

# Soybean Aphid Speed Scouting: An Overview

**“Speed Scouting”** is the method developed by researchers to speed up scouting and increase the likelihood of even a novice to make correct treatment decisions for Soybean aphid when the **treatment threshold of 250 aphids per plant and 80+% of the plants with these levels** is reached.

Who wants to count aphids on soybean plants? If you do, fine. Most people don't like the idea. They want a faster process. OR maybe, we let others do the dirty work and then just follow their lead for making treatment decisions.

It is strongly recommended you look in the field to watch how pest populations are developing. Personally, if “Speed Scouting” will get someone into the field who otherwise wouldn't, there is a benefit. Observing pest population growth from its beginning, through its peak, and then the decline, is very educational. It also builds confidence in a person's ability to make the correct treatment decision.

Speed Scouting is easy to learn. It is designed to be quick, so a person isn't dedicating excessive time to scouting fields. The method provides a statistical level of reliability, even for the beginner.

The method is formally referred to as a **binomial sequential sampling** plan. The binomial refers to two possible outcomes (e.g., Yes or No; Infested or Not Infested) when you look at a randomly selected plant. The sequential sampling aspect refers to the process of keeping track of what plants are and aren't infested (based on the model's definition of “infested”) and being able to conclude, often times quickly, whether you need to treat or not.

## Here is a quick overview:

After collecting data from commercial soybean in southern and central Minnesota, entomologists at the University of Minnesota developed a binomial sampling plan, called Speed Scouting for Soybean Aphid. The recommendation is to use this sampling plan through the pod set stage (R4).

A **“binomial”** plan refers to two choices; sometimes it means a presence/absence count or, as in this case, a pre-set cut-off number where counting can be stopped. For this procedure, the binomial sampling cut-off point is 40 aphids per plant. If a plant has:

- **less than 40 aphids = not-infested**
- **40 or more aphids = infested**

(remember, counting additional aphids is not necessary after 40, after practice you won't even count, you'll just know)

The field scout keeps track of the plants and how they are classified. A worksheet (see example) really is a must in order to keep track. Eventually, enough plants (the minimum number of plants is 11) will have been checked to

start making some decisions. The statistical models these decisions are based upon will allow you to make one of three decisions with a high degree of reliability (*the model has been set at 75% reliability*). Those decisions are:

1. **Do not treat** the field,
2. **Treat** the field, or
3. **Resample** the field in 3 to 4 days

The binomial sampling plan can improve the cost (especially in time commitment) of sampling because every insect no longer needs to be counted. Though not perfect, the model has attempted to balance reliability with cost of scouting (**Your Time!**). When fields are close to threshold levels, more plant samples are typically required to make a decision. However, when fields are clearly not at threshold or easily over threshold, decisions are made quickly and reliably.

A copy of the worksheet and directions for the procedure are provided on page 7. You can also obtain an electronic copy of the worksheet on the newsletter web page. There is also a worksheet that can be printed and cut to make pocket-sized cards for field recording.

## Modifications:

After field validation during 2005, results revealed that the procedure can prematurely reach treatment decisions, typically at about 160 aphids per plant rather than the threshold of 250 aphids per plant. To ensure the population is actually increasing, it is recommend that the field be re-checked in 3 to 4 days if there are **doubts** about decisions.

Speed Scouting for Soybean Aphid  
[developed by E. Hodgson, B. McCornack, & D. Ragsdale  
University of Minnesota Entomology Dept.]

Go to [www.soybeans.umn.edu](http://www.soybeans.umn.edu)  
for FAQs and copies of the form.

**Directions:**

1. Go to the first plant at random. If less than 40 aphids are on the entire plant, mark a minus [-] for that non-infested plant. If at least 40 aphids are on the plant (STOP COUNTING when you reach 40 – this is the speedy part), mark a plus [+] for that infested plant.
2. Choose a direction at random and walk 30 rows or paces to the next plant.
3. Repeat Step #1 until 11 plants are sampled in different areas of the field.
4. Make a decision using the total number of infested plants (the total number of pluses).
5. If you must “continue sampling” (7-10 plants with a +), sample 5 more plants and use the new total number of plants (16) to make a decision.
6. If no decision is reached, sample additional sets of 5 plants until 31 plants are sampled. Remember, always use the total number of plants to make a decision.
7. If no decision can be made after sampling 31 plants, resample the same field in 3-4 days.
8. A TREAT decision must be confirmed a 2<sup>nd</sup> time 3-4 days later. If confirmed, apply insecticide in 3-4 days.

Field: \_\_\_\_\_ Date: \_\_\_\_\_ Decision: \_\_\_\_\_

Use these Notations:	DO NOT treat. Resample in 7-10 days	CONTINUE sampling 5 more plants	TREAT decision, confirm in 3-4 days
- = Less than 40 aphids/ plant (‘non-infested’)	6 or less	7 to 10	11 or more
+ = 40 or more aphids/ plant (‘infested’)	10 or less	11 to 14	15 or more
	14 or less	15 to 18	19 or more
	18 or less	19 to 22	23 or more
	22 or less	23 to 26	27 or more

Remember: When you continue sampling, add the previous # of infested plant to the new count to make the next decision.

Plant Stage: \_\_\_\_\_

Notes: \_\_\_\_\_

STOP SAMPLING! Resample the same field in 3-4 days.

CONFIRM TREAT DECISION Resample the same field in 3-4 days. Apply insecticide in 3-4 days if confirmed.

There is an APP for that. Just Search the APP Store for:  
**Aphid Speed Scouting**  
(University of Nebraska)

For Additional Information:

Phillip Glogoza