Garden Talk

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Chicagoland Grows

New plants for our homes and commercial landscapes is the goal of a new research venture of the Chicago Botanic Garden. The new program, entitled Chicagoland Grows, will be presented at the joint University of Illinois Extension and Ornamental Growers Association of Northern Illinois (OGA) summer symposium and workshop to be held at Berthold Nurseries in Elk Grove Village on August 20.

One of the purposes of the Chicago Botanic Garden is to develop the science of horticulture and all activities related to the study, propagation and culture of plants. Furthermore, we are charged with the responsibility to stimulate and foster interest in horticultural pursuits. There is no better way to accomplish these two goals than to provide new plants through research and development.

We have chosen to develop the new program of plant introduction with the commercial nursery industry. Such a cooperative venture will make good use of both our own research and horticultural personnel and facilities, as well as capitalizing on the expert knowledge and experience of the industry.

The name Chicagoland Grows denotes that plants produced and released through this new program are suitable for use in our area. It also alerts growers and retailers in other states and foreign countries that the plants released from the program have a wide range of adaptability since our climate can best be described as a severe and difficult one for successful plant culture.

In addition to cooperating with the nursery industry, we are working closely with the Morton Arboretum, a sister institution that has been conducting plant selection and development trials of woody plants for many years. A steering committee consisting of members of our own staff, the OGA and Morton Arboretum has been established to guide the program. Expert advice is being sought from other researchers in bordering states.

The program has been designed to seek out the best new plants and to reintroduce recommended, previously well-known plants for the Chicagoland area. To accomplish this task, we are seeking plants of exceptional horticultural quality from all sources, that can be readily produced by the industry and marketed successfully. A survey has been initiated of existing plants in the area to find those special plants. The collections at the Botanic Garden are being evaluated for this purpose. Nurseries have conducted an initial survey of their own holdings and a preliminary list of potential plants for the market has been established.

An evaluation process will be conducted on potential plant candidates and ratings will be determined by the following criteria: (1) sale to public authorities, (2) sale to retail outlets, (3) sale from retail outlets, (4) use by local authorities, e.g., parks and highway plantings, (5) use by landscape architects and designers, and (6) use by large contractors on large scale projects.

It is anticipated that two to three plants per year will be released from the program. The initial plants released will include some of the faster growing ground covers, later releases will include long-lived woody trees and shrubs. The latter introductions will take more time for evaluation and production. Care must be taken that a proper evaluation procedure has been conducted on each introduction to insure that the plant from the program is worthy of its name and value in the industry.

Don Brennan, part of the Garden's research team, studies a Japanese cherry tree in the Research Garden.

The success of the program will fall largely on the staff of the Chicago

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Learning Adventures

"Learning Adventures" is a new bimonthly feature of **Garden Talk** written expressly for children. It appears on page 8 and includes interesting facts about the plant world as well as fun learning activities. We encourage parents to read through the article with their children to help them complete the exercises.

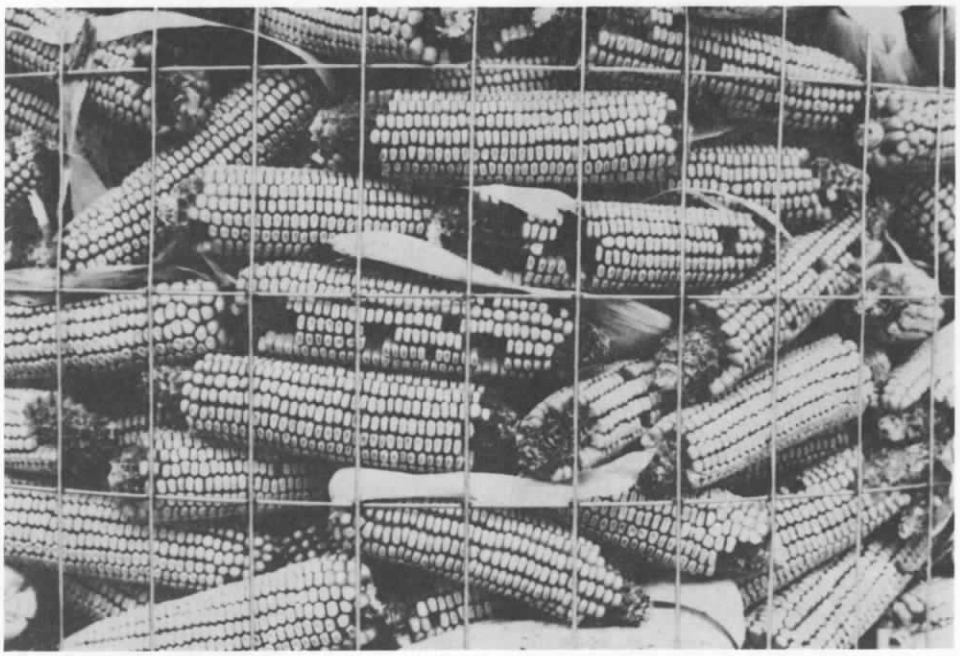
The Plant World

Amazing Maize

Corn (*Zea mays*) is one of the oldest cultivated grains in the world. The relationship between humankind and corn is a fascinating historical account of the growth of civilizations in the Americas. As the only cereal grain to originate in the New World, corn was the mainstay of three Pre-Columbian empires in Central and South America; the Aztec, Inca, and Maya. In 1492 Queen Isabella of Spain sent Columbus to the New World in the hopes that he would return to his mother land with gold and spices. Indeed Columbus returned, but he had little gold and no spices. His treasure consisted of peppers and several seeds of a grain that was to become one of the most historically important fruits of the earth; maize. Columbus provided the first written reference to this New World discovery.

"There was a great deal of tilled land sowed with a sort of beans and a sort of grain they call 'mahiz' which was well tasted baked, dry'd and made into flour."

The word "corn" actually means grain, specifically the common grain in any area. "Corn" in Japan is rice and "corn" in Egypt is wheat. The Indians and Columbus called corn "maize." The colonists called maize "Indian corn" and we simply call it corn.



A giant corn crib, filled with cobs, is part of the "Amazing Maize" Exhibit in the Fruit and Vegetable Garden.

The Origin Of Corn

The origin of corn remains a mystery and a topic of controversy among scientists. For years botanists and geneticists have tried to identify the wild parents of corn. Teosinte (*Euchleana mexicana*), an annual wild grass native to tropical Central America, is now believed to be its nearest relative. Teosinte and modern corn both have tassels, ears and a chromosome number of 20. Teosinte, however, appears very different because it has small ears with only 5-6 kernels or seeds.

Archeological evidence indicates that corn was first cultivated in Mexico about 7000 years ago. Tiny, one inch cobs enclosed in a thin husk were uncovered in a cave just outside Mexico City. Larger cobs, 2-3 inches long, were also found. Scientists believe these larger cobs resulted from the Indians selecting and cultivating superior kernels. In 1948, archeologists found 5600 year old popcorn at Bat Cave, New Mexico, representing the most ancient and primitive maize found in the United States.

Artifacts uncovered by archeologists in Central and South America suggest that corn was a religious symbol intricately woven into many aspects of Indian life. Paintings depicting corn have been found on the walls of ruins, and corn cobs and ceremonial objects with corn motifs have been found buried with the dead. Anthropologists speculate that the Indians believed corn to be a gift of the corn god or goddess, a supreme being who decided if there was to be a plentiful harvest. Corn rituals were performed during the planting season to insure a bountiful crop.

In 1620, when John Smith and the Pilgrims landed at Plymouth Rock, they fortunately found caches of corn buried by the Indians of that area. This cereal treasure played a crucial role in the survival of the English Colony. Squanto, an English speaking Indian, successfully taught the colonists how to plant corn. The Pilgrims owed much to the Indians and thanked them for a 21 acre bountiful harvest with a celebration we now know as Thanksgiving Day.

As the populations and food demands of urban centers grew, problems began to develop. It was getting increasingly difficut to transport corn from the fields to the eastern markets. This encouraged the government to build roads, canals and railroads to move the corn east.

The railroad expansion opened the door to the fertile soil of the midwest,

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Amazing Maize

Don't miss the "Amazing Maize" exhibit on the Fruit and Vegetable Island. This interpretive display explores the importance of corn, it's historical, social and economic significance to American culture. The Exhibit was researched, curated and written by Randi Korn, Manager, Interpretation Program. The design and construction was completed by Exhibit Manager Roger Vandiver and Graphics Specialist Nancy Snyder.

The Exhibit will be on display in the exhibit area in the Fruit and Vegetable Garden through October.

Amazing Maize

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an area we now know as the Corn Belt. By the 19th century, corn was an important food and feed grain and a symbol of Americana. Today the Corn Belt, extending from Ohio to Nebraska, including most of Indiana, Illinois and parts of Michigan, Wisconsin, Minnesota, South Dakota and Missouri, produces over 40% of the world's corn.

The City of Chicago, founded in 1833, became the trading center for this new agricultural heartland. Overland transport was abundant, as most rail lines passed through Chicago and water transport was provided by Lake Michigan. The Chicago Board of Trade, established in 1848, became the leading market for corn and other grains. By 1870 Chicago was an established food center in North America.

What is Hybrid Corn?
Hybrid corn is the offspring of a cross between two different parent plants. When the genes of the parent plants blend together, the offspring is often more vigorous than either parent. The negative characteristics are reduced and the positive attributes are enhanced. Important features of hybrid plants include increased yield, resistance to pests and the ability to withstand wind or rain.

The first hybrids were introduced to the public in 1924. Farmers were particularly interested in the idea because of the increase in yield per acre. In 1933, less than 1 percent of the Corn Belt was planted with hybrids. By 1943, hybrid plantings had increased to 78 percent. Today all of the Corn Belt is planted with hybrids.

Corn Belt farmers were pleased with hybridized corn. They started to request corn be unblemished and uniform in size and ripening time. Man's effort to grow uniform corn was met with disaster 15 years ago. A field of corn planted in one variety with all plants having identical characteristics causes problems; if infected, that entire corn field is susceptible to the same disease. In 1971, the disease, Southern Corn Leaf Blight, spread to the Corn Belt and killed 15% of the corn crop. It is important that genetic variability be preserved or any agricultural crop may be wiped out by disease in any given year.

The United States National Seed Storage Laboratory in Fort Collins, Colorado stores and cares for seeds for almost every crop grown. This seed bank, a source for genes that were not susceptible to the disease, was instrumental in halting the 1971 Corn Blight. Currently over 15,000 different types of corn seeds are preserved in the Fort Collins Laboratory

Zea mays
Carolus Linnaeus, the Father of Taxonomic Botany, named and described the corn plant *Zea mays* in his famous text *Species Plantarum* published in 1753. *Zeia* in Greek means "single grained wheat."

Corn is a member of the grass family *(Poaceae)* which also includes such grains as wheat, oats, barley and rice. *Zea mays* consists of thousands of varieties. Today, the most commonly used commercial varieties of corn are flint, flour, dent, pop and sweet corn. The modern system for classifying corn is based on the texture of the kernels.

Flint is the corn type the Indians taught the settlers to grow. Dent and flint corn are considered field corn and fed to animals. Flint corn has hard kernels with a smooth coat.

Flour corn, grown in Central and South America, has soft, easy-to-grind kernels. The ground flour is used to prepare tortillas and tamales.

Dent corn, the most common commercial variety, is grown by most farmers in the midwest. As the corn ripens, the starch in the soft kernels shrinks. This gives the kernels a dented or wrinkled appearance.

Popcorn kernels are small, sharply pointed, hard and glossy. Popcorn, considered the oldest type of corn, is the only commercial variety that pops. The water stored in the starch inside the kernel is composed of molecules. Like all molecules, when exposed to heat they move apart. As the water heats and steam is created, the starch softens and expands in size. The hull surrounding the soft starch resists the pressure of the expanding molecules. The soft starch pushes out and the corn pops inside out. The steam is released into the air.

Sweet corn is the variety of corn we grow in our gardens. It resembles flint corn, but the kernels are translucent and contain more sugar than starch.

Corn is the most important feed grain in America. It yields more caloric energy per acre than any other livestock crop. Corn is also an integral part of our diet; we eat it in the form of meat, cereal and bread, and we eat it off the cob. In 1985, the United States corn industry sold 24 billion dollars worth of corn. Though much of the corn grown in the United States is fed to cattle, a substantial amount appears in processed foods and industrial products we use everyday. The most widely used corn product is cornstarch. A survey of any kitchen pantry is enough evidence of how dependent we are on this versatile member of the grass family. There is no doubt that corn is the cereal grain that built civilizations.

Randi Korn
Manager, Interpretation Program

Weather Station

June's weather was very erratic, switching back and forth from hot summery weather to cold, gloomy weather. We had a little more rain than usual: 4.85 inches, compared to June's average of 4.15 inches. Temperatures were a little chillier than normal. Our average high of 75.6 degrees and low of 54.5 degrees were 3.5 degrees cooler than normal. Our highest temperature in June was 92 degrees on the 21st and the lowest was 40 degrees on the 3rd. We had three consecutive days of fog and 12 days on which rain fell.

Celeste VanderMey
Plant Records