PLANT PEST NOTICE

No. 51

Update on Fuchsia gall mite
Aculops fuchsiae Keifer

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 speculates that it may have been introduced from the Americas by the exchange of propagating material between private *Fuchsia* enthusiasts.

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 2003 it was detected in Brittany, France. However, some Internet websites indicate that this pest was first noticed in France during 2002 at the Festival de Trévarez, Brittany (May-September) on a *Fuchsia* brought in by a private collector (Link 1.). In 2005 it was reported from Germany in the area of Wolfhagen (near Kassel) (Link 2.). In 2006 it was detected on the Islands of Guernsey (July) and Jersey (October). In September 2007 *A. fuchsiae* was confirmed as present on mainland Britain in two private gardens, one in Hampshire, one in Middlesex.

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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 (0.20-0.25 mm) and 55-60 µm in width (0.055-0.060 mm) (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.

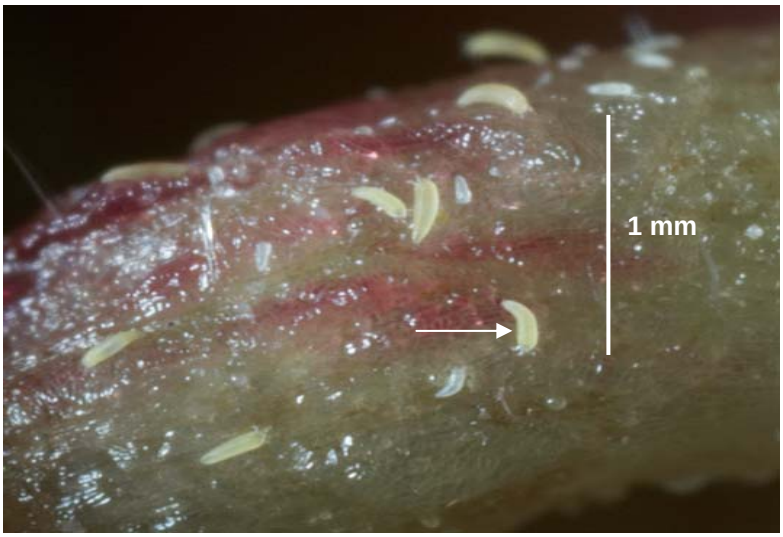

Figure 2. Various life stages of *Aculops fuchsiae* Keifer feeding on the surface if a flower stalk. Adult mite arrowed.

Biology, Life-Cycle and Dispersal

The duration of the life cycle is temperature dependent. The minimum temperature for survival is 5ºC but the upper temperature limit is not known. 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 18ºC. 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. The introduction of *A. fuchsiae* from the Americas to Europe is suspected to have been through the actions of man. 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.

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

A. 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.

Chemical control

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. Abamectin (Dynamec) and Bifenthrin (Talstar) are effective against eriophyoid mites, as are products with a physical mode of action such as Petroleum oil (Certis Spraying Oil) and natural plant extracts (Majestik). Applications of any of these products should, however, be made before the mites enter the terminal growth and cause injury. Once detected, repeated applications are necessary to break the mite lifecycle. One recommended treatment regime is based on the knowledge that *A. fuchsiae* eggs hatch 4 to 7 days after being laid, and requires that at least three acaricide applications be made at four-day intervals. Always check the label for recommendations.

Figure 3.

Figure 4.

Figure 5.

Figure 6.

Biological control

Many species of predatory meostigmatid 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 Fuchsia gall mite populations.

Advisory Information

Aculops fuchsiae is a regulated quarantine pest for the European Union, listed in the Plant Health (Great Britain) Order 1993 (Schedule 2. Part A (a)) 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. In the event of an interception or the discovery of an outbreak of *A. fuchsiae* in England or Wales, statutory action including the destruction of infested plant material may be required. In England and Wales, suspected outbreaks or interceptions of Fuchsia gall mite on growing plants should be reported immediately to the local DEFRA Plant Health and Seeds Inspectorate (PHSI) office, or to the PHSI HQ, York (Tel: 01904 455174, Fax; 01904 455197). Samples should be submitted, in sealed bags, to the Central Science Laboratory for identification. Suspected outbreaks or interceptions in other areas of the United Kingdom controlled by devolved administrations should be reported to their official services.

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References

Link 1. http://www.jardin-ofildpages.com/fp/aculops_fuchsiae.php
Link 2. http://www.eurofuchsia.org/aculops%20fuchsiae.html

Distribution

PHSI (Plant Health and Seeds Inspectorate):
All Inspectors
CSL (Central Science Laboratory):
Chief Executive
Agri-Env. Science Director
Information Centre
Heads of Groups
Plant Health Group
PHD (Plant Health Division):
Steve Ashby
Richard Harris
Steve Hunter
Alan Inman
Iain Johnstone
Richard McIntosh
Defra Library
PSD (Pesticides Safety Directorate):
Richard Davis
David Richardson
Martin Ward
Science Directorate:
Matthew Bell
David Cole, (Hort-Link)
Peter Street, (SAPPIO)
ADAS (Agricultural Devel. & Advisory Service)
AFBI (AgriFood & Biosciences Institute)
BCPC (British Crop Production Council)
Bishop Burton
BOPP (British Ornamental Plant Producers)
British Plant Gall Society
Broom's Barn Experimental Station
BTGA (British Tomato Growers Association)
CABI Bioscience UK Centre
CGA (Cucumber Growers Association)
Commerce & Employment Dept. Guernsey
CUF (Cambridge University Farms)
Dept. of Agriculture & Fisheries Jersey
Dept of Agriculture Fisheries & Forestry IoM
DARDNI (Dept Ag. & Rural Devel. N. Ireland)
East Malling Research
EC SCPH (EC Standing Committee Plant Health)
Eden Project
EPPO (European & Mediterranean Plant Prot. Org.)
FC (Forestry Commission)
Forest Research
FVO (Food & Veterinary Office)
Garden Organic (Henry DoubleDay Research Association)
Harper Adams University College (Plant Health Clinic)
HDC (Horticulture Development Council)
Hope Collection (U o Oxford)
HRI (Horticulture Research International)
Hunterian Museum (U o Glasgow)
HTA (Horticultural Trades Association)
IGER (Institute of Grassland and Environmental Research)
Liverpool John Moores University
Liverpool Museum
Manchester Museum
Millenium Seed Bank (Library)
Monks Wood Biological Records
National Botanic Garden of Wales
National Museum Wales
NIAB (National Institute of Agricultural Botany)
National Museums Scotland
NAW (National Assembly for Wales, PHBB)
NHM (Natural History Museum)
NSALG (National Society of Allotment & Leisure Gardeners)
PGRO (Processors and Growers Research Organisation)
RBG (Royal Botanic Gardens) Edinburgh
RBG (Royal Botanic Gardens) Kew
RHS (Royal Horticultural Society Garden, Wisley)
Rothamsted Research
SAC (Scottish Agricultural College)
SASA (Scottish Agricultural Science Agency)
SCRI (Scottish Crop Research Institute)
SEERAD (Scottish Executive Environment & Rural Affairs Dept.)
Stockbridge Technology Centre
TLGA (The Leek Growers Association)
Ulster Museum