NAME OF THE ORGANISM: Aphelenchoides besseyi (APLOBE)

GENERAL INFORMATION ON THE PEST

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

Pest category:

Nematoda **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: Cereals (including rice) sector, Fruits (including hops) sector, Ornamental sector

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

Not relevant
Conclusion:

* Candidate: Cereals (including rice) sector, Fruits (including hops) sector, Ornamental 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):

Bulgaria (1993); Hungary (1992); Italy (2008)
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/>). This pest is a candidate for the RNQP status according to the IIA2AWG

HOST PLANT N°1: Fragaria (1FRAG) for the Ornamental 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:

Evaluation continues

Justification (if necessary):

Fragaria x ananassa is covered by EPPO PM 4/11 Standard. There are various varieties of ornamental strawberry grown, of different species such as F. chiloensis or F. vesca, with different flower colours or foliage. Fragaria chiloensis, F. vesca and F. x ananassa (cultivated strawberry) are all minor hosts according to the EPPO Global Database. Ornamental strawberry may be propagated vegetatively (e.g. cv. Lipstick) or by seed (alpine strawberry F. vesca). **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:

No references could be found to the susceptibility or resistance of ornamental strawberry to infestation by A. besseyi, as compared to the variation in normal strawberry cultivars, so it is concluded they would react to the pest in a similar way. Growing media/soil adhering to roots, is also a pathway.
It is concluded plants for planting are a pathway, and can be considered a significant pathway compared to others. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

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Justification:

No specific documented references could be found for impacts on ornamental strawberry, as distinct from F. x ananassa - cultivated strawberry, so it is concluded they may react to the pest in a similar way (This impact for strawberry is estimated as minor in the EU due to unsuitable climatic conditions according to the Italian PRA, Jan 2015 (EU COM, 2016), but it is important in southern USA (CABI 2016)).
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Minor
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:

Specific evidence cannot be found of an impact on ornamental strawberries. Impacts on strawberries for fruit production in Europe seems to be low but greater in other parts of the world. It is difficult to disentangle the impact of A. besseyi and A. fragariae. **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:

 **7- Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?**

Yes

Conclusion:

Candidate
Justification:

Data on ornamental fragariae is limited, justification is based on evidence from Fragaria for fruit production. **CONCLUSION ON THE STATUS:**

Disqualified: The 'substantially free from' requirement is considered to be sufficient, no significant impact evidence for ornamentals, and measures should not be stricter than for fruit plants. **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:**

* CABI (Centre for Agricultural Bioscience International), online, 2016. Datasheets Aphelenchoides besseyi (rice leaf nematode). Invasive species compendium. CABI, Wallingford, UK. Available from <http://www.cabi.org/isc/datasheet/6378>;
* EPPO (2008) Certification scheme for strawberry. Bulletin OEPP/EPPO Bulletin 38, 430–437;

HOST PLANT N°2: Fragaria (1FRAG) 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:

Yes
Proposed Tolerance levels:

Experts recommended to manage risk (which seems negligible) along with the measures for other species of Aphelenchoides in the fruit marketing directive with tolerances for certified, basic and pre-basic material, and the absence of visual symptoms on the traded material for non-certified material. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Experts recommended to manage risk (which seems negligible) along with the measures for other species of Aphelenchoides in the fruit marketing directive with tolerances for certified, basic and pre-basic material, and the absence of visual symptoms on the traded material for non-certified material. **REFERENCES:**

* Curto G, Solmi P & Finelli F (2016) Pest Risk Analysis for PRM per Aphelenchoides besseyi. Plant Protection Service Emilia-Romagna, NPPO of Italy;
* 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 Aphelenchoides besseyi Christie;

HOST PLANT N°3: Oryza (1ORYG) for the Cereals (including rice) sector.

Origin of the listing:

IIA2AWG
Plants for planting:

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:

Rice seeds are considered the main pathway (EU COM, 2016 and CABI, 2016). On rice in Italy, usually only few rice lots are infested with 0.17 - 0.33 nematodes/100 seeds corresponding to 5 - 10 nematodes/3000 seeds without any damage to the crop occurring or yield decreasing. The economic damage threshold density is 300 live nematodes/100 seed (CABI, 2016). Rice husks and stubble could also be a potential pathway if left on the soil without deep ploughing, although no data have been found in literature regarding infestations related to this pathway. It can also be transmitted in flood water in lowland rice but the survival of nematodes in water decreases as temperature increases from 20 to 30°C (CABI, 2016). The other potential host, strawberry, is not normally grown in rotation with rice (EU COM, 2016). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

In the 1950s figures for yield losses for susceptible cultivars in the USA were 17.5, 4.9 and 6.6% in different years and 10-30% in Japan. Another study there reported yield losses of 44.9, 34.7 and 24.2% when rice plant infestation rates were 57, 34 and 18%, respectively. A. besseyi has been controlled in the USA by seed treatment and the use of resistant cultivars and is no longer a pest. A. besseyi also disappeared from Japan but has re-occurred, the economic value of infected discoloured grain being reduced if infection exceeds 0.7% (CABI, 2016).
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:

Remark: Oryza and Fragaria do not alternate each other in a crop rotation. Other economically important crops (such as onion, garlic, chinese cabbage, cucumber, soybean and maize) and the flower species are only incidental hosts. **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:

 **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:

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

Yes
Proposed Risk management measure:

For all categories of material:
(a) The seeds originate in area known to be free from Aphelenchoides besseyi;
or
(b) The seeds have been officially tested by appropriate nematological tests on a representative sample from each lot and have been found free from Aphelenchoides besseyi;
or
(c) The seeds have been subjected to an appropriate hot water treatment or other appropriate treatment against Aphelenchoides besseyi. **REFERENCES:**

* CABI (Centre for Agricultural Bioscience International), online, 2016. Datasheets Aphelenchoides besseyi (rice leaf nematode). Invasive species compendium. CABI, Wallingford, UK. Available from <http://www.cabi.org/isc/datasheet/6378>;
* 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 Aphelenchoides besseyi (rice leaf nematode);