



#### Western SARE Program

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#### Guam

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## CROP SHELTERS IN THE STORM

### Situation

The rainy period on Guam runs from July through December, limiting production of water-sensitive crops, including cucurbits (cucumbers, watermelon and cantaloupe), solanaceous crops (hot pepper, tomato and eggplant) and legumes (beans).

### Objectives

Develop a way for Guam farmers to grow and market crops sensitive to heavy rain and moisture during the rainy season using a greenhouse water barrier.

### Actions

Four participants agreed to build and test greenhouses using materials available locally from hardware stores and other vendors.

- One built a greenhouse from a canopy supply house, making for easy setup with prefabricated fasteners.
- Three built greenhouses from industrial metals, like rebar and steel piping, to withstand storms.
- All used tarps, 20 feet by 100 feet, supplied by the Guam Department of Agriculture.



Ernie Wusstig's water barrier structure at Island View Farm.

Storms blew tarps off all four structures, but the frames withstood the high winds. All the crops planted before the storm were lost in the storm. But they had grown 7-12 inches taller than plantings of similar ages and varieties in open fields.

Cooperators Ernie Wusstig and Rick Guerrero were able

to obtain additional tarps, and delayed planting until the storm cycle passed, Guerrero in August, Wusstig in September.

#### Producer + Professional Grant

**Project Number:** FW04-302

**Project Title:** Greenhouse Water Barrier

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**Producer Advisor:**

Ernie Wusstig  
Island View Farm

**SARE Grant:** \$10,871



Grower cooperator Rick Guerrero.



*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.*

**Western SARE:**  
<http://wsare.usu.edu>

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[www.sare.org](http://www.sare.org)

## Results

With the greenhouse framework surviving, the two producers who obtained new tarps grew out their crops and tapped into the market at a time when short supply and high demand increased market price. Guerrero has been able to supply the market with out-of-season cherry tomatoes, and Wusstig is able to supply tomatoes.

## Potential Benefits

Despite weather setbacks, the project showed that greenhouse water barriers can help improve crop production:

- The growing season can be extended, opening market opportunities during the rainy season.
- Covered tomatoes grown during the rainy season can fetch as much as \$2-3 a pound, compared with 50 cents during the dry season.
- Crops grow and reach maturity more rapidly under the protective canopy.
- Water damage is reduced, improving crop quality.



Greenhouse frames tested used industrial materials like rebar and steel piping.



David Wusstig, Ernie's grandson, checks crops at Island View Farm.

- The system reduces pest populations, reducing pesticide and labor costs. Wusstig saved \$100 in pesticide costs and \$500 in labor costs for applications, weeding and fertilization. Guerrero saved \$100 in pesticide costs and \$200 in labor costs.
- The protective cover reduced wind damage, resulting in higher production of fruits and flowers.

More than 65 people visited a demonstration of the system at the Guam Department of Agriculture, and two producers made plans to test it growing peppers, cabbages, melons and cucumbers.