Rat Control in Pineapples on Rota

Lino Mendiola (Rota: Farmer/Rancher Grant)

Project Number: FW03-017

Title: Rat Control in Pineapples on Rota

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The finished electric fence stands about 14 inches high and cost less than $500 to build

Technical Advisor: Mark Bonin
Former NMC-CSREES Tropical Horticulturist
and Western SARE CNMI Coordinator

SARE Grant: $5,569

Situation

In the Commonwealth of the Northern Mariana Islands, three species of urban rats damage nearly every crop grown in the country. High-value crops like melons, sweet corn and pineapples are particularly vulnerable to rats. Lino Mendiola of Rota found that local rats had developed a taste for his expanding pineapple crops

Standard rodent poisons are available at most agricultural retail outlets, but farmers find them expensive and ineffective as residential rats continue to enter farming areas. What's more, coconut crab, a land-based scavenger and historically and culturally important food species, eats poisoned rats and dies.

In addition to damage from rats, crops grown on exposed hillsides, including Mendiola's, suffer from wind and salt spray.

Aluminum building studs were bent flat along the ground under the electric tape

Objectives:

•Establish a method for using an electric fence to control the rats that cause damage to pineapples

•Plant a double row of trees as a windbreak, da'ok (Callophyllum inophyllum) and Gliricidia sepium (powerful Typhoon Chaba in August 2004 interrupted the windbreak project)

The fence was charged with a flexible solar panel

Actions

Mendiola built an electric rat-protection fence using materials readily available for purchase on the Internet. Scott Crockett, district conservationist with the Natural Resources Conservation Service, designed the fence:

•The electrified tape was 1.5-inch nylon/wire typically used for horse fences.

•Aluminum building studs were bent flat along the ground under the tape.

•The studs were staked with 24-inch rebar posts; PVC pipe was slipped over the posts as insulation.

•Zip ties held the tape to the posts.

•The electrified tape was spaced at about half an inch – close enough to keep a rat from crawling through, but far enough to prevent sparks from jumping the gap.

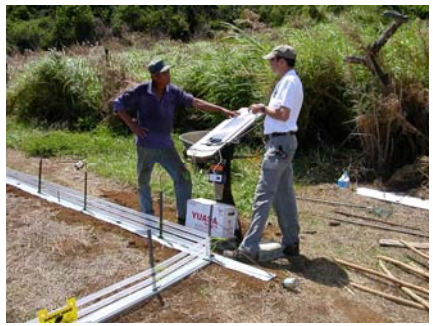
•The fence, 14-inches tall when finished, was electrified with a small cattle fence energizer powered by a car battery and charged by a flexible solar panel.

After the fence was up and running, poison bait was placed inside the fence to kill any remaining rats.

Results

The flattened metal studs created a contact pad and prevented weeds from growing up and touching the fence. Rats, which could jump the fence, won't jump where they cannot see, so they try to climb over. As soon as they touch the fence, they receive a 7,000-volt jolt. If that doesn't kill them, they won't try again. Clever rats could dig under the fence, but the poison bait inside gets them.

The project was a tremendous success. Mendiola went from never harvesting a ripe pineapple before the fence was built to zero rat damage after the fence. The entire set up cost under $500, not counting labor, which Mendiola did mostly himself.



Mendiola and Crockett discuss the fence

Potential Benefits

The technology is cheap, simple and effective and will work for any rat-prone crop, such as corn, melons, sweet potato and pineapple. The fence is light weight and can be rolled up in anticipation of a typhoon. Agricultural suppliers are not retailing the appropriate materials as a result of the lessons learned from the project.

From left, Lino Mendiola, Mark Bonin and Scott Crockett at the fence's power source