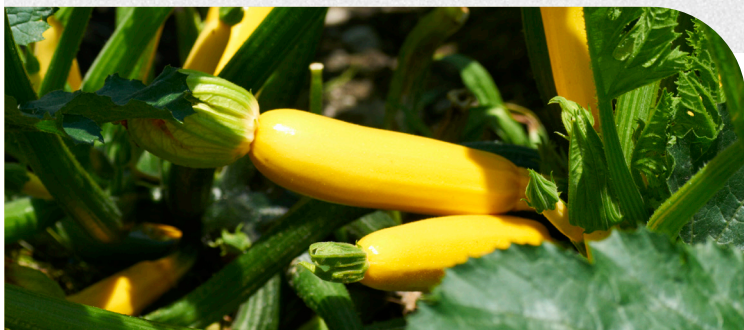




FLORIDA YELLOW SQUASH



SPECIAL NEWS

Florida has a booming agriculture industry. The fall and winter seasons are some of our most productive months. Students can learn first-hand where their food comes from by visiting a local farm to see how fruits and vegetables are grown all across the state. Farmers markets are another great way to introduce your class to their regional food system and meet some local growers.

To plan a farm field trip or find a farmers market in your area visit these websites:

Florida Farm to School

FarmToSchoolFL.com

Community Farmers Markets

FDACS.gov/Consumer-Resources/Buy-Fresh-From-Florida/Community-Farmers-Markets

Florida Farm to School:
FarmToSchoolFL.com

National Farm to School Network:
www.FarmToSchool.org



DEAR TEACHER

This month's Harvest of the Month product is the yummy yellow squash! Let's take your class on a fabulous farm tour of Florida's squash industry. So grab a seat and let's learn more about this scrumptious squash.

CLASSROOM RECIPE

GARLIC PARMESAN YELLOW SQUASH CHIPS

Serves 20-25

INGREDIENTS:

- 4 Florida yellow squash, sliced into ¼-inch to ½-inch rounds
- 3 tablespoons olive oil
- Salt and fresh ground pepper, to taste
- 1 cup panko crumbs
- 1 cup grated Parmesan cheese
- 1 teaspoon dried or 1 tablespoon fresh oregano
- 1 teaspoon garlic powder
- Cooking spray
- Non-fat plain yogurt (dip)
- Parchment paper

PREPARATION:

1. Preheat home oven to 450 degrees Fahrenheit, or school convection oven to 400 degrees.
2. In a large mixing bowl, combine squash, olive oil, salt and pepper and mix until well combined.
3. In a separate bowl, combine panko crumbs, Parmesan cheese, oregano, and garlic powder. Dip slices of squash in the cheese mixture and coat on both sides, pressing on the coating to stick.
4. Place the squash in a single layer on a baking sheet lined with parchment paper. Lightly spray each slice with cooking spray for crunchier chips. Bake for 10 minutes.
5. Remove from oven; gently flip over all the slices, lightly spray with cooking oil and bake for 8 more minutes, or until chips are golden brown. If using school convection oven, reduce baking time by 2 minutes on each side.
6. Remove from oven and transfer to a serving plate. Offer a sample to your students with a dollop of non-fat plain yogurt.



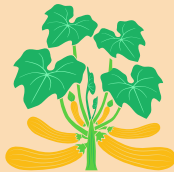
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CLASS CHATTER

DID YOU KNOW?

- Florida mainly produces yellow squash and zucchini (summer squash), but the state also grows acorn and butternut squash (winter squash).
- Native to Central America, Florida yellow squash grows abundantly in West Central and South Florida.
- Squash is predominantly grown in Collier, Dade, Hardee, Hillsborough, Lee and Manatee counties.
- Squash contains fiber and a variety of nutrients, including vitamin C.
- Yellow squash is low in calories, sodium, and fat, and contains more than 95% water.
- When cooking summer squash, try it baked or grilled to help evaporate some of the moisture in the squash.
- For a low-calorie snack, wash and cut small squash into strips, slices or chunks, and eat them with low-fat dips or hummus or add them raw to salads!



SQUASH TIPS

- Summer squash is a warm season plant that grows best in temperatures between 65° and 75°F.
- You can buy Florida summer squash from October through July. This is ten months out of the year!
- Do not leave large summer squash on the vines because this will stop the growth of more squash.

ALL ABOUT SERVING SIZE

The size of the serving on the food package influences the number of calories and all the nutrient amounts listed on the top part of the label. Pay careful attention to how many servings there are in the food package and ask yourself, “How many servings am I consuming?”

Nutrition Facts

Serving Size: 1 medium yellow squash			
Amount Per Serving			
Calories 31		Calories from Fat 0	
		% Daily Value*	
Total Fat 0g			
Saturated Fat 0g		0%	
Trans Fat 0g		0%	
Cholesterol 0mg			
Sodium 4mg			
Total Carbohydrate 7g		5%	
Dietary Fiber 2g		9%	
Sugars 4g			
Protein 2g			
Vitamin A 3%		Vitamin C 44%	
Calcium 3%		Iron 4%	
*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.			

ADDITIONAL RESOURCES

Check out these additional resources:

- [Summer Squash](#)
- [UF/IFAS](#)
- [How to Grow Squash](#)
- [All About Squash](#)

Informational Books and Articles

- “Vegetable Gardening in Florida” by James M. Stephens
- “The Hive Detective” by Loree Griffin Burns
- “Summer Squash Gets Some Respect” by Julie O’Hara



LESSON PLANS

CONTENT AREAS: Lessons are most applicable for science and environmental science courses but the content includes standards from social studies, art, language arts and especially math.

STANDARDS: SC.7.L.16.2, SC.7.L.16.1, SC.7.L.16, SC.7.L.16.A, SC.7.L.16.B, SC.6.N.1.5, SC.6.N.1.3, SC.7.N.1.5, SC.7.L.17.2, SC.7.L.17.3, SC.8.N.1.5, LAFS.6.SL.1.2, LAFS.6.SL.1.3, LAFS.6.SL.2.4, LAFS.68.RST.I.1, LAFS.68.RST.I.2

OBJECTIVE: Students will use squash as the basis for applying Mendelian genetics and Punnett squares to predict the genotypes and phenotypes for breeding squash varieties. Students will analyze a creative writing story on squash and review the history and characteristics of squash.

MATERIALS:

- For Lesson: “Summer Squash Gets Some Respect” article and accompanying questions.
- For Project: Calculators are optional.

INTRODUCTION: Post the following warm-up problem to begin the discussion on yellow squash:

“There are approximately 100 varieties of the squash species (*Cucurbita pepo*). Of these 100 species, 75 are edible. What percentage of squash species are edible?” Answer: $75/100 = 75\%$

*Allow time for students to answer “warm-up.” Review as a class. Ask students what varieties of squash they have tried in the past. Record their responses on the front board. What variety is the most common?

GUIDED ACTIVITY: Students will read the “Yellow Squash in Florida” background information. Next, they will read the creative writing piece from NPR entitled “Summer Squash Gets Some Respect.” Finally, students will complete the comprehension questions for the article. Discuss key points of the reading material, such as the origins and characteristics of squash.

Consider creating discussion cards for the reading. Provide small groups with a discussion card that they will need to answer and present to the class. Encourage students to use evidence from the text to support their presentations.

INDEPENDENT ACTIVITY: In a raised garden bed, plant four species of squash. Once the flowers begin to bloom, cross pollinate the different varieties by hand. Collect and dry the seeds from the mature squash and encourage the students to plant their hybrid varieties the following year.

RECOMMENDED WEBSITES TO REVIEW:

- <https://edis.ifas.ufl.edu/hs398>
- <http://forums.gardenweb.com/discussions/1918281/hand-pollination-of-squash>



BACKGROUND INFORMATION

Evidence of squash in the Americas dates back to over 10,000 years ago. It is one of the oldest known crops in the Americas. Squash is produced across the entire state of Florida. Florida is known for its summer squashes, like yellow squash, more than winter squashes, such as butternut squash.

“Although summer production is mainly for local markets, squash is one of the few crops in the state of Florida that is shipped every month of the year. Fall shipments to markets outside Florida peak in November or December and spring shipments peak in April or May.” (Mossier & Nessheim, 2004)

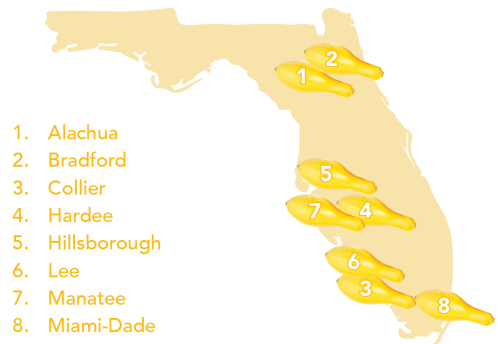
Squash is in the same family as pumpkins and gourds.

Summer squash grow best in temperatures around eighty degrees Fahrenheit. Most summer squash tastes best when it is harvested young, before it gets too large, or the rind skin becomes bumpy. The best way to harvest squash is by carefully cutting it from the vine. Leaving squash on the vine will stunt the growth of the new squash, so harvesting your squash when they're small encourage more squash to grow from the vine.

For more on these facts and additional information, please visit these sources:

- <http://edis.ifas.ufl.edu/pi046>
- www.hungrymonster.com
- www.burpee.com/vegetables/squash

Florida squashes are primarily grown in the following counties:

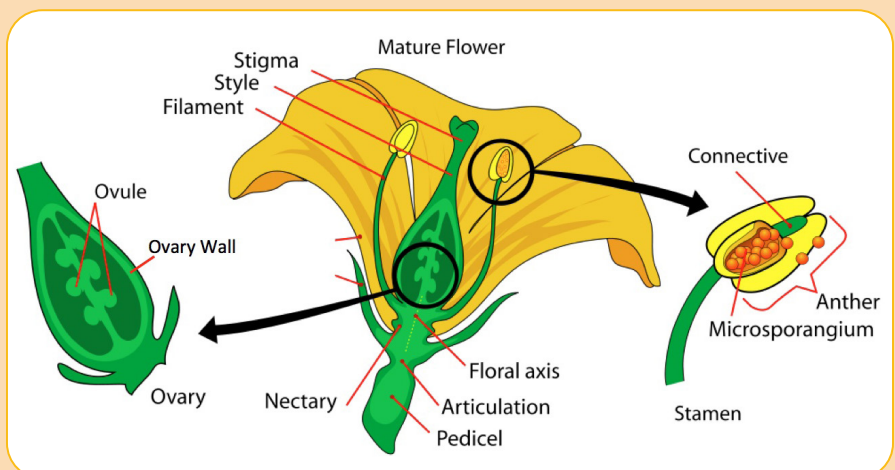


ANATOMY OF A SQUASH FLOWER

Squash are a versatile productive plant to grow in any school or home garden.

Visit [Bonnie Plants](http://BonniePlants) and the University of Florida IFAS Extension [resource page](#) to learn about growing squash plants.

Image credit: www.motherofahubbard.com
Adapted from Wikimedia Commons



SUMMER SQUASH GETS SOME RESPECT

by Julie O'Hara

Ah, summer squash, the blessing and curse of home gardeners - or so I hear. As the inhabitant of a fifth-floor condo with nary a balcony to grow a container garden, I can only dream of the slew of squash that would spring from my own patch of earth, if I had one. Along with sweet, jammy strawberries and delightfully ugly heirloom tomatoes, a backyard bounty can yield more squash than you would need to feed a team of vegetarian Olympic soccer players. Summer squash, in fact, grows so quickly and in such abundance under even the palest of green thumbs, that finding ways to eat it (or friends to hoist it upon) could become a competitive sport.

Zucchini and its kin are the sleeper hits among garden blockbusters such as tomatoes and berries. They may not be greeted with raves when you grill the first harvest of yellow crooknecks, but summer squash have the versatility and easy-going nature to sustain a long, successful run in your kitchen. So, when I hear the trowel-and-hoe set grousing about “drowning” in zucchini or being “buried alive” by pattypanns, I turn red with indignation.

As they commiserate wearily over the tedium of frying yet another batch of squash blossoms, I am gnashing my teeth - and getting slightly green with envy. Even gardeners who adore their prolific crops would probably consider me naive, but I can't help wishing for their affliction.

How to explain the spunk and staying power of summer squash in gardens year after year? For starters, this vegetable is not particular. An ancient crop native to North America, it grows happily from East to West during the warm months and may be planted any time after the last frost, from early spring through midsummer. It grows like a bush but doesn't spread like winter squash, which stretches its vines over everything in its path.

Also, summer squash is the ultimate instant gratification of the gardening world, ready for harvest just four to eight days after flowers appear. The most it demands is to be picked before leaving adolescence, when it is most sweet and tender, with small seeds and thin skin. Even if you do happen to blink and miss the moment of consequence, summer squash won't abandon you.

Larger specimens can be hollowed out and grated for quick breads or stuffed with a ragu of meat or veggies, with cheese and pine nuts sprinkled on top. Although circumstances dictate that I buy my summer squash at a market, I bring home an armload to use in different recipes throughout the week.

Though I'm guaranteed to find zucchini virtually year-round, this stalwart is all the more appealing when steamy weather dictates lighter dishes packed with summer produce and leafy herbs such as basil and mint. Now is



the time when you can supplement that creamy-fleshed zucchini (occasionally referred to as “vegetable marrow”) with yellow crooknecks and petite pattypanns in shades of pale green and yellow.

If you frequent a good farmers market, many more varieties await in an array of patterns and colors. Look for the globe-shaped or “8-ball” zucchini, for example, which is perfect for stuffing. If you are used to simply steamed rounds of green and yellow squash, perhaps accompanied by carrots or green beans for a trusty vegetable medley, then you are in for a treat.

Summer squash love a quick blast from a hot grill or broiler because they'll cook before going soggy due to their high water content. Sautéing is another easy way to bring out their sweetness. Chop the squash fairly small for fast cooking, and don't be afraid to let it get well browned and slightly caramelized.

Turn it into a substantial side dish by tossing with beans or steamed grains, a generous handful of herbs and some flavorful cheese like goat or feta. Add some shredded chicken, and you have a main dish salad, no dressing required.

One of my favorite techniques involves no cooking at all. Take fresh, young zucchini or yellow squash, remove the skin and make thin strips with a sharp vegetable peeler. The delicate squash ribbons have a slightly toothsome texture and mild vegetal flavor that lightens a summery bowl of fettuccine with grape tomatoes, garlic and basil. On their own, dressed sparingly with good olive oil and lemon, they make an easy and very pretty salad.

I suppose a backyard full of dizzyingly productive plants could fill me with the squash ennui that takes hold of some of the home gardeners I envy. However, I have a plan to avoid this sad scenario. I will use my days as a condo-dweller to create new and delicious ways to enjoy all the squash that I will eventually grow right between the orchard and the chicken coop. It's going to be a big backyard.

COMPREHENSION QUESTIONS

Directions: After reading the article “Summer Squash Gets Some Respect,” answer the following questions.

1. Why doesn't the author grow copious, large amounts of squash in her own home?
2. What is one reason the author states that so many people continue to harvest squash in the gardens of North America?
3. What are some of the growing properties and characteristics of squash that can be inferred from the story?
4. What would be an appropriate substitute for the phrase “instant gratification “ in paragraph eight, on the first page?
5. How would you differentiate the author's tone and purpose from the first page to the second page?
6. Of all the dishes with squash that the author recommends, elaborate on which would be your favorite to eat and/or prepare.

SQUASH GENETICS

GOAL: Students will use Punnett squares and the principles of Mendelian genetics to predict the genotypes, phenotypic ratios and probabilities of producing certain offspring when crossing different squash varieties.

KEY VOCABULARY: Punnett square, recessive, dominant, homozygous, heterozygous, ratio, phenotype, genotype and probability.

BACKGROUND INFORMATION: Members of the squash family, Cucurbitaceae, have a flowering habit which is quite unique among the vegetable crops. They are “monoecious”, which means they produce separate male and female flowers on the same plant. The flowers are found in the axils of the leaves, at the base of the leaf where it attaches to the main stem of the plant. Female flowers have small, immature fruits at the base of the petals and are easily distinguished from male flowers. For fruit set to occur, pollen from the male flower must be transferred to the female flower. Honeybees are the principal means by which pollen is transferred from the male flower to the female flower. The female flowers of each crop can only be fertilized by pollen from male flowers of the same species. Cross pollination, however, can occur between varieties within a species. Cross pollination can be seen in certain squash and pumpkins. Summer squash, pumpkins, gourds and some types of winter squash belong to the same plant species, *Cucurbita pepo*. All members of a species may cross pollinate with one another. Thus, an acorn squash will cross pollinate with a zucchini or a miniature gourd. When crosses occur between members of the same species, we do not see the effect of the cross the first year. However, if the seeds are saved and planted, the plants will produce a hybrid fruit that will be different from either of the parents. Occasionally, gardeners will allow a chance seedling (or “volunteer”) to grow in their garden. The fruit that grows on these plants may appear quite unusual. Occasionally, one can guess what the parent plants were by looking at the fruit or based on what was planted in that area of the garden the previous year.

DIRECTIONS: Use the Punnett squares and genotype information for the following squash species to predict the phenotypes of the offspring.

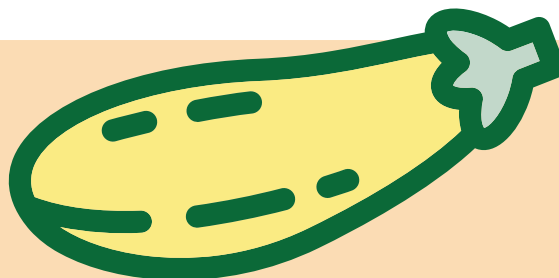
SQUASH GENOTYPES:

COLOR:

White (W) Dominant
Yellow (w) - Recessive

SHAPE:

Disc shape (D) Dominant
Long shape (d) - Recessive



SQUASH GENETICS QUESTIONS

1. What is the probability that a homozygous dominant white squash crossed with a homozygous yellow squash will produce offspring with a yellow color phenotype? Show your work.

2. What is the probability that a homozygous dominant disk squash crossed with a homozygous long squash will produce offspring with a disk shaped phenotype? Show your work.

3. What is the probability that a heterozygous white squash crossed with a homozygous yellow squash will produce offspring with a yellow color phenotype? Show your work.

4. What is the probability that a heterozygous disk squash crossed with another heterozygous disk squash will produce offspring with a long shaped phenotype? Show your work.

5. Why is it not possible for the crossing of heterozygous white squash with a heterozygous yellow squash to produce an offspring with a yellow phenotype in the first generation (F1)?
6. The background reading states that crosses between different species of squash will appear in the seeds of the second generation (F2)? How does the information provided in the Punnett squares support this statement?

COMPREHENSION QUESTIONS - ANSWER KEY

1. Because she lives in a condominium that doesn't have a yard or community garden, only a small balcony where she can only fit a few plants.
2. They are easily grown in all parts of the USA, east to west.
3. Squash produces large amounts of fruit quickly and that its fruit has a high water content.
4. "Immediate satisfaction" would be appropriate because it implies a quick and pleasing feeling.
5. The author begins in an excited tone in which she wishes she could grow squash and then informs the reader of all the delicious recipes that could be prepared with squash.
6. I favor grilling squash because I enjoy the camaraderie that accompanies a grilling or barbecue event!

Squash Genetics – Answer Key

1. Ratio 0:4 or 0%

Ww	Ww
Ww	Ww

3. Ratio 2:4 or 50%

Ww	ww
Ww	ww

2. Ratio 4:4 or 100%

Dd	Dd
Dd	Dd

4. Ratio 1:4 or 25%

DD	Dd
Dd	dd

5. The white genotype, which is dominant, is passed on to all in the first generation (F1), thus all the first generation will have the white phenotype.
6. The dominant trait will be visible in all the first generation (F1), but the recessive trait can be paired with other recessive traits by the second generation (F2).



For more resources, please visit:

FarmToSchoolFL.com