

Conservation Compliance, No-Till Work Hand In Hand

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dependent on farm site, and can fit into any farm system, according to Joel Myers, state agronomist with the Soil Conservation Service (SCS), who spoke on how to achieve optimum residue management. But farmers who have used conventional tillage and want to switch to a minimum tillage or no-till system have to learn the (sometimes) complex management skills needed.

For one thing, higher seeding rates are needed — often as high as 15-32 percent more seeding in order to get the proper stand, according to several Wisconsin and Iowa studies, said John Yocum, Penn State extension weed specialist and manager of the Landisville Research Station. Soybeans often can compensate, but corn — especially on abused, poorly drained soil with low organic matter content — can have reduced yield.

Growers "may not be over-planting enough" to ensure proper yield, according to Yocum. Farmers should "get out and count, and see what population is in the row," he said.

Farmers using no-till have to follow a corn-soybean rotation, or face lower yields, according to Yocum. If they choose to continue a monocrop of corn following corn, minimum tillage provides better yields, according to data from the Landisville Research Station.

No-tilling works best on soils with higher organic matter, that are well-drained, and follow a consistent crop rotation. Also, farmers should keep in mind that the soils will be cooler, which means a slower emergence and higher grain moisture. Farmers should also look closely at compaction, which can negatively affect yields,

according to Yocum.

If using no-till, farmers must "do their homework," according to Yocum. No-till requires herbicides to treat weeds. To help keep herbicide costs down, farmers should learn exactly when the weeds emerge, and treat at that time. Also, with no-till, there are more weed seeds and volunteer corn in the upper soil layers, because of the lack of tillage. Also, with residue, it is a lot harder to control weeds because the herbicide often gets tied up with the residue. Yocum admitted it is a "lot easier to control weeds with a clean surface than with residue there," he said.

The rule of thumb is to remove weeds 4-6 weeks after planting to avoid yield loss. Weeds that emerge beyond 4-6 weeks after planting seldom affect yield, according to Yocum.

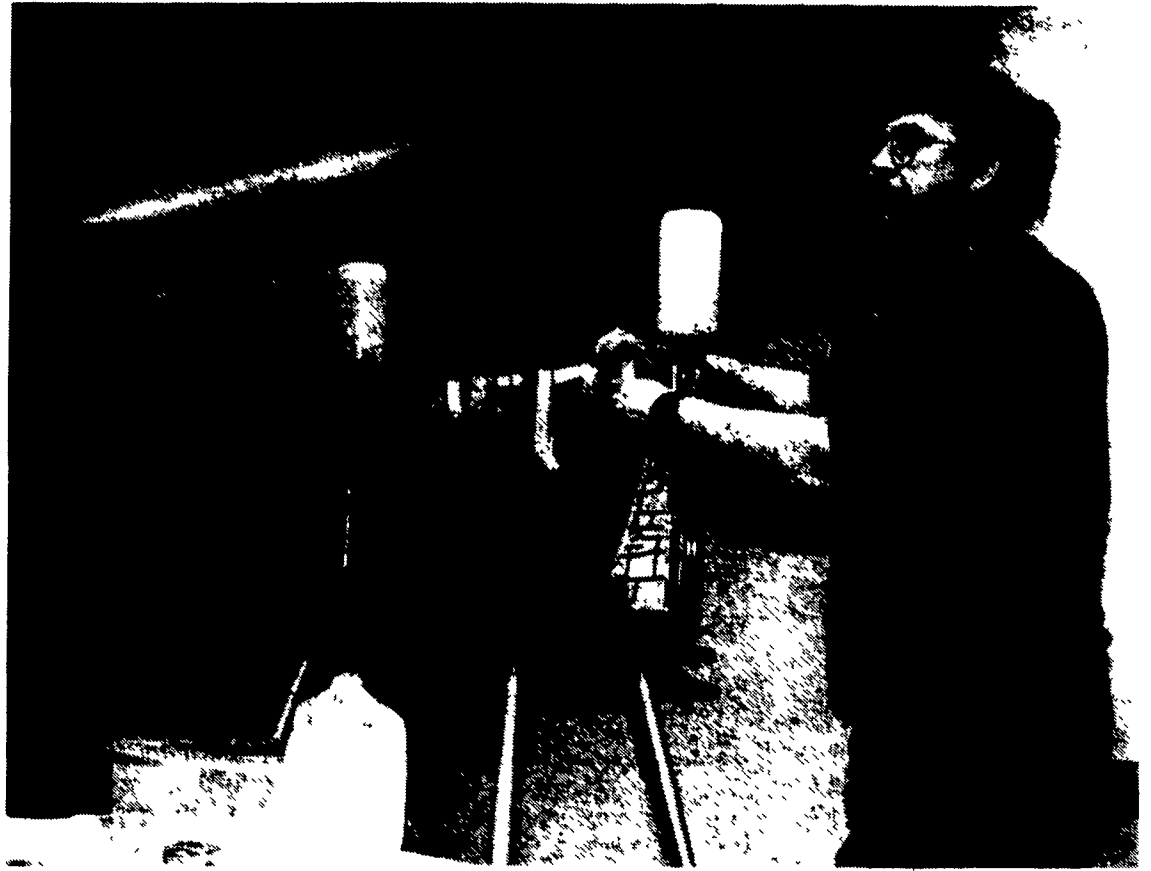
Whatever the application, farmers should carefully read the rates.

Fertility, pH

Other factors necessary in no-till management include soil fertility, which is affected closely by pH, according to Doug Beegle, Penn State fertility specialist. Beegle said that nitrogen fertilizer is the "biggest single source of acidity in our soils."

The consistent application of manure fertilizer and other types of fertilizer creates an "acid roof" in the top soil layers, according to the specialist. The pH is lowered because of the breakdown of urea fertilizer, present in all manures and some commercial fertilizers. When farmers lime, the pH affects the top layer first — and may take many years to reach layers further down.

When obtaining a soil test, Beegle said to remain consistent —



Norm Conrad, Union County extension agent, provided a water table recharge model demonstration to show how groundwater is recharged and some of the ways water sources can be affected. The model was constructed by students from Iowa State University in Ames, Iowa.

obtain a measurement at a constant depth. Farmers should consider two separate tests — one for the top layers and another one to the bottom of the plow layer — to obtain exact pH measurements. The soil pH affects the ability of

herbicides to perform, as well as other nutrients, particularly phosphorous.

For maximum benefit, fertilizer should be applied right before a rain. Also, fertilizers work better if incorporated into the soil at time of

or soon after application.

For no-tillage or minimum tillage, a starter fertilizer may increase yields because of the colder soil temperatures and consequent slower root growth.

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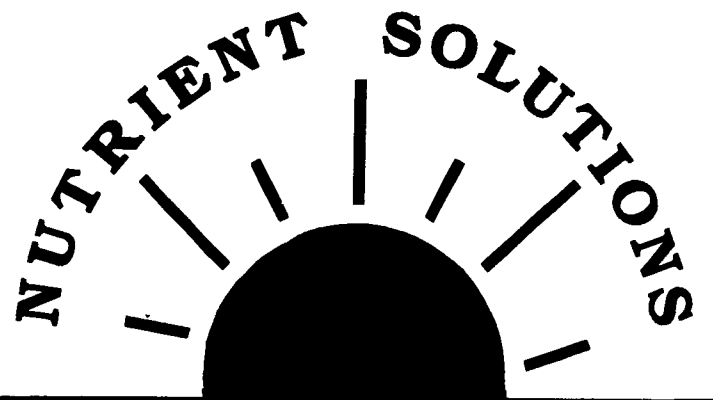
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