

Weed Management Trials

Weed management in 1993 was often a case of "damage control," as the effectiveness of both chemical and mechanical controls was hurt by the continual rains. Despite the problems, a number of PFI cooperators conducted weed management trials. **Paul and Karen Mugge**, Sutherland, compared ridge-till corn grown with one rotary hoeing and one cultivation to corn with preemergence and postemergence herbicide bands ([Table 8](#)). Although the mechanical-control corn yielded a significant 3.0 bushels less, it was more profitable because it cost less than the chemical controls.

The Mugges also compared one rotary hoeing to a preemergence band of Dual™ and Lexone™ in ridge-till soybeans. Yields did not differ, and the hoeing was the cheaper practice. Up the road in Primghar, Doyle and Lowell Wilson compared a preemergence band of Scepter™ and Command™ to one cultivation for ridge-till soybeans ([Table 8](#)). Yields were similar, and the cultivation was cheaper by about \$0.86 per acre.

Vic and Cindy Madsen, Audubon, examined a postemergence band of Pursuit™ on ridge-till soybeans ([Table 6](#)). The whole field received Roundup™/ 2,4-D at planting and one cultivation. This basic management controlled weeds well. The Pursuit only reduced the number of broadleafed weeds from 20 to 6 per acre. But the Pursuit also stunted the soybean plants, setting them back about two weeks. Partly because of late planting, the crop never had time to recover, and the Madsens measured a 35.8 bushel yield loss.



Dick and Sharon Thompson, Boone, also evaluated a practice that turned out to be unnecessary. They compared ridge-till soybeans that were not rotary hoed with beans receiving a double-pass first hoeing and a single-pass second hoeing ([Table 8](#)). The rotary hoe brought broadleafed weeds down to 6 per acre from 14, but there was no difference in soybean yield.

In addition, the Thompsons compared the standard Buffalo ridge-till planter, with coulter and gauge wheel over the row, to a modified Buffalo planter with no coulter and the press wheels off the ridge ([Table 8](#)). By not disturbing the ridge ahead of the planter sweep, Dick thought he might attain better weed control. There was not a significant difference in broadleafed weed numbers, but the tendency in 1993 was for weed numbers to actually be greater with the modified planter.

These two treatments were actually part of a larger trial in which the Thompsons focused on the effect of a rye cover crop on the ridge ([Table 4](#)). Using the off-row planter, they compared: 1) no cover crop, 2) rye seeded on the ridge the previous fall, and 3) rye seeded on the ridge in the early spring. A drill was used to place two rows of the cover crop on the top of the ridge, where it could be removed easily by the planter sweep. The soybeans following spring-seeded rye had slightly fewer broadleafed weeds than the beans after fall-seeded rye. However, contrary to expectations, the beans without a cover crop had even fewer broadleafed weeds significantly fewer than the fall-seeded rye treatment. Because of the wet conditions, not all of the rye cover was eliminated by the planter, and the surviving cover crop may have competed with the soybeans.

Another multiple-treatment weed management trial was carried out by Ron and Maria Rosmann, Harlan, with the help of a "producer grant" from the LISA program of the USDA. In a trial that occupied most of a large field, the Rosmanns compared six weed management systems for ridge-till corn, varying from all-mechanical to mostly-chemical ([Table 4](#)). Weeds were a problem in all six treatments, and there were no real differences in corn yield. As a consequence, the lowest-cost weed management systems were the most profitable, and these were the two-cultivations treatment and the two-hoeings-plus-two-cultivations treatment. Included in the costs of these two systems is the labor for field operations. That wage labor is either a liability or an asset, depending on how you look at it.

Finally, the **Dordt College Ag Stewardship Center** conducted an unrandomized demonstration of an unusual approach to weed control. They planted corn into spring-seeded annual medic ([Table 8](#)). This alfalfa relative is being evaluated in Minnesota for its ability to control weeds in row crops. It is said to have the advantage of "self destructing," so as not to compete with the crop. It did not behave in this way in northwest Iowa in 1993. Perhaps because of the cool, wet growing season, the medic did not senesce. That and the high seeding rate used led to strong competition with the corn crop. The economic loss in the table reflects only seeding and field preparation costs. The yield difference, if real, would cause an additional financial loss. Cooperators may give annual medic another try next year, based on the farmer interest in Minnesota. However, as with Nitro "annual" alfalfa, Minnesota imports can be expected to change their behavior when they come down to Iowa.