

FACT SHEET

The Value of Neonicotinoid Insecticides in Turf and Ornamentals

A Case Study of Neonicotinoid Use for Controlling Silverleaf Whitefly in Ornamentals

Summary

As part of a comprehensive evaluation of the economic and societal benefits of neonicotinoid insecticides, researchers conducted individual case studies to more deeply examine the benefits these products bring to specific market segments and explore what would happen if they were no longer available.

The silverleaf whitefly is one of the most destructive pests found in nurseries and greenhouses. Neonicotinoid insecticides are the foundation for existing integrated pest management (IPM) programs to control this invasive pest. A case study of the floriculture and greenhouse industry confirms that neonicotinoids are critical for the successful management strategies that have helped protect ornamentals from this destructive pest, which has cost growers hundreds of millions of dollars in losses in a single season.

Key Findings

- Nursery and floriculture crop receipts total approximately \$11 billion annually in the United States according to the U.S. Department of Agriculture (USDA).
- Nursery and greenhouse production accounted for approximately 436,000 jobs in the U.S., according to the University of Florida's Institute of Food & Agricultural Sciences.
- Many floricultural crops, rootstocks and trees are imported to the U.S. and then planted and grown to maturity prior to being sold at nurseries, garden centers and flower shops.
- Because of the international nature of the industry, preventing new invasive pest species from entering the U.S. is crucial, as is the ability to control pests resulting from interstate commerce.
- The silverleaf whitefly, *Bemisia tabaci*, is one of the most damaging pests in many ornamental crops and certain agricultural commodities, including cotton, melons and squash.

- Whiteflies damage plants through direct feeding, disease transmission, and by producing honeydew, which makes plants surfaces sticky and supports the development of sooty mold.
- Because whiteflies are ubiquitous on so many crops, the potential for resistance development to chemical insecticides is significant and of great concern among producers.
- In greenhouses, with no life cycle suppression during cold months, whiteflies can go through many generations and quickly develop resistance to insecticides if chemistries are not rotated.
- Compounding management strategies, the silverleaf whitefly has two distinct biotypes, which differ in their response to different chemical insecticides and resistance development.
- Following the "B" biotype's introduction in the U.S., pest resistance to several chemical classes quickly developed, resulting in losses of \$500 million in only states during a single season.
- Greenhouses and nurseries rely on neonicotinoids as a first line of defense to control whitefly populations because they offer significant advantages over other products:
 - Effective performance, even on many invasive pests where other options are limited
 - Systemic activity offers more thorough protection throughout the plant, especially in areas that are difficult to reach with sprays.
 - Low use rates and longer-lasting protection when compared to many foliar sprays
 - Reduces volume and frequency of insecticide use, lowering worker exposure potential
 - Less impact on beneficial insects than many older products, further reducing pesticide use
 - Can be applied to the soil or as a foliar spray, providing increased management flexibility
 - Translaminar action allows insecticide movement to the underside of leaves, where pest feeds
- Neonicotinoids are a key component of nursery and greenhouse pest management practices and help reduce the application, volume and frequency of older, less selective products.
- Neonicotinoids are an important part of resistance management programs, which rely on rotation of products with different modes of action.
- The industry relies on neonicotinoids to control and prevent the spread of invasive and quarantine pests (and the diseases they transmit) both internationally and domestically.
- The loss of these products would negatively impact IPM practices and cause a serious challenge to plant trade within the industry.

Report Reference

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This report is one in a series that will be released over the next few months as part of a comprehensive evaluation of the economic and societal benefits of neonicotinoid insecticides in North America. The research was conducted by AgInfomatics, a consulting firm of independent agricultural economists and scientists, and jointly commissioned and sponsored by Bayer CropScience, Mitsui Chemicals Agro, Inc., Syngenta, and Valent U.S.A. For questions or information concerning this research and reports, please contact the Porter Novelli representative identified below.

All reports will be published online at: www.GrowingMatters.org.

About Growing Matters

Growing Matters is a coalition of organizations and individuals committed to scientific discourse on the stewardship, benefits and alternatives of neonicotinoid insecticides in North America. [Bayer CropScience](#), [Syngenta](#) and [Valent U.S.A. Corporation](#) are leading this coalition with support from Mitsui Chemicals Agro, Inc.

Agriculture and horticulture are key to nourishing families and communities. Feeding a growing population, enhancing the beauty of our surroundings, and sustaining a commitment to environmental protection are fundamental needs that matter. Crop protection products, both natural and synthetic, are important tools that protect plants from tough and invasive pests that can devastate crops and urban landscapes.

Go to www.GrowingMatters.org for the latest information, reports, videos and infographics on the benefits of neonicotinoid insecticides or to show your support.

Contact:

Ayanna Robinson

Senior Vice President, Porter Novelli

Direct: (404) 995-4546

Cell: (404) 358-7879

Email: ayanna.robinson@porternovelli.com