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California

Shorter, ‘ladderless’ peach, nectarine orchards taking off

By **TIM HEARDEN**
Capital Press

PARLIER, Calif. — As labor shortages intensify, growers in California are switching to shorter peach and nectarine trees to eliminate the need for ladders.

University of California scientists have developed “semi-dwarfing” rootstocks in various densities to create “ladderless” orchards, enabling laborers to save time by picking from the ground instead of having to move and position ladders during harvest.

Growers have planted about 1,000 acres of the new rootstocks in the past three years, said Kevin Day, a UC Cooperative Extension farm adviser in Tulare County.



Tim Hearden/Capital Press

University of California Cooperative Extension pomology adviser Kevin Day stands in a “ladderless” peach orchard at the UC’s Kearney Agricultural Research and Extension Center in Parlier, Calif. He said growers have planted about 1,000 acres of the labor-saving orchards in the last three years.

“They’re being planted by small growers and large growers,” Day said. “They just really like this concept.”

Day worked with UC-Davis plant physiology professor

Ted DeJong in developing the rootstocks, using a four-acre plot at the Kearney Agricultural Research and Extension Center in Parlier. Their mission was to test whether shorter peach and nectarine trees could reduce labor and insurance costs without sacrificing fruit quality and yield.

Day said he’s seen labor cost savings of between 35 and 40 percent in tests of semi-dwarfing rootstocks so far. Moreover, the use of ladders in conventional orchards is why peach and nectarine growers pay about 40 percent more for workers’ compensation insurance than growers who work with shorter crops such as grapes, the UC has explained.

“Also, what people don’t realize is it takes skill to position a ladder,” Day said, noting a worker needs to be able to pick as much fruit as possible from one spot.

“From a sociological perspective, as labor becomes more scarce, we’re seeing more and more women in crews, and ladders are heavy,” he said. “Women can pick just as fast as men, but moving the ladder takes its toll.”

Conventional peach and nectarine trees grow to about 13 feet tall, requiring the ladders to harvest the fruit. Laborers spend about half their time setting up, climbing and moving the ladders.

Developed by breeders at UC-Davis, the new rootstocks produce trees that grow to 7 or 8 feet tall.

The trial at Kearney is part of a larger experiment on best

practices for the fruit trees. The researchers have been comparing yields from a conventional orchard with those of shorter trees that have been minimally pruned, made use of pressure chambers to determine water needs and been treated with compost and nitrogen sprays to minimize nutrient leaching into groundwater.

The scientists found the shorter trees to be more productive, as their fruit quality overall is equivalent to that of the top half of larger trees, while lower fruit in conventional trees tends to be light-starved and of poorer quality, Day said.

Day expects more of the shorter trees to be put in as growers change out their orchards. “Change takes time,” he said.

HLB infections in commercial Calif. citrus inevitable, researcher says

By **TIM HEARDEN**
Capital Press

PARLIER, Calif. — A citrus pest researcher believes huanglongbing infections in California’s commercial citrus orchards are inevitable, and she believes they’ll force significant changes in the industry in the next decade.

Entomology specialist Beth Grafton-Cardwell, director of the University of California’s Lindcove Research and Extension Center in Exeter, says she anticipates “lots of citrus removal” in coming years as trees start dying.

“I think this is going to radically affect where and how we grow citrus,” Grafton-Cardwell said, adding the disease may cause a shift away from navels and toward more resistant Mandarin orange trees.

Growers may have to accept shorter lifespans of trees, too, she said. While the average navel tree can live 80 years, growers in China expect their trees to live an average of 15 years, she said.

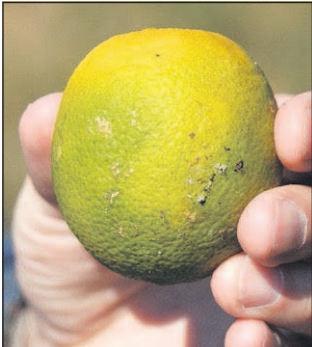
“This disease is hard to control,” she said. “Once it gets going, it’s going to change the landscape in California.”

Grafton-Cardwell said part of her job is to help growers determine how best to



Tim Hearden/Capital Press

University of California citrus entomologist Beth Grafton-Cardwell works in a lab at the UC’s Kearney Agricultural Research and Extension Center in Parlier, Calif. She said it is inevitable that huanglongbing will find its way into commercial citrus trees in California.



Citrus Pest & Disease Prevention Program

Huanglongbing, also known as citrus greening, makes the fruit unusable.

a 75 percent decline in Florida’s \$9 billion citrus industry and has led to full or partial psyllid quarantines in 15 states and territories, including California.

The disease has yet to be found in any of California’s commercial groves, but it has killed 54 residential citrus trees in Southern California, prompting the state to first impose and then strengthen a quarantine that now covers about one-third of California.

“Everything we can do to slow that spread will buy time for the researchers,” Grafton-Cardwell said. “We’re hoping that Florida comes up with a cure because they have the disease and they’re studying it.”

The problem is that sam-

pling methods “are not as efficient as they could be,” so infections could occur in trees long before they’re detected, she said. In the meantime, the psyllid is “very effective” at moving the disease, she said.

“HLB has a long latent period,” said Ali Pourreza, a UC Cooperative Extension agricultural engineering adviser. “Symptoms may show up in a month, or it could be a year. For good management, we need to detect it early. An infected tree is the source of bacteria that can infect an entire orchard.”

Researchers are looking for ways to detect the disease in trees before symptoms appear, including by training dogs to identify infected trees by differences in

respond to the Asian citrus psyllid, which can carry huanglongbing, also known as citrus greening.

First discovered in the United States in 2005, huanglongbing has devastated the citrus industry in Florida, Georgia, Louisiana, South Carolina and Texas, causing an average loss of 7,513 jobs per year and costing growers nearly \$3 billion in revenue, the University of Florida estimates.

Huanglongbing has caused

odor, Grafton-Cardwell said.

Pourreza is working on a sensor that could detect huanglongbing early. He said he envisions a tool that would be inexpensive for growers — perhaps even a smart phone application.

The USDA has spent more than \$400 million since 2009 to address huanglongbing. California’s citrus industry has devoted \$15 million toward HLB research and education, including \$8 million from the grower-funded California Citrus Research Foundation to construct a biosecurity Level 3 lab near UC-Riverside that should be operational this fall.

Among the many research efforts, the USDA’s Animal and Plant Health Inspection

Service is taking comments through May 10 as it prepares an environmental impact statement on planned field trials of a genetically engineered virus that could make trees resistant to huanglongbing.

Grafton-Cardwell urges growers to be proactive in using best practices to prevent the spread of the psyllid, and she tries to remain optimistic. She notes that citrus crops in the San Joaquin Valley may have a better chance of survival than on the coast, because huanglongbing is sensitive to extreme heat and cold.

But she knows the industry is going to change, she said.

“It makes me sad every day when I drive into Lindcove and see how beautiful the trees are,” she said.



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