

North Dakota Soybean Council
Management of Soybean Aphids and Interaction with Soybean Cyst Nematode
Executive Summary – June 30, 2018

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The overall goal of this research is to provide soybean producers with the viable pest management strategies to control two economic pests: soybean aphids and soybean cyst nematode (SCN).

In our first study, the effectiveness of different pest management strategies for soybean aphid was compared including insecticide seed treatments and foliar-applied insecticides. Two application timings were tested for the foliar-applied insecticides: an early R1 (beginning bloom) and the economic threshold (ET = an average of 250 aphids per plant). Results indicated that soybean producers should scout for soybean aphids regularly during the growing season and wait until the ET is reached before making any insecticide application. In addition, insecticide seed treatments did not provide an increased yield benefit under low or high aphid pressure over the non-insecticide treated seed with a foliar-applied insecticide at the ET.

The second study examined SCN populations in SCN resistant and susceptible varieties and how they are impacted by different soybean aphid densities. The best pest management strategy for SCN was the use of a SCN resistant variety. The SCN resistant variety significantly decreased SCN population growth, and resulted in a significant higher yield gain, average of 24 bushel per acre, over the SCN susceptible variety. Results suggest that keeping soybeans free of soybean aphids can lead to an increase in SCN. Soybean producers should avoid this practice and use the ET for soybean aphid management whether SCN is present or not.

The third study focused on documenting the status of insecticide resistance in populations of soybean aphids in North Dakota. Pyrethroid (an insecticide group) failure for control of soybean aphid was reported in 9 counties in 2017 (Figure 1). Aphids collected from these problem fields were used to determine if these populations were resistant to pyrethroid insecticides. Laboratory bioassays confirmed that about 70% of the soybean aphid populations tested were resistant to pyrethroid insecticides. Insecticide resistant soybean aphids will complicate insecticide management decisions for producers creating a new challenge for soybean production.

