

Raptor Creek Farm

Grants Pass, OR

Western Water Resilience Case Study



Raptor Creek Farm (RCF) is a five-acre vegetable farm operated by Kristin Meier and Jeff Meier with the Josephine County Food Bank in Southern Oregon. All produce is donated to the 20,000 people served by the Josephine County Food Bank. RCF’s mission is to feed, engage and educate the community on gardening and nutrition.

Exploring Water Resilience: What was tried and learned

This season, the farm team took a holistic and experimental approach to adapting to changing water access, sandy soils, and shifting climate conditions. They layered together soil health and water-saving practices: adding biochar, mulching with paper and straw, cutting back irrigation based on real-time soil moisture readings, and planting drought-tolerant crop varieties.

These changes helped to conserve water, strengthen crop resilience, and reduce pest and weed pressure. As the farmers made adjustments, they were surprised by how little water the plants needed and encouraged to see unexpected benefits like better flavor and healthier growth. Taken together, these small shifts created a practical, adaptable roadmap for building greater resilience in a challenging growing environment.

Understanding Context: Water, Climate, and Soil

Water access at Raptor Creek Farm has always been a balancing act. The farm shares a river pump with a neighboring alfalfa operation—an arrangement based on a handshake agreement. Over time, as neighboring ownership has changed, so has the setup. Most recently, new owners delayed installing the shared pump without warning, forcing the farm to pot up seedlings and wait an extra month before planting.

While Raptor Creek has a well, it is reserved for household and building use—not only because of water rights restrictions, but also because the water is heavy with minerals that would clog irrigation lines over time. Given the uncertainty of ongoing water sharing, the farm is planning to install holding tanks to bridge the gaps during early spring and fall, when the alfalfa farm’s irrigation needs taper off.

Farm at-a-glance

TYPE
Nonprofit food bank farm

AVERAGE ANNUAL PRECIPITATION
26.7 inches

SOIL TYPE
Barron sandy loam

Available water holding capacity: 4-5 inches

CROPS
Vegetables, herbs, fruit and perennials

FARM SIZE
Five acres in production, nine acres total

LAND TENURE
40 year lease with the City of Grants Pass

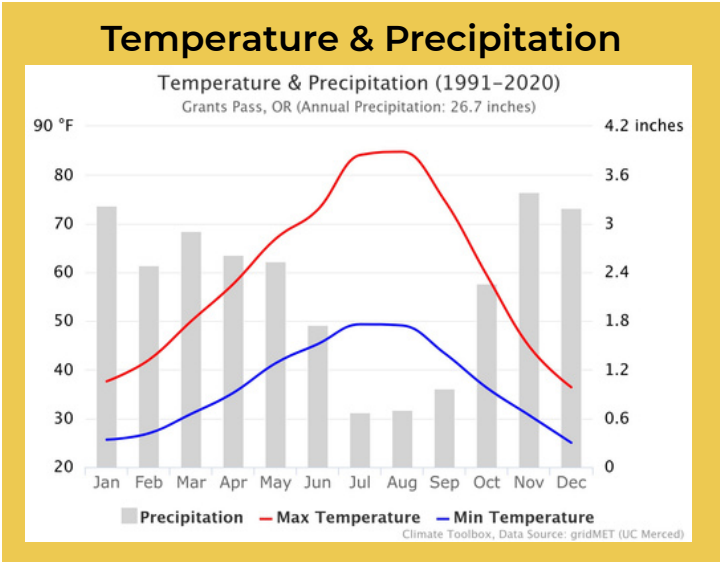
2024 WATER RESILIENCE EXPLORATIONS
Reduced irrigation
Biochar
Mulching
Soil moisture sensors
Crop trials



Most of the fields are irrigated with drip tape, but it's a challenge. Gophers and other critters chew through the lines, particularly later in the season, and repairs are constant—a tough job to hand off to volunteers.

The farm's soil is a sandy loam, with pockets of decomposed granite throughout. Its available water holding capacity, measured at 4–5 inches, is typical for sandy loam but still limited compared to heavier soils like clay, which can store significantly more moisture.

The 5-foot soil core testing through this project revealed even more about their land, especially in the south field, where they hadn't dug deep before.



They found a full one-foot layer of decomposed granite fill sitting on top of the native soil, explaining why annual crops always struggled there. It confirmed that transitioning the south field into a perennial garden—where plants can tough it out—was the right call.

The soil cores also gave them something harder to come by: a visual of the organic matter they've spent years building with cover crops and compost.

"Sometimes, if you can't see it, you don't believe it," they said—and seeing that progress firsthand was a big boost.

Soil Health Preparation & Practices

The farmers planted ten pounds of white clover cover crop in October of 2023 and terminated it in March 2024 through mowing and occultation tarps.

This year's soil testing results led them to add boron as a soil amendment—not just in their demonstration plots, but across their growing areas. The adjustment paid off: crops were more resilient, and yields noticeably improved.

They also made a strong commitment to minimizing tillage. "If weeds were a problem, we flame-weeded instead," they explained. In their sandy soils, repeated tilling can quickly break down soil structure and health.

Biochar and mulching were also added this year as part of broader soil health and water resilience strategies (more on this in a later section).



Water Resilient Strategies Explored in 2024

A Layered Approach: Biochar, Mulching, and Data-informed Irrigation

This season, the farm team focused on layering practices that work together to conserve moisture and reduce irrigation needs. They incorporated biochar into the soil at planting to help with moisture retention, then laid down rolled paper mulch topped with a 3 - 4 inch layer of straw around the plantings.

The combination worked better than expected. In past seasons, paper mulch had been tricky to manage—creases and tears often made it fragile, and it needed a lot of "babysitting." But this year, it held together much better.

They credit both reduced irrigation (watering less often) and added straw for helping stabilize the paper mulch and keeping it intact.

The straw mulch also boosted weed suppression and moisture conservation, offering a plastic-free alternative the team appreciated.

For the first time, they used soil moisture sensors at 1-foot and 3-foot depths to better understand when to irrigate. What they found surprised them.

"I was totally astounded at how much water I could cut back."
-Farm Coordinator Jeff Meier

Using the sensors, they estimate they reduced watering by about 80% during the peak summer heat. Instead of watering every other day, they watered just once a week for about an hour.

Cutting back on water didn't just save time and resources—it improved overall farm health. They noticed fewer weeds, less gopher damage, and even fewer pest problems than in past seasons. One of their longest-tenured volunteers, who has worked on the farm

for more than a decade, summed it up simply by saying: *"this is the best the farm has ever looked"*.

In the past, they had relied on a touch test to decide when to irrigate—feeling the top few inches of soil, which often dries out quickly in their sandy, litter box-like soils. But this year's experiments showed that even when the surface felt dry, significant moisture was still available deeper down at the root zone, where it mattered most.

Mulching also turned out to be a great activity for volunteers—it provided an educational opportunity to talk about soil health and water conservation in action—and is easier on the body than other farm tasks. The farm team noted they would love to use even more mulch in the future if they could find a reliably organic, weed-free local source.

Crop trials: Building Resilience through Variety Selection

The farm team also experimented with different crop trials as a strategy for building resilience—focusing on drought-tolerant varieties that could thrive with less water and fewer inputs.

One highlight was a Syrian eggplant variety sourced from an arid, war-torn region; plants

known for their ability to survive in extreme conditions with minimal attention. The results were impressive: over 360 pounds of eggplant harvested, with plants that were hardy, pest-resistant, and easy to harvest thanks to fruit held off the ground.

"You just put it in the ground, and it takes care of itself."



They also trialed Sharlyn melons and Golden Pippin acorn squash with great success. The Sharlyn melon stood out for its rich flavor—something they hadn't been able to achieve in the past when irrigation levels were higher. Cutting back water, they confirmed, made a big difference in concentrating flavor.

"People went out of their way to tell us how delicious the melons were," one farmer said. "It really felt like a turning point in my farming career—finally growing a melon packed with flavor."

The Golden Pippin squash also proved highly productive. To put it in perspective: four 50-foot beds of butternut squash produced about the same amount of yield as only two 50-foot beds of Golden Pippin. While they're still gauging how much the community likes the squash, the storage life and high flesh-to-seed ratio made it a promising addition.

Another important discovery: reducing irrigation also seemed to help with pest pressure. Squash bugs, a regular challenge, were less of a problem in the drier trial areas. However, they still recommend using row cover for squash early in the season—at least until flowering—to protect young plants.

Key Findings

- 80% reduction in irrigation during peak summer heat
- Fewer weeds and less pest pressure across the fields
- Less gopher damage
- Paper mulch held up better with reduced watering and straw cover
- Volunteers noted "[it's] the best the farm has ever looked" in over a decade

Crop Trials in Brief

Syrian Eggplant

- 361 pounds harvested
- Pest-resistant, hardy, minimal care needed
- Will continue growing in future seasons

Sharlyn Melon

- Outstanding flavor with reduced irrigation
- Water cutbacks helped concentrate sweetness
- Big positive feedback from community

Golden Pippin Acorn Squash

- Highly productive: Two beds matched four beds of butternut yield
- Stores well, high flesh-to-seed ratio
- Still gauging community preference

Pest Management Takeaways

- Less squash bug pressure in drought-tolerant plots
- Recommend using row cover until squash plants flower

Beyond the technical lessons of water crop resilience, participating in this project helped strengthen a sense of connection for Raptor Creek's farmers:

"Farming can be isolating. It was nice to feel supported—to know there are people you can reach out to when you need help."

Looking forward

Building on the successes of this season, the farm team plans to continue strengthening their water resilience strategies. They're committed to keeping tillage to a minimum, focusing on practices that protect and build soil health over time.

They also plan to expand the use of soil moisture sensors across more crops, helping fine-tune irrigation decisions and conserve even more water.

On the crop side, they're excited to keep growing some of the standout performers from this year—like the drought-tolerant Syrian eggplant, the flavorful Sharlyn melon, and the highly productive Golden Pippin acorn squash.

By layering soil health practices, smarter water management, and resilient crop choices, the farm is charting a path toward a stronger, more sustainable future.

For More Information:

[Learn more about Raptor Creek Farm](#)

[Dry Farming Institute Case Studies](#)

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