

Full-season no-till beans require management

NEWARK, Del. — Delaware growers eager to reduce tillage requirements without sacrificing yields are taking a closer look at full-season no-till soybeans. The

idea is relatively new, though the bulk of the state's double-cropped soybeans have long been no-tilled. Double-cropped yield expectations are generally lower, however, and

to attain full-season no-till yields comparable to those under conventional tillage requires skillful management. For this reason, University

agronomist Frank Webb advises farmers to experiment on a few acres first, before adopting the system on larger acreage.

Two factors are critical when growing full-season no-till soybeans, Webb says — good close stands, and effective weed control. He has spent the past five years developing a system which works well on Delmarva, and he offers a number of helpful suggestions regarding seedbed preparation, fertility and liming, varietal selection, seeding rates and spacing, and weed control.

"In many instances," he says, "last year's crop residue will be this year's seedbed for no-tillage soybeans. As in no-till corn production, cover crops play an important role in successful no-tillage soybean programs. This cover can come from the previous crop, or from an established living cover crop."

Desirable mulch

The mulch from small grain/double-crop soybean residue is desirable for several reasons, the agronomist says. It's easy to plant into and is present on many Delaware farms, so there's no extra cost to establish it. This residue will help conserve soil moisture and provide reasonable weed control. However, the ground must be level, with no equipment ruts, in order to do a good job of planting.

Living cover crops can range from any of the winter grains (wheat, rye or barley) to legumes like Austrian winter peas, hairy vetch and crimson clover. Don't expect a fertility benefit from the legumes, however. "Three years' data from the University of Delaware's Georgetown Substation suggest that the nitrogen-fixing legumes offer little advantage for soybeans other than their mulch effect," Webb notes.

Other crop residues can be used, but those mentioned above provide the most mulch, he says. With cornstalks or soybean stubble, good vegetative burndown is essential, along with effective residual weed control since these covers usually provide poor mulch, and weed pressure will be heavier.

Use soil test

As for fertilizer and lime, phosphorus and potassium needs

appear to be the same as for conventional soybeans. The specialist urges growers to have their soil analyzed in order to spend their fertilizer dollars wisely.

"Broadcasting P₂O₅ and K₂O on the soil surface is fine for a no-tillage full-season soybean program," he says. "Planter applications are also satisfactory, but generally not suited to narrow row soybeans (7- to 20-inch rows) because most drills or narrow row planters aren't equipped with fertilizer attachments."

Maintain a good soil pH. In most cases a pH of 6.0 is optimum for sandy soils, while heavier soils require a range of 6.5.

In Webb's experience, the best varieties for conventional planting are also best for a full-season no-tillage program. Other than that, he recommends selecting varieties that branch and cover the ground quickly.

Narrow rows

"Narrow rows are part of the success of full-season no-till," the agronomist says. "I recommend using row spacings 20 inches or closer. Drill rows of 6 to 8 inches are excellent, but be sure you can justify the cost of a no-till drill for your farming operation, because yields at this spacing aren't much better than from 15-inch rows, which many growers are already equipped to plant."

Plant populations should be the same as for conventional tillage. Base them on row spacing and, to some degree, on variety.

"Weed control is one of the most important parts of the entire no-tillage program," he specialist says. "At the start, you must achieve effective burndown of all existing grass and broadleaf weeds. Follow this with effective season-long control." Webb has developed several alternative weed control programs growers can use, depending on field condition and their preference for certain herbicide combinations.

These programs are outlined in the newly revised extension fact sheet, "Full-Season No-tillage Soybean Production." Copies are available from county extension offices in Newark (451-2506), Dover (736-1448) and Georgetown (856-5250).

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