

Nursery Insect Management 2014/2015

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September 17, 2014

Scouting

In hoop houses and greenhouses scout for thrips and whiteflies with yellow sticky cards. Change cards once per week. Use at least one card per house or one per 2,000 ft². Also check the first plants to flower for thrips. For spider mites and aphids look for shed skins, leaf stippling and leaf curling on the most susceptible plants.

Systemic insecticides

Kontos, Mainspring, Imidacloprid*, Flagship*, and Safari* can all be applied to the soil surface as a drench for uptake by plant roots and systemic movement throughout the plant. The only soil systemic insecticides available at this time that are NOT neonicotinoids are Kontos and Mainspring.

Neonicotinoid insecticides

Insecticide products that contain a neonicotinoid active ingredient are marked in this bulletin by an asterisk (*) immediately after the product name.

Imidacloprid products

Many imidacloprid* products are now available for use in the greenhouse and nursery. Wherever imidacloprid* is mentioned, any of the following products could be used: Bounty*, Discus*, Imidacloprid 2F Nursery & GH*, Lada 2F*, Marathon II*, Amtide Imidacloprid*, Imigold*, Mantra 1G*, or Benefit*. Other imidacloprid products may also be labeled for ornamental plants.

Making sure an insecticide is labeled for use on your nursery plants

EPA requires that the site is listed on the label. For example, if you are spraying burning bush for spider mites, the product label should say that it can be used on burning bush. Some labels have a more general category of woody ornamentals, nursery plant production or ornamentals. In addition all pesticide products used in Michigan must also have a state of Michigan registration. All the products listed in this bulletin have a federal label that includes ornamental plants, and a registration for the state of Michigan. See MDARD for more detailed questions about products labeled for use in greenhouses.

Phytotoxicity

Some insecticides are safe to spray on most plants, but may be toxic to certain groups of plants. A list of sensitive plants or a precautionary statement often appears on the product label. Precautionary statements for most of the products listed in this bulletin are given in the wall chart: *'Insect Controls for the Greenhouse Industry', MSU Extension Bulletin E-2696*. Phytotoxicity may cause leaf margin necrosis, leaf spots, yellowing, stunting and a variety of symptoms. Diagnosing phytotoxicity is done best by comparing new plant growth after the insecticide was applied with older leaves that were sprayed, and by looking for patterns of damage that match spray patterns. It is always wise to spray a few plants and wait one week to see if there is any plant reaction to the insecticide.

Insecticide products for key nursery pests

Aphids, psyllids and spittlebugs

• Soil drench

Kontos, Imidacloprid*, Flagship*, Safari*, Imidacloprid*, or Mainspring¹

• Foliar spray when aphids are first found

Aria, azadarachtin³ (Aza-Direct, AzaGuard, Azatin O), Imidacloprid*, BotaniGard, Distance, Endeavor, Enstar II, Flagship*, Ornazin, Orthene 97, Precision, Safari*, or Tristar*. Talstar, Scimitar, Tame, Decathlon and other pyrethroid insecticides also work well if resistance is not a problem.

Armored scales (Euonymus scale, pine needle scale, Oysterhshell scale, etc.)

• Foliar spray

Distance or a 2% horticultural oil when crawlers begin to emerge.

Black vine weevil

• Incorporate into the container substrate as instructed on the label

Talstar

• Soil drench

Kontos, Imidacloprid*, Flagship*, Safari*, or Mainspring¹ in July

Broad mites and cyclamen mites

• Soil drench

Kontos

• Foliar spray

Avid, Akari, Judo, Kontos, Pylon, SanMite, or 2 % horticultural oil. Reduce humidity in greenhouse, hoop house, or holding area to below 80% if possible.

Fungus gnats

• Soil drench

Azadarachtin (Aza-Direct, AzaGuard, Azatin O), Adept, Imidacloprid*, Distance, Flagship*, Tristar* or Safari*. Repeat once every 6 weeks, if necessary.

Japanese beetle compliance program

Contact your MDARD inspector for information about soil sampling or to confirm treatments needed for the states where you are shipping. For ornamental grasses Talstar can be incorporated into the growing substrate or applied as a soil drench that wets the entire growing substrate, as specified in the Japanese Beetle Harmonization Plan. See MDARD for details.

Mealybugs:

• Foliar spray

Aria, Flagship*, Mainspring¹, Orthene 97, Safari*, Talus or Tristar*. Talstar, Astro or Decathlon also work well if resistance is not a problem.

Root aphids:

• Soil drench

Kontos, Imidacloprid*, Flagship*, Safari*, or Mainspring¹

Soft scales (*Lecanium* scale, cottony maple scale, magnolia scale, etc.)

• Soil drench

Kontos, Imidacloprid*, Flagship*, Safari*, Imidacloprid*, or Mainspring¹

• Foliar spray when crawlers emerge

Aria, Imidacloprid*, Orthene 97, Safari*, Tristar*, Talstar, Astro, or Decathlon.

Spider Mites

• Foliar spray

Akari, Avid, Floramite, Hexygon, Judo, Kontos, Ovation, ProMite, Pylon, Sanmite, Shuttle-O, Tetrasan, or Ultiflora

Thrips

• Foliar spray

Mainspring¹, Mesurol, Orthene 97, Overture, Pedestal, Pylon, Rycar, Sanmite, or Tolfenpyrad² (also available as HachiHachi², and Torac²)

Whiteflies

• Soil drench

Kontos, Imidacloprid*, Flagship*, Safari*, Imidacloprid*, or Mainspring¹

• Foliar spray when whiteflies are first found

Aria, azadarachtin (Aza-Direct, AzaGuard, Azatin O), BotaniGard, Distance, Endeavor, Enstar, Kontos, Ornazin, Orthene 97, Pedestal, Precision, Safari, Sanmite, Talus, Judo.

White grubs

• Incorporate into the growing substrate as instructed on the label

Talstar

• Soil drench

Imidacloprid*, Flagship*, Safari*, or Mainspring¹ in July.

***NOTE: More information is available on the Wall Chart, 'Insect Controls for the Greenhouse Industry', MSU Extension Bulletin E-2696.

¹ Mainspring contains cyantraniliprole. It is expected to be available beginning in fall of 2014.

² Do not use Tolfenpyrad, HachiHachi, or Torac (all contain tolfenpyrad) on New Guinea Impatiens or Impatiens. Tolfenpyrad is also phytotoxic to some species of *Ageratum*, *Colocasia*, *Geranium*, *Lobelia*, *Pansy* (flowers), *Verbena*, and *Vinca*.

³ Note: because of the short residual activity of azadarachtin, sprays may be needed once every three days until whitefly is under control.

Acknowledgements

Funding for writing this bulletin was provided by the Michigan Floriculture Growers Council, the Michigan Nursery and Landscape Association, the Michigan Department of Agriculture and Rural Development (through a HortFund grant), and Project GREEN. Terrance Davis, Jill Odonnell and Tom Dudek edited an earlier draft of this bulletin.

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