

Diaporthe-Phomopsis Disease Complex in Soybean

- Pod and stem blight and Phomopsis seed decay are two diseases that make up the Diaporthe-Phomopsis disease complex in soybean.
- Pod and stem blight can damage maturing plants and result in premature death. Phomopsis seed decay can greatly affect seed quality.
- Both diseases can occur under wet growing conditions.

Pod and stem blight (*Diaporthe sojae*/syn. *Phomopsis phaseoli*) and Phomopsis seed decay (*Diaporthe longicola*/syn. *Phomopsis longicola*) are caused by fungi in the genus *Diaporthe*. All soybean plant parts (roots, stems, petioles, pods, and seeds) are susceptible to infection by the fungi.

Pod and Stem Blight

The fungus that causes pod and stem blight initially infects the soybean plant early in the growing season without causing symptoms. The most characteristic sign of pod and stem blight is linear rows of black specks on mature stems of soybean (Figure 1). The specks, which are flask-shaped fruiting structures of the fungus known as pycnidia, can also be scattered on dry, poorly developed pods. Not all infected pods produce pycnidia, but mature pods with pycnidia will contain infected seed.



Figure 1. Linear rows of pycnidia on soybean stem and pod caused by pod and stem blight on soybean. Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org.

Phomopsis Seed Decay

Infected seeds may have a range of visible symptoms from none to severe. Severely infected seeds are shriveled, cracked, and may be partly or completely covered by a whitish mold growth (Figure 2). Severely infected seed will not germinate. Healthy-appearing seed can still harbor fungi beneath the seed coat and when infected seeds are planted, emergence may be low due to seed rot or seedling blight.



Figure 2. Soybean seed showing moldy and cracked seed coat symptoms of Phomopsis seed decay. Photo Courtesy of The Ohio State University.

Conditions Favoring Disease

Phomopsis seed decay and pod and stem blight overwinter in soybean residue and infected seed. Disease is favored by wet, warm, and humid weather when soybean plants are maturing. Seed infection occurs only if pods become infected. Pod infection can occur from flowering onwards, but extensive seed infection doesn't occur until plants have pods that are beginning to mature. Seed infection tends to be more severe when harvest is delayed.

Disease Management

- **Soybean Product Selection:** Earlier maturing soybean products are at greater risk of disease development than fuller-season varieties. Some soybean varieties may differ in resistance.
- **Seed Selection:** Use high quality, pathogen-free seed.
- **Crop Rotation and Tillage:** Rotate soybean with non-hosts such as corn or wheat. Tillage can help by burying residue and promoting decay of pathogen-infested residue.
- **Fungicide Treatments:** Fungicide seed treatments can be beneficial in low to moderately infected seeds. Foliar fungicides can help under conditions that favor severe disease development.
- **Harvest:** Mature soybeans should be harvested as soon as possible.

Sources

Mueller, D., Bradley, C., Chilvers, M., Giesler, L., Mathew, F., Smith, D., and Wise, K. 2015. Pod and stem blight and Phomopsis seed decay. Soybean Disease Management CPN-1007.

For additional agronomic information, please contact your local seed representative. 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.

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