NAME OF THE ORGANISM: Leek yellow stripe virus (LYSV00)

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):

Belgium (2006); Denmark (2006); Finland (2006); France (2006); Germany (2006); Greece (2006); Italy (2006); Italy/Sicilia (2006); Netherlands (2006); Slovenia (2006); Sweden (2006)
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:

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 reported in literature in garlic, leek and shallot but not for onion (Compendium of Onion and Garlic Diseases, 2008). LYSV does not attack onion (Messiaen et al., 1993). **CONCLUSION ON THE STATUS:**

Disqualified: Onion is not known as a host plant. **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:**

* 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:

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:

This virus is reported in literature in garlic, leek and shallot but not for onion (Compendium of Onion and Garlic Diseases, 2008), and has been found combined with OYDV in shallots in Slovenia. Shallot is very resistant but not immune and LYSV has been isolated from shallot plants grown near severely infected leek (Bos, 1981). LYSV is transmitted non-persistently by Aphis fabae and Myzus persicae but not through seed of leek (Bos, 1981).
As shallot bulbs are used for planting this is a pathway and could be a significant pathway for LYSV if not produced under secure conditions and are then grown in fields where appropriate cultivations (removal of alternate hosts) and controls against aphids, have been carried out. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

?
Justification:

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) although no direct references of any impact of LYSV on shallot could be found. LYSV is considered to be anecdotic on shallot (Eric VERDIN, INRA Montfavet 2017, pers. com.).
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: absence of unacceptable economic impact. **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:**

* Compendium of Onion and Garlic Diseases (2008) Second edition. The American Phytopathological Society;
* Bos L (1981) Descriptions of plant Viruses Leek yellow stripe virus. Research Institute for Plant Protection, Wageningen, The Netherlands. Available at: <http://www.dpvweb.net/dpv/showdpv.php?dpvno=240>;

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):**

No
Conclusion:

Not candidate

Justification:

Only one unconfirmed, tenuous reference to LYSV on A. fistulosum could be found. As a conclusion A. fistulosum is not considered to be a significant host plant. **CONCLUSION ON THE STATUS:**

Disqualified: Only one unconfirmed reference to LYSV on A. fistulosum. This host is not considered to be a significant pathway. **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:**

* Compendium of Onion and Garlic Diseases (2008) Second edition. The American Phytopathological Society;

HOST PLANT N°4: Allium porrum (ALLPO) 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:

This virus is reported in literature in garlic, leek and shallot but not for onion (Compendium of Onion and Garlic Diseases, 2008). It is transmitted non-persistently by Aphis fabae and Myzus persicae but not through seed of leek (Bos, 1981). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Plant growth is less affected than in the case of OYDV, but yield reductions may be significant (30-60% depending on the variety) (Lot & Delécolle, 1996).
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:

 **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:**

Not recommended for listing as an RNQP: This pest/host/intended use combination meets all the criteria for RNQP status but the requirement for absence of visual symptoms on the traded material (current general 'Substantially free from' requirement in the EU) is considered to be sufficient (leek is usually produced from seeds, and this virus is not transmitted through leek seeds). **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:**

HOST PLANT N°5: Allium sativum (ALLSA) 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:

This virus is reported in literature in garlic, leek and shallot but not for onion, transmitted by garlic cloves, together with other viruses (Compendium of Onion and Garlic Diseases, 2008). Garlic yellow streak virus first reported in New Zealand as a distinct potyvirus is now considered to be a strain of LYSV (EPPO Global Database). It is transmitted non-persistently by Aphis fabae and Myzus persicae but not through seed of leek (Bos, 1981). As garlic cloves and sometimes transplants grown from seed are used for planting, this is a pathway and could be a significant pathway for LYSV if they were not produced under secure conditions and are then grown in fields where appropriate cultivations (removal of alternate hosts) and controls against aphids, have been carried out. **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

This virus is found in association with OYDV. Infection with either of these, plus potyviruses causes severe mosaic' ("Garlic mosaic") of garlic, though few if any symptoms are seen with this virus alone (Compendium of Onion and Garlic Diseases, 2008). 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). Plant growth is less affected than in the case of OYDV, but yield reductions may be significant (30-60% depending on the variety) (Lot & Delécolle, 1996). In the NL, unacceptable economic impact is only observed in leek. However in FR, the use of six successive generations make this virus being a major concern. Experts concluded that an unacceptable economic impact may be observed depending on the production system used.
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. **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 Leek yellow stripe 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 Leek yellow stripe virus, with those plants rogued out immediately and not more than 1% of plants showing symptoms seen in a final inspection. **REFERENCES:**

* Bos L (1981) Descriptions of plant Viruses Leek yellow stripe virus. Research Institute for Plant Protection, Wageningen, The Netherlands. Available at: <http://www.dpvweb.net/dpv/showdpv.php?dpvno=240>;
* Compendium of Onion and Garlic Diseases (2008) Second edition. The American Phytopathological Society;
* Conci VC, Perotto MC, Cafrune E & Lunello P (2005) Program for intensive production of virus-free garlic plants. Acta Horticulturae No.688, 195-200;
* Lot H & Delécolle B (1996) Les virus de l'Ail : état de la recherche et moyens de lutte. INRA, Pathologie végétale, domaine Saint-Maurice, 84143 Montfavet cedex;
* Oleas A & Arahana V (2016) First report of Leek yellow stripe virus, Shallot latent virus, and Onion yellow dwarf virus in garlic from Ecuador. Plant Disease 100, 232;
* Pérez-Moreno L Navarro-León MJ Ramírez-Malagón R Mendoza-Celedón B (2010) Impact and identification of phytopathogenic viruses on yield and quality of garlic (Allium sativum L) in the state of Guanajuato, Mexico. Revista Mexicana de Fitopatología 28, 97-110;
* 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, pp 656-657;