NAME OF THE ORGANISM: Tomato yellow leaf curl virus (TYLCV0)

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: Vegetable propagating and planting material (other than seeds) sector

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

Not relevant
Conclusion:

* Candidate: Vegetable propagating and planting material (other than seeds) sector

Justification (if necessary):

Remark: Tomato yellow leaf curl virus (TYLCV), Tomato yellow leaf curl Sardinia virus (TYLCSV), Tomato yellow leaf curl Axarquia virus (TYLCAxV) and Tomato yellow leaf curl Malaga virus (TYLCMaV) are the casual agents of Tomato yellow leaf curl disease (TYLCVD). **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):

Cyprus (2011); France (2002); Greece (2010); Greece/Kriti (2010); Italy (2010); Italy/Sicilia (2004); Italy/Sardegna (2006); Malta (1995); Portugal (2008); Spain (2016); Spain/Islas Canárias (2011); Spain/Islas Baleares (2011)
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/>).

HOST PLANT N°1: Solanum lycopersicum (LYPES) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

IIA2AWG and 2 - Vegetable seedling sector: Commission Directive 93/61/EC
Plants for planting:

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

No
Conclusion:

Evaluation continues **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:

The virus is not seed-borne, but TYLCD (and its 3 associated species) is exclusively transmitted by an insect vector B. tabaci, in a persistent manner. Once acquired, TYLCV is retained in the vector for several weeks and up to their entire life (EU COM, 2016). Therefore young plants produced from seed can potentially be infected by the presence of viruliferous B. tabaci in the production glasshouse or if grown outside in infected areas. Therefore plants for planting are a pathway for the movement of TYLCV.
Most outdoor areas of the EU where conditions are suitable for B. tabaci establishment are already infested with this vector, and also with TYLCV. Therefore for outside areas it is considered plants for planting are not a significant pathway for TYLCV compared to this source, because, after planting, they will quickly become infected due to the presence of viruliferous Bemisia tabaci in the environment. This is also likely to occur with plants planted in glasshouses in these areas unless, these can be kept secure and free from Bemisia tabaci all season.
For areas of the EU where Bemisia tabaci is not established outside in the environment due to climatic reasons, e.g. Northern Europe, the significance of TYLCV is low in outside crops. This is because TYLCV is unlikely to establish and spread outdoors for extended periods when B. tabaci is not established (EU COM, 2016). However for glasshouse production in Northern areas, movement of infected plants for planting would be a significant pathway in the absence of the vector.
In summary, it is considered plants for planting would be a significant pathway if the end use is for indoor production in countries in Northern Europe where the vector is not established. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

TYLCV is considered one of the top 10 most serious plant viruses. Its significance is directly linked to the worldwide emergence of B. tabaci as a major pest. Virus movement with infected plants for planting or with viruliferous B. tabaci can have significant impact on crop production in areas where the viruses are not present (EU COM, 2016).
TYLCD is a limiting factor to tomato production especially in Mediterranean countries where B. tabaci and TYLCV are established outdoors and the main crop host, tomato, is widely produced both in protected cultivation and in open fields.
In greenhouse productions in Northern European countries, temporary populations of B. tabaci along with outbreaks of TYLCV have been reported and subsequently eradicated. Because of the limited scale and infrequent occurrence of these outbreaks, their overall impact can, however, be considered limited (EFSA-PLH, 2014).
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:

Candidate
Justification:

 **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:

The Panel of Plant Health (EFSA, 2013) identified the following RROs which are effective on TYLCV:
1) crop free period,
2) sanitation before planting,
3) sanitation, disposal of crop residues and
4) scouting have major effect on TYLCV with low to medium uncertainty.
Other options such as host plant resistance and certification schemes are described as having massive effect on the virus and offer the best prevention against TYLCV. The Panel concludes that only the combination of risk reduction options and a comprehensive crop management regime will result in the sustainable management of B. tabaci and the viruses it transmits. **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 data. Plants for planting are considered a significant pathway for production of tomatoes under protected conditions in northern countries. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Zero tolerance approach, based on the following risk management measures. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

(A) In areas where Bemisia tabaci is not known to occur:
No Tomato yellow leaf curl disease symptoms have been observed on the plants;

(B) In areas where Bemisia tabaci is known to occur:
(a) (aa) No symptoms of Tomato yellow leaf curl disease have been observed on the plants;
and
(bb) (aaa) The plants originate in areas known to be free from Bemisia tabaci; or
(bbb) The place of production has been found free from Bemisia tabaci on official inspections carried out at least monthly during the three months prior to marketing;
OR
(b) No symptoms of Tomato yellow leaf curl disease have been observed on the place of production and the place of production has been subjected to an appropriate treatment and monitoring regime to ensure freedom from Bemisia tabaci.
Justification (if necessary):

Measures should be based on symptoms of TYLC disease, covering other viruses also. **REFERENCES:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Tomato yellow leaf curl virus and related viruses causing tomato yellow leaf curl disease in Europe. EFSA Journal 2014;12(10):3850, 27 pp. doi:10.2903/j.efsa.2014.3850 <http://www.efsa.europa.eu/en/efsajournal/doc/3850.pdf>;
* EU COM (2015) 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 yellow leaf curl virus;