CARROTS

Varieties

Varieties[1]	
Processing: Dicing	
Spartan Bonus 80*	
Danvers 126	These varieties are recommended for DE, MD, NJ, PA, VA, WV
Processing: "Coins"	
Nantes types	
Market	
Scarlet Nantes	
Hybrid Nantes* types	

[1] Varieties listed by maturity, earliest first

* Indicates hybrid variety

Recommended Nutrients Based on Soil Tests

Before using the table below, refer to important notes in Plant Nutrient Recommendations in Section B, Soil And Nutrient Information. These notes provide additional suggestions to adjust rate, timing and placement of nutrients depending on soil type cation exchange capacity and existing fertility levels.

Carrots	Nitrogen (N) Pounds per Acre	Soil Phosphorus Level Low	Med	Opt.	Soil Potassium Level Low	Med	Opt.
		Pounds $P_2 0_5$ per Acre			Pounds $K_2 0$ per Acre		
	50-80[1]	150[1]	100[1]	50[1]	150[1]	100[1]	50[1]
	50[2]	150[2]	100[2]	50[2]	150[2]	100[2]	50[2]
	25-30[3]	0	0	0	0	0	0

[1] Total amount nutrient recommended

[2] Broadcast and disk-in

[3] Sidedress if needed

Apply 1-2 pounds of boron (B) per acre with broadcast fertilizer. See Table B-10 for more specific boron recommendations

Seed Treatment

Use seed treated with Maxim 4FS (0.08-0.16 fl oz/100 lb seed) for Rhizoctonia & Fusarium control and Apron XL LS (0.16-0.64 fl oz/100 lb seed) for Pythium control.

Seeding Dates

For early harvest (July to September), sow March 20 to April 30; for late harvest, sow May 1 to July 5 (May 1 to June 15 in Pennsylvania and northern New Jersey). Practice crop rotation, and plant after a small grain crop for highest yields.

Spacing

Processing: Rows 20 to 30 inches apart; "coins," sow for 16 plants per foot; dicing, sow for 6 plants per foot (8 if soil is on the fine-textured side).

Seeding rate: Dicers, 12 to 14 ounces per acre using 2-inch scatter shoe; "coins," sow 2 to 4 pounds per acre using 4-inch scatter shoe. Depth of seeding should be no deeper than one-fourth inch.

Cultivation

Hill with 2 inches of soil to cover shoulders to minimize greening.

Storage

Topped: 4 to 5 months at 32°F (0°C) and 90 to 95 percent relative humidity.

Weed Control

Identify the weeds in each field and select recommended herbicides that control those weeds. See Tables E-2 and E-3.

Match preplant incorporated and preemergence herbicide rates to soil type and percent organic matter in each field.

Apply postemergence herbicides when crop and weeds are within the recommended size and/or leaf stage.

Preplant Incorporated

Trifluralin--0.5-0.75 lb/A. Apply 1 to 1.5 pints per acre Treflan 4EC. Preferably, use two diskings to incorporate treatment into the top 3 inches of soil within 8 hours after application. Plant carrots immediately. Trifluralin is particularly effective on barnyardgrass, foxtail, crabgrass, all panicum, and other annual grasses. It will not control ragweed or jimsonweed.

Preemergence

Linuron--0.5-1.5 lb/A. **A Special Local-Needs 24(c)label has been approved for the use of Linex 4L preemergence in New Jersey.** Apply 1 to 3 pints per acre Linex 4L after seeding, but before crop emergence. Sow seed at least one-half inch deep. Use lower rate on lighter coarse-textured sandy soils and the higher rate on heavier fine-textured soils. Follow with overhead irrigation if rainfall does not occur. Primarily controls annual broadleaf weeds. Annual grasses may only be suppressed. Do NOT exceed a total of 2 pounds of active ingredient linuron per acre per season.

S-metolachlor--1.26-1.9 lb/A. **A Special Local-Needs Label 24(c) has been approved for the use of Dual Magnum 7.62E in New Jersey. The use of this product is legal ONLY if a waiver of liability provided by the local growers' association has been signed by the grower, all fees have been paid, and a label has been provided by the association.** Apply 1.33 to 2 pints per acre Dual Magnum 7.62E preemergence to control annual grasses, yellow nutsedge, and certain broadleaf weeds, including galinsoga. Dual Magnum will NOT control emerged weeds. **Use ONLY on high organic matter (>20%) muck soils.** Read and follow all notes and precautions on the label. DO NOT incorporate Dual Magnum prior to planting. Make only one application per crop. Observe a minimum preharvest interval of 64 days after application. **Other generic versions of metolachlor and s-metolachlor may be available, and may or may not be labeled for use in the crop.**

Postemergence

Sethoxydim--0.2-0.5 lb/A. Apply 1 to 2.5 pints per acre Poast 1.5EC with oil concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) postemergence to control annual grasses and certain perennial grasses. **The use of oil concentrate may increase the risk of crop injury when hot or humid conditions prevail**. To reduce the risk of crop injury, omit additives or switch to nonionic surfactant when grasses are small and soil moisture is adequate. Control may be reduced if grasses are large or if hot, dry weather or drought conditions occur. For best results, treat annual grasses when they are actively growing and before tillers are present. Repeated applications may be needed to control certain perennial grasses. Yellow nutsedge, wild

onion, or broadleaf weeds will not be controlled. Do not tank-mix with or apply within 2 to 3 days of any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe a minimum preharvest interval of 30 days and apply no more than 5 pints per acre in one season.

Clethodim--0.094-0.125 lb/A. Apply 6 to 8 fluid ounces per acre Select 2EC with oil concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) or 12 to 16 fluid ounces of Select Max 0.97EC with nonionic surfactant to be 0.25% of the spray solution (1 quart per 100 gallons of spray solution) postemergence to control many annual and certain perennial grasses, including annual bluegrass. Select will not consistently control goosegrass. The use of oil concentrate with Select 2EC may increase the risk of crop injury when hot or humid conditions prevail. To reduce the risk of crop injury, omit additives or switch to nonionic surfactant when grasses are small and soil moisture is adequate. Control may be reduced if grasses are large or if hot, dry weather or drought conditions occur. For best results, treat annual grasses when they are actively growing and before tillers are present. Repeated applications may be needed to control certain perennial grasses. Yellow nutsedge, wild onion, or broadleaf weeds will not be controlled. Do not tank-mix with or apply within 2 to 3 days of any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe a minimum preharvest interval of 30 days.

Fluazifop--0.125-0.188 lb/A. Apply 0.5 to 0.75 pints per acre Fusilade DX 2E with oil concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) or a nonionic surfactant to be 0.25 percent of the spray solution (1 quart per 100 gallons of spray solution) to control annual grasses and certain perennial grasses. For best results, treat annual grasses when they are actively growing and before tillers are present. Repeated applications may be needed to control certain perennial grasses. It will not control yellow nutsedge, wild onion, or any broadleaf weed. Do not tank-mix with any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe a minimum preharvest interval of 45 days and apply no more than 6 pints per acre in one season. Do not plant corn, sorghum, cereals, or any other grass crop within 60 days of the last application.

Linuron--0.75-1.5 lb/A. Apply 1.5 to 3 pounds per acre Lorox 50DF or 1.5 to 3 pints per acre Lorox 4L. Apply when carrots are approximately 3 to 6 inches tall. Avoid postemergence applications when daily temperatures are 90°F (32.2°C) or above or during a period of cloudy weather or just after rain or irrigation. Linuron is effective on most weeds including ragweed. Do not plant treated area to crops not on the label within a 4-month period after treatment.

Metribuzin--0.25 lb/A. Apply 0.33 pound per acre Sencor 75DF postemergence to carrots with a minimum of six true leaves to control many broadleaf weeds, including tropic croton, spotted spurge, and horseweed. Do not use to control triazine-resistant weeds. Do not apply within 3 days after periods of cool, wet, cloudy weather. Do not tank-mix with any other pesticide or apply within 3 days, or excessive crop injury may result. Do not apply to carrots with less than six true leaves or excessive crop injury may result. Varietal differences exist in carrot tolerance to Sencor. Use caution when treating new varieties.

Postharvest

Paraquat--0.6 lb/A. **A Special Local-Needs 24(c) label has been approved for the use of Gramoxone Inteon 2SC for postharvest desiccation of the crop in Delaware, New Jersey and Virginia.** Apply 2.4 pints per acre Gramoxone Inteon 2SC as a broadcast spray after the last harvest. Add nonionic surfactant according to the labeled instructions. See the label for additional information and warnings.

Insect Control

NOTE: Copies of specific insecticide product labels can be downloaded by visiting the websites www.CDMS.org or www.Greenbook.org. Also, specific labels can be obtained via web search engines.

Leafhoppers (LH), Aphids

Begin spraying when true leaves first appear. Repeat every 14 days or as needed.

Leafhoppers transmit aster yellows. Seedling protection from leafhoppers is important.

beta-cyfluthrin (Baythroid XL) (**LH only**),
cyfluthrin (Renounce 20WP, Tombstone) (**LH only**)
esfenvalerate (Asana XL) **(LH only)**
imidacloprid (soil-Admire 2F, Admire PRO; foliar-Nuprid 1.6F, Provado 1.6F or OLF)
malathion (Malathion 57EC)
methomyl (Lannate LV or OLF) (**LH only**)
thiamethoxam (Actara 25WDG)

Cutworms

esfenvalerate (Asana XL)
beta-cyfluthrin (Baythroid XL)
methomyl (Lannate LV or OLF)
cyfluthrin (Renounce 20WP, Tombstone or OLF)
carbaryl (Sevin 80S or Sevin 5%Bait or OLF)

Carrot Weevil

Begin treatment when weevils become active.

esfenvalerate (Asana XL)
beta-cyfluthrin (Baythroid XL)
cyfluthrin (Renounce 20WP, Tombstone)
oxamyl (Vydate 2L)

Pesticide	Use Category[1]	Hours to Reentry	Days to Harvest
INSECTICIDE			
beta-cyfluthrin	R	12	0
carbaryl /carbaryl bait	G	12	7
cyfluthrin	R	12	0
esfenvalerate	R	12	7
imidacloprid(soil/foliar)	G	12	21/7
malathion	G	12	7
methomyl	R	48	1
oxamyl	R	48	14
thiamethoxam	G	12	7

(table continued next page)

Pesticide	Use Category[1]	Hours to Reentry	Days to Harvest
FUNGICIDE (FRAC code)			
Cabrio (Group 11)	G	12	0
chlorothalonil (Group M5)	G	12	0
Contans WG (biological)	G	4	0
Endura (Group 7)	G	12	0
fixed copper (Group M1)	G	24	2
iprodione (Group 2)	G	24	0
Mertect (Group 1)	G	12	--
Pristine (Groups 11 + 7)	G	12	0
Quadris (Group 11)	G	4	0
Ridomil Gold (Group 4)	G	48	0
Switch (Groups 9 + 12)	G	12	7
Ultra Flourish (Group 4)	G	48	0

See Table D-6. [1] G = general, R = restricted

Nematode Control

Nematode control is essential for successful production. See "Nematodes" section of Soil Pests-Their Detection and Control. Use fumigants listed in the "Soil Fumigation" section or use Vydate L. Heavy rainfall following application and prior to emergence can result in less effective control with Vydate L. Consult label before use

Disease Control

Damping-Off (Pythium and Phytophthora)

Apply the following preplant incorporated or as a soil-surface spray after planting.

mefenoxam--Ridomil Gold 1.0-2.0 pt 4EC/A or Ultra Flourish--2.0-4.0 pt 2E/A

Aster Yellows

Use insecticides to control leafhoppers, and control weed populations (including carrot volunteers) on periphery of fields early in the season to prevent transmission by leafhoppers from the weeds into the crop. The severity of aster yellows and damage to the crop will depend on the age of the crop when the infection occurs. The earlier the infection occurs, the more severe and widespread the symptoms later in the season. See leafhopper management on F22.

Leaf Blights (Alternaria and Cercospora)

Several varieties such as Bolero, Calgary, Carson, Cheyenne, and Choctaw exhibit tolerance to leaf blight and should be grown where adapted. For susceptible varieties, begin applications when disease threatens or early July, and continue every 7 to 10 days until frost. For processing crops or situations when the crop is not being marketed with its foliage, a 25% disease incidence threshold may be used to time the first fungicide application. Scout carrot fields by variety. While walking across the field in a 'V' or 'W' shaped transect, evaluate disease incidence on five leaves from five adjacent plants in a minimum of ten locations. A leaf is infected if one or more fungal leaf blight lesions are observed. When twelve of the fifty leaves scouted show symptoms (~25%) then apply the first fungicide spray. Subsequent sprays can be based on the label recommended spray interval or on increased disease severity. Under severe defoliation, add urea (10.0 lbs/A) to encourage new leaf growth.

Quadris--9.0-15.5 fl oz 2.08SC/A, or
Cabrio--8.0-12.0 oz 20EG/A, or
Pristine--8.0-10.5 oz 38WG/A, or
chlorothalonil--1.5-2.0 pt 6F/A or OLF

Powdery Mildew

For powdery mildew, if symptoms are observed early in the season, initiate a fungicide spray program to protect foliage. Do not make more than one sequential application of Cabrio and/or Pristine before alternating with chlorothalonil. Disease development mid to late in the season rarely results in reduced yield at harvest. Under severe defoliation, add urea (10.0 lbs/A) to encourage new leaf growth.

Cabrio--8.0-12.0 oz 20EG/A, or
Pristine--8.0-10.5 oz 38WG/A

Bacterial Blight (Xanthomonas)

Initiate a fixed copper-based bactericide program as soon as symptoms are first observed. Not all copper-based products are created equal and vary by copper content as well as active ingredient(s) (see Table E-8 for a list of available fixed-copper products and check label for rates). Avoid walking and working in fields when the foliage is wet to reduce bacterial spread.

White Mold

Few products are available for white mold control. Avoid planting in shaded or poorly drained areas and areas with a history of severe white mold, and rotate infested fields to a non-host crop for at least 2 to 3 years. Maximize air movement through the plant canopy by using wider plant spacing. Remove and destroy infected plant material in the field. The following biological fungicide has been tested in some states; however, limited information is available on its effectiveness in the Mid-Atlantic region. Apply 3 to 4 months prior to the onset of disease to allow the active agent to reduce inoculum levels of sclerotia in the soil. Following application, incorporate to a depth of 1 to 2 inches. D**o not plow** before seeding cole crops to avoid untreated sclerotia in lower soil layers from infesting the upper soil layer.

Contans--2.0-4.0 lb 5.3WG/A

Storage Rots (Botrytis and Sclerotinia)

Remove all damaged roots before placing in storage. Remove roots from field and place in storage at 32°F (0°C) and 90 to 95 percent relative humidity immediately after digging. As carrots are placed into storage, dip into the following fungicide solution for 5 to 10 seconds.

Mertect 340F--41.0 fl oz/100 gal