Confederated Tribes of Siletz Indians (CTSI) Health Clinic

Tel-tvm' (Siletz Tribal Farm)

Logsden, OR

Western Water Resilience Case Study

As of 2024, Tel-tvm' is in its third year as a program led by the CTSI Siletz Community Health Clinic, working to transform a 38-acre property into a diversified, organically managed farm. This program aims to support the health and well-being of Siletz Tribal members by offering access to fresh, organic produce, outdoor recreation, and culturally meaningful gathering opportunities in a safe and welcoming environment.

Exploring Water Resilience: What was tried and learned

At Tel-tvm', water resilience isn't about any one practice, it's about finding the patterns that work in their place and refining them over time. Building on earlier soil assessments and dry-farming variety trials in 2025 the crew expanded efforts to adapt to their coastal climate with crop trials and continued to refine a minimal tillage system to conserve both water and labor. They also used soil moisture sensors to guide irrigation and were surprised to learn that about 80% percent of the time they were overwatering, far more often than expected. These strategies—rooted in observation, experimentation, and practical adjustments—helped the farm team take meaningful steps toward a more resilient, site-adapted farming system.

Understanding Context: Water, Climate, and Soil

Tel-tvm' is located on the terrace of the Siletz River (approximately 40 to 50 feet above the river) and gets about 71 inches of precipitation a year. During the rainy season parts of the site experience pooling and sheet flow, which can lead to erosion if areas are left bare.

The farm does not have a water right, but since they aren't selling their produce they're considered non-commercial and can use a domestic well to irrigate up to half an acre. To supplement irrigation they've invested heavily in rainwater catchment. Two connected systems now span the property.

Farm at-a-glance

TYPE
Food Sovereignty Farm

AVERAGE ANNUAL PRECIPITATION
71.5 inches

SOIL TYPE
Quillamook silt loam & Tillamook silt loam

Available water holding capacity: 10 inches on average (8.7 to 12.6 inches)

CROPS
Vegetables, herbs, flowers, berries, fruit, seed crops, first foods, native plants, and cultural materials

FARM SIZE
Five acres in production

LAND TENURE
Siletz Health Clinic owns the land

2024 WATER RESILIENCE EXPLORATIONS
Variety selection
Seed saving
Data-driven irrigation decisions
Reduced tillage strategies

Eleven tanks collect water from the barn roofs, eight more are positioned around the site, one tank draws from a shallow well, and a deeper 100-foot well (producing about seven gallons per minute) can be used to refill tanks when needed. Together, these systems provide over 100,000 gallons of storage.

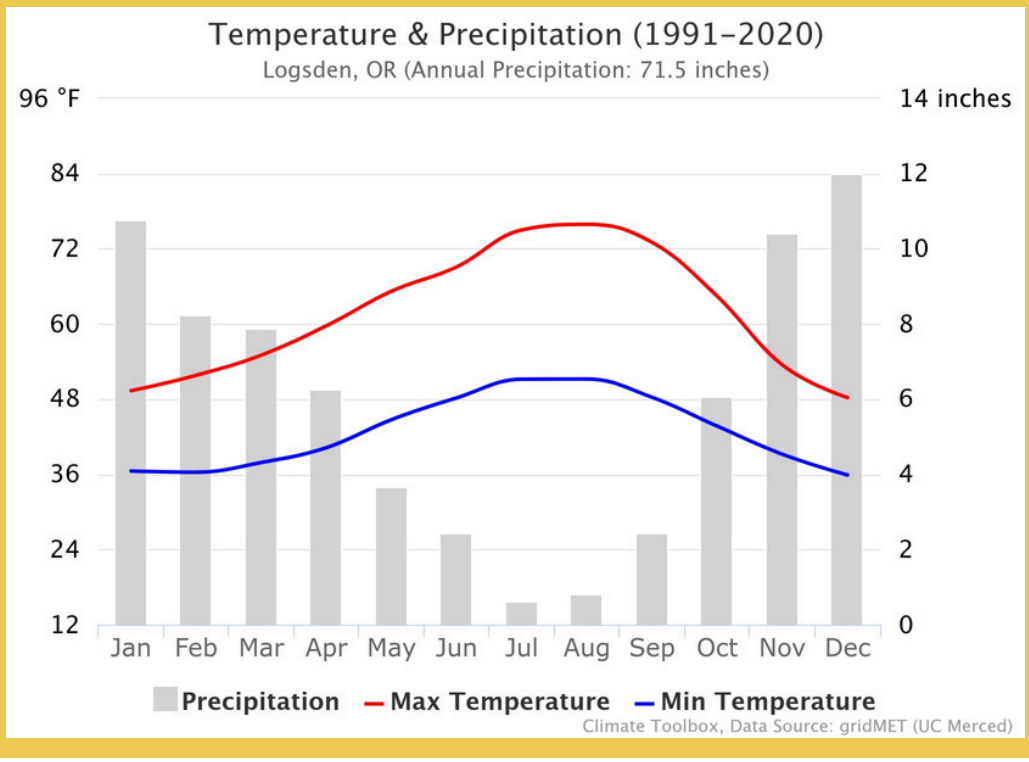
Photo: Katrina Hudson

It's a remarkable setup—but one that would be hard to replicate on a commercial farm. As the crew pointed out, this kind of system was only possible because the farm is part of a Tribal health clinic, where the investment is framed around long-term community health rather than short-term crop sales.

Even with all that catchment it's still not enough to irrigate the whole farm, so they take a holistic approach. As the food sovereignty program manager put it:

> "You have to think of the soil itself as your water-holding vessel more than anything. All your planning—field layout, crop selection, cultivation methods, timing—it all has to work together to make the most of that storage."

Temperature & Precipitation



Looking at the climograph, you'll see that only about 10 inches of rainfall from June through September, when average highs stay in the mid-60s to mid-70s. These cooler summer temps and a short growing season make season extension techniques—like using row cover in June—essential for crops like tomatoes and squash to mature and fruit successfully.

A 2022 soil assessment showed a mix of Quillamook and Tillamook silt loams, which are moderately to well-drained and have very high to moderately high water-holding capacity - over 10 inches in the top five feet.

But what the crew observed on the land, and what they knew from its history, didn't fully line up with the soil map. The property saw decades of cattle grazing and heavy tractor use for haying under the previous owners, and now the crew is finding compacted areas—especially where water pools across the surface during the rainy season. To address compaction, they use broad forks before planting to break up the soil and help both water and roots move deeper.

Soil tests showed very high organic matter: 27% at the surface and 14–15% in the subsoil, which means there's a solid foundation of nutrients to work with. But not everything was in balance. Key minerals like calcium, magnesium, copper, and boron came back low, so those minerals need to be added regularly.

The soil is also very acidic, with pH levels between 4.2 and 5, which usually calls for lime. Since sulfur levels were also low, gypsum was the better amendment option; it helps raise the pH while also adding sulfur. To give plants a good start, many of these nutrients are now being mixed right into the seed-starting media.

Soil Health Practices & Preparation

A cover crop mix including winter rye, hairy vetch, tap master brand daikon, oats, and crimson clover was sown in October 2023 at a rate of 58 pounds per the 10,800 square feet allocated for this demonstration. See the 'Reduced Tillage Strategies' section to learn how minimal tillage was used to terminate or manage the cover crop.

Water Resilient Strategies Explored in 2024

At Tel-tvm', a blend of dry farming techniques and tools including soil health practices, soil moisture monitoring, wider plant spacing, variety selection, and deeper watering were applied in relationship with seasonal patterns and crop stages. Tools like moisture sensors at 1-foot and 3-foot depths helped monitor soil moisture and reduce unnecessary irrigation. Reduced tillage practices, including the use of a power harrow, minimized water loss and preserved soil structure. By observing plant and soil responses throughout the season and growing in sync with natural patterns, the farm developed site-specific strategies to reduce water use while maintaining productivity.

Variety Selection & Seed Saving

Over the past few years the Siletz farm crew trialed a wide range of dry-farmed crops to see what grows best in their coastal climate. In year one they planted 10 to 15 tomato varieties, and have since narrowed it down to a few top performers. They've taken a similar approach with winter squash, testing different types, selecting, and saving seed from those that thrive to adapt them to the site over time.

For this year's demo, Tel-tvm' focused on crops well-suited to dry farming in cool coastal conditions; tomatoes (Siletz, Santiam Sunrise, and Pink Beefsteak), squash (Dark Star, Yellow Crookneck, Zeppelin Delicata, Lower Salmon River), and melons (cantaloupe and Early Moonbeam watermelon) along with corn, beans, calendula, marigold, and sunflower. Varieties were chosen to avoid cross-pollination, making on-farm seed saving possible.

Key findings

Many of the crops they expected to do well—like tomatoes and winter squash—did perform well, confirming the teams' instincts. Through seed saving, they're steadily building a resilient, locally adapted crop base suited to their climate and soils.

Photo: Katrina Hudson

Data-Driven Irrigation Decisions

To better time irrigation, the crew installed soil moisture sensors at five locations (at one-foot and three-foot depths). These sensors helped avoid overwatering by showing when the soil still held sufficient moisture.

The team transplanted in early June, watering to establish crops using drip tape. From June to August, irrigation was limited to four hours once or twice a week, based on sensor data. By September, as rain returned and crops began ripening, irrigation was shut off entirely.

Site Comparison

The sensors also revealed differences in how moisture moved across the field. Squash on the high ground dried out fastest, while cucumbers on lower ground held moisture longer. These insights are helping guide future planting and irrigation strategies.

Key Findings

As the farm manager said, "80% of the time, I was wrong about when we needed to irrigate." The sensors helped them build confidence in watering less and made irrigation more intentional—sometimes even giving the crew a well-earned day off. For future use, a slide hammer probe would make it easier to install the sensors where they're most needed.

Photo: Katrina Hudson

Reduced Tillage Strategies

Tel-tvm' uses a minimal tillage system to protect soil structure and conserve moisture. They don't remove old plant material and limit tillage to the 30" planting beds. A broadfork is used to gently loosen soil, followed by a BCS flail mower and power harrow. Beds are lightly tilled (2–4") to create tilth, while pathways are only mowed, keeping foot traffic off growing areas.

Later in the summer, a shallow harrow pass through the aisles knocks back regrowth and leaves mulch to help retain moisture.

Key Findings

This system maintained clean, moisture-holding beds with minimal compaction. Investing in a second BCS tractor will improve efficiency by eliminating downtime from switching implements.

Looking forward

Tel-tvm' continues to refine its systems by identifying patterns that work and reducing inefficiencies. A second tractor supports their minimal tillage approach, and soil sensors help dial in irrigation. Seed saving remains a key part of their long-term strategy—blending practical decision-making with a tradition that strengthens resilience over time.

For More Information:

Learn more about Tel-tvm'

Dry Farming Institute Case Studies

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