

**YARD/GARDEN INSECTICIDES SURVEY
OF FT. COLLINS, 2008
(Products arranged by active ingredient)**

The following insecticides have been found on the shelves of local nurseries during a survey of Fort Collins during the period June 5–8, 2008:

ACEPHATE (Orthene)

- Bonide Systemic Insecticide Bullets
- Bonide Systemic Insect Control
- Ortho Systemic Insect Killer (with fenbutatin-oxide)
- Ortho Isotox Insect Killer Formula IV (with fenbutatin-oxide)
- Ortho Orthenex Garden Insect & Disease Control Concentrate (with triforine, fenbutatin-oxide)
- Ortho Orthenex Insect & Disease Control (aerosol with resmethrin, triforine)
- Ortho Orthenex Insect and Disease Control Concentrate (with hexakis, triforine)

ALLETHRIN

- Ace Flea & Tick Killer for Pet and Home
- Ace Wasp & Hornet Killer₃ (with lambda-cyhalothrin)
- Off! PowerPad Lamp
- Off! Mosquito Lamp
- Off! Mosquito Coil
- Real-Kill Ant Killer₂ (with lambda-cyhalothrin)
- Real-Kill Ant & Roach Killer₄ (with lambda-cyhalothrin)
- Summit Outdoor Mosquito Repellent Coils

ABAMECTIN/AVERMECTINS

- Raid Max Double Control Small Roach Baits (with hydoprene)
- Raid Ant Baits III

ARSENIC TRIOXIDE

- Grant's Kills Ants

BACILLUS THURINGIENSIS (var. KURSTAKI)

- American Thuricide Concentrate
- Bonide Thuricide Concentrate
- ferti-lome Dipel Dust
- Safer Caterpillar Killer
- Safer Garden Dust

BACILLUS THURINGIENSIS (var. ISRAELENSIS)

- Biological Mosquito Control/Mosquito Dunks
- Quick Kill Mosquitoes/Mosquito Bits
- Microbe Lift BMC Biological Mosquito Control

BETA-CYFLUTHRIN

Ace Home Insect Control₄
Bayer Advanced Garden Power Force Multi-Insect Killer, Ready-to-Spray
Bayer Advanced Garden Power Force Multi-Insect Killer, Ready-to-Spread Granules
Bayer Advanced Rose & Flower Insect Killer Ready-to-Use (with imidacloprid)
Bayer Advanced Garden Rose & Flower Insect Killer Ready-to-Spray (with imidacloprid)
Bayer Advanced Rose & Flower Insect Killer Concentrate
Bayer Advanced Home Home Pest Control Indoor & Outdoor Insect Killer Ready-to-Use
Bayer Advanced Triple Action Ant Killer

BIFENTHRIN

Eliminator Ant & Spider Killer II Granules
Eliminator Ant, Flea and Tick Killer II Granules
K-Gro Home Pest Insect Control Ready-to-Use
Ortho Max Insect Killer for Lawns
Ortho Home Defense Max Perimeter and Indoor Insect Killer Ready-to-Use
Ortho Home Defense Max Insect Killer Granules
Ortho Ortho-Klor Termite & Carpenter Ant Killer Concentrate
Ortho Termite & Carpenter Ant Killer
Ortho Rose & Flower Ready-To-Use Insect Killer₁
Ortho Max Lawn & Garden Insect Killer₁ Concentrate
Ortho Max Lawn & Garden Insect Killer₁ Ready-to-Spray
Ortho Total-Kill Lawn & Garden Insect Killer Granules
Ortho Home Defense Max Termite & Destructive Bug Killer

BORIC ACID/BORAX/ORTHOBORIC ACID

Adios Ant Killer in a Gel
Adios Ant and Roach Killer in a Gel
Hasta La Vista Ant
Max Attrax Roach Killing Powder
Roach-Prufe
Safer Roach & Ant Killing Powder
Terro Ant Killer_{II}
Terro Liquid Ant Baits Outdoor

CALCIUM POLYSULFIDE/LIME SULFUR

Lilly Miller Polysul Summer & Dormant Spray Concentrate

CARBARYL (Sevin)

Bayer Complete Insect Killer for Gardens
Bonide Fruit Tree Spray (with malathion, captan)
Eliminator Sevin 5% Dust
Eliminator Lawn Insect Killer Granules with Sevin
ferti-lome Eliminate Snail, Slug & Bug Bait (contains metaldehyde)
Garden Tech Sevin Ready-to-Use Bug Killer

Garden Tech Sevin Ready-to-Spray Bug Killer
Garden Tech Sevin Concentrate Bug Killer
Garden Tech Sevin 5 Ready-to-Use 5% Dust Bug Killer
Garden Tech Sevin Lawn Insect Granules
Hi-Yield 5% Sevin Garden & Pet Dust
Lilly Miller Grasshopper, Earwig, Cutworm and Sowbug Bait
Ortho Bug-Geta Plus Snail, Slug & Insect Killer (with metaldehyde)

CHLORPYRIFOS

HotShot Max-Attrax Roach Bait

CYPERMETHRIN

Raid Concentrated Deep Reach Fogger
Real-Kill Indoor Fogger₅

DELTAMETHRIN

Bayer Advanced Power Force Carpenter Ant & Termite Killer Plus
Eliminator Ant, Roach & Spider Killer II
Enforcer BugMax 365
Green Light Roach, Ant & Spider Control
Hi-Yield Turf Ranger Insect Control Granules
Hi-Yield Kill-A-Bug II Indoor-Outdoor Spray
Terro Ant Dust

DIATOMACEOUS EARTH/SILICON DIOXIDE

Natural Guard Diatomaceous Earth Crawling Insect Control
Safer Ant & Crawling Insect Killer Diatomaceous Earth

DICHLORVOS

Hot Shot No-Pest Strip

DICOFOL/(KELTHANE)

Hi-Yield Kelthane Spray

DINOTEFURAN

Hot Shot Ultra Liquid Ant Bait
Spectracide Systemic Rose and Flowering Shrub Insect Control and Fertilizer
Concentrate

DISULFOTON (DiSyston)

Bayer Advanced Garden 2-in-1 Systemic Rose and Flower Care
Bonide Systemic Houseplant Insect Control Ready-to-Use
Bonide Systemic Granules Ready-to-Use
Ross Systemic Root Feeder Refills

D-LIMONENE/CITRUS EXTRACTS

Orange Guard
Ortho Home Defense Indoor Insect Killer

ESFENVALERATE

Ortho Bug-B-Gon Max Garden & Landscape Insect Killer Concentrate
Ortho Bug B Gon Max Garden & Landscape Insect Killer Ready-to-Spray

FIPRONIL

Combat Ant Killing Gel
Combat Quick Kill Formula₃
Combat Outdoor Plant Stakes

GAMMA-CYHALOTHRIN

Spectracide Triacizide Once and Done Insect Killer₂ Concentrate for Lawn & Landscape

GARLIC

Garlic was listed as the primary active ingredient in the following product. Garlic and garlic oils is included as an active ingredient in some products listed as Oils, Vegetable and/or Essential.

Garlic Barrier Insect Repellent

HALOFENOZIDE

Hi-Yield Kill-A-Grub

HYDRAMETHYLNON

Amdro Ant Block Home Perimeter Ant Bait
Combat Source Kill₁ Roach
Combat Roach Killing Gel₁
Combat Quick Kill Formula₄
Extinguish Plus (with hydroprene)
Grant's Kills Ants

IMIDACLOPRID

Bayer Advanced Tree & Shrub Protect and Feed
Bayer Advanced Tree & Shrub Insect Control
Bayer Advanced Rose & Flower Insect Killer Ready-to-Use (with beta-cyfluthrin)
Bayer Advanced Rose & Flower Insect Killer Ready-to-Spray (with beta-cyfluthrin)
Bayer Advanced Rose & Flower Insect Killer Concentrate (with beta-cyfluthrin)
Bayer Advanced Complete Insect Killer for Soil and Turf Ready-to-Spread Granules (with beta-cyfluthrin)
Bayer Advanced Complete Insect Killer for Soil and Turf Ready-to-Spray (with beta-cyfluthrin)
Bayer Advanced Complete Insect Killer for Soil and Turf Ready-to-Use Granules (with beta-cyfluthrin)
Bayer Advanced Lawn Season Long Grub Control Granules
Bayer Advanced Lawn Season Long Grub Control Ready-to-Spray

Bayer Advanced 3-in-1 Insect, Disease and Mite Control Ready-to-Spray (with tau-fluvalinate, tebuconazole)
Bayer Advanced 3-in-1 Insect, Disease and Mite Control Concentrate (with tau-fluvalinate, tebuconazole)
Bayer Advanced 2-in-1 Insect Control plus Fertilizer
Bayer Advanced All-in-One Rose and Flower Care (with tebuconazole)
Bonide Systemic Granules Insect Control
Bonide Systemic Houseplant Insect Control
ferti-lome Tree & Shrub Systemic Insect Drench
Scott's GrubEx

IMIPROTHRIN

Raid Ant and Roach Killer₁₇ (with cypermethrin)
Raid Max Roach Killer₇ (with deltamethrin)

INDOXCARB

MaxAttrax Ant Bait₂
MaxAttrax Nest Destroyer Roach Bait
Hot Shot Ultra Ant & Roach Killer₃ (with lambda-cyhalothrin)
Spectracide Ant Shield Outdoor Killing Stakes

IRON PHOSPHATE

BayerAdvanced Snail & Slug Killer Bait
Bonide Slug Magic
Garden Safe Slug & Snail Bait
Sluggo
Sluggo Plus (with spinosad)

LAMBDA-CYHALOTHRIN

Ace Wasp & Hornet Killer₃ (with lambda-cyhalothrin)
Hot Shot Spider Killer (with prallethrin)
Hot Shot Ultra Ant & Roach Killer₃ (with indoxcarb)
Real-Kill Ant & Roach Killer₄ (with allethrin)
Real-Kill Ant Killer₂ (with allethrin)
Real-Kill Home Insect Control Indoor & Outdoor Insect Killer₂
Spectracide Triazicide Once & Done Insect Killer Granules
Spectracide Triazicide Once & Done Insect Killer Concentrate for Lawn & Landscape
Spectracide Triazicide Once & Done Insect Killer Ready-to-Spray for Lawn & Landscape
Spectracide Bug Stop Indoor Plus Outdoor Insect Killer
Spectracide Wasp & Hornet Killer₃ (with prallethrin)
Spectracide Ant Shield Home Barrier Insect Killer₃

LIMESTONE, POWDERED

C-M PowderGard (with mint)

MALATHION

Ace Malathion 50 Insect Spray
Bonide Fruit Tree Spray (with carbaryl, captan)
Ortho Malathion Plus Insect Spray
Ortho Mosquito-B-Gon Tree & Shrub Concentrate

METALDEHYDE

Force II Deadline Slug & Snail Killer
Hi-Yield Improved Slug & Snail Bait
K-Gro Snail and Slug Killer
Ortho Bug-Geta Snail and Slug Killer₁
Ortho Bug-Geta Plus Snail, Slug and Insect Killer (contains carbaryl)

METHOPRENE

PreStrike Mosquito Torpedo

NAPHTHELENE

Enoz Old Fashioned Moth Balls

NEEM (containing azadirachtin)

BioNeem
Dyna-Gro Neem Oil (*Note: Container does not clearly list contents or uses*)

NOSEMA LOCUSTAE

Nolo Bait

Note: *Nosema locustae* is perishable and has a shelf life of only a few months if not properly refrigerated.

OIL, HORTICULTURAL/MINERAL*

Bonide All Seasons Horticultural & Dormant Spray Oil
Bonide All Seasons Horticultural & Dormant Spray Oil Ready-to-Use
Bonide All Seasons Horticultural & Dormant Spray Oil Ready-to-Spray
ferti-lome Dormant Spray and Summer Oil Spray
ferti-lome Scalecide
ferti-lome Whitefly and Mealybug Killer (with resmethrin)
Hi-Yield Dormant Spray
Ortho Volck Spray Oil
Summit Year-Round Spray Oil Ready-to-Use
Summit Year-Round Spray Oil Ready-to-Spray
SunSpray Ultra-Fine Year-Round Pesticidal Oil
SunSpray Ultra-Fine Year-Round Pesticidal Oil Ready-to-Use

*Unless otherwise indicated the oil is a refined petroleum or mineral oil. Neem oil products are listed previously.

OIL, NEEM*

Bonide Tomato & Vegetable 3-in-1

ferti-lome Triple Action Plus
ferti-lome Triple Action Plus, Ready-to-Use (with pyrethrins)
ferti-lome Rose, Flower & Vegetable Spray
ferti-lome Fruit Tree Spray (with pyrethrins)
Garden Safe Fungicide 3-in-1
Green Light Rose Defense Ready-to-Use
Green Light Rose Defense
Green Light Rose Defense Ready-to-Use II (with pyrethrins)
Green Light Neem II Ready-to-Use (with pyrethrins)
Green Light Neem Concentrate
Monterey 70% Neem Oil
Natural Guard Neem Py (with pyrethrins)

*All the above products are described as "clarified hydrophobic extract of neem oil". These apparently are the oil fraction of neem seed extracts, without significant amounts of the insecticidal active ingredient azadirachtin present.

OILS, VEGETABLE AND/OR ESSENTIAL

Bonide MiteX (cottonseed oil, clove oil)
Pest Out (cottonseed oil, clove oil, garlic oil)
Organicide (soybean oil and fish oil)
Green Light Rose & Flower Spray Ready-to-Use (rosemary oil)
Green Light Organic Insect Control Concentrate (thyme oil, clove oil, sesame oil)
Green Light Home & Garden Insect Spray Ready-to-Use (thyme oil, clove oil, sesame oil)
Green Light Lawn & Garden Spray Insect Killer Ready-to-Spray (thyme oil, clove oil, sesame oil)
Pond Care Herbal Aphid Control (thyme oil, mint oil)
Nature's Touch (garlic, clove oil, cinnamon, cedar oil, cinnamon oil)
Safer Ant Killer (mint oil)
Victor Poison-Free Wasp & Hornet Killer (mint oil)

PARADICHLOROBENZENE

Enoz Para Moth Balls

PEPPER, HOT

Bonide Hot Pepper Wax Ready-to-Use (capsaicin active ingredient)
Hot Pepper Wax Insect Repellent

PERMETHRIN

Ace Multi-Purpose Garden and Pet Dust
Ace Soil & Turf Insect Control Concentrate
Bayer Advanced Complete Insect Dust for Gardens Ready-to-Use
Bengal Foaming Wasp & Hornet Killer
Bonide Ant Dust Ready-to-Use
Bonide Mosquito Beater, Ready-to-Spray
Bonide Eight Insect Control Yard & Garden Ready-to-Spray

Bonide Eight Insect Control Vegetable, Fruit & Flower Concentrate
Bonide Eight Insect Control/Garden and Home, Ready-to-Use
Bonide Eight Insect Control Garden Dust Ready-to-Use
Bonide Borer-Miner Killer Concentrate
Bonide Spider & Ground Bee Killer
Bonide Termite & Carpenter Ant Killer (with tetramethrin)
Bonide Wasp & Hornet Killer (with tetramethrin)
Cutter Bug Free Backyard Spray Concentrate (with pyrethrins)
Cutter Bug Free Backyard Outdoor Fogger (with pyrethrins)
Echo Mosquito Yard Shield Concentrate
Eliminator Ant, Roach & Spider Killer
Enforcer Wasp & Hornet Killer (with tetramethrin)
Enforcer Ant & Insect Barrier Treatment III
ferti-lome Indoor/Outdoor Multi-Purpose Insect Spray
Grant's Kills Ants Ant & Spider Killer Granules
Green Thumb Multi-Purpose Insect Killer Concentrate
Green Thumb Flying Insect Killer (with allethrin)
Green Thumb Backyard Insect Killer
Green Thumb Outdoor Mosquito Fogger (with tetramethrin)
Hi-Yield D.I.Y. Indoor Pest Control (with pyrethrins)
Hi-Yield Garden, Pet and Livestock Insect Control
Hi-Yield Indoor/Outside Broad Use Insecticide
Hi-Yield Total Release Fogger (with pyrethrins)
Hi-Yield Kill-A-Bug II Lawn Granules
Hi-Yield Kill-A-Bug II
Hi-Yield Turf, Termite and Ornamental 38 Plus
Hot Shot Flying Insect Killer (with allethrin)
Hot Shot Fogger₃ (with tetramethrin)
K-Gro Multi-Purpose Insect Killer Granules
K-Gro Multi-Purpose Insect Killer Ready-to-Spray
K-Gro Multi-Purpose Insect Killer Ready-to-Use
K-Gro Multi-Purpose Insect Killer Concentrate
K-Gro Multi-Purpose Garden & Pet Dust
Ortho Ant-B-Gon Dust
Ortho Mosquito-B-Gon Tree, Shrub and Lawn Spray
Ortho Mosquito-B-Gon Area Repellent (with tetramethrin)
Ortho Bug-B-Gon Max Garden Insect Dust
Ortho Total-Kill Lawn & Garden Insect Killer
Ortho Total-Kill Lawn & Garden Insect Killer Ready-to-Spray
Ortho Insect Fogger (with pyrethrins)
Raid Ant Killer 16 (with pyrethrins)
Raid Wasp & Hornet Killer₂₇₁ (with tetramethrin)
Raid Fumigator
Raid Yard Guard Mosquito Fogger (with allethrin)
Raid Flying Insect Killer Formula 6 (with tetramethrin)
Scott's Outdoor Defense Insect Killer Area Fogger (with tetramethrin)

Spectracide Bug Stop Indoor Fogger₃ (with pyrethrins)
Spectracide Ant Shield Home Barrier Granules
Spectracide Immunox Plus Insect and Disease Multi-Purpose Concentrate (with myclobutanil)
Sprayway Good Night
Terro Ant Killer Spray (with pyrethrins)
Terro Ant Killer Outdoor (with tetramethrin)
Terro Ant Killer Plus Multi-Purpose Insect Control Outdoor

PHENOTHRIN

Ace House and Garden Bug Killer (with tetramethrin)
Ortho Total Kill Wasp & Hornet Killer (with tetramethrin, sumithrin)
Zema IGR Premise Spray (with pyriproxfen, tetramethrin)

PRALLETHRIN

Hot Shot Spider Killer (with lambda-cyhalothrin)
Ortho Roach, Ant & Spider Killer (with esfenvalerate)
Spectracide Wasp & Hornet Killer₃ (with lambda-cyhalothrin)

PROPOXUR

Bonide Ant Traps
Ortho Ant B Gon Bait
TAT Ant Bait

PYRETHRINS

Ace Indoor Fogger₃ (with permethrin)
Ace Flower & Vegetable Insect Spray
Bonide Liquid Rotenone-Pyrethrins Spray Concentrate
Doktor Doom Insecticide Plant Spray
Earth-tone 3-in-1 Disease Control (with sulfur)
Earth-tone Insect Control (with canola oil)
Enforcer Asian Lady Beetle and Boxelder Bug Killer (with tetramethrin)
ferti-lome Red Spider & Mite Spray
ferti-lome Fruit Tree Spray (with neem oil)
Fox Farms Don't Bug Me
Green Light Rose Defense Ready-to-Use II (with neem oil)
Green Light Neem II Ready-to-Use (with neem oil)
Green Thumb Houseplant Rose, Flower & Vegetable Insect Spray
Garden Safe Houseplant & Garden Insect Killer
Garden Safe Fruit & Vegetable Insect Killer
Garden Safe Rose and Flower Insect Killer
Hi-Yield Total Release Fogger (with permethrin)
Hi-Yield D.I.Y. Indoor Pest Control (with permethrin)
Hot Shot Kitchen Bug Killer₂
Natural Guard Natural Insect Spray
Natural Guard Neem Py (with neem oil)

Ortho Insect Fogger (with permethrin)
Safer Tomato and Vegetable Insect Killer (also contains soap)
Safer Houseplant Insect Killer (with soap)
Schultz Houseplant & Garden Insect Spray
Spectracide Bug Stop Indoor Fogger₃ (with permethrin)
Terro Ant Killer Spray₁ (with permethrin)

PYRIPROXFEN

Zema IGR Premise Spray (with tetramethrin, phenothrin)

RESMETHRIN

Black Flag Fogging Insecticide
ferti-lome Whitefly and Mealybug Killer (with horticultural oil)
Ortho Orthenex Insect & Disease Control (aerosol with acephate, triforine)

ROTENONE

Bonide Liquid Rotenone-Pyrethins Spray Concentrate
ferti-lome Rose & Flower Dust (with sulfur)
Hi-Yield Rotenone 100 Insecticide

SOAP, INSECTICIDAL (Potassium Salts of Fatty Acids)

Bonide Insecidal Soap Ready-to-Use
ferti-lome Insecticidal Soap
Garden Safe Insecticidal Soap Concentrate
Garden Safe Insecticidal Soap Insect Killer
Natural Guard Insecticidal Soap
Natural Guard Insecticidal Soap Ready-to-Use
Safer Houseplant Insect Killer (with pyrethrins)
Safer Tomato and Vegetable Insect Killer (with pyrethrins)
Safer Rose & Flower Insect Killer II, Ready-To-Use
Safer Yard & Garden Insect Killer II Ready-to-Use (with pyrethrins)
Safer Houseplant Insect Killing Soap Ready-to-Use
Safer Insect Killing Soap Concentrate
Safer Insect Killing Soap with Seaweed Extract

SPINOSAD

ferti-lome Borer, Bagworm, Leafminer & Tent Caterpillar Spray
Natural Guard Ready-to-Spray Spinosad Landscape & Garden Insecticide
Green Light Lawn & Garden Spray Spinosad Concentrate
Green Light Lawn & Garden Spray Spinosad Ready-to-Spray
Monterey Garden Insect Spray
Sluggo Plus (with iron phosphate)

SUMITHRIN

Eliminator Wasp & Hornet Killer (with tetramethrin)
Enforcer Four Hour Fogger_{xx} (with tetramethrin)

Enforcer Wasp & Yellow Jacket Foam (with tetramethrin)
Hi-Yield Wasp & Hornet Spray (with tetramethrin)
K-Gro Hornet and Wasp Killer (with tetramethrin)
Ortho Total Kill Wasp & Hornet Killer (with phenothrin, tetramethrin)
Ortho ProSelect Hornet & Wasp Killer₄ (with tetramethrin)
Ortho Hornet & Wasp Killer₄ (with tetramethrin)

TAU-FLUVALINATE

Bayer Advanced 3-in-1 Insect, Disease and Mite Control (with imidacloprid, tebuconazole)

TETRAMETHRIN

Ace House and Garden Bug Killer (with phenothrin)
Bonide Termite & Carpenter Ant Killer (with permethrin)
Bonide Wasp & Hornet Killer (with permethrin)
Cutter Bug Free Backyard Outdoor Fogger (with permethrin)
Cutter Bug Free Backyard Concentrate (with permethrin)
Eliminator Wasp & Hornet Killer (with sumithrin)
Enforcer Wasp & Hornet Killer (with permethrin)
Enforcer Wasp & Yellow Jacket Foam (with sumithrin)
Enforcer Asian Lady Beetle and Boxelder Bug Killer (with permethrin)
Enforcer Four Hour Fogger_{xx} (with sumithrin)
Green Thumb Outdoor Mosquito Fogger (with permethrin)
Hi-Yield Wasp & Hornet Spray (with sumithrin)
Hot Shot Fogger₃ (with permethrin)
K-Gro Hornet and Wasp Killer (with sumithrin)
Ortho Flying Insect Killer (with phenothrin)
Ortho ProSelect Hornet & Wasp Killer₄ (with sumithrin)
Ortho Hornet & Wasp Killer₄ (with sumithrin)
Ortho Mosquito-B-Gon Area Repellent (with permethrin)
Ortho Total Kill Wasp & Hornet Killer (with phenothrin, sumithrin)
Raid Wasp & Hornet Killer₂₇₁ (with permethrin)
Scott's Outdoor Defense Insect Killer Area Fogger (with permethrin)
Terro Ant Killer Outdoor (with permethrin)
Zema IGR Premise Spray (with pyriproxfen, phenothrin)

TRICHLORFON

Bayer Advanced 24 Hour Grub Killer Plus Granules

Locations in Survey (Date of Survey)

Wal-Mart (June 6)	K-Mart (June 5)
Fort Collins Nursery (June 5)	Home Depot (June 5)
Ace Hardware/both stores (June 5,8)	Bath Nursery (June 5)
Fossil Creek Nursery (June 5)	JAX Farm and Ranch (June 8)
Gulley Greenhouse and Garden Center (June 5)	

Summary of Results

Table 1. Summary of the insecticides and molluscicides most commonly found in a June 5-6, 2008 survey of eight retailers in Fort Collins, CO¹.

Insecticide	Class	# Different Products	# Times Encountered
Permethrin	Pyrethroid	60	96
Imidacloprid	Neonicotinoid	18	57
Pyrethrins*	Botanical	27	43
Carbaryl	Carbamate	13	37
Bifenthrin	Pyrethroid	13	36
Tetramethrin*	Pyrethroid	23	32
Oil, neem	Botanical	13	28
Insecticidal soap	Salts of fatty acids	13	27
Horticultural oil	Oil (mineral)	12	24
Acephate*	Organophosphate	7	18
Lambda-cyhalothrin	Pyrethroid	12	17
Oils, miscellaneous other	Botanical	10	16
Beta-cyfluthrin	Pyrethroid	8	15
Sumithrin*	Pyrethroid	8	13
<i>B.t. kurstaki</i>	Microbial	5	12
Spinosad	Microbial/Spinosyns	6	12
Resmethrin*	Pyrethroid	3	12
<i>B.t. israelensis</i>	Microbial	3	11
Boric acid/Borax, etc.	Inorganic	8	11
Disulfoton	Organophosphate	4	10
Deltamethrin	Pyrethroid	7	9

¹ Retailers included Ace Hardware, Bath Nursery, Fort Collins Nursery, Fossil Creek Nursery, Gully's Greenhouse and Garden Center, Home Depot, K-Mart, WalMart and JAX Farm and Ranch.

*Majority of products containing this insecticide are in combination with other insecticides and/or fungicides

Changes in Products from 2007 Survey

No new active ingredients were noted in products offered for sale, compared to the July 2007 survey. However, there were some differences in formulations and incidence of several insecticides.

Most prominent was the increased availability of imidacloprid products. The overwhelming majority of these remain associated with the Bayer Advanced line. But new to 2008 were products sold under the ferti-lome, Bonide, and Scott's trade names, apparently reflecting the recent off-patent registration status of imidacloprid.

Two of these merit special note. The Bonide imidacloprid products (Bonide Systemic Granules Insect Control, Bonide Systemic Houseplant Insect Control) are almost identical in packaging to their disulfoton-containing products (Bonide Systemic Houseplant Insect Control Ready-to-Use, Bonide Systemic Granules Ready-to-Use) and were sometimes placed adjacent on market shelves, producing a special source of consumer confusion. The Scott's imidacloprid product (GrubEx) was sold under the identical trade name in 2007, but contained halofenozide at that time.

Pyrethroids still dominate in shelf space with products such as permethrin, bifenthrin, tetramethrin, lambda-cyhalothrin, cyfluthrin, sumithrin and deltamethrin. Of these, bifenthrin was most notably more widely available in the survey, primarily used for general pest control in yards and as a perimeter spray around homes. The bifenthrin containing Ortho Max Lawn & Garden Insect Killer₁ products were among the most common, and usually were placed adjacent to the esfenvalerate containing and nearly identically packaged Ortho Max Garden & Landscape Insect Killer.

A few minor changes in formulations were noted. Pyrethrins sold under the Garden Safe product line are now pyrethrins plus piperonyl butoxide; in 2007 these contained pyrethrins and canola oil. Also, a very long-time standard ant bait, Grant's Kills Ants, apparently is transitioning from arsenic trioxide as the active ingredient to hydramethylnon. Products with both active ingredients, in identical packaging, were found for sale at different retail outlets.

Some General Observations

- In general, independent nurseries carry much broader product lines useful for control of pest problems associated with gardens and landscapes. Large national chains appear to focus on nuisance/household pest management products.
- Horticultural oil products have strong presence in nursery shelves, but are almost absent from the box stores. The Ortho Volck oil was the only oil product that was carried by any national chain.
- Only one product (Hi-Yield Turf, Termite and Ornamental 38 Plus) was labeled for use in control of borers on shade trees and shrubs. It contains 38% permethrin, and was sold by most nurseries and Ace Hardware. No box stores carry any products for borer control - other than the imidacloprid products for flatheaded borers, which are minor pests locally. (A Bonide Borer-Miner Killer Concentrate, containing 2.5% permethrin, does not have any labeled uses for borers on shade trees/shrubs and lists only one borer on fruit trees - lesser peach tree borer, a species not present in Colorado.)
- A major gap that remains in product availability are highly effective miticides. Horticultural oils (mineral, neem) remain essentially the only over-the-counter spider mite materials sold that can be considered effective. Some combination products with acephate contain fenbutatin-oxide and can be used on outdoor ornamentals. A bit of dicofol/Kelthane remains on shelves of one retailer. However, overall there remains a paucity of effective materials to control mites. (*Note:* Some products that are known to be ineffective for spider mite control are prominently marketed for this purpose. Most notably these are products that contain pyrethrins, permethrin or malathion as the active ingredient.)

- No effective products are marketed for control of fungus gnats on houseplants, a major gap mentioned by retailers. *Bacillus thuringiensis* var. *israelensis* products are widely sold, but for mosquito control and do not have fungus gnat labeling.

Whitney Cranshaw, Colorado State University June 8, 2008 draft