

Introducing Calabaza: A New Crop for Massachusetts Growers

Peter Cuniowski, Student Intern, University of Massachusetts; Anne Carter and Frank Mangan, Department of Plant and Soil Sciences, University of Massachusetts; and Ruth Hazzard, Department of Entomology, University of Massachusetts

Introduction

The calabaza, *Cucurbita moschata* (Duhcesne) Poir, is also called West Indian pumpkin, auyama in the Dominican Republic, calabash in the English-speaking islands, ayote in Central American and zapallo in South America. It has been popular in the Puerto Rican diet since pre-Colombian times. It is a tropical vegetable widely used in many Latin American and Caribbean dishes. It is added to sauces as a thickener and is used in stews and soups. The calabaza can also be used as a pie filling or served as a main dish. The texture and flavor is similar to the Butternut squash commonly used in the United States. It is a good source of vitamins such as beta carotene, riboflavin and thiamine.

The plant looks similar to butternut. It has slightly lobed, grayish-green leaves. The vines are long and can reach a length of fifty feet. The fruit are produced along these vines at a rate of two to six fruits per vine. The calabaza has a rind color which varies from a mottled green to a pale yellow. Inside, there is a large central cavity with small seeds, surrounded by firm and meaty flesh which ranges in color from yellow to deep orange. Because this is an open pollinated variety, there is much variation in fruit size, shape and color.

These monoecious plants require pollination by insects which is often achieved through foraging of honeybees and bumblebees. One hive of bees per acre is recommended for winter squash. Calabaza will cross-pollinate with other winter squash; if any squash is being saved for seed it should be isolated by at least a mile from other winter squashes.

Transplants vs Direct Seeding

Currently, there is no reliable source of calabaza seed. Growers throughout the world are saving their own seed. A breeder in Florida is working to produce a short vine calabaza hybrid that should be ready in a few years from the writing of this fact sheet.

Most growers direct seed winter squash. Calabaza matures a little later than butternut. For this reason transplants are recommended over direct-seeding. Transplants should be started in 3" peat pots around May 1st. The roots should not be disturbed when planting in the field. If direct seeding, sow seed 0.75" to 1.25" deep at a rate of two to four pounds

per acre, after all danger of frost has passed. Soil temperatures should be at least 60°F before planting.

Field Preparation

A soil test is recommended before applying any fertilizer. The recommendations listed in the 1998-1999 New England Vegetable Management Guide should also be consulted. The total nitrogen crop requirement for pumpkins and squash at 130 lbs. per acre made in two or three applications. The K₂O requirement is between 40 and 200 lbs, and the P₂O₅ requirement is between 40 and 150 lbs per acre, depending on the results of the soil test. Banding the fertilizer is preferred. If this is not possible, a pre-plant broadcast application should be done, followed by a side-dress of nitrogen just before vines run. A pre-side dress nitrogen test should be done to determine if the second application is necessary.

Since calabaza vines excessively, ample spacing should be provided between plants. A distance of 4 to 6 feet in-row spacing and 6 to 12 feet between rows is recommended. In Florida, raised beds with 10 to 15 ft centers are recommended. In general, the closer the spacing the smaller the fruit size.

Black plastic mulch is recommended because it will warm the soil and aid in weed control. If plastic mulching is not possible, weed control can be attained through application of a pre-plant herbicide and/or by cultivation before the vine growth becomes too dense. Refer to the 1998-1999 New England Vegetable Management for weed control recommendations for squash.

Pest Management

Calabaza is affected by many of the same insects and diseases which infect the winter squash in our area. We may find that it differs from butternut in its susceptibility to particular pests that are found in Massachusetts. Until this has been determined, we recommend that growers follow current IPM guidelines for butternut squash when growing calabaza.

Disease Calabaza is susceptible to powdery mildew, *Erysiphe cichoracearum*, and downy mildew, *Pseudoperonospora cubensis*. Fields should be scouted every week when the fruit begin to form, by checking 50 older leaves throughout the field. Fungicide applications should be initiated if you find one leaf per 50 with symptoms of powdery mildew. Refer to the 1998-99 New England Vegetable Management Guide for more details. In Long Island, calabaza variety trials showed some susceptibility to back rot (*Didymella bryoniae*). The plants are tolerant of watermelon mosaic virus and bacterial wilt, which is vectored by cucumber beetle.

Insects: In Puerto Rico, two key insect pests of calabaza are sweet potato white fly, *Bemesia tabaci* and melonworm, *Diaphania hylinata*. Whiteflies cause silverleaf on calabaza, which has the potential to reduce yields significantly. In Massachusetts, whiteflies are generally limited to greenhouse crops and are not usually a problem on

field-grown vegetables. Melonworm is a serious problem in Florida and the Caribbean, causing damage to the leaves and fruit. However, this insect cannot overwinter in the New England climate so it is not a serious pest in Massachusetts.

Cucumber beetles, especially striped cucumber beetles, may be pests of calabaza in Massachusetts. Cucumber beetles move into squash fields shortly after seedlings emerge and can cause feeding damage to young plants. Monitor fields twice weekly for the first two weeks after emergence by counting the number of beetles per plant on 25 plants throughout the field. If there is an average of two or more beetles per plant, then insecticides should be used. At later growth stages, insecticides are needed only if there is extensive feeding damage.

Other insects which may attack calabaza are aphids and squash bugs. For more details, see the New England Pest Management Guide.

Harvesting

Calabaza produce an average of two to five fruits per plant. The average fruit size is between 8 and 15 pounds, but can yield as high as 50 lbs per fruit. Fully mature fruit are ready for harvest 90 to 120 days after sowing - approximately 45 days after the plants produce flowers. In the future, it is hoped new varieties of calabaza that will set closer to the crown and thus, mature earlier, will be produced.

The color of the fruit varies with the variety. The color varies from green to light-orange with a rind color from piebald to mottled.

The best indicator of fruit maturity is to count 45 days after fruit set. A mature fruit will lose the shine found on immature fruit. Mature calabaza will have a white waxy coating on the outer rind. There will also be a yellow under-coloring as the fruit matures.

The fruit should be harvested with at least 1 inch of the stem intact. The squash will store for several months if the stem is intact. Squash which have cracks or cuts in the rind will deteriorate much faster. Optimal conditions for storage are 50°F and a relative humidity of about 50 percent. Do not allow the fruit to be exposed to temperatures at or below freezing. Calabaza should not be stored with ethylene producers such as apples and pears because this will cause the fruit to change color and rot.

Marketing

The most important factor affecting consumer selection is the color of the internal flesh. The flesh should be from one to three inches thick and dark yellow to deep orange in color. The dark orange color is a sign of full maturity and consumers prefer it to the lighter colored pulp of young fruit. Because the color of the flesh is of primary importance, the fruits are often halved at the market, enabling the consumer to clearly see the color of the flesh. Many consumers like to purchase calabaza halved and wrapped in clear plastic. Color preference among different ethnic groups may vary slightly. In

Florida, the characteristics most desired by consumers were large, round fruit with a smooth light-green rind, no cracks in the rind, deep-yellow to orange color and high soluble solids (sweet). The preferred fruit size is approximately 10 lbs.

Cut calabaza, covered tightly in plastic, should keep in the refrigerator. It may be held this way for up to one week. Cooked calabaza can be stored frozen for up to one year.

References

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