Windbreaks with Added Value

Western SARE Program

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Situation

Most of the land on the Commonwealth of the Northern Mariana Islands is broken into small, privately owned parcels. This, coupled with frequent and devastating typhoons, makes it difficult for landowners to produce an income. Planting a windbreak could protect crops, but the space required for the windbreak would take scarce land out of production.

A solution could be a windbreak that offers both protection from tropical storms and an agricultural commodity that produces an income.

Objectives

Establish a dense multi-row windbreak/shelter belt that will protect fragile crops from prevailing and seasonal winds and, at the same time, produce a marketable crop.

Technical advisor Scott Crockett of NRCS and Ephram Taimanao.

Actions

Two types of trees were planted with seedlings acquired from a local nursery.

- Da'ok (*Calophyllum inophyllum*), a native typhoon-resistant tree that produces an oil-rich nut used in aromatherapy, was planted as the primary row
- Various citrus trees, the fruit from which could be sold at local restaurants and grocery stores, were planted on the inside rows, staggered to create a closed wall of leaves at maturity

The planting scheme was adapted to fit local conditions:

- Trees were planted in three or four rows, depending on topography
- The low-fertility soils were supplemented with a 16-16-16 fertilizer
- Da'ok performs well on shallow soils, as found at field edges, so they were planted as the primary row

Salt spray can damage crops.

Farmer/Rancher Grant

Project Number: FW01-091

Project Title: Luta Windbreak/Agroforestry

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Western Region
Sustainable Agriculture Research and Education

Western SARE, a USDA organization, funds grants for research and education that develop or promote some aspect of agricultural sustainability, which embraces

- *profitable farms and ranches*
- *a healthy environment*
- *strong families and communities.*

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

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- Soil depth increases further into the field, so fruit trees were planted there between rows of existing banana plants
- As fruit trees matured among the sheltering banana plants, the bananas were to be phased out, leaving only healthy citrus

The project suffered two major weather-related setbacks:

- Typhoon Chata'an on July 7, 2002, toppled both windbreak trees and banana plants and caused salt damage to both
- On Sept. 8, 2002, Super Typhoon Pongsona devastated seedlings that had survived Chata'an

Results

The disastrous typhoons allowed the project team to assess which varieties survived better than others and might be good candidates for future plantings.

Da'ok, in the foreground, were planted after the typhoons. At right, NRCS conservationist Crockett checks a fruit three that survived the typhoons.

Meanwhile, the results of the project will take several years to assess. Because of optimism over the potential benefits of commercially productive windbreaks, the project was continued beyond the original SARE funding date to provide for replanting and evaluation.

Potential Benefits

If the windbreaks of commercially valuable trees are successfully established, they can offer a variety of benefits:

- The windbreaks can virtually eliminate damage from prevailing winds to fragile crops like bananas, papayas, taro and okra.
- Wind-borne diseases and moisture loss to evaporation and evapotranspiration can be greatly reduced
- The trees will improve the aesthetics of the