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2015 Evaluation of Commercial Seed Treatments on Soybean at Three Locations in Iowa

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2015 Evaluation of Commercial Seed Treatments on Soybean at Three Locations in Iowa

Abstract

In 2015, 13 currently available commercial seed treatments were evaluated at three locations in Iowa. Seed treatments that reduce the risk of seedling diseases, soybean cyst nematode (SCN) and sudden death syndrome (SDS) were included in the trial. The goal of the trials is to provide information of the effect of commercial seed treatments on stand count, disease incidence and severity, and yield of soybean. Funding is provided by Iowa Soybean Association.

Keywords

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2015 Evaluation of Commercial Seed Treatments on Soybean at Three Locations in Iowa

ICM News

April 4, 2016

In 2015, 13 currently available commercial seed treatments were evaluated at three locations in Iowa. Seed treatments that reduce the risk of seedling diseases, soybean cyst nematode (SCN) and sudden death syndrome (SDS) were included in the trial. The goal of the trials is to provide information of the effect of commercial seed treatments on stand count, disease incidence and severity, and yield of soybean. Funding is provided by Iowa Soybean Association.

The trials were done at: Nashua (NERF), Kanawha (NRF), and Crawfordsville (SERF). Public variety IA 2094 (RM 2.4) was planted at Nashua on April 16, 2015, and IA 3014 (RM 3.0) was planted at Kanawha on April 16, 2015 and at Crawfordsville on April 17, 2015 (Table 1). IA 3014 has resistance to *P. sojae* and SCN (HG type 0). The experimental design was a randomized complete block with four replications. Plot sizes

were 10 feet wide (four rows) by 17.5 feet. The seeding rate was 120,000 seed per acre. Seed was sent to each company who took part in the trials, and treatments were applied by the respective companies.

The following data were collected from all treatments: stand count at 35 days after planting, SDS disease index, and yield. For seed treatments that contained a nematicide and the untreated control, SCN population counts at planting (or within 7 days of planting); 45 to 60 days after planting; and at or shortly after harvest, were done. The Reproductive Factor (RF) was calculated by dividing the average final SCN population density by the average initial SCN population at each location.

Results

Despite planting early into cool, wet soils, no effects of seed treatment on stand count were detected at any location, apart from Intego Suite at SERF where the stand count was greater than that of the untreated control, but not different to the other seed treatments evaluated (Table 1).

No significant effect of seed treatment on yield was detected at any of the locations ($P > 0.1$; Table 2).

The soil temperatures at each location were ranged between 50°F to 59°F for four to five days after planting and then decreased to below 42°F after approximately 1.2 inches of precipitation was received across the state. Cool, wet conditions are reported to increase the risk of seedling diseases that may reduce early stand counts. However, in our trials the cool, wet conditions that occurred a few days after planting did not affect stand establishment.

SDS was observed only at NRF, however, the disease index was low (9.2 in the non-treated control). No effect of seed treatment on SDS was detected ($P = 0.3550$).

Mean initial SCN population densities were 338 egg per 100cc soil at NRF; 117 egg per 100cc soil at NERF; and 71 egg per 100cc soil at SERF. SCN numbers in each treatment were generally lower 45 days after planting and greater at harvest. RF ranged from 2.7 to 4.4 at NRF; 3.2 to 20.5 at NERF; and 0.4 to 3.5 at SERF. Since SCN populations at each of the locations were low, it was difficult to detect an effect of the seed treatments on SCN final population and reproductive factor.

ICM seed treatments Table 1 and 2.docx

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Category: Plant Diseases

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Soybean

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seedling disease

soybeans

soybean seedling disease

seed treatment

damping off

stand count

SCN

sds

soybean cyst nematode

sudden death syndrome

disease

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