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 hyrdoprene)
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 Control
- 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 Killer
- Ortho Max Lawn & Garden Insect Killer Concentrate
- Ortho Max Lawn & Garden Insect Killer, 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
- 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 Fogger

**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 Formula
Combat Outdoor Plant Stakes

GAMMA-CYHALOTHRIN
Spectracide Triacizide Once and Done Insect Killer 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

HYDRAMETHYLN NON
Amdro Ant Block Home Perimeter Ant Bait
Combat Source Kill Roach
Combat Roach Killing Gel
Combat Quick Kill Formula
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 Killer\(_1\) (with cypermethrin)
- Raid Max Roach Killer\(_7\) (with deltamethrin)

**INDOXCARB**
- MaxAttrax Ant Bait\(_2\)
- MaxAttrax Nest Destroyer Roach Bait
- Hot Shot Ultra Ant & Roach Killer\(_3\) (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 Killer\(_3\) (with lambda-cyhalothrin)
- Hot Shot Spider Killer (with prallethrin)
- Hot Shot Ultra Ant & Roach Killer\(_3\) (with indoxcarb)
- Real-Kill Ant & Roach Killer\(_4\) (with allethrin)
- Real-Kill Ant Killer\(_2\) (with allethrin)
- Real-Kill Home Insect Control Indoor & Outdoor Insect Killer\(_2\)
- 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 Killer\(_3\) (with prallethrin)
- Spectracide Ant Shield Home Barrier Insect Killer\(_3\)

**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 Killer
   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 Volek 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 Fogger (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 Killer 271 (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 Fogger (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

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

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

**PROPOXUR**
- Bonide Ant Traps
- Ortho Ant B Gon Bait
- TAT Ant Bait

**PYRETHRINS**
- Ace Indoor Fogger (with permethrin)
- Ace Flower & Vegetable Insect Spray
- Bonide Liquid Rotenone-Pyrethins 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 Killer
- 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 Fogger (with permethrin)
Terro Ant Killer Spray (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 Insectical Soap Ready-to-Use
ferti-lome Insectical Soap
Garden Safe Insectical Soap Concentrate
Garden Safe Insectical Soap Insect Killer
Natural Guard Insectical Soap
Natural Guard Insectical 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 (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 Killer, (with tetramethrin)
Ortho Hornet & Wasp Killer, (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 Foggerxx (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 Killer, (with sumithrin)
Ortho Hornet & Wasp Killer, (with sumithrin)
Ortho Mosquito-B-Gon Area Repellent (with permethrin)
Ortho Total Kill Wasp & Hornet Killer (with phenothrin, sumithrin)
Raid Wasp & Hornet Killer, (with permethrin)
Scott’s Outdoor Defense Insect Killer Area Fogger (with permethrin)
Terro Ant Killer Outdoor (with permethrin)
Zema IGR Premise Spray (with pyriproxyfen, 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, CO.

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

Retailers included Ace Hardware, Bath Nursery, Fort Collins Nursery, Fossil Creek Nursery, Gulley’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 Killer products were among the most common, an 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/Keltane 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.

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