Trial Type: Crop Protection
Growing Season: 2023 - 2024

Project Objective: The objective of this project was to evaluate nematode protectant seed treatments and their effect on mitigating yield loss in soybeans.

Project Insights:

1. No statistically significant yield response to seed treatments for nematode protection was observed.
2. Soybean cyst nematode (SCN) egg counts for all fields were below the economic threshold.
3. Soil sampling for SCN is important to determine how to manage SCN in fields.

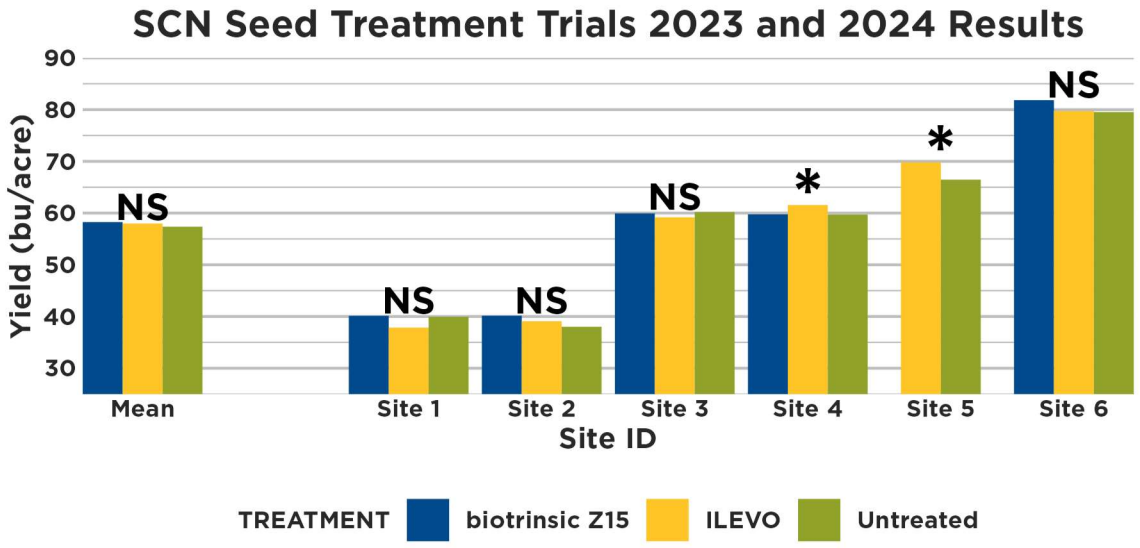

Figure 1 NS Indicates that yields were not statistically different. * Indicates that some treatments were statistically different.

Results:

Trials at sites 1 and 2 (see Figure 2) were conducted in 2023 and experienced rainfall 5-10 inches below normal by mid-June and 15 inches below normal by the end of August. Soil moisture helps trigger maturation of SCN eggs so conditions in 2023 were not conducive to high SCN pressure. The average egg count per 100 cc of soil in 2023 was 18 in May and 29 in October. Egg counts below 2,000 per 100 cc of soil are considered to be low pressure. The yield response at these sites was not significant as seen in Figure 1.

Sites in 2024 experienced 2.5-7.5 inches above normal precipitation levels beginning in early May. Site 3 was the only trial location with small plots (10 X 40 ft) vs replicated strips across the field. Egg counts at site 4 (see Figures 2 and 3) indicate moderate pressure, with 4,850 per 100 cc of soil in October. Pressure never

exceeded low at sites 5 and 6 which had egg counts below 2,000 per 100 cc of soil in both May and October.

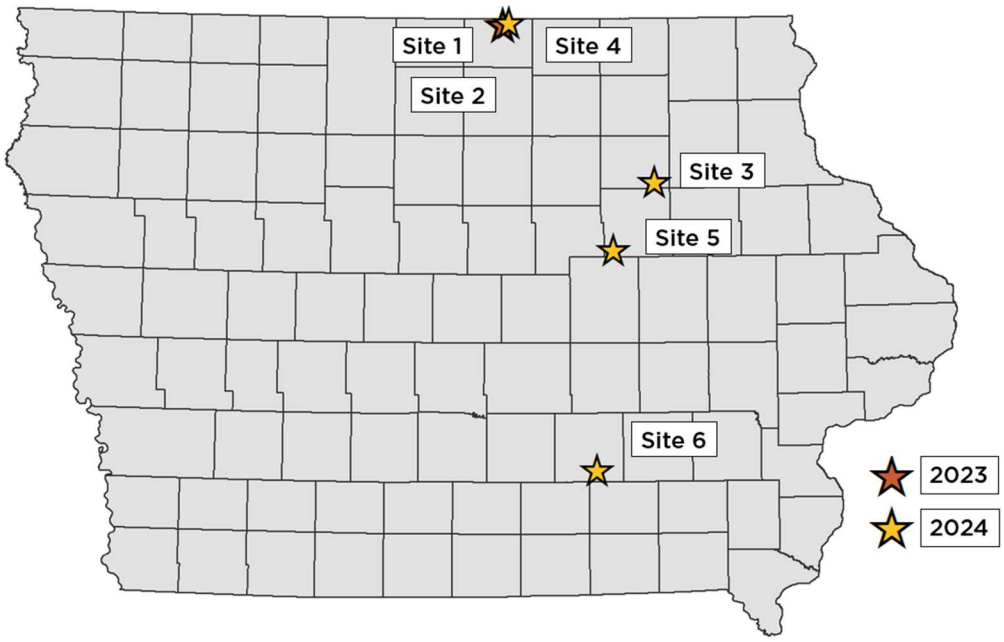

Figure 1: SCN seed treatment trial locations in 2023 and 2024.

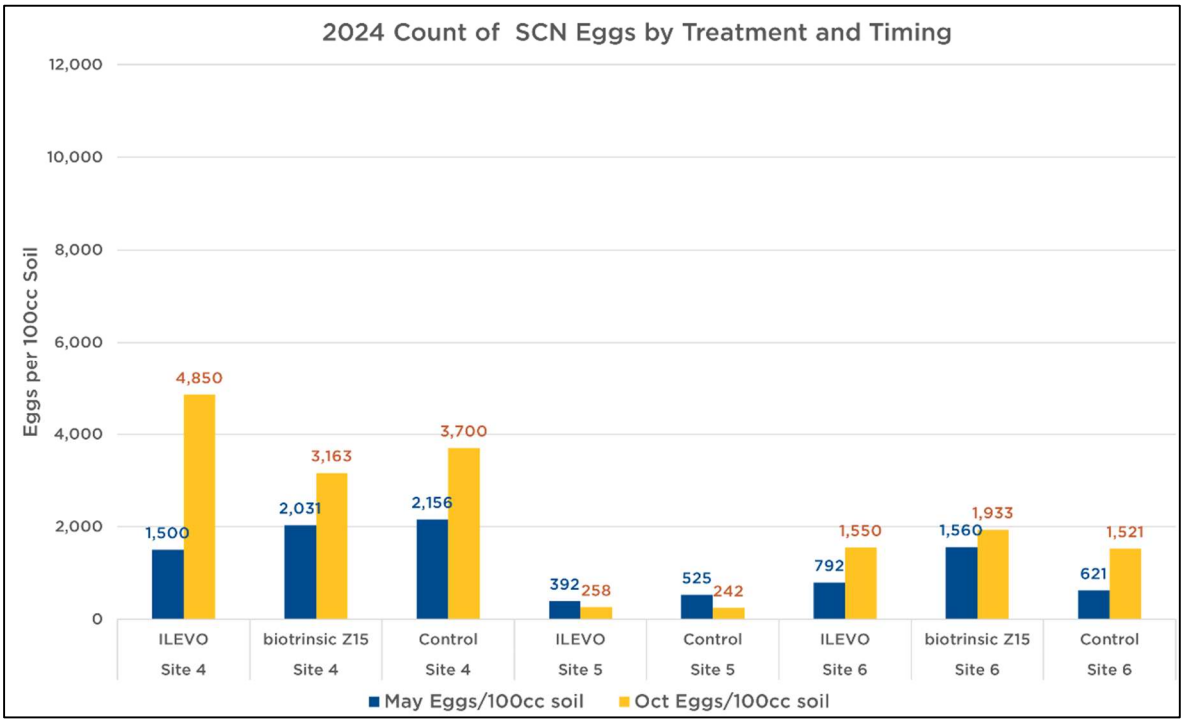

Figure 2: SCN egg counts in May and October of 2024 for 3 trial sites.

Conclusions:

Each year, soybean cyst nematode (SCN) is responsible for millions of bushels in soybean yield losses. Iowa State University reports this pest is present in 75-80% of all Iowa fields. Growing non-host crops is one management option for farmers, but SCN can remain dormant in the soil for years until soybean is grown again. Resistant soybean varieties have been the traditional line of defense but have largely come from PI 88788 which is growing less effective. Soybean varieties with other sources of SCN resistance exist (i.e. Peking), but these are limited in number and availability.

Another option for SCN management is the use of nematode-protectant seed treatments which can come in chemical or biological forms. Older chemical products continue to be popular with growers as a tool to reduce the effects of SCN. Newer biological products coming into the market show potential to be an effective alternate mode-of-action, but require more on-farm results to gain farmer buy-in.

With relatively low SCN pressure detected at the trial locations during this trial, it is difficult to discern the effectiveness of biotrinsic Z15 or ILEVO seed treatments to reduce soybean yield loss. SCN does not appear uniformly across fields, so trial placement to maximize trial effectiveness is challenging. With natural resilience, SCN is beginning to overcome resistant soybean genetics, making it important to identify additional approaches to mitigate its impact. Farmers experiencing significant pressure from SCN may wish to consider rotating with corn and sampling in the fall to track pressure levels. Using different or combined sources of resistance may also help to manage this challenging pest.