Winter Wheat: Go Deep

Winter wheat seeding that verges on too deep was rather common in tilled soils, but with no-till quite a bit now actually goes in too shallow, often resulting in plants not coming through the winter in good condition, or even dying. The shallow wheat problem seems most common in low-disturbance systems, partly due to the soil firming up and more abundant stubble on the surface, but also is inherent in the design of low-disturbance openers—they don't 'furrow down,' i.e., heave or throw soil out of the furrow and mound it between the rows. The tendency to have winter wheat ending up too shallow (1½ inches or less) varies considerably by soil type, moisture level, and previous management, as well as the drill opener's design, maintenance, and settings.

Photo by Matt Hagny.

Winterkilled streaks in wheat after soybeans, in central Kansas. Note that streaks run in at least a couple different directions, reflecting not only variations in opener performance during seeding, but also old traffic patterns and uneven residue distribution.

The wheat plant's vigor come spring will be determined (in part) by how well-insulated the crown was, and how well-anchored it was (preventing the crown from being heaved out of frozen soils). These are accomplished by: A) seeding to a certain depth, B) getting good seed/soil contact, and C) having enough soil over the top of the seed (a wheat seedling in an open 'v' isn't protected very well). Upright stubble remaining after seeding also helps.

Photo by Matt Hagny.

Winterkilled streaks in wheat after wheat, mostly where straw was 'windrowed' behind the combine—the 2d wheat did establish in those areas, but the crown was set in the pile of straw instead of soil, which provided inadequate protection.

In central Kansas, it seems that we grew complacent about wheat seeding depth during the mild winters of the late '90s, and got a 'wake-up call' in 2000/01 and again this last winter. Part of the problem this last year was the dry fall never allowed the wheat's nodal roots to get properly established, which made the plant much more vulnerable. While we can't do anything about the weather, we *can* make the best of it by watching seed placement.

This starts with good distribution of the preceding crop's residue, whether it is 'ropey' soybean stems, bunchy wheat straw, or whatever. Also, make sure the drill's openers are in good condition—dull opener blades hairpin more and have trouble just cutting into the soil (maintaining depth), and worn seed boots may not be getting the seed to the bottom of the furrow. Then run enough down-pressure and frame weight to keep the opener at a proper depth (it may take a lot in some soils). Using a pop-up fertilizer also helps build a healthy wheat plant.

While '02 wasn't much of a wheat year across much of the region, enormous yield variation often occurred between fields that were well-managed and those that weren't (sometimes it didn't make any difference—they were all zeros). Good yields don't happen by chance; the management was in place to maximize whatever potential the weather allowed. We often don't need to spend big money here, just a little more attention to detail.

Photo by Matt Hagny.

Heaving of frozen soils pushed these old milo crowns out, leaving them 'perched' several inches above the soil line. Overwintering wheat plants are subjected to the same pressures, which sometimes tears the wheat plant's crown away from some or all of its roots.

Fall Atrazine: Cool It!

When doing atrazine on wheat stubble, wait until later in the fall—this compound does degrade in sunlight if left on the surface for several weeks without rainfall. For Kansas, most researchers & agronomists agree that October through mid-December is generally best, although sometimes later applications do work okay. Tank-mixing 2,4-D and crop oil (or UAN) is advisable. Wheat or cheat more than a few weeks old may require glyphosate. Note that it's much easier to deal with the wheat, cheat, and other winter annuals before they overwinter; plus, fall atrazine (or simazine) is highly cost effective and cuts down on the spring workload.