Unit A: General Agricultural Machinery

Lesson 2:
History of Production Agriculture

Terms

- Baler
- Civilization
- Combine
- Drill
- Geographic information system (GIS)
- Global position system (GPS)
- Grain truck
- Horsepower

- Hunters and gatherers
- Internal combustion engine
- Loader
- Planter
- Reaper
- Steel plow
- Stewardship
- Thresher

Describe agriculture's role in developing civilizations.

I. A **civilization** is a group of people who settle in one place. In order for a civilization to survive in that place they must have food.

A. One way to obtain food is by hunting and gathering. If a civilization depends on this method of obtaining food, it must designate members of the group to be **hunters and gatherers**, people who go out and find food for everyone. Eventually, the group will use up all local sources of food or the population will outgrow the supply.

Describe agriculture's role in developing civilizations. (cont'd)

B. Another way to obtain food is to plant, care for, and harvest crops.

    1. Civilizations found that for them to establish a community and remain in the same place, it was necessary to plant food and to tame animals. This was the beginning of agriculture science.

Describe agriculture's role in developing civilizations. (cont'd)

2. As people began planting food and raising animals, they immediately began looking for better ways to care for plants and animals. Through scientific experimentation they began improving the science of agriculture.

Describe agriculture's role in developing civilizations. (cont'd)

3. As people became more dependent on land and animals, they began to practice stewardship. **Stewardship** is the practice of taking care of land and animal resources so they can benefit future generations.

Identify some of the inventions that changed the agriculture industry.

II. In early agricultural practices, seeds were planted and harvested by hand. Over time a number of inventions and innovations have advanced farming practices to their current state.

Identify some of the inventions that changed the agriculture industry. (cont'd)

A. In 1831, Cyrus McCormick invented a mechanical reaper that made harvesting crops more efficient. The **reaper** was a machine pulled by horses that was used to cut wheat at the base of the stem. Prior to the invention, plants had to be cut by hand and bundled into shocks and stacked.

Identify some of the inventions that changed the agriculture industry. (cont'd)

B. In 1837, John Deere began manufacturing a plow with a steel cutting edge, called a **steel plow**. This steel plow was light enough that horses could pull it through the ground, while at the same time, it was strong enough to break up heavy prairie soil.

Identify some of the inventions that changed the agriculture industry. _(cont'd)

C. Soon after McCormick's reaper was invented, a thresher was invented. A **thresher** separates the grain form the stem of the plant. Farmers would pick up the stalks cut by the reaper and then hand-feed them through the thresher. After the invention of the internal combustion engine, these two machines were combined to make the combine.

Identify some of the inventions that changed the agriculture industry. (cont'd)

D. An **internal combustion engine** is a device that uses fuel to create energy which is then used to do work. The invention of this engine led to the invention of tractors and combines. Work that once took days to do by hand could now be done in minutes.

Identify some of the equipment currently used in production agriculture.

III. Powerful, complex equipment is used in today's agricultural industry to increase productivity.

Identify some of the equipment currently used in production agriculture.

A. Tractor

    1. A tractor can be used for a number of different jobs around the farm.

    2. Because of their powerful engines and large tires, tractors are able to pull other pieces of machinery through fields.

    3. Before tractors were invented farmers used horses to pull heavy equipment.

    4. **Horsepower** is a measurement for the power of an engine. This word originally meant the number of horses it took to pull machinery.

Tractor

Identify some of the equipment currently used in production agriculture.

B. Combine

    1. A **combine** is a machine used to harvest crops from the field.

    2. A combine is the combination of a reaper and a thresher. The head of the combine runs through the rows and cuts the stalk of the plant. The plant is then pulled through the machine and the grain is separated from the plant material.

Combine

Identify some of the equipment currently used in production agriculture.

C. Planter or drill

1. A **planter** or **drill** is an implement used to drop seeds into the ground.

2. Typically, a planter is used to plant corn or soybeans, and a drill is used to plant soybeans or small grains like wheat or oats.

3. Seed counters drop the right amount of seed into rows created by the planter.

4. Before this machine was invented, farmers dug rows and planted the seeds by hand.

17

Planter

Identify some of the equipment currently used in production agriculture.

D. Loader

    1. A **loader** is a large scoop or bucket that is placed on the front of a tractor.

    2. This bucket can be used to move large amounts of hay, straw, dirt, gravel, or manure around very quickly.

    3. Before tractors and loaders were invented, farmers hand shoveled, carried, or pushed material that needed to be moved.

Tractor with Loader

Identify some of the equipment currently used in production agriculture.

E. Grain truck or wagon

1. A **grain truck** is a vehicle used to move grain from the field to storage bins or grain elevators.

2. A combine has a bin behind the cab that stores grain as it moves through the field. When this bin is full, it is unloaded into a grain truck or into a wagon to be taken out of the field.

Grain Truck and Wagon

Identify some of the equipment currently used in production agriculture.

F. Baler

1. A **baler** is a machine used to wrap straw or hay into tight bundles called bales.

2. The baler is pulled behind a tractor and picks up the hay or straw off the ground. Inside the baler, the hay or straw is tightly packed or wound into round or rectangular bales. When the bale reaches the proper size the machine wraps the bale with wire or twine to secure it.
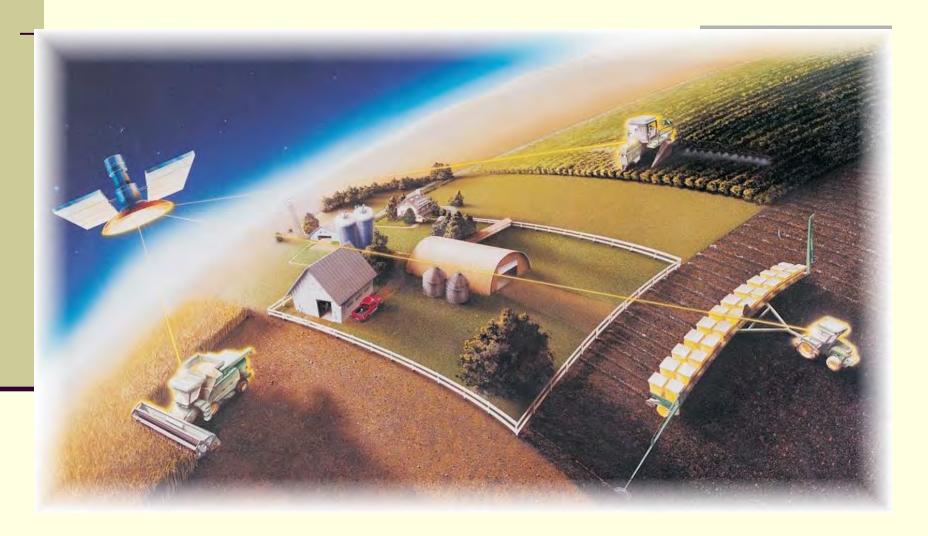
Baler

Identify some of the equipment currently used in production agriculture.

G. Global Positioning System (GPS)

1. A **Global Positioning System (GPS)** is a system that uses satellites and computers to tell a farmer his or her exact location on a field.

2. This technology is so precise it can tell a farmer his or her location within inches.

3. GPS systems can precisely guide tractors and equipment through a field and program computers to deliver precise amounts of see, fertilizer, or herbicide to plants in variable amounts.

Identify some of the equipment currently used in production agriculture.

H. Geographic Information System (GIS)

1. A **Geographic Information System (GIS)** is a system used with GPS to make maps or grids of a field.

2. These maps give a farmer data about soil conditions, crop yield, and other information so he or she can make decisions needed to improve the crops in the field.

GPS & GIS

Review/Summary

- How does agriculture develop civilizations?
- What are some of the major inventions that changed the agriculture industry?
- What is some of the equipment that is used currently in production agriculture?