



Tillage and Crop Residue Management Consideration for the Fall of 2009.

Dick Wolkowski and Joe Lauer

Extension Soil Scientist and Extension Agronomist

The 2009 cropping season continues to be challenging because cool temperatures have delayed crop development and current wet conditions are significantly pushing back fall operations. Producers will be tempted to conduct field operations on wetter soils, both to harvest the crop and conduct fall tillage. Consideration should be given to the impact of operations on wet soils because the wrong decision now could lead to future consequences.

Traffic on wet soils can lead to rutting, compaction, and increased runoff; all of which are undesirable and can have a lasting effect. Wet soils have much less bearing strength and are more easily compacted. Ruts that are left in the fall will persist into the spring and will remain wet, making tillage and other field operations more difficult. It is also important to limit load weight. Loads exceeding 10 tons, like those from large combines, loaded trucks and grain wagons, and manure tankers can result in the compaction of the subsoil. This compaction will persist into 2010 because it is unlikely that there will be an opportunity to address subsoil compaction with deep tillage this fall. Do not expect freeze/thaw cycles to remove subsoil compaction. Also attempt to control traffic because 70% of the compaction occurs in the first pass of the vehicle. Practices such as unloading-on-the-go that are used to increase harvest efficiency will actually spread compaction over a greater area. More information on managing soil compaction can be found in UWEX Pub. A3367.

The late season could require the prioritization of fall operations if time is short. Remember that crop residue management begins at harvest. The combine should be set to spread the residue out over at least 80% of the combine harvest width to prevent the creation of residue-thick windrows. This can reduce problems with plugging in tillage implements and reduces planting issues if the field is minimally-tilled the following season. Some producers chop stalks to improve residue flow through tillage equipment. In addition to the extra time and expense of this practice, stalk chopping reduces crop residue cover following tillage, thereby increasing erosion risk. If fields are not fall plowed, the chopped residue can form a mat that slows soil warming the following spring.

Producers might consider skipping fall tillage especially in fragile residue conditions, such as those found following soybean or fall-killed forage, especially if they have a modern planter equipped with in-row residue-clearing attachments. Table 1 shows 10 years of data that compares fall chisel, fall strip-tillage, and no-till on corn yield. This research demonstrated that strip-tillage or similar systems can produce yields equal to those found in chisel, thereby reducing cost of production. If time does not allow the opportunity to complete fall tillage, spring tillage is a reasonable option assuming soil conditions are acceptable. Table 2 presents six years of data that shows minimal yield

reduction if corn stubble is chiseled in the spring versus the fall; and an actual yield benefit for spring chiseling in first year corn after soybean.

Table 1. Effect of tillage and rotation on the corn grain yield at Arlington, Wis., 1997 – 2007 (Wolkowski, UW Soil Science).

Tillage	Continuous Corn	Corn after Soybean
	----- bu/a -----	
Fall Chisel	182	194
Fall Strip-tillage	174	194
No-tillage	167	185

Table 2. Effect of fall and spring chisel plowing on corn grain yield at Arlington, Wis., 2001 – 2006 (Lauer, UW Agronomy)

Tillage	Continuous Corn	Corn after Soybean
	----- bu/a -----	
Fall Chisel	166	176
Spring Chisel	162	181