

# Windbreak Planting

Toluma Farms, Tomales, CA



## Meet Tamara Hicks & David Jablons and Toluma Farms

Tamara Hicks and David Jablons operate Toluma Farms and Tomales Farmstead Creamery, an organic goat and sheep dairy in West Marin. After purchasing the property in Tomales, they set out to restore the degraded land, which was no longer profitable for agriculture. Part of the regeneration of the property included planting windbreaks in order to reduce wind speeds, create a microclimate for plant growth, and offer protection for livestock. To learn more about Toluma Farms and their stewardship of the land, visit [tolumafarms.org](http://tolumafarms.org).

## Farm at a Glance

COUNTY: Marin

FARM SIZE: 160 acres

PRODUCTS: Organic goat and sheep dairy products, hay, livestock

SOILS: Coastal Loamy Claypan

## Goals for the farm

- Operate the farm as a sustainable, educational, profitable model with a focus on land stewardship
- Improve soil health - reduce erosion, increase soil cover, increase organic matter and species diversity
- Maximize photosynthesis and build soil carbon through increasing plant growth
- Reduce the need to import off-farm feed and inputs
- Enhance the carrying capacity of the ranch
- Improve grazing management to increase plant health and vigor
- Diversify farm enterprises



# Why Windbreaks?

## Multiple Benefits

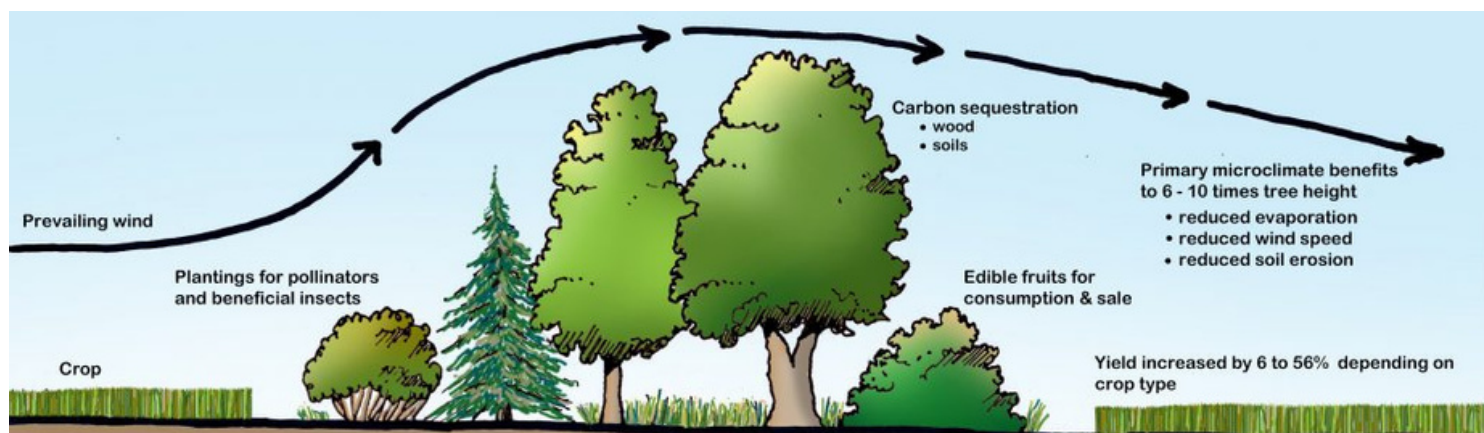
Windbreaks are a form of agroforestry, the practice of integrating trees and woody shrubs into crop and animal production systems. Windbreaks are generally planted perpendicular to prevailing winds and provide many benefits for farmers and ranchers including reducing wind speeds, creating microclimates to support plant growth, protecting livestock, improving water infiltration (especially on hillsides), reducing soil erosion, and providing wildlife and pollinator habitat. These plantings also store substantial quantities of carbon in their woody biomass and may contribute to increased soil carbon stocks, thereby helping to mitigate atmospheric GHGs.

Along with other forms of agroforestry, windbreaks can help agricultural producers adapt to changing climate conditions by providing microclimates that reduce impacts of extreme weather events and livestock stress. Windbreaks and other diverse plantings have the added benefit of supporting a diversity of organisms such as native pollinators or

beneficial insects that prey on pests. In some cases, windbreaks are designed to provide additional sources of farm products and income. Tamara was motivated to install windbreaks to mitigate the frequent strong winds at the farm and the desire to restore soils, produce better forage, and increase biodiversity. It took time to plan for the windbreak and Tamara worked with partners for almost 2 years leading up to installation. She shares that having assistance from local organizations was critical.

"For us, technical assistance has been more valuable and more important than financial assistance."

Windbreaks can be established in a variety of ways to achieve different outcomes. While they often occur as a single row of tall trees, plantings may also be designed as multiple complimentary rows, with diverse species of different sizes (tall, medium, and short) and ecological purposes, including edible plants for consumption or timber for sale. Adding additional rows may cause encroachment on adjacent fields or pastures, but can be compensated through these other benefits.



Above: Illustration of windbreak function and associated benefits. Source: USDA National Agroforestry Center.

## Lessons Learned

To their surprise, one of the biggest obstacles for Toluma Farms was sourcing plants for the windbreak. Tamara's biggest piece of advice for others who are planting windbreaks is, "Don't wait until the last minute to source plants!"

- Without a wholesale license, options for buying plants in bulk are limited.
- It was challenging to find plants locally and they ultimately sourced from Monterey.



# Challenges & Opportunities

## Establishment

Toluma Farms planted two windbreaks around the same time and found that tree establishment at one of the sites was more successful than the other. The site that performed better had a few older trees that provided shelter for the young establishing trees. The site under the old trees also retained more moisture thanks to morning dew that collected under the trees and the young plants needed less irrigation water for establishment. Toluma has also seen better establishment success when young trees are planted in groupings rather than as individuals. Where previously established windrows aren't present, another option is to plant slow-growing trees alongside faster growing shrubs (and then cutting back later), to protect from elements during the early establishment period. Regardless of planting strategy, some periodic maintenance will be required over time until fully established.

Overall, 465 plants were installed in the project area. Plants were caged to protect from browsing animals and in some cases, wool was applied as mulch around the base of the plants to offer additional protection from elements and to reduce competition from other plants during establishment.

## Selecting Plants

Toluma Farms planted a mix of species in order to provide wildlife habitat and forage for pollinators, in addition to other benefits described above. The windbreak has 3 rows of plantings, which are a mix of tall and medium sized native plants - Coyote brush, Monterrey pine, Toyon, California coffeeberry, Wax myrtle, Coast silk tassel, and Ceonothus.

## Funding

Tamara applied for and received funding for the windbreak through the California Department of Food and Agriculture's Healthy Soils Program. In 2017, they were awarded a 3-year grant from CDFG to design, procure plants and supplies, and install the windbreak. If you are interested in planting a windbreak, contact your local Resource Conservation District to inquire about other funding opportunities.

## Getting Started

When Tamara and David started Toluma Farms, they reached out to local organizations and agencies who could provide support for the restoration of the ranch. Over the years, they have worked with:

- [Marin Agricultural Land Trust](#)
- [Marin Carbon Project](#)
- [Marin Resource Conservation District](#)
- [Point Blue Conservation Science](#) (STRAW program)
- [UC Cooperative Extension Marin](#)
- [USDA Natural Resources Conservation Service \(NRCS\)](#).

