ISBN 978-1-4605-1667-6

Simplified Monitoring Procedure for Strawberry Aphids in New Brunswick Strawberry Fields

Economic importance: The strawberry aphid, *Chaetosiphon fragaefolii*, is the main vector of strawberry plant viruses in northeastern Canada. Plants with two or more of viruses transmitted by this aphid show disease symptoms, become less vigorous and have a reduced yield. Severely affected plants may also die prematurely.

Monitoring and knowing when to apply controls at the appropriate time is one aspect of an Integrated Pest Management (IPM) program. Controls will prevent the strawberry aphid from spreading viruses from plant to plant and from field to field. Monitoring will also prevent the use of unnecessary chemical controls.

Present strawberry aphid monitoring programs require a person to actually see the knobbed hairs on the strawberry aphid body which is time consuming, since a magnification of 30 to 60 times is needed. The following simplified procedure aims to eliminate the need to see the knobbed hairs, which will make monitoring more practical and feasible.

There is not an established economic threshold for the strawberry aphid on strawberry plants in eastern Canada. In New Brunswick, generally, more than 95% of all aphid species found on newly unfolding strawberry leaves are strawberry aphid. New Brunswick strawberry growers are, therefore, recommended to use an action threshold of 15 aphids per 60 leaves but not include aphids with a body length of more than 1.6 mm since those are not the strawberry aphid.

The following monitoring procedure is recommended for each block of strawberry variety or field of less than 2 hectares. Increase the sample size for a larger field.

1) Sample size and frequency: Sixty partially unfolded leaves. Sample one leaf on each of sixty plants by walking in a large W or V pattern and use a different path for a W or V each subsequent week. This pattern ensures that plants on the edge and in the centre of the sampling area are monitored. Sample weekly, from early-June to late-August and from mid-September to the end of the first week of October. Once you count fifteen aphids you may stop counting and may then apply a control according to instructions on the appropriate pesticide label. Monitoring may then be resumed the following week.

2) Sampling Procedure: A 10 to 20X magnifying lens may be needed. Gently unfold the partially unfolded leaf and carefully inspect the underside (Fig. 1) of the three leaflets for nymphs and adult aphids. Aphid nymphs are wingless and are shorter than adults. Older nymphs may or may not have wing buds. The leaf does not have to be removed from the plant. Note that the young nymphs are pale green and practice is needed for observing them. It would be helpful to strongly flick the leaf over a white or black container to dislodge aphids to make them easier to see them.

3) Aphid identification – nymphs and wingless adults: Look for the two cornicles which are present near the posterior end of the abdomen (Fig. 2). Insects that do not have cornicles are not aphids. Do not count aphids longer than 1.6 mm long as those are not strawberry aphid. Do not count aphids that are obviously a different colour than the strawberry aphid (can vary between light yellow to light green). Figure 3 shows a strawberry aphid nymph (body length 1.5 mm) on a side of a six-sided pencil.

4) Aphid identification – winged adults: Look for the two cornicles and only count aphids with a body length of 1.3 to 1.6 mm (Fig. 4).

Follow local recommendations if winged adult strawberry aphids are in your area or if the flight period is occurring in your area. Updates may also be on the crop updates at the Department of Agriculture, Aquaculture and Fisheries web site.

Figure 1. Aphids on underside of an unfolding strawberry leaf.

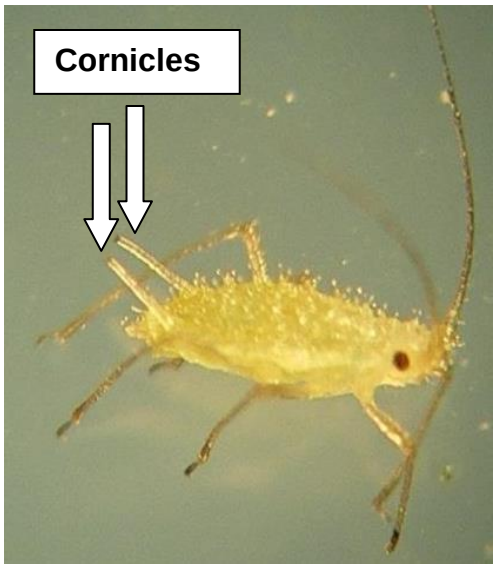

Figure 2. Strawberry aphid nymph.

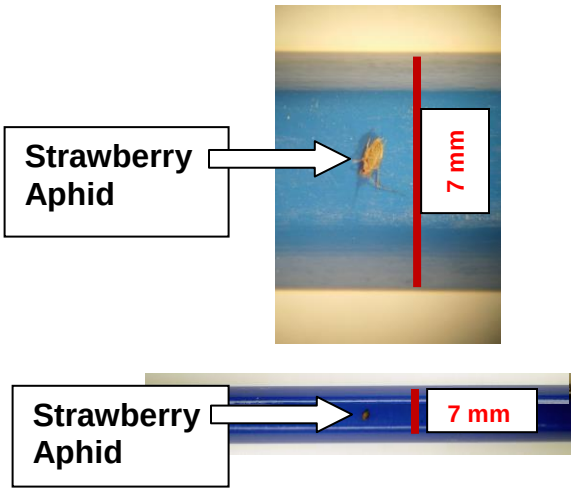

Figure 3. Strawberry aphid (SA), 1.5 mm long, on a pencil. (Pencil width 7 mm.)

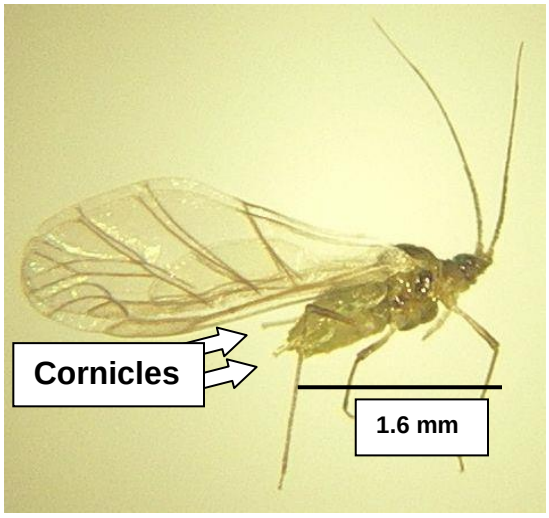

Figure 4. Winged strawberry aphid adult. (Body length 1.6 mm.)