

Innovations



Automated lettuce thinning saves time, reduces costs

By PADMA NAGAPPAN
For the Capital Press

Monterey County in California could be called lettuce central, since it supplies about 60 percent of the leaf lettuce and half of all the head lettuce grown in the U.S.

During planting, germination of the seedlings can be a problem, so growers routinely over seed, and later take out unwanted ones, so the lettuce plants are spaced evenly about 10 to 12 inches apart. This process of removal is called thinning.

In the Salinas Valley with in Monterey County, many lettuce growers have been using automated thinners for lettuce, because of the labor shortage and rising labor costs. Mounted on tractors, it's an increasingly common sight on fields in Salinas.

When manufacturers first began marketing the automated thinners a few years ago, growers wanted to see if it was worth investing in buying or renting them. Researchers from California State University-Fresno and others collaborated to compare their performance with hand thinning, and found it made a significant impact.

They found manual thinning took about 7.5 hours, while the automated thinner did the job in about two hours.

"When we did this, if two plants were very close



Courtesy Photo

Many growers are using automated thinners for lettuce because of a labor shortage and rising labor costs. Mounted on tractors, it's an increasingly common sight on fields in Salinas, Calif.

together, the machine recognized them as one and left them in the bed, but the person thinning by hand would know better," explained Anil Shrestha, head of the Department of Viticulture and Enology and a professor of weed science at CSU-Fresno.

"So in such cases, the grower has to send someone in to remove the doubles by hand, which takes up more time," he added. "Machines do reduce time, but the technology is not there yet in terms of recognition."

However, the machines have come a long way compared to early models, and currently manufacturers are working on making them recognize weeds and plants, he said.

Automated thinners, in addition to removing extras, also provide some weed con-

trol. They can be operated by one person, who can program in the spacing parameters. Based on this, the system will calculate distance between plants, remove unwanted plants by spraying a registered product, and then move on, selecting keeper plants as it goes down the line.

A couple weeks after the first thinning, a repeat manual process removes weeds and doubles left behind in the first round. Time savings delivered by the automated thinners can help growers who can delegate employees to other areas such as irrigation and harvesting.

"If you were to visit the Salinas area, where all the innovation is happening, you'll see a lot of different brands of machineries, with different models," Shrestha said.



Mitch Lies/For the Capital Press

Members of the Dry Farming Collaborative gather in Corvallis, Ore., last summer for one of several field days hosted by the collaborative each year. At center is Dick Wadsworth, a Veneta, Ore., farmer who has been dry farming for decades.

Interest in dry farming grows

By MITCH LIES
For the Capital Press

In 2013, recognizing that many of the small farms she worked with had little or no access to irrigation, Oregon State University Small Farms Extension Agent Amy Garrett began the Oregon Dry Farming Project.

Two summers later, the project got a boost from Mother Nature — in the form of a drought.

"That year, even many of the growers who had water rights had their irrigation restricted by the Oregon Water Resources Department during the growing season, including some as early as June," Garrett said.

A dry-farming demonstration that year drew well, Garrett said, and the project was off and running.

Today the project has evolved into a collaborative that among other topics is researching site and varietal suitability to dry farming on 30 sites across Oregon and Washington.

Begun in 2016, the Dry Farming Collaborative is fund-

ed in part by grants from the USDA's Risk Management Agency and the USDA Northwest Climate Hub, one of 10 climate hubs in the U.S. designed to help farmers adapt to climate change.

Understanding whether soils are conducive to dry farming is key to determining whether a farm can sustain the technique, Garrett said. Andy Gallagher, a soil scientist from Corvallis hired by the collaborative to research soil adaptability, said deep, silty soils appear most conducive to the practice, with loam soils also showing promise.

As for varietal adaptability, researchers are looking at different varieties of tomatoes, winter squash, zucchini, melons, dry beans and flour corn. Among the tomatoes, the Early Girl variety, which is dry farmed extensively in California, is yielding well and showing good quality under dry farming. And while yields are down in Winter Sweet and North Georgia Candy Roaster squash, storage quality is up when they are dry farmed, according to Alexandra Stone, a vegetable specialist in the

Department of Horticulture at OSU, who is involved in the collaborative.

Dick Wadsworth, who has been dry farming for decades, first in California and more recently on his farm in Veneta, Ore., said the collaborative's research is invaluable.

"There are a lot of places you obviously have to irrigate," Wadsworth said. "But there also are a lot of places you don't, and for people to learn that, especially if they have row crops and they want to farm organically, is invaluable."

"This research is definitely needed," said Allen Dong, a farmer from Elmira, Ore., who also is part of the collaborative. "There is very little information on the effect of dry farming on variety."





The collaborative also provides a vehicle for farmers and researchers to share as it gathers growers and researchers several times a year at dry farming field days. The collaborative also has a robust online presence, Garrett said.

"With all of the work that we are doing now, we are going to be demystifying dry farming, so to speak," Garrett said.

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