**General summary:**

Soybean aphid populations throughout Iowa were lower than in 2017. As a result, few commercial fields were sprayed and we did not respond to any “performance failures” this summer. The lack of reports does not mean pyrethroid-resistant aphids were absent in Iowa. Graduate student, Ivair Valmorbida, collected aphids from around Iowa and established lab bioassays with existing soybean aphid colonies.

Dose response analyses were performed to evaluate the susceptibility of soybean aphid populations to lambda-cyhalothrin, an insecticide used to control aphids in soybean. Three laboratory populations (Biotypes 1, 3, 4) and three field populations (Sutherland, Minnesota colonies 1 and 2) collected in the Summer of 2017 were screened using leaf dip bioassay as recommended by the Insecticide Resistance Action Committee (IRAC), and LC50 and resistance ratios were calculated. Results indicate no variation in the susceptibility between biotypes 1 and 3; however, the LC50 of biotype 4 was almost twice as the LC50 of Biotypes 1 and 3. Field-collected populations also demonstrated different susceptibility to lambda-cyhalothrin when compared to the Biotype 1 colony (hereafter as susceptible colony). The population from Sutherland, IA, had a resistance ratio of 3.7. The two Minnesota colonies had similar LC50s and resistance ratios of 45.8 and 36.65, respectively.

In addition, two experiments will start this fall:

1. Sequencing of Sodium Voltage Gated Channel of MN2 will start in October to verify possible mutations that confer resistance to lambda-cyhalothrin. DNA has been extracted from dead and alive aphids after insecticide exposure.

 2. Effect of sublethal concentration of lambda-cyhalothrin on soybean aphids will start in October.

**Recent Extension publications: 6**

Hodgson, E. W., and G. VanNostrand. 2018. Evaluation of insecticides for control of soybean aphid, 2017. Entomological Society of America Arthropod Management Tests. DOI: 10.1093/amt/tsx045.

Hodgson, E. W., and R. Koch. 2018. Soybean aphid management field guide for the north-central region, 62 pp. (2nd edition). North Central Soybean Research Program, [Publication IPM 0060](https://store.extension.iastate.edu/product/12817).

Koch, R., E. Hodgson, J. Knodel, and A. Varenhorst. 2018. Management of insecticide-resistant soybean aphids, 4. pp. North Dakota State University, [Publication E1878](https://store.extension.iastate.edu/product/15384).

Hodgson, E. “When is it too late to spray for soybean aphid?” *In* ICM News. 8 August 2018.

Hodgson, E. “Soybean aphid egg hatch predicted in northern Iowa.” *In* ICM News. 8 May 2018.

Hodgson, E. “Summary of soybean aphid efficacy evaluation for 2017.” *In* ICM News. 21 December 2017.

**Extension presentations (in 2018): 4**

Hodgson, E. W. Resistance management plans for soybean aphid. 2018 Iowa State University Extension and Outreach Crop Advantage Series Workshops.

 - Okoboji, IA. [45 people] 4 January 2018

 - Burlington, IA. [7 people] 5 January 2018

 - Storm Lake, IA. [18 people] 9 January 2018

 - Atlantic, IA. [32 people] 16 January 2018

 - Waterloo, IA. [2 sessions; 110 people] 18 January 2018

 - Iowa City, IA. [40 people] 24 January 2018

 - Davenport, IL. [2 sessions; 35 people] 26 January 2018

Hodgson, E. W. Soybean aphid bites back: update on pyrethroid resistance. Iowa State University Extension and Outreach Integrated Crop Management Annual Conference, Ames, IA. [2 sessions; 155 people] 29 November 2017

Hodgson, E. Soybean aphid efficacy evaluation using Sefina. Corteva Field Day, Northwest Research Farm, Iowa State University, Sutherland, IA. [8 people] 22 August 2018

Hodgson, E. Insect updates. Monsanto Field Day, Field Extension Education Laboratory, Iowa State University, Ames, IA. [45 people] 21 August 2018