



# 14A

## SOIL TECH NOTES

# Residue Accumulation

**PROBLEM:** "I don't know, seems like none of my residue is breaking down. It just piles up on the surface. Is that Bt corn fault?"

### **PROBLEM OF INCOMPLETE RESIDUE BREAKDOWN:**

- Lack of proper kind and number of microorganisms in the surface layer.
- Excess tillage has sealed off the surface layer from the microbes below.
- Yes, Bt corn residue is somewhat more difficult to decompose but will break down with time and right microbes.
- Soil surface is remaining wet or even saturated. Anaerobic conditions exist. Compaction can be more of a problem in the surface layer.

### **WHAT DAMAGE IS CAUSED BY EXCESSIVE RESIDUE ACCUMULATION:**

- Residue needs to be decomposed to release the organic nutrients that are being held by the residue. If no decomposition occurs, no organic nutrients become available.
- Causes surface to remain wet which increases anaerobic microbes and decreases aerobic ones. Soil respiration decreases more under these conditions.
- Soil picks up an acidic or "sour" smell as anaerobic microbes dominate now.
- If surface soil now remains wet longer, even light tillage can increase compaction.

### **POSSIBLE SOLUTIONS TO CONTROL EXCESS RESIDUE:**

- Proper mix of cover crops can increase the porosity of the soil. More pores, more air which can lead to more aerobic microbes which will increase residue breakdown.
- In some cases, vertical tillage or minor mixing of thick surface residues will increase the soil-to-residue contact which will help the microbes reach and destroy the residue.

