

Fuchsia gall mite

Aculops fuchsiae



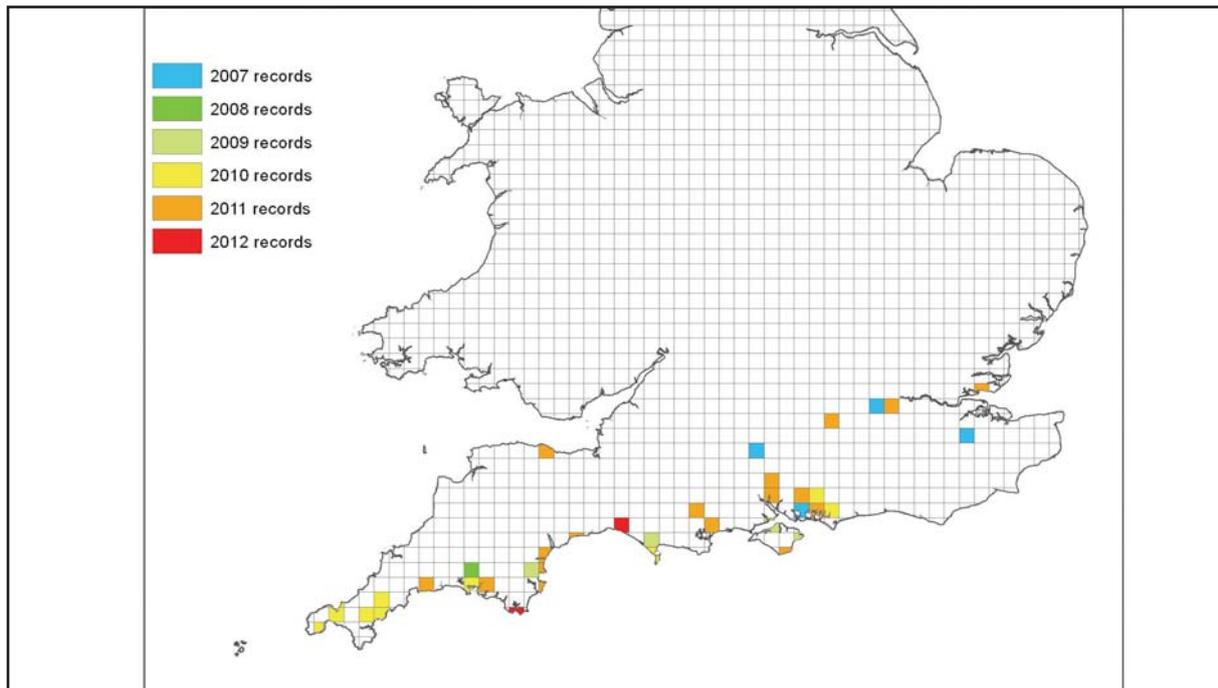
Figure 1. Gross shoot tip distortion in *Fuchsia* sp. infested with *Aculops fuchsiae* Keifer the Fuchsia gall mite

Background

The fuchsia gall mite *Aculops fuchsiae* Keifer (Eriophyidae) is an EPPO A1 and EU II/A1 quarantine listed pest that attacks and seriously damages *Fuchsia* spp. Its presence in Europe was confirmed for the first time in December 2003 from specimens collected from 8 sites around the gulf of Morbihan, Brittany, France. Since then it has spread widely within Brittany. The French plant health service speculated that it may have been introduced from the Americas by the exchange of propagating material between private *Fuchsia* enthusiasts. There is now strong evidence that this pest was introduced in 2001/02 with fuchsia cuttings illegally imported from South America by a *Fuchsia* enthusiast on the Island of Jersey, and has been in England since 2007.

Geographical Distribution

Aculops fuchsiae was described in 1972 from specimens discovered on a *Fuchsia* sp. from Campinas, Sao Paulo, Brazil. In 1981 it was introduced into California, USA around San Francisco and spread rapidly through the southern part of the state. In December 2003 it was officially confirmed as present in Brittany, France, but was first seen in France in 2002 at the Festival de Trévarez, Brittany (May-September) on a *Fuchsia* brought in by a private collector. In 2006 it was detected on the Islands of Guernsey (July) and Jersey (October). In September 2007 it was confirmed as present on mainland Britain in two private gardens, one in Hampshire, one in Middlesex. It has been detected every year since then in numerous locations in southern England, with the distribution best described as, south of a line connecting Bristol in the west to Chelmsford in the east (see distribution map which includes records from the Royal Horticultural Society), with most records coming from the south and southwest coast.



Records of fuchsia gall mite in southern England between 2007 and January 2012

Host Plants

Aculops fuchsiae is known to attack at least three species of *Fuchsia*: *F. arborescens*, *F. magellanica* and *F. procumbens*, and more than 30 different cultivars. Six species, one sub-species and several cultivars are noted to be highly resistant to attack by this mite including Baby Chang, Chance Encounter, Cinnabarina, *F. boliviana*, *F. minutiflora*, *F. microphylla* subsp. *hindalgensis*, *F. radicans*, *F. thymifolia*, *F. tincta*, *F. venusta*, Isis, Mendocino Mini, Miniature Jewels, Ocean Mist and Space Shuttle.

Description

Adult mites are extremely small, measuring between 200 and 250 μm in length and 55-60 μm in width (Figure 2). As with most eriophyoid mites the body is wormlike or fusiform in shape, generally pale yellow to white in colour and bears only two anterior pairs of legs. Because of their size the mites are very difficult to see in the field and it is the host symptoms that first indicate the presence of this pest.

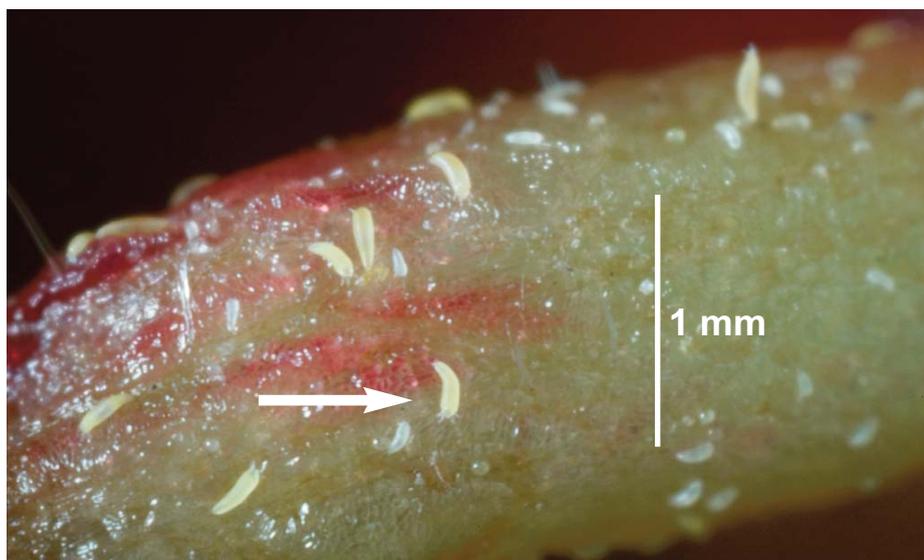


Figure 2. Various life stages of *Aculops fuchsiae* Keifer feeding on the surface of a flower stalk. Adult mite arrowed

Biology, Life-Cycle and Dispersal

The duration of the life cycle is temperature dependent, but neither the minimum or maximum temperature limits for survival are known. The severe winters of 2009 and 2010 did not result in the elimination of *A. fuchsiae* and thus this species appears to be able to survive much lower temperatures than was previously thought. It is known that development is not favoured by excessive heat as inoculation experiments under glass often fail to establish colonies. Fully comprehensive developmental parameters are not presently known, and the following data is based on a temperature of 18°C. There are four life stages, egg; larva; nymph and adult. Female mites lay up to 50 eggs at one time and these take 4 - 7 days to hatch. The lifecycle takes 21 days to complete. All life stages are able to over winter within the bud scales of the host. Eriophyoid mites generally rely upon passive dispersal by wind currents as a means of transferring between hosts, however, insects, birds and the handling of infested material all offer potential routes by which the mites can be dispersed from host to host. The introduction of *A. fuchsiae* from the Americas to Europe was through the actions of man.

Damage and detection

The symptoms of infestation develop gradually, starting with a noticeable reddening of the leaves, particularly on the shoot tips (Figure 3). As an infestation develops, the feeding activity of the mites caused the leaves and flowers to become grossly deformed or galled (Figure 1). Galled leaf tissue is at first pale green and felt-like (Figure 4) but becomes reddened with age (Figure 5). Symptoms of infestation are most strongly expressed on the terminal shoots, and can result in the suppression of all new growth (Figure 6).

Economic impact

Aculops fuchsiae causes severe damage to fuchsias and is ranked as a major pest of all but the most resistant species and cultivars. The quarantine status of this species in California enables county authorities to take exclusion measures. The impact of the mite over the last 20 years has led a number of Californian gardeners to give up growing fuchsias. The economic impact of *A. fuchsiae* in France is not yet known. However, the host symptoms are similar to those seen in California.



Control measures

When symptoms become evident it may already be too late to apply acaricides. Once established, eriophyoid mites are very difficult to control because they tend to hide within natural plant structures such as bud scales and leaf axils, or within structures such as galls, leaf rolls or proliferated tissues induced by their feeding activity. The best way to prevent ongoing infestations is to destroy all infested plants, placing all infested material into bags before disposal. A less drastic measure would be to cutback bushes to remove all green material.

There is very little information available concerning effective insecticides for *A. fuchsiae*, however the following insecticides are available for professional use at nurseries and should provide some control: abamectin (e.g. Dynamec) and spiroticlofen (Envidor). Envidor is approved for use on indoor and outdoor ornamentals via extension of use 3366 of 2009. For use by gardeners on house plants or containerised plants in a protected environment, a product containing abamectin and thiamethoxam is available (Westland Plant Rescue Bug Killer Ornamental Plants) and may provide some control. Applications of any of these products should, be made before the mites enter the terminal growth and cause injury. Once detected, repeated applications are necessary to break the mite lifecycle. Anyone using insecticides should read and follow the instructions on the product label and the extension of use. Current pesticide approvals can be checked on the Chemicals Regulation Directorate website (<https://secure.pesticides.gov.uk/pestreg/ProdSearch.asp>). It is advisable to treat limited areas initially to check pesticides are safe for the crop. Many species of predatory mesostigmatid mites in the family Phytoseiidae are known to feed on eriophyoid mites, but because the mites are often hidden in areas inaccessible to these comparatively large predators, control potential is limited. *Amblyseius californicus*, a species commercially available within the UK, has been found in association with *A. fuchsiae* in California and is believed to be responsible for some reduction in *A. fuchsiae* populations.

Advisory Information

Aculops fuchsiae is a regulated quarantine pest for the European Union with the subject of contamination being "plants of *Fuchsia L.*, intended for planting, other than seeds". The importation of *Fuchsia L.*, from third countries requires a phytosanitary certificate, importations from Brazil and the USA require an additional declaration that the place of production of the plants is free from the pest and that immediately prior to export they have been inspected and found free of the pest. In France additional legislation has been introduced in Brittany, which requires destruction of infested plants, increased official inspection and prevents propagation and movement of other *Fuchsia* from infested places.

Fuchsia gall mite has now become established in England and there is no need to report new finds in private gardens to Fera. However, there is still a requirement to report new finds in nurseries, garden centres or other commercial premises: these should be reported immediately to your local Fera Plant Health and Seeds Inspector or

Tel: 01904 465625

Email: planthealth.info@fera.gsi.gov.uk

Web: www.defra.gov.uk/fera/plants/plantHealth

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The Food and Environment Research Agency (Fera). February 2012

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