Mitigate risks if planting ultra-early

SOYBEAN SOURCE

BY MARK LICHT

SOYBEAN FARMERS HAVE been experimenting in Iowa with very early planting dates of late March to mid-April. However, yield data has not shown a consistent benefit to planting early as opposed to planting the first week of May.

But very early planting does extend the planting window, letting farmers take advantage of ideal soil conditions in April. The data suggests — more so for corn than soybeans — that early planting reduces the risk of yield penalties for late planting.

Here's a list of risks of planting soybeans very early and how to mitigate them:

Imbibitional chilling injury. This occurs when soybean seed imbibes very cold water, under 45 degrees F, in the first 12 to 24 hours after planting. Imbibitional chilling is often associated with a cold front that brings colder temperatures and cold rainfall within 24 hours of planting.

Cold injury can still affect the seed and seedling beyond 24 hours after planting; however, symptoms are typically less severe. Visible symptoms of imbibitional chilling and cold injury include uneven emergence and dead tissue on the exterior of the cotyledons.

Reduce the potential for imbibitional chilling and cold injury by using these management practices:

- Look for seed varieties with better early-season vigor or cold tolerance.
- Plant high-quality seed with seed coats free of wrinkles or cracks.
- Avoid planting seed having low initial moisture levels.
- Plant in the early afternoon when soil warms up to at least 50 degrees.
- Avoid planting when a cold rain is forecast within the next 24 hours.

Frost and freeze damage. Freezing temperature could damage very early planted soybeans. Luckily, cooler soil temperatures will delay germination and emergence. Also, soybean cotyledons are more resistant to freezing temperatures because they are thicker than corn tissue. Typically, temperatures must dip below 30 degrees for damage to occur to emerged cotyledons.

When unifoliate leaves along with the first trifoliate leaves develop, the plants become susceptible to damage from temperatures at or below 32 degrees. Removing residue from the row has mixed results. It will help soil warm up sooner and promote earlier germination and emergence, but it could also expose the newly emerged plants to greater risk of frost injury.

Reduced plant populations. Attaining a soybean harvest population of 100,000 plants per acre leads to maximum yield potential. But one issue associated with very early soybean planting is a loss of plant population, which could be an additional 10% to 20% reduction in the emergence rate. This reduction can be caused by imbibitional or cold injury, seedling diseases, and insect feeding. Increasing the seeding rate by 10% to 20% can compensate for the loss of plants per acre, but early planted fields may still have less uniformity across the field.

Seedling diseases. The risk of disease is greater due to cool and wet soils. It is recommended to use fungicide seed treatments. Select fungicides that are effective against fusarium, pythium, phytophthora and rhizoctonia. Variety selection can also be used as a tool to reduce risk of sudden death syndrome and phytophthora.

Bean leaf beetles. Damage from bean leaf beetles can increase, as they tend to be more problematic on the earliest emerging soybean fields in an area. Insecticidal seed treatments can diminish this risk. The overwintering adult bean leaf beetles would be an indicator of first- and second-generation risk later in the summer.

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