Delaware Cooperative Extension

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This is a section from the

2024/2025
Mid-Atlantic Commercial Vegetable Production Recommendations

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

The full recommendations are available online at:
https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/commercial-crops/vegetable-crops/midatlantic-vegetable-recommendations/

Printed copies of the recommendations are available for purchase at the New Castle, Kent and Sussex County Extension Offices in Delaware.

This publication will be revised biennially. In January 2025, a Critical Update with important updates for this publication will be communicated through the above website.

These recommendations were prepared and reviewed by individuals from Cornell University, University of Delaware, Delaware State University, University of Maryland, Penn State, Rutgers University, Virginia Tech, and West Virginia University with the purpose of providing up to date information for commercial vegetable growers in the Mid-Atlantic states of **Delaware, Maryland, New Jersey, Pennsylvania, Virginia,** and **West Virginia**.

Disclaimer

- The label is a legally-binding contract between the pesticide 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.

F. Commodity Recommendations

Pesticide Use Disclaimer

THE LABEL IS THE LAW

A pesticide applicator is legally bound by the labeling found on and with the pesticide container in their possession. Before using a pesticide, check and always follow the labeling distributed with the product at the point of sale for legally enforceable rates and use restrictions and precautions.
Although labels are available on the Internet from electronic label services such as Proagrica's CDMS (*https://www.cdms.net/*), Greenbook (*https://www.greenbook.net*), or Agworld DBX powered by Agrian (*https://www.agrian.com/labelcenter/results.cfm)* the information contained in these electronic labels may not be identical to the labeling distributed with the product. **Please be advised that these electronic label services provide use disclaimers, and in some cases legally binding *User Agreements* assigning ALL liability to user of service. (**See section D 3.1. Labels and Labeling for more detail.)

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

1. Pesticides are listed by **group number or code based on chemical structure and mechanism of action**, as classified by the Herbicide Resistance Action Committee (**HRAC**, *https://hracglobal.com*) for herbicides, the Insecticide Resistance Action Committee (**IRAC**, *https://irac-online.org*) for insecticides, and the Fungicide Resistance Action Committee (**FRAC,** *https://www.frac.info/*) for fungicides. **In this guide, if the group number or code is in bold font, there are resistance concerns for the product.**
2. **Restricted use pesticides** are marked with a * in the Tables. These products may only be used by certified and/or licensed pesticide applicators, and when stated on the label, those making applications under their direct supervision. Some labels may restrict use solely to certified and/or licensed applicators. (See section D 3.2.1 Restricted Use Classification Statement for more detail).
3. **In addition to the pesticide products listed in the Commodity Recommendations below, other formulations or brands with the same active ingredient(s) may be commercially available. ALWAYS CHECK THE LABELING ON THE PRODUCT CONTAINER ITSELF:**
   a) to ensure a pesticide is labeled for the same intended use,
   b) to ensure the pesticide is labeled for the desired crop,
   c) for differences in application rates and % active ingredient(s), and
   d) additional restrictions.
4. All pesticide recommendations contained in this document are prescribed for spray applications to a **broadcast area of 1 acre** (43,560 square feet). **Adjust the rate accordingly for banded applications** (See section E 1.3. Calibrating Granular Applicators) **or for chemigation** (check labels for amounts per 1,000 feet).
5. Check the physical product label for and do not exceed 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.
7. In accordance with the USDA National Organic Program, the Organic Materials Research Institute (OMRI) maintains a directory of all products that OMRI has determined are allowed for use in organic production, processing, and handling. These products are catalogued online in the **OMRI Products List** (see *https://www.omri.org/omri-lists*).

Okra

Recommended Varieties

Note: Okra is a tropical annual with a wide range of adaptation. However, okra is very sensitive to frost and cold temperatures and should not be planted until the soil has warmed in the spring.

Variety[1]	Hybrid	Height (ft)	Days	Pod Color
Baby Bubba (compact)	Yes	3-4	53	Green
Blondy (Compact)	No	3-4	50	Light Green
Candle Fire	Yes	4	60	Red
Carmine Splendor	Yes	4	51	Red
Clemson Spineless 80	No	6	55	Green
Clemson Spineless 99	No	4	55	Green
Jambalaya	Yes	4	50	Dark Green
Red Burgundy	No	4	55	Red-Burgundy
Red Velvet	No	4-5	55	Red

[1]**Listed alphabetically**.

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 the recommendations found below.

Okra is tolerant of a wide range of soil pH values but prefers soil with a pH between 6.0 and 6.8. If the soil pH is below 5.8, the soil should be limited to increase the pH to 6.0 or more. Soil with a pH at or below 5.8 can result in okra with poorly developed pods.

		Soil Phosphorus Level				Soil Potassium Level				
		Low	Med	High (Opt)	Very High	Low	Med	High (Opt)	Very High	
Okra[1,2]	**N (lb/A)**	**P_2O_5 (lb/A)**				**K_2O (lb/A)**				**Nutrient Timing and Method**
	100-150[1]	150	100	50	0	50	100	50	0	Total nutrient recommended
	50-100	150	100	50	0	150	100	50	0	Broadcast and disk-in
	20-50	0	0	0	0	0	0	0	0	Sidedress or fertigate 3-4 w after planting
	20-50	0	0	0	0	0	0	0	0	Sidedress or fertigate 6-8 w after planting

[1]Apply 1-2 lb/A of boron (B) with broadcast fertilizer; see also Table B-7. in Chapter B Soil and Nutrient Management.
[2]Apply 25-30 lb/A of sulfur (S) for most soils.

Seed Treatment

See Disease Control for seed treatment to prevent disease.

Seeding and Spacing

Field seeding is usually done between May 20 and June 1. Generally, only one planting is made. In northern areas of the region, sow seed in the greenhouse in cell trays in early May and transplant to the field through black plastic mulch on raised beds with drip irrigation in early to mid-June, two rows per bed, 12 inches between plants in the row. For direct seeding, drill seeds ¼-½ inch deep, 2-4 per ft of row (3-7 lb/A). Thin the plants when they are 5 inches tall to 12-15 inches apart in the row. Space the rows 3-3½ ft apart.

Harvest and Post-Harvest Considerations

Okra pods usually reach harvesting maturity 4-6 days after the flowers open. At this stage, the pods are 3-3½ inches long, free of excessive fiber and tender. Pick pods at 2-day intervals by snapping off or clipping the pedicel. Avoid bruising pods during harvest. Gloves should be worn to avoid skin reactions to the fine spines on the fruit. Large and undesirable pods should be removed to keep the plant productive over a longer period. Harvested okra should be kept at 50-55°F (10-13°C) and 85-90% relative humidity. Below 50°F, okra pods are subject to chilling injury.

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-3) in Chapter E Pest Management.

2. Minimize herbicide resistance development. Identify the herbicide mode 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 (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
3	Treflan 4EC	1 to 2 pt/A	**trifluralin**	0.5 to 0.75 lb/A	--	12
-Incorporate into 2-3 inches of soil within 8 h after application. Primarily controls annual grasses and a few broadleaf weeds. -**Do not** use (or reduce the rate) used 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.						
27	Callisto 4SC	6 fl oz/A	**mesotrione**	0.188 lb/A	28	12
-Use as row-middle or hooded post-directed treatment, but not both. -Apply as a band, leaving 1 foot of untreated soil over the seeded row (6" of untreated soil on each side of the row); **do not** apply over the row or severe injury will occur. If replanting, **do not** plant into treated soil. -Callisto controls common lambsquarters, pigweeds, and many other small-seeded annual broadleaf weeds, but Callisto is weak on ragweed and morningglory species. Apply Treflan 4EC between the rows of mulch to control annual grasses. -Crop injury may occur if an organophosphate or carbamate insecticide is applied within 7 days of Callisto. -**Do not** apply more than 1 application of Callisto per crop; **do not** apply more than 6 fl oz/A per year as a banded application.						

2. Postemergence

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
1	Select Max 0.97EC	9 to 16 fl oz/A	**clethodim**	0.07 to 0.125 lb/A	3	24
	Poast 1.5EC	1 to 1.5 pt/A	**sethoxydim**	0.2 to 0.3 lb/A	14	12
-**Select Max**: use nonionic surfactant (NIS) at 0.25% v/v (1 qt/100 gal of spray solution); Poast: Use crop oil concentrate at 1.0% v/v (1.0 gal/100 gal of spray solution). Check label for other formulations of clethodim, not all are labeled for okra. -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 (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, or broadleaf weeds will **not** be controlled. -Controls many annual and certain perennial grasses, including annual bluegrass. 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. -Repeated applications may be needed to control certain perennial grasses. 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. -**Do not** apply more than 16 fl oz/A of Select Max in a single application and **do not** exceed 2 qt/A for the season. -**Do not** apply more than 1.5 pt/A Poast in a single application and **do not** exceed 5.5 pt/A for the season.						
22	Gramoxone SL 2.0* Gramoxone SL 3.0*	1.95 pt/A 1.3 pt/A	**paraquat**	0.49 lb/A	21	24
-Row middles as a shielded application. Include a nonionic surfactant at 0.25% v/v. Use shields or hoods to prevent spray contact with the crop and low spray pressure (maximum of 30 psi) to reduce small droplets that are prone to drift. See the label for additional information and warnings. -Rainfastness is 30 min. -A maximum of 3 applications per year are allowed. -***Restricted-use pesticide***. Only certified applicators, who successfully complete the paraquat-specific training, can mix, load, or apply paraquat. Application of paraquat "under the direct supervision" of a certified applicator is no longer allowed. -Required training link (*https://campus.extension.org/enrol/index.php?id=2201*); certified applicators must repeat training every three years.						
27	Callisto 4SC	3.0 fl oz/A	**mesotrione**	0.094 lb/A	28	12
-Use as row-middle or hooded post-directed treatment, but not both. -Apply as a direct spray using a hooded sprayer. Okra must be at least 3 inches tall at time of application. -Use a nonionic surfactant at 0.25% v/v (1 qt/100 gal). -Set spray equipment to minimize the amount of Callisto that comes in contact with okra foliate or crop injury will occur. -Callisto controls common lambsquarters, pigweeds, as well as many other small-seeded annual broadleaf weeds, but Callisto is weak on ragweed and morningglory species. Apply Treflan 4EC between the rows of mulch to control annual grasses. -Crop injury may occur if an organophosphate or carbamate insecticide is applied within 7 days of Callisto. -Rainfastness is 1 h. -**Do not** apply more than 1 application of Callisto per crop; **do not** apply more than 3 fl oz/A per year as a post-directed application.						

3. Postharvest

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
22	Gramoxone SL 2.0* Gramoxone SL 3.0*	2.25 to 3 pt/A 1.5 to 2 pt/A	**paraquat**	0.56 to 0.75 lb/A	--	24

-**Supplemental Label in DE for the use of both Gramoxone formulations for postharvest application to desiccate the crop.**
-Apply after the last harvest for bareground or plasticulture. Always include an adjuvant.
-Spray coverage is essential for optimum effectiveness. See the label for additional information and warnings.
-A maximum of 2 applications for crop desiccation are allowed. -Rainfastness 30 min.
-***Restricted-use pesticide***. Only certified applicators, who successfully complete the paraquat-specific training, can mix, load, or apply paraquat. Application of paraquat "under the direct supervision" of a certified applicator is no longer allowed.
-Required training link (*https://campus.extension.org/enrol/index.php?id=2201*); certified applicators must repeat training every 3 years.

4. 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 (*=Restricted Use)	Active Ingredient
2	Sandea	**halosulfuron**
5	Caparol	**prometryn**
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

Cotton/melon aphids and green peach aphids (GPA) are most common on okra. In the summer, GPA winged females can produce numerous pale yellow or pink colored live young (nymphs). GPA are larger than cotton/melon aphids. Cotton/melon aphids are yellow. Tremendous numbers of aphids can build up on the undersides of leaves and on pods often following pyrethroid insecticide applications. Aphids are sucking insects that excrete a sugary, sticky substance ("honeydew") that can coat fruit and cause growth of black sooty mold fungus. Both honeydew and mold can hurt marketability. Predators and parasitoids (braconid wasps) often can keep aphid populations below damaging levels. Broad-spectrum insecticides, like pyrethroids, destroy these natural enemies. Preserve natural enemies by using selective insecticides whenever possible. Sample plants for aphids as well as the presence of natural enemy species. Spray only when aphid densities appear to be increasing in the absence of predators.

Apply one of the following formulations (note: spray coverage to the underside of the leaf is important):

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1B	Malathion 57 EC	1.5 pt/A	malathion	1	12	H
4A	Admire Pro	7.0 to 14.0 fl oz/A	imidacloprid - **soil**	21	12	H
4A	Admire Pro	1.3 to 2.2 fl oz/A	imidacloprid - **foliar**	0	12	H
4A	Assail 30SG	2.0 to 4.0 oz/A	acetamiprid	7	12	M
4A+3A	Savoy EC*	4.9 to 9.6 fl oz/A	acetamiprid + bifenthrin	7	12	H
4C	Transform WG	0.75 to 1.0 oz/A	sulfoxaflor	1	24	H
4D	Sivanto Prime or 200SL (except green peach aphid)	21.0 to 28.0 fl oz/A	flupyradifurone - **soil**	45	4	M
4D	Sivanto Prime or 200SL	7.0 to 14.0 fl oz/A	flupyradifurone **- foliar**	1	4	M
9B	PQZ	2.4 to 3.2 fl oz/A	pyrifluquinazon	1	12	L
9D	Sefina	3.0 fl oz/A	afidopyropen	0	12	L
21A	Torac	17.0 to 21.0 fl oz/A	tolfenpyrad	1	12	H
23	Movento	4.0 to 5.0 fl oz/A	spirotetramat	1	24	L
23+7C	Senstar	8.0 to 10.0 fl oz/A	spirotetramat + pyriproxyfen	1	24	L
28	Exirel[1] (GPA and potato aphid)	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
28 + 6	Minecto Pro* (GPA and potato aphid)	10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H
29	Beleaf 50SG	2.8 to 4.3 oz/A	flonicamid	0	12	L

[1] For best performance, use an adjuvant

Corn Earworm, Armyworm, European Corn Borer, and Other Lepidopteran "Worm" Pests

Like the related cotton plant, okra may be attacked by several different lepidopteran pests. Corn earworm (CEW) is often the most damaging pest as it typically feeds on pods. The larvae vary in color (yellow, brown, green, or red) but display longitudinal light-colored stripes and black dots from which hair grow. CEW larvae can be distinguished from other larvae due to the presence of hair on their body. Larvae will attack fruit almost immediately following their emergence. Scouting for signs of their presence is necessary. Pheromone traps can also be used to determine periods of moth activity.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Sevin XLR Plus (CEW only)	1.0 to 1.5 qt/A	carbaryl	3	12	H
3A[1]	Pyrethroid insecticides registered for use on Okra: see table at the end of Insect Control.					
5	Entrust SC (OMRI)	3.0 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
11A	Dipel DF, others (OMRI)	0.5 to 2.0 lb/A	*Bacillus thuringiensis kurstaki*	0	4	N
11A	XenTari (OMRI)	0.5 to 2.0 lb/A	*Bacillus thuringiensis aizawai*	0	4	N
15	Rimon 0.83EC	9.0 to 12.0 fl oz/A	novaluron	1	12	M
22	Avaunt 30WDG	3.5 oz/A	indoxacarb	3	12	H
22	Avaunt eVo	3.5 to 6.0 oz/A	indoxacarb	3	12	H
28	Coragen 1.67SC Coragen eVo	3.5 to 7.5 fl oz/A 1.2 to 2.5 fl oz/A	chlorantraniliprole	1	4	L
28	Exirel	7.0 to 13.5 fl oz/A	cyantraniliprole	1	12	H
28	Verimark	5.0 to 13.5 fl oz/A	cyantraniliprole - **soil**	1	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
28 + 6	Minecto Pro*	5.5 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H

[1]**Resistance concerns with corn earworm**

Japanese beetles

Adult Japanese beetles emerge in June and can cause substantial feeding damage on okra leaves. They skeletonize leaves leaving a lace-like appearance.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1B	Malathion 57 EC	1.5 pt/A	malathion	1	12	H
3A	Pyrethroid insecticides registered for use on Okra: see table at the end of Insect Control.					

Stink Bugs

Multiple species may damage fruit including brown and green stink bugs, and the invasive brown marmorated stink bug (BMSB). Stink bugs have a characteristic shield shape, a triangle on their thorax, are approximately 0.5 inch long and can emit a foul odor when disturbed. BMSB can be distinguished from the native brown stink bug by the white stripes on the antennae. BMSB nymphs have characteristic black and white striped legs and a dark colored or dark and white body, depending on the instar or stage of development. Stink bug eggs are in masses, barrel shaped and cream to greenish colored. Both nymphs and adults remove fluid from the fruit tissue, leaving a conspicuous white "halo" or discoloration on the surface and a raised bump. BMSB feeding injury can be significantly more severe than that of other species. Growers should scout for their presence on plants and initiate weekly spays if observed. **Note:** Brown and brown marmorated stink bugs are less susceptible to pyrethroids than green and southern green stink bugs. Careful pyrethroid selection is advised, consult your local Cooperative Extension Service for recommendations for your area.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
3A	Pyrethroid insecticides registered for use on Okra: see table at the end of Insect Control.					
4A	Admire Pro	1.3 to 2.2 fl oz/A	imidacloprid - **foliar**	0	12	H

Whiteflies

Whiteflies can be found on the underside of leaves where they aggregate in numbers. When disturbed, the white, tiny moth-like adults will fly off but quickly return to the plant. Nymphs and adults feed by removing fluids from plant material, creating stippling, yellowing and distortion of the leaves. Whiteflies also secrete honeydew, leaving a conspicuous sticky, shiny appearance to the plant during times of heavy infestation. (*continued next page*)

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
4A	Admire Pro	7.0 to 14.0 fl oz/A	imidacloprid - **soil**	21	12	H
4A	Admire Pro	1.3 to 2.2 fl oz/A	imidacloprid - **foliar**	0	12	H
4A	Assail 30SG Assail 30SC	1.5 to 4.0 oz/A 1.7 to 3.4 fl oz/A	acetamiprid	7	12	M
4A + 3A	Savoy EC*	6.0 to 9.6 fl oz/A	acetamiprid + bifenthrin	7	12	H
4C	Transform WG	2.0 to 2.25 oz/A	sulfoxaflor	1	24	H
4D	Sivanto Prime or 200SL	21.0 to 28.0 fl oz/A	flupyradifurone - **soil**	45	4	M
4D	Sivanto Prime or 200SL	10.5 to 14.0 fl oz/A	flupyradifurone - **foliar**	1	4	M
7C	Knack	8.0 to 10.0 fl oz/A	pyriproxyfen	1	12	L
9B	PQZ	2.4 to 3.2 fl oz/A	pyrifluquinazon	1	12	L
9D	Sefina	14.0 fl oz/A	afidopyropen	0	12	L
15	Rimon 0.83EC	12.0 fl oz/A	novaluron	1	12	M
16	Courier SC	9.0 to 13.6 fl oz/A	buprofezin	1	12	L
21A	Portal	2.0 pt/A	fenpyroximate	1	12	L
23	Movento	4.0 to 5.0 fl oz/A	spirotetramat	1	24	L
23 + 7 C	Senstar	8.0 to 10.0 fl oz/A	spirotetramat + pyriproxyfen	1	24	L
28 + 6	Minecto Pro*	10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H

Group 3A Pyrethroid Insecticides Registered for Use on Okra					
Apply one of the following formulations (check if the product label lists the insect you intend to spray; the label is the law):					
Product Name (*=Restricted Use)	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
Brigade 2EC*, others	2.1 to 6.4 fl oz/A	bifenthrin	7	12	H
Capture LFR*	3.4 to 8.5 fl oz/A	bifenthrin	7	12	H
Declare*	0.77 to 1.54 fl oz/A	gamma-cyhalothrin	5	24	H
Hero*	4.0 to 13.0 fl oz/A	zeta-cypermethrin + bifenthrin	7	12	H
Mustang Maxx*	2.24 to 4.0 fl oz/A	zeta-cypermethrin	1	12	H
Combo products containing a pyrethroid					
Brigadier*	3.8 to 9.85 fl oz/A	bifenthrin + imidacloprid (Group 4A) - **foliar**	7	12	H
Savoy EC*	4.9 to 9.6 fl oz/A	bifenthrin + acetamiprid (Group 4A)	7	12	H

Disease Control

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

Nematode Control

Okra roots are very susceptible to the damage caused by root knot and sting nematodes. Both fumigant and non-fumigant nematicides can be used to control nematodes (see also sections E 1.5. Soil Fumigation and E 1.6. Nematode Control).

Use the fumigant nematicides listed in section E 1.5. or the non-fumigant nematicide in the table below. Fumigant treatments are most effective in controlling root-knot nematode when residues of the previous crop are either removed or allowed to decay. Consult the label.

Code	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
Incorporate or drip-apply 7 days before planting:						
--	Nimitz 4EC	3.5 to 5.0 pt/A	fluensulfone	n/a	12	N

Seed Treatment

Use Thiram 480DP at 3.0 to 4.0 oz/100 lb of seed (2/3 tsp/lb) *plus* Apron XL (0.32 to 0.64 fl oz/100 lb of seed) for improved germination and stand.

Damping-off caused by *Rhizoctonia*

For control of seedling root rot and basal stem rot apply the following fungicide:

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
11	azoxystrobin 2.08F	0.40 to 0.80 fl oz/1000 row ft	azoxystrobin	0	4	N

Fungal Diseases

Fruit Rot (*Choanephora*)

Choanephora is a fungal pathogen which attacks senescent blossoms and fruit. There are no fungicides labeled for its control. Improving air circulation is the only effective means of reducing the chances for *Choanephora* blossom and fruit rot development. In extreme cases, growers may remove the lower juvenile leaves to improve air circulation.

Fusarium and Verticillium Wilts

These are the major soilborne diseases of okra. Rotate with non-solanaceous crops and avoid planting in fields with a history of either disease. If rotation is not an option, soil fumigation will help reduce soil population of causal agents. Use the fumigants listed in section E 1.5. Soil Fumigation. If fumigation with synthetic chemicals is not possible, raising transplants in beneficial microbes such as TerraGrow inoculated growing mix followed by planting in anaerobically disinfested (ASD) field soil can significantly lower the disease incidence and severity.

Cercospora Leaf Spot and Powdery Mildew

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Rotate the following every 7 d as long as weather conditions favor disease development:						
M01	copper (OMRI)[1]	at labeled rates	copper	0	48	N
M05	chlorothalonil 6F[2]	1.5 pt/A	chlorothalonil	7	12	N
3	tebuconazole 3.6F[3]	4.0 to 6.0 fl oz/A	tebuconazole	4	12	N
11	azoxystrobin 2.08F[4]	6.0 to 15.5 fl oz/A	azoxystrobin	0	4	N

[1]There are several OMRI listed copper-based products; see labels for specifics. Copper applications for bacterial disease control may help suppress some fungal pathogens in organic production systems.

[2] Cercospora and Powdery Mildew.

[3] Cercospora only.

[4] Powdery Mildew only.

If you are having a medical emergency after using pesticides, always call 911 immediately.

POISON Help®
1-800-222-1222

In Case of an Accident

- Remove the person from exposure
- Get away from the treated or contaminated area immediately
- Remove contaminated clothing
- Wash with soap and clean water
- Call a physician and/or the National Poison Control Center (1-800-222-1222). Your call will be routed to your State Poison Control Center.
- Have the pesticide label with you!
- Be prepared to give the EPA registration number to the responding center/agency