



Brickyard Educational Farm

Food, Farming and the Environment

Grade Level: High school

Time: 45 minutes

Objective: Students will be able to assess the various farming systems being used in the US today. Students will have a deeper understanding of how their food is produced, and be able to make informed decisions in their every day lives that will impact their health, the environment, the economy and their communities.

Overview: Students will be given an overview of the most commonly used farming practices in the US. Students will learn about the environmental impacts of agriculture, and how it relates to the water and nitrogen cycles. Students will compare and contrast the pros and cons of the most commonly used farming practices. To conclude students will brainstorm ways they can, in combination with their families and communities, can make a difference with our food system through conscious and thoughtful actions.

- Roughly 3% of the earth's surface is arable.
 - Arable land definition: Land that is able to grow food crops.
 - Soil now considered a non-renewable resource. What are some other non-renewable resources?
- 98% of the farmers in the United States use conventional farming practices.
 - Define conventional farming: Farming that permits the use of GMO's, and certain chemical fertilizers, pesticides and herbicides. This term is often used in contrast to organic farming
 - Define GMO's: An organism whose genetic material has been altered using genetic techniques and potentially introducing DNA from one organism into another organism that would otherwise not naturally occur in that original organism.
 - Pros and cons of GMOS
 - What are the pros and cons of:
 - Chemical pesticides- Chemicals that kill pests
 - Chemical herbicides- Chemical that kill weeds
 - Chemical fertilizers- Chemicals that include a high amount of NPK that help plants grow.

- The top three crops grown in the US are:
 - GMO corn (88% of all corn grown in US is now GMO)
 - GMO soy (94% of all soy grown in the US is GMO)
 - Wheat
 - These are known as commodity crops, not table crops. Define commodity crop: A raw plant product (like corn or soybeans) that is not ready for direct consumption by humans. (Most are processed, or fed to livestock).
 - Monoculture definition: The cultivation of a single crop in a given area. What are the pros and cons?
 - Polyculture definition: The cultivation of two or more crops in the same space, and avoiding large stands of single crops. What are the pros and cons?
- ‘Conventional’ farming practices. (Makes up 98% of the farming in the US today)
 - Pros – efficiency, less human labor
 - Cons- N run off, high fuel costs for transportation and production (in the form of petroleum based fertilizers).
- ‘Natural’ farming practices definition. (There is no definition. It does not have any standards)
- ‘Sustainable and organic’ farming practices overview- Holistic, resilient, preventative, diversified system. Define USDA certified organic: Keep organic, and non organic farming separate with buffers. Only approved synthetic chemical fertilizers allowed. No hormones, antibiotics or GMO’s allowed. Subject to on site inspections.
 - Cover cropping
 - Crop rotation
 - Interplanting, companion planting
 - Encourage beneficial insects
 - Pros
 - cons
- How you can vote three times a day with every meal you eat!

Vocabulary:

Conventional, natural, sustainable, organic, fertilizers, pesticides, herbicides, genetically modified organisms, commodity crops, monoculture, polyculture, arable land, erosion, run off.