



Eric Campbell gets rid of potato bugs by using a furnace fan - mounted on a 10 hp snowblower - to blow them into a screened wooden cage.



He guides the snowblower between two rows, with the screened cage located on the opposite side of the row just brushing the leaves.

By Bill Gergen, Senior Editor

Blaster Removes Potato Bugs With No Need For Chemicals

"My potato bug blower was made from a snowblower and an old furnace fan. It couldn't be simpler or more effective," says Eric Campbell, Shawville, Quebec.

He removed the auger from a 10 hp snowblower and bolted a common furnace fan on in its place. The 13-in. fan is held in place by a metal frame that's supported by a single caster wheel off a wheelbarrow. A screened wooden cage which rides on a small metal wheel, is suspended by a steel arm that extends over to the other side of the row of plants. The cage captures bugs as they're blown off plants by the fan. Once a metal trough at the bottom of the cage fills up with bugs, he disposes of them.

"I've worked on the idea for six years and have nothing but good things to say about it," says Campbell. "I think anyone who tries this idea will have potatoes they'll be proud of. I'm not using any poison and there's no toxic runoff. To me, it's the only way to grow potatoes."

He guides the blaster between two rows, with the screened cage located on the opposite side of the row just brushing the leaves.

The cage measures 22 in. sq. and 5 in. deep. It has two screens - a 1/2-in. sq. screen on the near side and a very fine mesh screen on the far side. Bugs get blown through the 1/2-

in. sq. screen and are caught on the mesh screen, dropping down into the metal trough at the bottom of the cage. A 2-in. high lip on the near side of the trough curls inward to trap them. "The combination of the curved lip and the air blasting over it keeps the bugs from climbing out," says Campbell.

The fan is belt-driven off a pulley mounted on the snowblower engine. Air is directed slightly upward from the fan by a 3-sided tin shroud bolted to one side. Fan height can be adjusted by pulling a pin in front of the frame.

The screened cage is attached to a length of 2-in. sq. tubing that slides onto the extension arm. By pulling a T-bar pin, the cage moves in or out from the row.

"I've spent a lot of time working on it but it was worth it," says Campbell. "I can remove 99 percent of the bugs with this machine. As the plants get taller, I tip the blower upward a little to blast air straight into the plants and through all the leaves. I end up with bugs 1 1/2 in. deep the full length of the cage. In average conditions I'll fill the box twice on my 1 1/2 acres of potatoes. To dispose of the bugs, I dump them into a container and then burn them.

"I use my potato bug blaster every other day for the first 10 days, until there are only

a few bugs left, and then use it every four or five days, and finally every seven or eight days. It takes a lot of air to blow bugs off plant leaves, so I keep the fan going as fast as the snowblower's 10 hp motor will drive it. The snowblower has five forward speeds and two reverse. I find that third gear works best, because at that speed the blast of air moves the plants just enough to expose all the bugs. "The snowblower wheels have chains on them which tear up the ground a bit, but that's good because then I can tell which rows I've already covered."

Campbell says in the past he used bug poison, but didn't like it. "In my opinion, insecticides are a big waste of money and time because they don't kill anything. I was paying \$120 for less than a quart of insecticide, and at the end of the season I wound up with no potatoes and no bugs killed, either."

The snowblower doesn't always run perfectly level but instead tends to swing sideways at times. To compensate for that, the cross arm that supports the cage is free to pivot up or down on the main frame, allowing the cage to follow the ground contour.

The fan blows air right through the cage, but it isn't strong enough to affect plants in the row behind the cage. Campbell also developed a tractor-mounted model he uses on



Cage captures bugs as they're blown off the plants by the fan.

his 1950 Massey Harris 30 equipped with a side belt pulley, which drives the blower.

"The tractor-mounted model works excellent, too. But I like the snowblower model better because it doesn't compact the soil as much," says Campbell. "The tractor-mounted model has a bigger 18-in. dia. fan. To keep it from blowing bugs off the row behind the cage, I had to mount a deflector on the opposite side of the cage."

He says he didn't modify the snowblower at all, so at the end of the season the whole assembly can be disassembled by removing four bolts. "Then I'm ready to blow snow again," notes Campbell.

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Revolutionary System Uses Magnetic Fields To Provide Heat

Imagine a heat source you can tap 400 ft. away! That's what MagTec Energy claims with its new portable heating system. Designed for all kinds of uses in agriculture, construction, or any industry that needs temporary heat and lots of it, the MagTec system is said to be efficient, effective and environmentally friendly.

"We see all kinds of uses in agriculture," says Randy Wear, vice president, MagTec Energy, LLC. Suggested applications include grain drying and temporary heating of shops and other buildings. MagTec's XE 1300 produces more than 1 million btu's of dry heat that will warm and keep areas dry as well. And, it does it on the cheap.

Most portable heating devices run in the 60 to 70 percent efficiency range; that is, only 60 to 70 percent of the btu's in the fuel are available as heat. MagTec claims 92 to 94 percent energy efficiency and no open flames or boiler pressure concerns. Virtually all other portable heating systems use a burner of some sort. Having no open flames eliminates fire hazards and makes it possible to work in flammable areas.

"Our heat source is magnets," says Wear. "We capture the energy in eddy currents."

Eddy currents are disruptions in magnetic

fields. The concept itself is not new. The idea of creating eddy currents was first discovered in 1851. As moving magnetic fields intersect with a conductor, electrons flow within the conductor causing resistive heating.

You might have seen an electric "induction" countertop cook stove that uses alternating magnetic fields to heat iron-based cooking pans. The ceramic-glass cooking surface never gets hot. The changing magnetic field "induces" eddy currents in the base of the cooking pan. Energy is transferred instantly without heating the cooking surface, so no heat is lost to the ambient air. Water boils in 5 seconds. Shut off the magnetic fields, and heating stops in the pot.

MagTec has developed a system of magnets and collector plates to induce industrial strength eddy currents. The system is used to heat a solution of propylene glycol. The solution is pumped via circulation hoses to remote fan-powered 200,000 btu/hr. heat exchangers up to 400 ft. away. Waste heat - air heated by the operating components - is also captured and can be moved via ductwork to work areas in the immediate vicinity of the trailer mounted XE 1300.

Also included on the trailer are motorized



Magnetic heat system is housed in trailer. Portable heat unit, hooked to cables, can be used up to 400 ft. away.

reels for the circulation hoses and the propane or diesel generators needed to power the electro-magnetic fields. The propane-powered XE 1300 is priced at \$8,390. The diesel-powered unit is priced at \$9,940.

Advanced testing is being done to adapt the system for grain drying. "We're testing attaching a couple of sets of magnets on fans," says Wear. "We have data showing they can increase ambient air 8 degrees. When drying corn, if you raise the ambient temperature 8

degrees you can shut the fans off three to four days earlier."

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