

'Best of both worlds' unite

Organic no-till can save time, fuel and other input costs

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BELLINGHAM, Wash. - Despite the many benefits of organic farming, there's a catch: The tillage needed to control weeds goes hand in hand with erosion.

During his keynote presentation at the recent Tilt Producers of Washington annual meeting here, Paul Hepperly, research director of the Rodale Institute, told his audience that America's biggest export is its top soil, at a rate of 4 tons per person per year.

Using rollers to flatten cover crops allows organic farmers to reduce erosion by switching to no-till drills. The mats created by rolled cover crops suppress weeds, eliminating the need for plowing.

But Hepperly told the audience of almost 400 organic growers and organic-ag advocates that his institute has combined "the best of both worlds" of organic and no-till to solve that problem. It's a marriage that seems impossible, because as no-till protects soils from erosion and builds the organic matter in the soil, it also depends on herbicides to manage weeds.

"The gap between conventional no-till agriculture and the biological aspects of organic agriculture can be bridged," he said, pointing to research conducted by Rodale.

For Hepperly, organic no-till is a solution to erosion and other environmental concerns because it doesn't disrupt the soil and allows the soil to stay covered while also nourishing it.

"If you feed the soil, you feed the crop," he said. "We need to be growing soil, not degrading it."

In the institute's corn research trials, using hairy vetch as a cover crop and then knocking it down for a mulch provided all of the nitrogen that the corn needed, while only using 10 percent of the energy of conventional methods.

The institute's research also includes what Hepperly calls "a new generation" of farm equipment. An important part of this new generation is a 16-inch drum with 4-inch blades mounted in a chevron pattern in front of the tractor. The blades crimp the cover crop in about seven places, which speeds up the dying-down process.

One of Hepperly's slides showed corn coming up through the hairy vetch three days after planting.

"We didn't apply manure or fertilizer, yet the corn is beautiful," he said, as his audience looked at slides of the crop at different stages of development. "We got 170 to 220 pounds of nitrogen per acre from the cover crop - well more than what you need to maximize production," he said.

Another slide of a front-mounted roller and crimper knocking down a field of cereal rye in bloom and planting soybeans at the same time caught the attention of his audience. One sweep across the field left the soil intact while also mulching the field and planting the seeds, Hepperly said.

One key to success is to not chop up and plow in the cover crop while it's still young, he said. An

immature cover crop is too young to decay into the soil.

"You need it to be in full flower to make sure it dies," he said. "You want a complete kill so it will decay into the soil. We have found that weed suppression is not good when the cover crop is chopped. You want it to be on the surface as long as possible."

After his presentation, Hepperly spoke specifically about organic agriculture in Western Washington, home to an abundance of molds, fungi, bacteria, and slugs. He said each area has different challenges - and different solutions - that need to be researched.

Washington State University Extension Agent Todd Murray in King County said a team is putting together a proposal for organic no-till pumpkin demonstration plots at 21 Acres Farm in Woodinville. Depending on how the trials go, the researchers might put together a larger research project for intensive vegetable production.

"Farmers and conservation agencies are interested in this," Murray said. "Weeding is a huge cost for farmers."

Snohomish County WSU Extension Agent Andrew Corbin, who has done research on no-till, said he's not so sure that rolling down rye or vetch would work in the Puget Sound region.

"The only way to find out is to try," he said," pointing out that growers in New York, Michigan, and other Midwest states have had a lot of success in growing pumpkins this way.

Corbin also believes that some education about tillage in general is needed.

"A lot of farmers love their rototillers and mold board plows," he said, pointing out that equipment like that pulverizes the soil, unlike spaders and chisel plows.

Footnote: To see a video about the Rodale Institutes new no-till farming strategy, learn more about organic no-till and see the no-till roller in action, go to:
http://www.rodaleinstitute.org/no-till_revolution