



This is a section from the

2018

Mid-Atlantic

Commercial Vegetable

Production Recommendations

The manual, which is published annually, is **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>.

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/>, <http://www.greenbook.net/> or <http://www.agrian.com/labelcenter/results.cfm>

Guide to the Recommended Pesticide Tables in the Following Crop Chapters:

1. Pesticides are listed by **group or code number based on chemical structure and mode 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 the Pesticide Safety chapter 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 the Pest Management chapter, Calibrating Granular Applicators section).
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 crop if bees are present; H=highly toxic, severe losses expected, -- = data not available.

Carrots

Recommended Varieties¹

| | | | |
|--------------------------------|---------------------|---------------------|-------------------|
| Processing: Dicing | Danvers 126 | Fresh Market | Bolero* |
| | Danvers Half Long | | Cellobunch* |
| Royal Chantenay* | Enterprise* | | |
| Red Cored Chantenay | Envy* (early) | | |
| | Goldfinger* (early) | | |
| Processing: “Coins” | Bolero (early)* | | Maverick (early)* |
| | Scarlet Nantes | | Nantindo* (early) |
| | SV2384DL* | | Sugarsnax 54* |
| | YaYa* | | Tendersnax* |
| | | | Tendersweet |

¹Listed 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 the Soil and Nutrient Management chapter. Your state’s soil test report recommendations and/or your farm’s nutrient management plan supersede recommendations found below.

| Carrots ¹ | 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 ₂ O ₅ (lb/A) | | | | K ₂ 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 |

¹Apply 1-2 lb/A of boron (B) with broadcast fertilizer; see also Table B-7 in the Soil and Nutrient Management chapter.

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 18-36 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 18-36 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 0.75-1.5 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.

F 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 98-100% 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 98-100% 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 page F 1.

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 the Pest Management chapter.
2. Minimize herbicide resistance development. Identify the herbicide site mode of action group and follow recommended good management practices. Include non-chemical weed control whenever possible.

| 1. Soil-Applied (Preplant Incorporated or Preemergence) | | | | | | |
|---|-------------------|----------------|---|------------------------|------------|------------|
| Group | Product Name | Product Rate | Active Ingredient (* = Restricted Use) | Active Ingredient Rate | PHI (d) | REI (h) |
| 3 | Treflan 4EC | 1 to 2 pt/A | trifluralin | 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. Do not 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 | prometryn | 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 | linuron | 0.5 to 1.5 lb/A | 14 | 24 |
| -Labeled for use in DE, MD, NJ, and VA ONLY! 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. - Do not exceed a total of 2 lb/A of active ingredient linuron per season. | | | | | | |
| 15 | Dual Magnum 7.62E | 1.33 to 2 pt/A | s-metolachlor | 1.26 to 1.9 lb/A | 64 | 24 |
| -A Special Local-Needs 24(c) label has been approved for the use of Dual Magnum 7.62E to control weeds in carrots in NJ. The use of Dual Magnum is legal ONLY if a waiver of liability has been completed (see http://www.farmassist.com/). - 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 | fluazifop | 0.125 to 0.188 lb/A | 45 | 12 |
| <p>-Select 2EC: use crop oil concentrate (COC) at 1% v/v (1 gal/100 gal of spray solution). -Select Max: use nonionic surfactant (NIS) at 0.25% v/v (1 qt/100 gal of spray solution). -Poast: Apply with COC at 1.0% v/v. -Fusilade DX: Apply with COC at 1.0% v/v or NIS at 0.25% v/v. -The use of COC 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. -Use lower labeled rates for annual grass control and higher labeled rates for perennial grass control. -Yellow nutsedge, wild onion, wild garlic, and broadleaf weeds will not be controlled. Controls many annual and certain perennial grasses, including annual bluegrass, but will not consistently control goosegrass. Control may be reduced if grasses are large or under hot or dry weather conditions. If repeat applications are necessary, allow 14 days between applications. -Do not 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 1 hr. -Do not apply more than 8 fl oz of Select 2EC in a single application and do not exceed 2 pt/A for the season; do not apply more than 16 fl oz of Select Max in a single application and do not exceed 4 pt/A for the season. -Do not apply more than 2.5 pt/A Poast in single application and do not exceed 5 pt/A for the season. -Do not apply more than 24 fl oz/A of Fusilade DX in a single application and do not 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. -Add nonionic surfactant to be 0.5% of the spray solution (2 qt/100 gal) or oil concentrate to be 1% of the spray solution (1 gal/100 gal). -Primarily controls many seedling annual broadleaf weeds less than 2 inches tall. Annual grasses may only be suppressed. -Follow with overhead irrigation if rainfall does not occur. -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. -One preemergence treatment of up to 4 pt/A plus two postemergence treatments of 2 pt/A may be applied, but do not exceed 8 pt/A per crop cycle.</p> | | | | | | |
| 5 | Glory 75DF, TriCor 75DF | 0.33 lb/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. -Controls many broadleaf weeds, including tropic croton, spotted spurge, and horseweed. -Do not use to control triazine-resistant weeds. -Do not apply to carrots grown for seed. -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. -If needed a second application may be made after an interval of at least 3 weeks. Do not apply more than 0.67 lb/A per season -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 hrs.</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. -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.</p> | | | | | | |

| 3. Postharvest | | | | | | |
|--|------------------|----------------|---|------------------------|------------|------------|
| Group | Product Name | Product Rate | Active Ingredient (* = Restricted Use) | Active Ingredient Rate | PHI (d) | REI (h) |
| 22 | Gramoxone SL 2.0 | 2.25 to 3 pt/A | paraquat* | 0.56 to 0.75 lb/A | 0 | 24 |
| <p>-A Special Local-Needs 24(c) label has been approved for the use of Gramoxone SL 2.0 for postharvest crop desiccation in DE, NJ and VA. -Apply after the last harvest. Always include an adjuvant. -Spray coverage is essential for optimum effectiveness. See the label for additional information and warnings. -Rainfastness 30 minutes. A maximum of 2 applications for crop desiccation are allowed.</p> | | | | | | |

Insect Control

THE LABEL IS THE LAW - See the Pesticide Use Disclaimer on page F 1.

Recommended Insecticides

Aphids

| Apply one of the following formulations: | | | | | | |
|--|-----------------|---------------------|--|------------|------------|-----------|
| Group | Product Name | Product Rate | Active Ingredient(s) (*=Restricted Use) | PHI (d) | REI (h) | Bee TR |
| 1B | Malathion 57 EC | 1.5 to 2.0 pt/A | malathion | 7 | 24 | H |
| 4A | Actara | 1.5 to 3.0 oz/A | thiamethoxam | 7 | 12 | H |
| 4A | Admire Pro | 4.4 to 10.5 fl oz/A | imidacloprid - soil (in furrow spray) | 21 | 12 | H |
| 4A | Admire Pro | 1.2 fl oz/A | imidacloprid - foliar | 7 | 12 | H |
| 9C | Beleaf 50 G | 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) (*=Restricted Use) | PHI (d) | REI (h) | Bee TR |
| 1A | Vydate L | 2 to 4 pt/A | oxamyl* | 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 | 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

| Apply one of the following formulations: | | | | | | |
|--|--------------|--------------------|--|------------|------------|-----------|
| Group | Product Name | Product Rate | Active Ingredient(s) (*=Restricted Use) | 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 | 0.8 to 1.6 fl oz/A | cyfluthrin* | 0 | 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) (*=Restricted Use) | 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 | 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 | 1.5 to 3.0 oz/A | thiamethoxam | 7 | 12 | H |
| 4A | Admire Pro | 4.4 to 10.5 fl oz/A | imidacloprid - soil | 7 | 12 | H |
| 4A | Admire Pro | 1.2 fl oz/A | imidacloprid - foliar | 7 | 12 | H |

Disease Control

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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 Pest Management chapter (Soil Fumigation and Nematodes sections).

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 Blight continued on next page

F Carrots

Leaf Blight - continued

| Code | Product Name | Product Rate | Active Ingredient(s) (*=Restricted Use) | PHI (d) | REI (h) | Bee TR |
|--|-----------------------------|------------------------------|--|------------|------------|-----------|
| Tank mix one of the following fungicides with chlorothalonil 6F 1.5 to 2.0 pt/A and rotate between different FRAC codes¹: | | | | | | |
| 7 | Fontelis 1.67SC | 16.0 to 30.0 fl oz/A | penthiopyrad | 0 | 12 | L |
| 7 + 11 | Merivon 2.09SC | 4.0 to 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 | -- |
| 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 |
| For Alternaria 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 codes¹: | | | | | | |
| 2 | iprodione 50WP ² | 1.0 to 2.0 pt/A ² | iprodione | 0 | 24 | N |
| 7 | Endura 70W | 4.5 oz /A | boscalid | 0 | 12 | -- |
| 7 | Fontelis 1.67SC | 16.0 to 30.0 fl oz/A | penthiopyrad | 0 | 12 | L |
| 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 | N |

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

²Check label for rotational restrictions.

Powdery Mildew

Initiate a fungicide program to protect foliage if symptoms are observed early in the season. Do not make more than one sequential application of Cabrio or Pristine before alternating to chlorothalonil alone. 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 |
|--|-----------------|----------------------|--|------------|------------|-----------|
| Tank mix one of the following fungicides with chlorothalonil 6F 1.5 to 2.0 pt/A and rotate: | | | | | | |
| 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 |
| Or rotate one of the following fungicides with chlorothalonil 6F 1.5 to 2.0 pt/A: | | | | | | |
| 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 | fluzazinam | 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 |
|--|-----------------|---|--|------------|------------|-----------|
| Prior to harvest apply: | | | | | | |
| 7 | Fontelis 1.67SC | 16.0 to 30.0 fl oz/A | penthiopyrad | 0 | 12 | L |
| Or, as carrots are placed into storage, dip into: | | | | | | |
| 1 | Mertect 340F | 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 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.