



# THE BROWN CITRUS APHID



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## *What are Aphids?*

Aphids are insects which are easily recognised by their pear-shaped, soft bodies. There are many types of aphids. Colonies can be found on new growth of plants and also on hardened shoots. Aphids have piercing, sucking mouth parts and two projections at the back of the abdomen.

They feed on the soft tissue of bearing and non-bearing trees. Their sucking can lead to curling, stunting and distortion of the leaves and the tip of shoots. Aphids can also transmit plant diseases.

Aphids have the ability to multiply very rapidly. Each aphid produces a very large number of young which mature in about five days. Therefore, the population of aphids can increase rapidly within a short period.

## *Why is the Brown Citrus Aphid (BrCA) so important?*

The Brown Citrus Aphid (BrCA), *Toxoptera citricidus*, is regarded as a significant pest of citrus because of its ability to effectively spread the Citrus Tristeza Virus (CTV). The aphid transmits the virus when it inserts its mouth parts into veins of healthy leaves after feeding on virus infected trees. BrCA

is much more efficient at the transmission of the Tristeza virus than other types of aphids.

Additionally, the BrCA prefers to live on citrus; it has few other hosts. When the BrCA feeds on an infected tree it transmits the virus to another citrus tree and thereby spreads the disease.

Since the aphid has the ability to produce winged forms it can fly to other trees and infect them. The Brown Citrus Aphid also spreads some strains of CTV which are not transmitted by other species of aphids.

When the population becomes too heavy or the flush matures and hardens the aphids fly to other trees and infect them.

## *How did the Brown Citrus Aphid get here?*

The BrCA may have evolved in Asia but it is now found throughout the citrus growing areas of the world including Australia, New Zealand, Pacific Islands, Africa and South America. In Brazil and Argentina, during the Forties and Fifties, the CTV was responsible for the destruction of 16 million citrus trees growing on Sour Orange rootstock. The disease was spread by the Brown Citrus Aphid.

In 1991, the aphid was found in Costa Rica, Nicaragua and Panama. One year later it was found in the Dominican Republic, Haiti, Martinique, Puerto Rico and the United States Virgin Islands. In 1993 the Brown Citrus Aphid had moved to Cuba and Jamaica. The BrCA has been present in Dominica from the early 1990s.

## *How can I identify the Brown Citrus Aphid?*

Of all the aphids affecting citrus the BrCA is the largest. The adults are about 3.2mm in length (about the size of a red ant). There are winged and wingless forms. Adult wingless forms are shiny black and the nymphs are reddish brown. It is sometimes difficult to identify BrCA in the field because there is another species of aphid which is dark in colour and all the species live in colonies on new branches. Winged forms of BrCA can be recognized by their distinctive black antennae. The easiest way to distinguish the two species in the field is that the Brown Citrus Aphid has a distinctly brown stigma (the spot on the forewing). In the Black Citrus Aphid (*Toxoptera aurantii*) the stigma is distinctly black. *For positive identification of the pest please contact your extension officer or the Crop Protection Unit of the Division of Agriculture.*

## *How can we manage the BrCA?*

Fortunately there are many natural enemies of aphids which help to lower the population of the pest. Citrus growers in Dominica rely heavily on these natural enemies to control aphids.

One of these natural enemies is a tiny black wasp called *Lysiphlebus testaceipes* which kills the aphid after the pupa of the wasp has fed and developed inside the aphid. You can see the effect of the activity of the wasp by the number of swollen dead aphids; you may also observe exit holes in the body of the dead aphids.

Another natural enemy of the BrCA is the lady bird beetle. The adults and larvae of the beetle feed on the aphids. Lady bird beetles are either red or orange with black markings. Others are black with red markings.

*These natural enemies must be maintained because citrus aphids are difficult to control by other means. Pesticide use may disrupt the natural enemies and the Aphid population may increase.*





\* The Brown Citrus Aphid (BrCA) is a small insect which can be found in colonies infesting young citrus shoots. It is an important pest because it serves as a vector for a serious disease of citrus which can kill the tree. This photo graph shows both winged and wingless forms.



\* Adult aphids exist in two forms. When the colony is rapidly growing the adults are wingless. Winged forms develop when the shoot become crowded and the aphid need to find a new shoot. This photograph shows the nymph of the BrCA.



\* Adult and immature Ladybird beetles feed on aphids and reduce their populations.



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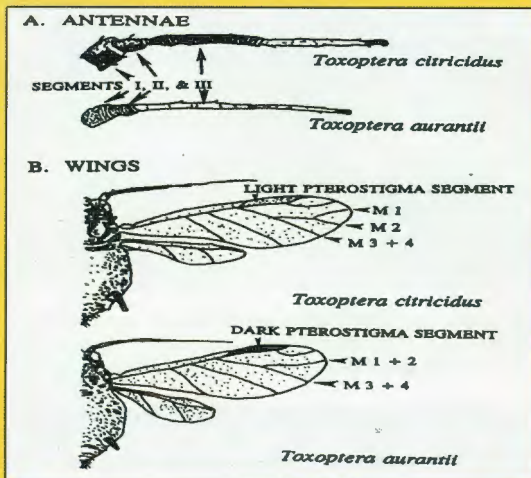
\* Many deaths of the BrCa is caused by two species of tiny wasps. The adult wasp lays its eggs in the aphid and the young wasps grow as parasites within the aphid. This causes a characteristic swollen appearance.



\* When the adult wasps emerge small exit-holes are left in the dead aphid.



\* There is also a type of fly whose larvae feed on aphids. These natural enemies must be maintained because citrus aphids are difficult to control by other means. Pesticide use may disrupt the natural enemies and the aphid population may increase.



\* Identification of BrCA



\* There is a very similar aphid called the black citrus aphid which is also found in Dominica but it is not an important vector of the CTV. The aphid is most easily distinguished by a darker black mark on the wings.



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## **NOTES**

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