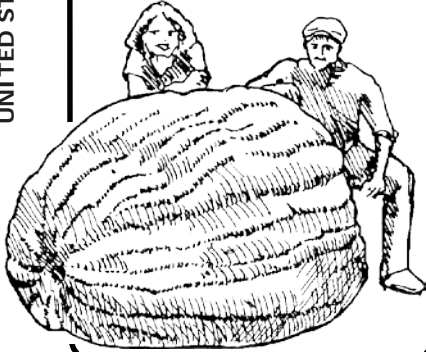


CUCURBITS: SQUASH, PUMPKINS, AND GOURDS Science Page

DID YOU KNOW?

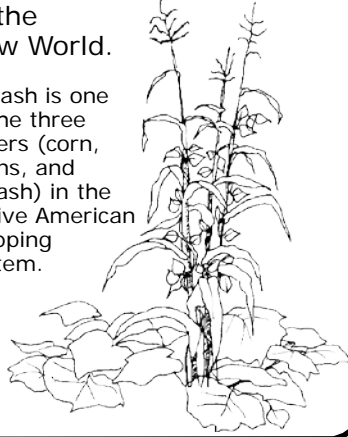
The largest fruits in the plant kingdom are pumpkins. The biggest pumpkin ever grown weighed 606.7 kilograms (about 1,338 lb)!



ORIGINS

Most of the cucurbits are native to the Americas. They were among the first plants to be domesticated in the New World.

Squash is one of the three sisters (corn, beans, and squash) in the Native American cropping system.



CLASSIFYING CUCURBITS

FAMILY

Cucurbitaceae

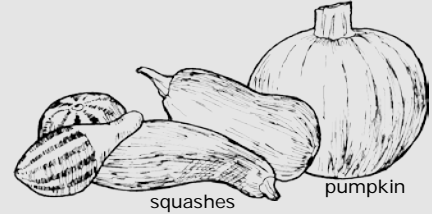
There are about 800 species in this family.



GENUS

In

gour



squashes

pumpkin

There are 14 species in this genus.

SPECIES

Scientists have grouped cucurbits into different species based on differences in the structure of the flowers and other plant parts. Three species commonly grown in gardens are:

Cucurbita ma

big max pumpkin

hubbard squash

buttercup squash

Cucurbita

butternut squash

spaghetti squash

urbita pepo

acorn squash

gourd

zucchini

yellow crookneck

CUCURBIT PLANTS

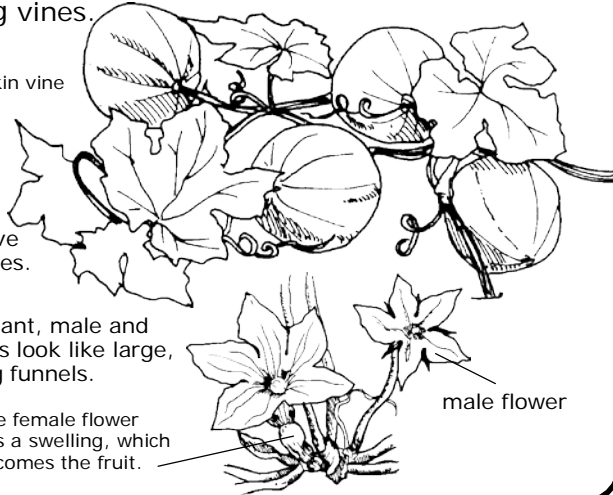
Summer squash, such as zucchini and yellow squash, grows like a bush. Winter squash and pumpkins have long running vines.

pumpkin vine

Cucurbit plants have large leaves.

On a single plant, male and female flowers look like large, yellow, flaring funnels.

The female flower has a swelling, which becomes the fruit.



male flower

GROWING AND HARVESTING CUCURBITS

Cucurbits are warm-season crops. Plant in full sun at least one week after the last frost date. Summer squash can grow close together, but the vines of pumpkins and winter squash need more space to grow. Add lots of organic matter to the soil. Cucurbits have deep roots and need lots of water, so water deeply and slowly.

I pick summer squashes when their fruits are young, small, and tender. Pumpkins and winter squash won't be ready until later in the fall when they have a hard shell.

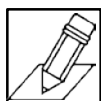


USES

Summer squash can be eaten—rind, seeds, and flesh. Winter squashes must be cooked. They are usually baked or steamed. You can also use them in breads, pies, cakes, cookies, and casseroles.



You can store winter squash and pumpkins in a dry, cool, airy place for winter use.



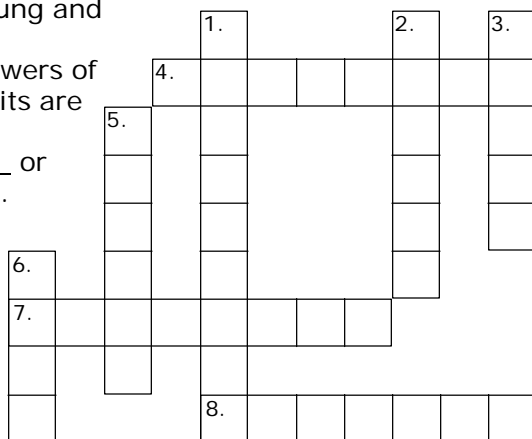
CROSSWORD PUZZLE

Across

- A type of summer squash.
- Cucurbits are native to the _____.
- Squash, corn, and beans are part of the Native American three _____ cropping system.

Down

- Pumpkins and squash are all _____.
- _____ squash should be picked when the rind is hard.
- Winter squash have long _____.
- _____ squash should be picked when they are young and tender.
- The flowers of cucurbits are either _____ or female.



SPOTLIGHT ON RESEARCH

Seedlings get the red light treatment

If you go to a pumpkin field at Halloween to find that perfect pumpkin, you may be in for a real shock — a field full of rotten pumpkins! A fungus, called *Phytophthora capsici*, could be the culprit. It has become a threat to many U.S.

crops, including cucurbits, eggplants, peppers, and tomatoes.

The good news is, Dr. Babadoost and his colleagues at the University of Illinois have made great progress in stopping the spread of this disease. Fungicides are effective in the short term, but Dr. Babadoost and his team are also looking for long-term solutions.

One promising solution is red light treatment. The scientists have discovered that if you start pumpkins, peppers, and tomatoes under red light in a greenhouse, the plants become resistant to the disease. The scientists grew seedlings under red light for four weeks. Less than 36% of the red-light treated plants became infected after being exposed to the fungus. Between 78 and 100% of the untreated plants became infected and died.

Why does red light make plants resistant to disease? The scientists do not know all the facts. They have found that leaves treated with red light contain chemicals that can fight off the fungus. Perhaps, plants have the genes for producing these chemicals, but these genes only work if the plants are treated with red light.

So far, scientists have found that red light treatment protects young plants, but the plants' resistance may not last for the entire growing season. Nevertheless, red light treatment may prove to be effective in preventing disease when used with other treatments.

Source: Islam, S.Z., Babadoost, M., and Honda, Y. (2002). Effect of red light treatment of seedlings of peppers, pumpkin, and tomato on the occurrence of *Phytophthora damping-off*. *Hortscience*, 37, 678-681.



RIDDLE

What do you get when you drop a pumpkin?

Answer: Squash!



SUMMER SQUASH PASTA

Yield: 4 servings

Ingredients

- * 4 small summer squash, such as zucchini or yellow crookneck*
- * 2 tablespoons olive oil
- * 1 clove garlic, pressed
- * 4 medium tomatoes, diced
- * 1 teaspoon dried oregano, or 1 tablespoon fresh oregano, chopped
- * salt and pepper
- * 1 bunch fresh basil, chopped
- * 1/2 cup grated parmesan cheese
- * Variation: Substitute spaghetti squash, cut in half and baked for 1 1/2 to 2 hours at 350°F.

Instructions

- Slice clean, unpeeled squash into ribbons, using a vegetable peeler and turning the squash as you go.
- Warm 1 tablespoon of olive oil in a saucepan on medium heat.
- Saute the garlic briefly, and add tomatoes and oregano.
- Simmer uncovered for a few minutes.
- Heat the remaining oil in a large skillet.
- Add the squash
- Stir for several minutes while cooking, until squash is soft.
- Add salt and pepper to taste, then mix in the sauce.
- Stir in basil, and transfer to a serving dish.
- Top with parmesan cheese.

Crossword puzzle answers: Across: 4. zucchini; 7. Americas; 8. sisters; Down: 1. cucurbits; 2. winter; 3. vines; 5. summer; 6. male.