

BEET PRODUCTION

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Beets have been cultivated for centuries. Though grown mostly for the roots, beet greens are also popular in many areas. Beets are a common item in vegetable gardens, but few are produced in North Carolina.

Table beets obtain their best color and quality when grown in a cool climate. In North Carolina, they are best grown as a spring or fall crop. The plants can stand some mild freezing, but the roots must be removed from the ground in the fall before a hard freeze.

Soils— Beets should be grown on soil that is deep, well-drained, and of good tilth. It is difficult to get a good stand on soils that have a high clay content or those that tend to crust after a light rain. Soil should be tested for fertility and nematodes several months before planting. For early spring planting, choose a well-drained, sandy loam which will warm up quickly. Heavier soils can be used for later plantings.

Fertilizer and pH— The optimum soil pH for beets is 6.0 to 6.8, but pH up to 7.6 can be tolerated. Lime should be applied according to soil test recommendations at least 30 days before planting.

Fertilizers also should be applied according to test recommendations. If no test was taken, an application of 500 to 600 lb of 10-20-20 fertilizer is recommended. Fertilizers should be broadcast at least 7 days before planting. If a band application is preferred, bands should

be 5 inches deep and 3 inches to the side of the seed row or between rows on a bed. Depending on growth rate and amount of rainfall, 1 to 3 sidedressings may be necessary. Apply 20 to 30 lb of nitrogen per acre at each application.

Beets will develop internal black spot if soil boron is not adequate. One lb of boron (or 10 lb of borax) per acre should be included in the initial fertilizer application. If boron was not included in preplant fertilizer, apply 2 to 4 lb of Solubor or 2 to 4 qt of N-Boron.

Varieties— Ruby Queen and Redpack are the most commonly grown varieties. Both varieties are good for processing as well as fresh market. Ruby Queen produces a smooth, round root with a small tap root and good color. Redpack has smooth, globe-shaped, dark-red roots with short, strong red-tinged, dark-green tops. Red Cloud has smooth, globe-shaped, dark-red roots, durable tap, and excellent color and high sugar content.

Seeding— Beet seeds germinate best at soil temperatures of 50°F to 85°F but will germinate between 40°F and 95°F. Early plantings can be made 4 to 6 weeks before the average last spring frost. Fall plantings should go in 8 to 10 weeks before the first expected frost.

A firm seed bed should be prepared. Raised beds are best for water management and will

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warm up faster in the spring. A spreader shoe should be used to seed a band about 2 inches wide. Seeds should be covered with $\frac{1}{2}$ to $\frac{3}{4}$ inches of soil. Recommended spacings are 12 to 24 inches between rows and 2 to 4 inches between plants in the row. Maximum yields can be obtained with high density plantings. Rows should be 12 inches apart. Seed 15 to 18 seeds per ft and thin plants to 6 per ft for fresh market or 4 per ft for processing. If planting on beds, beds should be 5 to 6 ft on center, with 48-inch width and 3 rows 12 inches apart. Six to 10 lb of seed per acre will be needed for normal rates and up to 25 lb for high-density planting. Precision seeders can reduce seed and thinning cost. If a precision seeder is used, reduce seed estimates accordingly.

Irrigation — For good stand establishment, plan to irrigate with $\frac{1}{2}$ to $\frac{3}{4}$ inches of water every 4 days to keep soil moist. After emergence, 1 inch of water per week should be adequate.

Weed Control* — Herbicides can be used for successful weed control. Mechanical cultivation can be used to control weeds between rows with band applications of herbicides over the rows.

Disease Control* — If soil tests indicate high levels of nematodes, soil should be treated or fumigated in the fall.

Seed rot and damping-off may be a problem, especially in early spring plantings. Seeds should be treated with captan or thiram at the rate of 1 tsp per lb of seed.

Cercospora leaf spot is the most common disease that occurs on beets. Circular spots with reddish brown or purplish margins are the first signs. Spray every 2 to 3 weeks with appropriate materials.

Downey mildew and other leaf spots can be treated with a fungicide.

Insect control* — The most common insect pests of beets are aphids, leafminers, flea beetles, and webworms. Aphids and leafminers can be controlled with proper pesticides. Sanitation and crop rotation should be practiced to avoid pest build ups.

Harvesting — Table beets should be ready for market 50 to 75 days after planting. Roots should be 1 to 2 inches in diameter for bunching and 1 to 4 inches for processing. Fresh market beets are normally hand pulled and bunched 3 to 6 per bunch. Mechanical harvesters are available for processing beets. Tops are removed after harvesting, roots are graded, and cracked and damaged roots are removed.

Storage — Fall crops must be removed from the ground before a hard freeze occurs. Beets can be stored for several months with proper storage facilities. Tops should be removed close to the root and damaged roots removed. Slatted crates or baskets are best for storage purposes — not bulk bins. Humidity should be maintained near 95% to prevent shrinkage. The temperature should be near 32°F, but roots must not be allowed to freeze.

Yields — Beets for fresh market usually produce around 7 tons per acre. Good management practices can produce up to 10 tons per acre. Processing beets should produce 13 to 15 tons per acre.

* Refer to the *1999 North Carolina Commercial Vegetable Recommendations* (AG-586) for additional information.