

PROJECT SUMMARY

Instructions:

The summary is limited to 250 words. The names and affiliated organizations of all Project Directors/Principal Investigators (PD/PI) should be listed in addition to the title of the project. The summary should be a self-contained, specific description of the activity to be undertaken and should focus on: overall project goal(s) and supporting objectives; plans to accomplish project goal(s); and relevance of the project to the goals of the program. The importance of a concise, informative Project Summary cannot be overemphasized.

Title: Ecology And Integrated Management Of Ambrosia Beetles In Eastern Us Orchard And Ornamental Tree Crops

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Our research and extension efforts have been designed to implement sustainable pest management practices for ambrosia beetles and their associated symbiotic and auxiliary fungi. Ambrosia beetles are destructive wood-boring insect pests of tree crops, including tree fruits (i.e., apples), tree nuts (i.e., pecan), and ornamental nursery trees (e.g., shade and flowering). Two exotic species are especially problematic in these three commodities, namely, the granulate ambrosia beetle *Xylosandrus crassiusculus* and black stem borer *Xylosandrus germanus*. These non-native ambrosia beetles are mainly established in the eastern U.S. The adults burrow deep into trees to create galleries for growing fungi that serves as their sole source of nutrition. Burrowing results in perforated stems, oozing sap, bark staining, branch dieback, and rapid tree death. Ambrosia beetles can render trees unmarketable, decrease integrity of surviving trees, and make trees vulnerable to infection. A multi-disciplinary team of experts has been assembled for this Coordinated Agricultural Project to predict the risk of infestations in orchard and nursery crop systems; develop novel tools to monitor tree health and ambrosia beetle activity; implement comprehensive management strategies of conventional, reduced risk, and biological control tactics; determine the economics damage and control; and transfer research-based information to stakeholders. We will conduct experiments in orchard and nursery settings and work closely with stakeholders to ensure needs are addressed. These efforts support goals of the SCRI program, including addressing emerging and invasive pests, using natural enemies, improving plant health, new monitoring technologies, and responding to food safety.

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