

Ladderless peach and nectarine orchards explored

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Eliminating ladders for stone-fruit farmers could cut labor costs by 50 percent or more and improve worker safety. Credit: Gregory Urquiaga/UC Davis photo

Can shorter peach and nectarine trees reduce labor costs without sacrificing fruit quality and yield?

The answer may be developing soon at a 4-acre test orchard south of Fresno, where University of California researchers are planting semi-dwarfing rootstocks as part of a large, integrated experiment on virtually every aspect of [peach](#) and nectarine production.

"We're designing 'ladderless' orchards, which have the potential to cut

labor costs by 50 percent or more and improve worker safety," said UC Cooperative Extension specialist Ted DeJong, a plant physiology professor at UC Davis. DeJong and Kevin Day, a Cooperative Extension farm advisor in Tulare County, are leading the unprecedented experiment.

Conventional peach and nectarine trees grow about 13 feet tall. Setting up, climbing and moving ladders to prune the trees and harvest fruit consumes about half the workday. Ladders are dangerous, too, which is why peach and nectarine growers pay about 40 percent more for workers' compensation insurance than growers who work with more low-lying commodities, like grapes.

Developed by breeders at UC Davis, the new rootstocks will produce trees that grow about 7 or 8 feet tall and can be pruned and harvested from the ground. With the right orchard management—which Day and DeJong will test at their plots at the UC Kearney Agricultural Research and Extension Center, near Fresno—the shorter trees could produce just as much high-quality fruit as their lofty kin.

"Ladderless orchards would be huge for our industry," said Bill Chandler, who grows several varieties of peaches and nectarines on his 250-acre Chandler Farms in Selma, California. "There are so many costs associated with ladders that many growers are switching over to almonds just to stay in business. It costs me \$1,400 an acre to thin our trees."

Rod Milton, a fourth-generation stone-fruit grower, said he would welcome a ladderless system for the peaches and nectarines he grows in Reedley, California.

"Even with conventional rootstocks, I prune my trees so workers can take two fewer steps on the ladder come harvest time," he said. "And the savings are huge, even with that. It's important to keep farm work safe."

And it's important to keep farming viable, or else we'll be getting all our produce from overseas."

Shorter trees are just one of the elements of DeJong's and Day's experiment, which explores best practices for keeping peach and nectarine production economically and environmentally sustainable. Funded by the UC division of Agriculture and Natural Resources, their model orchard will integrate virtually every UC pomology advancement in the past 30 years.

The team will plant conventional, tall trees in one plot and cultivate them using standard irrigation, fertilization and pruning practices. On three other plots, they will grow shorter [trees](#) with new, "best-management" practices such as minimal pruning, using pressure chambers to measure a tree's water needs, and applying compost and nitrogen sprays to minimize nutrient leaching and groundwater contamination. They will compare fruit size and yields, canopy light interception, water and nitrate leaching, and more. Graduate students will have opportunities to get hands-on experience as the next generation of stone-fruit experts.

"We're excited to take our experiments to the next level, to provide growers what they need to make good management decisions," Day said.

Growers are excited, too.

"If it wasn't for people like Ted DeJong and Kevin Day, I'm not sure there'd be any of us peach and nectarine growers left," Chandler said. "They work so hard to make farming efficient."

The team will begin planting in spring 2015 and should have preliminary data by 2016.

Provided by UC Davis

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