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## New Controls for Invasive Insects Lead to Increased Profits for the Nursery Industry

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### Who cares and why?

The accidental introduction of non-native insect pests has created a continuing threat to agricultural and forest systems around the world. In particular, the nursery industry has suffered from a number of new insect pest introductions that directly damage plants or affect nursery trade through quarantines. Examples of invasive species currently affecting the \$150 billion green industry in the United States include the granulate ambrosia beetle, imported fire ant, emerald ash borer and Japanese beetle. Many of these pests move readily in human commerce which requires costly quarantine treatments for nursery producers.

Japanese beetle, which has infested most of the eastern U.S., requires expensive treatments to cleanse nursery plants before they can be certified for interstate travel from Tennessee. The U.S. Domestic Japanese Beetle Harmonization Plan (DJHP) specifies which insecticide treatments need to be used to treat nursery stock for Japanese beetle. Current costs for approved products range from \$155 to \$784 per treated acre. New insecticide products require extensive testing before approval can be granted for use in the DJHP.

Dr. Jason Oliver and his program team at Tennessee State University are developing lower cost- control options for invasive pests, to benefit nursery growers.

### What has the project done so far?

Generic versions and alternative formulations of approved insecticides were evaluated for control of Japanese beetle larvae in field-grown nurseries. Treatments were analyzed statistically and results shared with the National Plant Board Japanese Beetle Regulatory Treatment Review Committee. The committee approved the three generic imidacloprid treatments for integration into the DJHP.

Research to examine improved methods to monitor other invasive insects, like emerald ash borer, and provide relief for nursery producers to control imported fire ants has also been conducted.



## Impact Statement

By lowering the cost of treating harmful insects, TSU's research increases profits for nursery producers and reduces the detrimental impact of pesticides on the environment. This research is responsible for an eight-fold reduction in insecticide rates for quarantine treatment of nursery stock against Japanese beetle, significantly reducing costs to growers. Additionally, new pre-harvest quarantine treatment methods for Japanese beetle larvae have saved growers an estimated \$200 to \$400 per treated acre. Other research impacts include:

- A new nursery stock immersion treatment against Japanese beetle and imported fire ant that provides longer control and extends grower certification periods in the U.S. Domestic Japanese Beetle Harmonization Plan.
- The development by TSU of the survey traps in use by USDA-APHIS in the Emerald Ash Borer (EAB) survey program; there are currently about 80,000 of these new traps deployed annually.
- Research at TSU has led to Tennessee's emergence as the only state in the country authorized by the U.S. Environmental Protection Agency (through a Section 24(c) supplemental label) to use alternative treatments in field-grown nurseries to meet imported fire-ant quarantine certification.

### Want to know more?

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