Harvest of the Month

Florida SWEET CORN



Meet Your Farmer



Bring classroom learning to the farm to show your students how sweet corn is grown. Take your class to a Florida corn field to see it being harvested, or plan a fall field trip to a corn maze to encourage your students to learn more about where their food comes from and maybe inspire a future farmer.

For more resources, visit these websites: Florida Farm to School

FreshFromFlorida.com/FarmtoSchool

Find a corn maze near you: OnlyInYourState.com/Florida/ Corn-Mazes-2016-FL

2016-FL

Dear Teacher,

It's the end of the Harvest of the Month season, but the fun is just beginning. Florida sweet corn is taking center stage as the final product this school year. Carrie Corn is the star of the show in this month's hit story about one of the Sunshine State's top agricultural commodities.

Classroom Recipe

Florida Corn, Tomato and Avocado Salsa Serves 4

INGREDIENTS:

- 4 ears of Florida sweet corn
- 2 large Florida tomatoes, diced
- 1 large avocado, peeled, seeded and diced
- 1/2 cup red onion, finely chopped
- 1/2 cup Florida bell pepper, finely chopped

INSTRUCTIONS:

- Roast or boil the sweet corn. Chill and remove the kernels from the cob with a knife. Corn can be prepared ahead of time.
- 2. Combine all ingredients in a medium-sized mixing bowl and stir.
- 3. Taste and adjust seasoning with salt and pepper as desired. Add a few drops of your favorite hot sauce to add some extra kick.
- 4. Serve with whole wheat or corn tortilla chips.

This institution is an equal opportunity provider.



Florida Department of Agriculture and Consumer Services Adam H. Putnam, Commissioner



1/4 cup fresh cilantro, torn or

• 1 teaspoon powdered cumin

• Sea salt and fresh ground

pepper to taste

chopped

Hot sauce

• 1 lime, juiced

Harvest of the Month

Class Chatter

Did You Know?

- Visit a local farmer's market to find some unique corn varieties, such as yellow, white or bi-colored corn. Florida sweet corn is available from October to June. Look for the Fresh From Florida logo in your local grocery store.
- Corn is a member of the cereal grass family, and is related to other grains such as wheat, oats, barley and rice.
- An average ear of corn has 500 to 1,000 kernels.
- One ear of corn contains about the same amount of calories as a banana.

Tasty Tips



- Purchase sweet corn with the husks still attached. Look for green-colored husks and lots of silk tassels coming from the top of the ear.
- Store corn in the refrigerator with the husk still on to preserve the freshness. Freshly picked corn can last in the refrigerator for up to a

week, provided it has not been stored in the sun or exposed to heat for long periods of time.

- Remove kernels from the cob by standing the corn on end on a cutting board and cutting down the cob with a sharp knife.
- Corn can be creamed, made into chowder, boiled or roasted. Add fresh corn to salads or mix it with non-starchy vegetables.
- Steam corn for five to seven minutes, or try roasting and grilling it for a smoky flavor. Do not add salt to the water when boiling corn as this toughens the kernels when cooking.



All About Serving Size

While there is no percent daily value listed for sugar on the nutrition facts label, health experts recommend keeping your intake of sugars as low as possible as part of a nutritionally balanced diet. Sugars listed on the Nutrition Facts label include both naturally occurring sugars (like those in fruit, milk and starchy vegetables) as well as those added to a food or drink. You can check the ingredient list to locate any sources of added sugars.

Nutrition Facts

Serving Size: 1 medium ear

Amount Per	Serving				
Calories 9	5	С	alories from	Fat 0	
			% Daily	Value*	
Total Fat 1	g			0%	
Saturate	ed Fat 0	g		1%	
Trans F	at 0g				
Cholester	ol Omg			0%	
Sodium 1n	ng			0%	
Total Carb	ohydra	te 2	1g	16%	
Dietary	Fiber 2	g		10%	
Sugars	5g				
Protein 3g					
Vitamin A	2%	•	Vitamin C	7%	
Calcium	0%	•	Iron	3%	
*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.					

Good for Your Body

- Corn contains several B vitamins, which are essential for supporting the body's metabolism, producing energy and aiding the body in fighting disease and infection.
- Corn is a good source of vitamin C, magnesium and phosphorus.
- Zeaxanthin and lutein are two antioxidants found in corn that play a role in promoting eye health.
- The fiber found in sweet corn helps provide fullness after meals, which can help you achieve and maintain a healthy weight.



Sweet Corn

Corn, or maize, was first domesticated in Mexico over 10,000 years ago. World explorers introduced this staple crop to other countries where it grew in popularity due to its ability to thrive in diverse climates.

There are six major types of corn:

- Dent
- Pod
- Flour

- Flint
- Popcorn
- Sweet



Sweet corn is a variety of maize with a high sugar content that developed as a result of a naturally occurring mutation in the genes that control the conversion of sugar to starch in the corn kernel. While most corn is picked when it reaches full maturity and is turned into grain for animal feed or processing, sweet corn is picked at the peak of ripeness to be consumed fresh. Since sweet corn is harvested before the kernels dry out, it must be eaten fresh, canned or frozen. Sweet corn is one of Florida's top agricultural commodities.

Growing Corn

Fresh sweet corn is a tasty treat. This unique plant is fun to grow but needs some special attention due to the way it reproduces. Visit Bonnie Plants and the University of Florida IFAS Extension resource page to learn how to grow sweet corn in your home or school garden.

Label the parts of a pepper using the word bank below.

WORD BANK

lassel	Husk
Ear	Silk
Leaf	Roots



Science, Technology, Engineering and Math Connection

Three Sisters Plot

Corn is a traditional crop that was initially grown and cultivated by indigenous cultures in Mexico and is now an important world food crop. This staple crop was often grown in a companion planting cropping system known as the "Three Sisters." When planted together, the three crops (corn, beans and squash) are more productive and produce more food than if they were planted in a monoculture system.

Working in teams, students will design a planting plan for a traditional Three Sisters plot and research the biological interactions of this polyculture planting system. Considering how corn, beans and squash plants grow and the environmental conditions they experience throughout the season, prompt each group to consider the following points in their planting map:

- Required plant spacing for each of the crops
- Desired row spacing for each crop
- Different spacial arrangements to maximize crop spacing
- Common insect pests and diseases of the Three Sister crops
- Physical traits of these plants that help combat pests and disease
- Factors that influence production yields
- Cultural methods to manage pest and disease (Integrated Pest Management)
- Other considerations (symbiotic relationships, biological synergy)

Encourage your students to utilize the following resources to research how to grow corn, beans and squash in Florida:

- <u>Corn UF/IFAS Gardening Solutions</u>
- <u>Companion Planting -</u> <u>Sarasota UF/IFAS County Extension</u>
- <u>Seminole Pumpkins –</u>
 <u>UF/IFAS Gardening Solutions</u>
- Florida Vegetable Guide
- How to Plant the Three Sisters Cornell University





Photo Credit: Soilent Greens

Sunshine State Sweet Corn

Currently, the United States produces nearly 40 percent of the world's corn harvest. China, Brazil, Argentina and the Ukraine are the next top corn producing countries.

Florida produces more sweet corn for the fresh market than anywhere else in the United States, with Palm Beach County leading the way, holding over 27,000 acres of land devoted to growing this crop. Sweet corn needs an extended period of frostfree weather after planting, so the mild weather during the fall, winter and spring make Florida an ideal place to grow sweet corn. Rainfall is also important to the development of this crop as corn needs almost 20 inches of water in a single growing season. Adequate rainfall helps reduce the need to use irrigation on the corn fields. Typically, growers in south Florida will plant from October to March, in central Florida from January to April and in north

Florida from February to April. It takes 75 to 90 days for sweet corn to grow before it is ready to be harvested.

Some of the most productive sweet corn counties in Florida are:

Collier Dade Hendry Jackson

Manatee Orange Palm Beach Suwannee



Young Corn Field

Below is a table of the monthly average temperatures and rainfall totals observed during the sweet corn season for each of the counties listed above.

County	October		November		December		January		February		March		April	
	Rain (")	Temp (°F)												
Palm Beach	3.82	76.9	2.67	70.8	1.90	65.7	2.15	63.2	2.39	65.5	4.12	68.8	2.62	72.4
Dade	4.84	80.5	2.59	74.7	1.45	70.0	1.68	67.8	1.81	69.8	2.43	71.9	2.31	74.7
Collier	3.02	76.7	2.06	70.4	1.79	65.2	2.18	62.8	2.48	65.2	2.93	68.0	2.39	72.0
Hendry	3.42	75.3	2.20	68.6	1.83	63.2	2.04	60.8	2.28	64.1	3.32	66.6	2.31	70.6
Suwannee	3.38	71.2	2.31	63.3	2.87	56.2	4.60	54.6	4.11	58.0	5.23	63.1	2.96	68.5
Jackson	3.42	68.6	4.12	60.0	3.91	52.4	5.04	50.3	4.94	54.5	5.54	60.2	3.71	66.7
Orange	3.31	75.5	2.17	68.5	2.58	62.6	2.35	60.2	2.38	63.0	3.77	66.9	2.68	71.2
Manatee	2.83	75.9	2.22	69.2	2.50	63.5	2.83	61.5	2.55	64.2	3.99	67.6	2.15	71.5

*Data provided from the National Centers for Environmental Information

When The Wind Blows

Beyond looking at seasonal temperatures and precipitation, wind is also an important environmental factor in corn production. Corn is a unique plant that relies on the wind to reproduce. Pollen, which

is produced by the tassels at the top of the corn plant, is carried by the wind to the silks attached to the ears of corn. If the silks become pollinated, a kernel will develop. All varieties of corn grow best in blocks of several rows planted about 3 feet apart from each other. Corn is planted with a special machine to ensure the seeds (dried corn kernels) are precisely planted 4 to 6 inches apart. This ensures that the plants grow close enough together to be pollinated by the wind. Wind is essential for corn production, but strong winds can also damage the plants.



Prolonged heavy rains can saturate the soil in the corn fields, causing the soil to soften and become loose. These soft soils do not cause a problem for well-developed corn plants, but for young plants that are just getting established, this can lead to issues if a strong wind accompanies the rain storm. The fibrous root systems anchor the corn plant into the soil, but the combination of soft soils and strong wind speeds will cause the roots to become dislodged. Root lodging is the term used to describe a root system that is pulled out of the soil on the windward side of the plant, but pushed deeper into the soil on the leeward side. In more extreme cases, the corn plant can lean more than 45 degrees. Similar damage can occur if the soil is extremely dry during early stages of growth as this may prevent the roots from developing properly.



Stalk breakage, also called green snap, is common following a period of strong winds. Corn plants that are rapidly growing have brittle cell walls, making them more susceptible to stalk

> breakage. The corn plants can break at any point along the stalk, from the base of the plant near the soil surface all the way to very top of the plant where the tassel will form. Green snap can cause a reduction in the number of ears a corn plant is able to produce and may even destroy the entire plant.



Wind is the horizontal motion of air and is a direct result of pressure differences across a geographic location.

Wind is measured in two ways:

- Wind vanes measure the direction it is coming from.
- Anemometers measure the wind speed.

Air flows from areas of higher pressure to areas of lower pressure. The greater the difference in pressure between the two areas, or the closer the two areas of differing pressure are to one another, the stronger the wind. The wind will always blow to try to equalize these differences, so the wind direction flows from high pressure to low pressure.

Wind gusts are rapid fluctuations in the wind speed with a variation of 10 knots (~11.5 mph) or more between peaks and lulls. Many weather phenomena can create these peaks in wind speeds.





• Hurricanes

- Strong Cold Fronts
- Thunderstorms

- Winter Storms
- Sea Breezes

Reviewing what you've just learned about how wind can affect sweet corn, explore the possibility of growing this crop in your school garden.

Use the WeatherSTEM station in your county to explore some different weather variables. To find the closest WeatherSTEM station to you, use the link below, but replace 'your-county-name' with the name of the county where your school is located:

https://your-county-name.weatherstem.com

(For example, if your school is located in Leon County, visit https://leon.weatherstem.com)

Select an available WeatherSTEM station in your county and write down the current values for:

CURRENT TEMPERATURE	۴
LOW TEMPERATURE FOR THE DAY	۴
HIGH TEMPERATURE FOR THE DAY	۴
RAINFALL (LAST 24 HOURS)	
WIND SPEED	mph
WIND DIRECTION	

Using the data mining tool on the website, go back and look at the rainfall data for the last two weeks (14 days).

To do this:

- 1. Click on and select "10-minute Wind Gust."
- 2. Scroll down to the bottom of the page, select the time period from the calendar.
- 3. Make sure that "Chart" is selected as the output format.
- 4. Set the interval to "Minute" and select "Data Point" as the operation.

Write the highest wind gusts you see on the graph on a sheet of paper. Click on the graph and a pop-up should appear with a picture from the WeatherSTEM cloud camera, and radar and satellite images. What can you say about the weather on the day you selected?

Activity #1

Look at the wind speed and rainfall data from the day(s) with the highest wind gusts. Use the same steps listed to plot the 10-minute wind gusts and add the rainfall (rain gauge) data to the graph.

Answer the following questions:

- 1. What are some of the things you first notice about the data on the graph?
- 2. Why do you think this is the case?
- 3. How did you come to these conclusions?
- 4. How do you think the weather would impact corn plants in your area?

Activity #2

Compare data from a station outside of the state of Florida. Follow the same steps above and the graph will show wind speed and rainfall from two different WeatherSTEM stations. Find a partner to discuss the graphs and answer the following questions:

Answer the following questions:

- 1. Why would the values be different between the two locations?
- 2. How can the location and local weather impact these observations?

Additional Resources: Explore these other WeatherSTEM lessons





weatherstem.com/resources