

## Microwave Weed Zapper

Microwave energy could be the best weapon to fight weeds in years to come if an Australian engineer's research work pans out.

Dr. Graham Brodie, an electrical engineer at the University of Melbourne, developed his microwave weed zapper as a solution to Australian grain farmers' problems with herbicide resistant weeds.

"Some weed species have developed multiple resistances to different chemical groups, which means that control of weed infestations has become very difficult," Brodie says.

He has 30 years experience with microwave energy, including a project to speed up drying green timber. "The microwave treatment creates tiny steam explosions through the weed plant that causes it to die," he explains.

His prototype is set up on a 5 by 8-ft. trailer with four 2kW microwave generators powered by portable generators. "Horn antennae drape over the back of the trailer and are designed to go between the rows of the crop," Brodie says. "It's also possible to do a blanket 'knock down' before sowing or crop emergence. Because the microwave

treatment destroys the cells in the weed, it basically kills the plant."

His weed-killing machine is still in early development stages. Brodie says his next step is to develop a shielding system so the operator won't be exposed to microwave energy, which can cause tissue heating and possible burning with long exposure.

More research is also necessary regarding how microwave energy affects the soil. So far, it appears to "pasteurize" the first couple inches of soil, without significant effect on fertility and nutrients. Soil bacteria were only affected temporarily.

In initial testing, application was slow (walking pace), but a more powerful 15-kW unit would speed up the process to be comparable to chemical spray application, with less than a second of exposure required to kill weeds.

The non-chemical method appeals to farmers, and there have been inquiries from manufacturers.

"I am hopeful that a more commercial prototype system may be available in the next 3 to 5 years," he says.



Microwave weed zapper uses four microwave generators powered by portable generators. The microwave treatment "explodes" cells in weeds, to kill them.

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## Pair Of Planters Speeds Up Planting

"It's embarrassingly simple," says Jeremy Bontrager of his 2-row walk-behind planter. For less than \$225, he combined two 1-row garden planters that greatly reduce the time to plant 3 acres of wildlife plots.

"I can plant an acre in about an hour and a half," he says.

Bontrager initially purchased one EarthWay® garden seeder. He liked it, but figured a 2-row planter would be twice as fast to plant sorghum and corn on his small Kendallville, Ind., farm.

He purchased a second garden seeder and removed the bolts in the axles of both seeders. He replaced the bolts with long all-thread rods that connected the seeders and secured them with jam nuts. The rod extends beyond the wheels so he can vary the planting width from 20 to 30 in.

"I married the two handles with a scrap of extruded aluminum bolted to the handles to

keep it even," he says.

A wooden platform between the planters holds a tub of seed so he can refill planters as needed. The extra weight is also helpful to operate the ground-driven seeders.

The planters need well-tilled soil to work well, he says, noting his twin unit is easier to use than the single seeder was. He points out that it would work great for people who plant large gardens. Each planter can be set up to plant different kinds of seeds.

"It took less than an hour to make the conversion, and it's a good universal planter," Bontrager says. "It's lightweight, so when you're done with it you can hang it from a rafter where it's out of the way."

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Jeremy Bontrager combined two 1-row garden planters to make this 2-row walk-behind planter. "It greatly reduces the time to seed my wildlife plots," he says.

## Decoys Keep Real Crows Away

When crows first pestered Johanna Trimble in her backyard, she had no idea it would lead to a business. But just a year after launching her Perfect Murder Decoys, the Maple Ridge, B.C., entrepreneur is busy making and selling her solution to others who are bothered by crows and magpies.

The weather-resistant decoys she sews are a humane alternative to an old solution — kill a crow and string it up to scare other crows away.

Trimble turned to her sewing and crafting skills when she learned that pest control companies didn't really want to deal with crows. With polyester stuffing, wire in the wings, and all-weather nylon fabric she came up with a realistic design that could be shaped and hung to appear to be a dead crow.

She hung her prototype on a trellis where crows like to roost and another belly up in her yard — and it worked.

"My neighbors even noticed the crows were gone," she recalls.

The crows left fairly quickly after a short "ceremony" common only to their species.

"They call out a warning call, which attracts other crows. They land and then have a moment of silence like a funeral," Trimble says. Then they fly off.

To keep the decoys effective, Trimble

moves them around every couple of weeks or more often to prevent the crows from getting acclimated to the decoy and start returning. She recommends using multiple decoys to protect larger areas or where the pest bird population is high.

"I noticed the number of songbirds seems to have increased. Now I hear all the little birds chirping," Trimble says.

Growers use her decoys to protect everything from small fruit and berries to vegetable crops, watermelon and nuts. Livestock farmers use them to protect small animals ranging from chickens to mink and the young of larger animals like sheep, calves and colts.

The response from property owners has been great, and Trimble notes she enjoys her backyard again and doesn't have to worry about raucous crows dive-bombing her anymore.

She sells her decoys for \$55 (plus shipping) through her website and at area stores. Her design is patented in Canada, the U.S., and Europe.

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Johanna Trimble sews together weather-resistant decoys that look like dead crows. They can be hung or laid belly up on the ground.



Growers use the decoys to protect everything from small fruit and berries to vegetable crops, watermelons and nuts.