



SEEDS

Socio-Economic & Environmental Development Solutions

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Butternut, Acorn, and Spaghetti Squash are some of the many varieties of winter squash. Pumpkins fall into the same category; some are good eating while others are fibrous and/or watery. Like so many vegetables and fruits on the market, the commercial varieties are often chosen for criteria other than flavor, but there's a huge variety of types that you can grow yourself.

Steps

- 1 Choose varieties based on your climate and the space you have available.** If you have a long warm season you can grow almost anything; if it's shorter make sure to pick early-ripening types. Some squash grow on vines that can cover a lot of ground, so if you

just have a 12 x 12 foot space, you're better off with a bush variety.

2 **Prepare your soil.** To get good growth and production, add lots of organic matter to your garden. Rotted manure and compost are the best. Dig them in deeply so that the squash's roots will penetrate easily. Squash are often planted in "hills," but this doesn't always mean a literally raised area. If you have fast-draining soil and a drier climate, you might actually make depressions, with a wide ridge around them, to hold water. Add some extra compost/manure to the area under your hills.



3 **Plant your seeds about an inch (2 cm) deep when the soil has warmed to at least 60F/15C . They**

should appear in about 10 days. If you have a short season, you can get a jump on your growing time by planting them indoors, but if you plant too early and the squash become rootbound in their pots, it will actually stunt their growth. If you plant directly, plant five seeds or so.



4 Thin your plants. Once your plants have put on a few leaves, cull all but two or three at the very most, leaving the most vigorous plants.

5 Keep watered, and remove weeds. Lack of water can stunt your plants, and weeds will use the nutrients you took all that trouble to dig into your soil. A drip system is nice but if you don't want to do that, simple trenches between the hills will help you get the water where you want it once the vines start getting rampant. Watering in early morning allows the water to evaporate; water

standing on leaves can create good conditions for disease.

6 **Watch for bugs.** In the US, squash bugs and squash vine borers can do in a vine in no time. Dark gray squash bugs lurk under the leaves and suck the plant's juices. Borers are a caterpillar of a small moth that bores into the stems, killing the stem beyond the damage. Watch for their eggs under the leaves and along the ground. If you live in Europe you don't have those insects but other things can still damage your plants, so be vigilant!

7 **In about a month, you can add a side dressing of fertilizer to the vines - about 10 inches on either side.** Don't dig too close or you'll damage the roots they send down at each leaf node.



8 **By this point, you'll start to see flowers.** The first flowers are usually male, and will make no fruit, but they do train the bees. The female flowers are fewer and recognizable by the swelling below the base of the flower. This swelling is your future squash. Here you can see the female flowers of two different varieties. If they don't form into squash, you may not have enough bees to pollinate them, and you'll have to pollinate them yourself by going out early in the morning and taking the central pollen-covered organ in the male flower and brushing it all over the counterpart in the female flowers.



You'll know if it was a success because the flower will wilt and that swelling will grow visibly in the next couple days. At this point, all you have to do is keep your vines watered and weeded, and watch out for bugs or disease. You don't want wet soil all the time; during a warm summer without rain you'll probably water every few days or so. Watch for wilted leaves, that means they definitely need a drink.

10 As your squash begin to grow, you can carefully put a bed of straw under them if you like, to keep them off the ground and free of blemishes and rot, though rot shouldn't be a problem if you don't overwater or the squash isn't forming in a wet depression.

11 Reap the fruits of your labor! Winter squash are generally ripe when you can no longer pierce the skin with your fingernail. The surest thing is to leave them on the vine until the vines start to die back; you should definitely get them in before frost. Depending on your climate, some varieties may ripen early though. Clip them off the vines with clippers and leave as much stem as you can. Don't lift them by the stem; if it comes off the squash will rot. Take care not to damage the skins as that would create an entry point for rot.

12 Cure the squash for storage - This means leaving the better storing varieties in a warm place for 3-5 days so that the skins will harden up further, protecting them from fungus and bacteria.

Butternut, Hubbard and related types (*C. maxima* and *C. moschata*) benefit from curing. Acorn and Delicata-type squash are not good storable, and trying to cure

them can actually make them last less time, so you'll want to keep them cool from harvest, and use them within 2-3 months.

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Keep your squash in a cool place, not too dry and not too wet. A cool room of a house, an unheated sun porch if it doesn't freeze, a cool cellar if it's not too damp or musty, are all possibilities. Keep your eyes open for signs of rot, or you might find a fermenting puddle where your squash were!

Squash- Problems

1. Q. Each year my squash blooms profusely but seldom produces any squash to eat. What is wrong?

A. Squash plants produce male and female blooms. For fruit to set, pollen must be transferred from the male to the female bloom. Pollinating insects, mostly bees, carry out this important job resulting in fresh squash for the kitchen. When treating the garden for insects and diseases, spray or dust during the late afternoon to avoid killing bees. Nematode infestations can also cause this problem. Check roots for galls.

2. Q. Most of the time my yellow squash is tough or has seed in the middle. What is wrong?

A. Squash matures rapidly, requiring only 5 to 7 days from flowering to maturity in hot weather. The key to high quality is timely harvest, every other day in hot weather. Good yellow summer squash should be 1 to 2 inches in diameter at the base and pale yellow colored. Dark yellow or yellow-orange squash with a firm rind is over-mature. Remove it from the plant and discard it. If over-mature fruits are not removed, the plant will stop yielding.

3. Q. I have a vegetable growing on my back fence which produces a pale green fruit three feet long and 3 to 6 inches in diameter. The plant is vining. What is this and is it edible?

A. No. Squash will cross-pollinate with other types of squash, for example yellow squash with green squash, but they will not cross-pollinate with cucumbers, watermelons or cantaloupes. This cross-pollination will not result in off-flavored or off-colored fruit from this year's garden but if seed are saved for planting next year the result will be a combination. If yellow squash crosses with a zucchini squash and you plant the seed, the new plant will have the characteristics of both.

4. Q. Can seed be saved from this year's squash crop for planting in next year's garden?

A. Yes, but this is not a recommended practice. Because squash has male and female blooms and need bees for pollination, seed saved from this year's crop probably will not breed true when planted next year. This is especially true if you are growing more than one type of squash. **If you are only growing one type of squash and there are no other types of squash in the area then seed can be saved with a fairly high degree of genetic purity.** If you are growing hybrid squash, such as the variety Dixie, do not save seeds as they will not breed true.

5. Q. Why won't my squash set fruit -- they bloom and the blooms fall off?

A. Squash have male and female blossoms on the same plant (monoecious). The male blossom is borne on a slender stalk. The female blossom has the swollen embryonic fruit attached at its base. The blossoms of both sexes are open and fertile only during the morning hours of one day. During this time pollen must be transferred by bees or by a person using an artists paint brush or Q-Tip, the female blossom will close without being fertilized, the squash will not enlarge and in a few days it will drop from the plant to the ground. The male blossom may open a second day, but the pollen will no longer be fertile and the blossom will close, wilt and drop from the plant that day or the next. There are many more male blossoms than female blossoms on a squash plant. There may be 3 to 4 male blossoms opening for several days to a week before the first female blossoms open.

DISEASES

6. Q. My squash leaves are covered with a white, powdery substance. The plants die rapidly.

A. This is powdery mildew. It is a fungal disease that attacks squash, killing the plants. Some varieties tolerate this disease better than others. Powdery mildew is more of a problem in the fall than in the spring. The material benomyl, or Benlate, is the most effective fungicide for the control of powdery mildew. Mildew occurs most often on old foliage of declining plants. Succession plantings of squash will provide vigorous, productive plants and allow removal of older, more susceptible plants.

7. Q. My fruit blooms and sets young fruit, yet quickly becomes covered with a black, whiskery fungal growth.

A. This is Chaonephora fruit rot. It is soilborne disease which rots the young fruit. It is particularly damaging during extended wet periods. It can be controlled with a combination of treatments using foliar sprays of chlorothalonil, raised beds and open foliage varieties. This allows air movement to dry the soil and the foliage. Also, avoid planting squash on heavy, poorly- drained soils. Apply fungicides during wet periods.

8. Q. My squash has been producing plenty of male squash blooms which I have been eating as fast as they are produced. This Italian delicacy, fried squash blooms, is prepared by harvesting partially opened blooms, coated by dipping into a water-flour batter, browning in hot olive oil with a garlic clove (optional) added and serving with lemon. However I have not harvested any squash fruit. What could be the problem?

A. The problem is that you are eating the male bloom before the female bloom (the bloom with the small squash attached) can be pollinated. If you are removing the male bloom in a "partially opened" condition, pollination by insects can not have occurred and no squash fruit will be produced. You can't eat the blooms and have your squash too!!

9. Q. My fruit, as it begins to develop, is covered with a white fungus.

A. This is Phythium, commonly called wet rot. It is controlled by growing the plant on a raised bed, planting in a well-drained area and improving air circulation around the plants. Some varieties produce their fruit in the upper part of the plant so the fruit does not come in contact with the wet soil.

10. Q. Each year my yellow squash plants do a peculiar thing. Toward early to midsummer the plants which once produced yellow fruit start producing green or often yellow and green fruit. This is generally accompanied by a twisting or mottling of the leaves. What could possibly be causing this problem?

A. Your plants have been affected by a virus disease, most often squash mosaic virus or cucumber mosaic virus. This virus is transmitted to your plants by insects which have been feeding on other virus-infected squash plants or perhaps some wild plant. Once the plant gets this disease nothing can be done. Best preventive measures include insect control and planting varieties which will mature early in the year. This disease is more severe on late-planted squash or summer-

planted squash than it is on the early spring-planted crop. The green squash (which should be yellow) is still good to eat if harvested at the proper stage of maturity. There will be little change in taste. This virus disease will eventually kill the plant.

INSECTS

11. Q. Each year my squash plants wilt and die about the time they start producing. Some have a yellowish or greenish sawdust-like material all over the vines. What could possibly be wrong?

A. More than likely, your problem is squash vine borers. If this is indeed the problem, the white, grub-like larvae can be found within the stem of the plant by cutting it open. The larvae hatch from eggs laid by a bright colored, wasp-like moth on the foliage or stems. The eggs hatch and the larvae travel down the plant to the stem and literally "core it out." To prevent this problem, begin control measures about the time the plants start to bloom by killing the eggs and burning any leaves that have them. Once the grubs are inside the stem, it is almost impossible to control. During the fall growing season, begin checking for eggs shortly after plant emergence.

12. Q. How do I keep squash bugs from literally destroying my plants?

A. Squash bugs are very difficult to control especially if control measures begin when the insects have reached a mature stage. For control to be satisfactory, look for eggs early in the season while the insects are small. Removing and destroying egg masses on the bottom of leaves aids in control.

Squash bugs lay eggs on the undersides of leaves in evenly spaced groups.

Get in the habit of scouting your squash plants for the shiny, yellowish brown to reddish eggs.

Also, keep your eyes peeled for the small, light gray or green, wingless squash-bug nymphs, which suck on the plant's sap, causing the leaves to wilt, blacken, and die.

Kill the squash eggs by gently rubbing them back and forth with your fingers, making sure you don't damage the leaf.

Squash-bug nymphs are also often present near squash-bug eggs.

If you see any squash-bug nymphs, be sure to squish them, too.