



Q: I've recently increased the size of my farming operation. I'm considering using no-tillage to save time, but I'm worried about waterhemp and increased herbicide cost. Do you have any advice?

A: First, I want to commend you for considering the use of no-tillage. The timesaving aspect of no-tillage is important to consider. Time once spent on tillage and preparing the land for planting can be put to other uses, including, as in your situation, farming additional land. I also want to take this opportunity to congratulate the many other soybean growers that have adopted some form of conservation tillage. Several years ago, Missouri ranked second among all states for the amount of soil erosion. Our soil loss, averaged across all cropland, was more than 10 tons per acre. Although many Missouri soybean-growing areas still have soil loss greater than T (tolerance; essentially equivalent to nature replacement), we have made great progress. Sticking with conservation tillage despite some difficult to manage spring and fall weather conditions is something to be proud of.

Bill Johnson, MU weed management specialist, says that changing any cultural practice, such as tillage choice, changes the field environment and can cause weed species shifts. It is generally accepted that no-tillage can increase the proportion of all weeds that are small-seeded weeds, like waterhemp. However, this change in weed proportions is more likely a decrease in some of the large-seeded weeds rather than a true increase in small-seeded weeds. Anyone that has combined soybeans knows that there was an explosion in the waterhemp population in Missouri soybean fields. Unfortunately, that increase occurred about the same time as an increase in conservation tillage acreage and no-tillage took the blame. However, Bill Johnson points out that the waterhemp problem in Missouri is not tillage specific, but an herbicide selection issue. Overuse of ALS-inhibitor herbicides and lack of supplemental weed control practices (e.g. cultivation, narrow-row spacing, alternative herbicide mode of action) resulted in weed control failures in the early to mid-90s. Waterhemp is a very prolific seed producer. One or two years of poor waterhemp control can result in literally millions of seeds per square yard.

Our research supports Dr. Johnson's contention. Waterhemp density in soybean was related to past herbicide programs, not tillage. Waterhemp was dominant weed in plots with continuous soybean treated with the same ALS herbicide regardless of tillage (no-tillage vs. chisel/disk). Waterhemp was almost nonexistent in plots where we rotated corn with soybean and rotated mode of action for herbicides. Bill Johnson believes that no-tillage may actually help manage the waterhemp problem by controlling early emerging plants with burndown herbicide, controlling the seeds buried near the surface with residual herbicides, and not bringing additional weed seeds up to the surface with tillage.