Mechanical harvesting machines, and especially canopy shakers, are always in close contact with the citrus tree canopy and fruit. Like hand harvesting, they can potentially carry diseases from an infected tree to a healthy one. With rising outbreaks of citrus canker now plaguing Florida’s citrus, growers must take full responsibility and be in compliance with all rules when decontaminating mechanical harvesters.

Mechanical harvesting machines can promote canker in two ways: by carrying the infected leaf and plant materials from one tree to another, and by injuring the tree, which could potentially make the tree more susceptible to infection.

**Recommended Practices**

Currently, decontamination is recommended between each block and required when departing or entering a grove. The decontamination process requires removing plant debris from machines and the undercarriage using an air compressor and washing the machines with antibacterial solution. A complete list of alternative methods and approved chemicals for canker decontamination of equipment is provided by the Florida Department of Agriculture and Consumer Services at [www.doacs.state.fl.us/pi/canker/pdf/decontamination.pdf](http://www.doacs.state.fl.us/pi/canker/pdf/decontamination.pdf).

A combination of applying chlorine or commercial hypochlorite products followed by a cleaning with a pressure washer and detergent is the most commonly used practice.

In general, the decontamination process is a time-consuming and costly process and can take the operators anywhere from one hour to five hours to complete depending on the number of cleaning crew members and if they are cleaning support equipment.

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equipment or not. Any process that expedites the process will save growers time and money.

The first step to expedite the process is to reduce plant material collection, especially in areas that are hard to reach and clean properly. Most mechanical harvesting machines have many areas that tend to collect leaves, fruit, and branches. It is important to identify those locations and cover them if possible. Hanging wires and hydraulic hoses also tend to collect plant materials. Gathering them together and covering them could also reduce collection of plant material. Our study showed that it is possible to reduce plant material collection between 50% to 80% just by covering certain areas on the machine and gathering and covering the hydraulic hoses and wires.

Pieces of fruit, leaves, and branches can be sources of canker. It is important to remove them before moving from one block to another.

Proper Planning

Good harvesting planning could also reduce machine downtime due to decontamination. For example, harvesters should not be operated in separate groves on the same day. Also, a canker distribution map and risk management techniques can be used to plan and optimize the decontamination process within large groves.

There is a high risk of spreading citrus canker when diseased citrus plant material and neighboring vegetation are wet. It is important to make sure all equipment is completely dry before harvesting a new grove or to avoid harvesting when the plant canopy is extremely wet and the chance of spreading canker is high.

There is always a risk of spreading canker during harvesting — whether hand harvesting or mechanical harvesting. Decontamination is required in both cases. The advantage of a decontamination process for mechanical harvesting compared to hand harvesting is that the manager has more control over the decontamination process. It is also easier to verify whether decontamination has been conducted or not. In addition, it is possible to use stronger decontamination chemicals for machines, thereby reducing the risk of any bacteria surviving.

Currently, decontamination is not necessary for citrus greening disease because based on what we know this disease cannot be spread.

Dr. Reza Ehsani is an assistant professor of agricultural and biological engineering at the University of Florida’s Institute of Food and Agricultural Sciences’ Citrus Research and Education Center in Lake Alfred.

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