NAME OF THE ORGANISM: Ditylenchus destructor (DITYDE)

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: Ornamental sector, Seed potato sector, Vegetable seed sector

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

Not relevant
Conclusion:

* Candidate: Ornamental sector, Vegetable seed sector
* Not evaluated: Seed potato 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):

Austria (2014); Belgium (2007); Bulgaria (2001); Czech Republic (2001); Estonia (2008); France (2001); Germany (2014); Greece (2001); Hungary (1992); Ireland (1998); Latvia (1998); Luxembourg (2001); Netherlands (2015); Poland (2012); Romania (2011); Slovakia (1996); Sweden (1992); United Kingdom (2001); United Kingdom/England (2014); United Kingdom/Scotland (2014)
Conclusion:

candidate
Justification (if necessary):

The Standing Committee agreed in February 2015 to request EFSA for a complete Pest Risk Assessment before taking a decision about the future regulatory status of this pest in the EU (EU COM, 2015). This complete PRA was published in 2016 (EFSA-PLH 2016). Data of the presence of this pest on the EU territory are available in EPPO Global Database (<https://gd.eppo.int/>). The nematode is sporadically present in the majority of EU Member States (EFSA, 2014).

HOST PLANT N°1: Allium sativum (ALLSA) for the Vegetable seed sector.

Origin of the listing:

RNQP Questionnaire
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):**

No
Conclusion:

Not candidate

Justification:

D. destructor attacks a wide range of species, including garlic which is a good host (CABI, 2016) to 'may be only slightly infested' (EFSA, 2014), and is an endoparasite of the roots and underground modified plant parts, rarely on aerial plant parts, which show few symptoms. The main means of dispersal is with infested potato tubers or other subterranean organs of host plants, for example bulbs and rhizomes which can harbour adults, eggs and juveniles. Transport in infested soil is another important means of spread and irrigation water can also carry the nematodes.
The pest overwinters in soil as adults or larvae and may multiply by feeding on alternative weed hosts and on fungal mycelia. It may possibly overwinter as eggs which hatch in the spring and larvae are immediately able to parasitize hosts. In garlic bulbs, nematodes can be controlled by drying at 34-36°C for 12-17 days or using seed dressings with thiram or benomyl at sowing, and infestation in fields can be effectively controlled by flooding. Control by crop rotation is difficult due to its wide host range (CABI, 2016; EFSA, 2014).
No references to garlic true seed being infested with D. destructor could be found and therefore seed is considered not to be a pathway for this pest/host combination. **CONCLUSION ON THE STATUS:**

Disqualified: true seeds of garlic are not considered as a significant pathway. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Not recommended for the RNQP status. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

No
Proposed Risk management measure:

Not recommended for the RNQP status. **REFERENCES:**

* CABI (Centre for Agricultural Bioscience International) (2016). Datasheets Ditylenchus destructor (potato tuber nematode). Invasive species compendium. CABI, Wallingford, UK. Available from <http://www.cabi.org/isc/datasheet/19286>;
* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834;
* Fujimura T, Washio S & Nishizawa T (1986) Garlic as a new host of the potato-root nematode, Ditylenchus destructor Thorne. Japanese Journal of Nematology 16, 38-47;
* Yu Q, Zaida MA, Hughes B & Celetti M (2012) Discovery of potato rot nematode, Ditylenchus destructor, infesting garlic in Ontario, Canada. Plant Disease 96, 297;

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:

D. destructor attacks a wide range of ornamental and vegetable species, however EFSA states "begonias are probably wrongly reported as host plants as Goodey (1952) could not find nematodes associated with tubers. There are also no other reports substantiating the host status of begonias" (EFSA-PLH 2016). Therefore it is proposed to conclude begonia is not a host and the analysis is concluded at this point. **CONCLUSION ON THE STATUS:**

Disqualified: Not enough evidence of the host status. Plants for planting are therefore not considered as a significant pathway for this host. **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 Ditylenchus destructor Thorne. EFSA Journal 12, 3834;
* EFSA Panel on Plant Health (PLH) (2016) Scientific opinion on the risk to plant health of Ditylenchus destructor for the EU territory. EFSA Journal 14, 4602;
* EU COM (2015) 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 Ditylenchus destructor Thorne;

HOST PLANT N°3: Crocus (1CVOG) for the Ornamental sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Flower bulbs and corms intended for planting **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

Yes
Conclusion:

Qualified

Justification (if necessary):

The EPPO classification scheme PM 4/14 requires a nil tolerance at GSI for Grade A material intended for further propagation and for Grade B intended for flowering, but a 1% tolerance is permitted at dry bulb inspection for Grade B, only (EPPO, 2002). **CONCLUSION ON THE STATUS:**

Not recommended for listing as an RNQP: the pest is qualified for RNQP status based on EPPO PM 4 Standard, 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 on this host. **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:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834;
* EPPO (2002) PM 4/14(2) Classification scheme for crocus. Bulletin OEPP/EPPO Bulletin 32, 123-128;
* EU COM (2015) 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 Ditylenchus destructor Thorne;
* EFSA Panel on Plant Health (PLH) (2016). Scientific opinion on the risk to plant health of
* Ditylenchus destructor for the EU territory. EFSA Journal 14(12):4602, 124 pp. doi:10.2903/j.efsa. 2016.4602;

HOST PLANT N°4: Gladiolus (1GLAG) for the Ornamental sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Miniature cultivars and their hybrids 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:

D. destructor attacks a wide range of ornamental and vegetable species, however EFSA quotes only two references, one suggesting the nematodes from Gladiolus were probably feeding on fungi rather than the roots, and the other that there was inconclusive evidence as a host and D. destructor was able to multiply after bulb storage, but maybe on Botrytis. The conclusion was of unclear status but Gladiolus is most likely not a host plant (EFSA-PLH 2016). However experts reported information from the NL inspection services saying that Gladiolus, especially Gladiolus nanus and Gladiolus x colvillei, is a host plant. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

The reproductive potential of D. destructor is high. It can be assumed that even a small population of D. destructor, present in the soil at the beginning of the growing season, could develop into a very large population causing severe damage to infested host plant. D. destructor can cause significant damage to the below-ground parts (roots, tubers, bulbs) of host crops such as potato and several ornamental plants. It reduces harvest yields of host crops and causes additional damage during storage. In recent years, potato tuber nematodes have caused serious problems on iris and garlic crops in Japan (EFSA, 2014). Experts reported experience from the NL inspection service indicating that Gladiolus are impacted, and considered that it is sufficient to justify the RNQP listing of this pest/host combination. However, D. destructor cannot survive dessication which may be one of the reasons why this species is much less of a problem than D. dipsaci.
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:

 **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: This pest/host/intended use combination meets all the criteria for RNQP status but 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. **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:

Yes
Proposed Risk management measure:

Delisting. **REFERENCES:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834
* EU COM (2015) 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 Ditylenchus destructor Thorne;
* EFSA Panel on Plant Health (PLH) (2016) Scientific opinion on the risk to plant health of Ditylenchus destructor for the EU territory. EFSA Journal 14(12):4602, 124 pp. doi:10.2903/j.efsa. 2016.4602;

HOST PLANT N°5: Hyacinthus (1HYAG) for the Ornamental sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Miniature cultivars and their hybrids intended for planting **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

Yes
Conclusion:

Qualified **CONCLUSION ON THE STATUS:**

Not recommended for listing as an RNQP: the pest is qualified for RNQP status based on EPPO PM 4 Standard, 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 on this host. **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:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834
* EU COM (2015) 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 Ditylenchus destructor Thorne;
* EFSA Panel on Plant Health (PLH) (2016) Scientific opinion on the risk to plant health of Ditylenchus destructor for the EU territory. EFSA Journal 14(12):4602, 124 pp. doi:10.2903/j.efsa. 2016.4602;

HOST PLANT N°6: Iris (1IRIG) for the Ornamental sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Miniature cultivars and their hybrids intended for planting **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

Yes
Conclusion:

Qualified **CONCLUSION ON THE STATUS:**

Not recommended for listing as an RNQP: the pest is qualified for RNQP status based on EPPO PM 4 Standard, 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 on this host. **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:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834
* EU COM (2015) 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 Ditylenchus destructor Thorne;
* EFSA Panel on Plant Health (PLH) (2016) Scientific opinion on the risk to plant health of Ditylenchus destructor for the EU territory. EFSA Journal 14(12):4602, 124 pp. doi:10.2903/j.efsa. 2016.4602;

HOST PLANT N°7: Narcissus (1NARG) 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:

D. destructor attacks a wide range of ornamental and vegetable species, however EFSA quotes only one reference, as saying "authors mention bulb nematode of Iris, Narcissus and hyacinth (indistinguishable morphologically from Ditvlenchus destructor) but the abstract is not conclusive" and concludes "unclear host status" (EFSA-PLH 2016). Therefore it is proposed to conclude Narcissus is not a host and the analysis is concluded at this point. **CONCLUSION ON THE STATUS:**

Disqualified: Not enough evidence of the host status. Plants for planting are therefore not considered as a significant pathway for this host. **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 Ditylenchus destructor Thorne. EFSA Journal 12, 3834;
* EFSA Panel on Plant Health (PLH) (2016) Scientific opinion on the risk to plant health of Ditylenchus destructor for the EU territory. EFSA Journal 14, 4602;
* EU COM (2015) 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 Ditylenchus destructor Thorne;

HOST PLANT N°8: Solanum tuberosum (SOLTU) for the Seed potato sector.

Origin of the listing:

IIA2AWG
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:

Qualified **CONCLUSION ON THE STATUS:**

Recommended for listing as an RNQP - based on EPPO PM 4 Standard. The Seed potato SEWG supported RNQP status also based on potential impact and the effectiveness of current measures. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Zero tolerance, on the basis of visual inspection of the tubers.
Justification (if necessary):

The SEWG considered whether to apply a zero tolerance or count the pest in with other dry rot causing organisms. It was noted that symptoms may be seen in the crop in some circumstances and that there are some specific symptoms which can be seen in the tubers. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Post harvest tuber inspection for each lot with no symptoms seen. Any lots in which Ditylenchus destructor is found may not be marketed as seed potatoes.
Justification (if necessary):

PM 4/28 recommended that the crop should be planted in a plot not known to be infected with D. destructor. The SEWG concluded that the criteria ‘not known to be infected with’ doesn’t give enough guaranties. **REFERENCES:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834
* EU COM (2015) 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 Ditylenchus destructor Thorne;

HOST PLANT N°9: Tigridia (1TIGG) for the Ornamental sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Miniature cultivars and their hybrids 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):**

?
Conclusion:

Candidate

Justification:

In a literature search, no specific references to impact or yield effects in Tigridia by D. destructor could be found. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

No
Justification:

The reproductive potential of D. destructor is high. It can be assumed that even a small population of D. destructor, present in the soil at the beginning of the growing season, could develop into a very large population causing severe damage to infested host plant. D. destructor can cause significant damage to the below-ground parts (roots, tubers, bulbs) of host crops such as potato and several ornamental plants. It reduces harvest yields of host crops and causes additional damage during storage. In recent years, potato tuber nematodes have caused serious problems on iris and garlic crops in Japan (EFSA, 2014). In a literature search, no specific references to impact or yield effects in Tigridia by D. destructor could be found.
D. destructor cannot survive dessication which may be one of the reasons why this species is much less of a problem than D. dipsaci.
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?

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:

 **CONCLUSION ON THE STATUS:**

Disqualified: no specific references to impact or yield effects in Tigridia by D. destructor. **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:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834
* EU COM (2015) 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 Ditylenchus destructor Thorne;

HOST PLANT N°10: Tulipa (1TULG) for the Ornamental sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Miniature cultivars and their hybrids intended for planting **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

Yes
Conclusion:

Qualified

Justification (if necessary):

The EPPO classification scheme PM 4/13(2) requires a nil tolerance at GSI for Grade A material intended for further propagation and for Grade B intended for flowering, and a 1% tolerance is permitted at dry bulb inspection for Grade B, only (EPPO, 2002). **CONCLUSION ON THE STATUS:**

Not recommended for listing as an RNQP: the pest is qualified for RNQP status based on EPPO PM 4 Standard, 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 on this host. **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:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Ditylenchus destructor Thorne. EFSA Journal 2014;12(9):3834. 31 pp. doi:10.2903/j.efsa.2014.3834;
* EPPO (2002) PM 4/13(2) Classification scheme for Tulip. Bulletin OEPP/EPPO Bulletin 32, 115–121;
* EU COM (2015) 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 Ditylenchus destructor Thorne;
* EFSA Panel on Plant Health (PLH) (2016) Scientific opinion on the risk to plant health of Ditylenchus destructor for the EU territory. EFSA Journal 14(12):4602, 124 pp. doi:10.2903/j.efsa. 2016.4602;