

Strawberry

Integrated Strawberry Disease Management

Strawberries are among the most challenging horticultural crops to grow in the South because of high levels of soilborne pathogens. Chemical use, from preplant to harvest, is a critical component in maintaining crop yield and producing high-quality fruit.

Traditionally, disease management in strawberries has relied on the establishment of a clean crop planted into methyl bromide-fumigated soil. With the phase-out of methyl bromide, the use of alternative, more sustainable management strategies is necessary. (For fumigant information see the [Southeast Regional Strawberry Integrated Management Guide](#).)

Rotate your planting site. Rotating where strawberries are planted is an important part of avoiding soilborne disease problems. This is especially important in the absence of fumigation. Try not to plant strawberries in a particular site more than once every three to four years.

Start with clean plants. Purchase plants from a reputable source and inspect them when they arrive. Many disease-causing agents can be brought in on plants, and clean plants are especially important for avoiding anthracnose crown rot (caused by *Colletotrichum gloeosporioides*), Phytophthora crown rot and virus problems.

Minimize plant stress during establishment. Overhead irrigation is recommended during the first one to two weeks after planting bare-root plants. It may also be helpful to provide some overhead water during the first several days after planting plug plants. Drip irrigation can be used after this time.

Correctly diagnose problems. Contact your local extension agent or the LSU AgCenter Plant Diagnostic Center for assistance, if needed. The [Strawberry Diagnostic Key](#) may also be helpful.

Use crop protectants. Prior to using chemicals, have the disease confirmed by a crop specialist. Once the disease has been confirmed, select a labeled product that has been shown to be effective in reducing disease (Table 1), and apply the product at the correct stage of plant development (Table 1). Chemicals with proven efficacy against a pathogen will not reduce disease if applied at the wrong time. Always rotate between products with different modes of action (in different FRAC groups; see Table 2) to prevent the development of fungicide resistance in the pathogen (disease-causing agent). If a pathogen becomes resistant to a product, the product will no longer be effective. Tests of fungal isolates from Louisiana and other states have shown that the gray mold fruit rot pathogen (*Botrytis cinerea*) is likely to be resistant to common fungicides in several FRAC groups and that the anthracnose fruit rot pathogen (*Colletotrichum* sp.) is likely to be resistant to FRAC 11 fungicides. More information is given in the respective sections. Although some details about chemical application are given in Table 3, always see the label for complete instructions and to determine if changes have been made to the label.

Disease

Symptoms, source of inoculum and management of strawberry diseases.

Disease	Symptoms	Source of Inoculum	Management
Angular (Bacterial) Leaf Spot (<i>Xanthomonas fragariae</i>)	First visible as tiny, water-soaked spots on the lower leaf surface that enlarge into angular lesions delimited by leaf veins. Lesions appear translucent when held up to the light. Bacterial ooze may be found on lesions on lower leaf surfaces.	The bacterium survives in infected leaf debris or is introduced on infected planting material. Bacterial cells are spread primarily by rain splashing and wind-driven rain. Disease develops most under cool, wet conditions.	Use disease-free transplants. Spray with copper bactericide or the plant defense activator Actigard, if needed.
Anthraxnose Crown Rot (<i>Colletotrichum gloeosporioides</i> species complex)	Plants wilt suddenly and die during warm weather. Crowns have a reddish discoloration extending into the center. Black lesions occur on leaf petioles or runners. Disease development is inhibited by cool weather.	The fungus is often introduced on infected planting material and survives on infected plant parts. Fungal spores are spread by rain splashing and wind-driven rain.	Use disease-free transplants. Inspect for disease symptoms when plants are received. Dip plants in a fungicide prior to planting if problems with the plant source are identified. Scout fields for disease symptoms during post-planting period, Remove infected plants and treat surrounding plants with fungicides. Do not use an excessive amount of nitrogen fertilizer.
Anthraxnose Fruit Rot (<i>Colletotrichum acutatum</i> species)	Buds, flowers, sepals and/or flower stems (pedicels and peduncles) often turn brown. Spots on fruit are light brown to black and often begin with a water-soaked appearance and then become firm and sunken. Orange to pink spores can develop when weather is humid. Plant stunting and/or death and petiole lesions may be seen before flower blight or fruit rot occur.	The fungus is often introduced on infected planting material and survives on infected plant parts. Fungal spores can be spread by rain splashing, wind-driven rain, workers and equipment.	Use disease-free transplants. Do not use an excessive amount of nitrogen fertilizer. If the presences of <i>C. acutatum</i> has been confirmed, begin fungicide applications for fruit root at bloom. Because the pathogen can infect fruit, continue fungicide application through harvest (while observing preharvest intervals), if conditions remain favorable for disease. Resistance to the FRAC group 11 fungicides has been found in the pathogen in some instances; three-quarters of 51 samples from Louisiana tested in 2016 were found to be resistant. Captan, Switch, and Miravis Prime are still expected to be effective for managing anthracnose fruit rot. See Table 2 for efficacy ratings of other products.
Botrytis Fruit Rot (Gray Mold) and Crown Rot (<i>Botrytis cinerea</i>)	This fungus attacks flowers, flower parts, fruit and leaves. On the fruit, this disease causes a rot that is at first light brown and soft (not "leaky"). As the berry rots, it becomes covered with a grayish, powdery growth, and in the final stages of rot, it becomes tough and firm in texture. Crown rot can be a problem in the winter when early blossoms are killed by frost and a warm period follows.	The fungus survives in the decaying tissues of strawberries and many other plants. Fungal spores are wind-dispersed.	Removing dying and dead leaves shortly before plants flower may be helpful. However, if anthracnose fruit rot pathogen is present, it may spread in this process. Do not use an excessive amount of nitrogen fertilizer, because a denser plant may result in more disease pressure. Begin applying effective fungicides while flowers are in bloom; most infections that eventually affect fruit are initiated through flowers. Harvest fruit frequently, removing infected and other unmarketable fruit from the field. Fungicide resistance in <i>Botrytis cinerea</i> is a major concern. Resistance has been documented in one or more locations to many of the fungicides previously effective for managing gray mold. In tests of the fungus from five Louisiana strawberry fields in 2019, all isolates were resistant to thiophanate-methyl and pyraclostrobin, and most were resistant to fenhexamid. Some resistance to penthiopyrad, fluopyram, and, to a lesser extent, boscalid were observed, but resistance to isofetamid and pydiflumetofen was not found, even though they are in the same FRAC group as the former three. Two fields had some level of resistance to at least one of the active ingredients in Switch (cyprodinil and fludioxonil). Captan, thiram, isofetamid (Kenja), polyoxin D salts (Ph-D/OSO 5%SC), Miravis Prime, and Switch (in most cases) appear to remain effective options for gray mold. Be sure to rotate among modes of action (FRAC groups). For chemical management of crown rot, choose among captan, Switch and iprodione.

Disease	Symptoms	Source of Inoculum	Management
Common Leaf Spot (False Rust, Bird's Eye Spot) (<i>Mycosphaerella fragariae</i>)	The spots are at first less than 1/8 inch in diameter and purplish-red. Spots enlarge to about 3/16 inch. They have white or gray centers with purplish borders.	The fungus survives from year to year on infected plant parts.	Spray with fungicides if needed. While many fungicides are effective on this disease, consider using myclobutanil, a combination of thiophanate-methyl and captan, or captan alone, unless another fungicide is needed for another purpose.
Leaf Blight (<i>Phomopsis obscurans</i> or <i>Dendrophoma obscurans</i>)	First appears as large, circular, reddish-purple spots that become zonate with age (i.e., they have a dark brown center surrounded by a lighter brown area with a purplish border). Mature spots may be circular, oval or V-shaped.	The fungus lives from year to year primarily on infected plant tissue.	Use disease-free transplants. Spray with fungicides if needed. While many fungicides are effective on this disease, consider using myclobutanil, a combination of thiophanate-methyl and captan, or captan alone, unless another fungicide is needed for another purpose.
Leaf Blotch (<i>Gnomonia</i> sp. or <i>Zythia</i> sp.)	First appears as purplish to brownish blotches on young leaves. Later appears as large, light brown spots on older leaves. Also causes spots on the stem end of fruit.	The fungus lives from year to year primarily on infected plant tissue.	Spray with fungicides if needed. While many fungicides may be effective on this disease, consider using myclobutanil, a combination of thiophanate-methyl and captan, or captan alone, unless another fungicide is needed for another purpose.
Leaf Scorch (<i>Diplocarpon earlianum</i>)	The disease first appears on upper leaf surfaces as small purplish spots that enlarge rapidly into irregular purplish blotches from 1/16 inch to 3/16 inch in diameter. The spots may become numerous and coalesce. In severe cases, the edges of the leaflets curl upward and the tissue dies, giving the plant a scorched appearance.	The fungus survives from year to year on infected leaves.	Practice crop rotation if possible. Use disease-free transplants. Rotate strawberry fields, if possible. Spray with fungicides if needed. While many fungicides may be effective on this disease, consider using myclobutanil, a combination of thiophanate-methyl and captan, or captan alone, unless another fungicide is needed for another purpose.
Pestalotia Leaf Spot and Fruit Rot (<i>Neopestalotiopsis</i> sp.)	A recently identified aggressive <i>Neopestalotiopsis</i> fungus genotype causes spots on strawberry leaves and fruit. Leaf spots sometimes have a distinctive dark border. Tiny black fungal structures can often be seen within leaf and fruit spots. Plants with crown infections may have red coloration on leaves without having leaf spots. Plants may eventually collapse.	Sources include contaminated plants and crop debris (especially intact crowns) remaining in fields. Where soil is fumigated under plastic mulch, the pathogen may survive in row middles. It may spread in wet conditions on clothing and equipment. It is suspected that row covers and spider mites help spread the pathogen.	Obtain plants from a reputable source and check them for symptoms. Practice crop rotation. Avoid working in the field while plants are wet. Work in diseased areas last. Sanitize clothing and equipment. Effective fungicide options for this disease are limited, but use of those shown to be effective is important to suppress disease. Removing plant crowns from the field after harvest would be ideal but may not be practical. If they cannot be removed, perform field operations that break up crowns and cause them to decompose faster. Thiram SC or a rotation of Thiram SC with Switch have been shown to suppress the disease and are considered the best fungicide options when conditions are favorable for disease. Flutriafol (Rhyme) and propiconazole (Tilt) have also shown suppressive activity.
Powdery Mildew (<i>Podosphaera aphanis</i> or <i>Sphaerotheca macularis</i> f. sp. <i>fragariae</i>)	A white powdery growth is present on the undersurface of infected leaves and on fruit. Infected leaves tend to roll up.	The fungus persists from year to year on infected strawberries and other wild hosts. Usually a problem in the spring and early summer months.	Many varieties are resistant to this disease. It is more likely to be a problem in strawberries grown under cover (e.g., high tunnels). Spray with fungicides if needed.

Disease	Symptoms	Source of Inoculum	Management
Phytophthora Crown and Root Rot (<i>Phytophthora cactorum</i> , primarily)	Youngest leaves often wilt first followed by the collapse of the entire plant. Crowns often exhibit extensive brown discoloration that extends from the crown downward or from an infected stolon.	Oospores that survive in the soil or on infected transplants. Spreads primarily in water.	Practice crop rotation if possible. Use disease-free transplants, improve drainage and avoid low spots. Avoid both overirrigation and drought stress. Dip transplants in suitable fungicide prior to planting if problems with the plant source are identified. Remove infected plants and treat surrounding plants with appropriate fungicide. (Note that <i>Phytophthora</i> is a water mold or oomycete pathogen, not a true fungus, so “fungicides” that target them are generally different than those used for true fungi.)
Root-knot Nematodes (<i>Meloidogyne</i> spp.)	Affected plants are stunted, unthrifty, nonproductive and often pale green in color. Galls or knots on the roots are rather small. Numerous secondary roots may develop at the small swellings. Frequently, blackened, rotten roots are associated with root-knot problems.	Root-knot nematodes live from year to year in the soil and on the roots of strawberry plants and many weeds. Root-knot nematodes are more severe in light soil types.	Sample soil for nematodes and fumigate soil if needed. See recommendations in the Nematode Control section of this guide and in the Southeast Regional Strawberry Integrated Management Guide .
Summer Dwarf or Bud Nematodes (<i>Aphelenchoides besseyi</i>)	Affected plants are severely stunted during the summer and early fall. Older leaflets usually are darker green with a greasy appearance. Young leaflets are reduced in size, usually crinkled and somewhat elongated, with shorter petioles. Margins of leaflets may curl upward in the young leaflets and downward in the older leaflets.	Bud nematodes live from year to year on infected daughter plants and in the soil.	Fumigate fields where the disease has occurred. Obtain clean plants. There is no satisfactory treatment to eradicate these nematodes from infected plants.

Table 1. Seasonal fungicide spray schedule for strawberry.¹

Season	Pesticide Application Timing	Diseases
Preplanting	Preplanting fungicide dip ²	Anthrachnose crown rot, Phytophthora crown or root rot
Postplanting until prebloom	Early postplanting	Anthrachnose crown rot, Phytophthora crown or root rot, powdery mildew
Postplanting until prebloom	Warm periods following frost	Botrytis crown rot
Postplanting until prebloom	New growth	Leaf spots (bacterial and fungal), Phytophthora crown or root rot, powdery mildew
Bloom until harvest	Every 7 to 10 days or according to label	Gray mold, anthracnose fruit rot, leaf spots (bacterial and fungal, Phytophthora crown or root rot, powdery mildew

¹ Not all applications will be needed in every field every season. Contact your local extension agent if you need help determining if an application needs to be made.

² If it is known that plants from a particular source have a problem with one of the root or crown rot diseases, bare-root strawberry plants may be dipped in a fungicide suspension prior to planting to provide early season control. Prior to dipping, the plants should be washed with potable water to remove adhering soil.

Table 2. Pesticide efficacy¹ and use.

Chemical Names	Product Choices ²	Mode of Action Group(s) ³	Angular Leaf Spot	Anthrachnose Crown Rot	Anthrachnose Fruit Rot	Botrytis Crown Rot	Botrytis Fruit Rot (Gray Mold)	Common Leaf Spot	Leaf Blight	Leather Rot	Phytophthora Crown or Root Rot and Red Stele Root Rot	Powdery Mildew	Pestalotia Leaf Spot and Fruit Rot	Rate ⁴	PHI ⁵	Maximum Use ⁶
copper-containing products labeled for use on strawberries, including ones with basic copper sulfate, copper hydroxide, copper oxychloride, copper octanoate, copper sulfate pentahydrate, or cuprous oxide	some products OMRI listed ⁰⁶	M01	P	-	-	-	-	P	-	P	-	-	-	see label	typically 0 – see label	see label
sulfur ¹²	Yellow Jacket Wettable II ⁰⁶ ; 90%	M02	-	-	-	-	-	-	-	-	-	G	-	3-50 lb	0	
sulfur ¹²	Microthiol Disperss ⁰⁶ ; 80%	M02	-	-	-	-	-	-	-	-	-	G	-	5-10 lb	0	
thiram	Thiram SC	M03	-	F	F	F	G	F	F	F	-	-	G	2.0-2.5 qt (1.5-2.5 qt for gray mold)	1	5 or 12 apps ¹³
captan	Captan 50 WP	M04	-	G	G	F	G	F	F	F	-	-	-	3-6 lb	0	48 lb
captan	Captan 80 WDG	M04	-	G	G	F	G	F	F	F	-	-	-	see label	0	30 lb
captan	Captan 4L	M04	-	G	G	F	G	F	F	F	-	-	-	see label	0	24 qt
acibenzolar-S-methyl	Actigard 50WG	P01	P	-	-	-	-	-	-	-	-	-	-	0.5-0.75 oz	0	6 oz
aluminum tris	O-ethyl phosphonate, Aliette WDG ⁷	P07	-	-	-	-	-	-	-	F	F	-	-	2.5-5.0 lb8 (2.5 lb/100 gal for dip)	0.5	30 lb
mono- and dibasic sodium, potassium, and ammonium phosphites	Phostrol	P07	-	-	-	-	-	-	-	F	F	-	-	2.5 – 5.0 pt (2.5 pt/100 gal for dip)	0	
mono- and di-potassium salts of phosphorous acid	K-Phite 7LP, others	P07	-	-	-	-	-	-	-	F	F	-	-	see label (varies by product and application method)	0	see label
potassium phosphite	ProPhyt	P07	-	-	-	-	-	-	-	F	F	-	-	2-4 pt (2 pt/100 gal for dip)	0	

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cyflufenamid	Torino	U06	-	-	-	-	-	-	-	-	-	VG	-	3.4 oz	0	2 apps	
flutianil	Gatten	U13	-	-	-	-	-	-	-	-	-	E	-	6 - 8 fl oz	0	5 apps	
thiophanate-methyl	Incognito 85 WDG	1	-	G ^R	-	- _R	- _R	G	G	-	-	F ^R	-	0.6-0.8 lb	1	3.2 lb	
thiophanate-methyl	Topsin M WSB, T-Methyl 70 WSB	1	-	G ^R	-	- _R	- _R	G	G	-	-	F ^R	-	0.75-1 lb	1	4 lb	
thiophanate-methyl	Topsin 4.5FL, others	1	-	G ^R	-	- _R	- _R	G	G	-	-	F ^R	-	15-20 fl oz	1	4 apps	
iprodione	Rovral 4, Meteor	2	-	-	-	VG	G ^R	G	-	-	-	-	-	1.5-2 pt alone; 1 pt if tank mix		Do not apply after first fruiting flower.	1 app
flutriafol	Rhyme	3	-	-	-	-	-	-	-	-	-	E ^R	F	5 - 7 fl oz (7 fl oz for charcoal rot)	0	4 apps	
myclobutanil	Rally 40WSP	3	-	-	-	-	-	VG	VG	-	-	E ^R	-	2.5-5 oz	0	30 oz	
propiconazole	Tilt, others	3	-	F	F	P	P	G	-	-	-	VG ^R	F	4 fl oz	0	4 apps	
tetraconazole	Mettle 125 ME	3	-	-	-	-	-	-	-	-	-	E ^R	-	3-5 fl oz	0	20 fl oz	
triflumizole	Procure 480SC, Trionic 4SC	3	-	-	-	-	-	-	-	-	-	E ^R	-	4-8 fl oz	1	4 apps	
propiconazole and thiophanate-methyl	Protocol	3, 1	-	G ^R	G ^R	G ^R	G ^R	G	G	-	-	G ^R	-	1.33 pt	1	5.3 pt	
difenoconazole and cyprodinil	Inspire Super	3, 9	-	G	G	VG	VG	-	-	-	-	E	-	16-20 fl oz	0	80 fl oz	
mefenoxam	Ridomil Gold SL, ReCon Bold SL, Ultra Flourish XHL	4	-	-	-	-	-	-	-	VG ^R	VG	-	-	1 pt ¹⁰	0	3 pt/3 apps	
mefenoxam	Thrive 4M	4	-	-	-	-	-	-	-	VG ^R	VG	-	-	15.7 fl oz ¹⁰	0	47.1 fl oz/3 apps	
mefenoxam	Ultra Flourish, Vaunt	4	-	-	-	-	-	-	-	VG ^R	VG	-	-	2 pt ¹⁰	0	6 pt/3 apps	

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metalaxyl	Metalaxyl 2E	4	-	-	-	-	-	-	-	VG ^R	VG	-	-	2 qt ¹⁰	0	6 qt/3 apps
metalaxyl	Xylar FC	4	-	-	-	-	-	-	-	VG ^R	VG	-	-	1.4 qt ¹⁰	0	4.3 qt
oxathiapoprolin and mefenoxam	Orondis Gold	4, 49	-	-	-	-	-	-	-	-	VG	-	-	20-62 fl oz	28	124 fl oz
isofetamid	Kenja 400SC	7	-	-	-	-	E	-	-	-	-	GR	-	13.5-15.5 fl oz	0	54 fl oz
penthiopyrad	Fontelis ¹¹	7	-	F	F	-	E ^R	-	-	-	-	GR	-	16-24 fl oz	0	72 fl oz
pydiflumetofen and fludioxonil	Miravis Prime	7, 12	-	G	G	VG	E	-	-	-	-	E	-	9.1 - 13.4 fl oz (11.4 – 13.4 fl oz for anthracnose)	0	26.8 fl oz
pyrimethanil	Scala SC	9	-	-	-	-	G ^R	-	-	-	-	-	-	18 fl oz (9-18 fl oz if tank mixed with other product for grey mold)	1	54 fl oz
cyprodinil and fludioxonil	Switch 62.5 WG	9, 12	-	G	G	VG	E	F	F	-	-	-	G	11-14 oz (5-8 oz/100 gal for dip)	0	56 oz
azoxystrobin	Abound Flowable, others	11	-	G ^R	E ^R	-	F ^R	F	-	VG	-	E ^R	-	6.0-15.5 fl oz (5-8 fl oz/100 gal for dip)	0	see label
pyraclostrobin	Cabrio EG	11	-	G ^R	E ^R	-	F ^R	F	-	VG	-	E ^R	-	12-14 oz	0	70 oz
trifloxystrobin	Flint Extra	11	-	G ^R	E ^R	-	F ^R	F	-	VG	-	E ^R	-	2.5-3 fl oz	0	18 fl oz
azoxystrobin and difenoconazole	Quadris Top	11, 3	-	G ^R	E ^R	-	F ^R	G	-	F	-	E ^R	-	12-14 fl oz	0	56 fl oz
azoxystrobin and propiconazole	Quilt Xcel, others	11, 3	-	G ^R	E ^R	-	F ^R	-	-	-	-	E ^R	-	14 fl oz	0	4 apps
pyraclostrobin and boscalid	Pristine	11, 7	-	G ^R	E ^R	-	G ^R	VG	VG	-	-	E ^R	-	18.5-23 oz	0	115 oz
pyraclostrobin and fluxapyroxad	Merivon	11, 7	-	G ^R	E ^R	-	E ^R	VG	VG	-	-	E ^R	-	see label (varies by disease)	0	3 apps

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trifloxystrobin and fluopyram	Luna Sensation	11, 7	-	G ^R	E ^R	-	E ^R	VG	VG	-	-	E ^R	-	4-7.6 fl oz (6-7.6 fl oz for gray mold; 7.6 fl oz for Rhizopus fruit rot and Mycosphaerella leaf spot)	0	27.1 fl oz
quinoxifen	Quintec	13	-	-	-	-	-	-	-	-	-	E	-	4-6 fl oz	1	4 apps
fenhexamid	Elevate 50WDG	17	-	-	-	-	E ^R	-	-	-	-	-	-	1.5 lb ⁹	0	6 lb
polyoxin D zinc salt	Ph-D	19	-	-	F	-	G	-	-	-	-	-	-	6.2 oz	0	6 apps
polyoxin D zinc salt	OSO 5%SC ^{OG}	19	-	-	F	-	G	-	-	-	-	-	-	6.5 – 13.0 fl oz	0	78 fl oz

^{OG} Product has been listed by the Organic Materials Review Institute (OMRI). Check with your organic certifier to ensure acceptability of a particular product.

¹

Efficacy Rating	Abbreviation
Excellent	E
Very Good	VG
Good	G
Fair	F
Poor	P
Resistant	R
Not Effective or Unknown	-

R = indicates that there is a possibility of resistance to the chemical and that the chemical will not be effective, or as effective as noted, if the pathogen is resistant to it,
- = indicates that the chemical is not expected to be effective for managing the disease or that data is lacking.

Actual performance may vary. Ratings are based largely on the Southeast Regional Blueberry Integrated Management Guide and the Southeast Regional Organic Blueberry Pest Management Guide of the Southern Region Small Fruit Consortium.

² Chemical name (trade name). Reference to commercial or trade names is made for the reader's convenience and with the understanding that no discrimination or endorsement of a particular product is intended by LSU or the LSU AgCenter. In some cases, other brands are available.

³ Mode of action groups are determined by the Fungicide Resistance Action Committee (FRAC).

⁴ Rates are the amount of formulation (product) per acre unless otherwise indicated. Check label for changes.

⁵ Postharvest interval (PHI) is the minimum number of days allowed between the last application and harvest. Check label for changes and for reentry interval (REI), which is longer than PHI in some cases.

⁶ Maximum amount per acre per year or growing season. See labels for additional restrictions and changes.

⁷ Make sure to get the Aliette WDG that is labeled for use on strawberries. There is a product of the same name that is not labeled for strawberries.

⁸ Do not apply more than 3.75 lb product per acre per application in Livingston or Rapides parishes.

⁹ "When plastic mulch is used, do not apply within 16 feet...of naturally vegetated or aquatic areas."

¹⁰ When the product is applied through drip irrigation equipment, adjust the rate according to label instructions for banded applications.

¹¹ Do not apply to cvs. 'Clancy,' 'Jewel,' or 'L'Amour.'

¹² See labels for restrictions and recommendations regarding use at high temperatures and within given time periods before or after oil applications.

¹³ Five applications per year of Thiram SC are allowed in locations west of the Mississippi River, and 12 applications per year are allowed east of the Mississippi River.

The strawberry section was revised September 2024 by Mary Helen Ferguson.