

EPPO Datasheet: *Scirtothrips aurantii*

Last updated: 2021-03-15

IDENTITY

Preferred name: *Scirtothrips aurantii*

Authority: Faure

Taxonomic position: Animalia: Arthropoda: Hexapoda: Insecta:
Thysanoptera: Thripidae

Other scientific names: *Scirtothrips acaciae* Moulton

Common names: South African citrus thrips

[view more common names online...](#)

EPPO Categorization: A1 list

[view more categorizations online...](#)

EU Categorization: A1 Quarantine pest (Annex II A)

EPPO Code: SCITAU



[more photos...](#)

Notes on taxonomy and nomenclature

Described from South Africa (*S. aurantii*) and Ghana (*S. acaciae*). *S. acaciae* has been synonymised by Mound & Palmer (1981: 473).

Intraspecific diversity: In 2002 *S. aurantii* was recorded on *Kalanchoe* (= *Bryophyllum*) *delagoense* in Queensland, Australia. While *S. aurantii* is known from Africa as a highly polyphagous pest, no spread or damage to commercial plantations has been reported from Australia (Rafter *et al.*, 2008; Garms *et al.*, 2013; Rafter & Walter, 2013). This led to questions whether this thrips species was actually a cryptic species complex. However, results of both molecular analyses (Morris and Mound, 2004; Hoddle *et al.*, 2008) and host adaptation tests (Garms *et al.*, 2013) can be interpreted as evidence that the polyphagous South African population of *S. aurantii* and the monophagous invasive population in Australia are the same species.

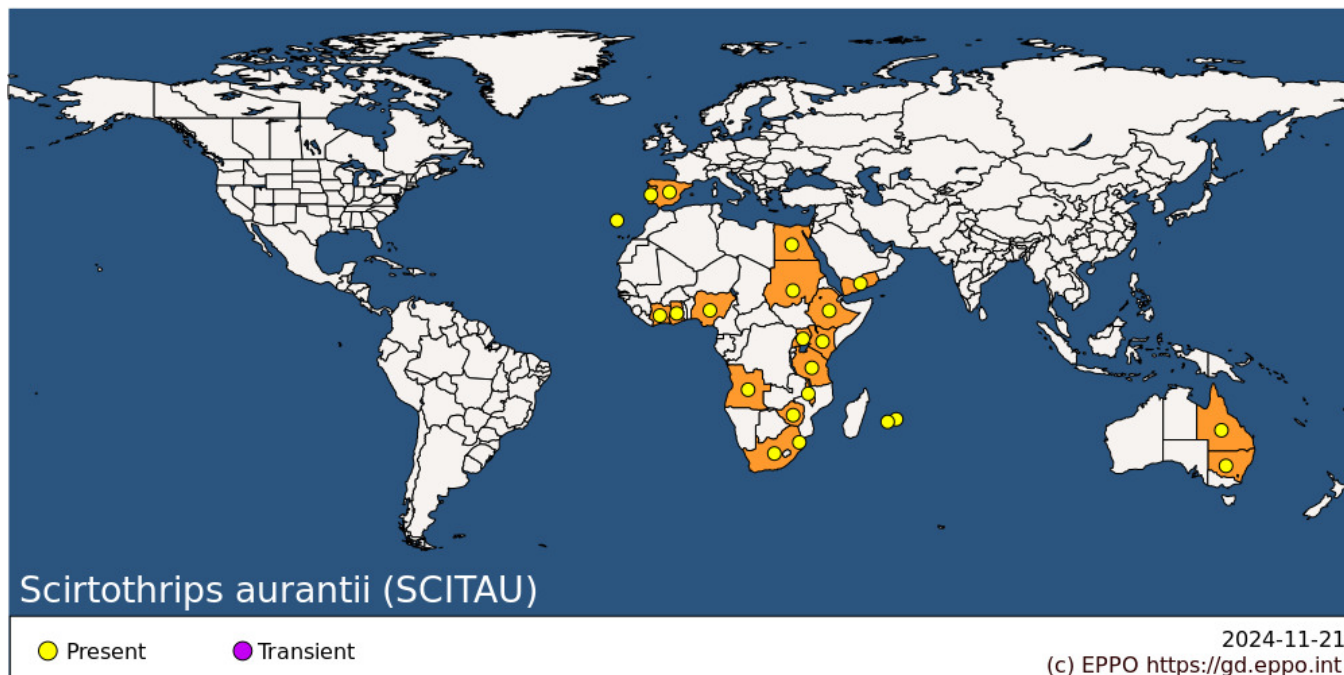
HOSTS

Although usually considered to be associated with *Citrus*, especially oranges (*C. sinensis*) in southern Africa, *S. aurantii* is highly polyphagous and has been found on more than 70 plant species in a wide range of different plant families. Its native hosts are probably *Acacia* and *Combretum* trees, but it has also been found on a range of crops that are not only botanically unrelated but differ widely in form, including amaranth, asparagus, banana, cashew, castor bean, cotton, mango, peanut, and grapevine (Freebairn, 2008). However, the occurrence of adults feeding on a plant does not necessarily constitute this plant as a true host (EFSA, 2018). Reports based on records of adults alone do not provide conclusive evidence of the suitability of a plant, to allow reproduction and sustain development of all life stages of *S. aurantii*. The following host list provides plant species where both larvae and adults of *S. aurantii* have been found, suggesting that they are true hosts.

Host list: *Acacia*, *Acaciella glauca*, *Arachis hypogaea*, *Asparagus*, *Bauhinia galpinii*, *Caesalpinia pulcherrima*, *Calliandra calothyrsus*, *Citroncirus*, *Citrus reticulata*, *Citrus trifoliata*, *Citrus x aurantiifolia*, *Citrus x aurantium* var. *paradisi*, *Citrus x aurantium* var. *sinensis*, *Citrus x latifolia*, *Citrus x limon*, *Citrus x nobilis*, *Citrus*, *Combretum*, *Dichrostachys cinerea*, *Diospyros kaki*, *Ficus carica*, *Fortunella*, *Fragaria x ananassa*, *Gloriosa superba*, *Gossypium*, *Grevillea robusta*, *Kalanchoe blossfeldiana*, *Kalanchoe delagoensis*, *Kalanchoe pinnata*, *Macadamia integrifolia*, *Malus domestica*, *Mangifera indica*, *Mucuna coriacea* subsp. *irritans*, *Musa x paradisiaca*, *Myoporum* sp., *Myrtus communis*, *Persea americana*, *Pithecellobium dulce*, *Prunus persica*, *Punica granatum*, *Ricinus communis*, *Rosa* sp., *Rubus idaeus*, *Rubus*, *Senegalia polyacantha* subsp. *campylacantha*, *Vaccinium*, *Vachellia karroo*, *Vitis vinifera*, x *Citrofortunella microcarpa*

GEOGRAPHICAL DISTRIBUTION

S. aurantii is native to Africa, and the only records considered to be valid (i.e., supported by voucher specimens in an available collection) from outside this continent are from Australia and Yemen. In the EPPO region, it was first recorded in 2020 in Spain and then in Portugal, and in both countries it is under eradication.



EPPO Region: Portugal (mainland, Madeira), Spain (mainland)

Africa: Angola, Cote d'Ivoire, Egypt, Eswatini, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Reunion, South Africa, Sudan, Tanzania, Uganda, Zimbabwe

Asia: Yemen

Oceania: Australia (New South Wales, Queensland)

BIOLOGY

Scirtothrips females insert their eggs into young and soft tissues of leaves, stems and fruit using their distinctive saw-like ovipositor. After having hatched these thrips go through four developmental stages (Gilbert and Bedford, 1998; Grové *et al.*, 2000a; EPPO, 2005; CABI, 2017): two actively feeding immature instars (first and second instar larva), two non-feeding immature instars (prepupa and pupa) and the feeding adults. Both, adults and larvae feed on epidermal and occasionally even palisade cells of young leaves or on young fruit often still concealed under the calyx (Milne and Manicom, 1978); they do not feed on mature leaves. Upon completion of the second instar, larvae seek refuge, usually on the ground in leaf litter, where they pupate. Very occasionally pupae can be found beneath the calyx of fruits, however, as only the youngest fruits are attacked *S. aurantii* rarely occur on harvested fruits. Breeding is almost continuous, with no diapause, although development is slower in colder seasons due to cooler weather and diminishing food supply. The life cycle of *S. aurantii* can be completed within 18 days in summer to 44 days in winter, respectively (Gilbert and Bedford, 1998). In South Africa, more than nine generations per year are known to occur in citrus and mangoes. Adults are probably dispersed downwind, but observations in South Africa have suggested that early-season infestations in citrus orchards develop mainly from thrips that have overwintered within each orchard, rather than from adults flying in from wild plants (Gilbert, 1990; Gilbert and Samways, 2018). Later in the season (November and December), wild hosts probably assume greater importance as a source of the pest. Citrus trees close to windbreaks made of host plants (e.g. *Grevillea* trees which harbour *S. aurantii*) had more severe fruit scarring than citrus trees close to non-host windbreaks (e.g. *Pinus* or *Casuarina* trees) (Grout and Richards, 1990a; Dubois and Quilici, 1999).

DETECTION AND IDENTIFICATION

Symptoms

Sucking injury on leaves first becomes apparent in silvering of the leaf surface (caused by dry, air-filled cells) and linear thickenings of the leaf lamina. Furthermore, leaves with these symptoms are usually covered with small dark fecal droplets. On fruit, feeding marks usually form a ring of scarred tissues around the base that enlarges with growth. Injuries to both, leaves and fruits finally lead to brownish frass markings, which may result in early leaf senescence and fruit distortion. A severe attack to flushes of young leaves late in the season may reduce the crop of the following season (Kamburov, 1991). Fruit of Navel orange cultivars are considered the most susceptible to this thrips (Gilbert and Bedford, 1998).

Morphology

Members of the genus *Scirtothrips* are readily distinguished from all other Thripidae by the following characteristics: antennae 8-segmented, sense cones forked; head transversely striate with 3 pairs of ocellar setae; pronotum transversely striate with 4 pairs of posteromarginal setae; mesonotum with median pair of setae arising well in front of the posterior margin; metanotum with median pair of setae at or near to anterior margin of the plate; abdominal tergites with regular microtrichial fields on lateral thirds, tergite VIII with well-developed posteromarginal comb; sternites with marginal setae arising at posterior margin; males with sternal glandular areas not developed.

At present, 106 extant *Scirtothrips* species are known (ThripsWiki, 2020), however, the validity of some is in doubt (Mound and zur Strassen, 2001; Hoddle *et al.*, 2008; Mound & Hoddle, 2016). In summary, *S. aurantii* may be characterised by the following structures.

Eggs

The eggs are reniform, pale and opaque (length < 0.2 mm).

Larva

The small white first larval instars resemble adults but lack wing pads and have a lesser number of antennal segments. The second larval instar is similar to the previous stage but larger. The identification of larvae based on morphological features is difficult (see Ulitzka, 2020).

Pupa

No precise description of the prepupae and pupae are given in the literature. Both resemble larvae regarding their body shape; however, they possess wing pads.

Adults

- Females are yellow with brown markings medially on the tergites; their body length is about 1.1mm. The main morphological characteristics are as follows: antennae 8-segmented; pronotum closely striate, without long setae on the posterior angles; forewing: second vein with 2–5 setae; posteromarginal fringe cilia wavy, not straight; abdominal tergites laterally with numerous rows of tiny microtrichia.

- Males are similar to females in colour and shape, but smaller (about 0.8mm); easily recognized by a comb of 5–7 stout dark setae on distal posterior margin of the hind femora and a pair of long curved dark processes laterally on abdominal tergite IX.

The EPPO Diagnostic Protocol for *S. aurantii*, *S. citri* and *S. dorsalis* provides recommendations on how to detect and identify the pest (EPPO Standard PM 7/56, 2005).

Detection and inspection methods

All motile stages of *S. aurantii* feed on young leaves and on the base of young fruit, particularly when concealed

under the calyx. They could be carried on seedlings or cuttings with young leaf buds. Detecting adults of *S. aurantii* is not easy, particularly, when they are present only in low numbers on the plants. Quiescent stages such as pupae may hide in leaf axils, under the calyces of flowers and fruit, or in the soil. They can easily be overlooked, as can eggs which are hidden in the leaf tissue (MacLeod and Collins, 2006). Mature fruit, on the contrary, are not considered to be a potential pathway. However, damage from an earlier infestation may be seen on mature citrus fruit in the form of annular scars (rings around the fruit base) and deformations (MacLeod and Collins, 2006; EFSA PLH Panel, 2018). These symptoms could be used as an indicator to trigger further surveillance of the pest (EFSA, 2019). Therefore, trapping *S. aurantii* in high-risk locations where mature fruit show symptoms can be considered as a relevant component of the pest survey activity. Placing traps in the fields after tracing back to the production site where the symptomatic fruit come from could also be a target of survey efforts to increase the probability of finding the pests (EFSA, 2019).

Detailed protocols for surveillance, sampling and detection are indicated in the EFSA pest survey card (EFSA, 2019).

PATHWAYS FOR MOVEMENT

As mentioned above under Biology, the potential of *Scirtothrips aurantii* for natural spread is relatively limited. In international trade, *S. aurantii* could be carried on plants for planting (on young leaves or in the growing medium attached) as well as on cut flowers or cut foliage, but in fact interceptions are relatively rare (EFSA, 2018; Vierbergen *et al.*, 2010). Nevertheless, it has been introduced to Australia and more recently to Spain.

Unlike other Thysanoptera, *Scirtothrips* sp. seem to require access to soft green tissues, except when pupating in leaf litter and soil. So only seedlings or cuttings with young growing leaf buds are liable to carry these pests. EFSA (2018) considers that *S. aurantii* is unlikely to be associated with mature fruit as they do not feed or oviposit on mature fruit.

PEST SIGNIFICANCE

Economic impact

At least ten species of *Scirtothrips* are known as pests of various crops in different parts of the tropics, but most of them have restricted geographic ranges and breed on specific tropical host plants, such as *S. kenyensis* which damages tea and coffee in Eastern Africa (Moritz *et al.*, 2013), or *S. manihoti* which causes serious leaf distortion of cassava in Central and South America (Mound and zur Strassen, 2001). *Scirtothrips* species are particularly associated with plants that grow in warm, dry conditions; they are usually more abundant on terminal shoots rather than within the canopy of a tree. Along with *S. citri* and *S. dorsalis*, *S. aurantii* is, as a pest of citrus, one of the most important *Scirtothrips* sp. for international agriculture.

In South Africa and Zimbabwe, *S. aurantii* causes reduction in citrus yields due to serious damage to young leaves and reduces the proportion of export quality fruits. It is a most serious pest at low altitudes (Hill, 1983). It is not generally regarded as harmful to citrus crops further north in Africa, although this might be due to less intensive cultivation practices. Damage to tea plants has been reported from plantations in Malawi (Rattan, 1992), and *S. aurantii* is the primary cause of banana fruit spotting in Yemen (Nasseh and Mughni, 1990). *S. aurantii* is also considered as a pest in mango (Grové *et al.*, 2000a) and avocado (Bara and Laing, 2019).

In Australia, *S. aurantii* is not considered as a crop pest (Garms *et al.*, 2013; Rafter *et al.*, 2013) as it is mainly recorded on the weed *Bryophyllum delagoense*.

Control

Chemical control

Chemical control is often needed to maintain the pest below economical threshold in both citrus and mango production (Samways *et al.*, 1987; Grové *et al.*, 2010b). For citrus, it is recommended to spray fruits towards the end of a main flowering period, when three-quarters of petals have fallen (Hill, 1983). Monitoring of *S. aurantii* using

traps is important for optimal timing of insecticide sprays (Grout and Richards, 1990b; Gilbert and Samways, 2018). Bait sprays and insecticides treatments via drip irrigation were used to limit side effect on natural enemies (Grout, 2015; Grout and Stephens, 2005). Grout (2015) notes that the recent increased use of mancozeb against Citrus black spot (*Phyllosticta citricarpa*) in South Africa had negative impacts on natural enemies of *S. aurantii* and that long-residual thripicides are now frequently required for the control of citrus thrips.

Rattan (1992) reported the use of several active substances to control the pest on tea in Malawi. Resistance to synthetic pyrethroids and emetic baits has been reported (Rattan, 1992; Grout *et al.*, 1996).

Biological control

Several species of predacious mites such as *Euseius addoensis* have been shown to contribute to control (Grout and Richards, 1992; Grout, 2015). The hymenopteran parasitoid *Goethana incerta* was shown to parasitize *S. aurantii* in Swaziland and Malawi (Grout and Stephen, 1995a). Moreover, studies have shown that surrounding windbreak trees could favour the maintenance of natural enemies (Grout and Richards, 1990; Grout and Stephen, 1995b). Grout (1996) mentions that *Typhlodromalus* spp. may be effective thrips predators, and that combinations of several natural enemies may provide better control. However, he also hypothesized that *Amblydromella* spp. might compete with the other predatory mites. Research is also being conducted on entomopathogenic fungi (Achampong *et al.*, 2020).

Phytosanitary risk

S. aurantii is a very polyphagous species. It could be introduced with plants for planting, cut flowers or cut foliage. Its occurrence in citrus-growing areas with a subtropical or Mediterranean climate suggests that *S. aurantii* could probably establish on citrus in Southern Europe and the Mediterranean area. It is a damaging pest on citrus and requires specific control that may challenge current IPM practices. Mango and avocado are also cultivated in the EPPO region and may be at risk if *S. aurantii* was introduced.

PHYTOSANITARY MEASURES

Importation of *Citrus* plants for planting is prohibited or restricted in many EPPO countries to prevent introduction of important pests. However, *S. aurantii* could be introduced with other plant species, as it is very polyphagous, and adults may be found on plants on which they may not complete their full life cycle. To prevent introduction of the pest, plants for planting should either be dormant (i.e., without leaves and fruit) with no growing medium attached or come from a pest-free area or a pest-free place of production. An insecticide treatment before shipping may also be an option.

Measures for cut flowers/foliage may not be justified as the risk of transfer to host plants at destination is limited.

REFERENCES

Acheampong MA, Hill MP, Moore SD, Coombes CA (2020) UV sensitivity of *Beauveria bassiana* and *Metarhizium anisopliae* isolates under investigation as potential biological control agents in South African citrus orchards. *Fungal Biology* **124**(5), 304-310. <https://doi.org/10.1016/j.funbio.2019.08.009>

Bara GT, Laing MD (2019) Determination of the natural host status of avocado fruit to pestiferous thrips (Thysanoptera: Thripidae) in KwaZulu-Natal, South Africa. *African Entomology* **27**(1), 245-253
<https://doi.org/10.4001/003.027.0245>

Bara GT, Laing MD (2020) Attractiveness of Different Coloured Sticky Traps to the South African Citrus Thrips (*Scirtothrips aurantii* Faure) in Avocado, KwaZulu-Natal, South Africa. *African Entomology* **28**(1), 133-141.
<https://doi.org/10.4001/003.028.0133>

Bournier J-P (2000) Les Thysanoptères de l'île de la Réunion: Terebrantia. *Bulletin de la Société Entomologique de France* **105**, 65-108.

CABI (2017) CABI Datasheet report for *Scirtothrips aurantii* (South African citrus thrips). Available at: <https://www.cabi.org/isc/datasheet/49061>

Dubois B, Quilici S (1999) Etude préliminaire de l'évolution des populations de *Scirtothrips aurantii* Faure sur vigne à l'île de la Réunion. *Fruits* **54**(1), 67-78. Available at: <https://revues.cirad.fr/index.php/fruits/article/view/35648>

EFSA PLH Panel (EFSA Panel on Plant Health) Jeger M, Bragard C, Caffier D, Candresse T, Chatzivassiliou E, Dehnen-Schmutz K, Gilioli G, Gregoire J-C, Jaques Miret JA, Navarro MN, Niere B, Parnell S, Potting R, Rafoss T, Rossi V, Urek G, Van Bruggen A, Van der Werf W, West J, Winter S, Gardi C, MacLeod A (2018) Scientific Opinion on the pest categorisation of *Scirtothrips aurantii*. *EFSA Journal* **16**(3), 5188, 21 pp. <https://doi.org/10.2903/j.efsa.2018.5188>

EFSA (European Food Safety Authority) Schrader G, Camilleri M, Diakaki M, Vos S (2019) Pest survey card on *Scirtothrips aurantii*, *Scirtothrips citri* and *Scirtothrips dorsalis*. *EFSA supporting publication 2019*, **16** (2) EN?1564, 21 pp. <https://doi.org/10.2903/sp.efsa.2019.EN-1564>

EPPO (2005) Diagnostics. *Scirtothrips aurantii*, *Scirtothrips citri*, *Scirtothrips dorsalis*. EPPO Standard PM 7/56 (1). *EPPO Bulletin* **35**(2), 353-356. Available from <https://gd.eppo.int/standards/PM7/>

Freebairn C (2008) South African citrus thrips in Australia – identity, pest status and control. *Final Report: CT03022, Horticultural Australia Ltd.*, 202 pp.

Garms BW, Mound LA, Schellhorn NA (2013) Polyphagy in the Australian population of South African citrus thrips (*Scirtothrips aurantii* Faure). *Australian Journal of Entomology* **52**, 282-289.

Gilbert MJ (1990) Relative population levels of citrus thrips *Scirtothrips aurantii* on commercial citrus and adjacent bush. *South African Journal of Zoology* **25**, 72-76.

Gilbert MJ, Bedford ECG (1998) Citrus thrips. *Scirtothrips aurantii* Faure. In: *Citrus pests in the Republic of South Africa, 2nd revised edition* (Ed. by Bedford ECG, van den Berg MA, de Villiers EA). Institute for Tropical and Subtropical Crops, Nelspruit, South Africa, pp. 164-170.

Gilbert MJ, Samways MJ (2018) Mature larval dispersal and adult emergence of the economically significant pest, *Scirtothrips aurantii* Faure (Thysanoptera: Thripidae), in commercial citrus. *Journal of Insect Science* **18**(2), 32. <https://doi.org/10.1093/jisesa/iey028>

Grout TG (2015) The status of citrus IPM in South Africa. *Acta Horticulturae* no. 1065, 1091-1095. <https://doi.org/10.17660/ActaHortic.2015.1065.137>

Grout TG, Richards GI (1990a) The influence of windbreak species on citrus thrips (Thysanoptera: Thripidae) populations and their damage to South African citrus orchards. *Journal of the Entomological Society of Southern Africa* **53**, 151-157.

Grout TG, Richards GI (1990b) Monitoring citrus thrips, *Scirtothrips aurantii*, with yellow card traps and the effect of latitude on treatment thresholds. *Journal of Applied Entomology* **109**, 385-389.

Grout TG, Richards GI (1992) *Euseius addoensis*, an effective predator of citrus thrips, *Scirtothrips aurantii*, in the eastern Cape Province of South Africa. *Experimental and Applied Acarology* **15**, 1-13.

Grout TG, Stephen PR (1995a) *Goetheana incerta* parasitizing citrus thrips in southern Africa. *Citrus Journal* **5**(4), 30-32.

Grout TG, Stephen PR (1995b) New windbreak tree contributes towards integrated pest management of citrus. *Citrus Journal* **5**(4), 26-27.

Grout TG, Stephen PR (2005) Use of an inexpensive technique to compare systemic insecticides applied through drip irrigation systems in citrus. *African Entomology* **13**(2), 353-358.

- Grout TG, Stephen PR, la Croix NJS (1996) Citrus thrips (Thysanoptera: Thripidae) in Swaziland develop tolerance to tartar emetic bait. *African Entomology* **4**(1), 15-20.
- Grové T, Giliomee JH, Pringle KL (2000a) Seasonal abundance of different stages of the citrus thrips, *Scirtothrips aurantii*, on two mango cultivars in South Africa. *Phytoparasitica* **28**, 43-53.
- Grové T, Giliomee JH, Pringle KL (2000b) Field evaluation of insecticides for the control of citrus thrips *Scirtothrips aurantii* (Thysanoptera: Thripidae), on mango. *African Plant Protection* **6**(1), 9-15.
- Hill DS (1983) *Agricultural insect pests of the tropics and their control*. Cambridge University Press, Cambridge, UK. 758pp.
- Hoddle MS, Heraty JM, Rugman-Jones PF, Mound LA, Stouthamer R (2008) Relationships among species of *Scirtothrips* (Thysanoptera: Thripidae, Thripinae) using molecular and morphological data. *Annals of the Entomological Society of America* **101**, 491-500. [https://doi.org/10.1603/0013-8746\(2008\)101\[491:RASOST\]2.0.CO;2](https://doi.org/10.1603/0013-8746(2008)101[491:RASOST]2.0.CO;2)
- Kamburov SS (1991) Damage to fruit and the impact on crop-set from late infestations of citrus thrips (*Scirtothrips aurantii* Faure). *Citrus Journal* **1**, 33-34.
- MacLeod A, Collins D (2006) CSL pest risk analysis for *Scirtothrips dorsalis*. CSL (Central Science Laboratory), 8 pp. Available at: <https://secure.fera.defra.gov.uk/phiw/riskRegister/downloadExternalPra.cfm?id=3917>
- Milne DL, Manicom BQ (1978) Feeding apparatus of the South African citrus thrips *Scirtothrips aurantii* Faure. *Citrus and Subtropical Fruit Journal* **535**, 6-11.
- Moritz G, Brandt S, Triapitsyn S, Subramanian S (2013) Identification and information tools for pest thrips in East Africa. *CBIT Publishing, Queensland*. Available at: <http://thripsnet.zoologie.uni-halle.de/key-server-neu/data/03030c05-030b-4107-880b-0a0a0702060d/media/Html/index.html>
- Morris DC, Mound LA (2004) Molecular relationships between populations of South African citrus thrips (*Scirtothrips aurantii* Faure) in South Africa and Queensland, Australia. *Australian Journal of Entomology* **43**, 353-358. <https://doi.org/10.1111/j.1326-6756.2004.00437.x>
- Mound LA, Hoddle MS (2016) The *Scirtothrips perseae* species-group (Thysanoptera), with one new species from avocado, *Persea americana*. *Zootaxa* **4079**(3), 388-392. <https://doi.org/10.11646/zootaxa.4079.3.7>
- Mound LA, Palmer JM (1981) Identification, distribution and host-plants of the pest species of *Scirtothrips* (Thysanoptera: Thripidae). *Bulletin of Entomological Research* **71**, 467-479.
- Mound LA, zur Strassen R (2001) The genus *Scirtothrips* (Thysanoptera: Thripidae) in Mexico: a critique of the review by Johansen & Mojica-Guzmán (1998). *Folia Entomológica Mexicana* **40**, 133-142.
- Nasseh OM, Mughni AAA (1990) Efficacy of chemical and natural insecticides for suppression of *Scirtothrips aurantii* (Faure) (Thripidae - Thysanoptera) causing banana fruit spotting disease in the Yemen Arab Republic. In: *Proceedings, Integrated Pest Management in Tropical and Subtropical Cropping Systems, Frankfurt, 1990*, pp. 749-756. Deutsche Landwirtschaftsgesellschaft, Frankfurt am Main, Germany.
- Rafter MA, Gillions RM, Walter GH (2008) Generalist herbivores in weed biological control – a natural experiment with a reportedly polyphagous thrips. *Biological Control* **44**, 188-195. <https://doi.org/10.1016/j.biocontrol.2007.09.011>
- Rafter MA, Walter GH (2013) Mate recognition in the South African citrus thrips *Scirtothrips aurantii* (Faure) and cross-mating tests with populations from Australia and South Africa. *Journal of Insect Behaviour* **26**, 780-795. <https://doi.org/10.1007/s10905-013-9391-7>
- Rafter MA, Hereward JP, Walter GH (2013) Species limits, quarantine risk and the intrigue of a polyphagous

invasive pest with highly restricted host relationships in its area of invasion. *Evolutionary Applications* **6**, 1195-1207. <https://doi.org/10.1111/eva.12096>

Rattan PS (1992) Thrips (*Scirtothrips aurantii*), synthetic pyrethroid insecticides and alternatives. *Quarterly Newsletter, Tea Research Foundation of Central Africa* **106**, 9-11.

Samways MJ, Tate BA, Murdoch E (1987) Population levels of adult citrus thrips, *Scirtothrips aurantii*, relative to season and fruit scarring. *Journal of Applied Entomology* **104**, 372-377.

ThripsWiki (2020) ThripsWiki – providing information on the world’s thrips: *Scirtothrips*. Available at: <https://thrips.info/wiki/scirtothrips>

Ulitzka MR (2020) Thrips-*iD* – Fang & Präparation, Larven. Available at: <http://www.thrips-id.com/de/sammlung/praeparation/#1483911720964-ae0d4a53-85fc>

Vierbergen G, Kucharczyk H, Kirk WDJ (2010) A key to the second instar larvae of the Thripidae of the Western Palearctic region (Thysanoptera). *Tijdschrift voor Entomologie* **153**(1), 99-160. <https://doi.org/10.1163/22119434-900000294>

ACKNOWLEDGEMENTS

This datasheet was extensively revised in 2021 by Manfred R. Ulitzka, [Thrips-*iD*](#). His valuable contribution is gratefully acknowledged.

How to cite this datasheet?

EPPO (2024) *Scirtothrips aurantii*. EPPO datasheets on pests recommended for regulation. Available online. <https://gd.eppo.int>

Datasheet history

This datasheet was first published in 1997 in the second edition of 'Quarantine Pests for Europe', and revised in 2021. It is now maintained in an electronic format in the EPPO Global Database. The sections on 'Identity', 'Hosts', and 'Geographical distribution' are automatically updated from the database. For other sections, the date of last revision is indicated on the right.

CABI/EPPO (1997) *Quarantine Pests for Europe* (2nd edition). CABI, Wallingford (GB).



Co-funded by the
European Union