

GENERAL USE INSECTICIDES FOR HOME GARDENING

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Home gardeners are confronted with many potential insect problems. The types of problems will depend on their location, the health of their plants, and the types of plants they grow. Depending on the type of plant, problems can range from rare to frequent. A pest management program for home gardeners should rely on proper identification of insect pests, effective use of preventive cultural controls, conservation of natural enemies, and the use of chemical controls as a last resort if other control strategies are ineffective or unavailable for a particular problem.

Cultural controls that help home gardeners reduce pest problems include proper site selection, sanitation of previous crops, weed control, use of resistant varieties, cultivation, crop rotation, altering planting and harvest dates appropriate timing and amount of irrigation and fertilization, and the use of barriers and exclusion. Cultural controls are selected used preventively and selected according to the chances of particular insect problems occurring in the area.

Another important concept is that it often takes a large number of a particular pest to reduce the yield of a plants and affect plant health. A single aphid should not cause alarm, but many colonies on just a few plants may require action. In this instance, a strong stream of water or an application of insecticidal soap may be all that is needed.

This publication lists some of the various general use insecticides that are currently on the market for home gardeners. The usage areas for a particular insecticide are indicated, but you must check each label to be sure that application to particular types of plants are permitted. For example, Lawn and Garden Multi-Insect Killer made by Bayer-Pursell may be applied to some vegetables, but not all types. Only the uses listed on the pesticide label are permitted. You must read the labels to understand the restrictions. Another label restriction is the minimum amount of time between application and when food crops can be harvested. This is referred to as the pre-harvest interval (PHI). Other information concerning mixing and dosages, application methods, protective equipment, and container disposal are also included on the label.

Not all brands of insecticides are listed in these tables, as some companies do not make their pesticide labels available on the internet. But the list does provide a comprehensive guide to the types of materials available to home gardeners. With the ongoing implementation of the Food Quality Protection Act of 1996 (FQPA), we are likely to see changes in the types of materials available. Diazinon,

for example, is being phased out and will be off the shelves for home use by 2004.

Understanding the Label

The *trade name* or brand name is the most prominent lettering on the label. It may or may not contain the name of the active ingredients contained in the container. This can be particularly confusing in the case of Spectracide products because they may have one of several different insecticides as the active ingredient or even a herbicide.

The *active ingredient* is essentially the generic name of the actual pesticide in the product. This information, along with the amount of actual pesticide in the product, usually can be found in a text box below the brand name.

Company is the manufacturer or distributor of the pesticide. Most companies have an Internet site that will allow you to find more information on their products.

Formulation is active ingredient pesticide plus emulsifiers, inert powders, or clay particles so that the product can be applied in the most efficient or effective manner. Standard abbreviations for them allow you to pick the product that most fits your needs or application equipment.

- *EC* is an emulsifiable concentrate. It is a liquid formulation that is mixed with water and applied with some sort of pump-up or compressed air sprayer to the soil, turf, or foliage. These formulations can be used for direct contact sprays against sucking insects or as residual sprays against chewing insects.
- *F* is a flowable formulation. It is a liquid which contains very fine particles of the active ingredient. Flowable formulations are mixed with water for application. The sprayer must be shaken frequently during treatment to keep the small but solid particles from settling to the bottom of the tank.
- *L* is a liquid formulation. It is mixed with water before application.
- *G* refers to granule. The pesticide is on or in small particles of a clay carrier. Granules are scattered over the soil or turf for control of pests such as cutworms or white grubs.
- *D* is a dust. A low concentration of the active ingredient is mixed with a talcum powder like carrier. Dust are applied to plant foliage with a shaker can. They are not mixed with water. Dust formulations are most effective against insects with chewing insects. There is high potential for off-target drift when dusts are applied and is difficult to treat plants evenly or to get good coverage to the under sides of the leaves.

Other Terms

- *RTU* stands for Ready To Use. These formulations often come in a container with a pump applicator. They are sprayed directly on the site without any dilution.
- *PBO* is piperonyl butoxide, a synergist that is included in formulations that contain pyrethrins. It increases the

effectiveness of the pyrethrins and allows less of that expensive ingredient to be used in a product.

- A *systemic insecticide* is one that is absorbed through the roots or leaves of the plant. Disulfoton and imidacloprid containing sprays are used as soil applications to control sap feeding insects such as aphids and whiteflies.

ALWAYS READ AND FOLLOW ALL LABEL INSTRUCTIONS

	AI	Company	Form.	Area of Use					
				Houseplants	Lawns	Perimeter	Ornamentals	Fruit	Vegetables
Orthene Systemic Insect Control Concentrate	acephate	Ortho (Solaris)	9.4% L		X		X		
Orthene Turf, Tree & Ornamental Spray	acephate	Valent	97% SP		X		X		
Isotox Insect Killer Formula IV	acephate hexakis	Ortho (Solaris)	8% + 0.5% L				X		
Ortho Houseplant & Garden Insect Killer	bifentrin	Ortho (Solaris)	0.01% EC	X			X		
Bio-Worm Killer Concentrate	Bt kurstaki	Green Light	0.8% F				X		X
Bt Worm Killer <i>Bacillus thuringiensis</i> ME	Bt kurstaki	Green Light	12% ME		X		X	X	X
Dipel Dust	Bt kurstaki	Dragon	0.048% D						X
Dipel 0.86 % WP	Bt kurstaki	Bonide	0.86% WP		X		X		X
Dipel 10 G	Bt kurstaki	Bonide	0.32% G						X
Dipel 150 D	Bt kurstaki	Bonide	0.064% D		X		X	X	X
Thuricide <i>Bacillus thuringiensis</i>	Bt kurstaki	Bonide	0.8% F						X
Colorado Potato Beetle Beater	Bt tenebrionis	Bonide	3% F				X		X
Hot Pepper Wax Concentrate	capsaicin	Bonide	0.00001%L	X			X		X
Dura-Dust 5% Carbaryl Insecticide	carbaryl	Gordon's	5% D					X	X
Easy Garden 10 % Dust	carbaryl	Dragon	10% D		X				X
Easy Garden 5 % Dust	carbaryl	Dragon	5% D		X		X	X	X
Easy Garden Liquid Concentrate	carbaryl	Dragon	21.3% EC		X		X	X	X
Liquid Dura Spray	carbaryl	Gordon's	23.4% EC		X		X	X	X
Sevin RTU 5% Dust	carbaryl	Garden Tech	5% D				X	X	X
Sevin RTU 10% Dust	carbaryl	Garden Tech	10% D				X	X	X
Sevin 50 WP	carbaryl	Southern Ag	50% WP		X		X	X	X
Cinnamite	cinnamaldehyde	mycotech	30% L				X		X
Lawn & Garden Multi-Insect Killer	cyfluthrin	Bayer-Pursell	0.75% EC		X	X	X		X
Lawn & Garden Multi-Insect Killer Ready-To-Spray	cyfluthrin	Bayer-Pursell	0.75% EC		X	X	X		X

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Lawn & Garden Multi-Insect Killer	cyfluthrin	Bayer-Pursell	0.75% EC		X	X	X		X
Lawn & Garden Multi-Insect Killer Ready-To-Spray	cyfluthrin	Bayer-Pursell	0.75% EC		X	X	X		X
Lawn & Garden Multi-Insect Killer Ready-To-Use	cyfluthrin	Bayer-Pursell	0.003% EC		X	X	X		X
Lawn & Garden Multi-Insect Killer Ready-To-Use Granules	cyfluthrin	Bayer-Pursell	0.1% G		X	X			
Rose & Flower Insect Killer	cyfluthrin imidacloprid	Bayer-Pursell	0.003 % + 0.012% EC				X		
Rose & Flower Insect Killer	cyfluthrin imidacloprid	Bayer-Pursell	0.003 % + 0.012% EC				X		
Rose & Flower Insect Killer Concentrate	cyfluthrin imidacloprid	Bayer-Pursell	0.72 % + 0.72% EC				X		
Delta Eight	deltamethrin	Bonide	0.1% G		X	X	X		
Household Insect Control	deltamethrin	Bonide	0.02%	X		X	X		
Cygon 2E	dimethoate	Southern Ag	23% EC				X		X
2 in 1 Systemic Azalea, Camelia, & Rhododendron Care	disulfoton	Bayer-Pursell	1% G				X		
2 in 1 Systemic Rose & Flower Care	disulfoton	Bayer-Pursell	1% G				X		
2 % Systemic Granules	disulfoton	Gordon's	2% G	X			X		X
Rose, Flower, Shrub Food with Systemic Insecticide	disulfoton	Gordon's	1% G	X			X		
Systemic Granules 2%	disulfoton	Bonide	2% G	X			X		X
Systemic Rose & Flower Care Granules	disulfoton	Bonide	1% G				X		
Systemic Granules 1%	disulfoton	Bonide	1% G	X			X		X
Thiodan Vegetable & Ornamental Dust	endosulfan	Dragon	3% D				X	X	X
Thiodan	endosulfan	Bonide	9.7% EC				X	X	X
Thiodan Insect Spray concentrate	endosulfan	Dragon	9.9% EC				X	X	X
Thiodan .75 Insect Spray	endosulfan	Southern Ag	9.9% EC				X	X	X
Tomato-Potato Vegetable Dust	endosulfan	Bonide	3% D						X
Bug B Gon Multi-Purpose Insect Killer Concentrate	esfenvalerate	Ortho (Solaris)	0.425% EC		X	X	X		X
Garlis Barrier	garlic juice	Garlic Res. Labs	10% L		X		X	X	X
Season Long Grub Control Granules	imidacloprid	Bayer-Pursell	0.2% G		X		X		
Season Long Grub Control Granules with Fertilizer	imidacloprid	Bayer-Pursell	0.25% G		X		X		
Season Long Grub Control Ready to Spray	imidacloprid	Bayer-Pursell	1.47% F		X				

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Tree & Shrub Insect Control Concentrate	imidacloprid	Bayer-Pursell	1.47% F				X		
2 in 1 Plant Spikes	imidacloprid	Bayer-Pursell	2.5%	X			X		
3 in 1 Multi Purpose Potting Mix	imidacloprid	Bayer-Pursell	0.015%	X			X		
3 in 1 Rose & Flower Potting Mix	imidacloprid	Bayer-Pursell	0.015%	X			X		
Malathion	malathion	Bonide	50% EC				X	X	X
Malathion	malathion	Green Light	50% EC		X		X	X	X
Malathion	malathion	Hi Yield	55% EC					X	X
Malathion 50% EC	malathion	Southern Ag	50% EC				X	X	X
Malathion 50% Spray	malathion	Gordon's	50% EC		X		X		X
Spectracide Malathion Insect Spray Concentrate	malathion	Spectrum Brands	50% EC				X	X	X
5% Malathion Dust	malathion	Hi Yield	5% D				X		X
5% Malathion Dust	malathion	Southern Ag	5% D				X		
50% Malathion Insect Spray Concentrate	malathion	Dragon	50% EC			X	X	X	X
Methoxychlor Insect Spray Concentrate	methoxychlor	Dragon	25% EC				X	X	X
Azatin XL	neem oil	Olympic Hort.	3% EC				X	X	X
Bioneem Multipurpose Concentrate	neem oil	Safer	49% EC				X		
Neem Concentrate	neem oil	Green Light	70% EC				X	X	X
Red Spider Mite Spray RTU	neem oil	Green Light	0.9% EC				X	X	X
Rose Defense	neem oil	Green Light	90% EC	X			X		
Tomato Vegetable Spray RTU	neem oil	Green Light	0.9% EC						X
Sunspray Ultrafine Horticultural Oil	oil	Sunspray	100% EC				X	X	X
Blue Dragon Garden Dust	permethrin	Dragon	0.25% D					X	X
Borer Miner Killer Concentrate	permethrin	Bonide	2.5% EC				X	X	X
Bug B Gon Multi-Purpose Garden Dust	permethrin	Ortho (Solaris)	0.25% D				X	X	X
Complete Home & Garden	permetrin	Dragon	2.5% EC					X	X
Conquest Insecticide Concentrate	permethrin	Green Light	2.5% EC		X		X		
Complete Home & Garden	permetrin	Dragon	2.5% EC					X	X
Conquest Insecticide Concentrate	permethrin	Green Light	2.5% EC		X		X		

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Eight Garden Dust	permethrin	Bonide	0.125% D				X		X
Eight Garden & Home Insect Control	permethrin	Bonide	0.02% EC	X		X	X	X	X
Eight Vegetable, Fruit, & Flower Spray	permethrin	Bonide	2.5% EC	X	X	X	X	X	X
Garden Insect Dust	permethrin	Southern Ag	0.25% D	X			X		X
Lawn and Garden Protector Concentrate	permethrin	Dragon	2.5% EC	X	X	X	X	X	X
Lawn Insect Control	permethrin	Southern Ag	2.5% EC	X	X		X	X	X
Spectracide Bug Stop Home Barrier Granules	permethrin	Spectrum Brands	0.25% G			X			
Spectracide Bug Stop Insect Control Granules	permethrin	Spectrum Brands	0.25% G		X	X			
Spectracide Bug Stop Multipurpose Insect Control Concentrate	permethrin	Spectrum Brands	2.5% EC	X	X		X	X	X
Spectracide Bug Stop Multipurpose Insect Control Concentrate ²	permethrin	Spectrum Brands	2.5% EC		X		X		
SpectracidePro 10% Permethrin	permethrin	Spectrum Brands	10% EC	X	X	X	X	X	X
Total Pest Control Outdoor Formula	permethrin	Bonide	13.3% EC		X	X	X	X	X
Concern Insect Killing Soap Concentrate	potassium salts	Concern	19.9% L	X			X	X	X
Safer Brand Insecticidal Soap	potassium salts	Safer	49% L	X			X	X	X
Bio-Neem Insecticidal Soap	potassium salts of neem oil	Bonide	25% L	X	X		X	X	X
Easy Gardener Ready to Use	prethrins + PBO	Dragon	0.02% + 0.2% EC	X			X	X	X
Concern Multipurpose Insect Killer	pyrethrins PBO	Concern	0.02% + 0.2% EC				X	X	X
Garden Guard (Dust)	pyrethrin + PBO	Gordon's	0.1% + 1% D				X	X	X
Japanese Beetle Killer RTU	pyrethrin + PBO	Bonide	0.02% + 0.2% EC				X		X
Liquid Garden Guard	pyrethrin + PBO	Gordon's	0.02% + 0.2% EC				X		X
Natural Pyrethrin Concentrate	pyrethrin + PBO	Southern Ag	0.96% + 9.6% EC				X		X
Rose Rx Insect Control RTU	pyrethrins PBO	Bonide	0.02% + 0.2% EC				X	X	X
Yard and Garden Insect Killer	pyrethrins PBO	Safer	0.02% + 0.2% EC				X	X	X
Rose Rx Rose and Flower Dust	rotenone	Bonide	0.75% D				X	X	X
Rose & Flower Graden Dust	rotenone	Bonide	0.75% D				X	X	X
Rotenone 1% Dust	rotenone	Dragon	1% D				X		X
Rotenone/Pyrethrin Insect Spray	rotenone pyrethrin	Dragon	1.1% + 0.8% L				X	X	X
Rotenone-Pyrethrin Spray	rotenone pyrethrin	Bonide	1.1% + 0.8% L				X	X	X

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Conserve Naturalyte Insect Control	spinosad	Southern Ag	0.5% SC		X		X	X	X
24 Hour Grub Control Ready to Spread Granules	trichlorofon	Bayer-Pursell	6.2 % G		X				

Commercial Web Sites of Garden Insecticide Producers:

- Bayer http://www.bayeradvanced.com/pg/pg_index.html
- Bonide <http://www.bonideproducts.com/>
- Dragon <http://www.dragonchemical.com/homepage.asp>
- Ferti-lome <http://www.cdford.com/>
- Gordon's http://www.pbigordon.com/consumer_products/Gordons_Product_Listing.htm
- Gree Light <http://www.greenlightco.com/products.htm>
- Olympic Hort. <http://www.olympichort.com/>
- Ortho <http://www.ortho.com/content/products/>
- Southern Ag <http://www.southernag.com/>
- Sepctracide <http://www.homeandgardensolutions.com/>