Amazing Corn!

Introduction

The Corn Belt is a group of states where most of the corn in the United States is produced. Illinois, Iowa, Nebraska, and Minnesota produce 50% of all the corn grown in the U.S. Other major corn growing states include Indiana, Wisconsin, Michigan, South Dakota, Kansas, Missouri, Kentucky, and Ohio. These 12 states make up the Corn Belt.

Corn is the major feed grain grown by farmers in the U.S., leading all other crops in value and volume of production. Corn is a major component in foods like cereals, peanut butter, and snack foods.

An ear of corn has an average of 16 rows with 800 kernels. A pound of corn consists of approximately 1,300 kernels. An acre (about the size of a football field) of corn, yielding 100 bushels, produces approximately 7,280,000 kernels. Most of the weight of a bushel of corn is the starch, oil, protein, and fiber, with some natural moisture.

Farmers grow corn on every continent of the world except Antarctica. Hybrid varieties of corn have been developed to adapt to specific growing conditions and locations worldwide. Hybrids are the offspring produced by breeding plants of different varieties.

One hundred years ago, starch was basically the only product resulting from corn refining, and the rest of the kernel was thrown away. Today, there are uses for every part of the kernel—even the water in which it is processed. The corn seed (kernel) is composed of four main parts: the endosperm, the pericarp, the germ, and the tip cap. The endosperm is most of the dry weight of the kernel. It is also the source of energy for the seed. The pericarp is the hard, outer coat that protects the kernel both before and after planting. The germ is the living part of the corn kernel. The germ contains genetic information, vitamins, and minerals that the kernel needs to grow. The tip cap is where the kernel was attached to the cob.

Corn can be made into fuel, abrasives, solvents, charcoal, animal feed, bedding for animals, insulation, adhesives, and more. The kernel is used as oil, bran, starch, glutamates, animal feed, and solvents. The silk is combined with other parts of the corn plant to be used as part of animal feed, silage, and fuels. Husks are made into dolls and used as filling materials. The stalk is used to make paper, wallboard, silage, syrup, and rayon (artificial silk).

Brief History of Corn

Since ancient times, corn has played an integral role in human history. Corn is a grass, native to the Americas. The exact origin of the grain remains unknown, but tiny ears of corn have been discovered at ancient village sites and in tombs of early Native Americans. Evidence of corn in central Mexico suggests it was used there as long as 7,000 years ago, where it was domesticated from wild grass. Cultivated corn is known to have existed in the southwestern U.S. for at least 3,000 years. To the Aztecs and the Incas, corn was a staple of their diet that provided flour and vegetable dishes for their meals. Here in the United States, many of the various Native American tribes have traditionally grown corn—also known as maize—and used it for both food and utilitarian purposes. Corn was so important to some Pueblo tribes of the Southwest that it was considered one of the three sacred foods (along with beans and squash), so sacred that some groups even worshiped it. Indeed, Native American mythology is rich with stories involving corn and important religious events. Many eastern tribes shared their knowledge of corn production with the early European settlers, an act which saved many pioneers from starvation.

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Uses of Corn

Along with wheat and rice, corn is one of the world's major grain crops. It is the largest grain crop grown in the U.S. Corn has been used as a foodstuff for humans. Corn has found its way into a wide variety of American foods. These foods include corn kernels, corn meal, and other food products such as: cooking oils, margarine, and corn syrups and sweeteners (fructose), to name a few. Corn is also an excellent source of carbohydrates.

Corn cobs have been used as a soft-grit abrasive and to provide furfural, a liquid required in the manufacturing of nylon fibers. Corn has been used as a source for producing degradable plastics. Additionally, ethanol (a type of renewable fuel made from corn) has become a major fuel for the world's automotive industry. From foods of the past to fuels of the future, this highly diverse crop has played a major role in human civilization.

Corn Development and Growth

As miraculous as the many uses for corn may be, the way corn develops and grows is equally fascinating. A single seed (or kernel) of corn may produce a plant which yields more than 600 kernels of corn per ear. To understand the vast amount of seed produced by corn plants, consider the following example: A single kernel can produce a plant that will contain at least 600 kernels per ear. On one acre of land, anywhere from 22,000 to 35,000 individual plants may be grown. If each plant produces at least one ear of corn, the yield will be 13,000,000 (thirteen million) kernels of corn from that single acre. (In general, hybrid corn is developed to produce from one to two ears per plant.)

A 400-acre farm would then yield over five billion kernels from its production. In addition, consider that U.S. corn yields have increased 125% since 1950.

Environmental Conditions

Temperature

The best temperatures for corn growth range between 68°F and 73°F. However, the optimum temperature varies over the corn growing season and between daytime and nighttime. Corn yield may vary if the temperatures are too hot or too cold. Late in the season, a long exposure of corn to temperatures below 28°F can damage corn. Corn yield may also be reduced due to high air temperatures (95°F and higher) during pollination.

Precipitation

Highest corn yields can only be obtained under optimum moisture conditions during the growing season. Moisture stress at any of the growth stages will result in potential yield reduction. Corn has generally high water requirements and generally needs more than 19 inches of rainfall in a growing season. The amount of water needed can also vary by length of the growing season, and by the temperature. Higher temperatures require more water.

Growing Season

Most corn needs 140 frost free days to germinate and grow through maturity and harvest. Hybrids have been developed to shorten this to as few as 120 days.

Source

Michigan Dept. of Agriculture: www.michigan.gov/ mda/0,1607,7-125-2961_2971_34984-77056--,00.html