



# Case Study: Climate-Friendly Farming

## Live Earth Farm



You would be hard pressed to find a better model of biodiversity and climate resilience than Live Earth Farm. On 150 vibrant acres in the foothills of the Santa Cruz Mountains, farmer Tom Broz grows a variety of organic fruits and vegetables and also maintains considerable wildlife habitat.

Tom founded Live Earth Farm in 1995 on 20 acres, and from the beginning he integrated orchard and field crops into the native habitat. When he acquired more land from an adjacent farm, his first priority was to stabilize neglected areas that had been impacted by conventional apple production. In 2009, he began a partnership with the Wild Farm Alliance (WFA) and the Community Alliance with Family Farmers (CAFF) to re-establish wildlife corridors, create hedgerows, restore habitat on marginal farm sites, and conserve natural landscapes. Among the many benefits of planting trees, shrubs and other types of woody vegetation on cropland, it can increase soil carbon sequestration and enhance the resilience of the farm system against the impacts of climate change.<sup>1,2</sup>

Walking through Live Earth, one is struck by the colorful array of row crops in the fields and the various perennials blanketing the orchard floors. Perhaps the most striking pieces of this richly diverse landscape are the hedgerows, native grass pastures, wildlife and riparian corridors, and the significant acreage left in its wild state. "It's a good balance between farm pieces and where we want to protect and conserve," Tom says.

Tom's approach to farming involves conservation practices that protect the long-term productivity of the land. Composting, mulching, drip irrigation, rotating crops, and planting cover crops are a few of the techniques used to build soil carbon and conserve water while increasing crop yield.

### Diversifying for Climate Resilience

Insufficient winter chill hours and earlier arrival of some pests, such as mildew and cucumber beetles, are a few of the impacts of climate change Tom has noticed on the farm. The effects of reduced winter chill—required by many fruit and nut trees for optimal fruit development—have been most noticeable in the apple orchards. "Some trees are completely bare, some have full range of maturity—flowers, small fruit, large fruit—rather than developing consistently," Tom observes. Tom credits biodiversity for keeping his apple crop afloat. "We have twelve varieties, so some are still doing well," he added.

Reduced winter chill is just one of many climate events that will challenge California growers in years to come. Diversification of both crops and native habitat can increase resilience against an unpredictable future. Farms with a variety of crops and habitat plantings will be better equipped for new pests and uncertain climate events like drought and extreme heat.

**"Biodiversity is  
key to resilience.  
It pays off in  
extreme climate  
events."  
- Tom Broz**



Tom Broz  
Owner, Live Earth Farm

# Climate Benefits of Hedgerows

Hedgerows are groups of trees, shrubs, perennial forbs, and grasses that are planted along the edges of cultivated fields or on other non-cropped areas. They offer a number of important climate benefits:

- Reduced soil erosion that can come with more intense storms
- Improve soil water-holding capacity for increased drought resilience, decreased water demand and decreased greenhouse gas (GHG) emissions associated with pumping
- Windbreaks to protect farm fields from extreme weather events
- Habitat for pollinators and beneficial insects, important as insect populations shift with climate change
- Carbon storage in woody biomass and deep root systems
- Replace invasive weeds and thus reduce herbicide use and GHG emissions associated with herbicide production and application



Hedgerow bordering an orchard at Live Earth Farm

For more information, check out *Hedgerows for California Agriculture: A Resource Guide*, produced by Sam Earnshaw and the Community Alliance with Family Farmers. Available here: [http://caff.org/wp-content/uploads/2010/07/Hedgerow\\_manual.pdf](http://caff.org/wp-content/uploads/2010/07/Hedgerow_manual.pdf)

Tom is also seeing pest control benefits of conservation plantings. “Since planting the hedgerows, we have seen a decline in aphids,” Tom mentioned, “and so we use dramatically less insecticidal spray.” As the climate continues to change, new insect pests will present challenges to farmers. The presence of habitat for beneficial insects and pollinators is expected to help farms adapt to shifting pest populations.

Establishing conservation plantings requires knowledge, labor and new expenses, creating financial and practical barriers to the widespread adoption of these practices. There are opportunities for California to incentivize on-farm biodiversification with cap-and-trade revenue. (See more at: <http://calclimateag.org/cap-and-trade>). Tom is in support:

**“Climate-friendly practices need an economic incentive.”**  
- Tom Broz

## The Business of Biodiversity

Since 1996, Live Earth Farm’s year-round Community Supported Agriculture (CSA) Program has driven Tom’s approach to biodiversity on the farm. To meet CSA members’ demand for seasonal produce, over 50 different crops are grown at Live Earth. Biodiversity is integral to Tom’s business model for many reasons: it provides his customers with a varied menu of produce and an inspiring farm to visit, it serves as a buffer against crop failure caused by extreme weather, pests and other climate change-related uncertainties, and it has the added benefit of storing carbon in perennial plants.

While carbon sequestration is not a main driver of Tom’s management practices, it could become an economic incentive as California considers investing in farming practices that mitigate climate change. Until then, growers can consider how biodiversity serves as insurance—in the case that the impacts of climate change challenge certain crops, others will still thrive.

<sup>1</sup> Schoeneberger, M. 2009. Agroforestry: Working trees for sequestering carbon on agricultural lands. *Agroforestry Systems* 75, 27-37.

<sup>2</sup> Smukler, S., et al. 2010. Biodiversity and multiple ecosystem functions in an organic farmscape. *Agriculture, Ecosystems and Environment* 139, 80-97.

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The California Climate and Agriculture Network (CalCAN) is a coalition of California’s leading sustainable agriculture organizations advocating for policy solutions on climate change and agriculture. We cultivate farmer leadership to face the challenges of climate change and to serve as California’s sustainable agriculture voice on climate change policy.