Department for Environment Food & Rural Affairs

Regulation proposal for tobacco ringspot virus (*Nepovirus nicotianae*) on *Vitis* – vine propagating material

November 2024

Objective

To review the status of tobacco ringspot virus in GB legislation

Assessment

The following is a summary of an assessment undertaken by Defra following the method outlined by EPPO (European and Mediterranean Plant Protection Organisation) (Picard *et al*., 2017).

Regulated non-quarantine pest (RNQP) assessment for Great Britain: tobacco ringspot virus (*Nepovirus nicotianae*) on *Vitis* – vine propagating material

Background

Tobacco ringspot virus (also known as *Nepovirus nicotianae* or TRSV) is currently a Quarantine Pest (QP) for GB (Great Britain). Available evidence suggests that this pest is present in GB and it is not under official control. As such, TRSV does not meet the requirement for QP status. Assessments were therefore undertaken to see if this pest could become an RNQP (Regulated Non-Quarantine Pest) and if so, which hosts should be listed under the regulations. TRSV has a scattered worldwide distribution, with most impacts occurring in North America where the nematode vectors are widespread.

Current listing of pest in GB legislation

Quarantine Pest (Annex 2, Part A)

Current regulated plants for planting – host plants

None

Taxonomy

Pest name

Nepovirus nicotianae; tobacco ringspot virus; TRSV

Will the pest be listed at species level?

Yes

Status in GB

Is this pest present in GB?

Yes: There is a long history of TRSV causing symptomless infection of *Pelargonium* (geranium) stocks in the UK, with unpublished records beginning in 1979 and the most recent survey being from 2003 (Defra, unpublished data). The results of the most recent survey did indicate that levels of viral contamination had dropped, but there is no evidence that TRSV has ever been fully eradicated from *Pelargonium* (especially since the virus can be transmitted via seed and pollen in *Pelargonium*, Scarborough & Smith, 1977).

Pathways

Are the listed plants for planting the main pathway for the "pest/host/intended use" combination?

Yes

TRSV can spread over longer distances via seeds, by grafting of woody hosts, by vegetative propagation of herbaceous hosts, and via adherent soil containing viruliferous nematode vectors and/or infected seeds (EPPO, 2022).

Movement of infected vegetatively propagated plants, grafts and seeds are the most efficient ways of spreading TRSV over longer distances. In this respect the trade of symptomless infected hosts, such as tolerant genotypes of grapevines, pose a high risk of spreading the virus. Most records of TRSV outside North America are associated with the movement of plant material from this region. In addition, TRSV and its vectors may also be introduced in new areas via adherent soil or growing media of imported plants from infested areas (EPPO, 2022).

In GB, the nematode vectors of TRSV (nematodes in the *Xiphinema americanum senso lato* complex) are not known to occur, though the rapid PRA for these nematodes (Fera, 2014 unpublished) acknowledged that some populations may have been inadvertently imported in large, containerised plants. If nematode vectors were to enter GB, they are very likely to be able to establish both outdoors and in protected conditions (Defra, 2018).

Therefore, infected plants for planting are likely to be the main pathway for this pest on *Vaccinium* as it has only been known in *Pelargonium* plants for planting in GB.

Economic Impact

Are there documented reports of any economic impact on the host?

Yes

On grapevines, TRSV can cause decline, especially in *Vitis vinifera* (the common grapevine). Therefore, the virus is considered a significant risk to grapevines in the EPPO region (including the UK). In the USA, it is considered of minor economic importance because *Vitis vinifera* is rarely grown in the affected region. Instead, mostly interspecific hybrids are grown that show some resistance or tolerance to TRSV. Additionally, rootstocks are used that are more tolerant or resistant to *X. americanum sensu lato* (the nematode vectors), thus preventing infection by TRSV (EPPO, 2022).

Plants of *Vitis* spp. show symptoms of leaf deformation, chlorotic specks, stunted shoots, and general decline (McBride *et al*., 2017). Leaves of infected vines can exhibit reduced size, severe malformations, vein banding, and chlorotic specks and rings with mild mottling. Shoots of infected vines had shortened internodes leading to stunting of the overall canopy. Symptomatic vines produced a few small clusters with different sized berries, showing uneven ripening, compared with clusters from non-symptomatic vines (Walker *et al*., 2015).

What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures?

Minor impact to the grapevine sector is expected in the absence of phytosanitary measures.

The UK rapid Pest Risk Analysis for TRSV (Defra, 2018) concluded that, on all hosts, the potential economic impacts would be small with high confidence, and they were expected to be largely limited to ornamentals (similar to impacts seen in the past in the UK and EU countries).

Vitis vinifera is more susceptible to TRSV than other *Vitis* species, and this is the grapevine species most planted in GB. PiWi hybrids (hybrids crosses between *V. vinifera* and North American *Vitis* species) only make up 10% of all planting (Vine Growers, 2024). Potential impacts might therefore be expected to be more significant

than those in North America. However, without the nematode vectors, spread would be very slow.

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

Risk Management Measures

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

Test for detection and identification of TRSV for *Vitis* laid out in EPPO PM 7/2 (2) Tobacco ringspot virus (EPPO, 2017).

Similar methods to those described in EPPO PM 4/8(2) Pathogen-tested material of grapevine varieties and rootstocks (EPPO, 2008) (though TRSV is not listed in the standard)

See also EPPO PM3/085(1) Inspection of places of production – *Vitis* plants for planting (EPPO, 2018), EPPO PM4/035(1) Soil test for virus–vector nematodes in the framework of EPPO Standard PM 4 Schemes for the production of healthy plants for planting of fruit crops, grapevine, Populus and Salix (EPPO, 2009).

American nepovirus infection in grapevine is controlled by the use of tolerant rootstocks, clean stock programs, as well as by regional, national, and international guidelines that regulate the dissemination of propagation material (Rowhani *et al*., 2017).

Data Quality

Is the quality of the data sufficient to recommend the pest to be listed as an RNQP?

Yes

Proposal for regulation

We propose to remove TRSV from the QP list and instead regulate TRSV as an RNQP on vine propagating material of *Vitis* species, by amending Annex 4, Part B, of the Phytosanitary Conditions Regulation[1]. As a result, these plants would need to be free from TRSV to be imported into, or moved within, Great Britain.

[1] Commission Implementing Regulation (EU) 2019/2072 of 28 November 2019 establishing uniform conditions for the implementation of Regulation (EU) 2016/2031 of the European Parliament and the Council, as regards protective measures against pests of plants, and repealing Commission Regulation (EC) No 690/2008 and amending Commission Implementing Regulation (EU) 2018/2019

References

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This regulation proposal has been undertaken taking into account the environmental principles laid out in the Environment Act 2021. Of particular relevance are:

- The prevention principle, which means that any policy on action taken, or not taken should aim to prevent environmental harm.
- The precautionary principle, which assists the decision-making process where there is a lack of scientific certainty.