



This is a section from the

**2020/2021**

**Mid-Atlantic**

**Commercial Vegetable**

**Production Recommendations**

The recommendations are **NOT** for home gardener use.

The **full manual**, containing recommendations specific to New Jersey, can be found on the Rutgers NJAES website in the Publications section: <http://njaes.rutgers.edu/pubs/publication.asp?pid=E001>.

This manual will be revised biennially. In January 2021, a **critical update** with important updates to the 2020/2021 manual will be communicated through local Extension Agents and Vegetable Specialists.

The **label** is a legally-binding contract between the user and the manufacturer. The user must follow all rates and restrictions as per label directions. The use of any pesticide inconsistent with the label directions is a violation of Federal law.

**Cooperating Agencies:** Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

## F. Commodity Recommendations

### Pesticide Use Disclaimer

#### **THE LABEL IS THE LAW**

**Before using a pesticide, check the label for up to date rates and restrictions.**

**Labels can be downloaded from:** <http://www.cdms.net/>, <https://www.greenbook.net/>  
or <http://www.agrian.com/labelcenter/results.cfm>

**For more information on Pesticide Safety and the Pesticide Label see chapter D.**

#### **Guide to the Recommended Pesticide Tables in the Following Crop Sections:**

**1. Pesticides are listed by group or code number based on chemical structure and mechanism of action, as classified by the Weed Science Society of America (WSSA) for herbicides, the Insecticide Resistance Action Committee (IRAC) for insecticides, and the Fungicide Resistance Action Committee (FRAC) for fungicides.**

**If the number is in bold font, the product may have resistance concerns.**

**2. For restricted use pesticides, the restricted active ingredients are labeled with a \*.** (See section D 3.2.1 “Restricted Use Classification Statement” for more information).

**3. In addition to the pesticides listed below, other formulations or brands with the same active ingredient(s) may be available. ALWAYS CHECK THE LABEL:**

- a) to ensure a pesticide is labeled for the same use,**
- b) to ensure the pesticide is labeled for the desired crop, and**
- c) for additional restrictions.**

**4. All pesticide recommendations are made for spraying a broadcast area of 1 acre** (43,560 square feet). **Adjust the rate for banded applications** (for more information, see section E 1.3 Calibrating Granular Applicators).

**5. Check the label for the maximum amount of pesticide per application and the maximum number of applications per year.**

**6. Bee Toxicity Rating (Bee TR):** N=nontoxic; L=minimum impact on bees; M=moderately toxic, can be used if dosage, timing and method of application are correct, but should NOT be applied directly to the crop if bees are present; H=highly toxic, severe losses expected, -- = data not available.

# Carrots

## Recommended Varieties<sup>1</sup>

<b>Fresh Market</b>	Bolero*		<b>Processing: Dicing</b>	Danvers 126
	Cellobunch*			Danvers Half Long
	Enterprise*			Hercules*
	Envy* (early)			Red Cored Chantenay
	Fuerte* (early)			Royal Chantenay*
	Goldfinger* (early)			
	Kuroda*			
	Maverick (early)*			
	Nantindo* (early)			
	Napoli			
	Romance			
	Sugarsnax 54			
	Tendersnax*			
	Tendersweet*			
	<b>Processing: “Coins”</b>	Bolero (early)*		
		Goldfinger*		
		Scarlet Nantes		
		SV2384DL*		
		YaYa*		

<sup>1</sup>Listed alphabetically. \*Indicates hybrid variety

## Recommended Nutrients Based on Soil Tests

In addition to using the table below, check the suggestions on rate, timing, and placement of nutrients in your soil test report and chapter B Soil and Nutrient Management. Your state’s soil test report recommendations and/or your farm’s nutrient management plan supersede recommendations found below.

Carrots <sup>1</sup>	N (lb/A)	Soil Phosphorus Level				Soil Potassium Level				Nutrient Timing and Method
		Low	Med	High (Opt)	Very High	Low	Med	High (Opt)	Very High	
		P <sub>2</sub> O <sub>5</sub> (lb/A)				K <sub>2</sub> O (lb/A)				
50-80	150	100	50	0	150	100	50	0	Total nutrient recommended	
50	150	100	50	0	150	100	50	0	Broadcast and disk-in	
25-30	0	0	0	0	0	0	0	0	Sidedress if needed	

<sup>1</sup>Apply 12 lb/A of boron (B) with broadcast fertilizer; see also Table B-7 in chapter B Soil and Nutrient Management.

**Seed Treatment** See Disease Control below. Seed treatments are not a substitute for high-quality seed.

## Seeding Dates

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

## Seeding Rate and Spacing

**Processing:** Rows 1836 inches apart. “Coins”: sow at a density of 16 plants/ft. Dicing: sow 6 plants/ft (8 if soil is fine-textured). Dicers: 1-2 lb/A using 2-inch scatter shoe. Depth of seeding should be no greater than ¼ inch.

**Fresh market and Cut and Peel:** Rows 1836 inches apart; sow for 6-8 plants/ft or 2-4 lb/A using 4-inch scatter shoe. Depth of seeding should be no greater than ¼ inch.

**Processing and Fresh:** Sowing with a precision vacuum seeder produces more uniform carrots. In a row, each vacuum plate meters seed to three separate lines. Lines are generally 1.5-2 inches apart and seeds are dropped about 1.5-2 inches apart within the line, resulting in 4-6 seeds/ft of seed-line for dicers and 6-8 plants/ft for slicers or fresh market. If triple line sets are used, increase the distance between seeds in the center row.

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

## Harvest and Post Harvest Considerations

Early fresh market carrots are harvested from July to September. Late market carrots are harvested from September into early winter. Fresh market carrots should be over 5 inches long and 0.751.5 inches in diameter. Carrots harvested and handled in hot weather are more prone to rapid decay, and care should be exercised in handling to prevent wilting. Fresh market carrots in small plantings are harvested by loosening the soil around the plants with a garden fork and then pulling carrots gently out of the ground by the tops. For larger acreages carrots with intact

tops are harvested with a belt pick-up harvester that lifts carrots by their foliage. Belt pick up, coulter pick up, or modified potato harvester types are used for processing carrots.

Carrots are processed immediately after harvest. Most are scalped (tops removed) just before digging. A reduction in yield of about 15-20% occurs when carrots are field scalped. Scalped carrots, and those with inadequate, or frozen tops are harvested with a coulter pick-up or a modified potato harvester. Carrots with intact tops are harvested with a belt pick-up harvester that lifts carrots by their foliage then cuts off the tops.

Fresh market carrots are washed, sorted, and packed into 48 1-lb plastic bags, or 24 2-lb plastic bags per carton, or loose in 50-lb mesh or plastic sacks. Store carrots at 32°F (0°C) and 98100% relative humidity. Carrots for processing may be given a pre-storage dip treatment in a 0.1% solution of sodium o-phenylphenate- (SOPP) to reduce storage decay. The solution is not rinsed off after treatment. Careful handling during and after harvest to avoid bruising, cutting and breakage, will help ensure successful storage.

Mature topped carrots can be stored 7-9 months at 32-34°F (0- 1°C) and 98100% relative humidity. Prompt cooling- to 40°F (4°C) or below is essential for extended storage. Humidity should be kept high to prevent wilting. Carrots stored at 98-100% relative humidity develop less decay, lose less moisture, and remain crisper than those stored at 90-95% relative humidity. A temperature of 32-34°F is essential to minimize decay and sprouting.

Pre-storage washing of carrots may be desirable if they are harvested under wet conditions. Many potential decay-causing organisms are removed by washing and air circulation is improved. Air circulation between crates or pallet boxes with carrots is desirable to remove respiratory heat, maintain uniform temperatures, and help prevent condensation. An air velocity of about 14-20 ft/min is adequate at low storage temperatures.

Bitterness in carrots, which may develop in storage, is due to ethylene exposure. This gas is given off by apples, pears, and certain other fruits and vegetables and from decaying tissues. Bitterness can be prevented by storing carrots away from such products. Also, ethylene and development of bitterness can be minimized by low-temperature. Surface browning or oxidative discoloration often develops in carrots stored for extended periods.

## Weed Control

### THE LABEL IS THE LAW-see the Pesticide Use Disclaimer on the first page of chapter F. Recommended Herbicides

1. Identify the weeds in each field and select recommended herbicides. More information is available in the “Herbicide Effectiveness on Common Weeds in Vegetables” (Table E-2) in chapter E Pest Management.
2. Minimize herbicide resistance development. Identify the herbicide site of action group number and follow recommended good management practices; **bolded group numbers in tables below are herbicides at higher risk for selecting resistant weed populations.** Include non-chemical weed control whenever possible.

1. Soil-Applied (Preplant Incorporated or Preemergence)						
Group	Product Name	Product Rate	Active Ingredient (*= <b>Restricted Use</b> )	Active Ingredient Rate	PHI (d)	REI (h)
3	Treflan 4EC	1 to 2 pt/A	<b>trifluralin</b>	0.50 to 1.0 lb/A	--	12
-Labeled for preplant incorporated only; incorporate into 2-3 inches of soil within 8 hr after application. Primarily controls annual grasses with a few broadleaf weeds. <b>Do not</b> use (or reduce the rate) when cold, wet soil conditions are expected, or crop injury may result. -Poor incorporation can reduce overall weed control. Maximum application not addressed on label.						
5	Caparol 4L	2 to 4 pt/A	<b>prometryn</b>	1 to 2 lb/A	30	12
-Apply after seeding, but before crop emergence. 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.						
7	Lorox 50DF	1 to 3 lb/A	<b>linuron</b>	0.5 to 1.5 lb/A	14	24
- <b>Labeled for use in DE, MD, NJ, and VA.</b> Apply after seeding, but before crop emergence. Determine carrot variety tolerance to Lorox prior to use. Sow seed at least ½ 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. - <b>Do not</b> exceed a total of 2 lb/A of active ingredient linuron per season.						
15	Dual Magnum 7.62E	1.33 to 2 pt/A	<b>s-metolachlor</b>	1.26 to 1.9 lb/A	64	24
- <b>A Special Local Needs Label 24(c) has been approved for the use of Dual Magnum 7.62E to control weeds in carrots in NJ (expires 1/30/2022).</b> The use of Dual Magnum is legal ONLY if a waiver of liability has been completed (see <a href="http://www.syngenta-us.com/labels/indemnified-label-login">www.syngenta-us.com/labels/indemnified-label-login</a> ).						

1. Soil-Applied (Preplant Incorporated or Preemergence), Dual Magnum, - continued on next page

## F Carrots

### 1. Soil-Applied (Preplant Incorporated or Preemergence), Dual Magnum - continued

- Do not incorporate. Use only on high organic matter (>20%) muck soils.
- Primarily controls annual grasses, certain broadleaf weeds, and nutsedge. Dual will not control emerged weeds.
- Do not apply more than 2 pt/A during any one crop year.
- Other generic versions of metolachlor and s-metolachlor may be available, and may or may not be labeled for use in the crop.

### 2. Postemergence

Group	Product Name	Product Rate	Active Ingredient (*=Restricted Use)	Active Ingredient Rate	PHI (d)	REI (h)
1	Select 2 EC Select Max 0.97EC	6.0-8.0 fl oz/A 9.0 to 16.0 fl oz/A	clethodim	0.07 to 0.12	30	24
1	Poast 1.5EC	1.0 to 2.5 pt/A	sethoxydim	0.2 to 0.5 lb/A	30	12
1	Fusilade DX 2EC	8 to 12 fl oz/A	fluzifop	0.125 to 0.188 lb/A	45	12
<p>-<b>Select 2EC</b>: use crop oil concentrate (COC) at 1% v/v (1 gal/100 gal of spray solution). <b>Select Max</b>: use nonionic surfactant (NIS) at 0.25% v/v (1 qt/100 gal of spray solution). <b>Poast</b>: use COC at 1.0% v/v. <b>Fusilade DX</b>: use COC at 1.0% v/v or NIS at 0.25% v/v.</p> <p>-<b>The use of COC may increase the risk of crop injury when hot or humid conditions prevail.</b> To reduce the risk of crop injury, omit additives or switch to NIS when grasses are small and soil moisture is adequate.</p> <p>-Use lower labeled rates for annual grass control and higher labeled rates for perennial grass control.</p> <p>-Yellow nutsedge, wild onion, wild garlic, and broadleaf weeds will not be controlled.</p> <p>-Controls many annual and certain perennial grasses, including annual bluegrass, but Poast is preferred for goosegrass control. For best results, treat annual grasses when they are actively growing and before tillers are present. Control may be reduced if grasses are large or under hot or dry weather conditions.</p> <p>-Repeated applications may be necessary to control certain perennial grasses. If repeated applications are necessary, allow 14 days between applications.</p> <p>-<b>Do not</b> tank-mix with or apply within 2 to 3 days of any other pesticide, unless labeled, as this may increase the risk of crop injury or reduce the control of grasses. Rainfastness is 1 h.</p> <p>-<b>Do not</b> apply more than 8 fl oz of Select 2EC in a single application and <b>do not</b> exceed 2 pt/A for the season; <b>do not</b> apply more than 16 fl oz of Select Max in a single application and <b>do not</b> exceed 4 pt/A for the season.</p> <p>-<b>Do not</b> apply more than 2.5 pt/A Poast in single application and <b>do not</b> exceed 5 pt/A for the season.</p> <p>-<b>Do not</b> apply more than 24 fl oz/A of Fusilade DX in a single application and <b>do not</b> exceed 3 pt/A per season.</p>						
5	Caparol 4L	2 to 4 pt/A	prometryn	1.0 to 2.0 lb/A	30	12
<p>-Apply 4L after the crop has 3 true leaves, through the 6 true leaf stage of growth.</p> <p>-Add nonionic surfactant at 0.5% of the spray solution (2 qt/100 gal) or oil concentrate at 1% of the spray solution (1 gal/100 gal).</p> <p>-Primarily controls many seedling annual broadleaf weeds less than 2 inches tall. Annual grasses may only be suppressed.</p> <p>-Follow with overhead irrigation if rainfall does not occur.</p> <p>-Use lower rate when the crop and weeds are small, or when cloudy, humid growing conditions prevail and the higher rate when the crop and weeds are more mature and hot dry growing conditions prevail.</p> <p>-One preemergence treatment of up to 4 pt/A plus two postemergence treatments of 2 pt/A may be applied, but <b>do not</b> exceed 8 pt/A per crop cycle.</p>						
5	Metribuzin 75DF Metribuzin 4L	0.33 lb/A 0.5 pt/A	metribuzin	0.25 lb/A	60	12
<p>-Apply after carrots have formed 5 to 6 true leaves, but before weeds are 1 inch in height or diameter.</p> <p>-Controls many broadleaf weeds, including tropic croton, spotted spurge, and horseweed.</p> <p>-<b>Do not</b> use to control triazine-resistant weeds.</p> <p>-<b>Do not</b> apply to carrots grown for seed.</p> <p>-<b>Do not</b> apply within 3 days after periods of cool, wet, cloudy weather.</p> <p>-<b>Do not</b> tank-mix with any other pesticide or apply within 3 days, or excessive crop injury may result.</p> <p>-If needed a second application may be made after an interval of at least 3 weeks. <b>Do not</b> apply more than 0.67 lb/A per season of metribuzin 75DF or 1 pt/A per season of metribuzin 4L.</p> <p>-Following application of metribuzin chlorosis (yellowing) and burning of the leaf tissue may occur. Varietal differences exist in carrot tolerance to metribuzin. Use caution when treating new varieties. Rainfastness is 6 h.</p>						
7	Lorox 50DF	1.5 to 3 lb/A	linuron	0.75 to 1.5 lb/A	14	24
<p>-Apply when carrots are approximately 36 inches tall. Avoid postemergence applications when daily temperatures are 90°F (32°C) or above or during a period of cloudy weather or just after rain or irrigation.</p> <p>-Linuron is effective on most weeds including ragweed.</p> <p>-<b>Do not</b> plant treated area to crops not on the label within a 4-month period after treatment.</p>						
<h3>3. Other Labeled Herbicides</h3> <p>These products are labeled but limited local data are available; and/or are labeled but not recommended in our region due to potential crop injury concerns.</p>						
Group	Product Name	Active Ingredient (*=Restricted Use)				
3	Prowl H2O	pendimethalin				
14	Aim	carfentrazone				

## Insect Control

**THE LABEL IS THE LAW-see the Pesticide Use Disclaimer on the first page of chapter F. Recommended Insecticides**

### Aphids

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1B	Malathion 57 EC	1.5 to 2.0 pt/A	malathion	7	24	H
4A	Actara 25WDG	1.5 to 3.0 oz/A	thiamethoxam	7	12	H
4A	Admire Pro	4.4 to 10.5 fl oz/A	imidacloprid - <b>soil</b> (in furrow spray)	21	12	H
4A	Admire Pro	1.2 fl oz/A	imidacloprid - <b>foliar</b>	7	12	H
28	Exirel	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
29	Beleaf 50SG	2.0 to 2.8 oz/A	flonicamid	3	12	L

### Carrot Weevils

Begin treatment when weevils become active usually when the soil surface reaches 60°F (16°C).

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Vydate L	2.0 to 4.0 pt/A	oxamyl* - <b>foliar</b>	14	48	H
3A	Asana XL	9.6 fl oz/A	esfenvalerate*	7	12	H
3A	Baythroid XL	2.8 fl oz/A	beta-cyfluthrin*	0	12	H
3A	Tombstone, others	2.8 fl oz/A	cyfluthrin*	0	12	H
3A + 4A	Leverage 360	2.4 to 2.8 fl oz/A	imidacloprid + beta-cyfluthrin*	7	12	H

**Cutworms** See also section E 3.1. Soil Pests - Detection and Control.

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Lannate LV	0.75 to 1.5 pt/A	methomyl*	1	48	H
3A	Asana XL	5.8 to 9.6 fl oz/A	esfenvalerate*	7	12	H
3A	Baythroid XL	0.8 to 1.6 fl oz/A	beta-cyfluthrin*	0	12	H
3A	Tombstone, others	0.8 to 1.6 fl oz/A	cyfluthrin*	0	12	H
28	Exirel	10 to 20.5 fl oz/A	cyantraniliprole	1	12	H

### Leafhoppers

Begin spraying when true leaves first appear. Repeat every 14 days or as needed. Leafhoppers transmit aster yellows. Seedling protection from leafhoppers is important.

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Lannate LV	1.5 to 3.0 pt/A	methomyl*	1	48	H
1B	Malathion 57 EC	2.0 pt/A	malathion	7	24	H
3A	Asana XL	5.8 to 9.6 fl oz/A	esfenvalerate*	7	12	H
3A	Baythroid XL	1.6 to 2.8 fl oz/A	beta-cyfluthrin*	0	12	H
3A	Tombstone, others	1.6 to 2.8 fl oz/A	cyfluthrin*	0	12	H
3A + 4A	Leverage 360	2.4 to 2.8 fl oz/A	imidacloprid + beta-cyfluthrin*	7	12	H
4A	Actara 25WDG	1.5 to 3.0 oz/A	thiamethoxam	7	12	H
4A	Admire Pro	4.4 to 10.5 fl oz/A	imidacloprid - <b>soil</b>	7	12	H
4A	Admire Pro	1.2 fl oz/A	imidacloprid - <b>foliar</b>	7	12	H

## Disease Control

**THE LABEL IS THE LAW-see the Pesticide Use Disclaimer on the first page of chapter F. Recommended Fungicides**

### Nematodes

Avoid seeding in fields with a known history of nematode problems. Nematode control is essential for successful production. See fumigants listed in the chapter E Pest Management (sections E 1.5 Soil Fumigation and E 1.6 Nematode Control).

### Seed Treatment

Use seed treated with Maxim 4FS (0.08 to 0.16 fl oz/100 lb seed) for *Rhizoctonia* and *Fusarium* control or Apron XL (0.32 to 0.64 fl oz/100 lb seed) or Allegiance FL (0.75 fl oz/100 lb seed) for *Pythium* damping-off protection. Seed treatments are not a substitute for high-quality seed.

### Damping-Off caused by *Phytophthora* and *Pythium*

Use seed treatments as instructed above.

Apply one of the following preplant incorporated or as a soil-surface spray after seeding. Note: If seed treatment contained mefenoxam (Apron) or metalaxyl (Allegiance) do not use soil application.						
Code	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
4	Ridomil Gold 4SL	0.5 to 1.3 pt/A	mefenoxam	AP	48	N
4	Ultra Flourish 2E	2.0 to 4.0 pt/A	mefenoxam	AP	48	N

## Bacterial and Fungal Diseases

### Aster Yellows

Use insecticides to control leafhoppers. Control weed populations (including carrot volunteers) on the 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. The earlier the infection occurs, the more severe and widespread the symptoms may become later in the season. See leafhopper management under Insect Control above.

### Bacterial Blight (*Xanthomonas*)

Initiate a fixed copper-based program as soon as symptoms are observed. Copper content and active ingredient(s) vary between copper-based products. See label for specific rates and use. Avoid working in fields when the foliage is wet to reduce spread of the disease. Some coppers are OMRI-approved and may be helpful in suppressing bacterial blight and some fungal leaf blights in organic production systems.

### Leaf Blights (*Alternaria* and *Cercospora*)

Begin fungicide applications when disease threatens or start preventative fungicide programs in early July and continue every 7 to 10 days as long as conditions favor disease development. For processing crops or situations where 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 for each variety, evaluate disease incidence on 5 leaves from 5 adjacent plants in a minimum of 10 locations. A leaf is infected if one or more fungal leaf blight lesions are observed. Apply the first fungicide spray when 12 of the 50 leaves (~25%) scouted show symptoms. Subsequent sprays should be applied based on the label recommended spray interval or on increased disease severity. Under severe defoliation, add urea (10.0 lb/A) to encourage new leaf growth.

*Leaf Blights (Alternaria and Cercospora) - continued on next page*

Leaf Blights (*Alternaria* and *Cercospora*) - continued

Code	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
<b>Tank mix one of the following fungicides with chlorothalonil 6F 1.5 to 2.0 pt/A and rotate between different FRAC codes<sup>1</sup> from below:</b>						
7	Fontelis 1.67SC	16.0 to 30.0 fl oz/A	penthiopyrad	0	12	L
7 + 11	Pristine 38WG	8.0 to 10.5 oz/A	boscalid + pyraclostrobin	0	12	--
11	azoxystrobin 2.08F	9.0 to 15.5 fl oz/A	azoxystrobin	0	4	N
11	Cabrio 20EG	8.0 to 12.0 oz/A	pyraclostrobin	0	12	N
<b>For <i>Alternaria</i> leaf blight only, tank mix one of the following fungicides with chlorothalonil 6F 1.5 to 2.0 pt/A and rotate between different FRAC codes<sup>1</sup>:</b>						
2	iprodione 4F <sup>2</sup>	1.0 to 2.0 pt/A <sup>2</sup>	iprodione	0	24	N
7	Endura 70W	4.5 oz /A	boscalid	0	12	--
3 + 9	Inspire Super 2.82EW	16.0 to 20.0 fl oz/A	difenoconazole + cyprodinil	7	12	--
7 + 11	Merivon 2.09SC	4.0 to 5.5 fl oz/A	fluxapyroxad + pyraclostrobin	7	12	N
9 + 12	Switch 62.5WG	11.0 to 14.0 oz/A	cyprodinil + fludioxonil	7	12	L

<sup>1</sup>Chlorothalonil applied alone will not provide adequate control of *Cercospora*, *Alternaria*, or Powdery mildew.

<sup>2</sup>Check label for rotational restrictions.

<b>For <i>Alternaria</i> leaf blight only in organic production systems apply the following every 7 to 14 days to help suppress disease development:</b>						
Code	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
44	Serenade Opti (OMRI)	14.0 to 20.0 oz/A	<i>Bacillus subtilis</i> (QST 713 strain)	0	4	N
44	Lifeguard WG (OMRI)	4.5 oz/100 gal	<i>Bacillus mycoides</i> isolate J	0	4	N

## Powdery Mildew

Initiate a fungicide program to protect foliage if symptoms are observed early in the season. Disease development mid- to late-season rarely results in reduced yield. Under severe defoliation, add urea (10.0 lb/A) to encourage new leaf growth.

Code	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
<b>Tank mix one of the following fungicides with chlorothalonil 6F 1.5 to 2.0 pt/A and rotate:</b>						
7	Fontelis 1.67SC	16.0 to 30.0 fl oz/A	penthiopyrad	0	12	L
11	Cabrio 20EG	8.0 to 12.0 oz/A	pyraclostrobin	0	12	N
<b>Or rotate one of the following fungicides with chlorothalonil 6F 1.5 to 2.0 pt/A:</b>						
7 + 11	Merivon 2.09SC	4.0-5.5 fl oz/A	fluxapyroxad + pyraclostrobin	7	12	N
7 + 11	Pristine 38WG	8.0 to 10.5 oz/A	boscalid + pyraclostrobin	0	12	--

Southern blight (*Sclerotium rolfsii*)

Southern blight can cause significant losses. Once established, southern blight will persist in infested soils for many years. Rotate away from known infested fields. Apply a fungicide every 7-14 days and rotate between the following fungicides with different modes of action when symptoms appear:

Code	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
3 + 11	Quadris Top 1.67SC	14.0 fl oz/A	difenoconazole + azoxystrobin	7	12	--
7	Fontelis 1.67SC	16.0 to 30.0 fl oz A	penthiopyrad	0	12	L
11	azoxystrobin 2.08F	15.5 fl oz/A	azoxystrobin	0	4	N
29	Omega 500F	1.0 pt/A	fluzinam	7	12	N

Storage rots caused by *Botrytis* and White mold (*Sclerotinia sclerotiorum*)

Remove roots from field, separate and discard all damaged roots before placing them in storage at 32°F (0°C) and 90-95% relative humidity immediately after digging.

Code	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
<b>Prior to harvest apply:</b>						
7	Fontelis 1.67SC	16.0 to 30.0 fl oz/A	penthiopyrad	0	12	L
<b>Or, as carrots are placed into storage, dip into:</b>						
1	Mertect 340-F	41.0 fl oz/100 gal water for 5-10 seconds	thiabendazole	NA	NA	N



**For Immediate Medical Attention**

**Call 911**

**For a Pesticide Exposure Poisoning  
Emergency Call**



**For All States**

This number will automatically connect you to the poison center nearest to you.

**Anyone with a poisoning emergency can call the toll-free telephone number for help.** Personnel at the Center will give you first-aid information and direct you to local treatment centers if necessary.

### **For Pesticide Spills**

**Small Spills:** See the product label for cleanup advice.

**Large spills:** Call the National Response Center at 1-800-424-8802 or CHEMTREC at 800-424-9300 (24 hours) - Industry assistance with emergency response cleanup procedures for large, dangerous spills.

**Be aware of your responsibility to report spills to the proper state agency.**