

INTEGRATED CROP MANAGEMENT

Late planting date and soybean diseases

Last spring, Iowa had a warm and early planting season; some growers were done planting corn and had started to plant soybean by early April. This year is different. So far, corn has not been planted. This article focuses on how planting date can affect soybean disease occurrence. A late planting may increase, reduce, or not affect a soybean disease, depending on the nature of the disease. Last years' early planting was associated with outbreaks of bean pod mottle virus (BPMV) in most of Iowa and sudden death syndrome (SDS) in some Iowa regions. A late planting this year may reduce the risk of these two diseases.

Studies have shown that early planting is associated with higher risks of BPMV. Early planted soybean fields attract overwintered bean leaf beetles that are vectors of bean pod mottle virus. Early planted soybean fields have more beetle problems compared with late-planted fields, therefore, higher virus risk. Late planting can reduce the risk of BPMV by avoiding overwintered beetles. This past winter was much more severe than normal, which should help reduce beetle populations. However, beetle mortality is yet to be determined.

For SDS, the fungus can infect soybean as early as the seedling stages; thus, planting date directly affects disease risk. Disease incidence increases when soils are cool and wet. In Iowa, severe SDS is more likely to be found in early planted soybean fields than in late-planted fields. This spring, excessive soil moisture together with cool soil temperatures would mean higher disease risk to early planted soybean fields. If your fields showed SDS in the past, consider planting later until the soil warms up to reduce disease risk.

Planting date also indirectly affects occurrence of white mold, pod and stem blight, and brown stem rot. Soybean has certain growth stages during which it is susceptible to white mold and pod and stem blight. Soybean reaches the susceptible stages in the summer according to the planting time. A planting date whose window of susceptible stages overlaps with disease-favorable weather will have higher disease risk than a planting whose window misses the disease-favorable weather. For example, with white mold, more disease was observed in late-planted soybean in 1996 because the cool and wet weather came late in the season. However, we cannot manipulate planting to control these diseases because we cannot predict weather that far in advance.

The table below summarizes how planting date affects major Iowa soybean diseases. It also includes seedling diseases. Keep in mind that if your fields had no disease problems in the past, diseases should not be a factor in your planting date decision because Iowa has a short planting season for maximum yield. If soybean diseases have occurred in your fields, use this table as a guide to help avoid disease problems. If you farm a large acreage with fields that have disease problems, arranging planting order helps reduce disease risk. For example, if

one of your 10 fields had SDS in the past, you can minimize SDS by planting the infested field last.

Table 1. Effects of planting date on soybean diseases for fields where disease is a concern.

Disease	Conditions for infection	Growth stage for infection	Planting date effect
Bean pod mottle virus	Warm air temperature	After emergence	Late planting reduces risk
Sudden death syndrome	Cool and wet soil	Early growth stage	Late planting reduces risk
Damping-off by Pythium	Cool and wet soil	Before V2	Late planting reduces risk
Damping-off by Rhizoctonia	Warm soil	Before V2	Early planting may reduce the problem
Damping-off by Phytophthora	Warm and wet soil	Seedling stage	Early planting may reduce the problem
Pod and stem blight	Cool and wet weather	Pod setting	Varies with weather during pod setting
White mold	Cool and wet weather	Flowering stage	Varies with weather in flowering stage
Brown stem rot	Cool and wet weather	All vegetative growth stages	Varies, often more severe in late mature soybean

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