NAME OF THE ORGANISM: Candidatus Phytoplasma solani (Potato stolbur mycoplasm) (PHYPSO)

GENERAL INFORMATION ON THE PEST

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

Candidatus Phytoplasma solani
Pest category:

Bacteria **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

**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):

Austria (2014); Bulgaria (2014); Croatia (2015); Czech Republic (2009); France (2014); Germany (2010); Greece (2014); Hungary (2011); Italy (2010); Italy/Sicilia (1995); Poland (1999); Slovakia (2000); Slovenia (2011); Spain (2014)
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: Solanaceae (1SOLF) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

IIA2AWG
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):**

?
Conclusion:

Candidate

Justification:

Candidatus Phytoplasma solani' (CPs) is transmitted by grafting and vegetative propagation of infected hosts, and by several insect vector species (EU COM, 2016). With the exception of lavender and maize, most crops affected by CPs are dead-end hosts as they are not hosts for the insect vectors. However, weed species can act as a reservoir (EFSA-PLH, 2014). In Germany the organism was for example found in potatoes in two consecutive years in the same area and the suspected source was infected weeds in the surroundings (EPPO Reporting Service 2008/213; 2010/155). As a consequence, natural spread from the reservoir of infected weed species is the main pathway of spread to actively growing crops in areas where the organism is present. CPs is not thought to be transmitted in the true seed of any of its hosts (EPPO, Data Sheets on Quarantine Pest), so vegetable propagating and planting material can only become a pathway in the limited timeframe between sowing and transplantation of the propagating and planting material. Regarding vegetable Solanaceae, it has been found in tomato, pepper, and aubergine (EFSA-PLH, 2014). Most young plants of vegetable Solanaceae are usually grown in protected conditions where the vector is absent and weeds can be controlled. Given that the major agricultural Solanaceous crops are dead-end-hosts, the only potential economic impact arises from the negative effects of CPs on the infected transplants themselves. Furthermore, it is not clear whether vectors spread CPs within economic host crops to any extent. In fact, in nature, the economically important host crops are not important for the continuity of the virus; an incomparably greater role is played by such wild plants as Convolvulus arvensis , clovers and, probably, Asteraceae and other plants (EPPO, Data Sheets on Quarantine Pest).
The vegetable SEWG concluded that plant for planting is only a significant pathway in relation to plants grown under protected conditions, when the vector can be excluded. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Severe impact of CP on plant growth, fruit yield and quality is recorded for infected tomato, eggplant and pepper plants (Fialova et al., 2009; Navràtil et al., 2009; Marchoux and Rougier, 1987). In severe epidemics, yield losses as high as 60 % in tomato and 93 % in pepper have been reported (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)

Medium
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:

Impact is considerate moderate to minor, fluctuating and depending on climate, presence of weed inoculum sources and vector populations. Impact is strongly affected by natural spread (EFSA-PLH, 2014). **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:

Yes, for plants grown under protective conditions: For young plants raised under protected conditions, it may be possible to keep the plants free of the pest. For any plants grown outside, there will be no practical measures to prevent infections by vectors, which are both very good fliers and difficult to tackle by insecticide suppression. Young plants of fruit vegetables that are grown under protected conditions (tomato, pepper, eggplant) are usually grown in glasshouses that have insect screens in the windows (situation in the Netherlands), but not during the part of the season (hot dry summers) which stimulate vector migration. Measures to avoid unacceptable economic impact on vegetable propagating and planting material therefore seem somewhat redundant. **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:**

Not recommended for listing as an RNQP: This pest/host/intended use combination meets all the criteria for RNQP status, in relation to plants grown under protected conditions when the vector can be excluded. For outdoor crops where the pathogen and vectors are present, plants for planting are not considered to be the main pathway. Solanaceae are generally dead end hosts. The requirement for absence of visual symptoms on the traded material (current general 'Substantially free from' requirement in the EU) is considered to be sufficient for solanaceous vegetable hosts. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

Yes
Proposed Tolerance levels:

Delisting. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Delisting. **REFERENCES:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Candidatus Phytoplasma solani. EFSA Journal 2014;12(12):3924, 27 pp. doi:10.2903/j.efsa.2014.3924 <http://www.efsa.europa.eu/en/efsajournal/doc/3924.pdf>;
* EPPO Data Sheets on Quarantine Pests. Potato stolbur phytoplasma;
* 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 Potato stolbur mycoplasma, renamed Candidatus Phytoplasma solani;
* Fialova R, Valova P, Balakishiyeva G, Danet JL, Safarova D, Foissac X & Navratil M (2009) Genetic variability of stolbur phytoplasma in annual crop and wild plant species in South Moravia. Journal of Plant Pathology 91, 411-416;
* Marchoux G & Rougier J (1987) Une nouvelle affection des solanées maraîchères: la maladie des proliférations et petites feuilles. Phytoma 392, 53-54;
* Navratil M, Va´ lova´ P, Fialova´ R, Lauterer P, Sˇ afa´ rˇova´ D & Stary´ M (2009) Incidence of stolbur disease in vegetable crops in South Moravia (Czech Republic) and consequences of yield losses. Crop Prot 28, 898–904;