

Be Ag Smart!

THE CORN CONNECTION



Be Ag Smart! The Corn Connection has been developed and produced by Texas Farm Bureau Agriculture in the Classroom

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Teachers—For lesson plans, videos and other resources for your classroom, go to texasfarmbureau.org

Although there is an increasing number of uses for corn, feeding livestock remains the primary use for American corn. Approximately 96% of corn produced in Texas is used for livestock feed. Nationally, livestock and poultry directly consume approximately 40% of the country's corn crop in addition to a significant amount of corn by-products, such as distillers grains. Corn-fed animals gain weight quickly from corn's high-starch, high-energy content, making corn and distillers grains a preferred feed choice of feedlot operators. Additionally, corn improves the milk production of dairy cows and reduces the amount of land needed to support their feed requirements.

HAVE YOU EVER WONDERED?

Why does popcorn pop?

Each kernel has some starch in it. When it gets hot, the moisture turns to steam. That steam makes it explode, flipping the popcorn inside out.

How long has popcorn been around?

For a very long time! Native Americans ate popcorn and used it as decoration for ceremonial headdresses, necklaces and ornaments.

Is popcorn really healthy?

Yes! It is a grain, so it gives our bodies carbohydrates. In other words, we get energy from popcorn.

DID YOU KNOW?

With more than 4,200 uses, corn is used in a myriad of products we use on a regular basis. From traditional uses, such as feed and food, to the arenas of ethanol and bioplastics, corn is a vital part of our way of life.

CORN FOR FOOD

When was the last time you ate corn? Think carefully. Corn is used as much more than just a tasty, vegetable side dish! According to the Corn Refiners Association, nearly 4,000 food items in your grocery store contain corn ingredients—and that doesn't include the products that come from corn-fed animals or the sweet, whole-kernel corn that's available on the cob, in cans or frozen. While sweet corn only accounts for approximately 1% of corn production in the United States, 10% of field corn is processed for food ingredients. This processed corn is used in a variety of foods, including fruit snacks, Oreos, chocolate milk, graham crackers and ice cream! It's safe to say that every time you sit down for a meal, corn is on the table.

WHAT DOES A SPIDER DO IN A CORN FIELD?



The builds a cob-web!

CORN FOR INDUSTRIAL USES

Corn can be found in a number of industrial applications, such as bioplastics and fabrics. Because of advances in technology, you can find corn in a number of items, including crayons, compostable tableware, food containers, shirts and carpet. These bioplastic items are made from cornstarch. Some farm equipment is even being made from corn!

CORN FOR FUEL

Domestic ethanol producers are turning corn into environmentally friendly, renewable fuel. This clean-burning, high-octane fuel contributes to the country's energy independence. Henry Ford first thought of using corn as fuel.



HOW TALL IS A CORN PLANT?

A typical corn plant is anywhere from 5 to 12 feet tall. Generally, the corn plant is approximately 6 to 8 feet tall in Texas.

BE A CORN DETECTIVE

Unscramble the words to learn what foods corn can be found in.

nroc sekalf c _ _ _ f _ a _ _ _
 cei earcm _ c _ _ _ _ m
 oads s _ _ _
 nuteap ttreub _ e _ _ u _ _ _ u _ _ _ e _
 upchket k _ _ _ h _ _
 alads ingsserd s _ l _ d _ _ _ e _ _ _ _ g
 ylelj _ e _ _ _
 mallmarowssh _ a _ s _ _ _ _ l _ _ s
 tcoa hipcs _ a _ o _ _ _ i _ _ _

Answer key on back page.

CORN PUTTY

Play with it like clay. Then watch it become liquid again.

1 cup cornstarch
 1/4 cup Food coloring

Blend mixture with fork. It should flow when the bowl is tipped but feel solid when you touch it. If it's too thick, add a little water. If it's too runny, add a little cornstarch.

TYPES OF CORN



Sweet Corn is the type of corn people grow in their vegetable gardens. Sweet corn is the corn on the cob, canned and frozen corn that people eat. Sweet corn can be grown year round in warm-weather climates. The ears are harvested before the seeds begin to harden.



Field Corn, also known as dent or feed corn, makes up more than 90% of the corn you see growing in the fields. It is hard on the outside and starchy on the inside. While most often considered a food for animals, it can be found in products you use every day!



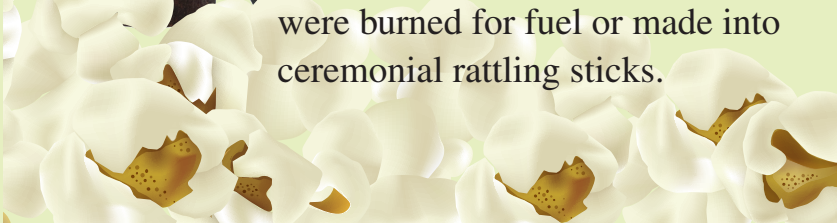
Popcorn is a special type of corn that retains water within the kernel. When the kernel is heated, the water also heats and builds up pressure. This pressure causes the kernel to turn inside out and then you have hot, fluffy popcorn!

HOW MANY EARS GROW ON A CORN PLANT?

The number of ears grown on a plant is based on its genetics. Most Texas corn is bred to develop one large ear and one smaller ear.

NATIVE AMERICANS DISCOVERED THE MANY USES OF CORN

Mayan, Aztec and Inca Indians of Central and South America learned to use almost every part of the corn plant. They were not only the first to discover corn but also the first to experiment with its many uses. Immature corn was eaten as a fresh vegetable. The dry, mature kernels of corn were ground into flour, parched or popped. Native American Chief Massasoit made a necklace out of popcorn to give to the Pilgrims as a gift. They would use the dried husks to make baskets, shoes and even corn husk dolls. The silks of the plants could be used as doll hair. The corn cobs were burned for fuel or made into ceremonial rattling sticks.



HOW MANY ROWS ARE THERE ON AN EAR OF CORN?

The average corn ear has 16 rows. Corn ears always have an even number of rows.

HOW MANY KERNELS ARE THERE ON AN EAR OF CORN?

A typical ear has approximately 800 kernels, but this number can vary from 500-1,200 kernels.

WHY ARE THERE SILKS ON CORN?

Corn silks are necessary for pollen from the tassels to fertilize the plant. Silks will concentrate pollen to a developing ear of corn. Every kernel on a plant will have a silk connected to it. In harsh, hot summers, the silks can dry out before all the sites on a cob are fertilized, creating gaps where no kernels are developed.

HOW BIG IS AN ACRE?

One acre is 4,840 square yards or 43,560 square feet—about the size of a standard football field.

HOW BIG IS A BUSHEL?

Every crop is measured in bushels, or weight. A bushel of shelled corn is 56 pounds—approximately the size of a large bag of dog food.

TEXAS CORN PRODUCTION

On average, Texas plants 2 million acres that yield an average of 120 bushels per acre. Statewide, Texas produces more than 301 million bushels of corn. Irrigated corn produces approximately 65% of the state's corn crop, while only 40% of planted corn in Texas is irrigated. Texas corn production contributes approximately \$1.2 billion to the state's economy.

PLANTING CORN

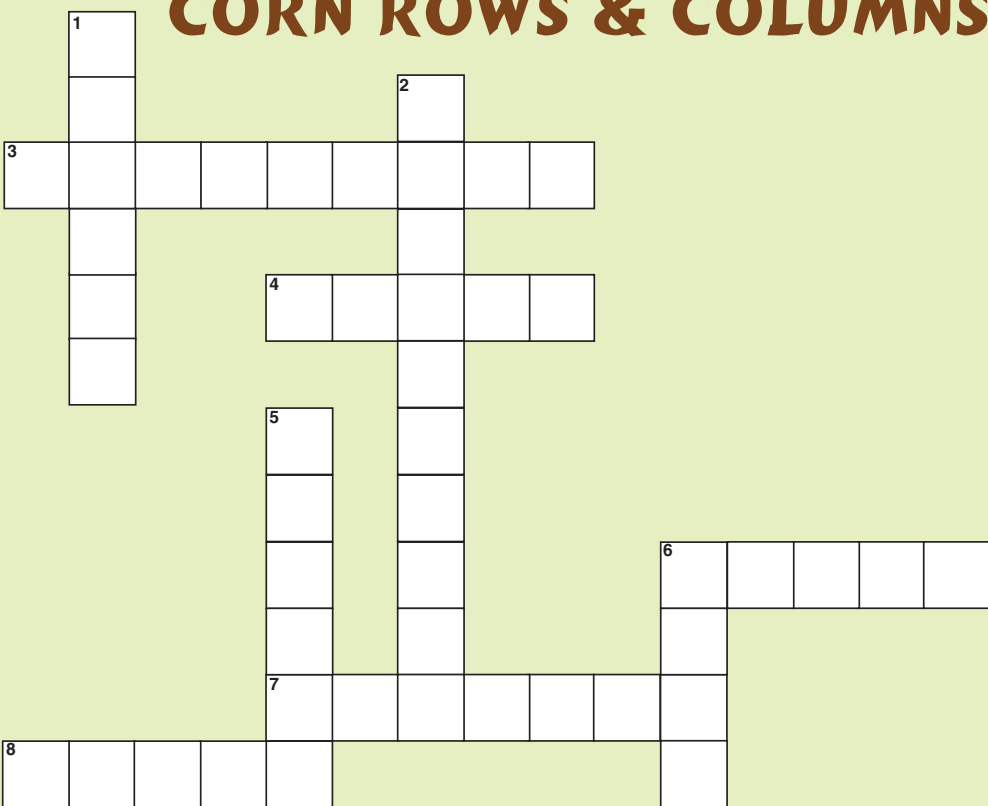
Corn is planted when the soil is warm enough to germinate the seeds, but not so early that the young plants are likely to be damaged by frost. With so many diverse climates across our state, planting dates vary by geographic location. Texas' planting season begins as early as mid-February and ends as late as mid-June.

HARVESTING CORN

Corn is harvested when the plant has reached physical maturity. Similar to planting season, harvest time depends greatly on geographic location, as well as weather conditions. Additionally, different corn hybrids take different lengths of time to reach maturity.



CORN ROWS & COLUMNS



DOWN

1. Something a baby wears on its bottom.
2. Corn product used in biodegradable plastics.
5. Part of corn plant that receives energy from the sun.
6. What part of the corn plant can be used as hair on husk dolls besides the husk?

ACROSS

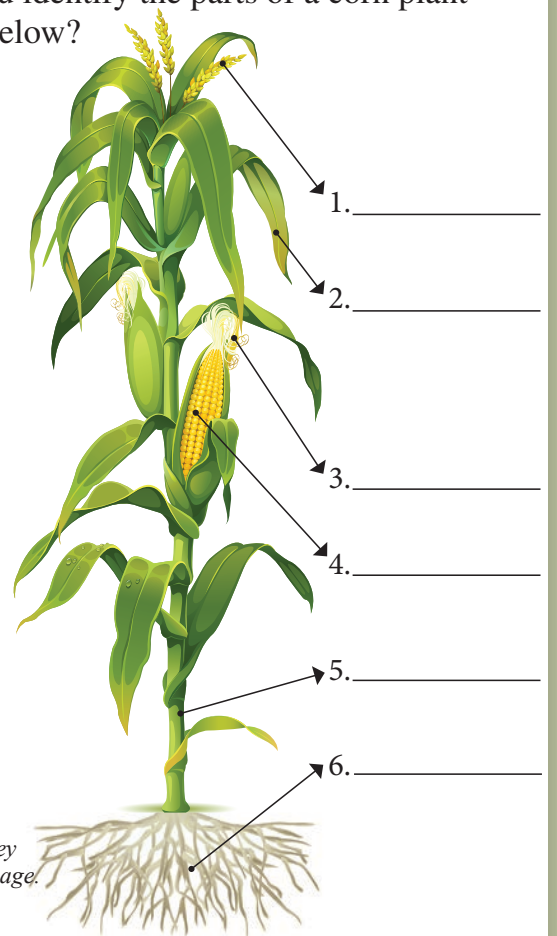
3. Native American chief who presented popcorn necklaces to the Pilgrims.
4. Sweet to eat and something you collect at Halloween.
6. The corn product used as a sweetener.
7. Fuel made from corn.
8. Corn is a member of what plant family?

Answer key on back page.

ALL ABOUT CORN

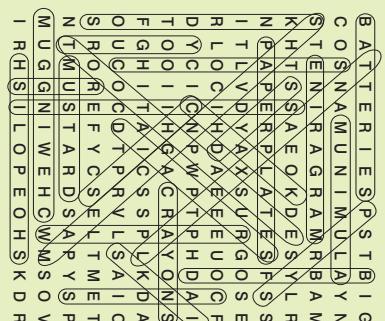
Can you identify the parts of a corn plant listed below?

- stalk
- leaf
- tassel
- silks
- ear
- roots



Answer key on back page.

CORNY WORD SEARCH KEY



HOW DO YOU KNOW YOU HAVE REACHED THE END OF A CORN FIELD?



You have to turn the corn-er.

WHERE DOES CORN COME FROM?

Modern corn descended from a grass called teosinte, which appears to have originated in Mexico. This plant still grows there today. The first-known ears of corn were only a few inches long. Centuries of breeding have resulted in bigger, fuller ears of corn. Even though corn has evolved to its current state, it still belongs to the grass family!

CORNY WORD SEARCH

- RUGS
- CHALK
- MUSTARD
- TOOTHPASTE
- CHOCOLATES
- INSECTICIDES
- CHEWING GUM
- CRAYONS
- WALLPAPER
- BABY FOOD
- PAPER PLATES
- SHAVING CREAM
- CHIPS
- MARGARINE
- DYES
- SYRUP
- INKS
- ALUMINUM
- BATTERIES
- YOGURT
- SHOE POLISH
- SOFT DRINKS
- LATEX PAINT
- CANDIES
- DIAPERS

B A T T E R I E S P S T B I G
 C O S N A M U N I M U L A Y N
 S T E N I R A G R A M R B A M
 K H T S S A E O K D E S Y L R
 N P A P E R P L A T E S F S S
 I T L V D Y A X S U R G O S E
 R L O C I H D A E E E U O C F
 D Y C I C N P W P T P H D A I
 T O O I I H G A C R A Y O N S
 F G H I T A I C S S P L K D A
 O U C O C D T P R V L S A I C
 S R O R E F Y C S E L T M E T
 N T M U S T A R D S A P Y S P
 M U G G N I W E H C W M S O V
 I R H S I L O P E O H S K D R

CORN ROWS & COLUMNS PUZZLE SOLUTION
 DOWN: 1) Diaper; 2) Cornstarch; 3) Leaves; 4) Syrup; 5) Erhanol; 6) Grass
 ALL ABOUT CORN SOLUTION
 1) tassels; 2) leaf; 3) silks; 4) ear; 5) stalk; 6) roots
 CORN DETECTIVE SOLUTION
 corn flakes; ice cream; soda; peanut butter; ketchup; salad dressing; jelly; marshmallows; taco chips

ONE BUSHEL OF CORN

can produce each of these products



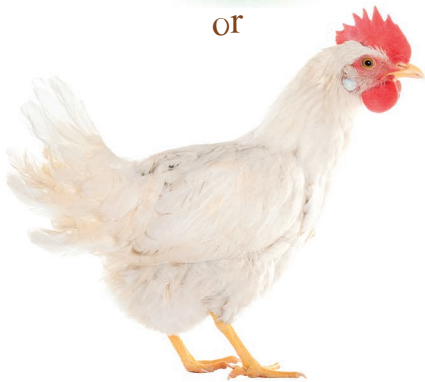
38 BOXES OF CEREAL
(12 OZ.)

or

22.4 LBS. OF PLA FIBER/POLYMER
for corn plastic products



or



or

FEED 10 BROILERS FROM BIRTH TO FINISHING WEIGHT



or

33 LBS. OF STARCH, USED FOR CRAYONS, RUBBER TIRES, SALAD DRESSING, PANCAKES... THE LIST GOES ON!



13.5 LBS. OF HIGH PROTEIN LIVESTOCK FEED

or



258 SIX-PACKS OF SODA

or

33 LBS. OF SWEETENER

or



2.8 GALLONS OF ETHANOL AND 17.5 LBS. OF DISTILLERS GRAINS

Sources: USDA-ERS, USDA, industry statistics, National Corn Growers Association, Cargill Dow Polymer, University of Arkansas Department of Poultry Science



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