

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 *Aphelenchoides besseyi* Christie¹

Current regulatory status

Aphelenchoides besseyi is currently listed as harmful organism under Annex II, Part A, Section I of the Directive 2000/29/EC on seeds of *Oryza* spp., and in Annex II, Part A, Section II on plants of *Fragaria* L., intended for planting, other than seeds.

Specific requirements are in place for the import of seeds of *Oryza* sp. into the EU (Annex IVAI (50), consisting of an official statement that (a) the seeds have been officially tested by appropriate nematological tests and have been found free from *A. besseyi*; or (b) the seeds have been subjected to an appropriate hot water treatment or other appropriate treatment against *A. besseyi*.

Specific requirements are also in place for import of strawberry plants for planting under Annex IVAI (21.2) and Annex IVAII(14), laying down either the pest freedom based on visual inspection during the growing season or, in case of plants coming from tissue culture, the compliance of the mother plants to the previous condition, or an official testing.

Other species of *Aphelenchoides* are regulated under the Marketing Directive 93/49/CE as *Aphelenchoides* spp. and as *A. fragariae*, *A. blastoforus* and *A. ritzemabosi* under Directive 2014/98/UE.

Identity of the pest

A. besseyi is a single taxonomic entity that can be adequately distinguished from other species of the same genus. EPPO has provided different standard protocols for the extraction, identification and treatment of the pest from rice seeds and strawberry plants.

Distribution of the pest

A. besseyi is not widely distributed in the PRA area.

According to the EPPO Global Database, the pest is present on rice in Italy, with restricted distribution; in the south-east part of Hungary and in Bulgaria. In Spain, *A. besseyi* has been notified as present to EU in 2009 in two rice fields in the Provinces of Alicante (Region of Valencia) and Tarragona (Annex IV) and in 2010 in three plots in the Province of Sevilla (Autonomous Community of Andalusia). The pest has been eradicated in France on the basis of information dated 1993. In Portugal, it has been never detected in regular surveys. This nematode is absent in Slovakia, confirmed by a survey in 2011, and no pest record (2013-12) has been reported from Belgium.

In The Netherlands the pest is absent, no pest records on rice, and absent, confirmed by survey on strawberry; it is occasionally found on a few ornamental greenhouse crops where is considered as

¹ Scientific basis for the recommendation: Pest Risk Assessment prepared by Italy NPPO

transient, actionable and under surveillance (2014-12). In United Kingdom *A. besseyi* results absent, intercepted only, on the basis of information dated 1993.

Out of the PRA area, the pest is present on rice in Turkey in restricted distribution (2013), in Ukraine (1972) and Russia (1992).

As regards the presence of *A. besseyi* on strawberry, it has been detected only in Bulgaria. Outside the EU, it has been detected on strawberry in Australia and in South-Eastern USA.

Potential for establishment and spread in the PRA area

Oryza sp. and *Fragaria* are the main host plants. The Mediterranean area are suitable for *A. besseyi* establishment, while the climatic condition of Central and Northern Europe are adverse to its metabolism and reproduction; in protected cultivation of strawberry or flower production a low risk could be considered, but easily interceptable.

Oryza sp. and *Fragaria* do not alternate each other in a crop rotation. Other economically important crops (such as onion, garlic, chinese cabbage, cucumber, soybean and maize) and the flower species are only incidental hosts. They do not follow the main hosts in a rotation, so the spreading of this nematode through species different from the main hosts, especially from rice, is very unlikely. In the Mediterranean area the pest is reported in few occurrences even if the managed environment could be favorable to its establishment, while in the Central and Northern Member States, there are not suitable conditions.

On rice, the pest can live quiescent between glumes (palea) and embryo, and it reactivates after sowing in the wet or flooded soil. It cannot multiply during transport and storage, without seed germination. Currently in Italy, in the largely most cases, only few rice lots are infested with 0.17 - 0.33 nematodes/100 seeds corresponding to 5 - 10 nematodes/3000 seeds without any damage to the crop or yield decreasing. The seeds are the main pathway. The rice husk could be a potential pathway if left on the soil without deep ploughing, and for other crops (used as mulching material), although no data have been found in literature regarding infestations related to this pathway.

On strawberry, *A. besseyi* could be present in the collar and leaves of strawberry plants for planting, in addition the strawberry form could be associated also to the soil adhering to the roots. In strawberry plants for planting, other than seeds, the nematode impact is very negligible, because of the biological characteristics of *A. besseyi* and the current system of cultivation, management and certifications of this crop in its areas of distribution. Currently the nursery fields, where the strawberry plants are grown, are often fumigated or treated with nematicides. Furthermore, trade of plants for planting in cooled conditions might further mitigate the risk of *A. besseyi* occurrence.

A. besseyi can be also dispersed from infested fields by water, but the survival of nematodes in water decreases as temperature increases.

Potential for consequences in the PRA area

On rice, the chance that the *A. besseyi* could spread reaching high level of infestation is very low; this is due to the eco-climatic and agronomic conditions (temperate area, flooded crop, use of certified seed); in addition the pest is unable to be active in winter and on plant residues. It can infest weeds, but they usually do not transfer the nematode.

On strawberry, *A. besseyi* causes the most severe symptoms mainly under hot summer weather (Esser, 1966), so it does not cause negative effects on crop yield and quality, because strawberry in open field, in Mediterranean Countries, ripens its fruits in the late Spring/early Summer. The contamination between strawberry fields and paddies is very negligible, because the environments of cultivation are totally different and each other distant.

Italy is the main rice producer in EU and the export of certified rice seed (to Spain, Portugal, France, Romania, Greece, Morocco and Bulgaria) is quantitatively important even if it is decreasing in this last year. The Italian seed lots are regularly tested and the risk of spreading the pest in other Countries is evaluated low, even if one interception has been reported in 2014. In Asia the nematode occurs in all the producing countries, but a very low quantity of seeds for sowing is imported from Third Countries.

The import of strawberry plants for planting is allowed only from few Countries: Mediterranean countries, Australia, New Zealand, Canada, the Continental States of the USA and, under derogation, Argentina and Chile. In nearly all such Countries the pest is reported as present. A big volume of strawberry plants for planting is marketed from the main producing Member States within EU such as The Netherlands, Germany, Belgium, Spain, Italy, France, Poland. The absence of notifications confirms that the risk is absent or very low.

On rice, populations of *A. besseyi* higher than 30 nematode/100 seeds (Yamaguchi, 1977) can cause economical losses, but this threshold has never been detected in EU, while on strawberry the phytosanitary risk is inconsistent in the PRA area, and in any case lower than the damage caused by the other non-quarantine *Aphelenchoides* species (*A. fragariae* and *A. ritzemabosi*). On rice, routine inspections and analysis ensure that nematode stays below the threshold, improving the general health of rice materials circulating on the market.

Recommendation

The Working Group suggests listing *A. besseyi* as a Regulated Non-Quarantine Pest also in line with other similar *Aphelenchoides* species listed in the Marketing Directives. The main pathway of spreading is considered to be plant for planting. The conditions in the PRA area are adequate for pest survival but are not suitable for significant damage on the host plants.

As part of future certification requirements, a tolerance limit should be fixed, together with proper risk mitigation measures, both for *Oryza sativa* and *Fragaria* planting material.