

I've Got The Corny Stand Establishment Blues...

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April began very warm but ended dismally cold and dreary. Because of the exceptionally warm beginning to April, growing degree day (GDD) accumulations for the month were actually greater than average (Indiana Ag. Statistics, 5/2/05). Corn planted near mid-month, however, has experienced primarily cooler than normal temperatures and many cloudy days to date.

At the Purdue Crop Diagnostic Training & Research Center near W. Lafayette, corn planted on Apr 5 reached 50% emergence 13 days later on Apr 18, fairly quick for such early planting. Corn planted Apr 10 reached 50% emergence only 10 days later on Apr 20, reflecting the even warmer temperatures during that time period. Corn planted Apr 20, the day before the cold snap began, had germinated but not yet begun to emerge 13 days later (May 3).

Recognize that these calendar times to emergence are in tune with what we would expect based on thermal time (accumulation of GDDs). The first two planting dates reached 50% emergence roughly 121 to 128 GDDs (using soil temperatures) after planting. As of May 3, cumulative GDDs for the Apr 20th planting were only about 60 or about half of what is required for emergence to occur.

Growers who planted corn during the first half of April are naturally concerned about the health of emerged stands (given the multiple occurrences of frosts and near-lethal temperatures coupled with sub-optimal temperatures and lack of sunshine) and wonder whether fields not yet emerged will ever do so. Some feel the emotional pressure to replant to put an end to their misery (the grower's, not the corn plants'). After all, those putrid yellow-brown-green plants surely can never recover to achieve their original yield potential, right?

It is true that the combination of cold temperatures, light frost, often-cloudy weather, and (for some) saturated soils is not particularly favorable for rapid and uniform corn emergence or stand establishment. The cool, cloudy weather has also delayed overall crop development to the extent that it is very difficult to determine whether a stressed field will recover satisfactorily or will continue to deteriorate with eventual significant stand losses.

The warmer temperatures forecast for the latter part of this week will not only hasten the pace of crop development, but will also better enable growers to assess the condition of

their early-planted fields. As I indicated in my most recent article (Nielsen, 2005), growers should not rush to replant these suspect fields. Here are some points to consider.

- Give fields the time to visually indicate whether they will recover. Under “normal” circumstances, 3 to 5 days after a damage event is sufficient to make this determination. This time around, it is requiring closer to 14 days to confidently assess stand health because of the lengthy cold snap we’ve been experiencing.
- Strive to accurately estimate the severity of any stand loss before pulling the replant “trigger”. Make sure you estimate plant populations throughout a field, not just in one location next to the road. For 30-inch rows, multiply the number of plants in 17ft 5in of row by 1000 to estimate number of plants per acre.
- For some fields, the final “shoe” that may yet “drop” could be the eventual development of seed or seedling disease in these otherwise struggling early-planted corn fields once the effectiveness of seed-applied fungicide deteriorates 2 to 3 weeks after planting (Malvick, 2005). Continue to monitor fields over the next few weeks for such disease development.
- Use my replant worksheet (Nielsen, 2003) to estimate not only the possible yield returns to replanting, but also possible economic returns. Recognize that replanting does not occur without cost. Replant expenses (seed, fuel, herbicide, labor, etc) can easily outweigh the uncertain value of an uncertain yield gain and actually reduce your net dollar return.
- Do not simply “patch in” a suspect field if estimated surviving populations are greater than 25 to 50% of the original stand. The survivors can easily out-compete what you replant tomorrow. Instead, take the time to kill the existing stand before replanting (herbicide or tillage) or after planting with pre-emerge herbicide applications.
- If your original field was planted to RoundupReady™ hybrids, read Mark Loux’s article (2005) that discusses the challenges of killing the original stand before replanting.
- If you have acres of corn or soybean yet to plant for the first time this season, concentrate on finishing that task before incurring the opportunity cost of replanting a suspect field of early-planted corn.

Related References

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Don't forget, this and other timely information about corn can be viewed at the Chat 'n Chew Café on the Web at <http://www.kingcorn.org/cafe>. For other information about corn, take a look at the Corn Growers' Guidebook on the Web at <http://www.kingcorn.org>.

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