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## Corn Stand and Emergence Uniformity

Last week we discussed planting depth and its effect on stand emergence and uniformity. Just how important are stand uniformity and emergence uniformity? Stand uniformity has to do with how consistent plant spacing is within the row. Uniformity of emergence deals with timing. In other words, do most plants come up at the same time or are some delayed?

Uniform stands are desirable. The question is, how important is it that the distance between plants be the same from one plant to the next? Past research has indicated the potential for a 1 to 3.4 bushel/acre yield loss for every 1-inch deviation in plant spacing. Research at Kansas State University has been evaluating the effects of plant spacing for the past few years. Their results indicate little yield reduction from non-uniform stands as long as the final population is within 15 percent of the target population. Their results which are similar to other researchers, indicate, that non-uniform plant spacing has less potential to negatively influence yield than does reduced population and non-uniform emergence. One study indicated that “doubles” can increase yield in favorable environments because the effective plant population was increased. Their conclusion was that as long as the typical spacing between plants is within two to three inches of the desired plant spacing and the final population is not substantially lower than what was desired, stand uniformity should not be a concern.

Uniform emergence can be important for maximizing yield. Non-uniform emergence can be the result of non-uniform moisture in the seed zone, crusting, non-uniform planting depth, or non-uniform crop residue. Results on the effect of non-uniform emergence vary. Research has shown that if one out of six plants is delayed by two leaf stages, yields can be reduced by 4 percent. If one out of six plants is delayed by four leaf stages, yields can be reduced by 8 percent. Other research indicates that if plants emerge within a period of two weeks, yield reductions were 3 percent or less. These yield reductions would not justify replanting but would justify efforts to minimize variability in emergence.

Planter speed can affect both stand and emergence uniformity. Research conducted in northeast Kansas supports the conclusion that final plant population, which was reduced by higher planting speeds, had a greater impact on yield than did accompanying reductions in uniformity of plant spacing. High residue, no-till situations can be more challenging for getting uniform emergence. Uniform distribution of crop residues during harvest is critical for uniform emergence of the next crop. Adjust planter units to optimize seed placement and depth. Emergence may be delayed slightly with deeper planting, but it will likely emerge more uniformly than if planted too shallowly.

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