Dry-down and Standibility in an Ugly Harvest Season

By Dr. Tom Hoegemeyer

As ye sow, so shall ye reap—Galatians 6:7. This year, 2008, has been a VERY unusual year. After many of us were forced to "mud the crop in", now we are faced with having to "mud it out". And to make matters worse, it was a cooler than normal spring, summer, and fall. Rather than the crop hitting "blacklayer" in late August or early September, it really didn't get mature until late September, or even October in many areas. Now we have wet corn in the field.

Before physiological maturity, grain dries down due to a combination of adding more starch to the kernels, transpiring water from the green plant, and from evaporation. After physiological maturity, grain dries primarily from evaporation from the kernel, with some added transpiration in some hybrids. Hybrid characteristics such as ear diameter, husk number, tightness, "staygreen", and kernel pericarp thickness also affect the rate of moisture loss. This rate of evaporation, as you realize, is a function of temperature, humidity, and wind. To put it simply, warmer, windier, and drier conditions encourage rapid drydown of corn. Most years, the Western Cornbelt has her ideal drying conditions, but cool, humid, rainy weather hampered it this year.

We have several factors working against us concerning rate of dry down. Most corn matured in late September this year, so even with "normal" rain and humidity, the lower temperatures after black layer formation would have slowed drying rates a lot. Second, in most areas we have had over double the "normal" rainfall combined with periods of cloudy, humid, and cool weather—just the opposite of what drives drying. Corn drying in early September will often lose a point or more of moisture per day. Corn drying in the last half of October will loose less than a quarter point per day. Add to that the rain, and having to dry the husk and ear off after each shower before kernel evaporation has a chance. So we find ourselves with wet corn that likely won't dry much unless we have a period of warmer, sunnier and drier weather.

Stalk quality is also becoming a serious issue. Because corn was (1) behind in maturity and was filling grain September and early October, (2) we had cooler, cloudier weather than normal during grain filling, less photosynthate (sugar) was available to keep the stalk tissues alive and healthy; the plants were madly trying to fill the kernels as we had high yield potential set up. The fungi that cause stalk and root rots are the same ones that deteriorate residue from the previous crop. They don't strongly attack live tissue, but are very effective in breaking down dead or weaken (poorly nourished) stalks and roots. Plus the growth rate of these fungi is favored by cool, damp weather. Thus, we have the perfect storm for stalk and root rots. Add wind, rain and/or snow, and the potential for problems is large.

My recommendation is that we can't let a day pass without hitting harvest hard, because corn isn't going to get significantly drier and it will get harder to harvest every day.