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: Vegetable propagating and planting material (other than seeds) sector, Ornamental 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, 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: Allium cepa (ALLCE) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. For Allium sets the total growing season is longer. However ‘Substantially free’ is a sufficient measure, including for onion sets.  
Remark: no economic impact data of Meloidogyne on A. cepa have been found. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

* CABI (2017) Datasheet - Meloidogyne ethiopica (Root-knot nematode). <http://www.cabi.org/isc/datasheet/33239>. Accessed June, 26th 2017;
* EPPO Global Database (2017) <https://gd.eppo.int/taxon/MELGEX/hosts>. Accessed June, 25th 2017;
* Richard F, Davis RF, Langston DB (2003) Reproduction of meloidogyne species on yello granex onion and potentian yield suppression. Nematropica 33, 179-188;
* Kotcon JB, Bird GW, Rose LM, Dimoff K (1985) Influence of Glomus fasciculatum and Meloidogyne hapla on Allium cepa in Organic Soils. J Nematol. 17, 55-60;
* Davis RF & Langston DB (2003) Reproduction of Meloidogyne species on yellow granex onion and potential yield suppression. Nematropica 33;

HOST PLANT N°2: Begonia x hiemalis (BEGEH) 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):**
 
No 
Conclusion:
 
Not 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. However no references could be found on the susceptibility of Begonia x hiemalis to Meloidogyne species. Moreover experts considered that Begonia x hiemalis (or elatior) is mainly pot-cultivated. Therefore plants for planting is not considered to be a significant pathway. **CONCLUSION ON THE STATUS:**
 
Disqualified: Not recommended for RNQP status because no sufficient evidence of host susceptibility and because Begonia x hiemalis (or elatior) is mainly pot-cultivated. Therefore plants for planting is not considered to be a significant pathway. **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:**

HOST PLANT N°3: Citrullus lanatus (CITLA) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

* EPPO (2004) Good plant protection practice PP 2/32 (1) Outdoor cucurbits. OEPP/EPPO Bulletin 34, 101-108;

HOST PLANT N°4: Citrus (1CIDG) 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):**
 
No 
Conclusion:
 
Not 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. Meloidogyne exigua can infest Citrus as a minor host (EPPO Global Database) however no Meloidogyne species are mentioned in the EPPO PP 2 or PM 4 Standards for Citrus or for Citrus certified or CAC requirements in 2014/98/EU. Meloidogyne citri n. sp. (Meloidogynidae), a new root-knot nematode has been found parasitizing citrus in China (Zhang et al, 1990). However experts considered that Ornamental Citrus are usually grown in containers and are therefore not a pathway. **CONCLUSION ON THE STATUS:**
 
Disqualified: Not recommended for RNQP status because Ornamental Citrus are usually grown in containers and plants for planting is therefore not a significant pathway. **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:**

* Zhang SS, Gao RX & Weng ZM (1990) Meloidogyne citri n. sp. (Meloidogynidae), a new root-knot nematode parasitizing citrus in China. Journal of Fujian Agricultural College 19, 305-311;

HOST PLANT N°5: Cucumis melo (CUMME) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

* Belle C, Kaspary TE, Groth MZ, Luiza K, Teixeira C (2017) Meloidogyne ethiopica parasitizing melon fields in Rio Grande do Sul State, Brazil. J Plant Dis Prot;
* EPPO (2004) Good plant protection practice PP 2/32 (1) Outdoor cucurbits. OEPP/EPPO Bulletin 34, 101-108;

HOST PLANT N°6: Cucumis sativus (CUMSA) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

* EPPO (2004) Good plant protection practice PP 2/32 (1) Outdoor cucurbits. OEPP/EPPO Bulletin 34, 101-108;

HOST PLANT N°7: Cucurbita maxima (CUUMA) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

* EPPO (2004) Good plant protection practice PP 2/32 (1) Outdoor cucurbits. OEPP/EPPO Bulletin 34, 101-108;

HOST PLANT N°8: Cucurbita pepo (CUUPE) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

* EPPO (2004) Good plant protection practice PP 2/32 (1) Outdoor cucurbits. OEPP/EPPO Bulletin 34, 101-108;

HOST PLANT N°9: Gerbera (1GEBG) 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):**
 
No 
Conclusion:
 
Not 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. Meloidogyne incognita and Meloidogyne hapla and potentially other species are found in the EU and affect Gerbera sp. 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. However experts considered that Gerbera is mainly soilless cultivated so doesn’t appear to be subject to this pest damages. **CONCLUSION ON THE STATUS:**
 
Disqualified: Not recommended for RNQP status because Gerbera is mainly soilless cultivated so does not appear to be subject to this pest damages. **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:**

* Anita B, Selvaraj N & Vijayakumar RM (2011) Associative effect of biofumigation and biocontrol agents in management of root knot nematode Meloidogyne hapla in gerbera. Journal of Applied Horticulture (Lucknow) 13, 154-156;
* Manju P & Subramanian S (2015) Screening of gerbera varieties against root knot nematode, Meloidogyne incognita. Trends in Biosciences 8, 808-811;

HOST PLANT N°10: Lactuca sativa (LACSA) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

* Correia ECSS; Silva N; Costa MGS; Wilcken SRS (2015) Reproduction of Meloidogyne enterolobii in lettuce cultivars of the American group. Horticultura Brasileira 33, 147-150. Available at: <http://dx.doi.org/10.1590/S0102-053620150000200002>;
* EPPO (2001) Good plant protection practice PP 2/3 (2) Lettuce under protected cultivation. OEPP/EPPO Bulletin 31, 201-210;

HOST PLANT N°11: 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;

HOST PLANT N°12: Rosa (1ROSG) for the Ornamental sector.

Origin of the listing:
 
Commission Directive 93/49/EEC  
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?**
 
No 
Conclusion:
 
Evaluation continues  
 
Justification (if necessary):
 
Precautions to prevent infection by soil, particularly against Meloidogyne hapla, are advised in the Rosa EPPO PM 4 Standard. **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. Meloidogyne enterolobii is given as a major pest on Rosa by the EPPO Global Database and Meloidogyne luci is also recorded. For certified material, precautions to prevent infection by soil pests particularly against Meloidogyne hapla are advised in the Rosa EPPO PM 4 Standard. M. hapla reproduced more quickly than M. incognita on Rosa corymbifera and nematode infected plants were less vigorous than their uninfected controls (Meressa et al 2014). In conclusion, plants for planting are a pathway. 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. Roses are widely used in landscaping. Phytonematodes are considered to belong to the most impacting pests of this ornamental plant in gardens, especially Meloidogyne hapla, which is the most important one in colder climate regions (Pizetta et al, 2010). Precautions to prevent infection by soil pests particularly against Meloidogyne hapla are advised in the Rosa EPPO PM 4 Standard. Some resistant rootstocks are available, but the nematode can evolve to overcome resistance. Plants will be either in containers (limited risk) or bare rooted (symptoms more or less visible).  
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:
 
 **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:**
 
Not recommended for listing as an RNQP: M. hapla on Rosa meets all the criteria for RNQP status. However the requirement for absence of visual symptoms on the traded material (current general 'Substantially free from' requirement in the EU) is considered to be sufficient. Remark: Some resistant rootstocks are available, but the nematode can evolve to overcome resistance. Plants will be either in containers (limited risk) or bare rooted (symptoms more or less visible). **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:**

* Meressa BH, Dehne HW & Hallmann J (2014) Host suitability of cut-flowers to Meloidogyne spp. and population dynamics of M. hapla on the rootstock Rosa corymbifera 'Laxa. American Journal of Experimental Agriculture 11, 1397-1409;
* Pizetta PUC, Pivetta KFL, Santos JM, Batista GS, Gimenes R & Martins TA (2010) Resistance of rose rootstocks to Meloidogyne hapla nematode. Acta Horticulturae 881, 603-606;

HOST PLANT N°13: Solanum lycopersicum (LYPES) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**

HOST PLANT N°14: Solanum melongena (SOLME) 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:
 
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 but an infestation in a seedling nursery of vegetable species is unlikely. The SEWG considered that, for Meloidogyne as a genus, it is not possible to state that plants for planting are the main pathway. Most host species have a short growing season and are produced from seed. ‘Substantially free’ is a sufficient measure. **CONCLUSION ON THE STATUS:**
 
Disqualified: plants for planting are not the main pathway for Meloidogyne as a genus. **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:**