



PIE RANCH

Stewardship Profiles in California Agriculture
Environmental Leadership with Soil Health and Water Efficiency

Nancy Vail and Jered Lawson both grew up in urban environments and met through the University of California Santa Cruz (UCSC) Farm and Alan Chadwick Garden. Through the UCSC Farm and Garden, they became interested in agriculture and the ways that it touches the social, environmental, economic and spiritual aspects of life. After they married they purchased a piece of land in San Mateo County, and in 2004 they established Pie Ranch, a certified organic diversified farm and educational nonprofit in Pescadero.

At any given time the farm is growing between thirty and forty different specialty crops along with grains integrated with pasture-raised livestock and chickens. The ranch provides educational programming centered around pie ingredients; the staple crops include strawberries, apples, rhubarb, caneberries, and winter squash. Pie Ranch consists of three parcels of land that are known as upper slice, lower slice and land leased from Año Nuevo State Park..

PROBLEM

Pie Ranch suffered from the presence of symphyllans which ate the roots of transplants and sprouting seeds. Symphyllans are soil arthropods that thrive in cool soils that are high in organic matter such as those on the Central Coast.

Additionally, the soil on Pie Ranch is a clay loam that presented pH challenges. On one section of the farm, the topsoil had been scraped away and needed to be built up. Water has also been a concern because the salinity of the well water for the upper and lower slice made it unsuitable for crops.

SOLUTION IMPLEMENTATION AND MANAGEMENT

Nancy and Jered's crop rotation plan consists of alternating four years of row crops with one year of annuals and clover for the cows, sheep and chickens. Over time they observed that symphyllan were most common in the fields where they had incorporated the pasture manure. They learned that potatoes contain an exudate that will fend off symphyllans and establishing a crop of potatoes after incorporating the manure and before planting other crops offered a solution.

Another technique that worked was to regularly irrigate the crop so that the plant roots grew more quickly than they could be damaged. Applying an organic rosemary lavender fumigant also reduced the presence of symphyllans.

ACHIEVEMENTS

- Increased soil organic matter
- 50% water savings
- Established an affirmative conservation easement



To restore topsoil where it was lost, Nancy and Jered plant a stand of winter cover crops every year and a summer cover crop of buckwheat in the areas where they don't need to plant crop. Hedgerow installations along the road protect topsoil from further erosion by holding the soil in place.

Mitigating the salt that was contaminating the well water involved accessing water from Green Oaks creek and constructing a stream fed pond. This year the pond is full from heavy winter rains and they haven't needed to use well water. Later in the season when they run out of water in the pond, Nancy and Jered will use the combined water that has been moved to the storage tanks. The well pumps 20 gallons per minute and along with the pond water Pie Ranch can fill two 5,000 gallon water storage tanks for irrigating the upper and lower slice.

CHALLENGES/OBSTACLES OVERCOME

Crop loss from symphyllans was most acute when Nancy and Jered planted too soon after rotating an area from livestock to crop production. Transplants weren't able to survive because the symphyllans were affecting the soil microbiology and plant nutrient uptake. Nancy and Jered found that allowing more time for the manure to break down greatly reduced symphyllan populations, as did planting potatoes where the symphyllans were most concentrated. These solutions required Nancy and Jared to develop cropping plans and crop rotations far in advance. Once Nancy and Jared made these changes they noted improved germination and higher yields. The soil at Pie Ranch is tested once or twice a year so that any nutrient deficiencies or pH imbalances can be addressed. Some fields require more lime; others need more gypsum and sulfur or a have deficiencies in calcium and magnesium. Nancy and Jered have been able to resolve these issues and improve plant vigor by amending the soil with various rock powders.

Saline water was having a negative impact on the crops; the edges of leaves were burnt from salinization and there was a salty residue on top of the soil. Once Nancy and Jered began using pond water for irrigation, their leafy greens became much healthier.

MEASURING SUCCESS

Cover cropping and manure from the animals has increased soil organic matter. Nancy and Jered achieved 50 percent water savings from dry farming their tomatoes, potatoes, and grains and switching from overhead to drip irrigation.

For more information about the stewardship practices discussed in this profile, please contact the farmer directly. You can reach Nancy Vail by phone at (650) 879-0995.

STEWARDSHIP PRACTICES



Soil Health



Water Efficiency



PROJECT PARTNERS

- Environmental Quality Incentives Program (EQIP)
- Equity Trust
- Peninsula Open Space Trust (POST)
- San Mateo Natural Resource Conservation District
- Natural Resources Conservation Service (NRCS)
- UC Cooperative Extension Service

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