

AGRONOMIC ALERT



Frost and Cold Temperature Damage to Small Soybeans

Recent weather patterns have exposed soybean fields to frost and cold temperatures. Understanding the effects of these weather conditions on soybean at different growth stages can help determine the best management options.

Soybeans vs. Corn

Soybeans are more susceptible than corn to frost and cold temperatures. The growing point for corn remains below ground until corn reaches about V5. Comparatively, the growing point for soybeans is above ground and exposed to the elements as soon as the cotyledons emerge.

If the main growing point (also called the apical meristem) is damaged, soybeans have a greater ability to recover than corn. Soybean plants can produce new growth auxiliary buds found at each node. When this regrowth occurs from the node where the cotyledons or unifoliate leaves were attached, it has been referred to as psi (Ψ) syndrome due to the shape.

Will the Soybean Plant Make It?

Patience is needed to determine if an individual soybean plant is likely to survive a frost. It helps to wait a few days before evaluating the potential for new growth at the auxiliary buds. Figure 1 is an excellent example of what can be seen a few days after a frost. The plant on the left was damaged by frost below the cotyledonary node and will not survive. The plant on the right was injured by frost, but only down to the area above the cotyledonary node, allowing for regrowth from the auxiliary buds at that node. The growth from those auxiliary buds will be similar to that of the original plant had it not been damaged by frost. The odds of the injured plant on the right producing a respectable yield potential are very good.

Will the Soybean Field Need to Be Replanted?

Replanting a field of frost-damaged soybeans demands more consideration since soybeans are more susceptible than corn

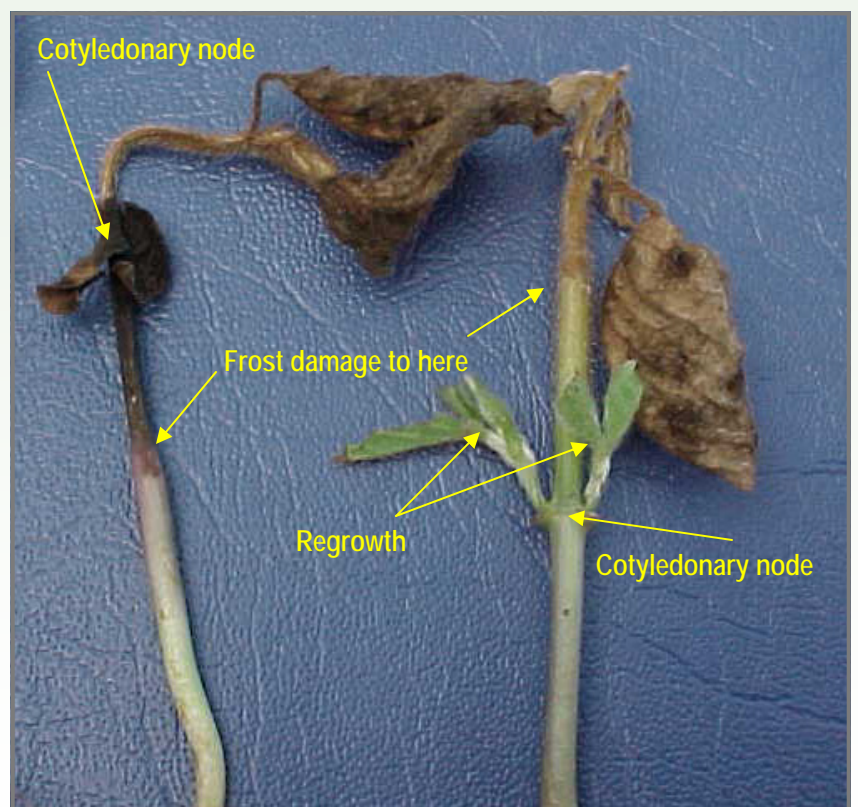


Figure 1. Examples of frost damage to soybeans. Plant on left will die. Plant on right is likely to live and contribute to yield potential.

to frost and cold temperatures. However, even though soybeans are more susceptible to frost, they can handle stand reductions fairly well. Often if a soybean stand is evenly distributed, replanting is not recommended unless populations are less than 100,000 plants per acre. As the season progresses, vigilant scouting should continue for seedling blights and environmental damage in soybean fields, especially those damaged by frost.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Technology Development by Monsanto and Design(SM) is a servicemark of Monsanto Technology LLC. All other trademarks are the property of their respective owners. ©2010 Monsanto Company. 05112010EJP

