3-19-2001

Soybean seed quality and treatments

X. B. Yang
Iowa State University, xbyang@iastate.edu

Follow this and additional works at: http://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, Agriculture Commons, and the Plant Pathology Commons

Recommended Citation
http://lib.dr.iastate.edu/cropnews/1957

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
Soybean seed quality and treatments

Abstract
As the planting season approaches, the concern of low germination rate of soybean has been raised by some growers, which is reflected by many questions on how to use chemicals to treat low-germination-rate soybean seeds. A possible wet spring adds to this concern. This article addresses questions on low germination rate in soybean.

Keywords
Plant Pathology

Disciplines
Agricultural Science | Agriculture | Plant Pathology
Soybean seed quality and treatments

As the planting season approaches, the concern of low germination rate of soybean has been raised by some growers, which is reflected by many questions on how to use chemicals to treat low-germination-rate soybean seeds. A possible wet spring adds to this concern. This article addresses questions on low germination rate in soybean.

Why low germination rate?

Low germination rate for seed from the 2000 season is likely due to a combination of effects of diseases and insect damage. Last year, the bean leaf beetle population was at the highest level ever recorded. Beetle feeding on pods can directly damage seeds and the wounds on the pods also provide entry sites for opportunistic fungi to infect seeds. Such infections can result in production of seeds with discoloration and shriveled appearance. Seeds from soybean fields with this type damage may have low germination rate. Furthermore, infection by seedborne fungi, such as *Phomopsis* and *Cercospora*, also can reduce seed quality.

Can seed treatment improve germination?

Whether a seed treatment can improve germination rate of infected soybean seed is complicated. If pathogenic fungi are in seed but the infection is superficial and germination rate is not severely affected, use of seed treatment can prevent damage by these fungi when the seed is planted. However, planting the seeds in cool and wet soil may enhance infection. When tested, such seeds often have high germination rate together with higher than normal fungal isolation. If a test indicates high germination rate with the presence of considerable fungal infection, seed treatment may help, especially if planting in wet soils.

If seed vigor is already severely damaged by beetles and by fungal infection, seeds will have low germination rate and seed treatment cannot improve the germination rate. In this situation, you can be misled when using a seed treatment, thinking that planting would be okay with the seed treatments. By the time you find out you have a poor stand, it is too late.

Treatment to control damping-off

Importantly, seed treatments can protect seeds from infections by soilborne fungi and the treatments can be beneficial when the risk of damping-off is high. Risk of damping-off is determined by soil type, tillage use, and planting dates. Fields with heavy soil and no-till often have a relatively high incidence of damping-off. Fields that have had the disease in the past have a high probability of repeat infections.
If soil conditions are wet during spring planting, disease risk may vary with planting date. Diseases in early planting are associated with damping-off by cool-temperature fungi, mainly *Pythium* and *Fusarium*. Cool (below 60°F) and wet soils are conducive to growth of these fungi. If planting is delayed and soil temperature is warm, damping-off caused by *Phytophthora* and *Rhizoctonia* is a concern because the two fungi are the most active when soil temperatures are around 80°F. Stand reduction in warm soils in late spring is a good indication of damping-off by either of these fungi.

This article originally appeared on page 27 of the IC-486 (3) -- March 19, 2001 issue.

Source URL: