some of the challenges we face today?

### **Directions**

Define these terms by drawing a line to match the term with the correct definition.

#### **Word Bank**

Resistance	Sustainable Agriculture
Agriculture	Robustness
Resilience	Sustainable
Adaptability	Vulnerability

\_\_\_\_\_ The science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products.

\_\_\_\_\_ The ability to meet core societal needs in a way that can be maintained indefinitely without significant negative effects.

\_\_\_\_\_ Satisfying production needs for human food, feed, fiber, and biofuel, enhancing environmental quality and the resource base, sustaining the economic viability of agriculture, and improving the quality of life for farmers, farm workers, and society as a whole.

\_\_\_\_\_ The quality or capability of a system to be exposed to risk and uncertainty.

\_\_\_\_\_ The ability of a system to evolve and change in response to long term changes in the surrounding environment.

\_\_\_\_\_ The ability of a system to resist being dislodged from a stable condition by a disturbance such as some sort of system stressors and fluctuating conditions.

\_\_\_\_\_ The capacity of a system to absorb a spectrum of shocks or perturbations and still retain and further develop the same fundamental structure, functioning and feedbacks.

\_\_\_\_\_ The ability of a system to withstand stresses, pressures, and changes in circumstances.

My Sustainable Qualities Analogy/Metaphor:

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### Directions

Read through the timeline.<sup>ix</sup> Choose four events to explain the environmental, production, economic, and social implications that event had.

### Agricultural History

- 8000 B.C.** Animals and grain domesticated in the Middle East—the birth of agriculture.
- 1493** Christopher Columbus brought calves, goats, sheep, pigs, hens, citrus, melons and many kinds of vegetables to America.
- 1607** English colonists in Jamestown, Va., planted grain, potatoes, pumpkins, melons, cotton, oranges and pineapples.
- 1793** Eli Whitney invented the cotton gin.
- 1837** John Deere began manufacturing steel plows.
- 1843** Sir John Lawes founded the commercial fertilizer industry by developing a process for making superphosphate.
- 1850** About 75–90 hours of labor required to produce 100 bushels of corn with walking plow, harrow and hand planting. Yields were about 40 bushels per acre.
- 1862** President Abraham Lincoln signed legislation creating the first Department of Agriculture. Lincoln also signed the Morrill Land Grant College Act, creating agricultural universities.
- 1869** Transcontinental railroad completed.
- 1881** Hybridized corn produced.
- 1900** The amount of labor needed to produce 100 bushels of corn is down to 35–40 hours using a 2-bottom gang plow, disk and peg-tooth harrow and 2-row planter. Yields remain about the same as in 1850.
- 1902** Reclamation Act passed, leading to water projects for irrigation.
- 1907** The Federal Meat Inspection Act was passed.
- 1914** World War I began.
- 1929** The Great Depression began.
- 1938** The Agricultural Adjustment Act was enacted; authorizing farm price supports and adjustment programs.
- 1939** World War II began.
- 1945** Commercial fertilizer use helps increase yields. Corn yields now 50 bushels per acre. One farmer works 10–14 hours to produce 100 bushels of corn with a tractor, 3-bottom plow, disk, harrow, 4-row planter and 2-row picker. About 16 percent of the U.S. population is involved in production agriculture.
- 1946** The first National School Lunch Act enacted.
- 1948** The General Agreement on Tariffs and Trade (GATT) was put in place. It provided the rules for much of world trade for the next 47 years.
- 1949** Agricultural Act of 1949 passed, incorporating the principle of flexible price supports and giving surplus food to the needy.
- 1950** Starting in 1950, the number of record high temperature events in the United States have been increasing, while the number of record low temperature events have been decreasing.<sup>x</sup> The Korean War also began.

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- 1964** National Food Stamp Act passed.
- 1970** Norman Borlaug received a Nobel Peace Prize for developing hardy wheat varieties.
- 1980** Farm crisis of the 1980's began. Many rural farms and banks went broke. Farmer suicide rates increased.
- 1987** Less than three hours of labor and about one acre of land are required to produce 100 bushels of corn, with one farmer using a tractor, 5-bottom plow, 20-foot tandem disk, planter, 20-foot herbicide applicator, 12-foot self-propelled combine and trucks.
- 1992** Food and Drug Administration declares biotech foods are “not inherently dangerous” and determines no special regulation is required.
- 1993** Canada, Mexico, and the United States signed the North American Free Trade Agreement (NAFTA).
- 1994** Farmers began using satellite technology to track and plan their farming practices. USDA approved the use of rBST to improve milk production in dairy cattle.
- 1996** World Trade Organization (WTO), the principal international forum governing world trade, was created. Food Quality Protection Act was enacted.
- 1997** The first weed- and insect-resistant biotech crops—soybeans and cotton—were available commercially. A sheep named “Dolly” was the first mammal cloned.
- 2000** USDA unveiled organic standards for food and the official organic seal.
- 2008** The housing market crashes and the Great Recession began. The Food, Conservation and Energy Act enacted.
- 2013** Each U.S. farmer produced food and fiber for 154 people. Globally, 17.3 million farmers grew biotech crops; 90 percent of them on small, resource-poor farms in developing countries.
- 2016** 2016 was the warmest year on record.<sup>xi</sup>

## Introduction to Sustainable Agriculture Activity Sheet

1. \_\_\_\_\_

Environmental:

Production:

Economic:

Social:

2. \_\_\_\_\_

Environmental:

Production:

Economic:

Social:

3. \_\_\_\_\_

Environmental:

Production:

Economic:

Social:

4. \_\_\_\_\_

Environmental:

Production:

Economic:

Social: