



## COMMERCIAL CARROT PRODUCTION

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Carrots can be produced almost year-round in parts of North Carolina. Both fresh market and processing types hold potential.

Fresh market types are  $\frac{3}{4}$  to  $1\frac{1}{4}$  inch diameter, have excellent, uniform color and a small core. Processing carrots are large in diameter (2 to 3 inches) but still have good flavor, color and sweetness. Spring-seeded carrots usually require at least 120 days to reach optimum size and color. The fall crop usually needs 130 or more days to reach the same stage.

**Soil Selection**—Choose soils that are well drained and of good tilth. Most soils in the Piedmont are too heavy for quality carrots. Soils should be tested for both nutrient content and nematodes. A pH of 6.0 to 6.5 is needed for good carrot production in mineral soils. If the soil has 5% or more organic matter, pH should be 5.2 to 5.7 to avoid problems with minor element deficiencies. If nematodes are present, fumigation should be done by November 15 for a spring crop or 3 weeks prior to planting a fall crop. Lime should be applied at least 30 days before planting. Carrots are subject to salt injury; therefore, apply fertilizer at least 7 days before planting. Broadcasting fertilizer is best; however, if banding is done, bands should be at least 3 inches to the side of the row and 5 inches deep. If 2 or more rows per bed are used, this fertilizer can be placed between the rows. Soils of average fertility generally require 500 to 600 lb per

acre of 10-20-20 or the equivalent to produce a good crop. Sidedressing depends on weather and growth conditions, but usually 2 to 3 applications or 20 lbs per acre of nitrogen will be needed. Avoid fields with a history of Southern stem rot (*Sclerotium rolfsii*). If such fields must be used, follow a corn or small grain crop with fall plantings. Read *Plant Pathology Information Note No. 205*.

**Varieties**—Danvers 126 and Camden are the varieties most commonly grown for processing, because they produce better plant stands than other varieties. Both varieties can be harvested for fresh market purposes, also. Other varieties used for fresh market are Scarlet Nantes, Long Emperor 58, Orlando Gold, and Spartan Fancy. Baby carrots or mini-carrots are also promising for North Carolina. Mini Pak, Mini Core, Spartan Winner and thick plantings of Scarlet Nantes are good for this purpose.

**Seeding**—The following are suggested seeding dates.

Area	Spring Crop	Fall Crop	
<b>Coastal Plain</b>	S. E. counties	Jan. 15- Mar. 15	June 15- Sept. 15
	Other counties	Feb. 15- Mar. 30	June 15- Sept. 15
<b>Sandhills</b>	Feb. 5- Mar. 30	June 15- Sept. 10	
<b>Mountains</b>	Mar. 15- May 30	June 1- July 15	

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**Regardless of row conformation, seeding rates are as follows:**

Carrot Type	Seeding rate		Final Stand
	Per Ft/Row	Per Ft/Row	Lb of Seed Per Acre
Processing	12-18	8-9	1-2
Fresh market	18-24	12-14	2-4
Mini or baby	24-36	18-24	4-6

Always order medium or large seed (150,000 to 180,000 per lb) to get more seedling vigor and better stands.

Seed carrots in a firm seedbed. Raised beds are best for good water management of carrots. *Seeding is the most critical operation in carrot production.* Great care must be taken not to cover seeds more than  $\frac{1}{8}$  to  $\frac{3}{8}$  inch deep. A special planter shoe called a “spreader” shoe is often used. This shoe plants a band of carrots 2 inches wide. Fresh market carrots are grown in 2 rows per bed on 38- to 42-inch centers. These two rows represent bands of carrots 3” wide with 20 to 40 roots per ft of row. A machine can harvest at this spacing. Processing carrots are grown in single or double row beds are usually 36 to 42 inches on center. Maximum yields per acre can be obtained with 3 rows spaced 18 inches apart on a formed bed which is 48 inches wide. These large beds are 5 to 6 ft on center. Soil should be firmed over the seed row.

**Irrigation** — Irrigation must be used to get good carrot stands. Apply  $\frac{1}{2}$  to  $\frac{3}{4}$  inch of water every 4 to 7 days to prevent soil drying until carrots emerge. After emergence, irrigate weekly for the first 3 weeks. After the crop is established, irrigate occasionally to keep the crop growing rapidly.

**Weed Management\*** — Weeds are controlled easily with herbicides. Band applications where row middles are cultivated are more economical. Several preemergence and postemergence materials are registered for carrots. The effectiveness of materials is based on application when weeds are small.

**Insect and Disease Management\*** — The first week after emergence is very critical for pest control, and young seedlings should be watched closely for insects and diseases. Leaf-hoppers, armyworms, and carrot worms feed on carrots.

Damping-off may occur as seedlings emerge and can be controlled by treating the seed prior to planting.

Leafspot diseases (*Alternaria* and *Cercospora*) may occur later in the season. Leafspots can be controlled with several fungicides applied with a high-pressure sprayer (200 psi).

**In-Ground Storage** — Fall carrots can be stored in place in the field and harvested as needed. This is possible because the carrot root in the soil can withstand air temperatures as low as 18°F. For best results, 1 to 2 inches of extra soil should be put over the shoulder of the root. Carrots treated in this manner can be kept for up to 2 months after normal harvest. Harvest before temperatures begin to warm in the spring, usually by late February or early March. This practice is recommended only for areas south of a line from New Bern through Smithfield to Laurinburg, N.C. In other areas of the state, temperatures may get cold enough to cause roots to heave out of the soil. Soil storage for a month or two after first frost can be done in most of the state.

**Harvesting** — Carrots for processing are usually a minimum of  $1\frac{1}{2}$  inches at the shoulder, and roots often grow to 4 inches or more in diameter. Fresh market carrots are harvested when they reach  $\frac{3}{4}$  to  $1\frac{1}{4}$  inch in diameter. Baby or mini carrots are not allowed to exceed  $\frac{3}{4}$  inch in diameter, and  $\frac{1}{4}$  to  $\frac{1}{2}$  inch in diameter is preferred. Several good commercial carrot harvesters are available which pull, top, and load carrots into bulk boxes.

Processing carrots can also be harvested by mowing tops or using a special carrot crowner, and lifting with sweet potato harvester fitted with a 1-inch chain. This method requires more labor than a carrot harvester. If “tops-on,” bunched carrots are desired, an undercutter is used to loosen the soil so roots can be pulled and bunched.

Successful carrot production depends on good stands and good crop management. Processing carrots usually produce 12 to 14 tons per acre but can produce up to 30 tons per acre. Fresh market carrots usually yield 8 to 12 tons per acre and can yield up to 20 tons. Because of their small size, baby carrots usually produce 4 to 6 tons per acre, but 8 to 10 tons is not uncommon.

\* Consult the current *N.C. Agricultural Chemicals Manual* or your local Cooperative Extension agent for the latest recommendations.