Unconventional Conversion

Western SARE

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USDA United States Department of Agriculture
National Institute of Food and Agriculture

Situation

Citrus and avocado production has dominated the agricultural landscape of Ventura County for more than a century – monocultures that have reduced soil quality, in turn reducing fruit quality. This, coupled with rising pressures from imports and declining water resources, has prompted many small growers to fold, replaced by nurseries, row crops, and development as land values increase.

On Zack Griffin's 5.75-acre navel orange orchard, operated for 50 years under a conventional approach, overgrown tree foliage touched between rows and hung on the ground. Snails climbed trees in pursuit of fruit, and sharpshooters fell like rain from the canopy above. Modern irrigation had been installed, but soil was compacted, eroded, and barren.

Farmer/Rancher Grant

Title: Unconventional Conversion: Cultivating Sustainability in Citrus and Avocado Orchards

Project Number: FW03-009

Principal Investigator
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SARE Grant: $7,500

Griffin's farm conversion has improved the productivity of his orange crop and allowed him to plant new crops like the heirloom avocadoes, at left.

Griffin believed that a new approach to farming – diversifying crops, incorporating livestock, and embracing a whole-farm approach – could renew and sustain his farm's productivity.

Objectives

- Restore the soil and a viable habitat for all types of beneficial organisms
- Diversify production and markets
- Set up sustainable systems, methods, and infrastructure throughout the orchard

Actions

Griffin harnessed his Western SARE grant to take these steps:

- Apply compost and other materials laden with carbon and beneficial bacteria
- Interplant leguminous trees to feed nitrogen and other organic matter
- Plant deep-rooted deciduous varieties within the field to buffer the microclimate, add organic matter, and provide habitat

- Plant a border of sheltering conifers, cypress, palm, and other species to further protect the field from wind, frost, and heat
- Plant cover crops, including clovers, vetch, alyssum, beans, and herbs to improve soil quality and reduce erosion
- Using light ripping, incorporate wood chips from arborists into soil as mulch
- Rotate ducks, geese, and turkeys in nine separate pastures to mow plants and reduce snails and other pests

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Results

Technical advisor Pierre Constans, a permaculture consultant, observed these results:

- Applying compost and planting cover crops have improved and regenerated soil quality and checked erosion
- Changes implemented have upgraded the productivity and quality of the farm's navel oranges
- The operation has become more diversified with plantings of other citrus (lemons and mandarins), avocadoes, figs, apples, and stone fruits, which spreads out the harvest and improves market options
- The incorporation of geese, ducks, and turkeys has provided organic matter, curtailed snails, slugs, checked ground vegetation, and created a niche market for the birds

Incorporating turkeys, chickens, geese, and ducks has provided organic matter, curtailed snails and slugs, checked ground vegetation, and created a niche market for the birds.

Impacts and Benefits

Over six years, the farm has been converted from a money-losing industrial navel orange orchard to a solvent, permaculture-style farm harvesting nearly 100,000 pounds of oranges a year, with hundreds of other fruit trees now coming on line.

Griffin reports:

- Improved overall field health
- Increased production quality and income
- Drastically lower costs
- Less need for water in improved areas
- Regenerated life within the soil
- Less maintenance required

Many people have inquired about the farm's techniques, and there appears to be a trend toward conservation and ecological improvements at nearby farms.

"At first," says Griffin, "other producers thought our birds were novel, and that attempting to compost and mulch my entire field was ridiculous. Now, they are amazed by the weed control by the birds and impressed by our composting with free, high quality materials."

Griffin planted and marketed a broad mix of vegetables that were grown between the farms' trees.

Western SARE
Sustainable Agriculture Research & Education

SARE's mission is to advance—to the whole of American agriculture—innovations that improve profitability, stewardship, and quality of life by investing in groundbreaking research and education.

The Western Region, one of four SARE regions nationwide, is administered through Utah State University.

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