

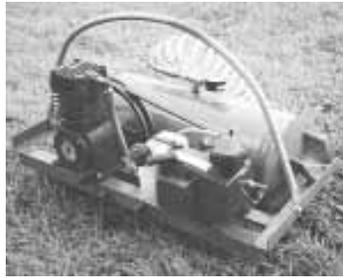
## Lightweight Compressor Is Easy To Carry Around

"It weighs only about 70 lbs. so I can easily carry it anywhere," says Ken Phillips, East Otto, N.Y., about the portable air compressor he built that's powered by a chain saw-type Tecumseh 2-cycle gas engine.

The 50 cc engine belt-drives a single cylinder air compressor pump that pressurizes a small air tank that came from a semi's air brake system.

Phillips built an angle iron frame to hold all components. In addition to the engine, compressor, and air tank, there's a pressure gauge, a coiled air hose, a small valve at the bottom of the tank to drain moisture caused by condensation, and a spring-loaded relief valve that automatically controls air pressure. A curved handle made from steel conduit lets him carry the compressor around like a suitcase.

"It has more power than compressors you run off a cigarette lighter and it's much smaller than commercial gas-powered units that you push around like a wheelbarrow," says Phillips. "I take it to junk yards to operate an air impact wrench to pull parts off vehicles. It also works great for filling up tires anywhere on the farm. If I get a flat tractor tire in the woods, I can strap the compressor onto my ATV and air up the tire as many times as necessary to get home. The tank can build up to 120 psi. Or, if I have an air brake vehicle that has an air compressor problem I can simply strap the compressor to the vehicle's frame, plug it into the existing air



**A 50 cc gas engine is used to belt drive a single cylinder air compressor pump that pressurizes a small air tank. An angle iron frame supports all components.**

system, and drive the vehicle home.

"The Tecumseh rope-start engine is similar to the ones used on chain saws but has a governor on it. I bought the engine from a friend for \$20. I bought the tank new and the pump at a yard sale for \$4. My total cost was only about \$70.

"I had previously built an air compressor using a 3 hp Briggs and Stratton gas engine, an automotive air conditioner compressor, and a good sized tank. It was mounted on wheels but weighed about 200 lbs. so it wasn't something that I wanted to carry. I gave it to a friend and built this one."

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## He's Turning Chicken Manure Into Fuel

A Maryland entrepreneur says he knows what to do with the tons and tons of chicken manure produced by U.S. poultry producers every year - burn it.

Steve Vayda of Vayda Energy Associates Inc., Hampstead, Md., has developed a new burner that can be used to heat broiler houses using the birds' own manure as fuel. Vayda's first manure furnace is slated to be installed at a chicken farm in Virginia early this year.

The first-of-its-kind furnace uses what Vayda calls a "Fluidized Bed Combustion" (FBC) system to make the manure burn. The bottom portion of the furnace is filled with a sand-like material that's heated to 1,500 degrees F, which causes it to boil. Chicken manure is fed into the bubbling sand off a conveyor belt or auger. It combusts almost instantly, and the resulting heat is drawn off to heat the building.

"The manure burns cleanly and efficiently

with no odor and almost no smoke," says Vayda, a mechanical engineer.

Volume is reduced by 90 percent. The residue that drops off the bottom is high in potassium and potash as fertilizer, he says.

The first of Vayda's systems will be installed between two 25,000-bird houses. Cost of the 1.25 million BTU system is \$20,000 to \$30,000, with price expected to drop as the company goes into full production.

Vayda says the system can also be used to burn other organic waste material, including dairy and beef manure and sludge from the bottom of oil tanks.

The company has the financial backing of the state of Maryland as well as the USDA.

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## How To Stop The Spread Of Weed Seeds

The threat of herbicide resistance to weeds has prompted University of Manitoba weed scientist Steve Shirliffe to investigate how much effect combines have in spreading weed seeds.

Last year in a research plot near Carman, Manitoba, he counted wild-oat seeds after a combine had gone through. The seeds were carried and spread a surprising distance, he says. He had planted the plot to spring wheat, and near one end of it he had also planted a patch of wild oats so that the combine would pass through it.

"At 100 meters away from the patch, we found that the combine was dropping 25 to 75 wild-oat seeds per square meter," says Shirliffe. "We were still finding wild-oat seeds up to 150 meters away."

He had a computer programmed to project how far the wild oats might be spread in following years. It showed that after four years, seed from the original patch of about 1,000 sq. meters would have grown to cover an area of at least 9,000 sq. meters, or 2.2 acres.

On another test plot, Shirliffe equipped the combine with a chaff collector. He found that the collector didn't eliminate the spread of wild-oat seed, but it did lessen it significantly. The computer model showed that the weed patch would have grown by 30 percent over 4 years with use of a chaff collector; 700 percent with no chaff collector.

Foxtail and ryegrass, which have also shown herbicide resistance, are also spread mostly by mechanical means, he says.

In Australia, some farmers are resorting to chaff collectors to help clean up fields invaded by herbicide-resistant ryegrass. However, they've found that the devices are more useful as a means of collecting livestock feed or bedding than weed seeds. Also, the high volume of residues collected presents a disposal problem.

That's what prompted development of a combine attachment designed to collect as many weed seeds as possible with a minimum of chaff. Called the Rytec Weed Seed Collection System, the Australian-made unit consists of an extended sieve section an extended sieve section at the rear of the top sieve. It separates weed seeds from the flow of chaff. Seeds collect in a hopper under the sieve and are augered to a hydraulically-dumped 1 1/2 cu. yd. bin mounted on the back of the combine. Seeds are dumped in small piles throughout the field. They can later be collected or simply burned where they lay.

A control box in the cab turns augers off

Photo courtesy The Furrow, Deere & Co. Researcher Steve Shirliffe is investigating how much weed seed combines spread.



**The Australian-built Rytec Weed Collection System collects weeds in a hopper on back of combine.**

and on and a bin-full light tells when it's time to dump the bin. Available for Case-IH 1600 series combines (including long sieve), Deere 8820 Titan and 9600, and New Holland TR97.

Sells for \$9,500 to \$9,750 (Australian). Contact: FARM SHOW Followup, Harvestaire Pty. Ltd., 18 Mumford Place, Balcatta, Western Australia 6021 (ph 61 9 3447433; fax 3453506).

Glenn Reicheld, Jarvis, Ontario, built his own weed-collection unit for his 1982 White 8600 combine (Vol. 20, No. 2). A bolt-on steel plate diverts material that falls off the sieves into a high-speed 6-in. dia. auger that's connected to a blower unit mounted alongside the combine. The blower sends the material into a self-unloading forage wagon that he pulls behind the combine.

Reicheld says the unit doesn't collect much chaff but the material has a high concentration of seeds. He can adjust the angle of the steel catch plate to allow more or less material to fall into the auger.

## Computer Software Predicts Weed Growth

Predicting weed growth for the upcoming crop year - and therefore selecting the right chemicals to use - is now possible with a new computer software program developed by USDA scientists at the North Central Soil Conservation Research Laboratory at Morris, Minn.

Called WeedCast, the software uses weather data to predict timing of weed seedling emergence and growth rate after emergence. It also predicts secondary dor-

mancy, which occurs when unfavorable weather conditions cause a certain weed seed to "shut down" until next season. For example, a single hot, 86 degree day early in spring induces secondary emergence in giant foxtail.

"It helps make better decisions," says Frank Forcella, an agronomist who developed the program. "For example, if you know a certain weed is going to 'shut down' for a season, you may be able to skip one or more

chemical treatments."

The software is particularly accurate at predicting secondary dormancy in giant foxtail, green foxtail, lambsquarters, pigweed, smart weed and wild buckwheat, Forcella says.

WeedCast was developed for the Corn Belt, but can be used in any region of the world, he says.

The program is free through the Internet. To download, go to the homepage of the

USDA-ARS North Central Soil Conservation Research Laboratory at [www.mrsars.usda.gov](http://www.mrsars.usda.gov). Click on User Products, select Weed Ecology and Management, click on Readme.txt, then follow WeedCast instructions.

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