

Drexel

# Malathion 5EC

INSECTICIDE

ACCEPTED

AUG 28 1987

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 19713-217

**ACTIVE INGREDIENTS:**

Malathion (O,O-dimethyl phosphorodithioate of  
diethyl mercaptosuccinate).....57.0%

**INERT INGREDIENTS:**..... 11.0%

Xylene Range Aromatic Solvent..... 32.0%

**TOTAL**.....100.0%

This product contains 5 lbs. Malathion per gallon at 68°F

**Keep Out Of Reach Of Children**

**WARNING—AVISO**

**PRECAUCION AL USUARIO:** Si usted no lee ingles, no use este producto hasta  
que le etiqueta haya sido explicado ampliamente.

See Side Panel for Additional Precautionary Statement

EPA Reg. No. 19713-217  
EPA Est. No. 19713-MS-1

Net Contents            gal.

Malathion Mixture,  
Liquid NA2783 RQ

**ORM-A**

PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS  
WARNING

Harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing spray mist. Causes eye irritation. Do not get in eyes, skin, or clothing. Wash skin thoroughly after handling. Remove and wash contaminated clothing before reuse.

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED, do not induce vomiting. Get medical attention IN CASE OF CONTACT, immediately flush eyes and skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse. NOTE TO PHYSICIAN: This product may cause cholinesterase inhibition. Atropine is antidotal. 2-PAM may be effective as an adjunct to atropine.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. Use with care when applying in areas adjacent to any body of water. Keep out of lakes, streams and ponds. Do not apply when weather conditions favor drift from target area.

This pesticide is highly toxic to bees exposed to direct treatment or to residues remaining on the treated area. Do not apply when bees are actively visiting the crop, cover crop, or weeds blooming in the treated area. Applications should be timed to provide the maximum possible interval between treatment and the next period of bee activity.

Specific Re-entry and Farmworker Safety Statements:

Do not allow entry into treated areas until spray has settled, unless full protective clothing is worn. Applies to foliar applications to agricultural crops. Does not apply to use on livestock.

Because certain states may require more restrictive re-entry intervals for various crops treated with this product. (Indicate specific oral warnings which inform workers of areas or fields that may not be entered without specific protective clothing, period of time field must be vacated and appropriate actions to take in case of accidental exposure.) When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following

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information: **WARNING.** Area treated with Malathion on (date of application). Do not enter without appropriate protective clothing until sprays have dried. In case of accidental exposure, refer to the Statement of Practical treatment located on container label.

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**VEGETABLES:** Apply in a minimum of 30 gals. by ground equipment or 5 gals. by air equipment unless otherwise specified. Best results are obtained with uniform coverage.

Crop	Pests Controlled	Rate/A	Interval (Days) Between Last Application and Harvest
Asparagus	Asparagus aphid Asparagus beetle	2 pts.	Do not apply within 1 day of harvest.
	Thrips	1½-2 pts.	
Beans (Green Beans, Lima Beans, Navy Beans, Red Kidney Beans, Snap Beans, Wax Beans, Cowpeas and Blackeyed Peas)	Aphids Bean leaf beetles Blister beetles Cucumber beetles Potato leafhoppers Lygus bugs	2 pts.	Do not apply within 1 day of harvest.
	Japanese beetle Mexican bean beetle	1½-2 pts.	
	Red Spider mites	1½ pts.	
Dry Beans (California and Northwest only)	Lygus bugs	1½-2 pts. (ground) 1½ pts. (air) in 10 gallons of water	Do not apply within 1 day of harvest.
Beets (Garden and Table)	Aphids	1½-2 pts.	Do not apply within 7 days of harvest if tops are to be used as food or feed.
Broccoli	Aphids Cabbage looper Imported cabbageworm	1-2 pts.	Do not apply within 3 days of harvest.
Brussels Sprouts	Aphids	1-2 pts	Do not apply within 7 days of harvest.
Cabbage	Aphids Cabbage looper Imported cabbageworm	1-2 pts	Do not apply within 7 days of harvest. For control of caterpillars on summer and fall plantings in the South, begin when true leaves appear. On other plantings, and for control of other insects begin when insects appear.
	Diamondback moth Webworm	2 pts	
Carrots	Aphids	1½-2 pts.	Do not apply within 7 days of harvest.
	Leafhoppers	2½ pts.	

Crop	Pests Controlled	Rate/A	Interval (Days) between Last Application and Harvest
Cauliflower	Diamondback moth	2-4 pts.	Do not apply within 7 days of harvest.
	Aphids	1-2 pts.	
Celery, Anise	Aphids Spider mites	1½ pts.	To be applied to fresh leaves and stalks only. Do not use on crops grown for seed and oil. Do not apply within 7 days of harvest.
Collards	Aphids	1½-2 pts	Do not apply within 7 days of harvest. For control of caterpillars on summer and fall plantings in the South, begin when true leaves appear. On other plantings, and for control of other insects, begin when insects appear.
	Harlequin cabbage bug	1 pt.	
Cucumbers	Aphids Pickleworms Spider mites	1½-2 pts.	Do not apply to cucumbers unless plants are dry. Do not apply within 1 day of harvest.
	Squash vine borer	3 pts.	
	Cucumber beetle Leaf miner	2 pts.	
Dandelion, Parsley, Parsnip, Swiss Chard, Watercress	Aphids	1½-2 pts.	Do not apply within 21 days of harvesting parsley or within 7 days of harvesting dandelion, parsnip, Swiss chard or watercress.
Eggplant	Aphids Spider mites	1 pt.	Do not apply within 3 days of harvest.
	Lacebugs	3 pts.	
Endive	Aphids Spider mites	1½-2 pts.	Do not apply within 7 days of harvest.
Garlic, Shallots	Aphids Thrips	1½-2 pts.	Do not apply within 3 days of harvest.
Hops	Aphids Spider mites	1 pt.	Do not apply within 10 days of harvest.
Kale	Aphids Cabbage looper Imported cabbageworm	1-2 pts	Do not apply within 7 days of harvest. For control of caterpillars on summer and fall plantings in the South, begin when true leaves appear. On other plantings, and for control of other insects, begin when insects appear.
	Webworm Diamondback moth	2 pts	
Kohlrabi	Aphids	1-2 pts.	Do not apply within 7 days of harvest.
	Cabbage looper Diamondback moth Imported cabbageworm Webworm	2 pts.	
Leeks	Aphids	1½-2 pts	Do not apply within 3 days of harvest.
	Onion maggot flies	2½ pts.	
	Thrips	3 pts.	

Crop	Pests Controlled	Rate/A	Interval (Days) Between Last Application and Harvest
Lentils	Cowpea aphid Pea aphid	1½ pts.	Do not apply within 3 days of harvest.
Lettuce	Aphids Leafhoppers Spider mites	2 pts.	Do not apply within 7 days of harvesting head lettuce or within 14 days of harvesting leaf lettuce.
	Cabbage looper	3 pts.	
Melons (Cantaloupe, Casaba, Crenshaw, Honeydew Melons, Honey Balls, Muskmelons, Persian Melons and hybrids of these, Watermelons and their hybrids)	Aphids Spider mites	1½-2 pts	Do not apply to melons unless plants are dry. Do not apply within 1 day of harvest.
	Cucumber beetles	2-3 pts.	
	Leaf miners	2 pts.	
	Leafhoppers	1½-2 pts.	
	Pickleworms	2 pts.	
	Squash vine borer	3 pts.	
Mushrooms	Mites Phorid and Sciardid flies	2½ pts. in 130 gallons of water; or, 2 tablespoons in 3 gallons of water per 1000 sq. ft. of bed	Make thorough applications as soon after picking as possible. Repeat applications as necessary, usually twice a week. Do not apply within 1 day of harvest.
Mustards	Aphids Cabbage looper Imported cabbageworm	2 pts.	For control of caterpillars on summer and fall plantings in the South, begin when true leaves appear. On other plantings, and for control of other insects, begin when insects appear. Do not apply within 7 days of harvest.
	Flea beetles	1½-2 pts.	
Okra	Aphids	1½ pts	Do not apply within 1 day of harvest. Make no application after pods start to form.
	Japanese beetle	2 pts.	
Onions	Onion maggots	1½-2½ pts.	Do not apply within 3 days of harvest.
	Onion thrips	1½-2 pts.	
Peas	Aphids	1½-2 pts	Do not apply within 7 days of harvest if vines are to be fed, or within 3 days of harvest if vines are not to be fed.
	Grasshoppers	2 pts	
	Leafhoppers	1¼-4 pts	
Peppermint, Spearmint	Aphids Flea beetles Leafhoppers Spider mites	1½ pts.	Do not apply within 7 days of harvest.
Peppers	Aphids	1-2½ pts.	Do not apply within 3 days of harvest.
	Pepper maggots	2½ pts.	
Potatoes	Aphids Grasshoppers Leafhoppers	2 pts	May be applied on the day of harvest
	False chinch bugs	1½ pts	
	Mealybugs	2-2½ pts	

Crop	Pests Controlled	Rate: A	Interval (Days) Between Last Application and Harvest
Pumpkins	Aphids Pickleworms Spider mites	2 pts.	Do not apply to pumpkins unless plants are dry Do not apply within 3 days of harvest
	Leafhoppers	1½-2 pts	
	Cucumber beetles Squash vine borer	3 pts.	
Radish, Horseradish	Aphids	1½-2 pts.	Do not apply within 7 days of harvest
Rice	Rice leaf miner	2½ pts	Make first application shortly after the first rice blades appear on the surface of the water and repeat if necessary. Do not apply within 7 days of harvest.
	Rice stink bugs	1-1½ pts.	Apply by airplane in 2 gallons of water per acre during the early milk and dough stage of growing rice. Repeat applications as necessary Do not apply within 7 days of harvest.
Rutabaga	Aphids	1½ pts.	Do not apply within 3 days of harvest.
Spinach	Aphids	2 pts.	Do not apply within 7 days of harvest.
Squash	Aphids Leaf miners Spider mites Pickleworm	2 pts.	Do not apply to squash unless plants are dry Do not apply within 1 day of harvest.
	Cucumber beetles Squash vine borer	3 pts.	
Strawberries	Aphids Spider mites	1½ pts.	Do not apply within 3 days of harvest.
	• Field crickets Lygus bugs Spittlebugs Thrips	1½-3 pts.	
	Potato leafhopper Strawberry leafroller Strawberry root weevil Whiteflies	1½-2½ pts.	
Sweet Corn	Japanese beetle	2 pts.	Do not apply within 5 days of harvest Injury may occur in the whorl or to the silks
Sweet Potatoes	Leafhoppers	1½-2 pts.	Do not apply within 3 days of harvest.
	Morningglory leaf miner	2½-3 pts.	
Tomatoes	Aphids	1½ pts.	Do not apply within 1 day of harvest
	Drasophila	2½ pts.	
	Spider mites	1½ pts	
	Armyworms Fruitworms (California only)	2¾ qts.	Do not apply within 3 days of harvest.

Crop	Pests Controlled	Rate/A	Interval (Days) Between Last Application and Harvest
Turnip	Aphids Cabbage looper Imported cabbageworm	1-2 pts.	For control of caterpillars on summer and fall plantings in the South, begin when true leaves appear. On other plantings, and for control of other insects, begin when insects appear. Do not apply within 7 days of harvest if tops are to be used for food or feed.

Vegetables Grown in Commercial Greenhouses: Apply to give complete coverage.

Crop	Pests Controlled	Rate/100 gals.	Interval (Days) Between Last Application and Harvest
Cucumbers	Aphids Armyworms Cabbage loopers Earwigs Garden fleahoppers Mealybugs Spider mites Thrips Whiteflies	1½-2 pts.	Spray plants thoroughly. Do not apply to cucumber unless plants are dry. Do not apply within 1 day of harvest.
Endive	Aphids Armyworms Cabbage loopers Serpentine leaf miners Thrips Whiteflies	1½-2 pts.	Spray plants thoroughly. Do not apply within 7 days of harvest.
Lettuce	Aphids Armyworms Cabbage loopers Serpentine leaf miner Thrips Whiteflies	1½-2 pts.	Spray plants thoroughly. Do not apply within 14 days of harvesting leaf lettuce or within 7 days of harvesting head lettuce.
Radish	Aphids Flea beetles	1½-2 pts.	Spray plants thoroughly. Do not apply within 7 days of harvest.
Tomato	Aphids Armyworms Cabbage loopers Cutworms Drosophila Garden fleahoppers Mealybugs Serpentine leaf miners Spider mites Thrips Tomato russet mites Whiteflies	1½-2 pts.	Spray plants thoroughly. Do not apply within 1 day of harvest.
Watercress	Aphids Serpentine leaf miners Thrips	1½-2 pts.	Spray plants thoroughly. Do not apply within 7 days of harvest.

**Fruit and Nut**

Crop	Pests Controlled	Rate/ 100 gals.	Rate A	Interval (Days) Between Last Application and Harvest
Almonds	Aphids Spider mites	1-2 pts	2-4 pts	May be applied on the day of harvest.
	Peach twig borer	1-1½ pts.	2-3 pts	Apply during the petal fall period or during the period appropriate for spraying larvae of the May brood. May be applied on the day of harvest
	The rates for use on almonds are based on a standard of 200 gallons per acre dilute spray for mature trees. Do not apply more than 8 lbs actual Malathion 5EC per acre to almond trees.			
Apples	Budmoth Forbes scale Woolly apple aphid	1 pt.	4 pts	Do not apply within 3 days of harvest
	Eastern tent caterpillar	1-1½ pts.	4-6 pts.	
	Green apple aphid Rosy apple aphid	1½ pts	6 pts.	
	Codling moth Plum curculio Red-banded leafroller	2 pts.	8 pts.	
	Mealybug Mites, such as Clover mite, European red mite, Twospotted spider mite, Willamette mite	1-2 pts	4-8 pts.	
	The rates for use on apples are based on a standard of 400 gallons per acre dilute spray for mature trees pruned 20 to 22 feet high in rows 40 feet apart.			
Malathion 5EC may cause fruit injury to McIntosh and Cortland varieties if spray is applied within 4 weeks of harvest				
Dormant or Delayed- Dormant Sprays	Aphids Mites Red-banded leafrollers	1 pts + 1 gal superior oil	—	Make full coverage dormant or delayed dormant applications only
Apricots	Aphids Codling moth European fruit lecanium Orange tortrix Soft brown scale Terrapin scale	1½-2 pts.	4½-6 pts	Do not apply within 7 days of harvest
	The rate for use on apricots is based on a standard of 300 gallons per acre dilute spray for mature trees			
Avocado	Greenhouse thrips Latania scale Omnivorous looper Orange tortrix Soft brown scale	1½ pts	7½ pts	Do not apply within 7 days of harvest
	The rate for use on avocado is based on a standard of 500 gallons per acre dilute spray for mature trees			



Crop	Pests Controlled	Rate/ 100 gals.	Rate/A	Interval (Days) Between Last Application and Harvest
Blackberry Boysenberry Dewberry Loganberry Raspberry	Aphids Rose scale chafers Japanese beetle Leafhoppers Mites Thrips	1½ pts.	3 pts.	Do not apply within 1 day of harvest

The rates for use on brambles are based on a standard of 200 gallons per acre dilute spray

Blueberries	Blueberry maggots	1 pt. + 1½ qts Staley's Sauce Base No. 7	—	For use in the Northeast only. Apply in 100 gallons of water per acre. Do not apply within 8 hours of harvest.
	Cherry fruitworm	1 pt.	2 pts.	Do not apply within 1 day of harvest.
	Cranberry fruitworm	1 pt.	2 pts.	Make first application at egg hatch and repeat applications every 4 or 5 days until a total of four applications has been made. Do not apply within 1 day of harvest.
	Japanese beetle	¾ pt.	1½ pts.	Make application when first berries turn blue and at 10 day intervals as long as infestation persists. Do not apply within 1 day of harvest.

The rates for use on blueberries are based on a standard of 200 gallons per acre dilute spray

Cherry	Black cherry aphid Fruit-tree leafroller	1½ pts.	6 pts.	Do not apply within 3 days of harvest
	Cherry fruit fly Japanese beetle	1 pt.	4 pts.	

The rates for use on cherries are based on a standard of 400 gals. per acre dilute spray for mature trees. Do not apply more than 8 lbs. of actual Malathion 5EC per acre to cherry trees.

Injury may occur on certain varieties of sweet cherries, particularly in the Northwest

Citrus Grapefruit Kumquat Lemon Lime Orange Tangarine Tangelo	Black scale (single and off-brooded) California red scale Citricola scale Purple scale Soft brown scale Yellow scale	1-1½ pts.	—	Do not apply when trees are in bloom. Do not apply within 7 days of harvest.
	Florida purple scale Florida red scale	2 pts.	—	
	Citrus red mites Thrips	—	2½ pts.	Apply in 200 gallons of water per acre. Do not apply when trees are in bloom. Do not apply within 7 days of harvest.

The rate for use on citrus is based on a standard of 500 gallons per acre dilute spray for mature trees.

Crop	Pests Controlled	Rate/ 100 gals.	Rate/A	Interval (Days) Between Last Application and Harvest
Currants Gooseberries	Japanese beetles	1½ pts	3 pts.	Do not apply within 3 days of harvest.
	Rose chafers Mites	1 pt.	2 pts.	
	The rates for use on currants and gooseberries are based on a standard of 200 gallons per acre dilute spray.			
Figs	Dried fruit beetles Vinegar flies	—	2 qts. + 1-2 gals. unsulfured molasses	Do not apply within 3 days of harvest
Filberts	Apple mealybug Eye-spotted bud moth Filbert aphids Tingids	1 pt.	4 pts	Do not apply within 3 days of harvest.
	Scales (crawler stages)	1 pt.	—	
	The rates for use on filberts are based on a standard of 400 gals. per acre dilute spray for mature trees. Do not apply more than 3 lbs. of Malathion 5EC per acre to filbert trees.			
Grapes	Leafhoppers Spider mites	1½ pts.	3 pts.	Do not apply within 3 days of harvest
	European fruit lecanium	1½ pts.	—	Make full coverage applications when newly hatched nymphs are migrating over vines, usually shortly after bloom. Do not apply within 3 days of harvest.
	Mealybugs	—	1½ pts	Apply in 50-100 gallons of water per acre Do not apply within 3 days of harvest.
	The rates for use on grapes are based on a standard of 200 gallons per acre dilute spray.			
	Injury may occur on grapes of Almeria, Cardinal, Italia and Ribier varieties when sprays containing Malathion 5EC are applied after clusters appear.			
Grape Vines (Overwintering on nursery stock only)	Grape phylloxera	3 pts.	—	1. move excess soil from the roots and dip in the CYTHION solution. Submerge the entire root system for 5 minutes. Keep the solution agitated at all times
Macadamia Nuts	Green stink bugs	1½ pts.	—	Apply when insects start to feed on the nuts and repeat as necessary. May be applied during harvest.
	No more than 15 lbs. of actual Malathion 5EC per acre should be applied to macadamia nut trees.			
Nectarines	Spider mites	1-2 pts.	3-6 pts.	Do not apply within 7 days of harvest
	Plum curculio	2 pts.	6 pts	
	The rates for use on nectarines are based on a standard of 300 gallons per acre dilute spray for mature trees			
Malathion 5EC may cause fruit spotting on nectarines.				
Papaya	Aphids Mealybugs	1½-2 pts	—	May be applied on the day of harvest

Crop	Pests Controlled	Rate/ 100 gals.	Rate/A	Interval (Days) Between Last Application and Harvest
Peaches	Black cherry aphid Black peach aphid European red mite Green peach aphid Rusty plum aphid Japanese beetle Spider mites	1 pt.	3 pts	Do not apply within 7 days of harvest.
	Oriental fruit moth Plum curculio	2 pts.	3 qts.	
	Cottony peach scale European fruit lecanium Terrapin scale	2 pts.	—	Make full coverage applications at completion of hatching, about the last of June. Do not apply within 7 days of harvest.
	The rates for use on peaches are based on a standard of 300 gallons per acre dilute spray for mature trees. Do not apply more than 9 pounds of actual Malathion 5EC per acre to peach trees.			
	Pears	Aphids	1 pt.	3 pts.
Mealybug Mites Pear psylla		1-2 pts.	3-6 pts.	
Codling moth Fruit-tree leafroller Plum curculio Red-banded leafroller		2 pts.	6 pts.	
The rates for use on pears are based on a standard of 300 gallons per acre dilute spray for mature trees.				
Injury may occur under certain conditions in the Northeast on Bosc pears				
Pecans	Aphids Spider mites Walnut aphid	1½-2 pts.	7½-10 pts.	May be applied on the day of harvest
	European red mite	1¼ pts.	6¼ pts.	May be applied on the day of harvest
	Pecan phylloxera	1¼ pts.	6¼ pts.	Apply when buds begin to develop and repeat as necessary. May be applied on the day of harvest
	Pecan nut casebearer Walnut husk fly	1¼ pts.	6¼ pts.	Apply after first generation eggs begin to hatch. May be applied on the day of harvest.
	The rates for use on pecans are based on a standard of 500 gallons per acre dilute spray for mature trees 25-35 feet high.			
Pineapple	Mealybug	1 pt.	8 pts	Do not apply within 7 days of harvest.
Plums and Prunes	Mealy plum aphid Plum curculio	1-1½ pts.	3 pts.	Do not apply within 3 days of harvest. Make full coverage applications to trunks and scaffold limbs 4 times at 21-day intervals beginning with emergence in June. In Georgia, two applications each 4 weeks apart for first (April and May) and second (August and September) broods. Do not apply within 3 days of harvest.
	The rates for use on plums and prunes are based on a standard of 300 gallons per acre dilute spray for mature trees.			

Crop	Pests Controlled	Rate: 100 gals.	Rate/A	Interval (Days) Between Last Application and Harvest
Quince	Codling moth Oriental fruit moth Plum curculio	2 pts.	6 pts.	Do not apply within 3 days of harvest
	Spider mites	1-2 pts	3-6 pts	
	Forbes scale	1 pt.	—	Make full coverage applications when crawlers are present, about first or second cover and last half of July. Do not apply within 3 days of harvest
	The rates for use on quince are based on a standard of 300 gallons per acre dilute spray for mature trees.			
Walnuts	Aphids European red mite Walnut aphid	½ pt.	1½-3 pts.	May be applied on the day of harvest.
	Walnut husk fly	½ pt.	1½-3 pts	Apply with conventional sprayer. For bait sprays, combine Staley's Sauce Base No. 2 or No. 7 at the rate of 2 qts. per acre with CYTHION. May be applied on the day of harvest.
		—	3-4 pts.	Apply in 500 gallons of water per acre with air-carrier type sprayer. For bait sprays, combine Staley's Sauce Base No. 2 or No. 7 at the rate of 2 qts. per acre with Malathion 51. May be applied on the day of harvest.

**Field Crops and Pasture and Range Grasses**

Crop	Pests Controlled	Rate/A	Interval (Days) Between Last Application and Harvest
Alfalfa	Alfalfa weevil larvae Aphids Grasshoppers Lygus bugs Potato leafhoppers Spider mites Spittlebugs Stink bugs	1½-2 pts	Apply to alfalfa in bloom only in the evening or early morning when bees are not working in the field or are not hanging on outside of hives. May be applied on the day of harvest
	Armyworms	2 pts.	
	Clover leaf weevil	1½ pts.	
	Vetch bruchid	2-2½ pts.	
Clover	Alfalfa weevil larvae Aphids Grasshoppers Lygus bugs Potato leafhoppers Spider mites Spittlebugs	1½-2 pts.	Do not apply to clover in bloom. May be applied on the day of harvest.
	Armyworms	2 pts.	
	Clover leaf weevil	1½ pts.	

Crop	Pests Controlled	Rate/A	Interval (Days) Between Last Application and Harvest	
Corn (Grain or Forage)	Aphids Corn earworm Corn rootworm adults Grasshoppers Sap beetle Thrips	1½ pts.	For control of corn earworm and sap beetles, begin treatments when 10% of the ears show silk. Repeat applications at 3-5 day intervals until 4-5 applications have been made. Do not apply within 5 days of harvest or forage use.	
	Armyworms	1½-2 pts.		
	Injury may occur in the whorl and silk stages with Malathion 5EC.			
	Cotton	Brown cotton leafworm Cotton aphid Cotton leafworm Cotton leafperforator Desert spider mite Leafhoppers Lygus bugs Thrips Whiteflies	½-2 pts.	May be applied on the day of harvest. Consult local agricultural authorities for exact time of application.
Boll weevil		2-4 pts.		
Cotton fleahoppers		1-1½ pts.		
Fall armyworms Garden webworms Grasshoppers		1½-3 pts.	May be applied on the day of harvest.	
Lygus bugs Thrips		1-4 pts.		
Grasses (Barnyardgrass, Canarygrass, Fescue, Orchardgrass, Red top, Timothy, Yellow foxtail)		Cereal leaf beetle	1-1½ pts.	May be applied on the day of harvest or grazing.
Pasture and Range Grass, Grass and Grass Hay		Aphids Grasshoppers Leafhoppers	1½-2 pts. OR 1½ pts. in 1 gal. of diesel fuel oil per acre	May be applied on the day of harvest or grazing.
	Armyworms	2 pts. OR 1½ pts. in 1 gal. of diesel fuel oil per acre		
Peanuts	Potato leafhoppers Thrips	1½ pts.	May be harvested or grazed on the day of application.	
Safflower	Aphid Grasshoppers Lygus bugs	1½-2 pts.	Do not apply within 3 days of harvesting seeds.	
Small Grains (Barley, Oats, Rye, Wheat)	Cereal leaf beetle	1-1½ pts.	Do not apply within 7 days of harvest or forage use.	
	English grain aphids Grasshoppers Greenbugs	1½ pts.		
	Winter grain mite	2 pts.		

Crop	Pests Controlled	Rate/A	Interval (Days) Between Last Application and Harvest
Sorghum	Greenbugs	1½ pts.	Do not apply within 7 days of harvest or forage use.
Soybeans	Green cloverworms Mexican bean beetle	3 pts	May be applied on the day of harvest or forage use.
Sugar Beets	Aphids Spider mites	1½-2 pts.	Do not apply within 7 days of harvest if tops are to be used as feed or forage.
	Grasshoppers	3 pts	
Tobacco	Aphids	1½-2½ pts	May be applied on the day of harvest. Use maximum dosage in plant beds.
Vetch	Omnivorous leaf tier Pea aphid Vetch bruchid	1½-2 pts.	May be applied on the day of harvest or grazing.

#### Stored Products

Site	Pests Controlled	Rate	Directions For Use
Stored in-shell Almonds	Indian meal moth Merchant grain beetle	4 fl. oz. in sufficient water to treat 10,000 lbs of almonds.	Use a suitable mechanical spray applicator that regulates the rate application to the flow of the almonds. Avoid spraying with a fine mist that drifts away. Shield the nozzle against wind and air currents.
Stored Peanuts	Confused flour beetle Flat grain beetle Granary weevil Indian meal moth Lesser grain borer Red flour beetle Rice weevil Rusty grain beetle Saw-toothed grain beetle	1 pt. in 2½ gal. of water OR 8 pts. in 19 gal. of water	Residual Warehouse Spray - Before Storing Peanuts. Apply as a coarse spray at the rate of 2 gal. per 1,000 sq. ft. of surface or to run-off. Clean warehouse thoroughly of trash and remains of old peanuts 1 to 2 weeks before new peanut crop is stored. Then, thoroughly spray the interior of the empty warehouse, especially cracks and protected places. Treat outside walls to a height of 6 to 8 feet and the ground to a distance of 6 feet from the warehouse.
		2½ pts. in 5 gal. of water for each 15 tons of farmers stock peanuts.	Bulk Spray Treatment-Peanuts Going Into Storage. Use good spray equipment. Apply coarse spray uniformly. Preferably, use a suitable mechanical spray applicator that regulates the rate of application to the flow of peanuts. Adjust the operating pressure of spray pump and size of nozzle opening to correlate the amount of spray delivery with the rate of flow of peanuts being treated. Avoid spraying with a fine mist that drifts away, by using low nozzle pressure. Shield the nozzle against wind and air currents.

Site	Pests Controlled	Rate	Directions For Use
Nonmedicated cattle feed concentrate blocks	Cigarette beetles	8 pts. in 25 gal. water	Before storing feed blocks thoroughly clean storage areas and remove and burn all debris and sweepings. Apply as a thorough application for a residual spray.
		4 fl. oz. in 1 qt. water	Treat paper on the side next to the feed concentrate at a rate of 100 mg/sq. ft., or 1 qt. of diluted Malathion 5EC per 710 sq. ft.
Bagged citrus pulp Residual warehouse spray	Almond moth Angoumois grain beetle Cigarette beetle Confused flour beetle Flat grain beetle Indian meal moth Mediterranean flour moth Red flour beetle Saw-toothed grain beetle	1 pt. in sufficient water to make 2½ gals of spray OR 8 pts. per 19 gal of water	Apply spray at the rate of 2 gallons per 1,000 sq. ft. of surface or to run-off. Before bagged citrus pulp is stored, thoroughly clean warehouses by removing and burning all debris and sweepings. Thoroughly spray with sufficient pressure, interior of empty warehouse (including cracks and protected places), outside walls to a height of 6 to 8 feet and ground to a distance of about 6 ft. from warehouse.
Do not use treater triap bags other than for dried citrus pulp.			
Stored Grains (Barley, corn, grain sorghum, oats, rice, rye, wheat) and field or garden seeds	Cereal leaf beetle Confused flour beetle Flat grain beetle Granary weevil Indian meal moth Lesser grain borer Maize weevil Red flour beetle Rice weevil Rusty grain beetle Saw-toothed grain beetle	8 pts. per 25 gal of water	Residual Spray Before Storing Grains: Before applying spray, clean elevators, box cars, etc. thoroughly. Remove and burn all sweepings and debris. For a residual wall, floor and machinery spray in grain elevators in treating truck beds, box cars and ships' holds, before loading grain make a thorough application.
		1 pt in 2 to 5 gal of water per 1,000 bushels	Grains Going Into Storage. Apply as the grain is being loaded or turned into final storage
		½ pt in 1 to 2 gal of water per 1,000 sq ft of grain surface area.	As a Surface Treatment After Grains are Stored. Apply the spray evenly over the surface of the grain. Apply immediately after grain is loaded into storage and repeat if necessary.
Warehouse	Khapra Beetle	8 pts. per 20 gallons of water	Apply spray at the rate of 2 gallons per 1,000 sq ft of surface or to run-off. Thoroughly spray with sufficient pressure, interior of empty warehouse including cracks and protected places.

# Fly and Mosquito Control

**Fly Control:** For use in and around buildings which house domestic animals, around yards, homes and meat and food-processing plants. Do not use in edible products areas of food processing plants, restaurants or other areas where food is commercially prepared or processed. Do not use in serving areas while food is exposed.

Pests Controlled	Rate	Directions For Use
Adult flies	Straight Sprays: 5 Tablespoons + 1 gal water OR 1 cup + 2½ gal water OR 1 quart + 12 gal water	Apply as a spray at the rate of 1 gallon per 1,000 sq ft on painted surfaces and 2 gals per 1,000 sq ft on unpainted surfaces where flies alight or congregate, such as walls, ceilings, stanchions, windows in dairy barns, fences, around garbage cans, etc.
Adult flies Fly maggots	Bait Sprays: 5 Tablespoons + 7 Tablespoons sugar or molasses (unsulfurized) or corn syrup + 1 gal water OR 1 cup + 1 cup sugar or molasses (unsulfurized) or corn syrup + 2½ gal water OR 1 quart + 2½ lbs sugar or 1 quart molasses (unsulfurized) or 1 quart corn syrup + 12 gal water.	Apply as a bait spray over the surface of manure or poultry droppings. In loafing sheds, spray the dry bedding within 18 inches of the walls and around upright braces. For effective control in and around dairy barns, fly-breeding sites such as manure and other waste material, should be eliminated. Do not apply to freshly whitewashed surfaces. Wait 14 days after whitewashing before applying.

Repeat applications as necessary.

Avoid contamination of milk, milk equipment and water.

Avoid contamination of feed and food products, also drinking fountains and feed troughs.

Remove lactating dairy animals from buildings before treating. Also remove animals under one month of age before treating.

Avoid applying oil-based formulations to valuable ornamental plants as injury may occur.

Mosquito larvae	13 fl oz per acre	For use in standing water (intermittently flooded areas, stagnant water, temporary rain pools). Mix in sufficient water or oil when applied by air or ground equipment.
Mosquito adults	1 part to 28 parts water, fuel oil or diesel oil.	Spray building foundations, shrubs, low trees and lawn areas.



**Livestock Pest Control**

17-1-55

Animal	Pest	Rate	Remarks
Hogs	Lice	1 gal per 100 gals of water OR 6½ ozs per 5 gals of water.	Apply complete coverage spray to animals, pens and litter. One treatment may be sufficient. Repeat only if needed.
	Sarcoptic mange	1 gal per 100 gals of water OR 6½ ozs per 5 gals of water.	Apply complete coverage spray to all animals in herd, bedding and walls. Use extreme care to thoroughly cover all body surfaces of the animal, including inside of ears. One thorough spraying will usually control sarcoptic mange of swine, however, extensive cases will require second treatment about 10 days after first application.
			After spraying, swine should be kept out of sun and wind for a few hours.
			Residue tolerance: 4 ppm in meat, fat, and meat by-products.
Sheep and Goats	Lice Ticks Kids	1 gal per 100 gals of water OR 6½ ozs per 5 gals of water.	Avoid contamination of feed, food containers and watering troughs.
			Spray animals thoroughly. Repeat application after 2 or 3 weeks if needed. Do not apply to milk goats. Do not treat animals under one month of age.
Horses, beef and non-milking cattle	Lice	1 gal per 100 gals of water OR 6½ ozs per 5 gals of water.	Residue tolerance: 4 ppm in meat, fat and meat by-products.
			Apply complete coverage spray. One treatment may be sufficient. Repeat only if needed.
	Ticks	1-2 gals per 100 gals of water OR 6½-13 ozs per 5 gals of water.	BACK-RUBBING DEVICES: To reduce lice apply a mixture of 2% Malathion (using 57% Emulsifiable Concentrate) in fuel oil. There may also be a reduction in hornflies. These devices should be made continuously accessible, one to each 35-45 head of cattle. Back-rubbing devices must be retreated every 2 to 3 weeks.
			Apply complete coverage spray. Repeat at 2 week intervals if needed.
			Do not apply to lactating dairy animals, or nonlactating dairy animals within 2 weeks of freshening.
Poultry: Chickens, Ducks Geese, Turkeys	Northern fowl mite Poultry lice Chicken red mite	2 tbs per 1 gal water per 100-150 birds	Do not treat animals under one month of age.
			Residue tolerance: 4 ppm in meat, fat and meat by-products.
			Repeat application in 4-8 weeks or when necessary.
			As a supplement to premise treatment for chicken red mite.

Animal	Pest	Site	Rate	Remarks
	Northern fowl mite Chicken body lice Shaft lice	Tail dipping	8½ ozs per 15 gals water per 400 birds	Hold bird by wings and dip 3 to 4 inches of tail into solution. Treat vent and surrounding areas. Repeat in 7-10 days if necessary.
	Chicken red mite Poultry lice	Roost paint	2-7 ozs per 1 gal water	Brush on at rate of 1 pt per 150 ft of roost.
	Northern fowl mite Chicken red mite Poultry lice Flies	Premise treatments	4 tbs per 1 gal water	Apply liberally to litter, walls, ceilings, roost nests and adjacent areas. Force spray into cracks and crevices.
	Poultry ticks	Premise treatments	6-7 ozs per 1 gal water	Apply liberally to walls, ceilings and adjacent areas. Force spray into cracks and crevices.
	Chiggers	Range treatments	1-1½ pt per acre	Treat range thoroughly the day before placing poultry on range. Repeat every 2-3 weeks.
Residue tolerance: 4 ppm in or on meat and meat by-products Eggs 0.1 ppm (from application to poultry)				
Domestic pets (dogs and cats)	Fleas Lice Ticks	—	1 oz/gal	Wet animal thoroughly. Repeat in 2 to 3 weeks if necessary.
	Fleas Ticks	Premise Treatment:	5 oz/gal	Apply per 1,000 sq ft of surface to pet quarters, yards and lawns. Remove manure or debris before treating. Repeat treatment in 3 to 4 weeks if necessary.

### OUTDOOR ORNAMENTALS

#### Flowers, Shade Trees, Shrubs

Injury may occur on Ferns, Hickory, Viburnum, Lantana, Crassula and Canaret Juniper following the use of Emulsifiable Concentrate, slight injury has also been reported on Boston, Pteris, and Maidenhair Ferns, Petunias, Small-Leaf Spirea, White Pine and Maples. under extreme heat, drought and disease conditions the emulsifiable concentrates may cause slight damage to elms.

Pest	Rate	Remarks
Aphids Spider mites	1½ pts per 100 gal OR 2 teaspoons per gal	—
Bagworms Birch leaf miner Boxwood leaf miner	2 pts per 100 gal OR 2 teaspoons per gal	—
European pine shoot moth Four-lined leaf bug Japanese beetle adult Potato leafhopper Rose leafhopper Tarnished plant bug Thrips	1½ pts per 100 gal OR 2 teaspoons per gal	—

Pest	Rate	Remarks
Lace bug	1 pt per 100 gal OR 2 teaspoons per gal	—
Mealybugs Whiteflies	1½ pts per 100 gal OR 2 teaspoons per gal	—
Oak kermes	2 pts per 100 gal OR 2 teaspoons per gal	Apply when scale crawlers have settled on foliage
Tent caterpillar	2 pts per 100 gal OR 2 teaspoons per gal	—
Oyster shell scale	1 pt per 100 gal OR 2 teaspoons per gal	Apply when scale crawlers have settled on foliage.
Euonymus scale Scurfy scale	1½ pt per 100 gal OR 2 teaspoons per gal	—
Azalea scale Magnolia scale Pine leaf scale	2 pts per 100 gal OR 2 teaspoons per gal	—
Fletcher scale	2 pts per 100 gal OR 2 teaspoons per gal	Apply when scale crawlers have settled on foliage.
Florida red scale Juniper scale	2 pts per 100 gal OR 2 teaspoons per gal	Apply when scale crawlers have settled on foliage.
Black scale crawlers Soft brown scale	2¼ pts per 100 gal OR 2 teaspoons per gal	—
Monterey pine scale	2½ pts per 100 gal OR 2 teaspoons per gal	—
Pine needle scale	4 pts per 100 gal OR 4 teaspoons per gal	—
Wax scale	4 pts per 100 gal OR 4 teaspoons per gal	Apply in spring when crawlers are active. Repeat 1 or 2 full-coverage applications at 10-day intervals.

#### Forest Trees

Tree	Pest	Rate	Remarks
Deciduous Forest and Shade trees	Tent caterpillar	2 pts 100 gal water	Make thorough coverage application before larvae reach third instar.
Pines	Pine needlesheath miner	1½ pts acre	Apply by ground or aircraft equipment in 25 gals of water. Make application when air is calm and temperature is below 68°F. Apply when 75% of larvae have left overwintering mines.
Eastern pines	Pine tortoise scale	1½ pts/acre	Apply by aircraft in 2 gals of water per acre when crawlers emerge. Repeat application in 1 week under conditions of heavy infestations. Make application when air is calm and temperature is below 68°F.
Red pine	Red-headed pine sawfly	0.8 pt/acre	Apply by mist blower in 2 gallons of water per acre when egg hatch is complete

**Around the Home**

Site	Pest	Rate	Remarks
In and around greenhouses and gardens	Millipedes Sawbugs Springtails	1 tsp/gal	Apply to 150 square feet of soil surface or where insects congregate. Repeat at 7 to 10 day intervals as needed.
In and around homes	Bedbugs	2 to 4 tablespoons per gallon of deodorized kerosene	Apply lightly to all mattress surfaces in sufficient quantity to "mist" the fabric and generously to beds and woodwork, with special care taken to wet all possible hiding places.
Lawns	Ant mounds	1 1/2 pts/100 gal	Spray ant hills thoroughly so that they are well soaked. For other small ants in flower beds, lawns, around trees, spray lightly in the infested areas. Repeat in 10 to 15 days if ants return.
	Ground pearls	3 to 4 qts/100 gal	Make full coverage to soil surface when ground pearl nymphs are in the pink, "crawler" or active stage and immediately wash into soil with additional water.

**On and Around Cull Fruit and Vegetable Dumps**

Pest	Rate	Remarks
Drosophila flies Dried fruit beetles	1 1/2 gal per 100 gal water	Apply as a drench using 8 to 10 gal of spray per 100 sq ft. For best results, dumps should not be over 18 inches deep. DO NOT FEED TREATED FRUIT AND VEGETABLES.

**In and Around Wineries and Processing Plants**

Drosophila flies	3 1/2 oz in 1 qt water	Paint all doors and window screens. AVOID CONTAMINATION OF WINE, FOOD, UTENSILS, EQUIPMENT AND WATER.
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**Plants Processing Dry Milk**

Black carpet beetles Trogoderma species	1 pt per 2 1/2 gal	Clean premises thoroughly before applying and maintain good sanitation at all times. Use spray equipment and nozzles that will produce a coarse spray. Application must be made only by an experienced or trained person. Apply as a residual spray to all sections of the plant and warehouses where insects hide or crawl such as cracks, corners, edges of floors, lower parts of walls, floors under storage platforms and underneath and behind protected places. Avoid contamination of milk, dry milk, equipment, utensils, work surfaces, containers and liners. Repeat application as necessary.
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**CAUTION:** Malathion SEC sprays may damage finished surfaces and fabrics. Avoid contamination of food, utensils, milk, milk equipment, and water. Do not use in milk processing rooms.

### Crack and Crevice Treatment in Food Handling Establishments

**IN FOOD AREAS:** Includes areas for receiving, serving, storage, packing (canning, bottling, wrapping, boxing), preparing, edible waste storage and enclosed processing systems (mills, dairies, edible oils, syrups).

Pest	Rate	Directions for Use
Ants Carpet beetles Cigarette beetles Clover mites Confused flour beetles Crickets Drug store beetles Flat grain beetles Granary weevils Indian meal moths Red flour beetles Rice weevils Roaches Rusty grain beetles Saw-toothed grain beetles Silverfish Spiders	1 pt/2½ gal OR 1 part in 19 parts mixture of 4 parts kerosene-type solvent and 1 part aromatic hydrocarbon-type solvent.	Apply in small amounts directly into cracks and crevices using a pin stream of insecticide into points such as expansion joints between different elements of construction or between equipment bases and the floor, wall voids, motor housing, junction boxes or switch boxes, conduits or hollow equipment legs where the named insects hide. Care should be taken to avoid depositing the product onto exposed surfaces or introducing the material into the air. Avoid contamination of food or food processing surfaces. Repeat application as necessary. Application must be made only by a commercial pest control operator.

**IN NONFOOD AREAS:** Includes garbage rooms, lavatories, floor drains (to sewers), entries and vestibules, offices, locker rooms, machine rooms, boiler rooms, garages, mop closets and storage.

Pest	Rate	Directions for Use
Ants Carpet beetles Cigarette beetles Clover mites Confused flour beetles Crickets Drug store beetles Flat grain beetles Granary weevils Indian meal moths Red flour beetles Rice weevils Roaches Rusty grain beetles Saw-toothed grain beetles Silverfish Spiders	1 pt/2½ gal OR 1 part in 19 parts mixture of 4 parts kerosene-type solvent and 1 part aromatic hydrocarbon-type solvent.	Apply as a coarse spray to baseboard areas, around water pipes, surfaces behind and beneath sinks, lockers, tables, pallets and similar areas where insects hide or through which they may enter. Repeat application as necessary. Application must be made only by a commercial pest control operator.

## STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

### STORAGE INSTRUCTIONS:

Storage should be under lock and key in a ventilated room and secure from access by unauthorized persons and children. Storage should be in a cool dry area away from any heat or ignition source. Do not stack over 2 pallets high. Move containers by handles or case. Do not move containers from one area to another unless they are securely sealed. Keep container tightly sealed when not in use. Keep away from any puncture source. Avoid storage near water supplies, food, feed and fertilizer to avoid contamination. Store in original containers only. If the contents are leaking or material is spilled follow these steps:

1. Contain spill, absorb with a material such as saw dust, clay granules or dirt.
2. Collect and place in suitable containers for disposal.
3. Wash area with water and soap to remove remaining pesticide.
4. Follow washing with clean water rinse.
5. Place a leaking container in a plastic tub and transfer contents as soon as possible to an empty original container.
6. Do not allow run off to enter sewer or contaminate water supplies.
7. Dispose of waste.

### PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### CONTAINER DISPOSAL

Metal Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Glass Containers: Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.

Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

WARRANTY - CONDITION OF SALE:

OUR RECOMMENDATIONS FOR USE of this product are based upon test believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

In no case shall the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by the seller and is accepted as such by the Buyer.