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Data Sheets on Quarantine Pests

Scirtothrips aurantii

IDENTITY

Name: *Scirtothrips aurantii* Faure
Synonyms: *Scirtothrips acaciae* Moulton
Taxonomic position: Insecta: Thysanoptera: Thripidae
Common names: South African citrus thrips (English)
Thrips sud-africain des agrumes (French)
Citrusblasenfuss (German)
Bayer computer code: SCITAU
EPPO A1 list: No. 221
EU Annex designation: II/A1

HOSTS

Although usually considered to be associated with *Citrus*, especially oranges (*C. sinensis*) in Southern Africa, *S. aurantii* has been found on more than 50 plant species in a wide range of different plant families, and is sometimes a pest of mangoes (*Mangifera indica*) when these are grown close to citrus trees in South Africa. Its native hosts are probably *Acacia* and *Combretum* trees, but it has also been taken on a range of crops that are not only botanically unrelated but differ widely in form, including *Arachis*, *Asparagus*, *Gossypium*, *Musa*, *Ricinus* and *Vitis*.

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 Yemen.
EPPO region: Egypt.
Asia: Yemen.
Africa: Angola, Cape Verde, Egypt, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Réunion, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zimbabwe.
EU: Absent.
Distribution map: See CIE (1961, No. 137).

BIOLOGY

All stages feed on epidermal, or even palisade, cells of young leaves, and on the apex of young fruit often concealed under the calyx (Milne & Manicom, 1978). They do not feed on mature leaves (Hall, 1930). Eggs are inserted into young tissues. There are two nymphal (feeding) stages, followed by two pupal (non-feeding) stages. Pupation occurs on the ground amongst leaf litter; pupae occur rarely beneath the calyx of fruits. Breeding is almost continuous, although development is slow in winter, and the life history can be completed in less than 30 days.

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). Later in the season (November and December), wild hosts probably assume greater importance as a source of the pest. Citrus trees close to windbreaks of *Grevillea* trees (that harbour *S. aurantii*) had more severe fruit scarring than citrus trees close to windbreaks of *Pinus* or *Casuarina* trees (these do not support *S. aurantii*) (Grout & Richards, 1990a).

DETECTION AND IDENTIFICATION

Symptoms

Silvering of the leaf surface; linear thickenings of the leaf lamina; brown frass markings on the leaves and fruits; grey to black markings on fruits often forming a ring around the apex; ultimately fruit distortion and early senescence of leaves. If flushes of young leaves are severely attacked later in the season, then the crop of the following season may be reduced (Kamburov, 1991).

Morphology

Members of the genus *Scirtothrips* are readily distinguished from all other Thripidae by the following characters: surface of pronotum covered with many closely spaced transverse striae; abdominal tergites laterally with numerous parallel rows of tiny microtrichia; sternites with marginal setae arising at posterior margin; metanotum with median pair of setae arising near anterior margin. The only closely similar species is *Drepanothrips reuteri*, a native European pest of grapevine, but that has the antennae 6-segmented (the 3 terminal segments being fused) instead of 8-segmented. Most of the 59 species described in *Scirtothrips* were defined originally by their authors on unreliable colour and silhouette characters; Mound & Palmer (1981) describe many structural details by which each pest species may be distinguished. Many undescribed species are known from Central America (Mound & Marullo, in press). *Scirtothrips* spp. primarily infest young growing buds, so these should be examined particularly carefully.

In *S. aurantii*, the eggs are bean-shaped, minute (less than 0.2 mm) and inserted into soft plant tissues. The two feeding nymphal stages are yellow to orange, cigar-shaped and just visible to the naked eye. Adult males can be distinguished from all other members of the genus by the presence of a comb of stout setae on the posterior margin of the hind femora; also, the ninth abdominal tergite of males bears a pair of long curved dark lateral processes (drepanae). Females have the following characters: median ocellar setae on the head arising close together and in line with the anterior margins of the posterior pair of ocelli; forewing posteromarginal cilia wavy not straight; median abdominal sternites fully covered with microtrichia; abdominal tergites and sternites with a transverse anterior dark line; tergites with a dark median area. The larvae are yellow, with the body surface finely granulate.

MEANS OF MOVEMENT AND DISPERSAL

As mentioned above under Biology, the potential of *Scirtothrips* spp. for natural spread is relatively limited. In international trade, *S. aurantii* could be carried on plants for planting, but in fact interceptions are relatively rare. Unlike many Thysanoptera, *Scirtothrips* spp. 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. Only young fruits are attacked, so the risk of these thrips being carried on harvested fruits

is small. There is no direct evidence that *S. aurantii* has been dispersed beyond its natural range by human activity. It has, however, been intercepted in the Netherlands.

PEST SIGNIFICANCE

Economic impact

At least ten *Scirtothrips* spp. are known as pests of various crops in different parts of the tropics, but most of them have restricted geographic ranges and tropical host plants, such as *S. kenyensis* which damages tea and coffee in eastern Africa, or *S. manihoti* which causes serious leaf distortion of cassava in Central and South America. *Scirtothrips* spp. are particularly associated with plants that are growing actively in warm, dry conditions; they are usually more abundant on terminal shoots rather than within the canopy of a tree. With *S. citri* and *S. dorsalis* (EPPO/CABI, 1996), *S. aurantii* is, as a pest of citrus, one of the most important *Scirtothrips* spp. for international agriculture.

In South Africa and Zimbabwe, *S. aurantii* causes reduction in citrus yields through 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 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 & Mughni, 1990).

Control

It is recommended, for example, to spray fruits towards the end of a main flowering period, when three-quarters of petals have fallen, using a water solution of lime sulphur (Hill, 1983). Triazophos is currently used in South Africa, and yellow card traps and treatment thresholds are used to time treatments (Samways *et al*., 1987; Grout & Richards, 1990b). Nasseh & Mughni (1990) refer to the use of dimethoate and natural insecticides in Yemen. Rattan (1992), for control of the pest on tea in Malawi, notes that dimethoate is to be preferred to fenitrothion or malathion, that quinalphos, triazophos and acephate are also effective, and that resistance has developed to the synthetic pyrethroids. Predacious mites such as *Euseius addoensis*, persisting on surrounding shade trees, may contribute to control in South Africa (Grout & Richards, 1992).

Phytosanitary risk

S. aurantii has recently been added to the EPPO A1 list, and is also a quarantine pest for APPPC, OIRSA and SPC. Its occurrence in citrus-growing areas with a subtropical or Mediterranean climate suggests that it could probably establish on citrus in southern Europe and the Mediterranean area. It is a damaging pest on citrus, and requires insecticide treatments. Its potential effect on other hosts in the EPPO region does not merit any particular concern.

PHYTOSANITARY MEASURES

Importation of *Citrus* plants for planting from countries where *S. aurantii* occurs should be prohibited or restricted, as it is in general already on account of other important pests.

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