

Project Name: Aphid Efficacy

Dates Active: 2002-2003; 2024 (NE regional)

Project Description:

Aphid efficacy has routinely surfaced in the biennial survey of grower needs. While multiple classes and subclasses for insect mode of action are currently available, growers continue to have difficulty managing these pests.

Research Project Abstract:

Abstract from 2015 Aphid Efficacy: A Literature Review

In the past, IR-4 had conducted Ornamental Horticulture Surveys to poll growers, landscape care operators, researchers, extension personnel and others affiliated with the ornamental industry on needs and issues related to disease, insect, and weed management. In 2013, aphids were identified as one of the top five important insects of concern. In a literature review from 2015, there were insufficient data for definitive conclusions, many of the older registered active ingredients, including, acephate, acetamiprid, bifenthrin, chlorpyrifos, dimethoate, flonicamid, imidacloprid, lambda-cyhalothrin, malathion, pymetrozine, spirotetramat, and thiamethoxam generally provided effective control. Similarly, several relatively new products, including cyantraniliprole, pyrifluquinazon, sulfoxaflor, and tolfenpyrad were effective.

| Target Species (Phytotoxicity, or common and Latin name of arthropod, pathogen, weed): |
|---|
| <p>Aphid, Green Apple (<i>Aphis pomi</i>) Aphid, Melon (<i>Aphis gossypii</i>) Aphid, Palm (<i>Cerataphis brasiliensis</i>) Aphids (Aphis) (<i>Aphis sp.</i>) Green Peach Aphid (<i>Myzus persicae</i>)</p> |
| Target Crops (list tested crops if ongoing or completed project) |
| <p>Chrysanthemum, Garden (<i>Chrysanthemum/Dendranthema sp.</i>) Palm, Coconut (<i>Cocos nucifera</i>) Cotoneaster, Cranberry (<i>Cotoneaster apiculatus</i>) Impatiens, New Guinea (<i>Impatiens hawkeri</i>) Apple, Non-bearing (<i>Malus sp.</i>) Rose (<i>Rosa sp.</i>) <i>R. hybrida</i> Marigold (<i>Tagetes sp.</i>) 'Happy Days' Marigold (<i>Tagetes sp.</i>) 'Royal' Zinnia (<i>Zinnia sp.</i>)</p> |

| Target Product(s)(list tested products or numbered compounds if ongoing or completed project) |
|---|
| <p>A16894D (A16894D)</p> <p>A16901B 45WG (Thiamethoxam + cyantraniliprole)</p> <p>Akari 5SC (Fenpyroximate)</p> <p>Aria 50SG (Flonicamid)</p> <p>Aria GH 50WG (Flonicamid)</p> <p>Aria N 50WG (Flonicamid)</p> <p>Avid 0.15EC (Abamectin)</p> <p>BAS 310 KT (BAS 310 KT)</p> <p>Carbofuran F (Carbofuran)</p> <p>Dimethoate 2.67EC (dimethoate)</p> <p>Disulfoton (Disulfoton)</p> <p>EI00WP-2 (EI00WP-2)</p> <p>EpiShield (Peppermint oil, clove oil, and sodium lauryl sulfate)</p> <p>Garlipel (Garlipel)</p> <p>Metasystox (Oxydemetonmethyl)</p> <p>Methomyl (Methomyl)</p> <p>NI00OD-1 (BW400)</p> <p>Orthene 1.3S (acephate)</p> <p>Romivex DIP (Romivex)</p> <p>SuffOil X (Synergy) (Mineral oil)</p> <p>TetraCURB Max (castor oil + rosemary oil + clove oil + peppermint oil)</p> <p>Velifer (Beauveria bassiana Strain PPRI 5339)</p> <p>Ventigra Insecticide (Afidopyropen)</p> |

| Product Registration and Research Status | | | | |
|--|--|--|---|---|
| | Fully Screened (also includes standards) | | Partially Screened through IR-4 ¹ | Need Data for Additional Species? |
| Labeled for Aphids Generally & Commercialized | Conserve SC * Flagship 25WG Marathon II Marathon Ultra Orthene TTO * Pedestal | Pylon * Safari 20SG * Scimitar CS Talstar NF Tempo Ultra TriStar 30SG | Avid 0.15EC Aria 50SG * AzaGuard Grandevo (MBI 203 DF) Hachi-Hachi * Met 52 EC (TickExEC)* Overture 35WP * Proud 3 | Allectus SC ² Aloft SC ² Discus EcoTrol Marathon 1G Met52 Safari 2G SaferSoap Surround WP |
| Labeled for Aphids Generally but NOT Commercialized | | | | |
| Labeled for Specific Aphids & Commercialized | | | BotaniGard 22WP BotaniGard ES Rycar (NNI-0101) | BotaniGard MAXX Xpectro OD |
| Labeled for Specific Aphids but NOT Commercialized | | | | |
| Not yet registered or labeled for aphids | | | A16901B ISM-555 ¹ Bountify ¹ NI02ES-1 SP3014 ¹ Venerate (MBI 206 F) V-10433 ¹ | MilStop OHP 929-2 |
| No longer available for development for aphids | Carzol Diazinon 50W Dimethoate 4EC DPX-HGW86 Dursban 50W Mesurol 75W | MOI 201 QRD 400 QRD 416 Sevin SL TriCon (BW420) | Acelepryn * BAS 320i Celero 16WSG ² Kontos * S1812 35WP | |
| <p>* IR-4 Data contributed to registration decision – either adding pest to label or not pursuing further research</p> <p>1 At least one species screened fully.</p> <p>2 Product not available for production ornamentals</p> | | | | |

IR-4 Efficacy Trials to Date

Average rating on a scale of 1 – 5 where 1 = <60% Control (not effective), 2 = 60-79% control, 3 = 80-89% control, 4 = 90-94% control and 5 = 95-100% control; minimum to maximum rating; number of trials (See table on next page). For product/pest combinations that are blank, IR-4 has not screened this combination. A rating of 3 or higher is considered commercially acceptable. 'Labeled' indicates that this pest species or genera is listed on the label.

Environmental Horticulture Program Research Project Sheet

<https://www.ir4project.org/ehc/ehc-registration-support-research/env-hort-extension-resources/>

| MOA | Product (Actives) | Aphid, Green Apple (<i>Aphis pomi</i>) | Aphid, Melon (<i>Aphis gossypii</i>) | Aphid, Palm (<i>Cerataphis brasiliensis</i>) | Green Peach Aphid (<i>Myzus persicae</i>) |
|----------|-----------------------------------|---|---|---|--|
| IRAC 1A | Carbofuran F (Carbofuran) | | | 3.0 (1 - 5) n2 | |
| IRAC 1A | Methomyl (Methomyl) | | | 5.0 (5 - 5) n1 | |
| IRAC 1B | Disulfoton (Disulfoton) | | | 5.0 (5 - 5) n1 | |
| IRAC 1B | Metasystox (Oxydemetonmethyl) | | | 5.0 (5 - 5) n2 | |
| IRAC 21A | Akari 5SC (Fenpyroximate) | 1.0 (1 - 1) n1 | | | |
| IRAC 29 | Aria GH 50WG (Flonicamid) | | 5.0 (5 - 5) n1 Labeled | | |
| IRAC 29 | Aria N 50WG (Flonicamid) | | 5.0 (5 - 5) n1 Labeled | | |
| IRAC 6 | Avid 0.15EC (Abamectin) | | | | 2.5 (1 - 4) n4 Labeled |
| unknown | Dimethoate 2.67EC (dimethoate) | | | 5.0 (5 - 5) n2 | |
| unknown | Orthene 1.3S (acephate) | | | 5.0 (5 - 5) n2 | |