NAME OF THE ORGANISM: Dickeya (Blackleg) (1DICKG)

GENERAL INFORMATION ON THE PEST

Name as submitted in the project specification (if different to the preferred name):
 
Blackleg  
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?:
 
No  
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?

* Yes: Seed potato sector

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

* Candidate: Seed potato sector

Justification (if necessary):
 
In the Questionnaires, 6 EU Member States (FI, FR, HR, HU, NL and SI) and 2 EU Association (EUROPATAT, ESA) considered this entry as important. EUROPATAT, ESA, FI, FR, HU, NL and SI agreed to keep Dickeya listed at the genus level (Blackleg symptoms are associated to a bacterial species complex, these bacteria cause similar damage, the work on species identification is still in progress, and identification at genus level might be the only economical and practical means to certify large amounts of seed potato material). HR proposed the listing of a limited number of species. Experts concluded that a listing at the Genus level (Pectobacterium and Dickeya) is more appropriate. **2 – Status in the EU:**
   
Is this pest already a quarantine pest for the whole EU?
 
No  
Presence in the EU:
 
Yes  
Conclusion:
 
candidate  
Justification (if necessary):
 
Dickeya chrysanthemi is present in more than 16 EU Member States (EPPO Global Database). D. solani is present in the Netherlands and Finland (Euphresco, 2015). D. dianthicola is present in more than 7 EU Member States (EPPO Global Database). D. dadantii is reported in Germany and require further investigation, since these would be the first reports of these species on potato in Europe (Toth et al., 2011). Distinct genotypes of D. zeae were recently isolated from river water in Scotland and England, but have not yet been found on potato in Europe (Toth et al., 2011).

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

Origin of the listing:
 
5 - Seed potato sector: Council Directives 2002/56/EC, 2014/20/EU and 2014/21/EU  
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):
 
Listed in EPPO PM 4/28 (1) Standard as Erwinia spp. (At the time of the writing of this EPPO PM 4 Standard, some species were considered to belong to the genus Erwinia). However, in view of the complexity of the Blackleg problematic, and because it is currently listed on symptoms, 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 most important means of dissemination for bacterial pathogens of potato is the movement of latently infected seed tubers. Dickeya spp. and Pectobacterium spp. can be carried on the tuber surface and in lenticels but is also likely to be found in the tuber vascular system. In Europe, there has been little or no correlation between Dickeya spp. isolated from river water and those found on potato. In Australia, however, irrigation water was found to be the likely source of infection of potatoes. Persistence of Dickeya spp. is recorded in soil for maximum a few weeks. However, persistence of Dickeya spp.  
for longer periods in association with crop residues in soil cannot be excluded (Toth et al., 2011). **5 - Economic impact:**  
Are there documented reports of any economic impact on the host?
 
Yes  
Justification:
 
Inoculation with D. solani and P. wasabiae led to incidences between 5% and 25% (WUR: Euphresco, 2015). In Israel, potato yield reductions up to 30% have been recorded as a consequence of D. solani infection across a wide number of commercially produced cultivars and in more limited studies yield reductions of up to 50% from individual plants have been recorded in Finland (CABI, 2016). However the incidence of the different species and subspecies varied year to year (FN3PT-RD3PT: Euphresco, 2015). Most direct losses to potato production in Europe caused by Dickeya have occurred as a result of downgrading or rejection of potatoes during seed tuber certification (Toth et al., 2011). Modelling has shown that blackleg disease is likely to increase in the future in Europe with climate change (JHI: Euphresco, 2015). Strict tolerances in the Netherlands have led to increased direct losses of up to €30M annually as a result of downgrading and rejection of seed tuber stocks caused by blackleg. However, it is not possible to differentiate losses caused by Pectobacterium and Dickeya (Toth et al., 2011). Because disease symptoms are often indistinguishable between the different Pectobacterium spp. and Dickeya spp., economic impact is evaluated together for all bacteria of the blackleg complex.  
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:
 
To implement a certification scheme is the only effective measure to prevent the presence of the pest over a certain threshold. **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. **8 - Tolerance level:**  
Is there a need to change the Tolerance level:
 
No  
Proposed Tolerance levels:
 
 **9 - Risk management measures:**  
Is there a need to change the Risk management measure:
 
No  
Proposed Risk management measure:
 
 **REFERENCES:**

* CABI (Centre for Agricultural Bioscience International), online, 2016. Datasheets Dickeya Solani (blackleg disease of potato). Invasive species compendium. CABI, Wallingford, UK. Available from <http://www.cabi.org/isc/datasheet/120278>;
* Czajkowski R, Perombelon MCM, Jafra S, Lojkowska E, van der Wolf JM & Sledz W (2015) Detection, identification and differentiation of Pectobacterium and Dickeya species causing potato blackleg and tuber soft rot: a review. Annals of Applied Biology 166, 18-38;
* Euphresco (2015) Assessment of Dickeya sp. and Pectobacterium spp. on potatoes and ornamentals (Dickeya). Final report;
* Toth IK, van der Wolf JM, Saddler G, Lojkowska E, Helias V, Pirhonen M, Tsror L & Elphinstone JG (2011) Dickeya species: an emerging problem for potato
* production in Europe. Plant Pathology 60, 385-399;