

# Tracking Technology

**Grade Level: 4-6**

**Approximate Length of Activity: One class period**

## Objectives

### Teacher

1. Teach the history of agricultural advancements in farming.
2. Familiarize students with various pieces of farm equipment.
3. Understand the purpose and importance of each piece of farm equipment and machinery.

### Students

1. Learn about changes in farming methods over the years.
2. Learn about the equipment used by farmers.
3. Understand what each piece of equipment or machine does.
4. Compare old ways of doing jobs on a farm to how they are done today.

**Michigan Content Standards: (Social Studies)** 4-H3.0.1; 4-H3.0.5; 4-E2.0.1; 5-U1.4.2; 5-U1.4.3; 5-U2.1.1; 5-U2.1.2; 6-H1.2.5; 6-H1.4.2; 6-W1.2.3; 6-G5.1.1; 6-G5.1.2

## Introduction

Before voyages of discovery for new land, only a few crops were grown in particular regions. For example, people in Europe did not know what potatoes were until the Spanish brought them to Europe in the 1500s. When European and Spanish explorers and settlers came to America, the Native Americans introduced them to many new crops. Europeans brought with them knowledge of a variety of farming methods, tools, seeds and livestock.

The Agricultural Revolution began in the early 1700s with many discoveries and inventions. Farming was made easier and more productive. Inventions allowed farmers to produce more food and feed more people than before. As a result, people began taking new jobs off the farm.

Farmers do a lot to prepare soil for planting, care for the crop and harvest. In earlier times, farmers did most jobs by hand with very few tools to help them. Farmers used animals to do most of the heavy work. Farmers went from using few hand tools before the 1700s to using different types of equipment in the 1700s and 1800s. Still, many inventions in the 1800s required animals, such as oxen or horses, to pull them through a field or to supply the power for a machine to run. Since then, many advances in farm machinery and farm equipment have been made. Using modern machinery, one farmer can feed more people now than ever before.

One valuable piece of machinery farmer's use today is a tractor. Before tractors, farmers used horses and other animals to pull and work pieces of heavy equipment. The first types of tractors were called traction engines. They ran on steam and were hard to maneuver. Over time, newer, improved versions were made, and by the 1920s a more practical tractor was developed. Today, tractors are used for many different things. They are used to plant, cultivate and pull heavy loads filled with grain, mowers and much more. A tractor can pull these heavy machines and equipment because it has an engine whose power equals that of 200 horses.

Before the 1700s, farmers planted crops by spreading seeds by hand. In the early 1700s, a farmer named Jethro Tull invented a seed drill. The seed drill dug small trenches in the soil and dropped seeds into them. This piece of equipment is now called a planter. Planters put seeds in the soil. They have tanks which hold the seeds and seed meters so the correct amount of seeds are dropped into the soil. A row of wheels on the planters cover the seeds with soil after they are dropped in the field.

Farmers once harvested crops by hand. They could cut stalks, stack them in large piles and store them in a silo. (A silo is a cylindrical structure in which grain is kept.) Next, the farmer separated the grain from the stalk by hand. It took many people to do these two tasks, until Cyrus McCormick invented the reaper, a machine that cuts the stalks. Then a thresher was invented. Threshers separate the grain from the stalks. Farmers used reapers to cut the stalks and threshers to separate the grain from the stalks.

Since the 1930s, farmers have used machines called combines to pick grain from the fields (which is also called harvesting). A combine does the job of both a reaper and a thresher. A combine separates grain from the stems as it cuts stalks in the field. The combine stores the grain in a big tank inside the machine. The leftover stalks are thrown out the back of the combine. The auger is a long tube on the side of the combine. Inside the auger is a rotating flange (like a screw) that moves the grain from the storage tank and dumps it into a truck or wagon.

In the past, using horses and other farm animals, farmers would cut hay in the fields and rake it into bundles. Then, they would haul it back to the barn for storage. Today, farmers use mechanical hay balers. These hay balers cut the hay or straw and pack it into square or round bales.

Dairy cows were once milked by hand. Farmers would milk their cows two to three times daily. Today, most farmers use milking machines. Farmers still milk cows two to three times a day, but it is a much easier process. Farmers attach suction cups to the teats of a dairy cow, and this suction system pulls milk from the cow and pumps it into a storage tank. The storage tank keeps the milk fresh and cool. When farmers milked by hand, it would take two people about two and one-half hours to milk 20 cows. Today, an electric milking machine enables one farmer to milk 20 cows in about 15 minutes!

## Materials Needed

- Set of “Farm Equipment and Machinery Pictures” to display (for teacher use)
- Copies of “Farm Equipment and Machinery Pictures” (for the students)
- “From Old to New” worksheet

## Activity Outline

1. Talk to students about farm machinery and equipment. Hold up each picture of the “Farm Equipment and Machinery Pictures” and discuss what each did a long time ago or what it does today (depending on the picture). Pass around the pictures for the students to get a close-up look at them.
2. Hand out the worksheet “From Old to New.” Have students draw a line between the old method of farming and the method used today. Discuss answers with students.
3. Pass out copies of “Farm Equipment and Machinery Pictures,” one per student. Not all students will have the same picture. Have students write a paragraph about their piece of equipment or machinery. The paragraph should contain information about how farmers used the machinery in the past and how they use it now. For instance, if the student has a picture of a planter, the student should write a paragraph about how farmers used to scatter the seeds by hand and now they have a machine that puts seeds into the ground. The student should also discuss why the newer way is more beneficial.

## Discussion Questions

1. How do farmers plant seeds now? How did they plant seeds in the past?
2. What two pieces of equipment did farmers use to harvest crops in the past?
3. What big machine do farmers use today to harvest crops?
4. What machine do farmers use to pull heavy loads or pieces of equipment?
5. How did farmers milk cows in the past? How do they milk cows today?
6. How many times a day does a farmer need to milk the cows?

## Related Activities

1. Have students learn about other types of equipment that farmers use and how they are beneficial.
2. Visit a local farm equipment dealer or invite a dealer into the classroom to discuss his/her business, what types of equipment or machinery he/she sells, and how much each piece costs.
3. The lesson "The Dairy Shoppe" located in the social studies section of this curriculum guide.

## Resources

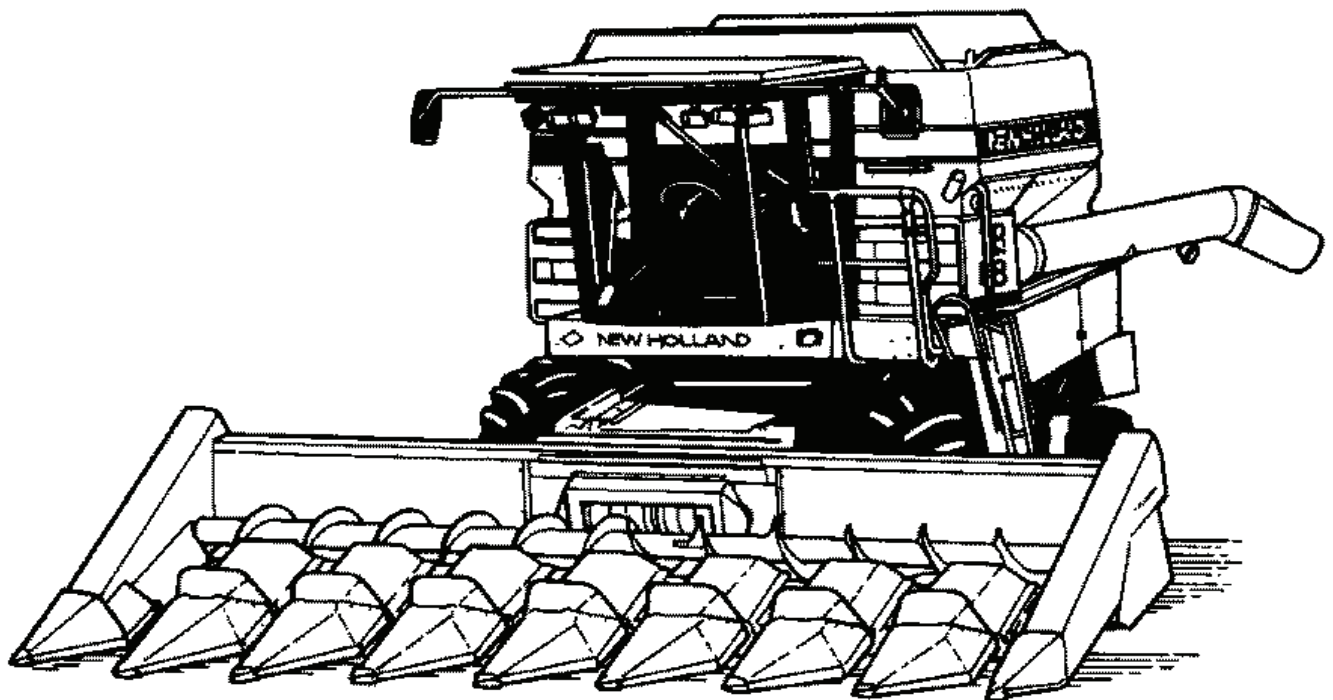
- The Michigan Farm Bureau has an educational magazine geared for kids entitled "Dairy Ag Mag" which contains activities and history stories of how farming used to be, and how it is now. To obtain copies for your classroom contact Michigan Farm Bureau's Promotion and Education department at (800) 292-2680, ext. 3202.
- *A Tractor Goes Farming* by Roy Harrington, published by the American Society of Agricultural Engineers.
- *Harvest Year* by Cris Peterson, Boyds Mills Press, Inc.
- *Century Farm* by Cris Peterson, Boyds Mills Press, Inc.

# Farm Equipment and Machinery



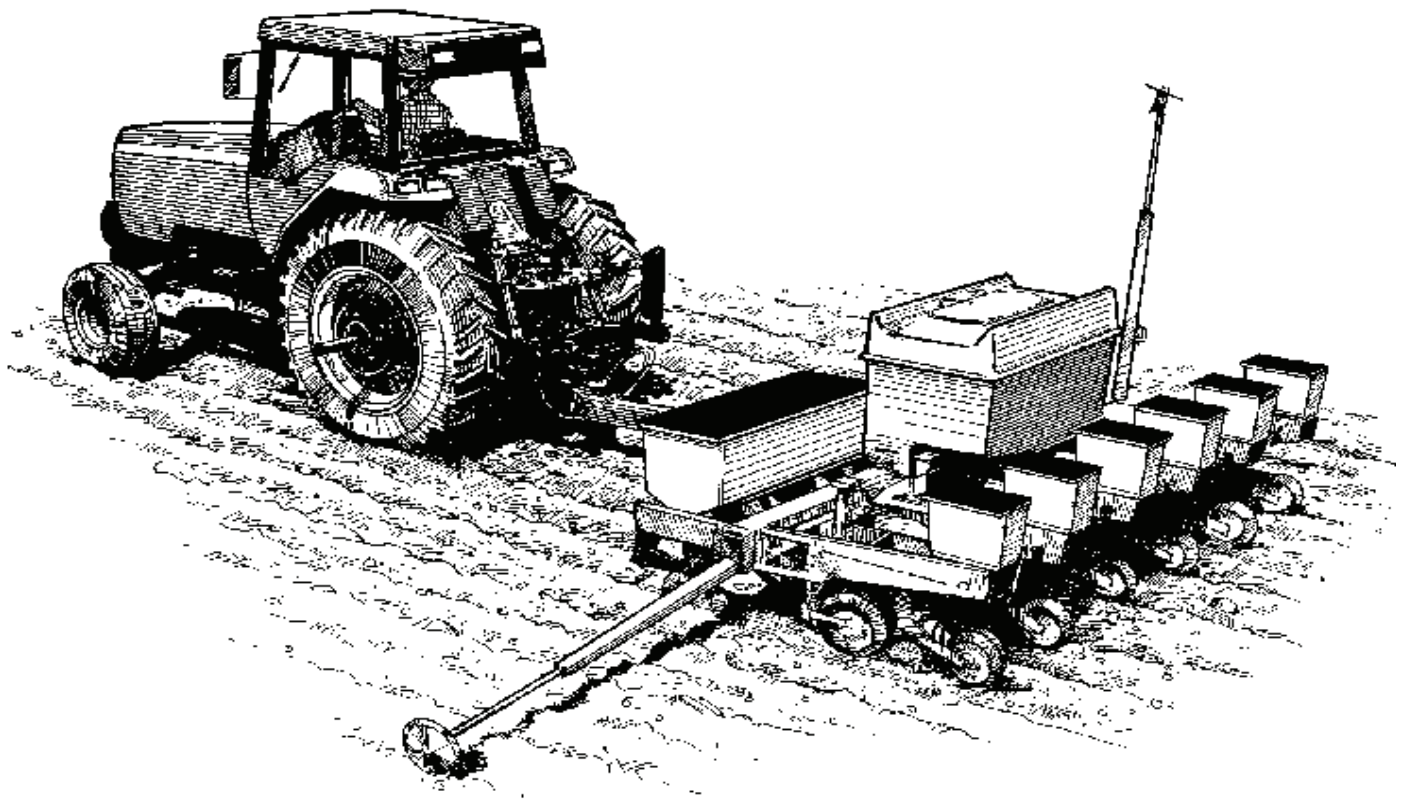
## Tractor

# Farm Equipment and Machinery



## Combine

# Farm Equipment and Machinery



## Planter

# Farm Equipment and Machinery



## Hay Baler



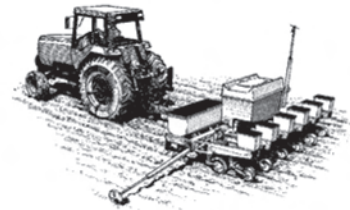
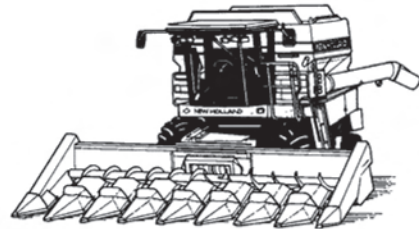
# From Old to New

Technology has changed the way people farm. Draw a line to match the old method to the new method used today.

## Old Way



## New Way





# From Old to New

Technology has changed the way people farm. Draw a line to match the old method to the new method used today.

Old Way

New Way

