

Production Blog



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Corn Seed Doesn't Like a Cold Drink

Growers are anxious to plant corn and some have already started, but the threat of a week of cool and wet weather prompted many to cancel their plans and for good reason -- corn can't handle a cold drink.

The pun is that if you plant early in April, don't plant more than you are willing to replant. And while some growers will carry that risk, with 93 million acres of seed being planted in 2011, seed with the right maturity and traits might not be readily available if you have to replant.

Early planting is a common practice across the Corn Belt as grower's plant more acres of corn and want to finish before the optimal window closes. Combine that trend with no-till or minimum till practices and more corn after corn creating high residue conditions creates a risk, particularly during the first 20 days in April when we can get cold rain that can hang around for a week.

However it isn't cold temperatures or saturated soil that is the threat but the combination of the two. Today's seed, protected with seed treatments, can handle cold soils and still emerge up to 20 days later as long as the soils don't become saturated.

Corn is a tropical crops and relishes warm temperatures, but we have adapted it to tolerate early spring planting under cold soil conditions of 50 or even 45 F. At those cold temperatures the seed is naturally predisposed to stress.

Corn seed imbibes most of its water in the first 30 minutes in the soil and a shot of cold water less than 40 F shocks the seed and literally stops the germination process or at least slows it down considerably while damaging the seed.

When recently planted dry corn seed absorbs cold water as a result of a cold rain or melting snow, the seed experiences imbibitional chilling injury. The cold water damages and ruptures cell membranes in the embryo, radicle or coleoptile.

When temperatures remain wet and below 50 degree F after planting damage to germinating seed is severe, resulting in soft or rotted seed or stunted or aborted radicles or coleoptiles).

Seed is the least tolerant of a extended wet spell, seedlings are moderately

tolerant and emerged plants exhibit good tolerance as long as air temperatures are above freezing and the soils aren't saturated for an extended period of time.

The threat to seed occurs if a cold rain falls within a few days of planting. The imbibition of cold water causes physical and biochemical damage to the seed. Prolonged exposure to cold delays the germination causing seed deterioration and damaged seeds are more likely to be attacked by insects and diseases and surviving seedlings are more likely to emerge late and become runts.

Growers have been monitoring the near-term forecast and smartly delayed planting. And if you find yourself in this situation and can't wait, plant well-drained and low residue fields first and plant seed that has good saturated cold tolerance and can handle imbibitional chilling, to a degree.

Some stand loss will be inevitable in a stressful spring but the yield benefit from early planting might offset a yield loss for lost plants.

Posted at 8:45AM CDT 04/18/11 by Dan Davidson
