Handling Untilled Fields Of Cornstalks

URBANA, ILL.

Late planting, cool summer temperatures, and a wet October caused the 2009 harvest to go down in history as one of the latest on record. As a result, many fields were not tilled last fall.

Emerson Nafziger, University of Illinois Extension agronomist, said this will cause challenges this spring.

"Much of the corn was planted into wet soils last year, creating a considerable amount of compaction," he said. "Because many farmers couldn't till in the fall, much of this compaction remains. In addition, many fields had ruts cut into them during harvest. Finally, a large number of cornstalks remain in the field, insulating the soil and slowing rates of drying."

Typically, compaction can be relieved some by natural causes. Each freeze-thaw cycle decreases compaction a small amount. Surface soils experience numerous cycles of freezing and thawing, but at depths of 6 inches or more, there are few freeze-thaw cycles. Nafziger said farmers cannot expect much relief of deeper compaction from natural causes this year.

"We simply need to live with most of the compaction and hope we can do a good job of deep tillage next fall to relieve it," he said.

With no crop present to remove water through roots, low soil temperatures, and large amounts of cornstalks present, the soil is unlikely to dry enough to allow tilling to the depth farmers normally perform primary tillage.

Nafziger said, "Without an early period of warm, dry weather in 2010, it remains unlikely soils will be dry enough to allow effective tillage before planting starts. Soils don't dry rapidly until soil temperatures are in the 50s and 60s, usually in April or even May."

In the meantime, it will be helpful to find ways to disturb the soil surface and to cut and move, and perhaps bury, some of the residue. This will help dry the surface soils to allow earlier and more uniform planting.

"Chisel plows are unlikely to work, and field cultivators will probably not get through standing cornstalks," he said. "Lighter disk harrows might work better than most alternatives to perform shallow tillage of cornstalks. Disk-rippers might be adjustable enough to work, but implement weight should be as light as possible to avoid causing more compaction."

Some believe spring disking is the reason for disastrous compaction. But Nafziger argues that heavy equipment causes this compaction, not the shallowness or pattern of secondary tillage. The only real "blame" a relatively light tillage implement earns is by being run shallow, making the break between the tilled and untilled soil easy to find, he said.

Vertical tillage may be possible as these shallow-tillage implements are typically run at high speeds (often about 10 mph). They consist of rolling blades that chop stalks and cut into the soil, ripple or wavy coulters, rolling spikes of some sort, and in some cases leveling boards or blades. They do not produce a distinct break between tilled and untilled soil like the disk or field cultivator.

"If the surface is dry and relatively level, these implements do a good job of breaking residue and improving seedbed conditions," he said. "If it's not dry or if there are ruts, these implements might not work well.

If strip tillage is performed, Nafziger believes it may be best to remove the knives and use this implement to clear some residue off the rows and do light tillage, leaving small berms. He cautions farmers from placing anhydrous ammonia into wet soils during a spring strip-till operation, as it will stay concentrated and may well move back toward the roots if the soil dries out.

Tillage may be necessary to handle cornstalks and ruts.

The rate of microbial breakdown in cornstalks will be slow until soil temperatures are back in the 60s and 70s, Nafziger said. The late maturity and cool temperatures after last fall's harvest meant little stalk breakdown. He said it may be necessary to till to get stalks under control to allow planting and use trash-movers during planting.

To make a good seedbed to plant into, farmers must find a way to fill in ruts completely without leaving pockets that interfere with seeding uniformity. In the majority of cases, tillage might be needed to do an adequate job of filling ruts.

Soybeans may be a better option than corn in untilled fields of cornstalks, Nafizger said.

"It's easier to establish an adequate stand of soybeans with little or no tillage of cornstalks than it is to establish a good corn stand," he said. "Soybeans suffer less yield loss with planting delays than corn. Some farmers may choose to line up seed of both crops just in case and switch to soybean if the spring starts to resemble 2009." Δ

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