

# Searching for the organic no-till dream

By Ron Lyseng  
Winnipeg Bureau, *Western Producer*  
Amended on April 7th, 2009

BRANDON - At first blush, it would appear that organic and no-till farming suffer from irreconcilable differences.

Both systems have their own benefits, both were born out of ideology and both are driven today by economics. But will they ever co-exist in the same field?

Pat Carr, a researcher with North Dakota State University's research station in Dickinson, N.D., is trying to find out.

Carr, who does research in organic cropping systems, has a number of in-field trials underway, investigating the possible compatibility of the two production systems. Much of his work deals with weed control in the organic system.

"Organic production is typically dependent on tillage for weed control, and zero-till totally eliminates tillage," he said during Manitoba Ag Days in Brandon following a presentation called How to Zero-Till Farm and Organic Farm Together on the Great Plains.

"Can we potentially marry those two farming concepts? There's enough evidence to say that presently, without any future developments, we may not be able to mimic the zero till production system on organic farms."

Does this mean organic farms will suffer from soil erosion and excess soil evaporation because of the required tillage? Not necessarily, Carr said.

"It may be possible to eliminate tillage in at least some crop phases in the organic farming system. That would be a big step toward reducing cultivation and moving closer to conservation tillage.

"If so, organic farmers might gain some of the obvious benefits of conservation tillage. But right now, true conservation farming as defined by the USDA-NRCS is not practiced on any organic farm I am aware of."

Part of Carr's organic research includes evaluating different products for their potential use as herbicides in organic systems. Carr said some of the 'organic' herbicides show a measurable degree of efficacy in suppressing broadleaf weeds, but all tested to date are non-selective and non-systemic. They affect every growing plant in the field, so must be applied before crop emergence.

Cost is another factor. Many of the products must be applied at a high rate to be effective. "At the rates needed, it simply isn't feasible economically," Carr said.

The organic herbicides do have some activity, but compared to conventional herbicides like Roundup, they're not as effective. "No organic substance we've found so far is as effective at controlling weeds or as cost effective as synthetic herbicides."

If you like violence in your weed control program but don't allow chemicals or tillage, then the roller crimper is the machine for you.

Carr said the implement can be equally at home on an organic, zero-till or conventional tillage farm.

It is a cylinder with parallel chevron blades welded onto it that crush but do not break the stalks and stems of living plants, thus killing them.

It's thought of as a mechanical burn-off, which, like glyphosate, does not cultivate the soil.

Is this the middle ground where organic growers and zero-till growers might share the same implement?

Carr said the roller crimper shows a great deal of promise as long as the grower has a lot of cover crop.

"You also have to wait until the appropriate growth stage," he said.

"If you hit the right stage, the roller crimper has a good likelihood of killing the plants without inverting the soil. If you try to roll and crimp too early, it's not going to work for you. But that's the fault of the user, not the roller crimper."

He said the roller crimper has introduced the possibility of farming organically and reducing or even eliminating tillage entirely in some years.

Intercropping with cover crops is another option for improving soil management.

Carr said a North Dakota farmer has an intercropping component in his rotation that puts several crops into the field at the same time.

"He's not an organic producer. In fact, that's not even his goal at this stage, although on paper he's actually very close to it in terms of fertilizer and herbicide use. But he's been doing this for over a decade."

Carr said the grower doesn't try to harvest his crops, so perfect seeding time isn't important. He lets them stand until the frost kills them off. In that way, no fertilizer or herbicides are used on the field in that one crop year.

"The cover crops can be grazed, but their primary goal is to improve soil properties. He's reduced his fertilizer and herbicide inputs by something like 50 to 70 percent.. So obviously intercropping deserves some serious attention."

For more information, contact Patrick Carr at [Patrick.Carr@ndsu.edu](mailto:Patrick.Carr@ndsu.edu) or visit [www.mandakzerotill.org/archives.htm](http://www.mandakzerotill.org/archives.htm) and click on Organic No-Till: Myth or Reality.