NAME OF THE ORGANISM: Tomato spotted wilt tospovirus (Tomato spotted wilt virus) (TSWV00)

GENERAL INFORMATION ON THE PEST

Name as submitted in the project specification (if different to the preferred name):

Pest category:

Viruses and viroids **1- Identity of the pest/Level of taxonomic listing:**
Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank?

Yes
Is the pest defined at the species level or lower?:

Yes
Can listing of the pest at a taxonomic level higher than species be supported by scientific reasons or can species be identified within the taxonomic rank which are the (main) pests of concern?

* Not relevant: Seed potato sector

Is it justified that the pest is listed at a taxonomic rank below species level?

Not relevant
Conclusion:

* Not evaluated: Seed potato sector

Justification (if necessary):

Tomato spotted wilt tosopvirus (TSWV) is a single taxonomic entity (genus Tospovirus: family Bunyaviridae). In 2015 it was proposed to change the name of the virus from Tomato spotted wilt virus to Tomato spotted wilt tospovirus (ICTV, 2015; Van Regenmortel et al., 2015). It has been ratified in 2016 for all the family of the Bunyaviridae. **2 – Status in the EU:**

Is this pest already a quarantine pest for the whole EU?

No
Presence in the EU:

Yes
List of countries (EPPO Global Database):

Belgium (2014); Bulgaria (2013); Croatia (1999); Cyprus (2011); Czech Republic (2011); France (2013); Germany (2011); Greece (2002); Greece/Kriti (1994); Hungary (2012); Ireland (1993); Italy (2013); Italy/Sicilia (1994); Italy/Sardegna (2006); Lithuania (1998); Malta (2011); Netherlands (2015); Portugal (2011); Portugal/Madeira (2001); Romania (2011); Slovenia (2011); Spain (2016); Spain/Islas Canárias (2011); Spain/Islas Baleares (2011); Sweden (1998); United Kingdom (2011); United Kingdom/England (1995); United Kingdom/Scotland (1995); United Kingdom/Channel Islands (1994)
Conclusion:

candidate
Justification (if necessary):

Data of the presence of this pest on the EU territory are available in EPPO Global Database (<https://gd.eppo.int/>). This pest is a candidate for the RNQP status according to the IIA2AWG.

HOST PLANT N°1: Solanum tuberosum (SOLTU) for the Seed potato sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Plants intended for planting, other than [true] seeds **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

Yes
Conclusion:

Evaluation continues

Justification (if necessary):

The pest is listed in EPPO PM 4/28 Standard. However because deregulation was suggested by the NL in reply to the RNQP Questionnaire in view of its pathway, evaluation continues especially on the pathway. **4 - Are the listed plants for planting the main\* pathway for the "pest/host/intended use" combination? (\*: significant compared to others):**

Yes
Conclusion:

Candidate

Justification:

TSWV has an extremely wide host range with more than 1 300 plants including agricultural crops (such as Solanum tuberosum), wild and weed species (Parrella et al., 2003; Peters, 2003). As all the tospoviruses, TSWV is not transmitted through seeds of infected plants (EU COM, 2016). TSWV is a systemic pathogen and, as such, it is very efficiently transmitted by all vegetative multiplication techniques (EFSA-PLH, 2012). The virus is transmitted by thrips in a persistent propagative mode (Ullman et al., 1993; Wijkamp et al., 1993). Because of the persistence of TSWV in the vectors, the virus can be carried by infected plant material but also by viruliferous thrips, which can be present on a consignment that is infected with TSVW or even on consignments of non-host plants of the virus. The interception reports in EUROPHYT (very few) indicate that TSWV is found mostly in consignments of ornamentals and in 2011 and 2012 it has been reported four times on Lycopersicon esculentum. TSWV and viruliferous thrips are being transported in living planting material and will survive transport and storage as long as their hosts remain alive (EFSA-PLH, 2012).
As concluded by the IIA2 AWG, experts considered that plants for planting (excluding seeds) is a significant pathway compared to other pathways. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

TSWV is considered a very serious pathogen of tomatoes and has a similarly high impact on other crops such as potato (EFSA PLH, 2012). TSWV can cause high damage on all host plants, including stunted growth, reduced yield and mortality of infected plants, reduced tubers quality and unappealing effects on leaves (EU COM, 2016). Potato yield losses due to the disease vary greatly from place to place and year to year and may range in India from 15 to 30% (Khurana et al., 2001). TSWV has become increasingly important in potato plantations in Hungary (Pribek et al., 2000). Indirect effects are also recorded: when infected with TSWV, plant propagation material, such as potato tubers, can no longer be used (EFSA PLH, 2012). The SEWG added that major impact have been seen when Frankliniella occidentalis first appeared.
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Major
Is the economic impact due to the presence of the pest on the named host plant for planting, acceptable to the propagation and end user sectors concerned?

No
Conclusion:

Justification:

Remark: Unacceptable economic impact caused to other hosts produced at the same place of production depends on the presence of the vector. **6 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants?**

Yes

Conclusion:

candidate
Justification:

 **7- Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?**

Yes

Conclusion:

Candidate
Justification:

 **CONCLUSION ON THE STATUS:**

Recommended for listing as an RNQP - based on EPPO PM 4 Standard and additional analysis of the pathway. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

The SEWG recommended a zero tolerance based on symptom for all categories, except for nuclear stock where the zero tolerance should be achieved by testing or derived from mother plants which have been tested for this virus. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Nuclear stock should be tested or derived from mother plants which have been tested for Tomato spotted wilt virus.
For other categories:
(a) No symptoms of Tomato spotted wilt tospovirus have been observed on plants at the site of production during the current growing period;
or
(b) Any plants at the production site showing symptoms of Tomato spotted wilt tospovirus during the current growing period have been rogued out and a representative sample of tubers to be marketed has been tested and found free from Tomato spotted wilt tospovirus. **REFERENCES:**

* EFSA Panel on Plant Health (PLH) (2012) 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;
* EU COM (2016) 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 ;
* Khurana SMP, Bhale U & Garg ID (2001) Stem Necrosis Disease of Potato. Central Potato Research Institute (Indian Council of Agricultural Research). Technical Bulletin No. 54;
* Parrella G, Gognalons P, Gebre-Selassie K, Vovlas C and Marchoux G (2003) An update of the host range of tomato spotted wilt virus. Journal of Plant Pathology 85, 227–264;
* Pribek D, Szenasi Á, Takacs P A, Jenser G, Kazinczi G & Horvath J (2000) Thrips transmission of TSWV to different Solanum species. Mededelingen - Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen, Universiteit Gent 2000 Vol.65 No.2a pp.359-361 ref.5;