Tillage and Weeds

The connection between weeds and tillage is both obvious and subtle. Yes, tillage removes weeds. But tillage also stimulates weed seed germination. **Ron and Maria Rosmann**, Harlan, repeated a trial they carried out in the late 1980s, comparing soybeans in ridge tillage to soybeans grown after a primary tillage of disking (Table 13, Figure 8). Organic farmers like the Rosmanns sometimes take advantage of the fact that in ridge tillage there is no primary tillage to "wake up" the weed seeds. That, and the fact that the planter sweep removes germinating plants and surface weed seeds from the row, explains the differences in broadleafed weeds shown in the table and the figure.

Whereas these weed numbers were consistently reduced in ridge-till, by a factor of 5-to-11, soybean yields have gone both ways. In 1988, there was a nonsignificant advantage to ridge tillage; in 1989 ridge-till enjoyed a statistically significant advantage; and in 1997 the disk-tillage system enjoyed a significant yield advantage (Table 13). However, Ron is not ready to return to conventional tillage for a 2½ bushel benefit. Although he believes a tilled seedbed can be more forgiving of seed placement errors, he values the weed management benefit ridge tillage gives his organic system. Ridge-till also fits his labor availability and his conservation goals.

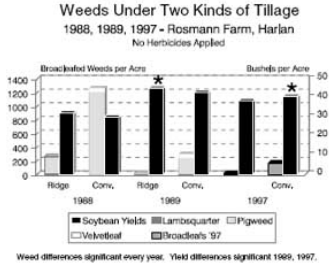

Figure 8. Ridge-till and disk tillage soybeans.

Non-chemical weed management in ridge tillage was practically invented on the farm of **Richard and Sharon Thompson**, Boone. In 1997, Dick Thompson examined the weed control effects of throwing an extra high ridge at the last cultivation (Table 13). Ridging higher covers more weeds, and it makes it easier to shave the ridge-top at planting the following year. Overall broadleaf weed numbers were very low in this trial, and the 70 percent reduction in weeds was not statistically significant. There was no measurable effect on soybean yield.