Corn is an extremely important crop in the United States. In fact, a little over one-third of all the corn grown worldwide is grown in the United States. It is part of our culture, and it is a large part of our economy.

**Objective:**

- Explain aspects of field corn.

**Key Terms:**

- grain
- husk
- palatable
- prop roots
- silk
- tassel

**Field Corn**

Corn, *Zea mays*, is one of the most valuable cereal grain crops grown in the United States and the world. Cereal grain plants belong to the grass family of plants. A **grain** is a seed of the cereal grain plant. Cereal grain kernels have high starch content. Corn kernels contain two types of endosperm—starchy and flinty. Starchy endosperm is soft. Flinty endosperm is hard. The amount of each type in kernels determines how the corn can be used.

Corn is a versatile crop. It is used for both human and animal consumption. Corn is also used to make numerous non-food products. Humans consume...
corn and corn products. Common human food products include corn meal, corn hominy, corn flakes, corn chips, corn starch, corn oil, corn syrup, popcorn, and corn sugar.

As a livestock feed, corn is used for fattening. It is also the most palatable, or good tasting, of the cereal crops. Corn can be used in high concentrations in dairy cattle feed and is also used in poultry mash. The kernel is high in starch, which is a carbohydrate, and a good source of energy.

A number of by-products can also be made from the corn plant. The stalks are processed into paper, insulation, and cardboard. The cobs are processed into methanol, tar, and plastic. The cob grit is used to clean and polish buttons and jewelry. Corn cob dust is made into face powder.

Corn plants have fibrous root systems and are supported by smaller roots called prop roots. Prop roots are above ground roots that aid in keeping corn plants erect. The corn kernels grow on ears that vary in size, shape, and color, depending on variety. Corn ears are enclosed in husks. A husk is the leafy, protective covering that surrounds ears of corn on the plant. The silk and tassel are the reproductive parts of the corn plant. The silk is the female reproductive part of the corn plant. The tassel is the male reproductive part of the corn plant.

**TYPES OF CORN**

There are six common types of corn. Corn types are classified based on kernel characteristics. These characteristics are amount, quality, and arrangement. The six most common types of corn are dent corn, flint corn, floury corn, popcorn, sweet corn, and pod corn.
Dent Corn

Dent corn, *Zea mays indentata*, is the most common type of corn grown in the United States. It is referred to as field corn. The crowns of the kernel are dented, giving the corn its name. This denting occurs when the starch at the end of the crown shrinks during drying. Dent corn can be yellow, white, or red in color. The length of the growing period varies by cultivar.

Flint Corn

Flint corn, *Zea mays indurata*, is a popular source of corn meal. Most cultivars mature fairly quickly, even under poor conditions. Flint corn is resistant to many insects and can be shipped overseas because of its kernel hardness. This hardness is due to the makeup of the kernel. The center is made up of only a small amount of soft starch surrounded by a thick layer of hard starch. Flint corn comes in many colors, including white, yellow, red, and blue.

Floury Corn

Floury corn, *Zea mays amylacea*, is also called soft corn. Soft corn kernels are made up primarily of soft starch, with a thin covering of hard starch. The lack of a thick hard starch layer makes this type of corn a good choice for flour production. Flint corn comes in several colors, including white and blue.

Popcorn

Popcorn, *Zea mays everta*, cultivars are divided into two classes, pearl and rice. This division is based on the shape of the kernel. Many popcorn kernels on the market today tend to be yellow.

FURTHER EXPLORATION...

ONLINE CONNECTION: Why Are Cereal Grains So Important?

Why is it that humans have grown so dependent on cereal grains? Cereal grains, including corn, wheat, oats, barley, rye, sorghum, and rice, are staple food crops in many areas of the world. The grains are highly nutritious. Three grains—corn, wheat, and rice—provide 50 percent of the calories for the world’s population. We also rely on these for animal feed, oils, starch, flour, sugar, syrup, processed foods, malt, alcoholic beverages, gluten, and renewable energy.

Why have the cereal grains upon which we depend been selected for domestication? Why is it that grass species have become so prominent in today’s agriculture? Perhaps it is because grasses grow in a wide range of altitudes, temperatures, moisture conditions, and soil types. Certainly the fact that seeds can be stored for later consumption or for planting the following season is a factor. Conduct research to determine other reasons why cereal grains are so important.
kernel. Popcorn kernels are smaller than flint corn kernels and are made up of a hard, flinty starch. Some cultivars have a soft starchy center. The kernels are usually white or yellow but may be red, blue, or brown.

When popcorn is “popped,” the moisture inside the kernel is heated until it becomes steam. The steam penetrates the starch granules in the endosperm, causing them to gelatinize. Internal pressure reaches a point whereby the seed coat ruptures. The gelatinous endosperm quickly expands and then cools and becomes a solid.

**Sweet Corn**

Sweet corn, *Zea mays saccharata*, is most commonly grown for human consumption. Sweet corn is picked while still immature to retain the high sugar content. Sweet corn kernels are white or yellow and may be wrinkled or become caramelized in color when fully mature.

**Pod Corn**

Pod corn, *Zea mays tunicata*, has little commercial importance and is commonly grown as a specialty item. Pod corn kernels are enclosed in a husk or pod and the ear is surrounded by a large husk.

**CORN MARKETS**

Corn was domesticated in Mexico around 9000 B.C. It is the most important grain crop in the United States and is one of the leading grain crops worldwide. Field corn is commonly grown throughout the Midwest. However, sweet corn and other varieties are grown in just about every state.

**Top Producing States**

According to the USDA National Agriculture Statistics Service, the top five corn-producing states are Iowa, Illinois, Nebraska, Minnesota, and Indiana. The ten major corn producing states, Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, South Dakota, and Wisconsin, planted 71.7 million acres of the total 92.9 million acres of corn in 2007.
World Production

Worldwide, the United States accounted for 38 percent of the world’s corn production. It was followed by China (21%), Europe (8%), and Brazil (7%).

Export Markets

The major export markets for U.S. grown corn are Japan (29%), Mexico (17%), Taiwan (8%), and South Korea (8%).

Summary:

Corn, *Zea mays*, is one of the most valuable cereal grain crops grown in the United States and the world. Cereal grain plants belong to the grass family of plants. Corn is a versatile crop. It is used for both human and animal consumption. Corn is also used to make non-food products.

Corn plants have fibrous root systems and are supported by prop roots. The corn kernels grow on ears enclosed in husks. The silk and tassel are the reproductive parts of the corn plant.

Corn types are classified based on the amount, quality, and arrangement of kernels. Six common types of corn are dent corn, flint corn, floury corn, popcorn, sweet corn, and pod corn.

Corn was domesticated in Mexico around 9000 B.C. The top five corn-producing states are Iowa, Illinois, Nebraska, Minnesota, and Indiana. The United States accounts for 38 percent of the world’s corn production.

Checking Your Knowledge:

1. What is corn?
2. What are some uses of corn?
3. What are the different types of field corn?
4. What are the top corn producing states?
5. What are the top corn producing countries?
Expanding Your Knowledge:

Do some research to determine the extent of corn production in your county. Seek answers to these questions and others. How much acreage is devoted to corn production? What types of corn are grown? What varieties of corn are grown? What are the typical yields per acre?

Web Links:

The Great Corn Adventure
http://www.urbanext.uiuc.edu/corn/A_03.html

Maize
http://en.wikipedia.org/wiki/Maize

A Zillon Uses for Corn!
http://www.ontariocorn.org/classroom/products.html

Zea
http://www.gramene.org/species/zea/maize_intro.html

Agricultural Career Profiles
http://www.mycaert.com/career-profiles