

## Spider Inspires New Livestock Fence Design

UNIVERSITY PARK — A revolutionary new electric fence from New Zealand may change the look of American farms in the future. Penn State researchers are testing the "spider fence"—the creation of Harry Wier, cattle rancher and inventor from New Zealand.

"When I started raising beef bulls, there wasn't anything on the market that was up to my expectations of what a fence should do," says Wier. "Bulls are aggressive animals, pretty punishing of any fence system."

Wier needed a fence that was tough enough to take physical abuse from livestock and provided easy access to the animals. It also had to be lasting and economical as well as look good. So he came up with the spider fence, which he is now marketing in the United States.

"The spider's web is one of nature's masterpieces of engineering—sparing in its use of energy and materials for the function it performs. The secret of the web is its resiliency," says Wier. "Spider electric fences mimic nature's elegance and economy by using the same principles of construction."

Spider fences are made of light, fine wire, about 1.6 millimeters in diameter. This wire is cheaper and easier to work than heavier wires, and it allows low wire tension. Lighter tension and a spring-operated tightening method improve wire strength, and less strain is placed on the other structures in the fence.

Flexibility is another asset of the spider fence. Says Wier, "To withstand the punishment of, say, a large cow knocking a post it must be one of two extremes—either

strong enough to stand up to the cow without breaking, or flexible enough to bend out of the cow's way. The beauty of the spider fence is that, since the wires are light and lightly strained, they don't need a rigid post to support them. Thus, it's possible to use posts that are quite thin, flexible and unbreakable."

Because of the flexible construction, the spider fence can be driven over with a specially adapted jeep or even with a motorbike if the driver wears rubber boots. A jeep with bars in the front to press the fence down and rails underneath to keep it from tangling in the undercarriage provides easy accessibility.

"Animals, once they're conditioned to electric fencing, can be contained very satisfactorily," says Wier. "You get superb control. If you train correctly, conditioning is very strong, like a mental brick wall."

The spider fence could mean significant cost savings for U.S. farmers—it costs only 20 percent of the price of conventional fences, Wier estimates. "I think it comes to about 15 cents a foot, and that includes materials and labor costs."

"It's also quick and easy to erect," he continues. "Many Pennsylvania farmers probably would like to put up their own fences, and the spider fence would make the job easier. In Australia recently, one fencer and his wife set a world record by erecting about two miles of spider fence in six hours and 47 minutes."

Fences like the spider are the most rapidly growing type of fence on the New Zealand market right now, Wier says. "Our farmers, like



Wier controls grazing of about 1,000 bulls using Spider Fence.

your own, are experiencing an economic crunch right now. Yet over the four-year period since we've begun marketing the spider fence, sales have doubled annually."

Researchers in Penn State's College of Agriculture are testing the spider fence at the College's agricultural research center in Rock Springs, Pa. They want to

determine what problems might be encountered with the fence as well as how it will hold up under Pennsylvania's weather conditions. "In this day and age, we can't ignore a development like the spider fence," says research agronomist Gerald Jung. "This type of fence could certainly help farmers be cost-competitive."



New Zealand cattleman Harry Wier demonstrates the use of "G" spring to open gate.

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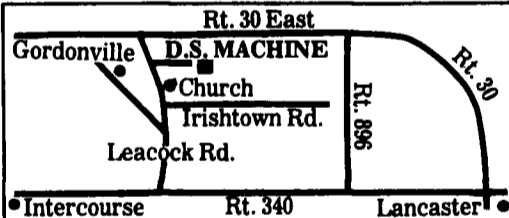
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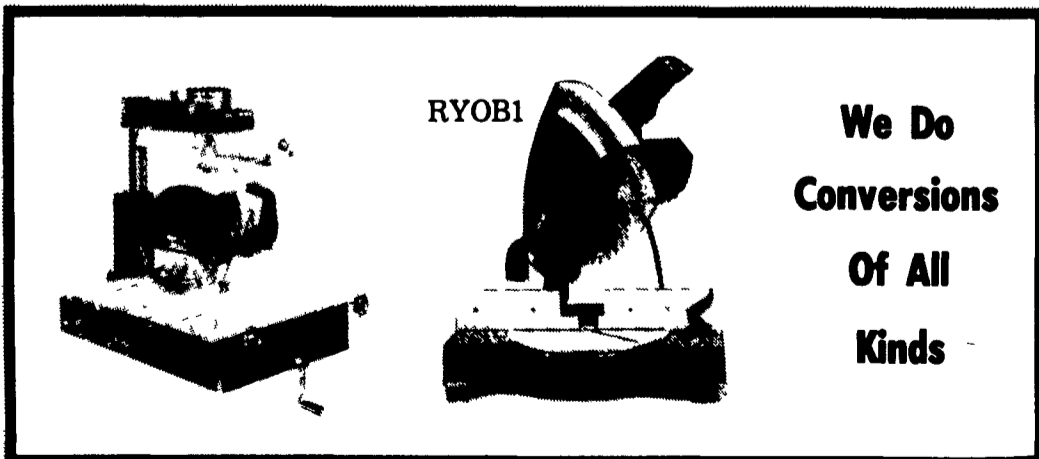
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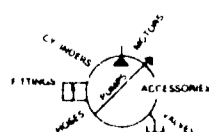
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