

HOME AND LANDSCAPE INSECT CONTROL

With recent changes due to the elimination of Dursban and diazinon from the list of available homeowner products, insect control recommendations have gotten a little more complicated. Also, there are numerous brands available to homeowners that can be found on the shelves in nurseries, garden centers, grocery stores, farm and livestock supply stores, local elevators and others. It has become increasingly difficult with this diversity of choices to talk "brand names." Instead, the emphasis is on active ingredient in the product and reading the label for specific use directions, which is necessary for any pesticide user.

Another complicating factor is the marketing program of various manufacturers and the naming of their products. The same concentration of an active ingredient might be used in a line of products, each with a different name which specifies its use. But upon reading each product's label, the insect pests and use sites are identical thus there is no reason to buy two products when one will be adequate.

The following list was prepared in one state to illustrate the diversity of products that can be found. These products may or may not be available in North Dakota and are presented only as an illustration of this diversity. The list contains 27 manufacturers which have utilized 36 active ingredients (of combinations thereof) to produce 132 products which are marketed as RTU (ready-to-use), hose-end, granular, dust, bait and EC (emulsifiable concentrate) formulations.

acephate

Ortho Isotox Insect Killer
Ortho Systemic Insect Killer Concentrate
Ortho Orthonex Insect and Disease Control Concentrate

azadiractin

Natural Guard Multi-Purpose Neem Insecticide

Bacillus thuringiensis

American Brand Thuricide
Fertilome Dipel Dust

bifenthrin

Ortho Home Defense Perimeter and Outdoor Insect Killer RTU
Ortho Rose and Flower RTU
Ortho Bug-B-Gon MAX Insect Killer for Lawns Granules
Scotts Lawn Pro Insect Control and Fertilizer Granules

carbaryl

Cornbelt Sevin 5% Dust
Eliminator 7 Dust
Eliminator Lawn Insect Killer Granules
Fertilome Carbaryl Garden Spray
GardenTech Sevin RTU Bug Killer
GardenTech Sevin Hose-end
GardenTech Sevin 5 Dust
GardenTech Sevin Bug Killer Concentrate
Garden Tech 2% Granules
Ortho Bug-B-Gon Multipurpose Insect Killer Granules

carbaryl/malathion

Bonide Fruit Tree Spray

carbaryl/metaldehyde

Bonide No Escape Snail, Slug and Sowbug Bait

carbaryl/rotenone

Bonide Tomato/Potato Spray or Dust

cyfluthrin

Bayer Tempo SC Ultra
Schultz Insect Killer
Schultz Lawn and Garden Insect Killer Granules

cyfluthrin/imidacloprid

Bayer Advance Garden Power Force Multi Insect Killer Hose-end
Bayer Advance Garden Power Force Multi Insect Killer RTU
Bayer Advance Garden Power Force Multi Insect Killer Concentrate
Bayer Advance Rose and Flower Insect Killer RTU

deltamethrin

Bonide Delta Eight Insect Control

diatomaceous earth

Concern Diatomaceous Earth Crawling Insect Killer

diazinon

Fertilome Rose Spray concentrate
Hi-Yield 5% Diazinon Insect Killer
Maxide Diazinon Killer Spray RTU

dicofol

Hi-Yield Kelthane Concentrate

dimethoate

Fertilome Ornamental & Evergreen Spray Concentrate
Hi-Yield Cygon 2E Systemic Ornamental and Vegetable Insecticide Concentrate
ProTech X-ectue Systemic Insecticide Concentrate

disulfoton

Bayer Advance Garden 2-in-1 Rose and Flower Care
Bonide Systemic House Plant Insect Control
Fertilome Systemic Insecticide Granules
Fertilome Rose Food Granule
Hi-Yield Di-Syston Insecticidal Granules

endosulfan

Fertilome Cutworm & Hornworm Killer Dust
Hi-Yield Thiodan

esfenvalerate

KGRO Multi-Purpose Insect Killer Concentrate
Ortho Bug-B-Gon Garden and Landscape Dust
Ortho Bug-B-Gon Garden and Landscape RTU
Ortho Bug-B-Gon MAX Lawn & Garden Insect Killer Hose-end
Ortho Bug-B-Gon MAX Lawn & Garden Insect Killer Concentrate
Ortho Bug-B-Gon Multi-Purpose Insect Killer Concentrate
Ortho Bug-B-Gon Multi-Purpose Insect Killer RTU

imidacloprid

Bayer Advance Lawn - Season Long Grub Control Hose-end
Bayer Advance Garden, Tree & Shrub Insect Control Concentrate
Scotts GrubEX Granules

iron phosphite

Garden Safe Snail & Slug Bait
Monterey Sluggo

lambda cyhalothrin

Spectracide Triazicide hose-end
Spectracide Triazicide Soil & Turf Insect Killer Concentrate
Spectracide Triazicide Soil & Turf Insect Killer Granules
Spectracide Triazicide .04 Granules

malathion

Fertilome Fruit Tree Spray Concentrate
Fertilome Mal-A-Cide
Gordons Malathion Concentrate
Green Thumb Malathion Insect Killer Concentrate

Hi-Yield Malathion
 Ortho Malathion Plus Insect Spray EC
 Schultz Malathion Concentrate

malathion/carbaryl
 Bonide Fruit Tree Spray EC

malathion/methoxychlor
 Fertilome Bagworm and Tent Caterpillar Killer
 Fertilome Triple Action

metaldehyde
 Hi-Yield Snail and Slug Killer Pellets
 Eliminator Snail & Slug Bait
 KGRO Snail and Slug Killer

metaldehyde/carbaryl
 Bonide No Escape Snail, Slug and Sowbug Bait
 Fertilome Eliminate Snail, Slug and Bug Bait
 Ortho Bug-Geta Snail and Bug Killer

methoxychlor/malathion
 Fertilome Bagworm and Tent Caterpillar Killer

neem
 Fertilome Triple Action Plus

nicotine
 Bonide Tobacco Dust

Nosema locustae
 Planet Natural Semaspore Grasshopper Bait

oil (Horticultural)
 Bonide All-Season Spray Oil
 Ortho Volck Oil Spray
 Sunspray Ultra-fine Year-Round Pesticidal Oil

permethrin
 Bonide Eight Garden Dust
 Bonide Eight Insecticide Concentrate Garden and Lawn
 Bonide Eight Insecticide Concentrate Vegetable, Fruit and Flower
 Bonide Borer-Miner Killer
 Bonide Total Pest Control Concentrate (Outdoor Formula)
 Cutter Bug-Free Backyard Hose-end
 Do It Best Multi-Purpose Garden Insect Killer Concentrate
 Do It Best Multi-Purpose Garden Pest Dust
 Eliminator Ant, Flea, Tick & Mosquito Killer Concentrate
 Eliminator Ant, Flea and Tick Killer Granules
 Green Thumb Multi Purpose Insect Killer Concentrate
 Hi-Yield 38Plus Turf, Tree & Ornamental Insect Control Concentrate
 Hi-Yield Garden, Pet and Livestock Insect Control Concentrate
 Hi-Yield Garden, Pet and Liverstock Dust
 Hi-Yield Kill-A-Bug II Lawn Granules
 KGRO Insect Killer Granules
 KGRO Multi-Purpose Insect Killer (hose-end, RTU)
 Ortho Basic Solutions Lawn & Garden Insect Killer Concentrate (also hose-end)
 Ortho Basic Solutions Lawn & Garden Insect Killer Granules
 Ortho Bug-B-Gon Garden and Landscape
 Ortho Bug-B-Gon Multi-Purpose Garden Dust
 Ortho Bug-B-Gon Multi-Purpose Insect Killer hose-end
 Ortho Mosquito-B-Gon Tree, Shrub & Lawn Spray hose-end
 Schultz Mosquito Control Hose-end
 Schultz Fungicide Plus Concentrate
 Schultz Triple Action Formula Fungicide
 Terro Outdoor Ant Killer Granules

pyrethrin
 Concern Multi-Purpose Insect Killer
 Fertilome Triple Action Plus RTU
 Green Thumb Rose and Flower Insect Killer RTU
 Green Thumb Tomato and Vegetable Spray RTU
 KGRO Tomato and Vegetable Insect Killer RTU
 Schultz Expert Gardener House Plants and Gardens Insect Spray

Schultz Expert Gardener Insect Spray
 Schultz Fruit & Vegetable Insect Spray RTU
 Schultz Rose and Flower Insect Spray RTU

rotenone
 Hi-Yield Rotenone Insecticide

rotenone/carbaryl
 Bonide Tomato/Potato Spray or Dust

rotenone/pyrethrin
 Bonide Rotenone/Pyrethrum Concentrate

rotenone/sulfur
 Fertilome Rose, Flower & Vegetable Dust

soap
 Concern Insect Killing Soap
 Safer House Plant Insect Killing Soap concentrate
 Safer House Plant Insect Killing Soap With Seaweed Concentrate
 Safer Insecticide Killing Soap With Seaweed RTU
 Safer Insecticide Killing Soap Concentrate
 Safer Insecticide Multi-Purpose Soap Insect Killer Concentrate

spinosad
 Fertilome Borer, Bagworm, Leafminer and Tent Caterpillar Spray Concentrate

sulfur
 Fertilome Dusting Sulfur

TREES AND SHRUB INSECTICIDE PRODUCTS - QUICK REFERENCE CHARTS

Insecticides for the Management of Insect and Mite Pests of Trees and Shrubs.

The "Alternative" products represent those that would be generally classified as "organic," representing botanicals, microbials and soaps.

Always Read and Follow the Label! (● indicates listed pest is found on the pesticide label)	aphids	plant bugs	leafhoppers	scale insects	spider mites	gall insects	leaf beetles	caterpillars	sawflies	wood borers
Synthetic Insecticides										
acephate (Orthene® and Isotox®)	●	●	●	●	●		●	●	●	
carbaryl (Sevin®)	●	●	●	●		●	●	●	●	
cyfluthrin (Bayer Advanced®)	●	●	●	●			●	●	●	
dicofol (Kelthane®)					●	●				
dimethoate (Cygon®)	●									
esfenvalerate (Bug-B-Gone®)	●	●	●				●	●	●	
horticultural oils				●	●	●				
imidacloprid (Bayer Advanced Garden®)	●	●	●	●			●		●	●
malathion	●	●	●	●		●	●			
permethrin (Astro™ and others)	●	●	●					●	●	●
spinosad (Conserve®)					●		●	●		
Bacillus thuringiensis								●		
insecticidal soaps (M-Pede)	●	●	●		●					
Intrepid (IGR)								●		
pyrethrins	●	●	●				●	●		
neem (Bioneem®)	●							●	●	
rotenone							●			
bifenthrin (Talstar®)		●	●	●		●		●	●	●
cyfluthrin (Tempo®)	●	●	●				●	●	●	
deltamethrin (Deltagard® and Suspend®)	●	●	●	●	●		●	●	●	
dicrotophos (Inject-A-Cide B®)	●					●	●			●
disulfoton (Di-Syston®)	●		●				●	●		
fenpropathrin (Tame®)	●		●		●					
fluvalinate (Mavrik®)	●		●			●		●	●	
imidacloprid (Merit®)	●	●	●				●		●	●
lambda-cyhalothrin (Scimitar®)	●	●	●	●	●		●	●	●	
oxythioquinox (Morestan®)					●	●				
pymetrozine (Endeavor®)	●									

* For all garden and turf uses of diazinon, manufacturing stopped in June 2003; all sales and distribution to retailers ended in August 2004. Chlorpyrifos (Dursban and other products) have not been approved for use for garden and turf since December 31, 2001.

FLOWER GARDEN INSECTICIDE PRODUCTS - QUICK REFERENCE CHARTS

The "Alternative" products represent those that would be generally classified as "organic," representing botanicals, microbials and soaps. Always read and follow the label. Before treating flowering plants, check the label for comments pertaining to plant sensitivity to the chemical.

('●' indicates listed pest is found on the pesticide label)

	Aphids	Leaf Beetles	Grasshoppers	Rose Curculio	Rose Slug	Spider Mites	Leafhoppers	Plant Bugs	Thrips	Scale Insects	Caterpillars	Cutworms	Millipedes	Sowbugs	Slugs & Snails
General Use Insecticides															
acephate (Orthene® and Isotox®)	●	●	●		●	●	●	●	●	●					
carbaryl	●	●	●	●	●		●	●	●	●	●	●	●	●	
chlorpyrifos*										●		●	●	●	
cyfluthrin (Advanced Garden®)	●	●	●		●		●	●		●	●	●	●	●	
diazinon*	●	●	●			●	●	●	●		●	●	●	●	
dicofol (Kelthane®)						●									
dimethoate	●								●						
imidacloprid (Advanced Garden®)	●						●	●	●	●					
malathion	●	●					●	●	●	●					
mesurol															●
metaldehyde															●
methoxychlor	●	●			●				●						
Alternative Products															
<i>Bacillus thuringiensis</i> (Bt)											●				
insecticidal soaps	●					●	●	●							
neem (Bioneem®)	●								●		●				
pyrethrins	●	●					●	●			●				
rotenone		●							●						
Professional Use Only															
cyfluthrin (Tempo®)	●	●	●				●	●			●	●	●	●	
disulfoton (Di-Syston®)	●	●					●		●						
fenpropathrin (Tame®)	●					●	●								
fluvalinate (Mavrik®)	●						●		●		●				
imidacloprid (Merit®)	●	●					●	●	●						
lambdacyhalothrin (Scimitar®)	●	●				●	●		●		●	●		●	
oxythioquinox (Morestan®)						●									

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INSECTICIDES FOR LAWN PEST CONTROL - QUICK REFERENCE TABLE

Insecticide	Rate	Remarks
WHITE GRUBS		
carbaryl (several formulations) (Sevin)	Follow label rates for white grubs.	Water into sod after application.
* diazinon 25% EC	4 fl. oz. in 12 gal./500sq. ft.	Water immediately into soil after application. Do not use on golf courses or sod farms.
* diazinon 5 G	2.5 lbs./1,000 sq. ft.	Apply when grass is dry and water after application. Do not use on golf courses or sod farms.
imidacloprid (Advanced Lawn ®)	3 lbs/1,000 sq. ft.	Apply in mid-May. Water after application.
isazophos 4E (Triumph)	1.5 fl. oz./1,000 sq. ft.	Apply in sufficient water to ensure uniform coverage. As soon as application is complete, apply ½ inch of water but stop watering before puddling or runoff occurs. Do not treat golf course fairways.
isofenfos 22% EC (Oftanol 2)	3.0 fl. oz./1,000 sq. ft. or 1 gal./acre	Water lawn thoroughly within 12 hours of the application, using sufficient water to wet the soil to a depth of 1 to 1½ inches.
SOD WEBWORM		
bendiocarb 76% EC (Turcam)	½ to 1 fl. oz./1,000 sq. ft.	Apply when pest is evident. Use adequate quantity of water to thoroughly moisten grass and thatch.
carbaryl (several formulations) (Sevin)	Follow label rate for sod webworm.	Insure good penetration of turf. For best results mow lawn and apply after a rain or watering. Repeat at 2 to 3 week intervals if needed.
* diazinon 25% EC	8 fl. oz. in 24 gal. water/1,000 sq. ft.	Thoroughly wet down grass a few hours before applying. Do not use on golf courses or sod farms.
* diazinon 5 G	2 lb./1,000 sq. ft.	Apply when grass is dry and water after application. Do not use on golf courses or sod farms.
isazophos 4E (Triumph)	0.75 fl. oz./1,000 sq. ft.	Apply in sufficient water to ensure uniform coverage. As soon as application is complete, apply ½ inch of water but stop watering before puddling or runoff occurs. Do not treat golf course fairways.
isofenfos 22% EC (Oftanol 2)	1.5 to 3 fl. oz./1,000 sq. ft. treatment.	Apply ¼ to ½ inch of water within 12 hours of application.
ANTS		
bendiocarb 76% EC (Turcam)	0.5 to 1.0 oz./1,000 sq. ft.	Apply to hills and surrounding areas. Use adequate quantities of water to thoroughly moisten grass and thatch.
carbaryl (several formulations) (Sevin)	Follow label rates for ants.	Same as above.
* diazinon 25% EC	2 tsp./gal.	Spot treat ant hills and surrounding areas. Thoroughly moisten the grass and thatch. Do not use on golf courses or sod farms.
* diazinon 5 G	2 lbs./1,000 sq. ft.	Spot treat ant hills and surrounding areas. Water with ¼ to ½ inch to activate the insecticide granules. Do not use on golf courses or sod farms.
isazophos 4E (Triumph)	0.75 fl. oz./1,000 sq. ft.	Apply in sufficient water to ensure uniform coverage. As soon as application is complete, apply ½ inch of water but stop watering before puddling or runoff occurs. Do not treat golf course fairways.
EARTHWORMS		
<p>There are no lawn insecticides that list earthworms on the label of pests controlled. Publications from Ohio State University have listed the toxicity of the common lawn insecticides to earthworms. The only lawn insecticide that is listed as highly toxic to earthworms is carbaryl (Sevin). From this information the following control procedure is suggested:</p> <ol style="list-style-type: none"> 1. In early spring, lightly roll or power rake the lawn to remove old worm castings. 2. Thoroughly water the lawn several hours before the application is to be applied. 3. Apply liquid carbaryl (Sevin) insecticide at the label rate recommended for sod webworms. Evening applications are most effective. Do not water the lawn for several days after application. 4. Repeat if castings continue to appear. 		

* For all turf uses of diazinon, manufacturing stopped in June 2003; all sales and distribution to retailers ended in August 2004.