NAME OF THE ORGANISM: Boeremia exigua var. linicola (Phoma exigua var. linicola) (PHOMEL)

GENERAL INFORMATION ON THE PEST

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

Pest category:

Fungi **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: Oil and fibre plants sector

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

Yes
Conclusion:

* Candidate: Oil and fibre plants sector

Justification (if necessary):

Several varieties have been distinguished within the phytopathogenic pycnidial fungus Phoma exigua on the basis of cultural characteristics. These varieties have been stated to correlate with differences in ability to attack different host plants. Molecular discrimination of the varieties was investigated using amplified fragment length polymorphism (AFLP) and sequence analysis of the ITS region of the rDNA cluster on a set of 43 strains and 7 outgroup strains. The ITS sequences of the 43 different P. exigua strains were highly similar and revealed no subgroups within P. exigua while the AFLP fingerprint patterns of two primer combinations showed clear clustering of most varieties (Abeln, 2002). **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 in Italy (on Salvia greggii) (2016), Germany (on Tripleurospermum maritimum [Matricaria perforata]) (2002), France, Belgium, UK (1953), Holland, Czechoslovakia (from various CABI abstracts on other items).

HOST PLANT N°1: Linum usitatissimum (LIUUT) for the Oil and fibre plants sector.

Origin of the listing:

3 - Oil and fibre plants sector: Council Directive 2002/57/EC
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:

In India Phoma exigua var. linicola was associated with the internal parts of the seed and was pathogenic under artificial conditions of inoculation. Seed treatments gave good control compared with untreated (Kumud et al., 1997). However, spray treatments in France showed that various seed treatments did not reduce the incidence of foot rot when an aerial infection occurred at an early stage of plant development, and concluded under these circumstances, seed treatments must be supplemented with spray treatments soon after inoculation, rather than closer to harvest (Decognet, et al., 1994). In UK seedlings raised from infected seed or in infected soil are attacked at soil-level, fall over, and die (Kerr 1953). Seedlings grown from infected seed or growing in infested soil are attacked in the pre-emergence stage or shortly after emergence. The hypocotyls are attacked at ground-level. Infected seedlings wilt and soon fall over and die. The SEWG concluded that even though the pest is present in the soil, as infected seedlings wilt and soon fall over and die, plants for planting should be considered as a significant pathway compared to other pathways. The inoculum present in the soil decrease with rotation of 5 to 6 years. This pest is really host specific. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

At the seedling stage, the symptoms of foot rot infection closely resemble those caused by Colletotrichum linicola.
On mature plants, the first symptom is wilting and shrivelling of the lower leaves. On diseased plants, an area at the base of the stem becomes discoloured, dark green at first and becoming yellow or brown. Pycnidia can be observed in this discoloured area. Often cortical tissues bearing pycnidia peel away from the woody tissues. Pycnidia are usually confined to stem lesions but may be found higher on the stem or on the sepals and walls of the capsules (Kerr, 1953).
Foot rot was very serious in parts of GB during 1939-45, when the flax acreage was greatly increased. Seedlings raised from infected seed or in infected soil are attacked at soil-level, fall over, and die and later mature plants first display wilting and shrivelling of the lower leaves before dying off (Kerr, 1953).
The disease is widespread and nearly always present in the soil where flax is grown. Under warm and humid conditions in the spring, the disease develops rapidly resulting in severe losses in yield and fibre quality. In fibre flax the disease is particularly serious as infected stems are not decomposed during the retting process (de Tempe, 1963; Ondrej, 1985).
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Medium
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:

The disease is widespread and nearly always present in the soil where flax is grown. Under warm and humid conditions in the spring, the disease develops rapidly resulting in severe losses in yield and fibre quality. In fibre flax the disease is particularly serious as infected stems are not decomposed during the retting process (de Tempe, 1963; Ondrej, 1985). The SEWG concluded that impact is medium (currently minor on account of measures taken). **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:

The disease is seedborne, and as such, the primary means of control should be the production of disease-free seed. Maddens (1987) described a number of suitable seed treatments. In the later stages of the disease, control is more difficult. Muskett and Colhoun (1947) indicated a measure of disease resistance between cultivars and advised the use of rotation to reduce inoculum levels in the field. In linseed cultivars, Mercer and Jeffs (1988) demonstrated increased susceptibility in the cultivar Atalante compared with cultivars Antares or Lidgate. Ondrej (1983) did not observe any significant resistance to B. exigua var. linicola in fibre-flax cultivars. **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. Even though the pest is widespread in soil, it is short lived so this source of inoculum falls with rotation. Early infection of seedlings from seed borne inoculum can be important. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

Yes
Proposed Tolerance levels:

Basic and certified material:
(a) Seed treatment authorised for use against Boeremia exigua var. linicola has been applied;
or
(b) Not more than 5% of seed affected with Alternaria linicola, Boeremia exigua var. linicola, Colletotrichum lini, Fusarium spp based on laboratory test of a representative sample. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

No
Proposed Risk management measure:

Justification (if necessary):

The SEWG noted that some member states currently have additional requirements for thresholds for this pathogen in field inspection of Linum, and that effective seed treatments may be available [one reference suggests seed treatment reducing damage from Fusarium oxysporum f. sp. lini]. **REFERENCES:**

* Decognet V, Cerceau V & Jouan B (1994) Control of Phoma exigua var. linicola on flax by seed and foliar spray treatments with fungicides. Crop Protection 13, 105-108;
* Kerr A (1953) Foot rot of Flax caused by Ascochyta linicola. Transactions of the British Mycological Society 36, 61-73;
* Kumud K, Jitendra S & Yadav MD (1997) Fungi associated with linseed seeds, their effect and chemical control. Annals of Plant Protection Sciences 5, 179-183.