The Opportunity for Use of Biological Controls

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It is possible to manage thrips and pesticide-resistant thrips using biological control options as the main component of your integrate pest management strategy.

Commercially available biocontrol products

Contrary to the US, major flower-producing countries like Colombia do not have many commercially available biocontrol products:

• *Phytoseiulus persimilis* and *Neoseiulus californicus* are both predators of spider mites but will not significantly contribute to thrips control.
• *Beauveria bassiana* is an entomopathogenic fungus that will kill thrips.
• Mineral oils are very useful to integrate with biocontrol (e.g. as a cutting dip) but are not technically a biopesticide.

Entomopathogenic fungi

• Preventative and curative applications effective for thrips control.
• Apply as a cutting dip. Good coverage is essential.
• When spraying, apply as low volume, fine mist that contacts both upper and under leaf surface, and avoid run-off.
• Cold fogging is possible when applying *Beauveria bassiana*.
• Granular formulation on substrate helps control against thrips pupae.

Native Thrips Predators

• Many naturally occurring landscape predators that are the same or similar to biocontrol agents available in the US.
• In Colombia, there are native predatory mites that live on the foliage or in the substrate, *Orius insidiosus*, which eats thrips, aphids and lepidoptera and generalist predators like lacewings (Chrysopa), syrphid flies and lady beetles.
• Many can be mass reared on the farm or attracted to habitat plants.
• Regular releases of predators will prevent and reduce thrips populations.

Integration of Biocontrol and Pesticides

• Integration of biocontrol and pesticides is not easy but possible!
• Depending on the product, pesticide residues on crops and greenhouse structures can persist and negatively affect biocontrols.
• Stopping broad spectrum pesticide use may cause outbreak of secondary pests.
• Well-considered use of pesticides can reduce pest populations before the release of biocontrol agents so they have a better chance of success.
• Consult pesticide-biocontrol side-effect database for compatibility.