

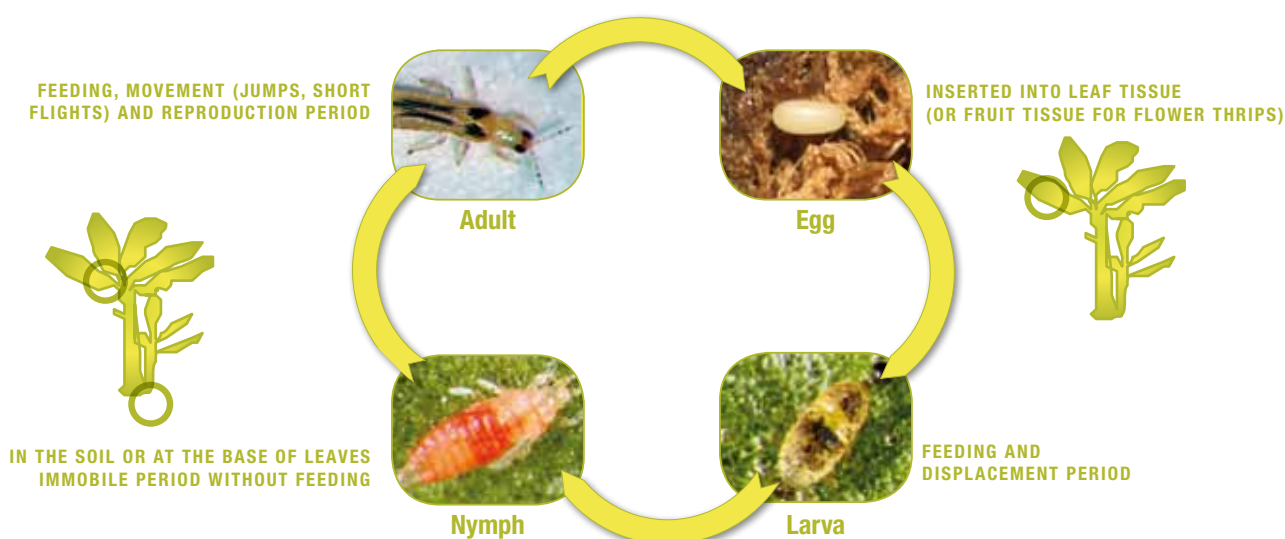
BANANA THRIPS IN THE WEST INDIES



Banana thrips - Photo CIRAD

Thrips are tiny (1-2 mm), slender insects with typical long fringes on the margins of their narrow wings. Adults may cause major damage by puncturing the fruit epidermis to suck out the contents. The fruit peel then becomes discoloured and takes on a silvery or reddish appearance. Adults fly poorly and are unable to reach heights of more than a few metres, except when carried by wind currents. Only adults are readily visible to the naked eye.

1. THRIPS LIFE CYCLE (Source: CIRAD)



2. BANANA THRIPS IDENTIFICATION KEY (Source: CIRAD)



3. BANANA SILVERING THIRPS:

ELIXOTHRIPS BREVISETIS **Eb**



Elixothrips brevisetis - Photo CIRAD

■ Adults are dark brown with spotted wings, 1.2 mm long and move slowly. They are found on the entire banana tree, on the last unfolded leaf (when it becomes broad and tender) and in the weed flora. The first damage on bananas was noted in March 1996 in Guadeloupe and July of the same year in Martinique. They have a 40 day lifespan.

DURATION OF THE EGG-ADULT CYCLE



3.1- Damage

■ Attacks are uniformly distributed throughout the banana bunches. Symptoms may be detected close to harvest.

There are two stages:

- ① silvery colouration, primarily on the upper side of outer fingers.



1st stage of banana silvering thrips damage - Photo CIRAD

- ② 2 tannin oxidation (rusty colour), which occurs more rapidly when the attack is close to harvest.



2nd stage of banana rust thrips damage - Photo IT2

3.2- Control

- Early bunch covering (during the week after flowering, last horizontal hand stage maximum)
- Complete bunch covering (cover extending 20 cm below the bunch)
- Prefer a tie rather than a knot to attach the cover
- Success 4*: in 2 applications (shooting stage and last horizontal hand stage)
- Encourage natural enemies**.

NOTE: another banana silvering thrips is currently no longer present in the West Indies, i.e. *Hercinothrips femoralis*, which has a dark brown body with dark wings, and is larger than *E. brevisetis* (1.6-1.8 mm).



Hercinothrips femoralis - Photo CIRAD

4. BANANA RUST THIRPS:

CHAETANAPHOTHIRPS ORCHIDII Co



Chaetanaphothrips orchidii - Photo University of Florida

■ The body of this slow-moving species is yellow. It is 1-1.2 mm long and its wings have dark tips with a clearly visible dark spot at the base. It is found on many plants especially on Anthurium. Adults have a lifespan of around 30 days.

DURATION OF THE EGG-ADULT CYCLE



4.1- Damage

■ Localized rough and coloured patch, which subsequently spreads to all areas of contact between side-by-side or overlapping fingers. Damage appears 3 to 5 weeks after attack onset and is located mainly on the upper third of the bunches. Similar damage may be noted on leaves and weeds.

4.2- Control

- Early bunch covering (during the week after flowering, last horizontal hand stage maximum)
- Complete bunch covering (cover extending 20 cm below the bunch)
- Prefer a tie rather than a knot to attach the cover
- Success 4*: in 2 applications (shooting stage and last female horizontal hand stage)
- Encourage natural enemies**.

4.3- Not to be confused with maturity bronzing

Red rust

- upper third region of bunches
- between-finger areas
- visible on preharvest fruit
- caused by thrips.



Banana rust thrips damage - Photo CIRAD

Maturity bronzing

- first hands of the bunch
- upper side of fruits
- caused by delayed cutting.



Maturity bronzing damage - Photo UGPBAN

5. FLOWER THIRPS:

FRANKLINIELLA PARVULA

- Females are black with transparent wings and 1.5 mm long.



Frankliniella parvula female - Photo CIRAD

- Males are yellow and smaller (1.2 mm) with transparent wings.



Frankliniella parvula male - Photo CIRAD

■ Adults are found from flowering, but only on young bunches. They are located throughout the flower, especially in the flower spike. Attacks begin very early and continue for a relatively short period until the bananas begin to pull away from the stalk (2-3 weeks). They are highly mobile and avoid light. This seems to be a banana-specific species.

5.1- Damage

DURATION OF THE EGG-ADULT CYCLE



■ Black raised spots (corresponding to a laying site) surrounded by a dark green halo on the outer surface of the bunch. The last hands are the most attacked and damage occurs year round.

5.2- Control



Flower thrips damage to a young fruit - Photo IT2



Flower thrips damage at harvest - Photo UGPBAN

- Dry flower removal in the field, horizontal hand stage.
- Early flower spike removal.
- Success 4*: in 2 applications (shooting stage and last female horizontal hand stage)
- Encourage natural enemies**.




6. PROCEDURE FOR MONITORING THIRPS POPULATIONS

■ On plots that seem suitable (not exposed to the wind, in peripheral areas, lowland or highland areas, or known by growers for the recurrence of attacks), monitor 10 bunches and 10 young sucker leaves as soon as the first flowers appear. If thrips are detected, contact the technical service of your group or IT2, and supply them with monitoring results so as to be advised on how to proceed.



Presence of thrips on a banana sucker - Photo IT2

A summary of data on the main thrips species present in West Indian banana plantations

			
SPECIES	BANANA SILVERING THRIPS	BANANA RUST THRIPS	FLOWER THRIPS
SCIENTIFIC NAME	<i>Elixothrips brevisetis</i> ^{Eb}	<i>Chaetanaphothrips orchidii</i> ^{Co}	<i>Frankliniella parvula</i> ^{Fp}
ASPECT	<ul style="list-style-type: none"> - Dark brown body (1.2 mm) - Behaviour: slow 	<ul style="list-style-type: none"> - Yellow body, dark wings (1-1.2 mm) - Behaviour: slow 	Sexual dimorphism: ♀ dark (1.5 mm) ♂ yellow (1.2 mm) - Behaviour: highly mobile, avoids light
LIFE CYCLE	<ul style="list-style-type: none"> - Egg to adult: 24-30 days - Adult lifespan: 40 days 	<ul style="list-style-type: none"> - Egg to adult: 19-29 days - Adult lifespan: 30 days 	<ul style="list-style-type: none"> - Egg to adult: 16 days - Adult lifespan: unknown
LOCATION OF ADULTS	<ul style="list-style-type: none"> - On banana (entire plant) - Last unfolded sucker leaf - Weed flora 	<ul style="list-style-type: none"> - Entire plant - Edges of woodlands - On Anthurium sp. and many other plants 	<ul style="list-style-type: none"> - At flowering, throughout the flower - Only on young bunches
DAMAGE	<ul style="list-style-type: none"> - Symptoms visible close to harvest stage - Silvery colour on upper fruit surface, and rust colour later 	<ul style="list-style-type: none"> - Rough coloured areas at finger contact sites - Localized damage, generally on the top third of the bunch <p>NOT TO BE CONFUSED WITH MATURITY BRONZING</p>	<ul style="list-style-type: none"> - At pseudostem flowering and for 2-3 weeks - Black raised spots surrounded by a dark green halo
CONTROL METHODS	<ul style="list-style-type: none"> - Early bunch cover application, 10 d after flowering - Complete bunch covering (no exposed fruit) - 2 Success 4* applications (shooting stage and last horizontal hand stage) - Encourage natural enemies** 		<ul style="list-style-type: none"> - Dry flower removal in the field - Early removal of flower spikes - 2 Success 4* applications - Encourage natural enemies**

Recommendations: in banana plots at peak production, do not conduct full herbicide treatments in order to avoid sudden fruit infestation by pests present in the surrounding vegetation.

* Success 4:

This product should be uniformly applied from bottom to top to ensure an optimal distribution of the active ingredient. The spraying equipment should ensure constant pressure to obtain uniform application of the product (e.g. a Pulmic TuriaDuo electric sprayer).

** Natural enemies:

In the West Indies, some natural enemies of thrips are present, such as predatory thrips (*Frankliniethrips vespiformis*), small predatory bugs (*Orius* spp.) and predatory mites (phytoseiids). Some of these species have been observed in banana plantations and plant cover seems to favour their presence.



Natural enemy: *Frankliniethrips vespiformis* - Photo CIRAD

PERSONAL NOTES:

