



**Altus™**

# Solutions

information sheet

## **MARKET CHALLENGES AROUND INSECT CONTROL SPUR NEW SOLUTION FOR OPTIMAL PEST MANAGEMENT IN GREENHOUSES**

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Changes in regulations and recent shifts by big box retailers have stripped growers of some of their most effective tools to prevent insect pressure on their crops. Meanwhile, pests like whiteflies and aphids continue to develop resistant populations that can withstand more than triple the amount of insect control products they could a decade ago. Coupled with consumer dialogue around bee health, professional greenhouse and nursery growers have a set of very difficult, but not insurmountable challenges. That in mind, we have seen a growing need for more innovative pest control solutions that manage the harmful insect pests, while also having low impact on beneficial arthropods, as well as certain pollinators like honey bees and bumble bees.

To help address some of those challenges, Bayer spent the past eight years developing flupyradifurone, a new active ingredient featured in Altus. In the following article, we will walk you through that development process and outline some of the key benefits that growers can glean from integrating Altus into their existing IPM programs.

### **Application Flexibility**

Our goals in developing Altus were twofold. First, to introduce an easy-to-use solution for the control of sucking pests, and second, to minimize key grower challenges regarding flexibility, efficacy and safety. The result was a series of benefits that contribute to application flexibility and an operation's bottom line:

- // Good compatibility with Integrated Pest Management programs
- // Rapid solubility and good mixability in the spray tank
- // Spray or drench applications to match the best control method with the target pest and crop
- // Labeled uses include greenhouse ornamentals, greenhouse vegetables (including tomato, cucumber pepper and lettuce), outdoor nursery and landscape ornamentals

### **Trial Data And Efficacy**

In the past three years, there were 73 studies conducted across lab, greenhouse and nursery trials to assess the efficacy of Altus. Data showed that Altus provides strong control of most sucking pests, such as whiteflies, aphids and leafhoppers, with excellent speed of action, quick feeding cessation and long residual (4-6 weeks).

Trial data also showed that Altus offers unique benefits against resistant populations. Flupyradifurone, the active ingredient in Altus, belongs to a unique class of chemistry called butenolides. Butenolides are chemically distinct from neonicotinoids, yet possess the same ability to permeate throughout the plant and provide lasting protection for extended periods of time. Unlike neonicotinoids, butenolides have a unique structure, a unique binding site and unique activity. As a result, Altus shows little or no cross-resistance in neonicotinoid-resistant strains of many sucking pest species.

Altus is also capable of both systemic and translaminar movement. As a foliar spray, it is efficacious on insects feeding on the underside of the leaf surface – even when applied only to the upper leaf surface. As a drench, it's taken up through the roots for rapid distribution within the entire plant to provide fast and lasting protection.

These properties make Altus a good solution for control of pests, such as whiteflies, which are notorious for developing neonicotinoid resistance. In poinsettia trials, we saw impressive rates of whitefly control that last weeks after application and have great residual when applied as a drench – even at lower rates.

## Safety

The selectivity of flupyradifurone was one of the primary reasons we introduced it to the ornamentals market. It offers excellent control of sucking pests and a favorable environmental profile, contributing to the designation of Altus as a Reduced Risk product by the EPA in the United States.

Bayer conducted extensive lab and field testing to assess the intrinsic toxicity of flupyradifurone, including more than 30 studies under worst-case scenario exposure for honey bees, bumble bees and non-target arthropod populations. Results indicate that Altus does not adversely affect honey bee colonies, hive vitality, honey bee health or overwintering when used according to label instructions. The chart to the right illustrates that Bayer researchers exposed honey bees to the maximum amount of active ingredient as established by the test parameters and still did not see any ill effects.

### Chronic Feeding Studies in Adult Honey Bees (lab)

Technical Product	NOEC $\geq$ 10,000 $\mu\text{g}$ a.i./L diet
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### Chronic Honey Bee Larvae Study (lab)

Technical Product	NOEC $\geq$ 10,000 $\mu\text{g}$ a.i./kg diet
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### Long-term Honey Bee Colony Feeding (field)

Technical Product	NOEC $\geq$ 10,000 $\mu\text{g}$ a.i./kg diet
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For more information on Altus insecticide, contact Bayer.

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