

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.

Celery

Recommended Varieties

The varieties Conga, Merengo (hybrid), Samba, and Tango are recommended for PA and other areas where climate conditions are favorable for celery production. Varieties are listed by maturity (earliest listed first).

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.

Celery ¹		Soil Phosphorus Level				Soil Potassium Level				Nutrient Timing and Method
		Low	Med	High (Opt)	Very High	Low	Med	High (Opt)	Very High	
	N (lb/A)	P ₂ O ₅ (lb/A)				K ₂ O (lb/A)				
	150-175	250	150	100	0	250	150	100	0	Total nutrient recommended
	50-75	250	150	100	0	250	150	100	0	Broadcast and disk-in
	25-50	0	0	0	0	0	0	0	0	Sidedress 2-3 weeks after planting
	25-50	0	0	0	0	0	0	0	0	Sidedress 6-8 weeks after planting

¹Apply 1.5-3 lb/A of boron (B) with broadcast fertilizer; see also Table B-7 in chapter B Soil and Nutrient Management. See **Brown Check** under Celery Disorders below.

Seed Treatment

Freshly harvested seed may exhibit dormancy leading to poor germination. Seeds should either be stored below 40°F (4°C) for 6 months or longer or treated with phytohormones. For seed treatments, see Disease Control below.

Transplant Production

Transplants grown locally in greenhouses or imported from Florida are commonly used. Sow seed 10-12 weeks before field planting. About 35,000 plants can be produced from 2½ oz seed. Maintain the greenhouse at 70-75°F (21-24°C) until emergence, and after that at 65-70°F (18-21°C) for steady growth. Maintain night temperatures above 55°F (13°C) to avoid the production of "seeders". Plants for an early crop should be set in the field when there is no more risk of frost or a cold period. If plants become too tall or spindly before field setting, they can be clipped back to a height of 5-6 inches. Plants can be hardened by withholding water 7-10 days before field planting. Never harden celery plants by lowering temperatures.

Planting and Spacing

Celery is a cool-season crop that grows most rapidly and develops the best yield and quality at moderately cool temperatures (55-75°F, 13-24°C), good soil moisture, and relatively high humidity. Satisfactory crops can be produced on fertile, medium-textured mineral soils with irrigation. The usual planting period is May 1 to June 30 with rows 16-32 inches apart and plants 8 inches apart in row. Set 30,000-45,000 plants/A.

Celery will withstand light freezes, but both young and old plants are damaged by moderate freezes. After exposure to temperatures below 55°F (13°C) for a number of days, celery (a biennial) initiates seed stalks (bolts). Under satisfactory growing conditions, celery reaches usable size 85-100 days from transplanting. High plant populations can promote blanching. For non self-blanching cultivars, blanching can be accomplished by trenching or other mechanical means. Special blanching practices can improve color and eating quality.

Since celery is expensive to grow, experience in both production and marketing is desirable before large-scale operations are attempted.

Harvest and Postharvest Considerations

Harvest when stalks are of sufficient size but before any pithiness has developed in the petioles. Harvested celery should be cooled quickly to temperatures below 45°F (7°C) by hydrocooling, vacuum-cooling, icing, or other means of refrigeration. Stalks can be held 5-7 weeks if storage is near 32°F (0°C) with 98% relative humidity.

Celery Disorders

Blackheart: Internal leaves develop a brown discoloration which eventually becomes deep black. The cause is similar to tip-burn of lettuce or blossom-end rot of tomato. The development of blackheart is promoted by

environmental conditions that favor rapid growth, such as heavy rain or irrigation before drought, or high nitrogen, potassium, and sodium levels. Water stress may result in a calcium deficiency disorder causing cell death. The risk of blackheart is reduced by avoiding wide fluctuations in moisture and nutrients and ensuring steady plant growth. Drip irrigation, which provides more even moisture levels can help reduce the risk. Drench applications of soluble calcium can lessen or prevent the development of blackheart.

Brown Check: A physiological disorder called “brown check,” is characterized by russetting and cracking on the inner side of the petiole. Brown check may be caused by high levels of soil potassium and/or high potassium fertilization rates, although boron nutrition may also be involved.

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 (* = Restricted Use)	Active Ingredient Rate	PHI (d)	REI (h)
5	Caparol 4L	2.4 to 3.3 pt/A	prometryn	1.2 to 1.6 lb/A	--	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; Do not use on sand or loamy sand soils, or crop injury may occur. Follow with overhead irrigation if rainfall does not occur. Primarily controls annual broadleaf weeds; annual grasses may only be suppressed. -Only 1 application per crop per year, Do not use both at planting and postemergence applications.						
8	Prefar 4E	5.0 to 6.0 qt/A	bensulide	5.0 to 6.0 lb/A	--	--
-Labeled for preplant incorporated or preemergence applications; do not incorporate more than 2 inches deep (1 inch is optimum). -Irrigate within 36 h of application with ½ inch of water; if not incorporated with irrigation or rainfall within 36 h, weed control may be reduced. Provides control/suppression of some annual grass weeds and pigweeds, purslane, and lambsquarters. - Do not apply more than 6 lb ai/A per season.						
2. Postemergence						
Group	Product Name	Product Rate	Active Ingredient (* = Restricted Use)	Active Ingredient Rate	PHI (d)	REI (h)
1	Select 2EC	6 to 8 fl oz/A	clethodim	0.07 to 0.12 lb/A	30	24
	SelectMax 0.97EC	9 to 16 fl oz/A				
	Poast 1.5EC	1.0 to 1.5 pt/A	sethoxydim	0.2 to 0.3 lb/A	30	12
- 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: use COC at 1.0% 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 NIS 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 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. If repeated 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 is 1 h. - 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 1.5 pt/A Poast in single application and do not exceed 3 pt/A for the season.						
5	Caparol 4L	1.6 to 2.0 pt/A	prometryn	0.8 to 1.0 lb/A	40	12
-Postemergence application can be made after the crop has 3 to 5 true leaves. Primarily controls many seedling annual broadleaf weeds less than 2 inches tall. Annual grasses may only be suppressed. 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 larger or hot dry growing conditions prevail. - Do not use on sand or loamy sand soils, or crop injury may occur. Do not tank-mix Caparol with any other pesticide. - Do not use spray additives such as nonionic surfactant or oil concentrate.						

2. Postemergence, Caparol, - continued on next page

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2. Postemergence, Caparol - continued

-Do not apply within 2 weeks of any herbicidal oil such as “carrot oil” or Stoddard Solvent.						
-Only 1 application per crop per year; Do not use both at planting and postemergence applications.						
7	Lorox 50DF	1.5 to 3.0 lb/A	linuron	0.75 to 1.5 lb/A	45	24
-For use on celery grown on muck soils only. Make a single application after celery transplants are established, but before celery is 8 inches tall Lorox will provide broadleaf weed control when applied to small weeds; will not control grass weeds.						
-Do not exceed 40 psi or apply when temperatures exceed 85°F. Do not add surfactants, oil concentrate, or liquid fertilizer.						
-Use only the Lorox 50DF formulation of linuron. Only 1 application per season is allowed.						

3. Other Labeled Herbicides

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.

Group	Product Name	Active Ingredient (*=Restricted Use)
3	Treflan	trifluralin
14	Aim	carfentrazone
15	Zidua SC (Supplemental label, expires May 31, 2022)	pyroxasulfon
14	Tuscany SC	flumioxazin

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) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
1B	Acephate 97 UP	0.5 to 1 lb/A	acephate	21	24	H
1B	Malathion 57 EC	1.5 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 - soil	45	12	H
4A	Assail 30SG	2.0 to 4.0 oz/A	acetamiprid	7	12	M
4A	Belay 2.13SC	9.0 to 12.0 fl oz/A	clothianidin - soil	21	12	H
4A	Belay 2.13SC	3.0 to 4.0 fl oz/A	clothianidin - foliar	7	12	H
4C	Closer SC	1.5 to 2 fl oz/A	sulfoxaflor	3	12	H
4D	Sivanto Prime or 200SL	21 to 28 fl oz/A	flupyradifurone - soil	21	4	M
4D	Sivanto Prime or 200SL	7 to 14 fl oz/A	flupyradifurone - foliar	1	4	M
9B	Fulfill 50WDG	2.75 oz/A	pymetrozine	7	12	L
9B	PQZ	2.4 to 3.2 fl oz/A	pyrifluquinazon	1	12	L
9D	Versys	1.5 fl oz/A	afidopyropen	0	12	L
23	Movento	4 to 5 fl oz/A	spirotetromat	7	24	L
28	Exirel	13.5 to 20.5 fl oz/A	cyantranilprole	1	12	H
28	Verimark	6.75 to 13.5 fl oz/A	cyantranilprole	n/a	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclanilprole	1	4	H
28 + 6	Minecto Pro	10 fl oz/A	cyantranilprole + abamectin*	7	12	H

Beet Armyworms (BAW), Fall Armyworms (FAW)

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*	7	48	H
1B	Acephate 97 UP	1 lb/A	acephate	21	24	H
5	Entrust SC (OMRI)	4.0 to 8.0 fl oz/A	spinosad	1	4	M
5	Radiant SC	5.0 to 10.0 fl oz/A	spinetoram	1	4	M
6	Proclaim 5SG	2.4 to 4.8 oz/A	emamectin benzoate*	7	12	H
22	Avaunt 30WDG, Avaunt eVo	3.5 oz/A	indoxacarb	3	12	H
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantranilprole - foliar	1	4	L
28	Exirel	7.0 to 13.5 fl oz/A	cyantranilprole	1	12	H
28	Verimark	5 to 10 fl oz/A	cyantranilprole	n/a	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclanilprole	1	4	H
28 + 6	Minecto Pro	5.5 to 10 fl oz/A	cyantranilprole + abamectin*	7	12	H

Cabbage Loopers

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	3 pt/A	methomyl*	7	48	H
1B	Acephate 97 UP	1 lb/A	acephate	21	24	H
3A	Permethrin 3.2EC, others	2 to 8 fl oz/A	permethrin*	1	12	H
3A	Tombstone, others	1.6 to 2.4 fl oz/A	cyfluthrin*	0	12	H
5	Entrust SC (OMRI)	3.0 to 6.0 fl oz/A	spinosad	1	4	M
5	Radiant SC	5.0 to 10.0 fl oz/A	spinetoram	1	4	M
6	Proclaim 5SG	3.2 to 4.8 oz/A	emamectin benzoate*	7	12	H
11A	Dipel DF, others (OMRI)	1.0 to 2.0 lb/A	<i>Bacillus thuringiensis kurstaki</i>	0	4	N
11A	XenTari (OMRI)	0.5 to 1.5 lb/A	<i>Bacillus thuringiensis aizawai</i>	0	4	N
22	Avaunt 30WDG, Avaunt eVo	3.5 oz/A	indoxacarb	3	12	H
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantranilprole - foliar	1	4	L
28	Exirel	10 to 17 fl oz/A	cyantranilprole	1	12	H
28	Verimark	6.75 to 13.5 fl oz/A	cyantranilprole	n/a	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclanilprole	1	4	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) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
1A	Lannate LV	1.5 pt/A	methomyl*	7	48	H
3A	Baythroid XL	0.8 to 1.6 fl oz/A	beta-cyfluthrin*	0	12	H
3A	Permethrin 3.2EC, others	4.0 to 8.0 fl oz/A	permethrin*	1	12	H
3A	Tombstone, others	0.8 to 1.6 fl oz/A	cyfluthrin*	0	12	H

Leafhoppers

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*	7	48	H
1A	Sevin XLR Plus	0.5 to 1 qt/A	carbaryl	14	12	H
3A	Baythroid XL	2.4 to 3.2 fl oz/A	beta-cyfluthrin*	0	12	H
3A	Tombstone, others	2.4 to 3.2 fl oz/A	cyfluthrin*	0	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 - soil	45	12	H
4A	Belay 2.13SC	9.0 to 12.0 fl oz/A	clothianidin - soil	21	12	H
4A	Belay 2.13SC	3.0 to 4.0 fl oz/A	clothianidin - foliar	7	12	H
4A	Scorpion 35 SL	9 to 10.5 fl oz/A	dinotefuran - soil	21	12	H
4A	Scorpion 35 SL	2 to 5.25 fl oz/A	dinotefuran - foliar	7	12	H
4A	Venom 70SG	5 to 7.5 oz/A	dinotefuran - soil	21	12	H
4A	Venom 70SG	1.0 to 3.0 oz/A	dinotefuran - foliar	7	12	H
4D	Sivanto Prime or 200SL	21 to 28 fl oz/A	flupyradifurone - soil	21	4	M
4D	Sivanto Prime or 200SL	7 to 14 fl oz/A	flupyradifurone - foliar	1	4	M
16	Courier SC	9.0 to 13.6 fl oz/A	buprofezin	7	12	L

Leafminers

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
4A	Scorpion 35 SL	9 to 10.5 fl oz/A	dinotefuran - soil	21	12	H
4A	Scorpion 35 SL	2 to 5.25 fl oz/A	dinotefuran - foliar	7	12	H
4A	Venom 70SG	5 to 7.5 oz/A	dinotefuran - soil	21	12	H
4A	Venom 70SG	1.0 to 3.0 oz/A	dinotefuran - foliar	7	12	H
5	Entrust SC (OMRI)	6.0 to 10.0 fl oz/A	spinosad	1	4	M
5	Radiant SC	6.0 to 10.0 fl oz/A	spinetoram	1	4	M
6	Agri-Mek SC	1.75 to 3.5 fl oz/A	abamectin*	7	12	H
17	Trigard 75WSP	2.66 oz/A	cyromazine	7	12	H

Leafminers - continued on next page

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Leafminers - continued

Group	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
28	Coragen 1.67SC	5.0 to 7.5 fl oz/A	chlorantraniliprole - foliar	1	4	L
28	Exirel	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
28	Verimark	6.75 to 13.5 fl oz/A	cyantraniliprole	n/a	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
28 + 6	Minecto Pro	5.5 to 10 fl oz/A	cyantraniliprole + abamectin*	7	12	H

Mites

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
6	Agri-Mek SC	1.75 to 3.5 fl oz/A	abamectin*	7	12	H
28 + 6	Minecto Pro	5.5 to 10 fl oz/A	cyantraniliprole + abamectin*	7	12	H

Tarnished Plant Bugs (*Lygus*)

Look for bugs on leaves shortly after transplanting and when nearby alfalfa or grain is cut.

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
1A	Sevin XLR Plus	1 to 2 qt/A	carbaryl	14	12	H
3A	Baythroid XL	2.4 to 3.2 fl oz/A	beta-cyfluthrin*	0	12	H
3A	Tombstone, others	2.4 to 3.2 fl oz/A	cyfluthrin*	0	12	H
29	Beleaf 50SG	2.0 to 2.8 fl oz/A	flonicamid	0	12	L

Disease Control

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Recommended Fungicides

Seed Treatment

Use seed that is at least 2 years old. Soak new seed in hot water at 118°F (48°C) for 30 minutes. Use seed treated with Maxim 4F (0.08 to 0.16 fl oz/100 lb) for *Rhizoctonia* and *Fusarium* management and Apron XL LS (0.085 to 0.64 fl oz/100 lb seed) for *Pythium* damping-off protection.

Damping-Off caused by *Phytophthora*, *Pythium* and *Rhizoctonia*

Damping-off is favored by excessive soil moisture. Avoid over-saturation of seedbeds and do not transplant unhealthy plants in the field.

Code	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
Apply one of the following in a 7-inch band:						
Phytophthora and Pythium root rot						
4	Ridomil Gold 4SL	1.0 to 2.0 pt/A	mefenoxam	0	48	N
4	Ultra Flourish 2E	2.0 to 4.0 pt/A	mefenoxam	7	48	N
Pythium and Rhizoctonia root rot						
4 + 11	Uniform 3.66SE	0.34 fl oz/1000 ft row in-furrow, see label	mefenoxam + azoxystrobin	AP	0	N

Celery Leaf Curl/Anthracnose (*Colletotrichum*)

This relatively new disease is characterized by curled, cupped and twisted leaves, and dark, brownish necrotic lesions near the base of the petioles. It is suspected to be seedborne; planting high quality seed is recommended. Consider hot water seed treatment.

Code	Product Name	Product Rate	Active Ingredient(s) (* = Restricted Use)	PHI (d)	REI (h)	Bee TR
For resistance management, alternate one of the following protectant fungicides:						
M01	copper (OMRI) ¹	at labeled rates	copper	0	see label	N
M05	chlorothalonil 6F	2.0 pt/A	chlorothalonil	7	12	N
With one of the following FRAC code 3 or 11 fungicides:						

Celery Leaf Curl/Anthracnose (Colletotrichum) - continued on next page

Celery Leaf Curl/Anthracnose (Colletotrichum) - continued

Code	Product Name	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
3	Rhyme 2.08SC	5.0 to 7.0 fl oz/A	flutriafol	7	12	--
11	azoxystrobin 2.08F	9.0 to 15.5 fl oz/A	azoxystrobin	0	4	N
11	Cabrio 20EG	12.0 to 16.0 oz/A	pyraclostrobin	0	12	N

¹There are a number of copper-based products with OMRI labels; see labels for specifics. Copper applications may help suppress some fungal pathogens in organic production systems.

Crater and Petiole Rot or Basal Stalk Rot (*Rhizoctonia*)

Rotate out of celery for at least 3 years to ensure crop residue is thoroughly decomposed. Avoid planting transplants too deep and in poorly drained soils. In soils where problems occur, apply fungicides regularly.

Code	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
Apply in a 7-in band in-furrow or shortly after emergence directed at the stem:						
11	azoxystrobin 2.08F	0.40 to 0.80 fl oz/1000 ft row	azoxystrobin	0	4	N
11+M05	Quadris Opti 5.5SC	2.4 to 3.7 pt/A	azoxystrobin + chlorothalonil	7	12	N
M05	chlorothalonil 6F	2.0 pt/A	chlorothalonil	7	12	N

Fusarium Yellows

Do not obtain plants from areas of known infestation. There are no means of chemical management. Avoid seeding or transplanting into infested soil or use resistant cultivars.

Leaf Blights (*Cercospora* and *Septoria*)

Use certified, pathogen-free seed or hot water treated seed or fungicide seed treatments. Practice careful sanitation in transplant production. Use 3 or 4-year crop rotation.

Code	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
Alternate one of the following FRAC code 11 fungicides:						
7 + 11	Merivon 2.09SC	4.0 to 11.0 fl oz/A	fluxapyroxad + pyraclostrobin	1	12	N
11+M05	Quadris Opti 5.5SC	2.4 to 3.7 pt/A	azoxystrobin + chlorothalonil	7	12	N
11	azoxystrobin 2.08F	9.0 to 15.5 fl oz/A	azoxystrobin	0	4	N
11	Cabrio 20EG	12.0 to 16.0 oz/A	pyraclostrobin	0	12	N
With one of the following fungicides:						
M01	copper (OMRI) ¹	at labeled rates	copper	0	see label	N
M05	chlorothalonil 6F	2.0 pt/A	chlorothalonil	7	12	N
3	propiconazole 3.6C	4.0 fl oz/A	propiconazole	14	12	N
3	Rhyme 2.08SC	5.0 to 7.0 fl oz/A	flutriafol	7	12	--
7	Fontelis 1.67SC	14.0 to 24.0 fl oz/A	penthiopyrad	3	12	L
7 + 12	Miravis Prime 3.34SC	9.2 to 13.4 fl oz/A	pydiflumetofen + fludioxonil	0	12	--

¹There are a number of copper-based products with OMRI labels; see labels for specifics. Copper applications may help suppress some fungal pathogens in organic production systems.

Pink Rot (*Sclerotinia sclerotiorum*)

Under moist conditions, white to pinkish cottony growth develops on the petioles and around the base of the plant. This is followed by a pink, watery, soft rot that causes a rapid collapse and death of the plant. Few products are available for managing pink rot. Avoid planting in shaded or poorly drained areas and areas with a history of pink rot. Rotate fields for at least 2 or 3 years. Maximize air movement through the plant canopy.

Apply Contans 3 to 4 months prior to the onset of disease to allow the mycoparasite to reduce soil inoculum (sclerotia) levels. Following application, incorporate 1-2 inches deep; however, to avoid the chance of infesting the upper soil layer with untreated sclerotia from the lower soil layer, **do not plow** between treatment and planting.

Code	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
Apply 3 to 4 months prior to the onset of disease (see instructions above and on the label):						
44	Contans 5.3WG (OMRI)	2.0 to 4.0 lb/A	<i>Coniothyrium minitans</i>	0	4	N
Rotate between the following fungicides as long as weather conditions are favorable for disease development:						
M05	chlorothalonil 6F ¹	3.0 pt/A ¹	chlorothalonil	7	12	N
9 + 12	Switch 62.5WG	11.0 to 14.0 oz/A	cyprodinil + fludioxonil	0	12	L
12	Cannonball 50WP	7.0 oz/A	fludioxonil	0	12	L

¹Shortly after plants emerge and repeat on a 7-day schedule (suppression only).

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.