

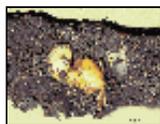
INTEGRATED CROP MANAGEMENT

Soybean seed treatments in 2003

As planting season approaches, it is time to consider seed treatment. Damping-off diseases are a major concern for early-planted soybean. Because more and more growers are planting early, they are interested in using seed treatments to promote good stand establishment. This article describes how and when to use seed treatment.

Fungi causing seedling diseases

The major fungi that cause seedling diseases are *Pythium*, *Fusarium*, *Phytophthora*, and *Rhizoctonia*. All four fungi prefer high soil moisture to attack soybean, with *Pythium* and *Phytophthora* requiring saturated soil and periodic rain. *Pythium* and *Fusarium* are more active in cool soil, whereas *Phytophthora* and *Rhizoctonia* are more active in warm soil.



Seed rot caused by *Phytophthora*.

[Enlarge](#) [1]

Early planting

In a normal-weather season, early-planted soybean would grow in low-temperature, high-moisture soil, which increases seedling disease risk. If soybean seeds are planted in fields with high moisture, seed treatments may be needed, especially for early-planted soybean. Cool (<60oF) and wet soils promote fungal seed rot or seedling death caused by *Pythium* and *Fusarium*.

Phytophthora favors warm soil temperatures and has lower activity in cool soil. However, infection by this fungus in early-planted soybean may still occur. If a field had severe *Phytophthora* damping-off in past seasons, the pathogen can still cause substantial reduction in early-planted soybean because of high inoculum levels in the field. This situation has occurred in Iowa soybean fields.

New *Phytophthora* races

I am involved in current studies funded by checkoff dollars that indicate dramatic changes in damage potential of *Phytophthora* races in the past 8 years. Before 1994, less than 5 percent

of *Phytophthora* in Iowa soybean fields could defeat varieties with the Rps-1k gene. In the past 2 years, studies on *Phytophthora* races have indicated four new Iowa races that can defeat the Rps-1k gene; thus, nearly 50 percent of races can now defeat soybean varieties with the resistance gene. If you experienced Phytophthora damping-off in your soybean fields planted with Rps-1k soybean, it is likely that the resistance gene is no longer effective in your fields.

If the resistance gene is no longer effective, the risk of Phytophthora damping-off increases, and this risk cannot be managed with variety selection alone. Consider using seed treatments if *Phytophthora* risk is high. A combination of tolerant varieties and effective seed treatments is recommended. Seed treatments protect soybean from Phytophthora damping-off during the seedling stage before tolerance kicks in. Varieties with good tolerance have minimum yield reduction by Phytophthora damping-off.

Chemical treatments

Chemicals are effective in controlling some fungi and are often specific for certain diseases. Companies offer different formulations. Apron XL (mefenoxam) and Allegiance (metalaxyl) are effective in controlling *Pythium* and *Phytophthora*. When either one of these two chemicals is mixed with other chemicals into a formulation such as Apron + Maxx (ApronMaxx), the formulation is used to control seedling diseases in addition to Phythium and Phytopathora damping-off.

SoyGuard is a mixture of two active ingredients (Protégé and Allegiance). SoyGuard also has activity against other diseases such as *Rhizoctonia* in addition to *Phytophthora* and *Pythium*. Other formulations on the market are Stiletto (metalaxyl, thiram, and carboxin) and Prevail (metalaxyl, PCNB, and carboxin).

ApronMaxx and SoyGuard have two types of application forms. They can be applied to seed either commercially or as an on-farm treatment. For the ApronMaxx, you can find ApronMaxx 2EC and ApronMaxx RTA; the latter can be used for on-farm seed treatments. For control of *Phytophthora*, consider a higher rate of Apron XL or metalaxyl. I have observed that higher rates provided better control in fields where *Phytophthora* risk is high.

This article originally appeared on pages 17-18 of the IC-490 (3) -- March 17, 2003 issue.

Source URL:

<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2003/3-17-2003/soytreat.html>

Links:

[1] <http://www.ent.iastate.edu/imagegal/plantpath/soybean/seedrot/icm172seedrotxb.html>

IOWA STATE UNIVERSITY
University Extension