



Figure 1. Watercress leafhopper adult

Watercress Leafhopper

Macrosteles sp. nr. *severini* Hamilton

(Homoptera: Cicadellidae)

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Introduction. Specimens of a leafhopper previously not known to occur in Hawaii were collected at a watercress farm in Waiawa, Oahu, in October 2001 after suspicions that a phytoplasma disease was present on the farm. Initially identified as the aster leafhopper, *Macrosteles fascifrons* (Stål) complex, it was later revised to *Macrosteles* sp. nr. *severini* Hamilton by K.G.A. Hamilton, Agriculture and Agri-Food Canada, and Y.J. Kwon, Kyungpook National University, Korea. This is an undescribed species and no information is available on its biology. Kwon notes that this leafhopper is found in California, Oregon, and Argentina. The Hawaii Department of Agriculture is using “watercress leafhopper” as its common name.

Some scientists consider *M. sp. nr. severini* as a biotype or strain of the aster leafhopper which attacks many different crops and ornamentals.

Although the feeding of this leafhopper does little direct damage, it is a vector of the highly destructive aster yellows phytoplasma (Beanland 1999, O'Mara 1993).

Description. Adult leafhoppers are greenish-yellow and are about 4 mm long (Figure 1). Their wings are transparent with a greenish-yellow tinge. An adult watercress leafhopper has six dark lines on its face (Figure 2). Several darkened patches are present on the wings. Their abdomens are dark and their legs contain several rows of spines. Watercress leafhoppers have piercing-sucking mouthparts through which they feed. It is through the feeding process where the leafhoppers acquire and transmit a plant pathogen called the aster yellows phytoplasma. The development from an egg to the adult leafhopper stage is less than one month.



Figure 2. Adult watercress leafhopper with dark lines on its face

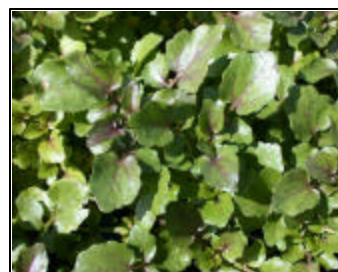


Figure 3. Healthy watercress



Figure 4. Watercress infected with aster yellows phytoplasma

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Hosts. On Oahu, this leafhopper has only been found on watercress and weeds such as parrot's feather, water hyssop (*Bacopa*), and Spanish needle in the vicinity of watercress patches.

Damage. Similar to the aster leafhopper, the watercress leafhopper is an important vector of the aster yellows phytoplasma and has caused severe losses to the watercress industry on Oahu. Compared to healthy watercress (Figure 3), phytoplasma-infected watercress becomes yellowed and stunted along with the proliferation of many axillary shoots (Figure 4). In addition to watercress, the aster yellows phytoplasma has been detected in weeds such as parrot's feather, plantain, amaranth, false daisy, sowthistle, and Flora's paint brush.

Distribution. Surveys conducted by the Cooperative Extension Service and the Hawaii Department of Agriculture have disclosed that the watercress leafhopper and aster yellows phytoplasma are present on Oahu in the aquatic watercress patches in Waipahu, Waiawa, and Pearlridge. Surveys at nearby farms, residences, gardens, and wayside areas have not uncovered any other infestation of the leafhopper nor any evidence of the phytoplasma.

Management. The watercress leafhopper and the aster yellows phytoplasma have been limited to watercress and weeds in the aquatic watercress farms on Oahu. Management of the phytoplasma will consist of controlling leafhopper populations with pesticides, eliminating weed hosts in and around affected farms, using disease-free planting material, and destroying infected plants.

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