NAME OF THE ORGANISM: Onion yellow dwarf virus (OYDV00)

GENERAL INFORMATION ON THE PEST

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

Pest category:

Viruses and viroids **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: Vegetable propagating and planting material (other than seeds) sector

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

Not relevant
Conclusion:

* Candidate: Vegetable propagating and planting material (other than seeds) 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 (1993); Czech Republic (2011); Denmark (1984); Estonia (1984); Finland (2011); France (1984); Germany (1993); Hungary (1992); Poland (1984); Romania (1984); 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: Allium cepa (ALLCE) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

2 - Vegetable seedling sector: Commission Directive 93/61/EC
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):**

Yes
Conclusion:

Candidate

Justification:

The virus survives in bulbs, onion sets and volunteer onions and is transmissible during vegetative production by Myzus persicae. It is not transmissible through seeds or pollen, so provided seedlings for transplanting are produced from seed under protected conditions to prevent virus infection by aphids, planting material should not be infected. Therefore although seedlings can be considered a pathway it is not considered they would be a significant source compared to other pathways. For onion sets, however, these could be potentially infected during their production if grown outside and if all other inoculum sources were removed before planting by efficient cultivations etc, then sets could be considered a significant pathway compared to other sources. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Onion OYDV in onion can reduce yield and seed and bulb quality and causes symptoms early in the growth of the crop. Later leaves become crinkled and flattened and tend to fall over. Bulbs become undersized though remain firm. Scapes show intensive yellowing, twisting and curling and seeds are of poorer quality. Losses vary with the time of infection and infected seedlings may form very small or no bulbs whereas those infected later may produce reasonable bulbs (Compendium of Onion and Garlic Diseases, 2008). This virus is often found in association with other viruses of Allium. However no impact is observed on A. cepa (Messiaen et al., 1993).
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Minimal
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?

Yes
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?

No
Conclusion:

Not candidate
Justification:

Experts commented that symptoms are observed regularly in the NL. In absence of evidence of unacceptable economic impact, the RNQP status is questionable and the substantially free from requirement is considered to be sufficient. **CONCLUSION ON THE STATUS:**

Disqualified: Not sufficient evidence of unacceptable economic impact. The 'Substantially free from' requirement would 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:

No
Proposed Risk management measure:

Delisting. **REFERENCES:**

* Compendium of Onion and Garlic Diseases (2008) Second edition. The American Phytopathological Society;
* Messiaen JM, Leroux JP, Pichon M & Beyries A (1993) "les allium alimentaires reproduits par voie végétative" du labo au terrain. Edition INRA;

HOST PLANT N°2: Allium cepa Aggregatum types (Allium ascalonicum) (ALLAS) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

2 - Vegetable seedling sector: Commission Directive 93/61/EC
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):**

Yes
Conclusion:

Candidate

Justification:

The virus survives in shallot bulbs and is transmissible during vegetative production by Myzus persicae. It is not transmissible through seeds or pollen. So provided seedlings for transplanting or shallot bulbs are produced under protected conditions to prevent virus infection by aphids, planting material should not be infected. Therefore although seedlings can be considered a pathway it is not considered they would be a significant source compared to other pathways. For shallot sets, however, these could be potentially infected during their production if grown outside. If all other inoculum sources were removed before planting through efficient cultivations etc, then sets could be considered a significant pathway compared to other sources. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

This virus causes severe mosaic and stunting in shallots. It is often found in association with other viruses of Allium. Approximately 30% of field-grown shallot plants in Serbia showed leaf symptoms in the form of yellow stripes accompanied by leaf curling and plant stunting caused by OYDV (Milošević et al., 2015). Yield decrease of 30% to 60% are observed (Messiaen et al., 1993). Experts concluded that the pest is very important for shallot, when produced from vegetative multiplication.
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:

 **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. Impact on shallot is unacceptable when produced by vegetative multiplication. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

Yes
Proposed Tolerance levels:

1% tolerance, based on visual examination, with a 10% associated failure rate. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

(a) The crop has been inspected at least once at an appropriate time since the beginning of the last complete cycle of vegetation and no symptoms of Onion yellow dwarf virus have been seen;
or
(b) The crop has been inspected at least once at an appropriate time since the beginning of the last complete cycle of vegetation in which not more than 10% of the plants showed symptoms of Onion yellow dwarf virus, with those plants rogued out immediately and not more than 1% of plants showing symptoms seen in a final inspection. **REFERENCES:**

* Messiaen JM, Leroux JP, Pichon M & Beyries A (1993) "les allium alimentaires reproduits par voie végétative" du labo au terrain. Edition INRA;
* Milošević D, Gvozdanović-Varga J, Ignjatov M, Nikolić Z, Vučurović I, Vučurović A & tanković I (2015) First report of Onion yellow dwarf virus infecting shallot in Serbia. Plant Disease 10, pp.1450;

HOST PLANT N°3: Allium fistulosum (ALLFI) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

RNQP Questionnaire
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):**

Yes
Conclusion:

Candidate

Justification:

OYDV is documented to occur in A. fistulosum. If initially infected, the virus would be spread by division multiplication into new plants and infection would also be transmissible during vegetative growth by any Myzus persicae present.
A fistulosum is also multiplied by micro propagation for elimination of viruses to obtain healthy plantlets, and also by normal true seedlings from seed-sown materials, however the latter would be free as the virus is not known to be transmissible through seeds. Therefore provided the last two categories are produced inside under aphid-proof conditions, seedlings for transplanting should be free of infection.
Plants for planting are therefore a pathway and if cultivation, removal of other inoculum sources and other precautions have been effectively carried out in the surrounding area, plants for planting as seedlings or divided plants could therefore be considered the main pathway. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Little information is available, however symptoms of mosaic and yellow streak striping, curling and distortion of flower stems were observed in natural infection of Welsh onion in Iran (Saffar et al., 2013). Yields in Japan of plants artificially infected with OYDV, GLV or both viruses in the field, were 85.2, 79.3 and 73.4% of healthy plants, respectively. OYDV infection induced leaf blight called Kasuri as well as mosaic symptoms on infected plants (Fukami & Ishii, 1991). This virus is often found in association with other viruses of Allium. However no unacceptable economic impact is observed on A. fistulosum (Messiaen et al., 1993).
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Minimal
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?

Yes
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?

No
Conclusion:

Not candidate
Justification:

 **CONCLUSION ON THE STATUS:**

Disqualified: acceptable economic impact. This pest/host combination will be covered by the substantially free from requirement. **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:**

* Fukami M & Ishii K (1991) Occurrence of garlic latent virus (GLV) and onion yellow dwarf virus (OYDV) on seedless Welsh onions "Bozushirazu" in Chiba Prefecture, and influence of their infection on their yield. Bulletin of the Chiba Prefectural Agricultural Experiment Station 32, pp.9-17;
* Messiaen JM, Leroux JP, Pichon M & Beyries A (1993) "les allium alimentaires reproduits par voie végétative" du labo au terrain. Edition INRA;
* Saffar ZN, Torabi S, Naghavi M, Golnaraghi AR & Aryakia E (2013) Onion yellow dwarf virus on leek, onion, shallot and welsh onion in Iran. Journal of Plant Pathology 95, Supplement pp.S4.73;

HOST PLANT N°4: Allium porrum (ALLPO) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

RNQP Questionnaire
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:

This virus is documented to occur in A. porrum, though not transmissible through seeds, by which leek are normally propagated. Therefore provided seedlings for transplanting are produced from seed under protected conditions to prevent virus infection by Myzus persicae aphids, planting material should not be infected. Therefore although seedlings can be considered a pathway it is not considered they would be a significant source compared to other pathways such as transmission from infected overwintering Allium plant hosts. **CONCLUSION ON THE STATUS:**

Disqualified: plants for planting are not considered to be a significant pathway on leek. **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:**

* Saffar ZN, Torabi S, Naghavi M, Golnaraghi AR & Aryakia E (2013) Onion yellow dwarf virus on leek, onion, shallot and welsh onion in Iran. Journal of Plant Pathology 95, Supplement pp.S4.73;

HOST PLANT N°5: Allium sativum (ALLSA) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

2 - Vegetable seedling sector: Commission Directive 93/61/EC
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):**

Yes
Conclusion:

Candidate

Justification:

The virus survives in garlic bulbs and sets and volunteer garlic and is transmissible during vegetative production by Myzus persicae. This crop is usually produced by cloves or (rarely) bulbils. Therefore garlic cloves could be potentially infected during their production. If all others sources were removed through efficient cultivations etc, then plants for planting could be considered significant compared to other sources. This virus is often associated with Leek yellow stripe virus which is also common. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

This virus causes a severe mosaïc in garlic in combination with other viruses (Compendium of Onion and Garlic Diseases, 2008). Garlic is always vegetatively multiplicated. Vegetative propagation of garlic often leads to mixed virus infections that cause significant yield and quality reduction. Onion yellow dwarf virus (OYDV), Leek yellow stripe virus (LYSV) and Garlic common latent virus (GCLV) are the most common viruses in Allium species in the Mediterranean region (Vončina et al., 2016). Yield decrease of 30% to 60% are observed on different varieties (Messiaen et al., 1993).
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:

 **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. Garlic is always produced by vegetative multiplication. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

Yes
Proposed Tolerance levels:

1% tolerance, based on visual examination, with a 10% associated failure rate. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

(a) The crop has been inspected at least once at an appropriate time since the beginning of the last complete cycle of vegetation and no symptoms of Onion yellow dwarf virus have been seen;
or
(b) The crop has been inspected at least once at an appropriate time since the beginning of the last complete cycle of vegetation in which not more than 10% of the plants showed symptoms of Onion yellow dwarf virus, with those plants rogued out immediately and not more than 1% of plants showing symptoms seen in a final inspection. **REFERENCES:**

* Compendium of Onion and Garlic Diseases (2008) Second edition. The American Phytopathological Society;
* Messiaen JM, Leroux JP, Pichon M & Beyries A (1993) "les allium alimentaires reproduits par voie végétative" du labo au terrain. Edition INRA;
* Vončina D, Ćurić K, Fabek S & Toth N (2016) First report of Onion yellow dwarf virus, Leek yellow stripe virus, and Garlic common latent virus on garlic in Croatia. Plant Disease 100 No.3, pp 656-657;