Growing Pumpkins and Winter Squash

Revised 1/95 -- Author Reviewed 1/98 HIL-24

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Pumpkins were used by American Indians long before Columbus visited our shores, and pumpkins readily found their way to the first Thanksgiving table. Pumpkins were used by early settlers much as we use them today – for food and decoration. Washington Irving wrote about the pumpkin in "Legend of Sleepy Hollow."

The term "pumpkin" has been the subject of many scholarly discussions. The scientific name of most pumpkins is *Cucurbita pepo* (Jack-o- lantern types). Many of the large fruited types such as 'Boston Marrow' and 'Mammoth' are *Cucurbita maxima*, while the buff-colored sugar-pie or 'Dickinson' variety, *Cucurbita moschata*, are excellent for pies or processing. All pumpkins have hard shells when mature.

Soils – Pumpkins are well-adapted to most North Carolina soils. The soil should be well-drained. The optimum pH is 6.0 to 6.5. Take a soil test to determine pH and fertilizer requirements. Do not use fields that have had other vine crops (melons, cucumbers, etc.) during the past 2 years.

Varieties – Pumpkins and winter squash can be divided as follows. The processing types listed below make very poor jack-o-lanterns, because they are irregular in shape and hard to carve into a jack-o- lantern. Fruits of some of the naked seeded types are unattractive and low-quality.

Fertilizer – Follow suggestions from soil test report. Otherwise, broad-cast 1000 lb of 5-10-10 per acre before planting (10 pt per 100 ft of row). Sidedress at 3 and 6 weeks after seeding with 20 to 30 lb per acre of nitrogen and 60 to 100 lb per acre of potassium (1 pt 13-0-44 per 100 ft of row). Processing types may require more potassium for good dry matter production. Place sidedress fertilizer 6 to 8 inches from the plants on both sides of the row.

Pumpkins for processing should be seeded in spring as soon as the soil temperature at 4-inch depth has reached 60 to 65^{O}F. Pumpkins for ornamental purposes may be seeded as late as June to early July in the lower Piedmont and eastern North Carolina. The later-planted pumpkins will be more subject to increased diseases and insects than an earlier planted crop. However, regardless of planting date, both require insecticide and fungicide applications. Spacing varies with variety and vine size (see table below).

Table 1. Row Spacing (in Feet)

	Between Row	**Within Row**
Bush or short vine	3 to 5	2 to 3
Small, fruited large vine	6 to 8	3 to 5
Large, fruited large vine	6 to 8	3 to 5

Plant 2 to 3 seeds per hill and thin to one plant per hill. For large commercial acreage, seed 4 seeds per ft of

row and thin. Use per acre rates of 2 to 3 lb of seed for large vine types and 3 to 4 lb of seed for bush types.

Table 2. Types of Pumpkins (Jack-o-Lantern Types)				
Extra-Small	**Small**	**Medium**	**Large**	**Extra-Large**
(<1 lb)	*(2-8 lb)*	*(8-12 lb)*	*(12-20 lb)*	*(20+ lb)*
Jack Be Little	Small Sugar	Autumn Gold	Connecticut Field	Decorative type
Munchkin	Spookie	Ghost Rider	Howden	Big Mac
		Jackpot (compact vine)	Big Max	
		Spirit	Mammoth Gold	

Table 3. Types of Pumpkins (non-Jack-o-Lantern Types)		
Processing Types	*Naked Seed Pumpkin*	*Winter Squash*
Dickinson	Trick or Treat	Butternut Burgess Strain (butternut)
Golden Delicious	Triple Treat	Gold Nugget (compact vine)
NK 530		Puritan (butternut)
Pink Banana Jumbo		Table Queen (acorn)
Ultra (butternut)		Tay Belle (acorn)
		Vegetable spaghetti (spaghetti)
		Waltham Butternut (butternut)

Weed Control* – Apply a pre-emergence herbicide immediately after seeding or use a stall bed system. Caution! Some varieties (i.e., Boston Marrow) are more sensitive to some herbicides and may be injured. Practice shallow cultivation. Pumpkins have many important feeder roots near the surface and roots grow to about the same spread as vines.

Insect Control* – Common insects of pumpkins are seed corn maggot, spotted and striped cucumber beetle, squash vine borer, pickleworm (after mid July), and squash bugs (mountains only). For insect identification and control consult the current *N.C. Agricultural Chemicals Manual* and *N.C. Agricultural Extension Insect Note* (numbers 1 and 20).

Disease Control* – The most common diseases for pumpkins are bacterial wilt (spread by cucumber beetles), powdery mildew, downy mildew, and anthracnose. For control procedures, consult the current *N.C. Agricultural Chemicals Manual* and *Plant Pathology Information Note* 191. Fungigation is the application of fungicides through the irrigation system. This may be the best way to get fungicides applied without damage to foliage.

Pollination – Pumpkins are insect-pollinated and require bees for pollination. Inadequate pollination results in poor fruit shape and excessive blossom drop. At least one strong colony of bees per 2 acres is recommended.

Harvesting and Curing – Pumpkins should be harvested only after the shell has hardened completely. Care should be taken not to damage or break off the stem. Stemless pumpkins have a lower value as jack-o-lanterns and make it easier for rotting organisms to gain entrance. Pumpkins should never be stacked more than 2 to 4 deep, depending on their size. Also, all trucks and trailers should be padded well. When pumpkins are harvested a long time before sale, they should be washed or dipped in a 10% chlorine bleach

solution (1 part chlorine bleach to 9 parts water) and stored in a dry, cool place to reduce the chance of postharvest rot. Storage in the open sun causes excessive spoilage. For more information on pumpkin storage, consult Horticultural Information Leaflet No. 24-C, *Storing Winter Squashes and Pumpkins.*

Yield – Good yields of smaller varieties are 5 to 7 tons per acre or 2000 to 4000 fruit. The large types (fresh market) may yield up to 10 to 30 tons per acre or 1000 to 2000 fruit. The yield of seed of the hull-less or naked seeded types should range from 800 to 1500 lb per acre.

Growing Large Pumpkins – There is always much interest in growing big pumpkins for exhibition. To do this, select one of the large varieties mentioned earlier. Prepare a seedbed (50 to 60 ft^2 per plant) by deeply incorporating into the soil 4 to 6 bu of manure or compost and 1 to 2 lb of 8-8-8 per hill. Mix well. Plant 3 to 5 seeds per hill and thin to a single plant. Apply ½ to 1 cup of nitrogen fertilizer near the perimeter of the vine every 2 to 3 weeks, beginning 3 weeks after seeding. Keep plants watered, and allow only one fruit to develop on each plant.

Steps to Profitable Pumpkin Production

1. Find a market.
2. Use well-drained soils.
3. Use raised beds.
4. Soil test for lime, fertilizer and nematicide needs.
5. Lime to pH 6.0 to 6.5.
6. Choose a variety that sells in your area.
7. Allow soil to warm to 60°F before planting.
8. Space plants for harvest purposes.
9. Plant for harvest time, not too early.
10. Provide bees.
11. Control cucumber beetles and other insects.
12. Control weeds.
13. Spray for mildews.
14. Prune for large fruit if market demands.
15. Allow skin to harden before harvest.

* Consult the current *N.C. Agricultural Chemicals Manual* or your county extension agent for pesticide recommendations.

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North Carolina Cooperative Extension Service
