

Ridge-till reality

Dispelling some minimum tillage myths

by Susanne J. Brown

Lower yields and difficult weed control requiring big, expensive new machinery that results in tremendous compaction are widely held "myths of ridge-till," says Larry Neppl, a voice of reason out to dispel the false notions about what will happen any time a farmer goes to a reduced tillage system.

"It isn't the system that fails, but the operator that fails to make the system work," the farm consultant, who oversees 8,000 acres of ridge-tilled cropland in northern Iowa, told close to 600 Canadian farmers attending the 1994 Innovative Farmers No-Till, Ridge-Till Workshop in Etobicoke recently.

As with anything, said Neppl, it stands to reason if a "farmer is uncertain or has his mind made up before he begins that it won't work, it won't."

So, "the most important aspect of the ridge-till system is positive mental attitude," he said. And "using the ridge system requires a farmer to think differently than he did in a conventional system."

Converting to a ridge-till system doesn't mean taking an automatic reduction in crop yields. In fact, in stress years yields from ridge-tilled crops are often greater than conventional systems, said Neppl.

"1993 was such a year (in the U.S.) with extreme rainfall. Some of the only farms we were able to plant before May first were ridge-till fields, and they resulted in higher yields with better test weights and lower moisture content at harvest," he said.

Weed control

As for weed control, in a ridge-till system it "is much easier" if the right machinery is used properly, said Neppl.

The first tool used for controlling weeds in a ridge-till system is the cultivator, and "it doesn't matter what colour it is, as long as it does a good job," he said.

The secondary method of weed control is banding herbicides as they are needed. "This is opposed to many systems where herbicides are the primary weed control method," he said.

Neppl figures with these two weed killers, that the "cultivator is an asset, is purchased once and used over and over while herbicides must be purchased each year and are considered an expense."

Neppl aims for weed control costs on his client's farms to run between \$10 and \$12 per acre.

As for other equipment needed in a ridge-till system, "it doesn't take a lot of high-power machinery," said Neppl.

The same equipment used in conventional farming can cover more acres in ridge-till or smaller equipment can be used to farm the same acreage, he said. So, "machinery costs per acre are lower" on a ridge-till operation.

However, one critical point about planting in ridges compared to conventional farming is the planter has to be heavy enough to stay up on the ridges by means of mechanical attachments, such as "hip huggers" and "guide wheels."

If the planting does not take place on top of the ridge, the cultivator will take out the crop during cultivation, warned Neppl.

The easiest way to solve this dilemma is to make the top of the ridges broad based and rounded rather than peaked, he said.

Also "in a 30-inch system, we can typically construct ridges to eight or nine inches high after cultivation. They will mellow down to about six inches at planting time. In 36-inch wide rows, we can usually end up with about 10 or 12 inch tall ridges following cultivation," he said.

Compaction

As for dual wheels: "They belong off the tractor," said Neppl.

While there are permanent tracks in ridge-till systems, it is better to only have compaction in one-wheel tracks, he said.

Anything over five tons on one axle creates compaction, so farmers should also eliminate grain wagons from their fields in the fall. And "stop driving indiscriminately across the field" chasing the combine to load harvested grain, said Neppl.

"Consider that an 800 bushel auger-wagon loaded with corn weighs about 44,800 pounds, not considering the weight of the wagon. That is over 22 tons on one axle," he said.

If farmers are unable to leave the wagons on the road or at the end of the field, Neppl suggests widening the wheels to 120 inches or the same width of the combine wheels, so they travel in the same path.

Citing Ohio State University research trials, he said, even though many believe subsoiling or v-ripping can correct compaction, it isn't the solution.

Research done with several types of subsoiling equipment has proven subsoiling does improve the bulk density of soil. However, the soil was recompactd greater than it was before the subsoiling was done once two passes were made back over the field with other machinery. The conclusion of the research was that the only way soil would stay loosened was to simply not drive on it.

"In other words, control traffic patterns, such as is done in the ridge system," said Nepl.

Fertilizer reduced

Compared to conventional farming, fertilizer costs can be reduced considerably in a ridge-till system when "precision placement or banding" are used, he said.

Make a point to "feed the plant, not the soil," said Nepl.

Phosphate and potash rates can be reduced by 40 to 50 per cent, while maintaining soil fertility and yields when fertilizer is placed in a band in a ridge and never disturbed, said Nepl. The banded fertilizer acts as a starter, and provides excellent early vigor, germination and growth of the plants.

"In our area we can save \$15 to \$17 per acre by reducing our phosphate and potash rates," he said. And in the past 10 years have "seen no depletion in the land."

The cost of banding applicators or modifications to existing machinery can be paid for from the savings in purchased fertilizer, insisted Nepl.

When a a ridge-till operation is compared to conventional farming there can be a savings of as much as "\$30 to \$50 per acre" due to the lower fertilizer, herbicide and seed costs, he said.

Most machinery can be adapted to the needs of a ridge-till system and there are many used pieces of machinery on the market so the cost of machinery should not be a deciding factor in not changing to a ridge-till system, said Nepl.

The reality is "many farmers are able to get into the ridge system with little or no out-of-pocket costs over a two year period," he said.

So, "it's not that you can't afford to change, but more likely can you