

# What is growing in fields around Johnston County? Field Corn



When we think about corn, we think about sweet corn, popcorn, decorative corn, and cornbread made with white corn, but yellow field corn was America's largest crop by acreage in 2019. From its origins in central Mexico as a wild grass called teosinte, corn became a major food source for people living in North, Central, and South America. Today, field corn is the most widely produced livestock feed grain in the United States, accounting for more than 95 percent of total production and use. Field corn is also processed into a multitude of food and industrial products, including:

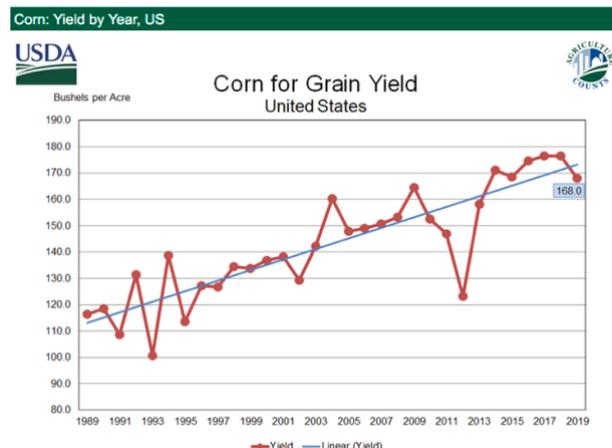
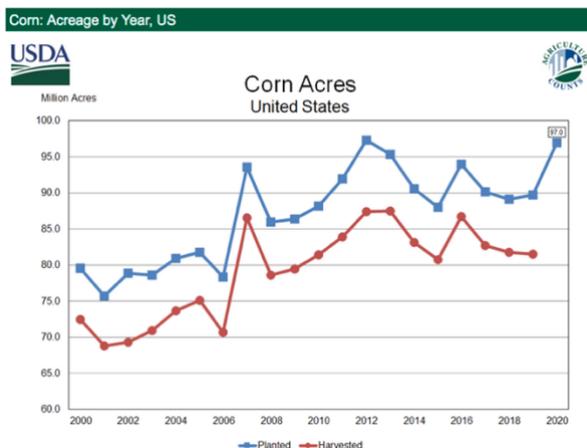
- starch, • sweeteners, • cereals, • chips, • corn oil, • beverage industrial alcohol, • bio-degradable packing materials, and • fuel ethanol. It's the key ingredient in the growing medium for life-saving medicines, including penicillin. Corn gluten meal is also used on flower beds to prevent weeds.

About a third of America's corn crop is used for feeding cattle, hogs, and poultry in the United States. Field Corn provides the "carbs" in animal feed, while soybeans provide the protein. Just over a third of the corn crop is used to make ethanol, which serves as a renewable fuel additive to gasoline. The United States is also a significant player in the world corn trade market, with between 10 and 20 percent of its corn crop exported to other countries.

## ***Why does field corn have the most acres of any major crop in the U.S.?***

It can be grown in nearly every state in the United States. Seed companies provide hybrid, organic, and bio-engineered varieties that are specially bred to be the best for different soil and weather conditions in arid and humid climates.

In 2019, farmers in the United States planted 90 million acres of field corn with an average yield of 168 bushels/acre.



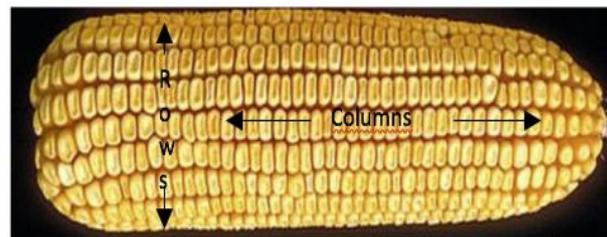
North Carolina farmers harvested a little under one million acres of field corn with an average yield of 104 bushels/acre. In 2019, Johnston County farmers harvested 10,000 acres of field corn with an average yield of 80 bushels/acre. Yield varies from year to year based on weather conditions

Most of our corn crop in Johnston County is used as the primary energy ingredient in livestock feed. Estimates gauge the need for corn as a feed source for North Carolina hogs, chickens, and turkeys at roughly 310 million bushels per year.

Corn in Johnston County can be planted when soil temperatures reach 55°F at a 2-inch depth, and the weather forecast shows a good chance of warm temperatures over the next few days. In most years, Johnston County soils are ready for corn planting in late March. Corn germinates and emerges faster in warmer soils with temperatures above 60°F. Corn can be planted in wide rows as seen above, narrow rows and twin rows. Corn growers have experimented with row widths trying to increase yields by increasing plant populations. Narrow and twin rows allow for growers to plant more corn in a row while keeping seed 7-9 inches apart. The heavier the land, the more corn you can plant per acre.



Most people do not know that ear size determination (# of rows and columns) of the uppermost, harvestable ear begins by the time a corn plant has reached knee-high before you can see the ear shoot. It continues to grow larger in size until 7 to 10 days prior to silk emergence but will not add on any more columns or rows.



- Count the rows (r).
- Count the kernels (k) per row.

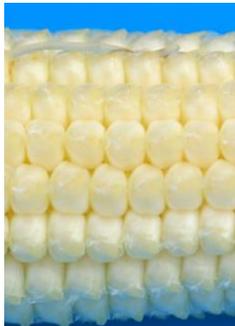
Another interesting fact is that corn yields are influenced more by summer heat and rainfall than most other crops grown in North Carolina, especially hot and dry conditions during corn ear pollination. Corn is pollinated when pollen falls from the tassels onto the silk. Individual silks lead to a potential kernel of corn. Corn maximizes its growth rate at 86°F. Days with temperatures hotter than that cause stress. In years when we get high day and nighttime temperatures coinciding with the peak pollination period, we can expect problems. Prolong heat with dry weather makes the issue worse.



The grain fill period begins with successful pollination and initiation of kernel development, and ends approximately 55-65 days later when the kernels are mature. During this time, the health of the upper leaf canopy is particularly important for achieving maximum grain filling capacity. Some research indicates that the upper leaf canopy, from the ear leaf to the uppermost leaf, is responsible for no less than 60% of the photosynthate necessary for filling the grain. Photosynthate is the resulting product of photosynthesis. These products are generally sugars that are broken down to create energy for use by the plant.

During this 55-65 day period, the corn ear goes through five growth stages (table listed below). Kernel moisture content at black layer averages 30 percent, but can vary from 25 to 40 percent grain moisture depending on hybrid and growing conditions. Most growers allow corn to dry down to under 20% and field dry in 15% moisture.

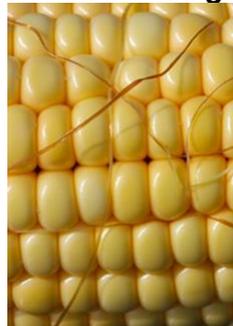
### ***Five Growth Stages***



1.) Blister



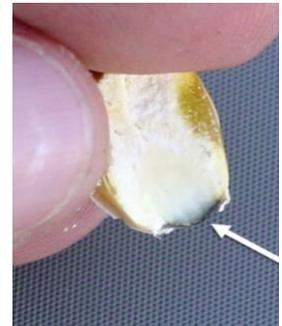
2.) Milk



3.) Dough



4.) Dent



5.) Black Layer

Next time we see a field of corn, remember this information. Growers all over the state put a lot of time, energy, and money into growing a corn crop and that crop feeds a lot of people in many different ways. Let's all hope for a good growing season.

