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Consistency of variety response to white mold

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

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Abstract
Consistency of variety response is an important criterion in the selection of soybean varieties for fields that were infested with soybean white mold in the past. This article summarizes recent data on how the soybean variety that you plant can influence the level of soybean white mold occurrence and crop yield.

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Trend in white mold incidence

According to a report prepared by ISU plant pathologists for the Central Soybean Research Program, white mold incidence is decreasing in Iowa. The results of a 4-year survey (1995-1998) show that the percentage of fields with significant levels of white mold (5 percent or more plants killed in a field) started to decrease in Iowa in 1997. From 1995 to 1998, the percentages of infection were 2.5, 11, 5.5, and 3 percent, respectively. The decrease in the prevalence of white mold in Iowa may be due to the combination of the adoption of disease management practices, especially the use of tolerant varieties, and the less favorable weather conditions for white mold in the past two growing seasons. Another important finding from the survey is that no-till fields have less white mold risk compared with conventional-till fields. Fields with minimum till have the highest disease risk.

Consistency of variety response

ISU pathologists, with support from check-off funds, have conducted variety tests for years. An ISU study shows that the variety responses to white mold have been consistent over the years for 19 varieties tested in all locations and years. Significant correlation coefficients that measured the consistency of response to *S. sclerotiorum* in terms of disease incidence between two locations were from 0.80 to 0.94. Significant correlation coefficients for consistency of yield response were from 0.58 to 0.81. These values suggest that variety response to white mold is more consistent when measured by number of plants killed than by yield.

When growers find good white-mold-tolerant varieties that perform well on their farms, they may want to use these same varieties for years. However, watch for white mold infection when one tolerant variety is used in the same field for several years. On a few farms, the level of infection has been observed to increase if the same variety is grown in the same field for several consecutive years.

Maturity effects

In the past 2 years, white mold has been reported in southern Iowa. Unfortunately, no field tests have been conducted in southern Iowa; thus, we have to use the variety-response information generated from tests in northern Iowa where varieties of different maturity groups, including group III, are tested.

The ISU results show that maturity group affects white mold development. There is a relationship between maturity and level of white mold occurrence when soybeans of different maturity groups are tested in one environment. If a test is done at a site suitable for early-maturity varieties, late-maturity varieties would tend to have higher disease rating because these varieties are tested outside their adaptive regions.

Threshold value

Unfortunately, there is no threshold value for white mold. However, field data indicate that when infection is less than 30 percent, yield reduction can be minimal. Yield response to white mold infection is less sensitive when disease occurrence is less than 30 percent. The risk of yield reduction is minimal when infection is less than 20 percent.

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