Cool Corn

What is Field Corn?

Field corn is not the type of corn you eat on the cob. It is a special type of corn that is allowed to dry in the field. The kernels are full of starch, protein and oil. About 99% of the corn grown in the U.S. is field corn. Most field corn is fed to livestock and made into a biofuel called ethanol. It is processed to make products you use every day. The corn kernel is milled (ground) so that the germ oil, starch, gluten and hulls can be separated. These items are then made into cornstarch, cooking oil, sweeteners, high fructose corn syrup, cereal, beverages and fuel. And that's just the beginning! There are over 4,200 uses for corn products and more are being found every day.

Corn Products

Did you Know that corn is made into edible and non-edible products?



cake mixes



condiments



high fructose corn syrup



chewing gum



baby food

fabrics





paints



plastics

FUN FACTS

Ethanol is a fuel made from corn. It is better for the environment because:

Ehtanol helps reduce air pollutant emissions by up to 29%.

Ethanol is a renewable resource because it comes from plants that grow quickly._____

Ethanol is biodegradable and does not pollute groundwater.

Ethanol reduces the need for fossil fuels which is a nonrenewable resource.



glue



kernel

The seed which germinates into a new plant or can be processed to make food and products such as ethanol or polymer plastics.

<u>Vegetative</u>

Up to 16 leaves grow and conduct photosynthesis to produce food from the sun for the plant.

Maturity

When field corn is ready to harvest, plant has died and changed to a golden brown color and the seed is fully developed and dried down.

Emergence

The first leaf (also know as a coleoptile or spike) appears above the soil surface following germination. Because only one leaf comes through the soil, this plant is classified as a monocot.

Silking & Tasseling

The tassel, or male part of the plant, contains the pollen. The silk is the hollow hair-like tube that captures the pollen and moves it down to the ovary of the plant. Each silk has the potential to pollinate one kernel of corn on the ear.

In 2016, Kansas produced 6^{qA} million bushels of corn which contributed to a total economic output of \$3.75 billion and 13,538 jobs.

Label the parts of a corn plant!

One serving of corn contains a 5% of your daily nutritional need for carbohydrates and fiber. It is also a good source of vitamins and minerals.



Key: 1. Tassel 2. Upper Leaves 3. Stalk 4. Slik 5. Ear 6. Lower Leaves 7. Brace Root 8. Roots 9. Husk 10. Kernel 11. Pericarp 12. Endosperm 13. Germ 14. Tip Cap



ACTIVITY: MAKE YOUR OWN BIODEGRADABLE CORN PLASTIC Directions:

- 1. Place a tablespoon of cornstarch in a plastic zipper-seal bag.
- 2. Add 2 drops of corn oil to the cornstarch.
- 3. Add 1 1/2 tablespoons of water to the oil and cornstarch. Seal the bag.
- 4. Mix the cornstarch, oil and water in the plastic bag by Kneading the bag with your fingers.
- 5. Add 2 drops of your favorite food coloring to the mixture and mix well. DO NOT completely seal the bag.
- 6. Microwave for 20-25 seconds on high. Be careful. It will be hot. What happened to your plastic?
- 7. Form your plastic into a ball while it is still warm and describe what it does.
- 8. Record your scientific observations.



Learn more about Kansas agriculture at www.ksagclassroom.org.

