NAME OF THE ORGANISM: Verticillium nonalfalfae (Verticillium albo-atrum\*) (VERTNO)

GENERAL INFORMATION ON THE PEST

Name as submitted in the project specification (if different to the preferred name):
 
Verticillium albo-atrum  
Pest category:
 
Fungi **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: Fruits (including hops) sector

Is it justified that the pest is listed at a taxonomic rank below species level?
 
Not relevant  
Conclusion:

* Candidate: Fruits (including hops) sector

Justification (if necessary):
 
V. albo-atrum was recently split into three species, V. albo-atrum sensu stricto (infecting mainly potato), V. alfalfae (infecting alfalfa) and V. nonalfalfae (infecting hops and other crops), for which reliable detection and identification methods exist for each one (EU COM, 2016).  
Hops: As a consequence, the only listing of V. nonalfalfae is proposed as RNQP for hops.  
Capsicum annuum: The study of Inderbitzin and Subbarao on the genus Verticillium sp. (2014), based on multigene phylogenetic analyses and morphological investigations of a limited number of isolates (i.e. 74 isolates), were not performed on pepper. Therefore it is not possible to state with certainty that Verticillium species from pepper are V. nonalfalfae (as those from other solanaceaous crops). For this reason the evaluation of the pest continue in referring to Verticillium albo-atrum sensu lato. **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); Belgium (2015); Bulgaria (1993); Croatia (1996); Cyprus (2011); Czech Republic (2011); Denmark (1993); Estonia (1986); Finland (2011); France (1993); Germany (1993); Greece (1986); Greece/Kriti (1986); Hungary (1988); Ireland (1986); Italy (1986); Italy/Sicilia (1986); Italy/Sardegna (1986); Latvia (1986); Lithuania (1986); Luxembourg (1992); Netherlands (2015); Poland (1986); Portugal (1986); Romania (1986); Spain (1985); Sweden (1988); United Kingdom (2014); United Kingdom/England (1986); United Kingdom/Northern Ireland (1986); United Kingdom/Scotland (1986); United Kingdom/Channel Islands (1986)  
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/>). Based on the NPPO answers to the EFSA questionnaire and the EPPO Global Database (2014), V. albo-atrum sensu lato is reported to be present in most of the EU MSs (EFSA, 2014).  
Remark: V. nonalfalfae is currently known from Canada, the USA (IL, PA), China, Cuba, Japan and Middle Asia. The distribution of V. nonalfalfae in the EU is not yet clear due to the recent re-classification, but it can be assumed that its distribution will at least reflect the Verticillium wilt disease of hops, due to V. nonalfalfae being the main causal species (V. dahliae is sometimes isolated). This species also infects a number of other widely grown hosts such as cotton, petunia, spinach, lucerne, tomato and potato (EU COM, 2016).

HOST PLANT N°1: Humulus lupulus (HUMLU) for the Fruits (including hops) 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?**
 
Yes 
Conclusion:
 
Qualified **CONCLUSION ON THE STATUS:**
 
Recommended for listing as an RNQP - based on EPPO PM 4 Standard. **8 - Tolerance level:**  
Is there a need to change the Tolerance level:
 
No  
Proposed Tolerance levels:
 
Zero tolerance of symptomatic plants in the marketed material. **9 - Risk management measures:**  
Is there a need to change the Risk management measure:
 
Yes  
Proposed Risk management measure:
 
Non-certified material:  
(A) Derived from mother plants which have been inspected and found free from symptoms of Verticillium albo-atrum.  
AND  
(B) (a) Plants produced in areas known to be free from Verticillium albo-atrum;  
or  
(b) (aa) Isolation from production crops of Humulus lupulus; and  
(bb) Site of production found free from Verticillium albo-atrum over the last complete growing season at appropriate times by visual inspection of the foliage; and  
(cc) Recording of cropping and soil borne disease history of fields with a rest period from host plants of at least four years between findings of Verticillium albo-atrum and next planting.  
  
- Pre-basic, Basic, Certified material (Remark: no certification scheme on Hops at EU level):  
Additional measures to be considered:  
• Recording of cropping and soil borne disease history of fields;  
• Testing of pre-basic mother plants;  
• Pre-basic, basic: no symptoms seen at two inspections at appropriate times during the last growing season. **REFERENCES:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Verticillium albo-atrum sensu stricto Reinke and Berthold, V. alfalfae Inderb., HW Platt, RM Bostock, RM Davis & KV Subbarao, sp. nov., and V. nonalfalfae Inderb., HW Platt, RM Bostock, RM Davis & KV Subbarao, sp. nov.. EFSA Journal 2014;(12):3927, 40 pp. doi:10.2903/j.efsa.20143927. <http://www.efsa.europa.eu/en/efsajournal/doc/3927.pdf>;
* 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 Verticillium albo-atrum Reinke and Berthold;