



TECHNICAL NOTES

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MICHIGAN

AGRONOMY 421 *99*
SUBJECT: No-till On Fine
Textured Soils*
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TO: All Offices

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Robert R. Ditson

When making the transition from clean till to no-till on fine textured soils, there are five items that are crucial to a successful program.

If the clean tillage program on the site has not been successful in the past, chances for success of the no-till program are also limited. However, with the proper changes and adjustments, a successful no-till program can be developed.

Drainage

Proper drainage is important on fine textured soils for all tillage systems. No-till will not solve wetness problems. For the most successful program, a farmer needs properly installed surface and subsurface drainage systems.

Controlled Field Traffic

It is crucial on fine textured soils to reduce field operations to as few as possible. It is especially important that all field operations not be carried out when the soil is wet. Harvesting should be delayed until the ground dries out or freezes. Traffic on fine textured soils creates the hazard of soil compaction. Therefore, controlled traffic is an option that needs to be utilized for successful no-till on these soils.

Controlled traffic means that the equipment will not, within limits, be driven on the rows. To be able to do this, plant the crop as close to last year's row as possible. Alternating the planting from one side of the row to the other will result in approximately a 4 inch area that will be the permanent row area. Controlled traffic farming also allows plants to take advantage of old crop root channels and residual fertilizer.

Organic Matter

Many fine textured soils have drainage problems and most have restricted water infiltration. Increased organic matter content in the soil will provide better soil tilth, allow greater water infiltration, reduce water run off and ponding.

Cover crops can be the key to improving the condition of soil tilth in fine textured soils. Root residue from cover crops can be crucial in developing a favorable condition for no-till on these soils. In the spring, cover crops growing on fine textured soils can also be a valuable water management tool. In a wet year, let the cover crop grow longer to remove moisture from the soil. In a dry year, kill the cover crop early to conserve moisture.

Rotations

Crop rotations can enhance fine textured soils for no-till. A rotation of corn, beans and small grain, seeded to red clover or alfalfa, will give the soil an opportunity to revitalize itself. Plant roots, especially alfalfa, add organic matter to the subsoil and also provide drainage channels into the subsurface layers so water can reach subsurface drains. Research data indicates that there is a yield increase due to beneficial effects of crop rotations.

Planting

Do not rush the planting date. Give the soil a chance to dry out and warm up. Plant the most poorly drained fields last.

No-till will perform best on better sites the same as clean till. Fine textured soils are difficult to farm with any system. Special adaptations of equipment and good management techniques are necessary to get the crop planted properly, and to harvest the crop without damaging the soil. If a farmer is interested in the no-till system, believes it will work, and is willing to make needed adjustments, he can be just as successful with no-till as he is with his clean till system on fine textured soils.

* Soils in the general texture categories of sandy clay loam, clay loam, silty clay loam, silty clay or clay.

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