



### **Spraying for Aphids in Soybeans**

Soybean aphid spraying has become second nature for most of us for over ten years. But there are still lots of opinions about management of them. In order to make the correct decision on how to manage them, we need to first understand where they come from and how they spread:

- They were introduced into the US from Japan in 2000, and by about 2004, they had spread to most of the Midwest.
- Aphids over winter are in the egg form on Buckthorn in groves and wooded areas. From there, in the spring when the temperature reaches 50 degrees, they will undergo a couple of reproductive stages.
- When the buckthorn starts to flower, the aphids undergo another generation change into a female with wings to start moving into soybean fields. This typically happens about early to mid-June, but is greatly dependent on weather for the year.
- Once they have colonized on the soybeans, they will go through about 15 reproductive cycles, each cycle takes between 2 days to 2 weeks, depending on temperature. Because these wingless aphids reproduce a-sexually, the populations can double in as little as 2 days.
- Most aphids move only a few feet in their life because they don't have wings, but they have adapted so if the population is increasing some will develop wings and can move up to 6 miles per day.

#### **Natural enemies of aphids:**

- Asian lady beetles
- Parasitic wasps
- Entomophthora fungi also can cause death of a colony

Although aphids like warmer temperatures (ideal is 77-82 degrees), once the temperature is over 95 degrees this can also cause death to aphids. These natural enemies can do a great job of controlling low populations (up to about 25 or 50 aphids per plant), and this is why typically we don't see widespread outbreaks until late July or early August. And unfortunately, when we spray insecticide to kill aphids, we also kill the beneficial insects and thus aphids repopulate much faster.

Aphids have needle like sucking mouths that penetrate the tissue of the soybean plant and remove sap from it. Because of this piercing action, aphids are also able to transmit various diseases into the plants. This sucking action is where the yield loss comes from and why in drought stressed areas the impact is even greater from aphids.

The yield loss from aphids can be as high as 50%, depending on how early and how severe the infestation becomes. There are various opinions on how high the population should be before you spray, but most agree that it pays to spray any time before R5 or R6 in drought stressed areas. The university community agrees that it is not economical to spray until there are 250 aphids per plant, and SDSU has modified this a little to Aphid Days. So if you have 25 aphids for 10 days, it is the same as 250 aphids for one day. As talked about earlier, part of what plays into this number is the fact that aphids repopulate much faster after application.

**There are two methods of controlling aphids:**

- The primary method is spraying with an insecticide
  - Residual or not
  - How long before harvest (45 day withdrawal period for some)
    - In some areas there is documented resistance to certain Pyrethoid insecticides
- The other method is to plant varieties that are tolerant to aphids
  - For example, Legend's LS 10R5551N

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