



1979 Missouri Commercial Strawberry Spray Schedule

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These recommendations are intended to serve as guidelines for commercial strawberry growers in Missouri. The pesticides and application rates listed for any given pest problem are based on their effectiveness, economy, safety and general integration into control programs for other pests present at or about the same time. The choice of which chemicals to use, when to use them, and how they are applied must be made by the individual grower relative to his own experience, equipment, and special problems associated with his fields. The effective and efficient use of all pesticides requires careful selection of the most appropriate material and the rate required, critical timing of the application(s), and uniform, thorough coverage of the plants.

PESTICIDE SAFETY

Responsible use of pesticides also includes their safe storage and handling. Most pesticides are poisonous to people and animals. Handle them with care. Store them only in their original, labeled containers in a dry, locked location out of the reach of children and animals.

READ THE LABEL! Understand it. Know the toxicity of the material you are using and wear the appropriate protective clothing. The greatest hazard with most pesticides occurs during the loading operation before the spray is applied. With highly toxic wettable powder (WP) formulations, empty containers carefully into the tank to avoid undue exposure to the dust; with liquid formulations, avoid splashing and spillage while measuring or making additions to the spray tank.

Avoid contaminating lakes, streams or ponds with any pesticide. Do not clean sprayers or dump excess spray mixtures near any such water supply. Avoid contaminating any crop used for forage or feed by drift of sprays out of the treated fields.

RECOMMENDED RATES OF APPLICATION

All of the rates for the materials in these recommendations are given on an amount per acre basis and should be applied in sufficient volume of water to allow

thorough penetration of the dense mat of foliage, crowns, runners and mulch present in most beds. A volume of 150 to 250 gallons per acre delivered at a pressure of at least 200 pounds per square inch is suggested. Be sure to spray the entire planting—rows and middles.

“REGISTERED” DISEASE-FREE PLANTING STOCK

The importance of using only disease-free strawberry plants for the establishment of new beds cannot be over-emphasized. *Red stele root rot*, *Verticillium wilt*, or *root knot nematodes* introduced on just a few plants can, in a relatively short time, spread through an entire planting and not only cause serious losses, but contaminate the site for future use. Strawberries are also affected by a number of *virus diseases* which can seriously reduce the yields and quality of the fruit grown. Virus and disease-free stock of most varieties are now commercially available and sold as “REGISTERED” stock. Purchase and use of plants without the “REGISTERED” label is a poor investment.

‘PESTICIDE CERTIFICATION’ FOR GROWERS

Missouri’s pesticide law went into effect October 21, 1976. This law requires certification for commercial and private applicators to purchase and apply restricted use pesticides as defined by the Environmental Protection Agency. Since several pesticides used routinely by fruit growers are potential restricted use materials, it is highly desirable that each grower become certified.

Commercial applicators (all applicators who apply pesticides for hire) must pass an examination administered by the Missouri State Department of Agriculture. Private applicators are required to attend a training program, but are not required to pass an examination. Training sessions are offered to both commercial and private applicators by the University of Missouri Cooperative Extension Service. Contact your local Extension Specialist for further information.

Timing & Major Pests Involved	Materials To Use	Rate Per Acre	Comments and Special Precautions
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PRE-PLANTING SOIL TREATMENT

Wireworms	CHLORDANE 40W	15 lb	Treat soil for new strawberry beds <i>before</i> setting plants. Broadcast soil insecticide on the surface of the cultivated soil, and disc or harrow into upper 3-5 inches immediately after application.
White Grubs	or CHLORDANE 45EC	1 ½ gal	
Carrot Beetles	or CHLORDANE GRANULES 10%	60 lb	

PRE-BLOOM SPRAYS

Catfacing insects	CHLORDANE 40W	2 ½ lb	Pre-bloom insecticides are primarily for catfacing insects. Begin applications as soon as growth starts in the spring. Continue every 7 to 10 days to early bloom. During “wet” spring seasons, a fungicide should be applied with the insecticides.
Weevils	+ GUTHION 50W	1 lb	
Rootworms	or MALATHION 25W	4 lb	
Crown borers			

Leaf Spot	CAPTAN 50W or THIRAM 65W	5 lb 5 lb	During “wet” spring seasons, a fungicide should be applied with the insecticides.
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BLOOM SPRAYS THROUGH HARVEST

Fruit rots	BENOMYL 50W	1 lb	Alternate the use of BENOMYL with CAPTAN or THIRAM. Repeat applications from early bloom through harvest at 7 to 10 day intervals. THIRAM should not be used within 4 days of harvest; BENOMYL or CAPTAN can be used up to harvest.
Leaf spot	or CAPTAN 50W	5 lb	
Leaf blight	or THIRAM 65W	5 lb	
Leaf scorch			

SPECIAL PRE-HARVEST SPRAY

Leafrollers	NALED 8EC	1 pt	Apply NALED only if needed. NALED (Dibrom) is highly corrosive—wash out spray equipment thoroughly after use to avoid problems. NALED may be used to within 1 day of harvest; KELTHANE + MALATHION to within 3 days of harvest.
Spider mites	or KELTHANE 35W	1½ lb	
	+ MALATHION 25W	4 lb	

POST-HARVEST SPRAYS

Leafrollers	GUTHION 50W or DIAZINON 50W	1 lb 1 lb	Check your plantings at least once a week. These sprays are recommended only on a “spray as needed” basis rather than a regular schedule.
Spider Mites	KELTHANE 35W	1 1/2 lb	
Crickets, Grasshoppers	TOXAPHENE 60-65EC	1 qt	During wet seasons regular fungicide treatments may be needed to check foliar diseases. Repeat every 7 to 10 days until conditions improve.
Leaf Diseases	CAPTAN 50W or THIRAM 65W	5 lb 5 lb	

STRAWBERRY PESTICIDE TOLERANCES, DAYS TO HARVEST, AND OTHER LABEL RESTRICTIONS^[1]

Compound	Tolerance ^[2]	Interval ^[3]	Compound	Tolerances ^[2]	Interval ^[3]
Benomyl	5	NTL	Guthion [4]	2	5
Captan	25	NTL	Malathion	8	3
Chlordane	0.3	PS	Naled (Dibrom)	1	1
Diazinon	0.75	5	Thiram	7	4
Dicofol (Kelthane)	5	2	Toxaphene	7	BF

[1] All references are for use on strawberries only. Many compounds have different limitations on other crops. READ THE LABEL!
[2] Allowable residues at harvest expressed in parts per million (ppm).
[3] Time in days between last application and harvest. NTL = no time limitation; PS = pre-plant soil application only; BF = do not apply after fruit starts to form.
[4] Do not permit workers to re-enter field within 24 hrs after application of GUTHION unless they wear protective clothing. For all other pesticides, no unprotected farm worker re-entry until the spray dries or the dust settles.

Missouri Poison Control Centers*

City	Poison Control Center	Telephone	City	Poison Control Center	Telephone
Cape Girardeau	St. Francis Hospital 825 Good Hope Street 63701	(314)335-1251 Ext. 217	Rolla	Phelps Co. Memorial Hospital 1000 W. 10th Street 65401	(314)364-3100 Ext. 126
Columbia	University of Missouri Medical Center 807 Stadium Road 65201	(314)882-8091	Springfield	Lester E. Cox Medical Center 1423 N. Jefferson St. 65802	(417)836-3193
Hannibal	St. Elizabeth's Hospital 109 Virginia Street 64301	(314)221-0414 Ext. 183		St. John's Hospital 1235 East Cherokee 65804	(417)881-8811 Emer. Rm.
Joplin	St. John's Hospital 2727 McClelland Blvd 64801	(417)781-2727 Ext. 393	St. Joseph	Methodist Hospital and Medical Center 8th & Faraon Streets 64511	(816)271-7580
Kansas City	Children's Mercy Hospital 24th & Gilham Road 64108	(816)471-0626 Emer. Rm.	St. Louis	Cardinal Glennon Children's Memorial Hospital 1465 S. Grant Avenue 63104	(314)772-5200
	Kansas City General Hospital and Medical Center 23rd & Cherry Streets 64108	(816)556-3106		St. Louis Children's Memorial Hospital 500 S. Kingshighway 63110	(314)367-2034
Kirksville	Kirksville Osteopathic Hospital 800 W. Jefferson St. 63501	(816)626-2121	West Plains	West Plains Memorial Hospital 1103 Alaska Avenue 65775	(417)256-9111 Ext. 36
Poplar Bluff	Lucy Lee Hospital 330 N. 2nd Street 63901	(314)785-7721 Ext. 166			

*In the case of accidental poisoning involving a pesticide, follow the first aid directions printed on the label of the container and consult your physician immediately. Additional information concerning treatment and course of action can be obtained from your nearest poison control center.

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