NAME OF THE ORGANISM: Meloidogyne (1MELGG)

GENERAL INFORMATION ON THE PEST

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

Meloidogyne spp.
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?:

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: Ornamental sector

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

Not relevant
Conclusion:

* Candidate: Ornamental sector

Justification (if necessary):

Root-knot nematode (M. exigua, M. naasi, M. hapla, M. incognita, M. arenaria, and M. javanica, M. ethiopica) (EPPO Global Database, Kotcon et al., 1985; Davis et al., 2003; CABI, 2017) are polyphagous pests. They all cause characteristic knots (galls), swellings and other malformations on the roots of onion. M. ethiopica is included in EPPO alert list (<https://www.eppo.int/QUARANTINE/Alert_List/alert_list.htm>) (EPPO website). These species cause similar symptoms on the host and they are all present in the EU. Distinction among them can be difficult. Including all the species in the genus would make for practical application and avoid the need for full identification to species of any root-knot nematodes found in the material to be eventually marketed.
Remark: In the RNQP Questionnaire, for the 'Vegetable propagating and planting material (other than seeds)' Sector, GB supported a listing at the Genus level for Allium cepa but did not support such a listing for Cucumis melo, Solanum lycopersicum, Solanum melongena (no justification was given, and no information for the other host plants). No other EU Member States selected this entry as an important entry in the RNQP Questionnaire.
For the 'Ornamental' Sector, no country supported a listing of the entire genus. However SE suggested to define specific Risk management measures for this entry on Citrus, Prunus and Rosa. Experts commented that for ornamentals, the principal risk is linked to M. hapla. **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):

The pest is present worldwide.

HOST PLANT N°1: Prunus (1PRNG) for the Ornamental sector.

Origin of the listing:

Commission Directive 93/49/EEC
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):**

Yes
Conclusion:

Candidate

Justification:

Meloidogyne spp. is a soil borne pest. It survives in weeds and in the crop debris. It spreads with infested materials, by human assisted means, root debris and soil. Root-knot nematodes (RKNs) (Meloidogyne spp.) are highly polyphagous pests that parasitize Prunus crops in Mediterranean climates (Khallouk et al, 2013). Whether ornamental varieties of Prunus are affected similarly, or to a greater or lesser extent, is not known. No Meloidogyne species are mentioned in the EPPO PP 2 or PM 4 Standards for Prunus, however there are requirements for freedom for certified or CAC Citrus in 2014/98/EU for Meloidogyne arenaria, M. javanica and M. incognita. The use of non-infested fields or soil media for planting, weed control and prevention of infested soil from entering the field or facility, would mean that infested plants for planting would then be the main source of infestation. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

White galls gradually browning, more or less large and regular, characterize the presence of Meloidogyne spp. The nature and extent of the galls depend on the species and the level of soil inoculum. These root alterations disrupt the absorption of water and mineral elements, and hence the development of plants which show a more or less reduced growth. The foliage may be chlorotic, and wilting sometimes occurs during the warmest hours of the day. The lower leaves of the highly affected plants reveal an early senescence. In many situations, root-knot nematodes are not the only pests to attack the root system: they frequently contribute to the predisposition of roots to the attacks of soil-borne fungi. Root-knot nematodes (RKNs) Meloidogyne spp. cause major damage to cultivated woody plants. Among them, Prunus, grapevine and coffee are the crops most infested by worldwide polyphagous species and species with a more limited distribution and/or narrower host range (Saucet et al, 2016).
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

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?

Yes
Is there unacceptable economic impact caused to other hosts (or the same host with a different intended use) produced at the same place of production due to the transfer of the pest from the named host plant for planting?

Conclusion:

Not candidate
Justification:

Prunus genus for the ornamental sector includes many hybrids selected for tree habits, non-bearing fruit, color of flowering, etc. but available references mainly concern the fruit sector. Host susceptibility may be different between cultivars and depending on the use of resistant rootstock varieties. **CONCLUSION ON THE STATUS:**

Disqualified: Not recommended for RNQP status because lack of economic data and phytosanitary treatments available. Generally risk would be lower in containers, symptoms would be clearer on bare roots (so risks may be managed through substantial freedom requirement). **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:**

* Khallouk S, Voisin R, Portier U, Polidori J, Ghelder C van & Esmenjaud D (2013) Multiyear evaluation of the durability of the resistance conferred by Ma and RMia genes to Meloidogyne incognita in Prunus under controlled conditions. Phytopathology 103, 833-840;
* Saucet SB, Ghelder C van, Abad P, Duval H & Esmenjaud D (2016) Resistance to root-knot nematodes Meloidogyne spp. in woody plants. New Phytologist 211, 41-56;