Mesh covers protect citrus trees from psyllids that transmit greening disease

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Credit: University of Florida

About four years ago, Fernando Alferez started to test if citrus trees grown inside a protective mesh cover could be kept safe from the potential deadly Asian citrus psyllid.

The psyllid, a bug the size of a pin, injects citrus tree leaves with a bacterium that can cause Huanglongbing, commonly known as citrus greening disease.

New research from Alferez shows that citrus trees grown under individual protective covers (IPCs) show no signs of the greening disease. Specifically, scientists found that psyllids cannot penetrate the bags (IPCs) under which the trees are growing because the diameter of their openings is smaller than the insects.

"Our research has confirmed that the IPCs are effective in keeping the trees free from HLB at least until they start producing fruit," said Alferez, an assistant professor of horticultural sciences at the Southwest Florida Research and Education Center. "This is important because until now, once the trees were planted, they were exposed to the psyllid, which carries the disease. So, they became infected with greening in a matter of months."

His research also shows you don't need to use as much in the way of chemicals to control the psyllid.

Some farmers already use the IPCs. They're seeing that trees are ready to produce fruit—typically two years after planting—and they are healthy, Alferez said. So, the trees can produce better quality and quantity of citrus.

Each mesh cover costs between $6 and $8, Alferez said. The price for farmers to cover their groves depends on how many IPCs you buy and also from which company. For a 10-acre grove, the cost for growers will depend on planting density. If you plant 200 trees per acre, that equals about $16,000.

"Meany growers are using them," Alferez said. "Just as an example, if you travel north from Immokalee to Lake Alfred along U.S. 27, you will see a lot of them in the citrus groves around Arcadia, Lake Placid and beyond."

Meanwhile, Alferez and his colleagues are keeping an eye on other pests because the environment inside the bags can be favorable for things like mealybugs and armyworms. Also, in his continued research into IPCs, Alferez is assessing the quality of the fruit, but initial data show a significant improvement in Brix—the percentage of sucrose by weight in each citrus fruit—and no fruit drop in these trees.

More information: Susmita Gaire et al, Individual protective covers (IPCs) to prevent Asian citrus psyllid and Candidatus Liberibacter asiaticus from establishing in newly planted citrus trees, *Crop Protection* (2021). DOI: 10.1016/j.cropro.2021.105862

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