NAME OF THE ORGANISM: Verticillium albo-atrum sensu lato (Verticillium albo-atrum\*\*) (VERTAA\*\*)

GENERAL INFORMATION ON THE PEST

Name as submitted in the project specification (if different to the preferred name):
 
  
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: 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):
 
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: Capsicum annuum (CPSAN) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:
 
2 - Vegetable seedling sector: Commission Directive 93/61/EC  
Plants for planting:
 
Plants intended for planting **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):**
 
No 
Conclusion:
 
Not candidate  
 
Justification:
 
Verticillium albo-atrum and V. dahliae cause wilting and sometimes death of plants. Verticillium wilt is a cool-weather disease and has a wide host range in natural areas. The two Verticillium spp. survive in soil, as long lived resting mycelium or microsclerotia, respectively, or in debris from infected plants. Control is by use of healthy planting material, resistant cultivars, prevention of movement of infected plants and infested soil, removal of diseased plants and plant debris, avoiding high nitrogen concentrations and soil disinfestation. Crop rotation can reduce losses, but not eliminate the pathogens because of the wide host range of Verticillium spp. (EPPO, 2004). Bell pepper was found resistant to all V. dahliae isolates except those from pepper or eggplant in one paper, but in two other papers found little host specificity existed in isolates of V. dahliae and V. alboatrum, so crop rotation would not assist in control.  
Because of the wide host range and longevity of inoculum sources in the environment, planting material (transplants) are not considered to be the main pathway. Once, established, V. albo-atrum can be spread by the transport of infested soil, by water or wind, by the dissemination of infected host plant debris by wind, by water and by human-assisted means. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway. Economic impact is considered acceptable. Remark: the full methodology was applied on this pest to insure consistency with entries submitted by the IIA2 AWG for this pest. Indeed this pest/host combination was not identified by any EU MS in the RNQP Questionnaire as requiring a revision of current thresholds and or a revision of current management measures. This pest/host combination was not identified by the experts of the vegetable SEWG as being a candidate for the RNQP Status with specific tolerance levels and/or specific risk management measures. Experts recommended that this pest/host combination should be covered in the future by the 'substantially free from' requirement that will stay in the Vegetable propagating and planting (excluding seeds) EU Marketing Directives. **8 - Tolerance level:**  
Is there a need to change the Tolerance level:
 
No  
Proposed Tolerance levels:
 
Delisting. **9 - Risk management measures:**  
Is there a need to change the Risk management measure:
 
No  
Proposed Risk management measure:
 
Delisting. **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>;
* EPPO (2004) Good plant protection practice PP 2/30 (1) Outdoor solanaceous crops Bulletin OEPP/EPPO Bulletin 34, 79-90;
* 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;