



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

November 6, 2018

Nancy Huebl  
Central Garden & Pet Co.  
1501 East Woodfield Road, 200W  
Schaumburg, IL 60173

Subject: Notification per PRN 98-10 – add non-public health pests back that were inadvertently dropped off last label  
Product Name: Prentox Pyronyl Crop Spray  
EPA Registration Number: 89459-26  
Application Date: 8/23/2018  
Decision Number: 543833

Dear Ms. Huebl:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10. The label submitted with the application has been stamped “Notification” and will be placed in our records.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If you have any questions, you may contact Autumn Metzger at 703-305-5314 or via email at Metzger.autumn@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Beth Fertich", followed by the word "for" written in a smaller, simpler script.

Beth Fertich, Product Manager 04  
Invertebrate & Vertebrate Branch 1  
Registration Division (7505P)  
Office of Pesticide Programs

## REGULATORY LABEL DATA SHEET

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**File Name:** Epa notif add pests to space spray 818      **Data Sheet Date:** August 23, 2018  
**Product:** Pyronyl Crop Spray      **EPA Reg #:** 89459-26  
**Approved:**      **Supercedes:** 2-13-17

OVERVIEW: Label notification to add pests to existing sites per PRN 98-10, §II,B (this line of pests was inadvertently dropped from the Space Spray crawling insect list which should match the list in the Surface Spray paragraph listing crawling insects)

Page #	Description of Major Changes
12	Directions for Use: add crawling insect pests (red flour beetle, rice weevil, saw-toothed grain beetle, spider beetle, yellow mealworm) to Space Spray use that matches the crawling insects in Surface Spray use (line was inadvertently dropped)

[ Indicates optional text]



# PYRONYL™ CROP SPRAY

Alternate brand name: Pyronyl™ Crop Spray

**KILLS:** [The following]: Ants, Aphids, Bed Bugs, Black Widow Spiders, Cockroaches, Crickets, Face Flies, Fleas, Horse Flies, House Flies, Lice, Mosquitoes, Stable Flies, Stored Product Insects (including Almond Moths, Confused Flour Beetles, Granary Weevils, Indian Meal Moths, Lesser Grain Borers, Rice Weevils, Saw-toothed Grain Beetles and others listed on this label), Ticks, and Thrips

**FOR USE AS:** Stored Product Protection, Livestock and Poultry Spray. Refer to the label for additional use sites.

**FOR USE FOR:** Stored Product Protection, Livestock and Poultry Spray, Crops, Greenhouse Plants, Indoor and Outdoor Trees, Shrubs, Flower and Foliage Plants, Turf/Grass, Hydroponic Vegetables, Harvested Fruit, Mosquito Control, Animal Quarters, Homes, Restaurants, Food Processing Facilities, Industrial Installations, Warehouses.

Contains 0.5 pounds of pyrethrins per gallon  
Contains 5 pounds of piperonyl butoxide per gallon  
Designed for use on labeled crops  
Can be used up to and including the day of harvest  
Can be used as a tank-mixed exciter

**ACTIVE INGREDIENTS:**

Pyrethrins .....	6%
Piperonyl Butoxide* .....	60%
<b>OTHER INGREDIENTS**:</b> .....	<u>34%</u>
<b>TOTAL</b>	<b>100%</b>

\*(butylcarbityl)(6-propylpiperonyl) ether and related compounds.  
\*\*Contains Petroleum Distillates

## KEEP OUT OF REACH OF CHILDREN CAUTION

See inside booklet for additional Precautionary Statements, First Aid Statements and Directions for Use

EPA Reg. No. 89459-26  
EPA Est. No.

Net Contents: \_\_\_\_\_ quart, \_\_\_\_\_ gallon(s)

### NOTIFICATION

89459-26

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

11/06/2018

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

FIRST AID	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Immediately call a Poison Control Center or physician..</li> <li>• Do not induce vomiting unless told to do so by a Poison Control Center or physician.</li> <li>• Do not give <b>any</b> liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a Poison Control Center or physician for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a Poison Control Center or physician for treatment advice.</li> </ul>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may contact 1-800-248-7763 for information including health concerns, medical emergencies or pesticide incidents.	
<b>NOTE TO PHYSICIAN:</b> Contains petroleum distillate – vomiting may cause aspiration pneumonia.	

**Personal Protective Equipment (PPE):** Some materials that are chemical-resistant to this product are made of barrier laminate, nitrile rubber, neoprene rubber, viton.

Mixers, loaders, applicators, and other handlers must wear the following:

- long-sleeve shirt,
- long pants,
- shoes and socks and
- chemical-resistant gloves.

In addition to the above PPE, applicators using a high pressure handwand in an enclosed area must wear at least a NIOSH-approved respirator with:

- a filter with NIOSH approval number prefix TC-21C or
- any R, P, or HE filter.

In addition to the above PPE, applicators using hand held foggers in an enclosed area must wear a half-face, full-face, or hood-style NIOSH-approved respirator with:

- a filtering cartridge (NIOSH approval number prefix TC-21C), or
- a canister (NIOSH approval number prefix TC-14G), or
- a cartridge or canister with any R, P or HE filter.

See Engineering Controls for additional requirements.

#### **User Safety Requirements:**

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

#### **User Safety Recommendations:**

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

#### **Engineering Controls Statements:**

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(6)].

Human flagging is prohibited. Flagging to support aerial application is limited to use of the Global Positioning System (GPS) or mechanical flagger.

## ENVIRONMENTAL HAZARDS

**For terrestrial applications:** This product is toxic to aquatic organisms, including fish and invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. This product may contaminate water through runoff. This product has a potential for runoff for several weeks after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are foraging the treatment area.

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

**For wide area mosquito adulticide applications:** This pesticide is toxic to aquatic organisms, including fish and invertebrates. Runoff from treated areas or deposition of spray droplets into a body of water may be hazardous to fish and aquatic invertebrates.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are foraging the treatment area.

Before making the first application in a season, it is advisable to consult with the state or tribal agency with primary responsibility for pesticide regulation to determine if other regulatory requirements exist.

Do not apply over bodies of water (lakes, rivers, permanent streams, natural ponds, commercial fish ponds, swamps, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from the water in order to minimize incidental deposition into the water body. Do not contaminate bodies of water when disposing of equipment rinsate or washwaters.

**{For containers equal to or greater than 5 gallons}** Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. Do not contaminate water when disposing of equipment washwaters. Apply this product only as specified on this label.

## DIRECTIONS FOR USE

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

For any requirement specific to your State or Tribe, consult the agency in your state responsible for pesticide regulations

**Use Restrictions:**

- Remove or cover exposed food and drinking water before application.
- Remove or cover dishes, utensils, food processing equipment and food preparation surfaces or wash them before use.
- Remove pets and birds and cover fish aquariums before spraying.
- Do not remain in treated area. Exit area immediately and remain outside the treated area until aerosols, vapors, and/or mists have dispersed.
- Do not make space spray applications when facility is in operation.
- Prior to space spray applications, cover or remove food.
- Prior to space spray applications, cover food processing surfaces or clean after treatment and before use.
- Do not apply directly into sewers or drains or to any area like a gutter where drainage to storm sewers, water bodies or aquatic habitat can occur. Do not allow the product to enter any drain during or after application.
- Do not use in aircraft cabins.
- Except when applying to livestock or as a mosquito adulticide, do not enter or allow others to enter until sprays have dried and vapors, mists, and aerosols have dispersed, and the treated area has been thoroughly ventilated.
- Except when applying to livestock or as a mosquito adulticide, do not apply this product in a way that will contact workers or other persons, either directly or through drift.
- Except when applying to livestock or as a mosquito adulticide, only protected handlers may be in the area during application.
- When used in dairy barns or facilities: Close milk bulk tank lids to prevent contamination from spray and from dead or falling insects. Remove or cover milking utensils before application. Wash teats of animals before milking.
- For use on animals: Do not apply more than 1 time per day.
- Not for use in outdoor residential mosquito misting systems.
- Not for use in residential metered release devices (indoor or outdoor).
- When applied to outdoor residential surfaces:  
All outdoor applications must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses: 1) Treatment to soil or vegetation around structures; 2) Applications to lawns, turf and other vegetation; 3) Applications to building foundations, up to a maximum height of 3 feet.  
Other than applications to building foundations, all outdoor applications to impervious surfaces such as sidewalks, driveways, patios, porches and structural surfaces (such as windows, doors and eaves) are limited to spot and crack-and-crevice applications only.
- Do not make applications during rain.
- Do not wet plants to point of runoff or drip.
- Do not water the treated area to the point of runoff.
- For use on growing crops: Do not reapply within 3 days except under extreme pest pressure. In case of extreme pest pressure, do not reapply within 24 hours. Do not apply more than 10 applications per season. Do not harvest until spray has dried.
- For use on trees, shrubs, flowers and foliage plants and use on turf and grass: Do not apply more than 1 time per day.
- For use on greenhouse fruit, vegetable, flower and foliage plants and on hydroponically grown vegetables: Do not reapply within 3 days except under extreme pest pressure. In case of extreme pest pressure, do not reapply within 24 hours. Do not harvest until spray has dried.
- For use on harvested fruit and for stored product protection: Do not apply more than 1 time per day. Do not reapply within 7 days.
- For surface treatment of stored grain and seed: Do not reapply within 30 days.

**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

For surface spray use:

- Except when applying to livestock and as a mosquito adulticide, do not enter or allow others to enter treated area until sprays have dried.

For space spray use:

- Except when applying as a **mosquito adulticide**, do not enter or allow others to enter until vapors, mists and aerosols have dispersed and the treated area has been thoroughly ventilated.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and the handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls, chemical-resistant gloves made of any waterproof material and shoes plus socks.

### **DIRECTIONS FOR APPLICATION THROUGH IRRIGATIONS SYSTEMS (CHEMIGATION)**

Prentox Pyronyl Crop Spray may be applied alone or in combination with other pesticides registered for application through sprinkler irrigation systems. To insure compatibility, pour the products into a small container of water in the correct proportions. After thorough mixing, let stand for five minutes. If the combination remains mixed, or can be remixed readily, the mixture is compatible.

Apply this product only through sprinkler [including center pivot, lateral move, end tow, side (wheel) rolls, traveler, big gun, solid set, or hand move]; furrow; border; or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigations system.

Do not apply this product through any type of irrigation system to crops not listed on the product label.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. Do not connect the irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments if the need arises.

### **CHEMIGATION SYSTEM CONNECTED TO PUBLIC WATER SYSTEMS**

1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduce-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line, upstream from the point of pesticide introduction. As an option to the RPZ, discharge the water from the public water system into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3. The pesticide injection pipeline must also contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump, and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.
8. Agitation is recommended in the pesticide supply tank if the product is diluted in that tank prior to injection into the irrigation system.
9. Follow product dilution guidelines as shown in the "CALIBRATION CHART" in the product labeling to determine proper dilution rates for control of target insects.

### **SPRINKLER CHEMIGATION**

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must also contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump, and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
5. Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
6. Do not apply when wind speed favors drift beyond the area intended for treatment.
7. Agitation is recommended in the pesticide supply tank if the product is diluted in that tank prior to injection into the irrigation system.
8. Follow product dilution guidelines as shown in the "CALIBRATION CHART" in the product labeling to determine proper dilution rates for control of target insects.

### **FLOOD (BASIN), FURROW AND BORDER CHEMIGATION**

1. Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.
2. Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
  - The system must contain a functional check valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
  - The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
  - The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
  - The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
  - The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
  - Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
3. Agitation is recommended in the pesticide supply tank if the product is diluted in that tank prior to injection into the irrigation system.
4. Follow product dilution guidelines as shown in the "CALIBRATION CHART" in the product labeling to determine proper dilution rates for control of target insects.

### **DRIP (TRICKLE) IRRIGATION**

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Agitation is recommended in the pesticide supply tank if the product is diluted in that tank prior to injection into the irrigation system.



8. Follow product dilution guidelines as shown in the “CALIBRATION CHART” in the product labeling to determine proper dilution rates for control of target insects.

#### **SPRAY DRIFT MANAGEMENT FOR AGRICULTURAL CROPS:**

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. The interactions of many equipment and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

Do not apply at wind speeds greater than 10 mph at the application site.

Do not make any type of application into temperature inversions.

Apply as a medium or coarser spray (ASABE standard 572).

#### **Additional requirements for aerial applications:**

Do not release spray at a height greater than 10 feet above the ground or crop canopy.

The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.

Aerial applicators must consider flight speed and nozzle orientation in determining droplet size.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

#### **Additional requirements for ground applications:**

Do not release spray at a height greater than 4 feet above the ground or crop canopy.

#### **Additional requirements for airblast applications:**

Direct sprays into the canopy.

Turn off outward pointing nozzles at row ends and when spraying outer rows.

### **PYRONYL CROP SPRAY MAY BE APPLIED TO THE FOLLOWING CROPS**

**ROOT AND TUBER VEGETABLES:** Arracacha; arrowroot; artichoke, Chinese; artichoke, Jerusalem; beet, garden; beet, sugar; burdock, edible; canna, edible; carrot; cassava, bitter and sweet; celeriac (celery root); chayote (root); chervil, turnip-rooted; chicory; chufa; dasheen (taro); ginger; ginseng; horseradish; leren; parsley, turnip-rooted; parsnip; potato; radish; radish, Oriental (daikon); rutabaga; salsify (oyster plant); salsify, black; salsify, Spanish; skirret; sweet potato; taniel (cocoyam); turmeric; turnip; yam bean; and yam, true.

**LEAVES OF ROOT AND TUBER VEGETABLES:** Beet, garden; beet, sugar; burdock, edible; carrot; cassava, bitter and sweet; celeriac (celery root); chervil, turnip-rooted; chicory; dasheen (taro); parsnip; radish; radish, Oriental (daikon); rutabaga; salsify, black; sweet potato; taniel (cocoyam); turnip; and yam, true.

**BULB VEGETABLES** (*allium* spp.): Garlic, bulb; garlic, great headed (elephant); leek; onion, dry bulb and green; onion, spring (scallion); onion, Welsh; and shallot.

**LEAFY VEGETABLES:** Amaranth (leafy amaranth, Chinese spinach, tampala); arugula (roquett); cardoon; celery; celery, Chinese; celtuce; chervil; chrysanthemum, edible leaved; chrysanthemum, garland; corn salad; cress, garden; cress, upland (yellow rocket, winter cress); dandelion; dock (sorrel); endive (escarole); fennel, Florence (finocchio); lettuce, head and leaf; orach; parsley; purslane, garden; purslane, winter; radicchio (red chicory); rhubarb; spinach; spinach, New Zealand; spinach, vine (Malabar spinach, Indian spinach); and Swiss chard.

**BRASSICA (COLE) LEAFY VEGETABLES:** Broccoli; broccoli, Chinese (gai lon); broccoli raab (rapini); Brussels sprouts; cabbage; cabbage, Chinese (bok choy); cabbage, Chinese (napa); cabbage; Chinese mustard (gai choy); cauliflower; cavalo broccollo; collards; kale; kohlrabi; mizuna; mustard greens; mustard spinach; and rape greens.

**LEGUME VEGETABLES (SUCCULENT OR DRIED):** Adzuki beans; asparagus beans; black-eyed peas; broad beans (fava beans); catjang; chick peas (garbanzo beans); Chinese longbeans; cowpeas; crowder peas; field beans; guar; jackbeans; sword beans; kidney beans; lablab beans (hyacinth beans); lima beans; lentils; moth beans; mung beans; navy beans; peas (dwarf, edible, pod, English, garden green, field, snowpeas, sugar snap peas); pigeon peas; pinto beans; rice beans; runner beans; snap peas; southern peas; soybeans; grain lupin; sweet lupin; white lupin; pole beans; tepary beans; urd beans; wax beans; yardlong beans.

**LEAVES OF LEGUME VEGETABLES:** Plant part of any legume vegetables included in the legume vegetable group that will be used as animal feed, including any variety of beans and field peas.

**FRUITING VEGETABLES:** African eggplant; bush tomato; cocona; currant tomato; eggplant; garden huckleberry; goji berry; ground cherry; martynia; naranjilla; okra; pea eggplant; pepino; pepper, bell; pepper, non-bell; roselle; scarlet eggplant; sunberry; tomatillo; tomato; tree tomato and cultivars, varieties and/or hybrids of these.

**CUCURBIT VEGETABLES:** Chayote (fruit); Chinese wax gourd (Chinese preserving melon); citron melon; cucumber; gherkin; gourd, edible (hyotan, cucuzza, hechima, Chinese okra); *Momordica* spp. (balsam apple, balsam pear, bitter melon, Chinese cucumber); muskmelon (hybrids and/or cultivars of *Cucumis melo*) (true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon and snake melon); pumpkin; squash, summer (crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); squash, winter (butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash); watermelon (includes hybrids and/or varieties of *Citrullus lanatus*).

**CITRUS FRUITS:** Australian desert lime; Australian finger lime; Australian round lime; brown river finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; Mount White lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russel river lime; Satsuma mandarin; sweet lime; *Tachibana* orange; Tahiti lime; tangelo; tangerine (Mandarin); tangor; trifoliolate orange; uniq fruit; cultivars, varieties and/or hybrids of these.

**POME FRUITS:** Apple; crabapple, loquat; mayhaw; pear; pear, Oriental; quince.

**STONE FRUITS:** Apricot; cherry, sweet; cherry, tart; nectarine; peach; plum; plum, Chickasaw; plum, Damson; plum, Japanese; plumcot; prune (fresh).

**BERRIES:** Blackberry (bingleberry, black satin berry, boysenberry, Cherokee blackberry, chesterberry, Sheyenne blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, Himalayaberry, hullberry, lavacaberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, nectarberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, youngberry, and varieties and/or hybrids of these); blueberry; cranberry; currant; elderberry; gooseberry; grape; huckleberry; loganberry; raspberry, black and red; strawberry.

**TREE NUTS:** Almond; beech nut; Brazil nut; butternut; cashew; chestnut; chinquapin; filbert (hazelnut); hickory nut; macadamia nut (bush nut); pecan; pistachio; walnut, black and English (Persian).

**ORIENTAL VEGETABLES:** Japanese artichoke; Chinese broccoli (gailon); Chinese cabbage (bok choy); Chinese mustard cabbage (gai choy); dasheen; ginger; ginseng; Chinese longbeans; mung beans; citron melon; balsam pear (bitter melon); Japanese radish (daikon); Chinese spinach; Chinese wax gourd.

**CEREAL GRAINS:** Barley; buckwheat; corn (field, pop and sweet); millet, pearl; millet, proso; oats; rice; rye; sorghum (milo); teosinte; triticale; wheat; wild rice.

**FORAGE, FODDER AND STRAW OF CEREAL GRAINS:** Barley; buckwheat; corn (field, pop and sweet); millet, pearl; millet, proso; oats; rice; rye; sorghum (milo), teosinte; triticale; wheat; wild rice.

**GRASS FORAGE, FODDER AND HAY:** Includes any grass (Graminaceae), green or cured, except sugarcane and those listed under "cereal grains", that will be used to graze or feed livestock, such as pasture grasses, range grasses, grasses grown for hay or silage, Bermuda grass, bluegrass, bromegrass, fescue, annual ryegrass, festulolium, hybrid ryegrass, Italian ryegrass, meadow fescue, orchard grass, Sudan grass, sorghum-Sudan, tall fescue, timothy, wheat hay, turfgrasses, bentgrass, Kentucky bluegrass, specialty grasses.

**NON-GRASS ANIMAL FEEDS:** Alfalfa; bean, velvet; clover; kudzu; lespedeza; lupine; sainfoin; trefoil; vetch; vetch, crown; vetch, milk.

**HERBS AND SPICES:** Allspice; angelica; anise (seed); anise, star; annatto (seed); balm (lemon balm); basil; borage; burnet; camomile; caper buds; caraway; caraway, black; cardamom; cassia bark; cassia buds; catnip; celery seed; chervil (dried); chive; chive, Chinese; cinnamon; clary; clove buds; coriander (cilantro or Chinese parsley (leaf); coriander (cilantro) (seed); costmary; culantro (leaf); culantro (seed); cumin; curry (leaf); dill (dillweed); dill (seed); fennel (common); fennel, Florence (seed); fenugreek; grains of paradise; horehound; hyssop; juniper berry; lavender; lemongrass; lovage (leaf); mace; marigold; marjoram (sweet or annual marjoram, wild marjoram or oregano and pot marjoram); mustard (seed); nasturtium; nutmeg; parsley (dried); pennyroyal; pepper, black; pepper, white; poppy (seed); rosemary; rue; saffron; sage; savory, summer and winter; sweet bay (bay leaf); tansy; tarragon; thyme; vanilla; wintergreen; woodruff; wormwood.

**OILSEED CROPS:** Canola; crambe; rapeseed; flax safflower; sesame; soybeans; sunflowers.

**SUBTROPICAL FRUITS:** avocado, banana, carob, cherimoya, dates, durian (Jackfruit), feijoa, figs, guava, kiwifruit, lychee, mango, papaya, passion fruit, paw paw, persimmon, pineapple, pomegranate.

**ADDITIONAL CROPS:** Artichoke, asparagus, avocado, coffee, cotton, hemp, hops, jojoba, mushrooms, olives, okra, peanuts, safflower, sesame, sugar cane, sunflowers, tea, tobacco.

**ORNAMENTALS:** African violet; ageratum; aster; azalea; begonia; cacti; calceolaria; calendula; calla; camella; camellia; carnation; ceanothus; chrysanthemum; cineraria; coleus; cyclamen; cypress; daffodil; dahlia; delphinium; eucalyptus; ferns; ficus; foliage plants; fuschia; gardenia; geranium; gladiolus; gloxinia; gypsophilla; hyacinth; hydrangea; imitari; feles; iris, ivy; lily; maidenhair fern; marigold; narcissus; orchid; pansy; pelargonium; peony; petunia; philodendron; phlox; poinsettia; pyracantha; rhododendron; rose; rubber plant; snapdragon; stock; sweet pea; tulip; viburnum; wandering jew; zinnia and Andromeda; arbor vitae; ash; beech; birch; boxwood; butternut; chamaecyparis; cherry; cotoneaster; crabapple; dogwood; Douglas fir; elm; euonymus; fir; firethorn; forsythia; hackberry; hawthorn; hemlock; hickory; holly; honey locust; horse chestnut; juniper; larch; laurel; lilac; linden; London plane; magnolia; maple; mimosa (silk tree); mountain ash; myrtle; oak; pachysandra; peach; pine; planetree; poplar; privet; quince; spruce; sycamore; *Taxus*; tulip tree; viburnum; walnut; willow; yew.

### TO KILL THE FOLLOWING INSECTS

Achemon sphinx moth, alfalfa caterpillar, alfalfa looper, alfalfa weevil, almond moth, Angoumois grain moth, ants, aphids, apple maggot, armyworm, artichoke plume moth, asparagus beetle, bagworm, bean beetle, bean leaf beetle, bed bug, beet armyworm, beet webworm, beetles, biting flies, black widow spider, blister beetle, blossom weevil, blowflies, blueberry maggot, boll weevil, bollworm, boxelder bug, budmoth bug, cabbage looper, cadelle, cankerworm, carpet beetle, carrot rust fly, carrot weevil, caterpillars, centipede, cereal leaf beetle, cherry fruit fly, chigger, chinch bug, cicada, cigarette beetle, clothes moth, clover mite, clover weevil, cockroach, codling moth, Colorado potato beetle, collembola, confused flour beetle, corn borer, corn earworm, corn flea beetle, corn rootworm, corn sap beetle, cotton leaf perforator, crane fly, cricket, cross-striped cabbageworm, cucumber beetle, cutworm, darkling beetle, darkling ground beetle, deer fly, deer tick, diamondback moth caterpillar, digger wasp, Douglas fir tussock moth, dried fruit beetle, drugstore beetle, earwig, eastern tent caterpillar, Egyptian alfalfa weevil, elm bark beetle, elm leaf beetle, European corn borer, European pine tip moth, face fly, fall webworm, fire ants, firebrat, fireworm, flat grain beetle, fleas, flea beetle, flies, forest tent caterpillar, fruit flies, fulgorid, fungus gnat, garden webworm, granary weevil, grape leafhopper, grapeleaf skeletonizer, grasshopper, grapevine root borer, green bug, green cloverworm, green fruitworm, green June beetle, green peach aphid, gypsy moth, harlequin bug, *Heliothis*, hessian fly, hickory shuckworm, hornet, horn fly, hornworm, horse fly, house fly, Indian meal moth, imported cabbageworm, Japanese beetle, katydid, lace bug, leaf beetle, leaf-footed bug, leafhopper, leafminer, leaf roller, leaf-tier, lesser cornstalk borer, lesser grain borer, lice, little house fly, loopers, *Lygus*, maize weevil, mealybug, Mediterranean flour moth, melonworm, merchant grain beetle, Mexican bean beetle, midges, millipede, mosquitoes, mushroom flies, Nantucket pine tip moth, navel orangeworm, nitidulid, oakworm, onion maggot, Oriental fruitmoth, peachtree borer, pear psylla, phorid, pickleworm, pillbug, pine needle miner, pine tube moth, pine weevil, plant bugs, plum curculio, plum moth, potato aphid, potato leafhopper, potato tuberworm, psyllid, range caterpillar, redbanded leafroller, redhumped caterpillar, red flour beetle, rice weevil, rusty grain beetle, sap beetle, saw-toothed grain beetle, sciarids, shield bug, silverfish, skipper, sod webworm, sorghum midge, sowbug, soybean looper, squarenecked grain beetle, spittlebug, springtail, squash beetle, squash bug, squash vine borer, stable fly, stalk borer, stink bug, strawberry mite, strawberry weevil, tabanids, tarnished plant bug, tent caterpillar, thrip, tick, tomato hornworm, tomato pinworm, tortoise beetle, tortrix, tussock moth, velvetbean caterpillar, vinegar flies, walnut caterpillar, wasps, webworm, weevil, whiteflies, woollybear caterpillar, yellowstriped armyworm, yellow jackets.

### USE ON GROWING CROPS

**USED ALONE:** Pyronyl Crop Spray is designed for use on minor crops and as a pre-harvest spray when other materials cannot be used due to pre-harvest interval restrictions. Pyronyl Crop Spray may be used up to and including the day of harvest. Apply up to 0.05 pounds (up to 12 fl oz as shown in following Calibration Chart) of pyrethrins per acre and repeat as required to maintain effective control. Use the calibration chart listed below to calculate the desired application rate: Use in sufficient water for thorough coverage of upper and lower leaf surfaces.

### CALIBRATION CHART

Pounds of Pyrethrin Per Acre	Fluid Ounces Pyronyl Crop Spray per Acre	Acres Treated Per Gallon of Pyronyl Crop Spray
0.004	1	128
0.008	2	64
0.016	4	32
0.032	8	16
0.050	12	11

#### USED IN COMBINATION WITH OTHER INSECTICIDES

Pyronyl Crop Spray may be combined with other insecticides if a quicker and more complete control is needed and as an exciter to flush insects out of hiding and into contact with spray residues. The application must conform to the accepted use precautions and directions for both products. Pyronyl Crop Spray may be tank-mixed at rates of up to 0.05 pounds of pyrethrins with the amount of companion insecticide specified for one acre.

Prior to tank-mixing, conduct a small jar compatibility test using the proper proportions of chemicals and water to ensure the physical compatibility of the mixture.

Tank-mix applications must be made in accordance with the more restrictive of label limitations and precautions. No label application rates may be exceeded. This product cannot be mixed with any product with label prohibitions against such mixing.

#### USE ON GREENHOUSE FRUIT, VEGETABLE, FLOWER AND FOLIAGE PLANTS

**USED ALONE:** Combine 12 to 24 fluid ounces of Pyronyl Crop Spray (0.05 – 0.10 lb pyrethrin) with 100 gallons of water for applications with conventional hydraulic sprayers or 1 to 2 teaspoons per gallon of water for applications with compressed air sprayers.

**USED IN COMBINATION WITH OTHER INSECTICIDES:** To provide quick knockdown of insects when used with a residual insecticide, tank-mix 1 to 4 fluid ounces of Pyronyl Crop Spray with the proper amount of companion insecticide in 100 gallons of water and apply with a conventional hydraulic sprayer. Apply in accordance with the more restrictive of label limitations and precautions. No label application rates may be exceeded. This product cannot be mixed with any product with label prohibitions against such mixing.

**IMPORTANT NOTE:** Plant safety is an important consideration when using insecticides in a greenhouse. However, it is not possible to evaluate the phytotoxicity of Pyronyl Crop Spray towards numerous plant varieties that may react differently to insecticides in different growth stages or under varying environmental conditions. Before making widespread applications of Pyronyl Crop Spray, treat a limited number of plants and observe for phytotoxicity over a 10 day period.

#### USE OUTDOORS ON TREES, SHRUBS, FLOWERS AND FOLIAGE PLANTS

**USED ALONE:** Combine 12 to 24 fluid ounces of Pyronyl Crop Spray with 100 gallons of water for applications with conventional hydraulic and airblast sprayers or 12 to 24 fluid ounces of Pyronyl Crop Spray with 10 gallons of water for applications with low volume mist blowers or 1 to 2 teaspoons per gallon of water for applications with compressed air sprayers.

**USED IN COMBINATION WITH OTHER INSECTICIDES:** To provide quick knockdown of insects when used with a residual insecticide, tank-mix 1 to 4 fluid ounces of Pyronyl Crop Spray with the proper amount of companion insecticide in 100 gallons of water (10 gallons of water for low volume application with mist blowers) and apply with conventional hydraulic or airblast sprayers.

Apply in accordance with the more restrictive of label limitations and precautions. No label application rates may be exceeded. This product cannot be mixed with any product with label prohibitions against such mixing.

**FOR CONTROL OF GYPSY MOTH CATERPILLARS AND ADULTS:** Combine 8 to 12 fluid ounces of Pyronyl Crop Spray with 100 gallons of water for applications with conventional hydraulic sprayers or 8 to 12 fluid ounces of Pyronyl Crop Spray with 10 gallons of water for applications with airblast sprayers. To provide quick knockdown of gypsy moth caterpillars when used with a residual insecticide, tank-mix 1 to 4 fluid ounces of Pyronyl Crop Spray with the proper amount of companion insecticide in 100 gallons of water (10 gallons of water for airblast sprayers) and apply with a conventional hydraulic sprayer.

Apply in accordance with the more restrictive of label limitations and precautions. No label application rates may be exceeded. This product cannot be mixed with any product with label prohibitions against such mixing.

### USED INDOOR ON TREES, SHRUBS, FLOWERS AND FOLIAGE PLANTS

**USED ALONE:** Combine 12 to 24 fluid ounces of Pyronyl Crop Spray with 100 gallons of water for applications with conventional hydraulic sprayers or 1 to 2 teaspoons of Pyronyl Crop Spray per gallon of water for applications with compressed air sprayers.

**USED IN COMBINATION WITH OTHER INSECTICIDES:** To provide quick knockdown of insects when used with a residual insecticide, tank-mix 1 to 4 fluid ounces of Pyronyl Crop Spray with the proper amount of companion insecticide in 100 gallons of water and apply with a conventional hydraulic sprayer.

Apply in accordance with the more restrictive of label limitations and precautions. No label application rates may be exceeded. This product cannot be mixed with any product with label prohibitions against such mixing.

### USE ON TURF AND GRASS

**USED ALONE:** To control ants, armyworms, billbugs, chinch bugs, chiggers, crickets, cutworms, earwigs, fleas, grasshoppers, *Hyperodes* weevils (adults), Japanese beetles (adults), mole crickets, sod webworms and ticks, dilute and apply per the instructions in the following table.

Treatment Area (Square Feet)	Fluid Ounces of Pyronyl Crop Spray	Suggested Volume <sup>a</sup> of Water (Gallons)
1,000	0.25 to 0.5	2.5 to 5.0
5,000	1.25 to 2.5	12.5 to 25.0
20,000	5.0 to 10.0	50.0 to 100.0
43,560 <sup>b</sup>	12.0 to 24.0	110.0 to 220.0

<sup>a</sup>Dilute with enough water to obtain thorough coverage.

<sup>b</sup>43,560 square feet = 1 acre.

**USED IN COMBINATION WITH OTHER INSECTICIDES:** To provide quick knockdown of insects when used with a residual insecticide, tank-mix Pyronyl Crop Spray with the proper amount of companion insecticide and apply at the rates listed above.

Apply in accordance with the more restrictive of label limitations and precautions. No label application rates may be exceeded. This product cannot be mixed with any product with label prohibitions against such mixing.

**USED AS A TURF PEST DIAGNOSTIC AID:** To detect turf insects prior to making an insecticide application or to evaluate control from previous treatments, dilute one tablespoon of Pyronyl Crop Spray per gallon of water and apply evenly with a sprinkling can over one square yard of turf. Record the species and number of insects present ten minutes after application. Sample 3 to 5 sites per 5,000 square feet. **Note:** this procedure does not bring white grubs or billbug grubs to the surface. Use other methods to sample for these pests.

### USE WITH HYDROPONICALLY GROWN VEGETABLES

**AS A WATER SYSTEM TREATMENT:** To control aquatic diptera larvae, apply Pyronyl Crop Spray to the water at the rates outlined in the following table:

Pyrethrins Concentration	mL of Pyronyl Crop Spray	Gallons of Water
0.1 ppm	64.6	1,000
0.01 ppm	6.46	1,000
0.001 ppm	0.646	1,000

### USE ON HARVESTED FRUIT

Apples, blackberries, blueberries, boysenberries, cherries, crabapples, currants, dewberries, figs, gooseberries, grapes, guavas, loganberries, mangoes, muskmelons, oranges, peaches, pears, peas, pineapples, plums, raspberries, tomatoes.

**DIRECT SPRAY TO FRUITS IN BASKETS, ON TRUCKS OR IN PROCESSING PLANTS:** To kill vinegar flies and fruit flies, dilute 1 part Pyronyl Crop Spray with 1200 parts of water (1 pint per 150 gallons or 1 teaspoon per 12.5 pints of water). Thoroughly mix the emulsion in the spray tank and apply at high pressure at the rate of 2.5 to 3 pints of the diluted spray per ton of fruit. Direct the spray for maximum coverage of the baskets or hampers. It is important to spray between and beneath the containers.

#### **USE AS A SURFACE SPRAY**

**IN HOMES, RESTAURANTS, FOOD PROCESSING PLANTS INDUSTRIAL INSTALLATIONS AND WAREHOUSES:** To kill accessible, exposed stages of crawling insects including, but not limited to, ants, cockroaches, cadelles, cigarette beetles, confused flour beetles, dark mealworms, dried fruit beetles, drugstore beetles, grain mites, red flour beetles, rice weevils, saw-toothed grain beetles, spider beetles, yellow mealworms, dilute 1 part of Pyronyl Crop Spray with 59 parts water and apply at the rate of 1 gallon to 750 square feet , paying special attention to force the spray into all cracks and crevices.

**IN COMBINATION WITH RESIDUAL INSECTICIDES:** To provide flushing and quick knockdown of insects, this product may be tank mixed with other insecticides at the rate of ¼ to ½ fluid ounce (equivalent to ½ to 1 tablespoon or 7.4 ml. to 14.8 ml.) per gallon of finished spray.

**IN USDA INSPECTED FACILITIES:** To kill accessible, exposed stages of crawling insects including, but not limited to, ants, cockroaches, cadelles, cigarette beetles, confused flour beetles, dark mealworms, dried fruit beetles, drugstore beetles, grain mites, red flour beetles, rice weevils, saw-toothed grain beetles, spider beetles, yellow mealworms, dilute 1 part Pyronyl Crop Spray with 19 parts of water and apply at the rate of 1 gallon to 750 square feet, paying special attention to force the spray into all cracks and crevices.

#### **USE AS A SPACE SPRAY**

To kill crawling and flying insects in sites that include homes, restaurants, food processing plants, industrial installations and warehouses, dilute Pyronyl Crop Spray with water and apply as a space spray. For best results, close doors and windows before spraying and keep them closed for 30 minutes after treatment. Where oil residues are not undesirable, Pyronyl Crop Spray can be diluted in deodorized base oil instead of water and applied with mechanical, thermal or ULV applicators.

**CRAWLING AND FLYING INSECTS:** To kill accessible, exposed stages of CRAWLING INSECTS including ants, cockroaches, cadelles, cigarette beetles, confused flour beetles, dark mealworms, dried fruit beetles, drugstore beetles, grain mites, red flour beetles, rice weevils, saw-toothed grain beetles, spider beetles, yellow mealworms and FLYING INSECTS including Angoumois grain moths, Indian meal moths, mosquitoes, Mediterranean flour moths, small flying moths, tobacco moths, add 10.67 fl oz (1 part to 11 parts water or oil) of Pyronyl Crop Spray per gallon of oil or water and apply at the rate of 1 fluid ounce per 1,000 cubic feet of space. Direct the spray towards the ceiling and upper corners of the area and behind obstructions. Keep the area closed for at least 30 minutes after treatment.

**FLYING INSECTS:** To kill flying insects including Angoumois grain moths, cheese skippers, fruit flies, fungus gnats, gnats, house flies, Indian meal moths, mosquitoes, Mediterranean flour moths, small flying moths, tobacco moths, dilute 1 part of Pyronyl Crop Spray with 47 parts of water or oil (2.67 fluid ounces per gallon) and apply at the rate of 1 fluid ounce per 1,000 cubic feet of space. Direct the spray towards the ceiling and upper corners of the area and behind obstructions. Keep the area closed for at least 30 minutes after treatment.

**FOR USE ON SWEET POTATOES IN STORAGE IN COMMERCIAL STORAGE/WAREHOUSES PREMISES:** To kill fruit flies and vinegar flies, dilute this concentrate at 1 part to 19 parts water (6.4 fluid ounces per gallon (51 ml/L)). Apply as a space fog with a mechanical fogger capable of producing particles of aerosol size at the rate of 1 gallon diluted spray per 100,000 cubic feet (1.34 ml/m<sup>2</sup>) of space. Apply only when flying insects are present. Several applications may be necessary during periods of heavy infestation. Do not reapply within 7 days except under extreme pest pressure. In case of extreme pest pressure, do not reapply within 24 hours. Do not apply more than 10 times to sweet potatoes.

**IN BARN, MILKING PARLORS, MILK ROOMS, DAIRIES AND POULTRY HOUSES:** To kill flying insects including flies, fruit flies, mosquitoes, gnats, wasps, hornets and small flying moths, dilute 1 part of Pyronyl Crop Spray with 63 fluid ounces of water (2 fluid ounces per gallon) and apply at the rate of 1 to 2 fluid ounces per 1,000 cubic feet. Apply as a fog or fine mist, directing the nozzle for maximum coverage of area. For best results, close doors and windows before spraying and keep them closed for ten to fifteen minutes.

## **COMMERCIAL BARNs, STABLES AND ANIMAL QUARTERS INDOOR MISTING SYSTEMS**

To kill listed flying insects dilute 2 fluid ounces of Prentox Pyronyl Crop Spray per gallon of water (100 fl oz of concentrate in 50 gallons of water) .

Not for use in outdoor residential misting systems (indoor or outdoor). Do not apply when food, feed and/or water is present.

When using this product, installers and service technicians must comply with the license, certification or registration requirements of the state(s), tribe(s) or local authority(ies) where they are installed.

When applying via a remote activation device, do not apply when people and pets are present. If possible, when applying via automatic timer, set the timing for application when people and pets are unlikely to be present.

Direct nozzles to spray towards the target area and away from areas where people are typically present.

Do not use in an evaporative cooling system.

Do not use in misters located within 3 feet of air vents, air conditioner units or windows.

If used in a system with a reservoir tank for the end use dilution, the system reservoir tank must be locked. Securely attach the end use pesticide label and a dilution statement to the system reservoir tank in a weather protected area or plastic sleeve. The dilution statement must be phrased as follows: this container holds \_\_\_\_ parts Prentox Pyronyl Crop Spray to \_\_\_\_ parts water.

If used in a direct injection system, the pesticide container must be locked. Securely attach the end use label to the pesticide container in a weather protected area or plastic sleeve.

This product must only be used in systems that have been calibrated to apply no more than the maximum application rate of 0.000476 lbs pyrethrins and 0.008 lbs piperonyl butoxide per 1000 cubic feet per day. This is equivalent to 7.3 fluid ounces of diluted product per 1,000 cubic feet per day.

### **USE IN STORED PRODUCT PROTECTION**

**AS A GRAIN AND SEED PROTECTANT:** Pyronyl Crop Spray may be applied to the following grains and seeds: barley, beans, birdseed, buckwheat, cocoa beans, corn, cottonseed, flax, oats, peas (field), rice, rye, sorghum and wheat to protect them from grain storage insects for a full season or approximately 8 months. Pyronyl Crop Spray may be used in combination with a registered fumigant for use on heavily infested stored products.

**TO KILL STORED PRODUCT INSECTS INCLUDING** almond moths, Angoumois grain moths, cadelles, cigarette beetles, confused flour beetles, drugstore beetles, flat grain beetles, granary weevils, Indian meal moths, lesser grain borers, maize weevils, Mediterranean flour moths, merchant grain beetles, red flour beetles, rice weevils, rusty grain beetles, saw-toothed grain beetles and squarenecked grain beetles, dilute at the rate of 1 part Pyronyl Crop Spray with 29 parts water (1 pint with 3 gallons 5 pints water). Thoroughly mix the emulsion and apply at the rate of 4 to 5 gallons per 1,000 bushels of grain or seed as it is carried along a belt or as it enters the auger or elevator.

**SURFACE TREATMENT OF STORED GRAIN AND SEED:** To kill Indian meal moths, Angoumois grain moths and Mediterranean flour moths, inspect monthly after the grain is placed in storage. If the top 2 or 3 inches are infested, dilute 1 part of Pyronyl Crop Spray with 19 parts of water and apply at the rate of 1 to 2 gallons per 1,000 square feet of grain. Rake the mixture into the grain to a depth of 4 inches.

**ON ALMONDS, PEANUTS AND WALNUTS IN BULK OR IN BAGS:** To kill stored product insects including almond moths, Angoumois grain moths, ants, cadelles, cigarette beetles, confused flour beetles, drugstore beetles, flat grain beetles, granary weevils Indian meal moths, lesser grain borers, maize weevils, Mediterranean flour moths, merchant grain beetles, red flour beetles, rice weevils, rusty grain beetles, saw-toothed grain beetles and squarenecked grain beetles, dilute 1.33 fluid ounces of Pyronyl Crop Spray per gallon of water and apply a coarse wet spray over the top of stored nuts or the outer surface of stacked bagged nuts at the rate of 4 gallons per 1,000 square feet. Apply at weekly intervals for about 6 weeks and then at 15 day intervals. Apply the first two applications at the rate of 2 gallons per 1,000 square feet.

**STORAGE SITES:** To treat grain and seed storage sites, warehouse bins, trucks, cargo ships and planes prior to filling with grain or seed, thoroughly clean the site by sweeping out the waste, cobwebs and other debris on the walls and rafters as well as on the floor and about the door frames, paying special attention to the material lodged in the cracks and crevices. Remove these accumulations and burn to kill eggs and insects that might be present.

In mills and elevators, pay particular attention to the bin hoppers to remove all grain infested accumulations. Clean and insure that conveying equipment are free of trash deposits that could maintain an infestation. For farms, clean up and around the used feed and grain bags, grain residues from wagons, harvesting equipment and feed troughs. Do not place newly harvested grain in the same bin with carry-over grain and fumigate all carry-over grain stocks not treated with grain protectant. Perform cleaning operations within two or three weeks before harvest.

To treat the storage site prior to using it for storage, dilute 1 part of Pyronyl Crop Spray with 59 parts of water (1 pint with 7 gallons 3 pints of water) and apply to walls, floors, ceilings and partition boards at the rate of one gallon per 750 sq. feet. It is important to thoroughly treat all cracks and crevices.

**SPACE SPRAY ON STORED SWEET POTATOES:** To kill vinegar flies and fruit flies, dilute 1 part Pyronyl Crop Spray with 19 parts of water (6.4 fluid ounces per gallon) and apply at the rate of 1 gallon per 100,000 cubic feet. Apply only when flying insects are present. Several applications may be necessary during periods of heavy infestation, but do not make more than 10 applications.

#### **USE AS A LIVESTOCK AND POULTRY SPRAY**

**TO KILL AND REPEL HORN FLIES, HOUSE FLIES, MOSQUITOES AND GNATS:** Dilute at the rate of ½ to 1 fluid ounce per gallon of water and apply to wet the hair thoroughly, with particular attention to top-line, underlain, flanks, withers and other infested areas. Repeat treatment at intervals of 5 to 12 days for small insect populations or as needed when flies are emerging in large numbers.

**TO KILL AND REPEL STABLE FLIES, HORSE FLIES AND DEER FLIES:** Dilute at the rate of 2 fluid ounces per gallon of water and apply at a quart per adult animal to wet the hair thoroughly with particular attention to the legs, flanks, barrel, topline and other body areas commonly attacked by these flies or allow the animals to walk through the mist from mechanical spray equipment. Repeat treatment each week as needed.

**TO KILL AND REPEL FACE FLIES:** Dilute at the rate of 2 fluid ounces per gallon of water and apply using spray which produces large wetting droplets. Apply to the face of the animal in the morning before releasing to pasture. Apply sufficiently to wet the face but not more than 1½ fluid ounces per animal. Repeat daily as needed.

**TO CONTROL BITING AND SUCKING LICE ON CATTLE, HORSES, SHEEP, GOATS AND HOGS:** Dilute at the rate of 1 quart with 150 gallons of water (1 tablespoonful with 2 gallons) and spray to thoroughly wet the hair of the animal including the head and brush of the tail. Repeat treatment in 10 days to kill newly hatched lice.

**TO CONTROL POULTRY LICE:** It is not necessary to remove poultry from the housing unit during treatment. Dilute 0.21 fluid ounces per one gallon of water and spray roosts, walls and nests or cages thoroughly. Spray over the birds with a fine mist.

**TO CONTROL BED BUGS AND MITES ON POULTRY AND IN POULTRY HOUSES:** Dilute at the rate of 0.21 fluid ounces per gallon of water and spray crevices of roost poles, cracks in walls and cracks in nests where the bed bugs and mites hide. This should be followed by spraying over the birds with a fine mist.

**TO CONTROL SHEEP "TICK" OR KED:** Dilute at the rate of 1 fluid ounce per 4 gallons of water and thoroughly wet all portions of the body by dripping or spraying with sufficient pressure and with a nozzle adjustment that penetrates the wool. Treat at a rate sufficient to thoroughly wet the animal.

#### **TO CONTROL FLEAS AND TICKS ON LIVESTOCK**

Dilute at the rate of 1½ fluid ounces per gallon of water and wet the animal by dipping or spraying.

#### **USE IN MOSQUITO CONTROL**

**RESTRICTION:** For use only by federal, state, tribal, or local government officials responsible for public health or vector control, or by persons certified in the appropriate category or otherwise authorized by the state or tribal lead pesticide regulatory agency to perform adult mosquito control applications, or by persons under their direct supervision.

**WIND SPEED:** Apply only when wind speed is greater than or equal to 1 mph and less than 10 mph.

The maximum application rate for wide area mosquito adulticide applications is 0.0025 lbs pyrethrin/acre, or 0.025 lbs piperonyl butoxide/acre, whichever is lower per application. When targeting *Aedes Taeirorhynchus* and other difficult species, applications may be made up to 0.008 lbs pyrethrin/acre/day, or 0.08 lbs piperonyl butoxide/acre/day, whichever is lower.



Do not apply more than 0.2 lbs pyrethrin/acre/year, or 2 lbs piperonyl butoxide/acre/year, whichever is lower, in any treated area. More frequent treatments may be made to prevent or control a threat to public and/or animal health determined by a state, tribal, or local health or vector control agency on the basis of documented evidence of disease causing agents in vector mosquitoes or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

Pyronyl Crop Spray may be used for mosquito control programs involving residential, industrial, recreational and agricultural areas as well as swamps, marshes, overgrown waste areas, roadsides and pastures where adult mosquitoes occur. Pyronyl Crop Spray may be used over agricultural crops. For best results, apply when meteorological conditions create a temperature inversion and wind speed does not exceed 10 miles per hour. Apply so the wind will carry the insecticidal fog into the area being treated. Treatment may be repeated as necessary to achieve the desired level of control.

**Ground-based wide area mosquito abatement application:**

Spray equipment must be adjusted so that the volume median diameter is less than 30 microns ( $D_{v0.5} < 30 \mu\text{m}$ ) and that 90% of the spray is contained in droplets smaller than 50 microns ( $D_{v0.9} < 50 \mu\text{m}$ ). Directions from the equipment manufacturer or vendor, pesticide registrant or a test facility using a laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra. Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rate(s) are properly calibrated.

To kill adult mosquitoes and biting flies, apply up to 0.0025 pounds (6 fl oz) of pyrethrins per acre (use a 300 foot swath width for acreage calculations).

**Truck-Mounted ULV Application** - Dilute 5 parts of Pyronyl Crop Spray with 1 part of oil and apply at the rate of 2 to 2.25 fluid ounces per minute (.002 to .0025 lb of pyrethrin per acre) while the machine is traveling 5 miles per hour. The nozzle should be positioned approximately 30° above horizontal off the side of the truck bed. The delivery rate and truck speed may be varied as long as the application rate is 0.002 to 0.0025 pounds of pyrethrins per acre (use a 300 foot swath width for acreage calculations).

**Backpack Sprayer Application** - Apply 0.002 to 0.0025 pounds of pyrethrins per acre. Dilute 1 part of Pyronyl Crop Spray with 12 parts of oil and apply at the rate of 7 fluid ounces per acre (based on a 50 foot swath, 7 fluid ounces should be applied while walking 870 feet).

When used in cold aerosol generators that produce a fog with the majority of droplets in the 5-50 micron range, Pyronyl Crop Spray should be diluted with light mineral oil (specific gravity of approximately 0.8 at 60° F; boiling point: 500-840° F). An N.F. grade oil is preferred.

**Aerial wide area mosquito abatement application:**

Spray equipment must be adjusted so that the volume median diameter produced is less than 60 microns ( $D_{v0.5} < 60 \mu\text{m}$ ) and that 90% of the spray is contained in droplets smaller than 80 microns ( $D_{v0.9} < 80 \mu\text{m}$ ). The effects of flight speed, and for non-rotary nozzles, nozzle angle on the droplet size spectrum must be considered. Directions from the equipment manufacturer or vendor, pesticide registrant or a test facility using a wind tunnel and laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra. Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rate(s) are properly calibrated.

**RELEASE HEIGHT for AERIAL:**

**Fixed wing:** Apply using a nozzle height of no less than 100 feet above the ground or canopy.

**Rotary wing:** Apply using a nozzle height of no less than 75 feet above the ground or canopy.

**Fixed Wing And Helicopter** - To control adult mosquitoes and biting flies, apply up to 0.0025 pounds of pyrethrins per acre with equipment designed and operated to produce a ULV spray application.

**NOTICE:** To the extent consistent with applicable law, buyer assumes all responsibility for safety and use not in accordance with directions.

### STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE AND SPILL PROCEDURES:** Store upright at room temperature. Avoid exposure to extreme temperatures. In case of spill or leakage soak up with absorbent material such as sand, sawdust, earth, fuller's earth, etc. Dispose of with chemical waste.

**PESTICIDE DISPOSAL:** Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of at or by an approved waste disposal facility.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. **{Containers 5 gallons or less}** Triple rinse follows. Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water (or solvent used to dilute product) and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then, offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved state and local procedures. **{For containers greater than 5 gallons}** Triple rinse as follows. Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water (or solvent used to dilute product). Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then, offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved state and local procedures.

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