



Biocontrol organism

Megastigmus trisulcus

Megastigmus brevivalvus

Adult gall wasp parasites (*Megastigmus brevivalvus* and *M. trisulcus*) are about 2.5 mm long. Females are honey-coloured with red eyes, while males are black on top and brown underneath. A female *M. brevivalvus* has a plump abdomen with a short, black ovipositor. A female *M. trisulcus* has a longer, slenderer abdomen with an ovipositor approximately the same length as its body.



M. brevivalvus parasitising gall wasp eggs.

M. brevivalvus generally emerges in October. *M. trisulcus* emerges in late October or early November. After emerging, the parasites lay their eggs into those of the gall wasps. The parasite egg hatches after the gall wasp larva has hatched and the parasite larva develops slowly in the host larva for several months, finally destroying the host. When

parasites are active, the gall wasp population is much reduced and galls tend to be smaller and fewer in number.

Target pests

Citrus gall wasp *Bruchophagus fellis*

Adult citrus gall wasps are small shiny-black wasps about 2.5 mm in length. The adult wasps emerge around late September. After mating, the females immediately lay eggs into the new season flush. Eggs hatch after 2 - 4 weeks and the young larvae burrow into the bark. Distinctive woody galls form around the larvae during late December. The new generation emerges the following spring, completing the year-long life cycle. Adult wasps live for only one week after emergence.



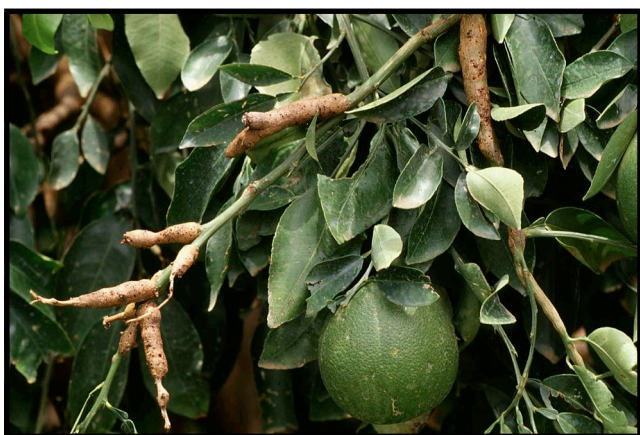
Female citrus gall wasp laying eggs into a young twig.

Historically, citrus gall wasp appeared in many districts unaccompanied by its parasites. This has allowed the pest to achieve very high levels and cause a considerable amount of damage. Where gall wasp parasites have been introduced, gall wasp pressure has been reduced to a low, tolerable level in most varieties within a few years.

Suitable crops/environments

Citrus gall wasp can attack all varieties of citrus. Particularly susceptible varieties include grapefruit, navel and valencia oranges and lemons. Rough lemon and Troyer citrange rootstocks are also vulnerable, while mandarins are least susceptible.

Heavily infested trees can become covered with galls, resulting in very little leaf or fruit production and severe dieback.



Galls formed on grapefruit twigs as a result of citrus gall wasp.

Recommended release rates

1 punnet (200 wasps)/ 10 affected trees or 25 punnets/ ha.

Before release

Gall wasp parasites should be released into affected areas during October and November, over consecutive seasons until a reduction in galling becomes evident. This may take 2 - 3 years. A further 2 - 3 years may elapse before the pest is reduced to an insignificant level.

At release

Gall wasp parasites are supplied in plastic punnets with gauze lids. Strips of waxed paper coated with honey are supplied as nourishment for the parasites. It is normal for some mortality to occur during transit and extra parasites are supplied to allow for this.

Releases should be made on the shaded side of trees or in the late afternoon or early morning. Remove the lid of the punnet and tap the parasites out onto foliage in the vicinity of galls. Place the honey paper near the galls as well.

Chemical use

Avoid using pesticides for two weeks before and two weeks after release.

Photos and information from Smith et al: Citrus Pests and Their Natural Enemies (1997). We recommend this book for further information about citrus gall wasp and its parasites.