



RESEARCHERS DIG DEEP into Dry Farming

By Kym Pokorny | Photos by Lynn Ketchum

In 2015, Amy Garrett planted tomatoes, squash, beans and melons at Oregon State University in a plot that looked like any other. There was a big difference, though: None of the plants received irrigation. Surprisingly, the crops thrived and the resulting vegetables and fruit tasted better.

Garrett, an assistant professor of practice with the OSU Extension Service's Small Farms Program, is conducting research into dryland farming, an ages-old but little-used method of farming without supplemental irrigation.

The dry-farmed plants don't go thirsty, Garrett explains. Crops typically go in the ground in early to mid-May when there is

still plenty of moisture at the soil surface to get plants established. Dry farmers also often pre-soak seeds and compress the soil surrounding seeds and transplants to start capillary action, lifting soil moisture to the surface to germinate seeds and encourage roots. As the season wears on, roots stretch deep — tomatoes can put roots down 5 feet to harvest the receding water.

The idea caught fire with small farmers up and down the Willamette Valley. Since our first story in winter 2017, more than 200 people have joined the Dry Farming Collaborative, the Facebook page is flourishing and more than 30 farms are hosting trials. The Collaborative was

started by Garrett to exchange information, experiences and seeds. If crops can grow without irrigation, the thinking goes, farmers can avoid the problems that come with increasingly waning water resources in light of reduced snowmelt, rising temperatures and periodic drought brought on by climate change.

As a result of experimentation and grower interest, Garrett is engaged with several research projects involving the Collaborative, as well as OSU's Alex Stone, associate professor in the Department of Horticulture, and post-doctoral student Lucas Nebert. In partnership with the Collaborative, the trio is documenting soils



Left: A trial plot at OSU's Oak Creek Center for Urban Horticulture shows that some crops perform well with no supplemental irrigation.

Above: Amy Garrett, an assistant professor of practice with the OSU Extension Service's Small Farms Program, is conducting research into the ages-old practice of dry farming.

Top right: Cantaloupes, one of the crops grown with dry farmed practices, turns out to be as sweet or sweeter as those grown with irrigation.

Right: When deprived of irrigation, tomatoes can send roots down to up to 5 feet in search of water when planted in appropriate soils.

Far right: Dry farming is not appropriate for all sites. Deep soils rich in organic matter with some clay content have more water-holding capacity.



conducive to dry farming and determining whether fungal inoculants can enhance drought tolerance.

This year, Garrett, Stone, student workers and more than 30 farm partners are using soil moisture sensors to determine which sites work best. Not all do, she notes. Deep soils rich in organic matter with some clay content have more water-holding capacity. Shallow, sandy or rocky soils are not ideal. A diversity of soil types are being assessed that will help farmers make decisions on how to select a site.

One of the main goals is to demystify dry farming and make it more widely known as an alternative to irrigated crop

production in some areas, Garrett says. Some ways to do that are by developing resources and decision-making tools and growing the Small Farms Dry Farming Project website as a hub for learning and exchanging information.

As they continue research, the OSU group and Collaborative farmers select the worthiest seeds from their ongoing trials to find the best varieties for dry-farmed situations.

"It's a dynamic, lifelong learning journey," Garrett says. "There's no cookie-cutter approach. You're out there observing, adapting and making yourself available when things need to happen. You go out in

the morning and say, 'OK, today's the day to prep the soil' rather than scheduling it for next Wednesday. We're experimenting and not afraid to fail. We're slowly building on our successes."

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