

## Scouting Silverleaf Whiteflies in Cotton

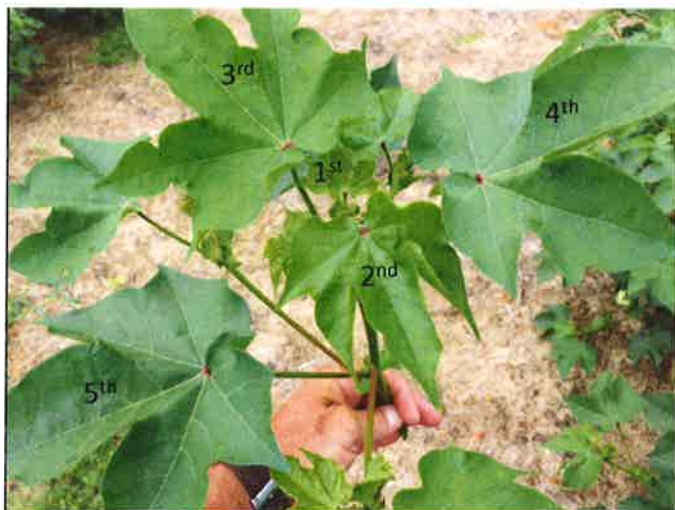
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The goal in silverleaf whitefly (SLWF) management is to initiate control measures just prior to the period of most rapid pest population development. Routine sampling is required to identify the rate of SLWF population increase. IPM principles and practices such as conservation of beneficial insects should be employed to delay population buildup. A well-timed initial SLWF insecticide application will pay significant economic dividends in reducing overall insecticide inputs and plant injury.

SLWF adults and immatures will be found on the underside of leaves. SLWF populations are best estimated from the 5<sup>th</sup> main stem leaf below the terminal. Main stem leaves are attached directly to the main stem by their petioles. The top or first main stem leaf is defined as the uppermost leaf which is 1 inch or larger in diameter. Adults and nymphs should be counted on the 5<sup>th</sup> main stem leaf below the terminal.

### Steps for Efficient Sampling of Whiteflies

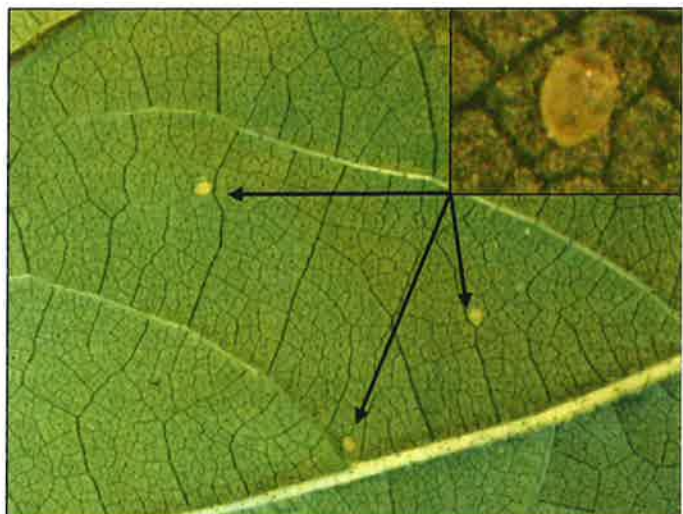
1. Familiarize yourself with the general location of the 5<sup>th</sup> main stem leaf in each field.
2. Select plants at random at least 25 paces into the field and at least 10 paces apart, being careful to keep your shadow from passing over the plant you plan to sample.
3. Turn the 5<sup>th</sup> leaf over slowly by its tip or petiole and count the leaf as infested with adults if it has 3 or more adults on it. Include in your counts any adults that fly up from the leaf as you turn it over.
4. Detach the leaf by the petiole from the main stem. If it fails to snap off easily, you have likely sampled a leaf that is too high on the plant. Recheck your leaf position to make sure you are sampling the 5<sup>th</sup> leaf.
5. Examine the bottom of the leaf for the presence of immature SLWFs. Count the leaf as infested if it has 5 or more immatures on the underside of the leaf. It is important that you are sampling the 5<sup>th</sup> mainstem leaf. A hand lens will aid in counting immatures.
6. Sample at least 30 plants (leaves) per field.
7. Calculate the percentage of leaves infested with adults and the percentage of leaves infested with immatures.
8. Treatment is recommended when 50 percent of sampled leaves are infested with immature SLWFs.



Find the 5<sup>th</sup> main stem leaf below the terminal.



Adult SLWF Infestations: leaves are considered infested if 3 adult SLWFs are observed. After counting adults detach the leaf from the main stem.



Immature SLWF Infestations: leaves are considered infested if 5 immatures are observed.

# Managing Silverleaf Whiteflies in Cotton

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EXTENSION

Following these guidelines, especially on a community basis, should result in better management of SLWF locally and areawide.

- Destroy host crops immediately after harvest; this includes vegetable and melon crops in the spring and cotton (timely defoliation and harvest) and other host crops in the fall.
- Scout cotton on a regular basis for SLWF adults and immatures.
- The presence of SLWF should influence insecticide selection and the decision to treat other pests.
- Conserve beneficial insects; do not apply insecticides for ANY pests unless thresholds are exceeded.
- Avoid use of insecticides for other pests which are prone to flare SLWF.
- Risk for SLWF problems:
  - Hairy leaf > smooth leaf cotton.
  - Late planted > early planted cotton.
  - Hot and dry > rainy conditions.
- All efforts should be made to minimize the need to treat SLWF with insecticide.

## Insecticide Use:

The goal of SLWF management is to initiate control measures just prior to the period of most rapid SLWF population development. It is critically important that initial insecticide applications are well timed. If you are late with the initial application control will be very difficult and expensive in the long run. It is nearly impossible to regain control once the population reaches outbreak proportions!

- SLWF Threshold: Treat when 50 percent of sampled leaves (sample 5<sup>th</sup> expanded leaf below the terminal) are infested with multiple immatures ( $\geq 5$  per leaf).
- Insect Growth Regulators (Knack and Courier): use of IGRs are the backbone of SLWF management programs in cotton. Effects on SLWF populations are generally slow due to the life stages targeted by IGRs, however these products have long residual activity and perform very well when applied on a timely basis.
- Use of other insecticide options which are active on all life stages have quicker effects on SLWF infestations but lack the residual of IGRs.
- SLWF is an areawide cross commodity problem. When all parties use sound SLWF management programs all will benefit.

Insecticides	Safety to Beneficials	Control Interval <sup>1</sup>	Life Stages Affected
<i>pyriproxyfen</i> Knack	Excellent	14-30 days	Eggs and mature nymphs
<i>buprofezin</i> Courier	Excellent	14-30 days	Nymphs
<i>acetamiprid</i> Assail, others	Moderate	14-21 days	All stages
<i>flupyradifurone</i> Sivanto	Good	14-21 days	All stages
<i>pyrifluquinazon</i> PQZ	Good	7-14 days	All stages
<i>dinotefuran</i> Venom	Moderate	7-14 days	All stages
<i>spiromesifin</i> Oberon	Good	14-21 days	Primarily nymphs

<sup>1</sup>Control interval dependent on rate, timing of application, reinfestation rate and pest pressure, and beneficial insect populations.

Do not mix broad spectrum insecticides (bifenthrin) with selective insecticides (IGRs) for SLWF control unless a tank-mix is required to control multiple insect pests.