SCIENTIFIC OPINION

Scientific Opinion on the pest categorisation of *Aculops fuchsiae*[1]

EFSA Panel on Plant Health (PLH)[2,3]

European Food Safety Authority (EFSA), Parma, Italy

ABSTRACT

The Panel on Plant Health of the European Food Safety Authority performed a pest categorisation of *Aculops fuchsiae*, a mite listed in Annex II, Part A, Section I of Council Directive 2000/29/EC as a harmful organism not known to occur in the community. *A. fuchsiae* is, however, established in France and the UK and it was also reported as transient in Belgium and Germany (but systematic surveys are lacking). *A. fuchsiae* is a distinct taxonomic entity. The known hosts of *A. fuchsiae* are *Fuchsia* spp. This exotic plant genus is naturalised in several areas of Europe and is widely present in the risk assessment area, both in the open field and under protected cultivations, as well as in gardens. The impact in terms of quality loss on fuchsia plants caused by the pest has been described in the European Union. However, no quantitative data on these losses have been reported yet. Plants for planting are the main pathway for introduction and spread of *A. fuchsiae*, which may cause severe impacts on the intended use of the plants for planting. In Europe, the climatic conditions do not seem to be the key limiting factor for establishment and spread in the open field and under protected conditions. Establishment and spread could occur provided that suitable hosts (*Fuchsia* spp.) are present. Further spread is anticipated from the areas where the pest is currently present, mainly by movement of plant material through trade and exchange.

KEY WORDS

Aculops fuchsiae, eriophyoid mites, fuchsia gall mite, *Fuchsia* spp., quarantine pest, regulated non-quarantine pest

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TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

BACKGROUND AS PROVIDED BY THE EUROPEAN COMMISSION

The current European Union plant health regime is established by Council Directive 2000/29/EC on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community (OJ L 169, 10.7.2000, p. 1).

The Directive lays down, amongst others, the technical phytosanitary provisions to be met by plants and plant products and the control checks to be carried out at the place of origin on plants and plant products destined for the Union or to be moved within the Union, the list of harmful organisms whose introduction into or spread within the Union is prohibited and the control measures to be carried out at the outer border of the Union on arrival of plants and plant products.

The Commission is currently carrying out a revision of the regulatory status of organisms listed in the Annexes of Directive 2000/29/EC. This revision targets mainly organisms which are already locally present in the EU territory and that in many cases are regulated in the EU since a long time. Therefore it is considered to be appropriate to evaluate whether these organisms still deserve to remain regulated under Council Directive 2000/29/EC, or whether, if appropriate, they should be regulated in the context of the marketing of plant propagation material, or be deregulated. The revision of the regulatory status of these organisms is also in line with the outcome of the recent evaluation of the EU Plant Health Regime, which called for a modernisation of the system through more focus on prevention and better risk targeting (prioritisation).

In order to carry out this evaluation, a recent pest risk analysis is needed which takes into account the latest scientific and technical knowledge on these organisms, including data on their agronomic and environmental impact, as well as their present distribution in the EU territory. In this context, EFSA has already been asked to prepare risk assessments for some organisms listed in Annex IIAII. The current request concerns 23 additional organisms listed in Annex II, Part A, Section II as well as five organisms listed in Annex I, Part A, Section I, one listed in Annex I, Part A, Section II and nine organisms listed in Annex II, Part A, Section I of Council Directive 2000/29/EC. The organisms in question are the following:

Organisms listed in Annex II, Part A, Section II:

- *Ditylenchus destructor* Thorne
- *Circulifer haematoceps*
- *Circulifer tenellus*
- *Helicoverpa armigera* (Hübner)
- *Radopholus similis* (Cobb) Thorne (could be addressed together with the IIAI organism *Radopholus citrophilus* Huettel Dickson and Kaplan)
- *Paysandisia archon* (Burmeister)
- *Clavibacter michiganensis* spp. *insidiosus* (McCulloch) Davis et al.
- *Erwinia amylovora* (Burr.) Winsl. et al. (also listed in Annex IIB)
- *Pseudomonas syringae* pv. *persicae* (Prunier et al.) Young et al.
- *Xanthomonas campestris* pv. *phaseoli* (Smith) Dye
- *Xanthomonas campestris* pv. *pruni* (Smith) Dye
- *Xylophilus ampelinus* (Panagopoulos) Willems et al.
- *Ceratocystis fimbriata* f. sp. *platani* Walter (also listed in Annex IIB)
- *Cryphonectria parasitica* (Murrill) Barr (also listed in Annex IIB)
- *Phoma tracheiphila* (Petri) Kanchaveli and Gikashvili
- *Verticillium albo-atrum* Reinke and Berthold
- *Verticillium dahliae* Klebahn
- Beet leaf curl virus
- Citrus tristeza virus (European isolates) (also listed in Annex IIB)
- Grapevine flavescence dorée MLO (also listed in Annex IIB)

- Potato stolbur mycoplasma
- *Spiroplasma citri* Saglio et al.
- Tomato yellow leaf curl virus

Organisms listed in Annex I, Part A, Section I:

- *Rhagoletis cingulata* (Loew)
- *Rhagoletis ribicola* Doane
- Strawberry vein banding virus
- Strawberry latent C virus
- Elm phloem necrosis mycoplasm

Organisms listed in Annex I, Part A, Section II:

- *Spodoptera littoralis* (Boisd.)

Organisms listed in Annex II, Part A, Section I:

- *Aculops fuchsiae* Keifer
- *Aonidiella citrina* Coquillet
- Prunus necrotic ringspot virus
- Cherry leafroll virus
- *Radopholus citrophilus* Huettel Dickson and Kaplan (could be addressed together with IIAII organism *Radopholus similis* (Cobb) Thorne
- *Scirtothrips dorsalis* Hendel
- *Atropellis* spp.
- *Eotetranychus lewisi* McGregor
- *Diaporthe vaccinii* Shear.

TERMS OF REFERENCE AS PROVIDED BY THE EUROPEAN COMMISSION

EFSA is requested, pursuant to Article 29(1) and Article 22(5) of Regulation (EC) No 178/2002, to provide a pest risk assessment of *Ditylenchus destructor* Thorne, *Circulifer haematoceps, Circulifer tenellus, Helicoverpa armigera* (Hübner), *Radopholus similis* (Cobb) Thorne, *Paysandisia archon* (Burmeister), *Clavibacter michiganensis* spp. *insidiosus* (McCulloch) Davis et al., *Erwinia amylovora* (Burr.) Winsl. et al., *Pseudomonas syringae pv. persicae* (Prunier et al.) Young et al. *Xanthomonas campestris* pv. *phaseoli* (Smith) Dye, *Xanthomonas campestris* pv. *pruni* (Smith) Dye, *Xyîophilus ampelinus* (Panagopoulos) Willems et al., *Ceratocystis fimbriata* f. sp. *platani* Walter, *Cryphonectria parasitica* (Murrill) Barr, *Phoma tracheiphila* (Petri) Kanchaveli and Gikashvili, *Verticillium alboatrum* Reinke and Berthold, *Verticillium dahliae* Klebahn, Beet leaf curl virus, Citrus tristeza virus (European isolates), Grapevine flavescence dorée MLO, Potato stolbur mycoplasma, *Spiroplasma citri* Saglio et al., Tomato yellow leaf curl virus, *Rhagoletis cingulata* (Loew), *Rhagoletis ribicola* Doane, Strawberry vein banding virus, Strawberry latent C virus, Elm phloem necrosis mycoplasma, *Spodoptera littoralis* (Boisd.), *Aculops fuchsiae* Keifer, *Aonidiella citrina* Coquillet, Prunus necrotic ringspot virus, Cherry leafroll virus, *Radopholus citrophilus* Huettel Dickson and Kaplan (to address with the IIAII *Radopholus similis* (Cobb) Thorne), *Scirtothrips dorsalis* Hendel, *Atropellis* spp., *Eotetranychus lewisi* McGregor and *Diaporthe vaccinii* Shear, for the EU territory.

In line with the experience gained with the previous two batches of pest risk assessments of organisms listed in Annex II, Part A, Section II, requested to EFSA, and in order to further streamline the preparation of risk assessments for regulated pests, the work should be split in two stages, each with a specific output. EFSA is requested to prepare and deliver first a pest categorisation for each of these 38 regulated pests (step 1). Upon receipt and analysis of this output, the Commission will inform EFSA for which organisms it is necessary to complete the pest risk assessment, to identify risk reduction options and to provide an assessment of the effectiveness of current EU phytosanitary requirements (step 2). *Clavibacter michiganensis* spp. *michiganensis* (Smith) Davis et al. and

Xanthomonas campestris pv. *vesicatoria* (Doidge) Dye, from the second batch of risk assessment requests for Annex IIAII organisms requested to EFSA (ARES(2012)880155), could be used as pilot cases for this approach, given that the working group for the preparation of their pest risk assessments has been constituted and it is currently dealing with the step 1 "pest categorisation". This proposed modification of previous request would allow a rapid delivery by EFSA by May 2014 of the first two outputs for step 1 "pest categorisation", that could be used as pilot case for this request and obtain a prompt feedback on its fitness for purpose from the risk manager's point of view.

As indicated in previous requests of risk assessments for regulated pests, in order to target its level of detail to the needs of the risk manager, and thereby to rationalise the resources used for their preparation and to speed up their delivery, for the preparation of the pest categorisations EFSA is requested, in order to define the potential for establishment, spread and impact in the risk assessment area, to concentrate in particular on the analysis of the present distribution of the organism in comparison with the distribution of the main hosts and on the analysis of the observed impacts of the organism in the risk assessment area.

ASSESSMENT

1. Introduction

1.1. Purpose

This document presents a pest categorisation prepared by the European Food Safety Authority (EFSA) Panel on Plant Health (hereinafter referred to as the Panel) for *Aculops fuchsiae* in response to a request from the European Commission.

1.2. Scope

This pest categorisation is for *A. fuchsiae*.

The risk assessment area is the territory of the European Union (hereinafter referred to as the EU) with 28 Member States (hereinafter referred to as EU MSs), restricted to the area of application of Council Directive 2000/29/EC, which includes the Channel Islands, but excludes Ceuta and Melilla, the Canary Islands and the French overseas departments.

2. Methodology and data

2.1. Methodology

The Panel performed the pest categorisation for *A. fuchsiae* following guiding principles and steps presented in the EFSA Guidance on a harmonised framework for pest risk assessment (EFSA PLH Panel, 2010) and as defined in the International Standard for Phytosanitary Measures (ISPM) No 11 (FAO, 2013) and ISPM No 21 (FAO, 2004).

In accordance with the harmonised framework for pest risk assessment in the EU (EFSA PLH Panel, 2010), this work was initiated as a result of the review or revision of phytosanitary policies and priorities. As explained in the background of the European Commission request, the objective of this mandate is to provide updated scientific advice to European risk managers to take into consideration when evaluating whether those organisms listed in the Annexes of Council Directive 2000/29/EC deserve to remain regulated under Council Directive 2000/29/EC, or whether they should be regulated in the context of the marketing of plant propagation material, or should be deregulated. Therefore, to facilitate the decision-making process, in the conclusions of the pest categorisation, the Panel addresses explicitly each criterion for a quarantine pest in accordance with ISPM 11 (FAO, 2013) but also for a regulated non-quarantine pest (RNQP) in accordance with ISPM 21 (FAO, 2004) and includes additional information required as per the specific terms of reference received by the European Commission. In addition, for each conclusion, the Panel provides a short description of its associated uncertainty.

Table 1 below presents the ISPM 11 (FAO, 2013) and ISPM 21 (FAO, 2004) pest categorisation criteria on which the Panel bases its conclusions. It should be noted that the Panel's conclusions are formulated respecting its remit and particularly with regards to the principle of separation between risk assessment and risk management (EFSA founding regulation[4]); therefore, instead of determining whether the pest is likely to have an unacceptable impact, the Panel will present a summary of the observed pest impacts. Economic impacts are expressed in terms of yield and quality losses and not in monetary terms, in agreement with the EFSA Guidance on a harmonised framework for pest risk assessment (EFSA PLH Panel, 2010).

[4] Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. OJ L 31/1, 1.2.2002, p. 1–24.

Table 1: International Standards for Phytosanitary Measures ISPM 11 (FAO, 2013) and ISPM 21 (FAO, 2004) pest categorisation criteria under evaluation

Pest categorisation criteria	ISPM 11 for being a potential quarantine pest	ISPM 21 for being a potential regulated non-quarantine pest
Identity of the pest	The identity of the pest should be clearly defined to ensure that the assessment is being performed on a distinct organism, and that biological and other information used in the assessment is relevant to the organism in question. If this is not possible because the causal agent of particular symptoms has not yet been fully identified, then it should have been shown to produce consistent symptoms and to be transmissible	The identity of the pest is clearly defined
Presence or absence in the PRA area	The pest should be **absent from all or a defined part of the PRA area**	The pest is **present** in the PRA area
Regulatory status	If the pest is present but not widely distributed in the PRA area, it should be under official control or expected to be under official control in the near future	The pest is under official control (or being considered for official control) in the PRA area with respect to the specified plants for planting
Potential for establishment and spread in the PRA area	The PRA area should have ecological/climatic conditions including those in protected conditions suitable for the establishment and spread of the pest and, where relevant, host species (or near relatives), alternate hosts and vectors should be present in the PRA area	–
Association of the pest with the plants for planting and the effect on their intended use	–	Plants for planting are a pathway for introduction and spread of this pest
Potential for consequences (including environmental consequences) in the PRA area	There should be clear indications that the pest is likely to have an unacceptable economic impact (including environmental impact) in the PRA area	–
Indication of impact(s) of the pest on the intended use of the plants for planting	–	The pest may cause severe economic impact on the intended use of the plants for planting
Conclusion	If it has been determined that the pest has the potential to be a quarantine pest, the PRA process should continue. If a pest does not fulfil all of the criteria for a quarantine pest, the PRA process for that pest may stop. In the absence of sufficient information, the uncertainties should be identified and the PRA process should continue	If a pest does not fulfil all the criteria for a regulated non-quarantine pest, the PRA process may stop

In addition, in order to reply to the specific questions listed in the terms of reference, three issues are specifically discussed only for pests already present in the EU: the analysis of the present EU distribution of the organism in comparison with the EU distribution of the main hosts; the analysis of the observed impacts of the organism in the EU; and the pest control and cultural measures currently implemented in the EU.

The Panel will not indicate in its conclusions of the pest categorisation whether the pest risk assessment process should be continued, as it is clearly stated in the terms of reference that, at the end of the pest categorisation, the European Commission will indicate to EFSA if further risk assessment work is required following its analysis of the Panel's scientific opinion.

2.2. Data

2.2.1. Literature search

An extensive literature search on *A. fuchsiae* was conducted. The literature search follows the first three steps (preparation of protocols and questions, search, selection of studies) of the EFSA Guidance on systematic review methodologies (EFSA, 2010). As the same species is often mentioned under different common names (section 3.1), the most frequently used common names, together with the scientific name were used for the extensive literature search. Further references and information were obtained from searches in web search engines such as Google Scholar, from experts and from articles cited within the retrieved scientific publications.

2.2.2. Data collection

To complement the information concerning the current situation of the pest provided by the literature and online databases on pest distribution, damage and management, the PLH Panel sent a short questionnaire on the current situation at country level, based on the information available in the European and Mediterranean Plant Protection Organization (EPPO) Plant Quarantine Retrieval (PQR) system, to the National Plant Protection Organisation (NPPO) contacts of the 28 EU Member States, and of Iceland and Norway. Iceland and Norway are part of the European Free Trade Association (EFTA) and are contributing to EFSA data collection activities, as part of the agreements EFSA has with these two countries. A summary of the pest status based on EPPO PQR and NPPO replies is presented in Table 3. In its analyses the Panel also considered the Pest Risk Analysis for *A. fuchsiae* prepared by the UK Central Science Laboratory (Anderson and MacLeod, 2007).

3. Pest categorisation

3.1. Identity and biology of *Aculops fuchsiae*

The pest currently has the following valid scientific name: *A. fuchsiae* Keifer, 1972.

3.1.1. Taxonomy

A. fuchsiae Keifer, 1972 is currently considered as a single taxonomical entity (Amrine and de Lillo, personal communication, 2014).

Taxonomic position:

Domain: Eukaryota
Kingdom: Animalia
Subkingdom: Metazoa
Phylum: Arthropoda
Subphylum: Chelicerata
Class: Arachnida
Infraclass: Acari
Superorder: Actinotrichida
Order: Prostigmata
Superfamily: Eriophyoidea
Family: Eriophyidae
Subfamily: Phyllocoptinae
Tribe: Anthocoptini
Genus: *Aculops*
Species: *Aculops fuchsiae*

Its common names are "Fuchsia gall mite", "Brazilian fuchsia mite", "Fuchsia mite", "Galle du fuchsia" and "Phytopte du fuchsia".
In this scientific opinion, the Panel uses the Latin name of the organism under scrutiny, "*A. fuchsiae*", as well as referring to it as "the mite".

3.1.2. Biology

Even though *A. fuchsiae* is believed to be native to South America, no detailed studies address the biology of this pest in its presumed autochthonous environment (the first description was from samples from Campinas, State of São Paulo, Brazil (Keifer, 1972)).

Moreover, little scientific data have been published on the biology of the pest and only one study has been retrieved from California. However, no specific studies were performed under controlled conditions (Koelher et al., 1985).

3.1.2.1. Development

Detailed developmental parameters have not been reported in the literature. It is presumed that *A. fuchsiae* has two juvenile instars, as is documented for all known eriophyoid mites. The juveniles have not yet been described, but are expected to differ from the adults in body and setal size, their prodorsal shield pattern and the absence of differentiated external genitalia.

The mite lives and reproduces on the surface of plants of the genus *Fuchsia* (Order, Myrtales; Family, Onagraceae) within the folds of the affected organs and among plant hairs (Keifer, 1972; Keesey, 1985; Koehler et al., 1985). As documented for almost all known eriophyoid mites, this species moves to colonise the newly growing leaf flushing shoots (Ostojá-Starzewski and Eyre, 2012), presumably because these organs consist of watery, soft tissues.

Deuteroginy, the presence of a spring–summer female and an overwintering female in the mite life cycle, which often occurs in eriophyoid mites, has not been documented for *A. fuchsiae*, and a single adult female was described by Keifer (1972). Keesey (1985) stated that the mite does not hibernate; Crawford (1983) reported that it overwinters as both juvenile and mature forms in bud scales; and Natter (1982) reported that it overwinters as eggs or dormant adults, hiding in leaf bud scales.

According to Keesey (1985), the life cycle lasts about 21 days at 18 °C and several generations may overlap during the growing season. However, these results were not obtained using standard experimental protocols. Further details are not available. No studies estimated the intrinsic rate of increase for *A. fuchsiae*.

3.1.2.2. Survival

There is no experimental data on the thermal requirements for the development of *A. fuchsiae.* Moreover, interactions between mite and plant phenology have not been studied.

However, the reported spread and the confirmed establishment of *A. fuchsiae* in coastal areas of California (USA), Brittany (France), the Channel Islands and southern England (UK) suggest its potential to survive in a wide range of different climatic conditions.

3.1.2.3. Reproduction

As documented for all known eriophyoid mites (Lindquist et al., 1996), it is presumed that *A. fuchsiae* is an oviparous mite, with diploid females and haploid males, reproducing by arrhenotoky. Female insemination occurs by means of spermatophores that are laid by males and collected by females.

According to Keesey (1985), a female could lay about 50 eggs during its life, with an incubation period of about seven days at 18 °C. The number of eggs laid is consistent with what is known from most eriophyoid mites (Lindquist et al., 1996).

3.1.2.4. Feeding

Detailed information on the feeding habits of *A. fuchsiae* is unavailable. However, the feeding behaviour should be similar to all eriophyoid mites, a group belonging to the ecological class of gall-making mites (de Lillo, 2011). In other words, *A. fuchsiae* individuals probably pierce the watery, soft cells of the youngest plant organs with their stylet-like mouthparts, suck out the cell contents and inject saliva into them, inducing the deformation of the organs.

3.1.2.5. Dispersal

The body shape and setal arrangement of eriophyoid mites seem to be well fitted for efficient wind dispersal (de Lillo and Skoracka, 2010). Therefore, the dispersal of *A. fuchsiae* is expected to be mainly wind-borne in the field (Koehler et al., 1985). In general, eriophyoid mites can voluntarily choose to start their air-dispersal, but their landing site seems to be random, and this might cause high mortality of the dispersing individuals (Sabelis and Bruin, 1996). The rate, time and distance of air-borne dispersal are not well understood, and very few specific investigations have been carried out on these topics. Some observations on other eriophyoid mite species indicate that the air can transport these mites for short and medium distances (even though the efficiency appears to be quite low) (Schliesske, 1977; Zhao and Amrine, 1997). In contrast, further data indicate a reduced spread distance, and this is the case for *Aceria malherbae* (125 m per year in North America) and *Aceria genistae* (at most 83.3 m per year in forests of New Zealand) (Paynter et al., 2012).

Private collectors, amateur gardeners and fuchsia enthusiasts are considered to contribute to the spread of mites by the movement of infested plants and cuttings (Anderson and MacLeod, 2007). This has also been suggested as a major pathway of entry for *A. fuchsiae* into France by Streito et al. (2004). Dispersal was presumed to be via birds and pollinators in previous reports (Koehler et al., 1985; Anderson and MacLeod, 2007). These means of dispersal cannot be excluded, but they have not been

experimentally confirmed for *A. fuchsiae*. However, in general for eriophyoid mites, phoresy can be accidental and unspecific, similar to dispersal on workers' clothing, and is relevant for only short distances (de Lillo and Skoracka, 2010).

3.1.3. Intraspecific diversity

A. fuchsiae has been found on only a few host plant species, all of which belong to the genus *Fuchsia*, but intraspecific diversity has not been studied and reported.

3.1.4. Detection and identification of *Aculops fuchsiae*

A. fuchsiae inhabits apical leaves, blossoms and flowers, and can form high-density populations on these organs, provided that the infested *Fuchsia* species/cultivar is not tolerant. It is strongly expected that they could colonise apical and sub-apical buds on the basis of the induced plant deformations.

Early detection is difficult because (i) symptoms, which can be considered indicative for identification, appear later on when populations have already reached high densities, (ii) the size of the mite does not allow for naked-eye identification and (iii) even *Fuchsia* species and cultivars that are considered less susceptible can host non symptomatic small populations of *A. fuchsiae*. Furthermore, for detection, morphological mite identification is always required.

None of the stages of the eriophyoid mites can be detected by the naked eye because of their minute size, especially when present at low densities. A magnifying lens > 10× is required for a trained operator to see the mites. Moreover, in field surveys, *A. fuchsiae* can be mistaken for other eriophyoid mite species that are accidentally present on *Fuchsia* spp., as it cannot be excluded that dispersing mites of other species could accidentally land on fuchsias. It must be borne in mind that no other eriophyoid mite species have been found to infest and damage *Fuchsia* spp. (Amrine JW Jr and de Lillo Enrico unpublished database, personal communication, 2014).

In addition, species identification of *A. fuchsiae* requires the examination of digested and slide-mounted adult females under a high-power (×1 000) transmitted light microscope (de Lillo et al., 2010).

Mites can be collected in the laboratory from infested plant samples either by direct observation under the microscope or after applying a washing and sieving protocol (de Lillo, 2001; Monfreda et al., 2007). Alternatively, plants can be washed in the field without cutting them (in accordance with de Lillo et al., 2005) and the water suspension can be sieved to collect mites for microscope observation.

According to the last published determination key of the Eriophyoidea genera (Amrine et al., 2003), the females of the genus *Aculops* belonging to the Eriophyidae family, Phyllocoptinae sub-family, display short mouthpart stylets and a frontal shield lobe over the gnathosoma base (with the lobe of small or moderate size, acuminate-rounded or terminating in a sharp or spine-like point), and lack the pair of small spines projecting forward from the lower front of the frontal lobe margin that is typical of the closely related genus *Aculus* (Figure 1a and c). Tubercles of the scapular setae are on the rear prodorsal shield margin and are usually sub-cylindric, project back and direct scapular setae to the rear, usually divergently. No other setae are on the prodorsal shield. The opisthosoma of non-gall-making species of this genus is clearly divided laterally into broader dorsal semiannuli and narrower ventral semiannuli; this distinction is less clear on most gall-making species (such as *A. fuchsiae*). The set of setae on the legs and opisthosoma is typical of an Eriophyidae (Amrine et al., 2003). Genitalia are not closely appressed to the coxae, and the interior female apodemes extend forward from the base.

Keifer (1972) gave an illustrated description of only one form of the adult female of *A. fuchsiae* (Figure 1c). It is a worm-like mite with a whitish to yellow body that is about 200–250 µm long and 55–60 µm wide; the short acuminate frontal shield lobe over the gnathosoma is truncated underneath and the prodorsal shield has granules on its surface that obscure the pattern on the rear part of the

shield. Further differences with other *Aculops* species are the size of the setae, the number of rays on the empodium and the number of annuli forming the opisthosoma (Figure 1b and c).

A. fuchsiae has been confirmed as a distinct species, with clear diagnostic criteria for identification.

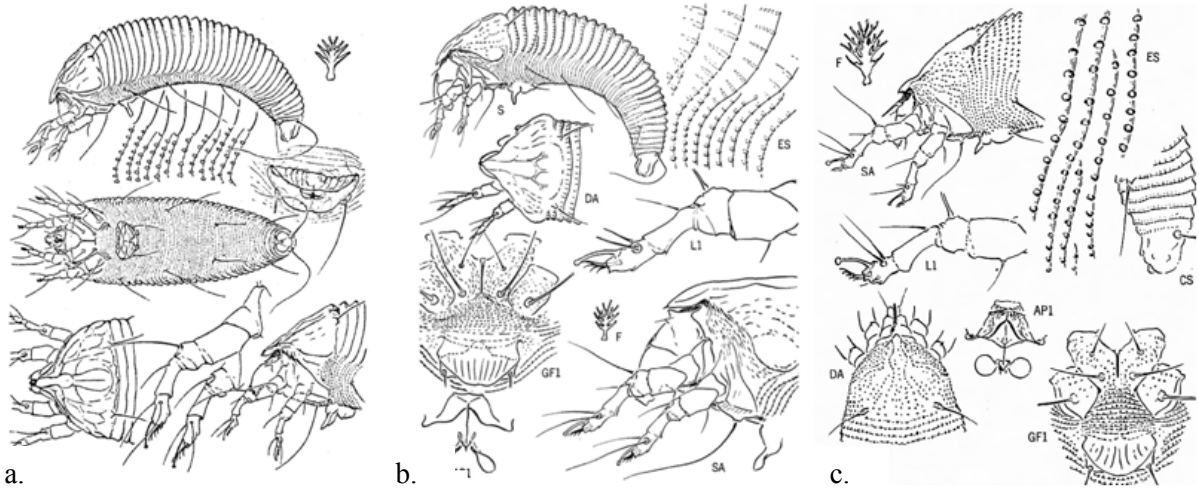

Figure 1: Semi-diagrammatic representation of morphological features of female adults belonging to the Eriophyoidea genera, for (a) the type species of the genus *Aculus* (*Aculus ligustri*; original descriptions provided by Keifer (1938)); (b) the type species of the genus *Aculops* (*Aculops populivagrans*; original descriptions provided by Keifer (1953)); and (c) *Aculops fuchsiae*, based on the original descriptions provided by Keifer (1972)

3.2. Current distribution of *Aculops fuchsiae*

3.2.1. Global distribution

Table 2: Global distribution for *Aculops fuchsiae* extracted from EPPO PQR in September 2014, published literature and other sources. Please note, this table combines information from different dates, some of which could be outdated

Country	Presence	Source
America		
Brazil	Present, restricted distribution in Sao Paulo	EPPO PQR (2014) [(a)]
Chile	Unofficial report of presence in Quillota, Valparaiso	Foro Chilebosque (2012)
USA	Present, restricted distribution in California	EPPO PQR [(a)]
USA	Intermittent populations in Oregon and Washington States	Anderson and MacLeod (2007)
Europe		
France	Present, restricted distribution in Brittany	NPPO answer (Table 3) Streito et al. (2004)
UK	Present, few occurrences in England	NPPO answer (Table 3) Ostojá-Starzewski and Eyre (2012)
Guernsey	Present, widespread	EPPO PQR (2012) [(a)]
Jersey	Present, restricted distribution	EPPO PQR (2012) [(a)]

[(a)] EPPO PQR, version 5.3.1, accessed in September 2014

3.2.2. Distribution in the risk assessment area

Table 3: Current distribution of *Aculops fuchsiae* in the 28 EU Member States, Iceland and Norway, based on answers received from the National Plant Protection Organizations of the 28 EU Member States, Iceland and Norway

Member States	NPPO answer	NPPO comments
Austria	Absent, no pest records	
Belgium	Absent, pest eradicated	Outbreak (private collection) in August 2012. Eradication measures applied (destruction). No new findings.
Bulgaria	Absent	
Croatia	Absent, no pest records	
Cyprus	——	
Czech Republic	Absent, no pest records	
Denmark	Known not to occur	
Estonia	Absent, no pest records	
Finland	Absent, no pest records	
France	Present restricted distribution	
Germany	Transient, under eradication	
Greece[(a)]	——	
Hungary	Absent, no pest records	
Ireland	Absent, no pest records	
Italy	Never reported in Italy	
Latvia [(a)]	——	
Lithuania [(a)]	——	
Luxemburg [(a)]	——	
Malta	Absent, no pest records	
Netherlands	Absent, confirmed by survey	
Poland	Absent, no pest records	
Portugal	No records	
Romania [(a)]	——	
Slovak Republic	Absent, no pest records	
Slovenia	Absent, no pest records	
Spain	Absent	
Sweden	Absent, no pest records	
UK	Present at low prevalence (few occurrences in southern England)	
Iceland [(a)]	——	
Norway [(a)]	——	

(a): When no information was made available to EFSA, the pest status in the EPPO PQR database in September 2014 was used.
——: No information available
EPPO PQR, European and Mediterranean Plant Protection Organization Plant Quarantine Data Retrieval System;
NPPO, National Plant Protection Organisation.

In addition to the reports provided by the NPPOs (Table 3), the pest is also present in the risk assessment area in the Channel Islands, where it was first reported in 2007 in Guernsey (EPPO, 2007a) and in Jersey (EPPO, 2007b). Currently it has a restricted distribution in Jersey and it is widespread Guernsey (Table 2).

The presence of *A. fuchsiae* was officially confirmed in France (Brittany) for the first time in November 2003 (EPPO, 2004; Streito et al., 2004). Since then, the pest has been spreading in the north-west of France.

The pest is also established in the UK, in southern England, where it was first reported in Hampshire and Middlesex in 2007 and where it is spreading further south (EPPO, 2007c; Ostojá-Starzewski and

Eyre, 2012). According to the Fuchsia Breeders Initiative (2013), in 2012, many more cases of *A. fuchsiae* had been recorded, showing that the pest does not seem be under control.

Regarding Belgium and Germany, their respective plant protection organisations indicate that the mite is transient and under eradication or has been eradicated (Table 3).

In the rest of the risk assessment area, no *A. fuchsiae* records have been reported, and only the Netherlands confirms the absence of the pest by survey.

3.3. Regulatory status of *Aculops fuchsiae*

3.3.1. Council Directive 2000/29/EC

A. fuchsiae:

This species is a regulated harmful organism in the EU and is listed in Council Directive 2000/29/EC in Annex II (see Table 4).

Table 4: *Aculops fuchsiae* in Annex II of Council Directive 2000/29/EC

Annex II, Part A—Harmful organisms whose introduction into, and spread within, all Member States shall be banned if they are present on certain plants or plant products	
Section I—Harmful organisms not known to occur in the community and relevant for the entire community	
(a) Insects, mites and nematodes, at all stages of their development	
Species	**Subject of contamination**
13. *Aculops fuchsiae* Keifer	Plants of *Fuchsia* L., intended for planting, other than seeds

Annex II regulated hosts for *A. fuchsiae* in Council Directive 2000/29/EC

A. fuchsiae is an oligophagous pest and its host plant species reported in the literature belong all to the genus *Fuchsia* L. (see section 3.4.1). In Council Directive 2000/29/EC, there are only special requirements under Annex IV regarding "Plants of *Fuchsia*, intended for planting, other than seeds", and requirements regarding plants for planting under Annex V, as presented in Table 5.

Table 5: *Aculops fuchsiae* host plants in annexes IV and V of Council Directive 2000/29/EC

Annex IV, Part A—Special requirements which must be laid down by all Member States for the introduction and movement of plants, plant products and other objects into and within all Member States		
Section I—Plants, plant products and other objects originating outside the Community		
	Plants, plant products and other objects	**Special requirements**
38.2	Plants of *Fuchsia* L. intended for planting, other than seeds, originating in the USA or Brazil	Official statement that no symptoms of *Aculops fuchsiae* Keifer have been observed at the place of production and that immediately prior to export the plants have been inspected and found free from *Aculops fuchsiae* Keifer
Annex V—Plants, plant products and other objects which must be subject to a plant health inspection (at the place of production if originating in the Community, before being moved within the Community—in the country of origin or the consignor country, if originating outside the Community) before being permitted to enter the Community		
Part A—Plants, plant products and other objects originating in the Community		
Section I—Plants, plant products and other objects which are potential carriers of harmful organisms of relevance for the entire Community and which must be accompanied by a plant passport		
2. Plants, plant products and other objects produced by producers whose production and sale is authorised to persons professionally engaged in plant production, other than those plants, plant products and other objects which are prepared and ready for sale to the final consumer, and for which it is ensured by the responsible official bodies of the Member States, that the production thereof is clearly separate from that of other products.		
2.1. Plants intended for planting other than seeds of the genera […] and other plants of herbaceous species, other than plants of the family Gramineae, intended for planting, and other than bulbs, corms, rhizomes, seeds and tubers.		

3.4. Elements to assess the potential for establishment and spread in the EU

3.4.1. Host range

The original description of *A. fuchsiae* was made from mites collected on an unidentified host plant species from the *Fuchsia* genus by Keifer (1972).

Fuchsias are perennial plants. More than 100 fuchsia species are known, most of which are native to Central and South America, and few are native to the Caribbean, New Zealand and Tahiti (Jones and Miller, 2005; Grousset et al., 2012). There are about 12 000 to 15 000 cultivars and hybrids around the world (Anderson and MacLeod, 2007; Euro-Fuchsia, 2014). Many of these fuchsia plants are grown in Europe as ornamental plants.

Several species are grown in gardens as bedding plants, small shrubs or miniature tree-like specimens. Other species are grown as potted plants or in hanging baskets for indoor or greenhouse cultivation. They are valued for their showy pendulous flowers that are tubular to bell-shaped in shades of red and purple to white.

In the scientific literature some authors provide lists of fuchsia species and cultivars, susceptible to *A. fuchsiae,* in terms of expression of symptoms (Koehler et al., 1985; CABI, 2014, University of California, 2014).

Similarly, Fuchsia societies in the USA provide lists of fuchsia plants indicating their susceptibility to the pest (Northwest Fuchsia Society, 2014).

Although, host susceptibility studies, in accordance with appropriate scientific assays for *Fuchsia* spp. with *A. fuchsiae*, have not been carried out, the different sources of information assign the highest susceptibility to *Fuchsia magellanica* and its cultivars. In addition in France, the Fédération Régionale de Défense contre les Organismes Nuisibles de Basse-Normandie published a datasheet on *A. fuchsiae*

(FREDON, 2009), indicating *F. arborescens*, *F. magellanica*, and *F. procumbens* as susceptible species and the following species and cultivars as resistant: *F. microphylla* subsp. *microphylla*, *F. thymifolia,* Baby Chang, Chance Encounter, Cinnabarina, Isis, Mendicino Mini, Miniature Jewels, Ocean Mist et Space Shuttle.

3.4.2. EU distribution of main host plants

Grousset et al. (2012) conducted a detailed analysis of trade in plants for planting provided by the border inspection services of Germany, France, Italy and the Netherlands (the main plants for planting trading countries in the EU) from 2006 to 2010. These data relate to plants mainly of non-EU origin, for which phytosanitary certificates are required. In 2010, over 50 600 consignments containing more than four billion units of plants for planting were imported. During the past few years, there has been a notable increase in the import of fuchsias, the only host plant genus of *A. fuchsiae*, mostly as cuttings or rooted plants. More than 55 057 340 units were imported in 2010, compared with 3 766 754 units in 2009. From 2006 to 2010, the commodities originated mainly from Africa (181 266 101 units), South America (19 376 464 units, including Brazil), the Near East (7 132 819 units) and the USA (9 600 units).

Fuchsias are grown under protected conditions and outdoors, in gardens and private collections worldwide. According the Euro-Fuchsia association, currently, about 12 000–15 000 hybrids exist in the world. Fuchsia nurseries in Europe (Belgium, Germany, the Netherlands Austria, the UK and Switzerland) offer about 6 000 different hybrids (Euro-Fuchsia, 2014).

Disaggregated statistical data on areas of production in the risk assessment area have not been found.

Importantly, different *Fuchsia* spp. are naturalised in the EU in a band extending from the Macaronesian archipelagos of Madeira, the Azores and the Canary Islands to southern Scandinavia and include the western Mediterranean Basin as well as Great Britain (GBIF, 2013a). The highly susceptible *F. magellanica* is reported as naturalised in Germany, Ireland, Spain, France, the Netherlands, Austria, Portugal (Madeira and the Azores) and Great Britain (GBIF, 2013b; Flora Europaea Database, 1998). Another sensitive species, *F. arborescens* is naturalised in Madeira, whereas the tolerant *F. boliviana* occurs in Madeira, the Azores and the Canary Islands. However, there are no reports on the importance of these species in these areas.

3.4.3. Analysis of the potential pest distribution in the EU

3.4.3.1. Climate suitability

So far, infestations outside the pest risk assessment area have been reported in South America (Brazil, São Paulo State (Keifer, 1972); Chile, Quillota (Valparaíso) (Foro Chilebosque, 2012)), and in the USA (California, Oregon and Washington (Anderson and MacLeod, 2007; Ostojá-Starzewski and Eyre, 2012)). Outdoors, in the USA, the mite is established in California where since its initial detection it has spread 900 km only along the coast in four years (Koehler et al., 1985). Infestations have also been found further north, including in Portland, Oregon, and Tacoma, Washington, where *A. fuchsiae* was able to survive warm winters. Nevertheless, in the winter of 2006, when temperatures fell to –4 °C and below for seven nights, no damage was found on hardy fuchsias the following summer (Northwest Fuchsia Society, 2012). Its restricted distribution and spread in the inland areas could also be due to the hotter and drier summer conditions than coastal areas. The pest is assumed to be indigenous to southern Brazil, where winter temperatures are mild and can limit the overwintering capacity of *A. fuchsiae*. However, recent field observations suggest that the mite is able to overwinter outdoors in southern England (Ostojá-Starzewski and Eyre, 2012).

The Koppen–Geiger climate types (Csa: warm temperate, dry and hot summer; Csb: warm temperate, dry and warm summer; Cfb: warm temperate, fully humid, warm summer) of the regions representing the areas of confirmed establishment of the pest (Csa and Csb in California and Cfb in Europe) encompass the main types present in most of the EU (Csa and Csb for Mediterranean parts of the EU,

and Cfb for the continental part of the EU) (Kottek et al., 2006). Therefore, the pest could potentially establish in large parts of the risk assessment area, provided that hosts are present. It should be noted, however, that precise locations of the distribution of the pest within each country are not readily available and, therefore, the resolution of the current distribution may not be detailed enough to allow for accurate projections of the suitability of the EU climate for the pest.

3.4.3.2. Host plant availability

As described in section 3.4.2, all over the EU, fuchsias are grown under protected conditions and/or outdoors, in gardens and private collections. Moreover, different *Fuchsia* spp. are naturalised in the EU in a band extending from the Macaronesian archipelagos of Madeira, the Azores and the Canary Islands to southern Scandinavia and include the western Mediterranean Basin as well as Great Britain (GBIF, 2013a).

With regard to the potential distribution of *A. fuchsiae* in Europe, the Panel concludes that climatic conditions do not seem to be the key limiting factor, and that further establishment is possible, both in the open field and under protected conditions where suitable hosts (*Fuchsia* spp.) are present.

3.4.4. Spread capacity

As with other minute arthropod species, *A. fuchsiae* has multiple ways to disperse (natural active and passive, animal/human assisted) (see section 3.1.2.5), all of which may occur in the risk assessment area. The initial finding of *A. fuchsiae* in Brittany, France, was made on plants of fuchsia enthusiasts. And it is likely that the mite was introduced into the EU by the exchange of plant material between fuchsia collectors (Streito et al., 2004; BSV, 2013). Human-assisted movement of infested plants and cuttings would be the main pathway of spread, given the ease of vegetative propagation in fuchsias (Koehler et al., 1985). Outdoors, dispersal could happen incidentally by wind, pollinators, birds, bees, etc. (Koehler et al., 1985). However, spreading of the pest may be limited by several factors:

(i) the intimate relationship that exists between Eriophyoidea life cycles and the phenology of their specific host plants, which limits the period of time when wandering mites move from old infested organs to new developing receptive ones (e.g. *Colomerus vitis*, *Phytoptus avellanae*) and are exposed on the plant surface (Lindquist et al., 1996);

(ii) successful establishment of a new population requires the availability of a receptive organ in the host plant (an actively growing shoot, leaf or flower) and the above described relationship restricts this availability;

(iii) the oligophagous nature of *A. fuchsiae* limits successful establishment on plants belonging to the genus *Fuchsia* spp., only; and

(iv) the fact that *Fuchsia* spp. has ornithophilous pollination and that its specialised pollinators (hummingbirds) are not present in Europe (Cronk and Ojeda, 2008). It is important to note that dispersal birds has been stated in the literature but has never been proven.

In spite of all these limitations, the mite has continuously spread outdoors, both in the USA (California, Oregon and Washington states) and in Europe.

In California (where fuchsia-specialised bird pollinators (i.e. hummingbirds) occur), *A. fuchsiae* has spread 900 km along its coast in four years, from San Francisco southwards to San Diego and northwards to Mendocino (CABI/EPPO, 1997). The Panel notes however that dispersal by bees and birds has been stated in the literature but has never been proven. Moreover, this means of dispersal appears to occur only occasionally, based on common reports on eriophyoids mites.

Figure 2 illustrates the spread of the mite in Europe. In less than nine years, the mite has reached different locations within a radius of around 400 km from its initial detection site in Brittany, France,

in 2003. In southern England, the mite spread almost 400 km in three years since its first detection in 2007.

The Panel concludes that, in Europe, climatic conditions do not seem to be the key limiting factor for pest distribution, and that further spread is anticipated both in the open field and under protected conditions, provided that suitable hosts (*Fuchsia* spp.) are present.

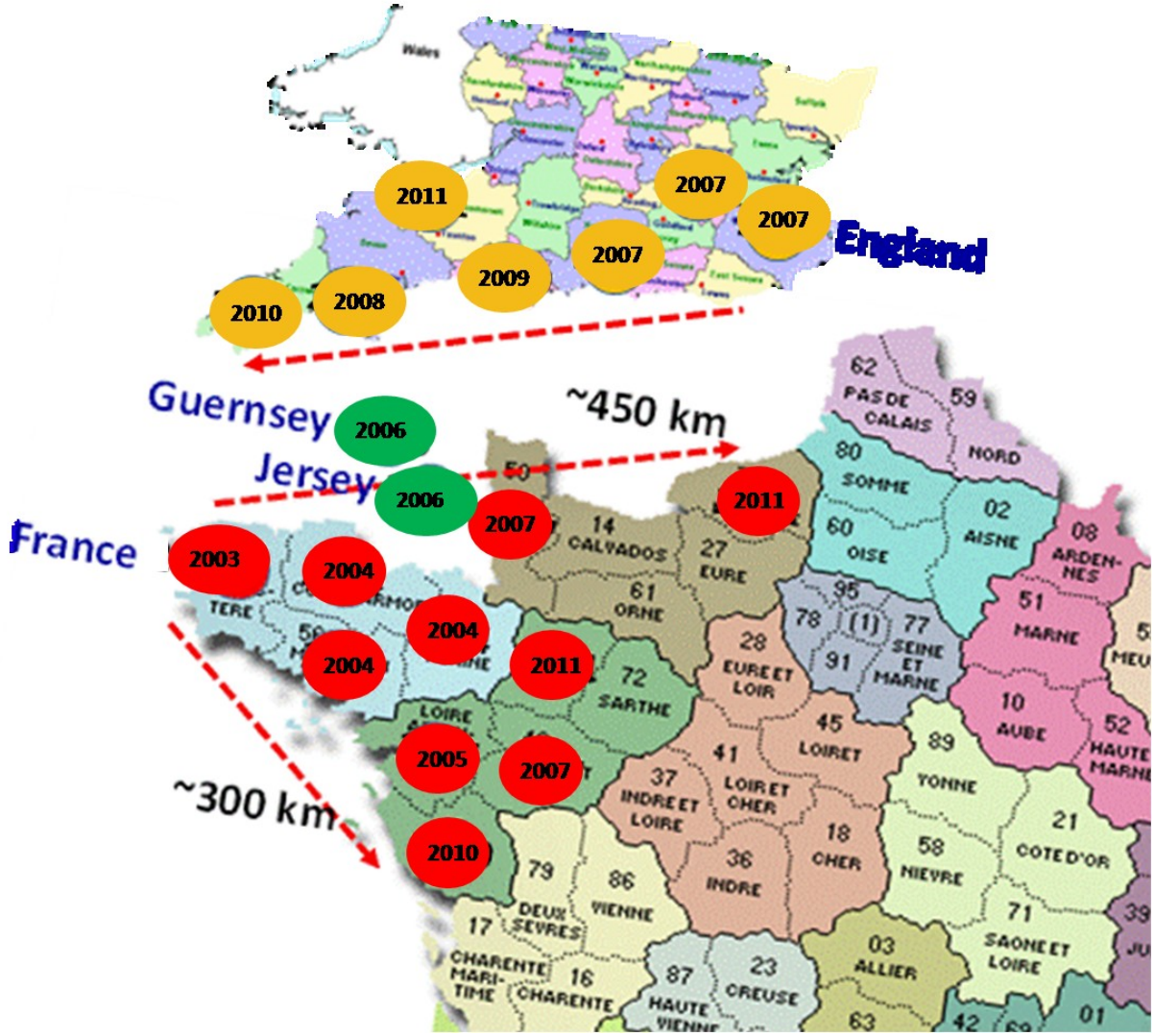

Figure 2: Spread of *Aculops fuchsiae* from its initial detection site in Europe in 2003 in Brittany, France, and in 2007 in Hampshire and Middlesex, southern England. The map was produced based on data provided by ANSES-SLV Unite entomologie et plantes invasives, Montpellier, France, and data extracted from pest reports of Ostojá-Starzewski and Eyre (2012)

3.5. Elements to assess the potential for consequences in the EU

3.5.1. Potential effects of *Aculops fuchsiae*

The Eriophyoidea are second in order of importance, after the Tetranychidae, among the Acari in terms of economic impact, because this superfamily comprises several agricultural pest species of major relevance (Lindquist et al., 1996).

A. fuchsiae causes severe damage to fuchsias and is ranked as a major pest of all but the most resistant species and cultivars. The pest belongs to the ecological class of gall-making Eriophyoidea mites (which explains its common name "the Fuchsia gall mite") because it causes tissue and organ deformations. In particular, as shown in Figure 3a, infestation by *A. fuchsiae* causes rusting and deformation (folding, twisting, stunting) of the leaves and shoots, which become grotesquely swollen and blistered, showing a felt-like appearance, often turning reddish (Koehler et al., 1985; Ostojá-Starzewski and Eyre, 2012).

The deformed leaves resemble those altered by peach leaf curl (*Taphrina deformans*). These symptoms are most strongly expressed on the terminal shoots. In the early stages, the thickened tissues and distortion can look like heavy aphid infestation (Natter, 1982). Later (see Figure 3b), the flowers become deformed and, eventually, all new growth ceases. Heavily infested plants are unsightly and flower production is often suppressed and, therefore, these plants are of no commercial value.

The impact of the mite over the last 20 years in California has led a number of gardeners to give up growing fuchsias entirely. There are no data on the situation in South America, its presumed native area of distribution.

3.5.2. Observed impact of *Aculops fuchsiae* in the EU

Negative impacts on hosts are reported. Figure 3 shows the damage caused by mite infestation in France on leaves and flowers of *F. magellanica*.

There is a relatively high economic value of fuchsia production in the risk assessment area. For instance, the Basic Horticultural Statistics (DEFRA-BHS, 2014) report form the UK indicates that, in 2004, 8.2 million boxes, trays, packs and pots of fuchsias were produced in the UK, with a value of over GBP 4 million. Although the economic impact of *A. fuchsiae* in France is not yet known, important damages are acknowledged and at the level of the fuchsia plant, once infested by the mites, all new growth is suppressed and the plant dies (FREDON, 2009).

There is a risk that, even if EU production nurseries remain free from *A. fuchsiae*, considering the importance of the exchange of fuchsia plant material by fuchsia enthusiasts, there may be a decline in the popularity of plants susceptible to infestation (all major species grown for ornamental purposes). This has been the main consequence of the mite's invasion in California, where some gardeners are no longer growing fuchsias (Ostojá-Starzewski and Eyre, 2012). Similarly, in Jersey, the Plant Health Authorities are discouraging the planting of fuchsia for the foreseeable future (Anderson and McLeod, 2007).

The Panel concludes that further expansion of *A. fuchsiae* could seriously hamper European fuchsia trade and production.

Figure 3: Symptoms and damage of *Aculops fuchsiae* infestation on *Fuchsia magellanica*. (a) Damage caused on leaves and (b) damage on flowers. Photos kindly provided by the Fédération Régionale de Défense contre les Organismes Nuisibles de Basse-Normandie, Herouville Saint Clair, France.

3.6. Currently applied control methods

There is currently no single effective treatment against *A. fuchsiae* (see below for the list of available control methods). In California, control attempts over the last 20 years have failed. In both Jersey and California, eradication programmes have not been successful (CABI, 2014). This lack of effective, curative treatments is worsened by the fact that mites spreading in an area, from either uncared for infested fuchsias or symptomless tolerant fuchsias harbouring undetectable populations of the mite, can negate the efforts of other gardeners, discouraging further control attempts of committed growers (Syndor, 2004; Anderson and McLeod, 2007).

As a consequence, in Jersey, for example, the Plant Health Authorities are discouraging the planting of fuchsia plants for the foreseeable future (Anderson and McLeod, 2007).

Owing to the limited effectiveness of the singly applied control methods reported in the literature, the control against the mite should involve a combination of different methods based on the experience built up in areas infested with the mite.

3.6.1. Quarantine

In Council Directive 2000/29/EC, *A. fuchsiae* is listed in Annex IIAI and its introduction and spread is banned if found on plants or plant products, i.e. *Fuchsia* spp. intended for planting, other than seed. This regulatory status applies to harmful organisms not known to occur in the Community.

Moreover, the Panel notes that the pest was transferred by EPPO from the A1 to the A2 list.

In France, the control of the harmful organism is mandatory and regulated by the "Arrêté du 10 mai 2004 relatif à la lutte contre l'acarien Aculops fuchsiae" (J. O. 26/05/2010). The document states that a contaminated fuchsia must be destroyed to avoid the dispersal of the mite. A contaminated plant must in no circumstances be multiplied, sold or exchanged.

3.6.2. Sanitation

Good sanitation is an essential aspect of control. When dealing with infested material, hygiene is essential (e.g. change clothing, wash hands, clean shoes and tools with alcohol after contact with infested plants). Infested material should be removed and properly destroyed (see below) (CABI/EPPO, 1997). In the UK, statutory action has been taken where the pest has been detected, which requires all visibly affected plants to be destroyed by incineration or to be bagged and buried (not composted).

3.6.3. Use of tolerant cultivars

Some hybrids and cultivars of *Fuchsia* spp. have been identified as less susceptible to the mite (University of California, 2014; Northwest Fuchsia Society, 2014; FREDON, 2009). However, these plants might host the pest and be symptomless, meaning that the pest could still spread into and establish in new areas.

3.6.4. Chemical control

In California, successful treatment was reported with sprays on a four-day cycle, enabling effective treatments on juvenile mites as they hatch and before they can lay more eggs. At least three sprays were necessary for controlling the mite (Wiedner, 2006). However, most of the products that were formally recommended to control the mite in California are no longer authorised in the EU, except for fenbutatin oxide, soaps and oil sprays. Moreover, the appropriate timing for chemical applications is not clear. In addition, fuchsias are often grown in anthropogenic environments (e.g. private and public gardens) where only limited use of pesticides is allowed. At this time, there are no registered plant protection products (PPPs) for use against *A. fuchsiae* in the EU. Considering that chemical control might become an important component of any sound programme for the containment and eradication of this pest, it would be important to identify effective PPPs with as many different modes of action as possible to minimise the selection of resistance to any one type of pesticide (IRAC, 2012). Products with translaminar properties could be helpful to reach mites hiding within deformed plant organs.

3.6.5. Biological control

Several predatory mites belonging to the Phytoseiidae family naturally occur in Europe. Some of them are commercially available. One of them, *Neoseiulus californicus*, has been suggested to control *A. fuchsiae* in California (Koehler et al., 1985). However, this species does not seem to effectively control this mite (CABI, 2014).

3.6.6. Cultural control

Cold temperatures may kill off the mites when hardy fuchsia varieties are kept outdoors in areas with harsh winters (Northwest Fuchsia Society, 2012).

3.7. Uncertainty

The main sources of uncertainty of this pest categorisation are listed below:

- Uncertainty on pest identification and detection. The presence of the mite is usually revealed by plant symptoms. The mite is inconspicuous and it might be overlooked on symptomless plants by operators. Consequently, low population densities of symptomless plants can only be detected by direct observation of plant samples. Because it is an oligophagous species, intraspecific variability is expected based on the knowledge of other eriophyoids, and it needs to be investigated. A high level of expertise is needed for species identification and only very few experts are currently available in the EU.

- Uncertainty on pest biology. Biological parameters of the mite related to climate and plant phenology need to be investigated. Dispersal by bees and birds has been stated in the literature but has never been proven. Moreover, this means of dispersal appears to occur only occasionally, based on common reports on eriophyoids mites.

- Uncertainty on global pest distribution. The information on the global distribution of *A. fuchsiae* presented in Table 2 combines information from different dates, some of which could be outdated.

- Uncertainty on pest presence and/or absence in the EU. Only one MS confirmed the absence of the pest through survey. Surveys have not been performed on this pest in all EU MSs.

- Uncertainty on the host range of the pest. No scientific studies on the susceptibility of fuchsia species and cultivars are available.

- Uncertainty on fuchsia production and distribution in Europe. There is a lack of data on the areas of distribution and production of fuchsias in the EU. No disaggregated trade data on fuchsia plant material are available.

- Uncertainty on the impact of the pest. Very few recent studies provide scientific information on impact of the pest. The impact in terms of quality loss on fuchsia plants has been described in the EU. However, no quantitative data of these losses have been reported yet. There is a lack of data on the environmental consequences on naturalised fuchsias in the EU and there is no data on the effectiveness of the applied control measures against the pest.

CONCLUSIONS

The Panel summarises in Table 6 below its conclusions on the key elements addressed in this scientific opinion in consideration of the pest categorisation criteria defined in ISPM 11 and ISPM 21, and of the additional questions formulated in the terms of reference.

Table 6: The Panel's conclusions on the pest categorisation criteria defined in the International Standards for Phytosanitary Measures (ISPM) No 11 and No 21 and on the additional questions formulated in the terms of reference

Criterion for pest categorisation	Panel's conclusions on ISPM 11 criteria	Panel's conclusions on ISPM 21 criteria	Uncertainties
Identity of the pest	*Is the identity of the pest clearly defined? Do clearly discriminative detection methods exist for the pest?* It can be discriminated by applying detection methods currently used for eriophyoid mites based on plant symptoms and determination keys of the species.		The presence of the mite is usually revealed by plant symptoms. Consequently, low population densities of symptomless plants can only be detected by direct observation of plant samples. Because it is an oligophagous species, intraspecific variability is expected based on other eriophyoids, and it needs to be investigated. A high level of expertise is needed for species identification and only very few experts are currently available in the EU.
Absence/presence of the pest in the risk assessment area	*Is the pest absent from all or a defined part of the risk assessment area?* The pest has not been reported in 24 MSs. In one case only the report is confirmed by survey.	*Is the pest present in the risk assessment area?* The pest is reported to be present in France, the UK and the Channel Islands. It is reported as transient in Belgium and Germany.	The mite is inconspicuous and it might be overlooked by operators on symptomless plants. Systematic surveys are lacking.
Regulatory status	*Mention in which annexes of 2000/29/EC and the marketing directives the pest and associated hosts are listed without further analysis. Indicate also whether the hosts and/or commodities for which the pest is regulated in AIIAI or II are comprehensive of the host*		

Criterion for pest categorisation	Panel's conclusions on ISPM 11 criteria	Panel's conclusions on ISPM 21 criteria	Uncertainties
	range. The pest is currently regulated under Annex IIAI of Council Directive 2000/29/EC. However, the pest is established in two MSs and the Channel Islands. Specific requirements for *Fuchsia* spp. are defined in Annexes AIV and V. The only known hosts are *Fuchsia* spp.		
Potential establishment and spread	*Does the risk assessment area have ecological conditions (including climate and those in protected conditions) suitable for the establishment and spread of the pest?* *Indicate whether the host plants are also grown in areas of the EU where the pest is absent.* *And, where relevant, are host species (or near relatives), alternate hosts and vectors present in the risk assessment area?* The host plants can be found in open fields and under protected cultivations, as well as in gardens, in most of the risk assessment area. In Europe, the climatic conditions do not seem to be the key limiting factor for the spread and establishment in open fields and under protected conditions. Establishment and spread could occur provided that suitable hosts (*Fuchsia* spp.) are present. Further spread is anticipated from the areas where the pest is currently present, mainly by movement of plant material through trade and exchange. The only known hosts are *Fuchsia* spp.	*Are plants for planting a pathway for introduction and spread of the pest?* Movements of plant material (potted plants and cuttings) are the main means of dispersal, followed by wind.	Biological parameters of the mite, relating to climate and plant phenology, need to be investigated. Dispersal by bees and birds was also stated but never proven. This means of dispersal appears to be occasional based on common reports on eriophyoids. These mites are not adapted to phoresy. There is a lack of data on the areas of distribution and production of Fuchsia in the EU and no disaggregated trade data on the fuchsia are available. These mites are not adapted to phoresy. There is a lack of data on the areas of distribution and production of Fuchsia in the EU and no disaggregated trade data on the fuchsia are available.
Potential for consequences in the risk assessment area	*What are the potential for consequences in the risk assessment area?* The presence of the mite can discourage the production of fuchsias, as reported in the Channel Islands and in California. *Provide a summary of impact in terms of yield and quality losses and environmental consequences.* *A. fuchsiae* causes severe damage to fuchsias. It causes rusting and deformation of the leaves and shoots. Flowers become deformed and all new	*If applicable, is there indication of impact(s) of the pest as a result of the intended use of the plants for planting?* As plants for planting are both the main pathway for spread of the mite and the main trade commodity of the fuchsia, severe economic impacts can be anticipated based on evidence from the Channel Islands and California on the intended use of the plants for planting.	There is a lack of data on environmental consequences on naturalised fuchsia in the EU. There is no data on the effectiveness of the applied control measures against the pest. There is a lack of data and information on the trade of fuchsia plant material in the EU.

Criterion for pest categorisation	Panel's conclusions on ISPM 11 criteria	Panel's conclusions on ISPM 21 criteria	Uncertainties
	growth ceases. Heavily infested plants are unsightly, flower production is often suppressed and are, therefore, of no commercial value. There are no environmental consequences identified.		
Conclusion on pest categorisation	*A. fuchsiae* is a well-defined species. The ecological conditions exist in the EU for its establishment and spread and it causes severe damage to fuchsias. The pest is well established in two EU MSs where it has been spreading since its first detections (2003 in France; 2007 in England).	*A. fuchsiae* is a well-defined species and a pest of fuchsias. Plants for planting and cuttings are considered the main pathway for introduction and spread of the pest.	High uncertainty exist regarding fuchsia distribution, production, trade and exchange, as indicated above.
Conclusion on specific Terms of Reference questions	*If the pest is already present in the EU, provide a brief summary of:* *the analysis of the present distribution of the organism in comparison with the distribution of the main hosts, and the distribution of hardiness/climate zones, indicating in particular if in the risk assessment area, the pest is absent from areas where host plants are present and where the ecological conditions (including climate and those in protected conditions) are suitable for its establishment* In Europe, the climatic conditions do not seem to be the key limiting factor for the spread and establishment in the open field and under protected conditions. Establishment and spread could occur provided that suitable hosts (*Fuchsia* spp.) are present. Further spread is anticipated from the areas where the pest is currently present, mainly by movement of plant material through trade and exchange. *and the analysis of the observed impacts of the organism in the risk assessment area.* The impact in terms of quality loss on fuchsia plants has been described in the EU. However, no quantitative data of these losses have been reported yet.		

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ABBREVIATIONS

EFSA	European Food Safety Authority
EFTA	European Free Trade Association
EPPO	European and Mediterranean Plant Protection Organization
EPPO PQR	European and Mediterranean Plant Protection Organization Plant Quarantine Retrieval System
ISPM	International Standard for Phytosanitary Measures
MS(s)	Member State(s)
NPPO	National Plant Protection Organization
PLH	Panel on Plant Health
PPP	plant protection products
PRA	Pest Risk Analysis
RNQP	regulated non-quarantine pest