

They Use Food Scrap Compost On Fields

Mighty Wind Farms is helping reduce landfill use while also building up their soils by using composted food waste. Owners Dan and Char Fatke work with restaurants to acquire their waste food, as well as CSA customers and others who visit their on-farm market.

"During the summer, we collect about 1,000 lbs. of food waste each week from about 10 locations," says Dan. "We also have receptacles in the market room at the farm where people can drop off their food waste when they pick up eggs and produce."

"Recycling their food waste has caught on well with our CSA customers," adds Char.

The couple doesn't charge for pickups, which they do as often as twice a week. Restaurants are given trash bin-sized containers. Initially, 5-gal. pails were used.

"The benefit of making our own compost outweighs the costs," says Dan. "We benefit from being able to supplement our soils."

The Fatke's produce beds lie in a former horse pasture. While it was easily certified as organic, it required a lot of soil amendments. Initially, they planted fruit trees and bushes,

but 3 years ago, they started planting vegetables.

"We needed organic matter for water retention," says Dan.

Food scraps are added to wood shaving-based chicken litter from the Fatke's chicken coops, as well as bedding from a nearby goat farm. They also get old hay from a neighbor.

"He makes a lot of hay and gives us old bales he hasn't used," says Char. "It's still good for compost, even if it's moldy."

The Fatke's don't take lawn clippings or leaves, as they are unsure if lawn chemicals have been used. They also avoid coffee grounds and other materials in plastic bags with zip ties.

"We don't want any plastic," says Char. "We also ask that the food scraps not include any bones, meat or dairy."

Dan uses his tractor with a front-end loader to windrow and turn the compost, adding new scraps and carbon material as he builds the windrow. He aims for around 140-degree temperatures for about 15 days to kill off seeds and problem microbes.

"A new pile breaks down pretty quickly, usually within about 3 mos.," says Dan. "We let it sit and finish for another 3 mos. It gets applied in the spring or late fall."

One change the couple is making is to work with several restaurants using compostable utensils, containers and cups. They can add them to their food waste with even less going to the landfill. Some individual customers are buying disposable bags.

"Most of the materials seem to break down well, but we plan to use a chipper on the utensils," says Char.

The Fatkes note that the restaurants most interested in composting the food waste are those that buy the most local produce.

"When you deal with the owner/operator, who is often the chef, it's pretty easy to get their cooperation," says Dan.

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Coffee Grounds Used To Boost Soil Fertility & More

Sustainable Resources Group (SRG) is transforming spent coffee grounds into soil amendments, fuel pellets, and lubricants.

"We work with large coffee producers like Nestle and Starbucks to create retail products from the grounds that are the byproduct of brewing," says Ian Kennedy, SRG. "Coffee grounds have a heating value close to anthracite coal. They're 5 to 10 percent oil, which we extract and make into an extremely competitively priced lubricant. Our heating pellets have an extremely low ash content, and our grilling pellets are like charcoal with a hint of java."

Some aspects of the coffee ground products are superior to competitive products. Compared to hardwood, SRG's JavaBrewBQ grilling pellets and JavaFlame fuel pellets release 35 percent more Btu (11,170 versus 8,100 Btu per lb.), around half the moisture, and 80 percent less ash. The suggested retail

price of the grilling pellets is \$19.95 for a 20-lb. bag, similar to major retail charcoal brands.

"From a Btu standpoint alone, it's like getting a third more pellets for the same price," says Kennedy.

The coffee-based lubricant is being marketed as a replacement for vegetable oil in pelletizing processes. SRG's marketing study suggests it has an equal value at less cost to soy oil and other vegetable oils.

JavaEarth has similar water retention and nutrient qualities to sphagnum peat moss. SRG's agronomists have shown it's as beneficial to compacted clay soils as it is to loose, sandy soils. It's marketed through Walmart at \$29.95 for a 20-lb. bag.

"JavaEarth lightens heavy soils, retains moisture and nutrients, and promotes strong root development," says Kennedy. "Unlike peat moss, JavaEarth is environmentally

sustainable. Instead of being dug out of the earth, it's diverted from landfills. In addition, it's at least comparable and often substantially cheaper than peat moss."

SRG plans to offer JavaEarth in multiple product forms for various markets and uses. Consumers are advised to use it to improve native soil structure, mix it with potting soil for acid-loving plants and blend it with potting soil and pH balancers for starting seeds.

"Coffee grounds are considered the second largest natural waste source in the world," says Kennedy. "We turn them into products people can use."

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Potato vine crusher used as a weed seed crusher reduces weed seed survival by 60 to 95 percent.

Vine Crusher Crushes Weed Seeds Too

A potato vine crusher designed to control overwintering European corn borers (ECB) crushes weed seeds too. Developed 10 years ago by researchers at Agriculture and Agri-Food Canada (AAFC), the crusher was 80 to 89.5 percent successful in crushing ECB larvae. This past year AAFC researcher Andrew McKenzie-Gopsill found it could reduce weed seed survival by 60 to 95 percent, depending on seed size.

"Compared to other harvest weed seed controls integrated into a combine or pulled behind, the vine crusher is easy to build," says McKenzie-Gopsill. "Anyone could build one or have it fabricated locally and add it to their combine."

The exciting thing about the potential for

the vine crusher is its simplicity and cost. It consists of two brushes and two counter-rotating metal rollers attached below the discharge conveyor on a harvester. The rollers have raised lines that enhance impact on the seeds. Tension on the rollers is maintained by two heavy-duty springs. Hydraulic motors power the rollers. The design is size neutral, with off-the-shelf components sized to the particular harvester.

McKenzie-Gopsill estimates it could be built for well under \$10,000. Plans are available as is a descriptive fact sheet.

"It's most effective on large seeds like volunteer canola, barnyard grass, and yellow foxtail, passing them through alone and with biomass," says McKenzie-Gopsill. "Smaller

seeds like lambsquarters and pigweed were more variable."

Initial research into effectiveness involved passing weed seeds alone and with biomass through a stationary vine crusher. While effectiveness went down with the size of the seed and the amount of biomass passing through, even a partial impact can be important. Recent U.S. research with Palmer amaranth, an extremely invasive relative of pigweed, showed that even a 20 percent reduction in weed seed germination can prevent an increase in the invasive weed's population.

"Our data in the simulated harvest shows that we are having a much greater than 20 percent reduction on species not as invasive as Palmer amaranth," says McKenzie-Gopsill.

Located at the Charlottetown Research

and Development Centre, Charlottetown, P.E.I., McKenzie-Gopsill is focused on weed control in potatoes. He'll be testing the vine crusher's impact in the field this fall.

"Within our region, harvest weed seed control is a new technology and not well known," says McKenzie-Gopsill. "We're hoping for promising results to get control of our weed seeds."

If successful in potatoes, he recognizes the potential for the vine crusher in other crops. "We haven't focused on grain combines, but we're certainly interested in testing it," says McKenzie-Gopsill.

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Crushed weed seeds.