

Burrus Buzz

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June 3, 2015



Soybean Damping off

by Stephanie Porter

Yes, soybeans can be vulnerable to pythium and Phytophthora roots rots (and even Rhizoctonia root rot). Pythium and Phytophthora spp. belong to the group of fungal-like organisms called the oomycetes, which are also known as water molds. Moisture has to be present for zoospores (spores) to infect roots. Most pythium species can infect corn and soybeans (as well as other crops), but as research continues, they are finding that some pythium species may prefer to infect corn; whereas other pythium species may be more likely to infect soybeans. Historically, pythium species are more likely to infect early because they favor cooler temperatures (50 to 60 F); however, further research has shown that some pythium species may infect at warmer temperatures. Phytophthora spp. prefer temperatures of 77 to 86 F and have a very wide host range. Phytophthora root rot can attack/kill soybeans at all growth stages.

Both pythium and Phytophthora root rot pathogens can cause a brown rot to occur on soybean roots or hypocotyls. In my opinion, it is very difficult to make the distinction between pythium and Phytophthora root rot within the field, when soybeans are infected at early growth stages. If you suspect root rot, Burrus agronomists now have a microscope or stereoscope to examine oospores (spores) within roots (pythium), lemon shaped sporangia growing on roots or hypocotyls (Phytophthora). Alternatively, Burrus agronomist can use a form of Enzyme-Linked Immunosorbent Assay (ELISA) – a quick strip test used to detect antibodies or infectious agents in a sample (Phytophthora).



If you have soybean damping off or root rot early in the season in your field, why should you care if it is infected by pythium or Phytophthora? The answer is management.

Both pythium and Phytophthora spp. are more likely to infect plants that lack vigor or that are planted in a poor location. Further investigation of plant stress may lead to clues why infection may have occurred. Since both of these pathogens require moisture for infection, it makes sense that flooding, lower lying areas of the field as well as clay soils that have a higher water holding capacity may be more at risk for pythium and Phytophthora infection. Therefore, improving (or the addition of) tile drainage could offer some aid in some situations.

Fungicide seed treatments can offer control early in the season, but keep in mind that not all of them specifically protect or are registered to be used against the oomycete fungi like pythium and Phytophthora. The reason I say "early season control" is because these fungicide seed treatments do not last forever. There is always the chance of resistance to fungicide seed treatments, but has not yet been documented in "our neck of the woods."

All of our soybean brands, which include Hughes, PowerPlus®, and Hoblit are available with our PowerShield® seed treatment, which includes insecticide, multiple fungicides, and biologicals. We are proud to report that approximately 90% of Burrus soybean seed is treated with PowerShield. PowerShield on our soybeans also consists of Evergol™ Energy, which provides multiple modes of action of systemic fungicides against early season disease pathogens such as pythium spp., Phytophthora spp., Fusarium spp., Rhizoctonia spp., and others. Unlike many of our competitors, our soybean PowerShield seed treatment also consists of Allegiance®, which provides an even longer early season control of pythium and Phytophthora spp.

There is no resistance available within soybeans for pythium; however there is resistance or tolerance available within soybean varieties for use against Phytophthora.