NAME OF THE ORGANISM: Ditylenchus dipsaci (DITYDI)

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: Fodder plant seed sector

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

Not relevant
Conclusion:

* Candidate: Fodder plant seed sector

Justification (if necessary):

Remark for ornamentals:
- Allium: There is a large number of Allium species (and within the species, varieties) that are used as ornamentals.
Therefore it is suggested to include all Allium for ornamental use in the present evaluation.
- Ismene (host plant for D. dipsaci as mentioned in Directive 2000/29/EC) is nowadays named Hymenocallis for cultivated ornamental species and varieties. **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 (1993); Belgium (2007); Bulgaria (1993); Croatia (1996); Cyprus (1993); Czech Republic (1994); Denmark (1993); Estonia (1994); Finland (1993); France (2010); Germany (2014); Greece (1996); Hungary (2001); Ireland (1998); Italy (1992); Italy/Sicilia (2002); Latvia (2013); Lithuania (1998); Malta (1995); Netherlands (2015); Poland (2012); Portugal (1992); Portugal/Azores (1994); Romania (2011); Slovakia (2007); Slovenia (2003); Spain (2007); Sweden (1993); United Kingdom (1993); United Kingdom/England (1994); United Kingdom/Scotland (1994)
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/>).

HOST PLANT N°1: Medicago sativa (MEDSA) for the Fodder plant seed 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:

A high level of variability has been observed in the range of hosts for D. dipsaci populations though for alfalfa it is quite narrow. The parasite can survive for long periods in the soil (for up to two years) and so cropping practices (rotations, chemical treatment of soil), and the usage of resistant varieties (only for alfalfa) can limit its spread and establishment. It is spread mainly via seed, plant debris associated with seed and infected bulbs but spread by natural means (movement through soil, run-off of water, wind) or via human assistance (agricultural machinery, farm scale) is also likely, but would occur at a limited rate (EU COM 2016). During 1972 to 1975 un-cleaned seed samples of lucerne from different areas of France were examined for Ditylenchus dipsaci and at least 13% of lucerne seed samples were infested with a degree of infestation varying depending on the region and the cultivar (Caubel G & Pedron J P, 1999). Movement of nematodes associated with seeds is considered to be the a high-risk pathway for the spread of this pest by Mouttet R et al., 2014 who suggested the 2010 official withdrawal of methyl bromide in Europe. The absence of any alternative chemical (fumigation of contaminated seed batches is no longer possible) makes the production of nematode-free alfalfa seeds difficult and will lead to unmarketable seed batches (Mouttet R et al., 2014). Accurate seed certification is recommended as a way to stop the spread of D. dipsaci on lucerne (Tacconi R et al., 2006). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

The impact of D. dipsaci observed on alfalfa fodder crops concerns yield losses (limited to significant depending on soil, climate areas and varieties). The impact of D. dipsaci depends on the regions, with southern Europe, in particular, being less affected. The presence of the nematode on seed also causes significant commercial damage due to the risks to the next crop (EU COM, 2016). Persistance of stands is reduced when grown over a few years on infested soils (Griffin 1991). In alfalfa seed crops, the impact observed is related to the rejection of contaminated seed lots that cannot be marketed (EU COM, 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:

 **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:

Planting disease free seed, field inspections, where crop infected produce not used for seed. Prevent build up of pest through adequate rotation. **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:

Yes
Proposed Tolerance levels:

Zero tolerance approach, based on visual examination and/or testing. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

(A) (a) No symptoms of Ditylenchus dipsaci have been observed at the site of production since the beginning of the last complete cycle of vegetation;
and
(b) No main host crops (including Vicia, Allium, Avena & Beta) have been grown in the two preceding years on the site of production;
and
(c) Appropriate hygiene measures have been taken to prevent infestation of the site of production;
OR
(B) (a) No symptoms of Ditylenchus dipsaci have been observed at the site of production since the beginning of the last complete cycle of vegetation;
and
(b) No Ditylenchus dipsaci has been found by laboratory tests on a representative sample;
OR
(C) The seeds have been subjected to an appropriate physical or chemical treatment against Ditylenchus dipsaci and have been found to be free of this pest after laboratory tests on a representative sample.
Justification (if necessary):

The pest is transmissible with machineries. Machineries are usually contracted with external suppliers. Appropriate hygiene measures are needed.
The production of Avena, Vicia faba, or Allium in the same place of production, or the rotation with these high risk crops may pose a risk.
Seeds could be brushed. This can be sufficient not to find the nematode anymore by testing. This would not prevent from any infection, but reduce the inoculum present in the seed lot. Measures should only apply to the site of production (instead of the whole ‘place of production’). ‘Fumigation’ should be replaced by ‘appropriate physical or chemical treatments’. Treatments are combined with a test because of uncertainties about the efficiency of these treatment methods. **REFERENCES:**

* Caubel G & Pedron J P (1976) Geographical distribution of the stem nematode Ditylenchus dipsaci in cultures of forage legumes. Sciences Agronomiques Rennes, 183-188;
* 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 Ditylenchus dipsaci (Kuhn) Filipvejev;
* Griffin G D (1991) Relationship of Ditylenchus dipsaci and harvest practices to the persistence of alfalfa. Journal of Nematology 23, 306-315; Mouttet R, Escobar-Gutiérrez A, Esquibet M, Gentzbittel L, Mugniéry D, Reignault P, Sarniguet C & Castagnone-Sereno P (2014) Banning of methyl bromide for seed treatment: could Ditylenchus dipsaci again become a major threat to alfalfa production in Europe? Pest Management Science 70, 1017-1022;
* Tacconi R, Santi R & Vincentis F (1999) Control of the nematode Ditylenchus dipsaci on seed of a medical herb. Informatore Fitopatologico 49, 26-27;