

## **Recommendation of the Working Group on the Annexes of the Council Directive 2000/29/EC – Section II – Listing of Harmful Organisms as regards the future listing of *Tomato spotted wilt virus*<sup>1</sup>**

### **Current regulatory status**

*Tomato spotted wilt virus* (TWSV) is a harmful organism regulated under Annex II, Part A, Section II of Plant health Directive 2000/29/EC on plants of *Apium graveolens* L., *Capsicum annuum* L., *Cucumis melo* L., *Dendranthema* (DC.) Des Moul., all varieties of New Guinea hybrids Impatiens, *Lactuca sativa* L., *Lycopersicon lycopersicum* (L.) Karsten ex Farw., *Nicotiana tabacum* L., of which there shall be evidence that they are intended for sale to professional tobacco production; *Solanum melongena* L. and *Solanum tuberosum* L., intended for planting, other than seeds.

No Annex IV requirements are in place. Protected zones are currently established in Finland and Sweden (Annex IB).

The pest was listed in the Marketing Directive 77/93/CEE, when TWSV was the only known species of Tospoviruses. Over the years, other species such as Impatiens Necrotic Spot Virus (INSV) have been determined with similar symptoms on the host plants. A general interpretation in some Member States is that INSV should be considered regulated too (discussions in the Annexes Working Group). In fact, some interceptions relate to this latter virus.

In the Marketing Directives for vegetable plants (93/61/EEC), INSV is regulated for some species, while some ornamental plants are regulated for TSWV (heredown).

Under the Commission Directive 93/49/EEC, the plant species listed in relation to TSWV and/or its vectors are *Begonia x hiemalis* Fotsh, and *Euphorbia pulcherrima* (Wild ex Kletzch), *Dianthus caryophyllus* L. and hybrids, *Gerbera* L. and *Pelargonium* L.

### **Identity of the pest**

TSWV is the type species of the genus Tospovirus in the *Bunyaviridae* family. TSWV shows genetic variability between isolates around the world but, despite the existing diversity of local TSWV populations, it can be assumed that all TSWV isolates present in the world can cause similar diseases in plants, and that differences in the severity of disease symptoms are a function of isolate, host and environment. The difference among the various isolates, from a practical point of view, does not seem to be a factor of great importance.

As regards the vectors, TSWV is transmitted by thrips in a persistent propagative mode. 10 thrips species have been reported as TSWV vectors. L1 and early L2 instars of thrips acquire the virus by feeding on TSWV-infected plants, and they may become transmitters as L2 and adults. Transmission does not occur from adults to eggs. Virus transmission is achieved after a latent period of circulation and multiplication of TSWV in the vector. Out the 10 thrips species able to transmit TSWV, three - *Frankliniella occidentalis*, *F. intonsa* and *Thrips tabaci* - are widely distributed in Europe.

As all the tospoviruses, TSWV is not transmitted through seeds of infected plants.

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<sup>1</sup> Scientific basis for the recommendation: EFSA Panel on Plant Health (PLH); Scientific Opinion on the risk to plant health posed by Tomato spotted wilt virus to the EU territory with identification and evaluation of risk reduction options. EFSA Journal 2012;10(12):3029. [64 pp.] doi:10.2903/j.efsa.2012.3029. Available online: [www.efsa.europa.eu/efsajournal](http://www.efsa.europa.eu/efsajournal)

ELISA and PCR tests are currently used identification methods.

### **Distribution of the pest**

It is widely present in the EU, with localized presence or occasionally reported in some areas of the Union.

The vectors (*F.occidentalis*, *F. Intonsa*, *T.tabaci*) are widespread both in protected/glasshouse conditions and in open field conditions in warm production areas.

### **Potential for establishment and spread in the PRA area**

More than 1300 species of plants can be infected by the virus. In particular the families of *Asteraceae* and *Solanaceae*.

Main pathways of spreading are plants for planting and other propagation material such as cuttings and budwood, as well as plant products not intended for planting such as fruits and cut flowers.

The possibility that the virus might be spread through the import of plant for planting is high, because there are in EU imports from worldwide and only a few host plants are regulated in the 2000/297EC. The problem of host plants symptomless is very important, together with the large amount of susceptible hosts and the presence of widespread vectors.

Two main mechanisms contribute to the spread of TSWV: thrips-mediated transmission and trade of infected plants, in particular vegetatively propagated ones. The recorded interception show that trade is a driver for TSWV spread, especially plant materials subject to intra-communitary trade.

Certification systems set in place by producers for some host plants of TSWV can reduce the risk of spread, and this is particularly effective in reducing spread into Sweden and Finland (protected zones for TSWV; see Annex IB).

Mechanical transmission of TSWV is inefficient and has very little impact on agriculture and TSWV is not seed borne. Annex IIAII provisions are unlikely to limit the spread.

Finland and Sweden have protected zone status for TSWV. In these two Member States, all known outbreaks of TSWV have been promptly eradicated.

### **Potential for consequences in the PRA area**

The virus can cause high damage on all host plants, include stunted growth, reduced yield and mortality of infected plants, reduced fruit quality and unappealing effects on fruits and leaves.

The main impact on the environment can be caused by the high use of insecticides against thrips vectors

### **Recommendation**

TSWS does not meet the conditions for being listed as Union Quarantine Pest. It is wide spread in the EU and eradication is no longer feasible once established in the area.

Considering that the main spread of TSWS is via plants for planting, the Working Group recommends listing TSWS as Regulated Non-Quarantine Pest. A Protected Zone status should be considered for areas of the EU still free from the two organisms.

At least the current host range with the exception of *Apium* should be covered in the future. However, further reflection on the inclusion of other host plants is needed. Most of the plant species susceptible to TSWV belong to the *Asteraceae* and *Solanaceae* families. The most important Tospoviruses are INSV and TSWV.