



RNQP Project

**... a 2-year project contracted with the EU COM
for benefit to the entire EPPO region**

Picard C. & Ward M.

12th Annual Meeting - Taichung, Taiwan

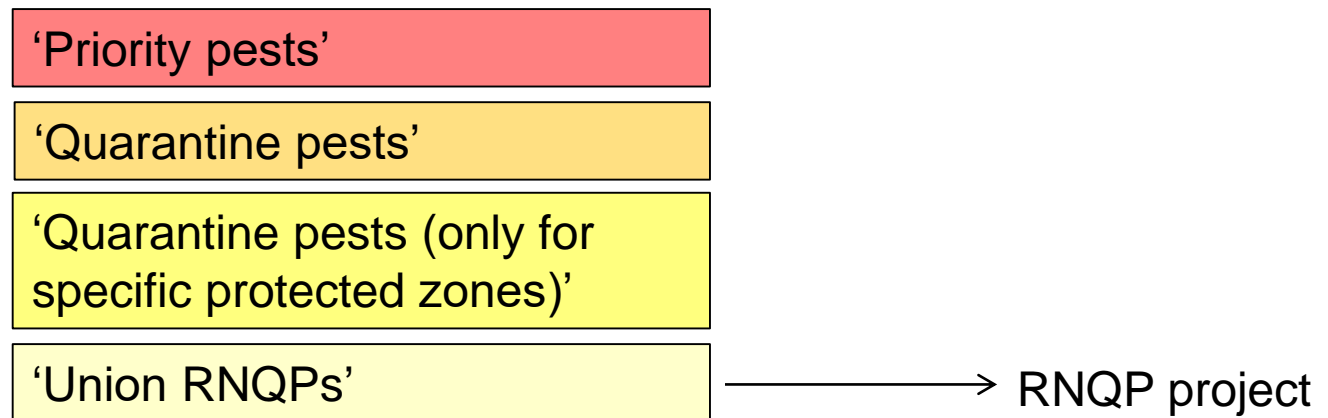
International Pest Risk Research Group

16 – 19 Octobre 2018



Introduction: Context

- ‘Union RNQPs’ introduced within the new EU plant health regulation (Reg. (EU) 2016/2031). *Implementation Dec. 2019*



- Pests evaluated were already regulated under Council Directive 2000/29/EC (mainly Annex IIA2) or in EU Marketing Directives: **1400 pest / host / intended uses**
 - > **quick** evaluation process needed
 - > methodology with **elimination/qualification** questions

Definition of 'Union RNQPs'

- ✓ **Aim:** limit the economic impact on the intended use (≠ prevent introduction or spread);
- ✓ **Definition:** clear identity, presence in the EU, not a QP, mainly transmitted by plants for planting, unacceptable economic impact on the intended use, RMM available);
- ✓ **What material:** plants for planting introduced or moved within the EU.
 - Apply to professional operators;
 - Doesn't concern movement within or between premises of a professional operator;
 - Covered by the EU plant passport and the import Certificate.
- RNQP concept defined in **ISPM 16** and process for conducting PRAs in **ISPM 21**;

RNQP concept in the world

- Concept only used by a limited number of countries, including:
 - Canada
 - Uruguay, Brazil
 - Azerbaijan, Russia and the Ukraine.
- Sometimes not with an assessment of the main criteria



1 – The Project

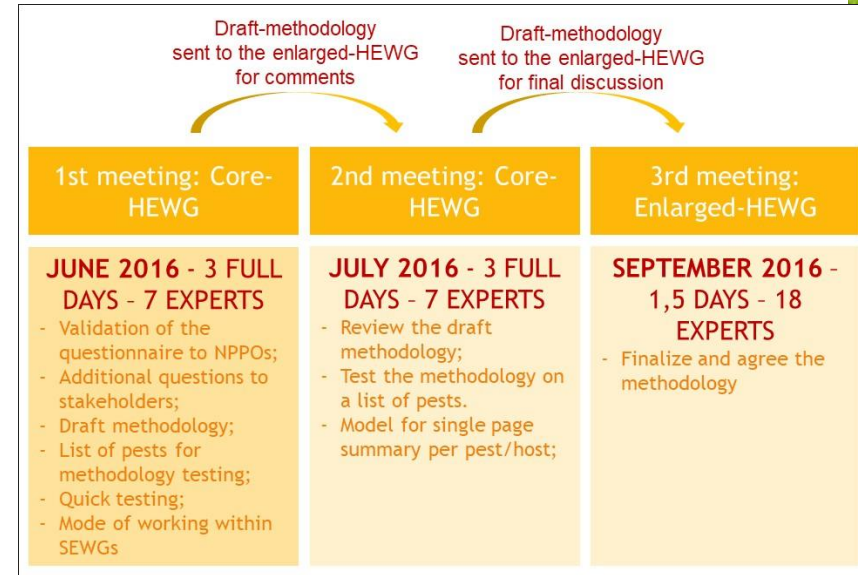
• STEP 1: Definition of a methodology in an Horizontal Expert Working Group

- 2016-09: Agreement of 18 experts on the developed methodology.

- 2017-06: Endorsement by the EPPO Working Party on Phytosanitary Regulations;

- 2017-10: Publication in the EPPO Bulletin;

<https://onlinelibrary.wiley.com/doi/abs/10.1111/epp.12420>



1 – The Project

- **STEP 2:** Six sector-EWG to apply the methodology in relation to different plants and crop groups.

(Incl. Questionnaire sent to the NPPOs and Stakeholders)

| <i>3 + 7 experts</i> | <i>8 + 1 experts</i> | <i>9 experts</i> | <i>6 experts</i> | <i>6 experts</i> | <i>5 experts</i> |
|---|--|---|---|--|---|
| 'Seed potato' (EPPO Panel) | 'Forestry' (EPPO Panel) | 'Fruits (including hops) and Vine' | 'Agricultural species' | 'Vegetable plants' | 'Ornamentals' |
| <i>February</i> <i>2days</i> <i>Turkey</i> (2017-02-23/24) | <i>March</i> <i>1day</i> <i>Paris</i> (2017-03-22/23) | <i>April</i> <i>3days</i> <i>Paris</i> (2017-05-02/04) | <i>May/June</i> <i>3days</i> <i>Paris</i> (2017-05-30 to 2017-06-01) | <i>June/July</i> <i>5days?</i> <i>Paris</i> (2017-07-03/07) | <i>September</i> <i>5 days?</i> <i>Paris</i> (2017-09-11/15) |
| Core-HEWG plus (check outputs, ensure harmonization, ...) | | | | | |

2 – Different steps for the application of the methodology

- **The initiation stage**: listing + naming of candidate pests and hosts, including resolution of current taxonomic status

[mainly done by EPPO Secretariat]

- **The initial categorisation**: elimination of those pests which do not fulfil the essential criteria for RNQP status

[done by EPPO secretariat based on scientific data and literature, supplemented by questionnaire responses and then validated and/or completed by Sector Expert Working Groups]

- **Final assessment**: recommendation of a list of RNQPs

[based on scientific data, literature, and/or practical expertise within Sector Expert Working Groups]

4 – Methodology: The Blackleg on seed potatoes



A – PM 4 (qualification question)

EPPO PM 4 Standard

A1 – Is the pest already listed in a PM4 standard on the concerned host plant? [by EPPO]

Yes: Recommended for the RNQP status – based on PM4

No



Continue

Justification: through a peer reviewed process there was an agreement at EPPO level that this pest was relevant for certification.

Remark: Categorisations may be reviewed by the SEWG and further evaluation is not excluded (e.g. when pests are transmitted by vectors).

EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION
ORGANISATION EUROPEENNE ET MEDITERRANEEENNE POUR LA PROTECTION DES PLANTES
PM 4/28(1) English

Certification scheme

SEED POTATOES

Specific scope

The EPPO certification scheme for seed potatoes is intended to be used by National Plant Protection Organizations and official organizations in charge of certification, in their capacity as bodies responsible for the design of systems for the production of healthy seed potatoes, for the inspection of such potatoes proposed for certification and for the issue of certificates.

This scheme complements the existing UNECE standard on the production and marketing of seed potatoes (UNECE, 1994) and attempts to be compatible with it. It presents requirements for the production of certified seed potatoes to a certain standard with regard to a number of important pests. The scheme takes account of the fact that a number of these important pests are quarantine pests for many countries. Moreover, some of these important pests may be subject to national regulations, which have the objective of containing or eradicating the pest concerned. As a consequence, seed potatoes produced for domestic use or export in a particular country may have to satisfy additional requirements for such pests. This scheme cannot include all such requirements, which will differ according to the countries concerned. However, the scheme draws attention to the probable existence of such requirements when it refers to the pests that are regulated in this manner in many EPPO countries. In particular, the scheme refers to the requirements for seed potatoes moved within the EU (EU, 1977, 1966, 1993a) and to the EU "Council Directives" for the individual pests *Synchytrium endobioticum* (EU, 1969a), *Glabodera* spp. (EU, 1969b), *Clavibacter michiganensis* subsp. *segetum* (EU, 1993b) and *Ralstonia solanacearum* (EU, 1998).

The certification standards presented in this scheme (Table 3) are considered to be the minimum requirements for the practical production of healthy seed potatoes, but national authorities may decide to set stricter standards in national certification schemes based on the EPPO scheme, in order to take account of different conditions in their territories in relation to the prevalence of certain pests.

Specific approval and amendment

First approved in September 1999.

Specific definitions

Seed potatoes

Tubers and microplants of cultivated tuber-forming *Solanum* spp. which are produced under an official certification system to meet specified requirements.

Microplants of potato

Plants (including tubers) in tissue culture of tuber-forming *Solanum* spp.

Minitubers of potato

Tubers produced by microplants of potato in a growing medium meeting specified requirements.

Outline of the scheme

The scheme has the aim of providing seed potatoes that are free from certain pests and meet specified tolerances for others, and whose health status is attested by an official certificate. It does not cover farm-saved tubers or potato germplasm (tubers or microplants) to be used as breeding material or true potato seeds). For the production of certified seed

potatoes, the following successive steps should be followed by an official organization or under its control:

- 1 Selection for quality of individual candidate nuclear stock plants of each cultivar to be taken into account in the scheme. Optional selection for virus freedom among these plants by testing.
- 2 Micropropagation of these plants. Selection for freedom from viruses and bacteria among microplants by testing or production of virus-free plants by treatment or *in vitro* methods, followed by testing. The microplants thus shown to be free from the given viruses and bacteria are designated as nuclear stock.
- 3 Maintenance of nuclear stock as microplants.
- 4 Multiplication of nuclear stock in two phases, propagation stock I and II, respectively, under protected conditions and in the field, respectively, with retesting as appropriate, under rigorous conditions excluding reinfection by certain pests and reducing reinfection by others.
- 5 Production of propagation stock III and propagation stock IV.
- 6 Issue of certificates for tubers from propagation stock I, II, III or IV.

A – PM4 (qualification question)

PM4

A1 – Is the pest already listed in a PM4 standard on the concerned host plant? [by EPPO]

Yes: Recommended for the RNQP status – based on PM4

No



Continue

Ex: Blackleg disease on seed potatoes :

Listed in Standard EPPO PM 4/28 (1) as *Erwinia* spp.
However complexity of the pest + pest listed in EU regulation based on symptoms

Experts decided to continue the evaluation.

EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION
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B – Taxonomy (elimination questions)

TAXONOMY

B1 - Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank? [by EPPO]

No
Yes



B2 - Is the pest defined at the species level or lower*? [by EPPO]

No
Yes

B3 - 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 (If Yes, please list the species)? [by EPPO, using Q.]

B4 - Is it justified that the pest is listed at a taxonomic rank below* species level? [by SEWGs]

Yes
No



No
Yes

Continue

Remark: According to ISPM21, the ‘**identity of the pest**’ and the ‘**taxonomic listing of hosts**’ **should be generally the species level**. The use of a higher or lower taxonomic level should be supported by a scientifically sound rationale.



B – Taxonomy (elimination questions)

TAXONOMY

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B4 - Is it justified that the pest is listed at a taxonomic rank below* species level? [by SEWGs]

Yes No

No Yes
Continue

Ex: Blackleg disease on seed potatoes

- Blackleg symptoms associated to a bacterial species complex
- These bacteria cause similar damage,
- Work on species identification still in progress,
- Identification at genus level might be the only economical and practical means to certify large amounts of seed potato material.

Methodology was applied separately on *Pectobacterium* & *Dickeya* for seed potatoes.

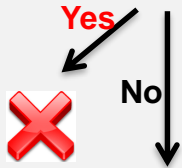


Photo from <https://www.unece.org>

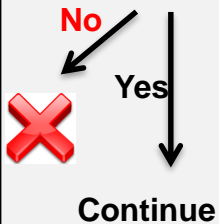
C – Status in the EU (elimination questions)

STATUS IN EU

C1 - Is this pest already a quarantine pest for whole EU?
[by EPPO]



C2 - Is this pest present in the EU? [by EPPO]



Remark (C2): In case of uncertainty concerning the presence in the EU, evaluation continues

C – Status in the EU (elimination questions)

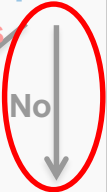
STATUS IN EU

C1 - Is this pest already a quarantine pest for whole EU?
[by EPPO]

Yes



No



C2 - Is this pest present in the EU?
[by EPPO]

No



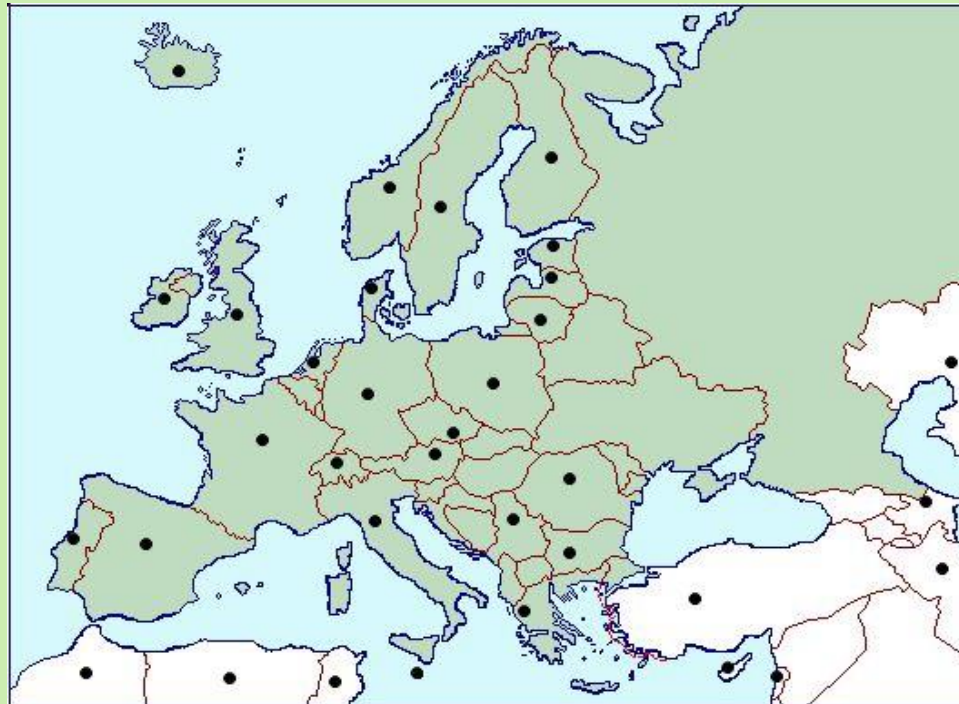
Yes



Continue

Ex: *Pectobacterium* and *Dickeya* on seed potatoes

- not quarantine pests
- reported to be present in many EU countries



E.g. *P. atrosepticum* (CABI, 2015)

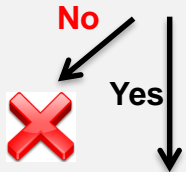
D – Pathways (elimination question)

PATHWAYS

D1 - Are the listed plants for planting the main pathway for the pest/host/intended use combination?

(to evaluate if it is the "main" pathway, we evaluate if plants for planting is a significant pathway compared to other pathways)

[by EPPO + SEWGs]



Note:

The relative importance of plants for planting as a pathway should only be considered **in relation to areas where the pest is present**, not for movement into areas which are free from the pest.

Control measures or cultural practices can reduce the contribution of pathways other than plant for planting.

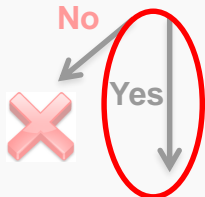
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(to evaluate if it is the "main" pathway, we evaluate if plants for planting is a significant pathway compared to other pathways)

[by EPPO + SEWGs]



Ex: *Pectobacterium* and *Dickeya* on seed potatoes

Some considerations:

- Can be carried on tuber surface, in lenticels & likely to be found in the tuber vascular system.
- In Europe, little or no correlation between *Dickeya* spp. isolated from river water and those found on potato.
- Persistence of *Dickeya* spp. recorded in soil for max a few weeks. Longer persistence in association with crop residues in soil cannot be excluded.
- RMM are available to reduce importance of other pathways.

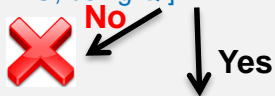
Spread in fields takes place mainly via specific plants for planting (= latently infected seed tubers) rather than natural spread (soil, river water, other hosts etc.)

E – Economic impact (elimination questions)

ECONOMIC IMPACT

E1 - Are there documented reports of any economic impact on the host?

[by EPPO, using Q.]



E2 - What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures (= official measures)? [by SEWGs]

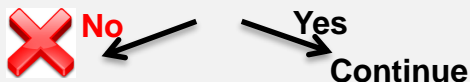
Minimal, Minor, Medium, Major, Massive



E3 - 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? [by SEWGs, using Q.]



E4 - 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? [by SEWGs]



Note: Impacts of vectors pathogens combinations may need to be considered as well as direct impacts.

Remark (E2): Five level scale adapted from EPPO PM 5/3

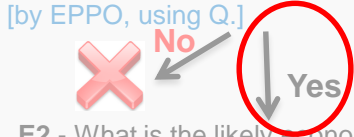
Remark: Since RNQPs are present in the area, detailed first-hand information should be available.

However, RNQPs may already be subject to a certification scheme which may limit any unacceptable economic impact being observed.

E – Economic impact (elimination questions)

ECONOMIC IMPACT

E1 - Are there documented reports of any economic impact on the host?
[by EPPO, using Q.]



E2 - What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures (= official measures)? [by SEWGs]

Minimal, Minor, Medium,
Major, Massive



E3 - 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? [by SEWGs, using Q.]



E4 - 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? [by SEWGs]



Ex: *Pectobacterium* and *Dickeya* on seed potatoes

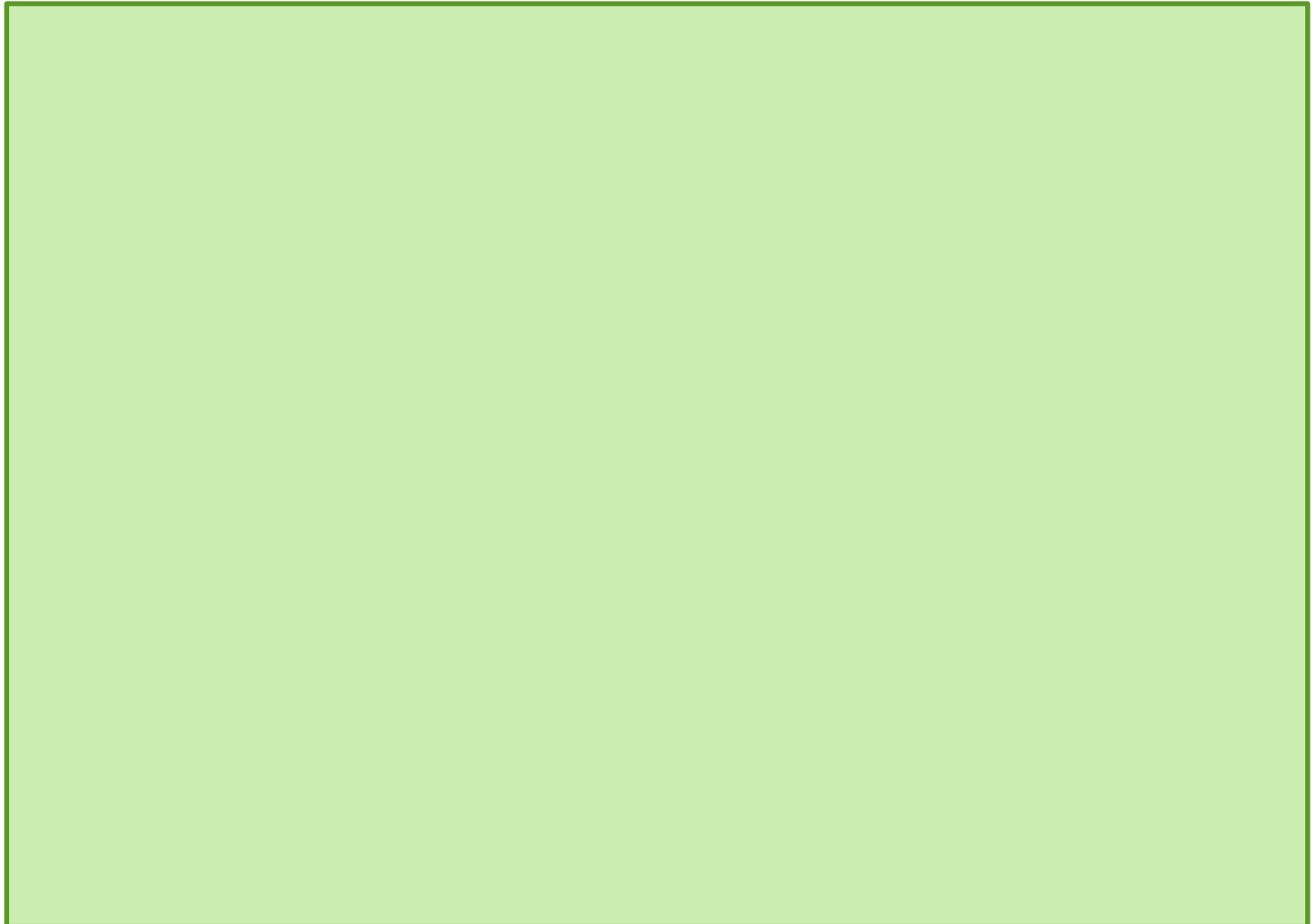
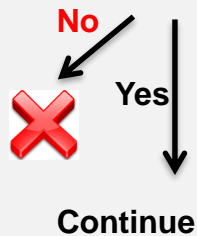
- A lot of data of high disease incidences;
- Yield reductions: Israel yield reduction up to 30 %, Finland up to 50 %
- Downgrading or rejections during seed potato certification: the Netherlands losses 30 M € annually;
- Blackleg disease likely to increase in the future in EU with climate change;
- Usually not possible to differentiate losses caused by *Pectobacterium* and *Dickeya*.

Economic impact was evaluated as 'Major'

F – Risk management measures (elimination question)

RMM

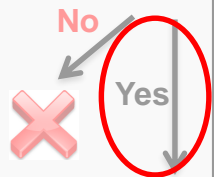
F1 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants? [by SEWGs]



F – Risk management measures (elimination question)

RMM

F1 - 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? [by SEWGs]



Continue

Ex: *Pectobacterium* and *Dickeya* on seed potatoes

EU Blackleg tolerances



(Commission Implementing Directive 2013/63/EU and 2014/21/EU)

- Pre-basic seed potato; derived from mother tubers free from *Pectobacterium* spp. and *Dickeya* spp. and plants shall be free from symptoms of blackleg
- Basic seed potatoes; on official inspection of the growing plants, the number affected by blackleg shall not exceed 1.0 %
- Certified seed potatoes; blackleg shall not exceed 4.0 %

Other tolerance levels in the UNECE Seed Potato Standard



Measures already implemented in certification schemes to prevent the presence of the pest over a certain threshold.

G – Data quality

DATA QUALITY

G1 - Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?? [by SEWGs]



Yes: Recommended for the RNQP status – based on data

No: Recommended for the RNQP status – by default

Remark: In case of uncertainties due to a lack of data, the pest was recommended “by default” for the RNQP status [*because pest/host combinations analysed were already regulated*].



G – Data quality

DATA QUALITY

G1 - Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?? [by SEWGs]

Yes: Recommended for the RNQP status – based on data

No: Recommended for the RNQP status – by default

Ex: *Pectobacterium* and *Dickeya* on seed potatoes

Sufficient data available



PM4

A1 – Is the pest already listed in a PM4 standard on the concerned host plant? [by EPPO]

Yes: Recommended for the RNQP status – based on PM4



No
Continue

TAXONOMY

B1 - Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank? [by EPPO]

No

Yes
B2 - Is the pest defined at the species level or lower*? [by EPPO]

No

Yes
B4 - Is it justified that the pest is listed at a taxonomic rank below* species level? [by SEWGs]

Yes
No

B3 - 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 (If Yes, please list the species)? [by EPPO, using Q.]

No

Yes
Continue

STATUS IN EU PATHWAYS

C1 - Is this pest already a quarantine pest for whole EU? [by EPPO]

Yes

No
Continue

C2 - Is this pest present in the EU? [by EPPO]

No

Yes
Continue

D1 - Are the listed plants for planting the main pathway for the pest/host/intended use combination?

(to evaluate if it is the "main" pathway, we evaluate if plants for planting is a significant pathway compared to other pathways)

[by EPPO + SEWGs]

No

Yes
Continue

ECONOMIC IMPACT

E1 - Are there documented reports of any economic impact on the host? [by EPPO, using Q.]

No

Yes
Continue

E2 - What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures (= official measures)? [by SEWGs]

Minimal, Minor, Medium, Major, Massive

E3 - 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? [by SEWGs, using Q.]

Yes
Continue

No
Continue

E4 - 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? [by SEWGs]

No

Yes
Continue

RMM

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No

Yes
Continue

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G1 - Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?? [by SEWGs]

Yes: Recommended for the RNQP status – based on data

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Remarks

- The methodology developed for the EU territory should be applicable, with a few changes, to the EPPO region or wider.
- Publication of this methodology should contribute to harmonizing the assessment of the RNQP status of pests throughout the EPPO region, or a wider area: <https://onlinelibrary.wiley.com/doi/abs/10.1111/epp.12420>
- Implementation of the RNQP definition will contribute to the adoption of international standards and therefore improve the transparency of regulations - RNQPs are not a subcategory of QPs.
- This should bring the fields of plant health and plant reproductive material closer & facilitate discussions on the possible inclusion of a pest in an obligatory certification scheme when it does not qualify for QP status: towards a common categorisation process for QPs and RNQPs?

Conclusion

Benefit of rapid methodologies
allowing the evaluation of lot of pests in a short period



More on the project: <https://rnqp.eppo.int/>
(an article in press in the EPPO Bulletin journal)

