Assessment of the RNQP status
The blackleg disease on seed potatoes
Regulated Non-Quarantine Pests

- Plants for planting
- Prevent an unacceptable economic impact
- Pests present in the area (no quarantine organisms)
- Risk management measures

- European Union (EU) -> EPPO project
- Aim to add RNQPs to the Plant Health Law
- Pests listed in the EU Marketing Directives on reproductive material and some additional pest
Method of assessment

• Horizontal Expert Working Group developed the methodology

• EPPO send questionnaire to EU Plant Health organizations and EU stakeholders associations

• Sector Expert Working Groups evaluated pests
  – Initiation stage (naming candidates)
  – Categorisation (meet criteria or not)
  – Final assessment (recommendation of a list of RNQPs)
Flowchart of the RNQP assessment methodology

PM4

A1 - Is the pest already listed in a PM4 Standard on the host plant concerned? [by EPPO]
Yes: Recommended for RNQP status – based on PM4
No

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]
Yes: Continue
No

STATUS IN EU
B2 - Is the pest defined at the species level or lower? [by EPPO]
Yes: Continue
No

PATHWAYS
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.]
Yes: Continue
No

B4 - Is it justified that the pest is listed at a taxonomic rank below** species level? [by SEWG]
Yes: Continue
No

ECONOMIC IMPACT
E1 - Are there documented reports of any economic impact on the host? [by EPPO, using Q.]
Yes: Continue
No

E2 - What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures (= official measures)? [by SEWG]
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 SEWG, using Q.]
Yes: Continue
No

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 SEWG]
Yes: Continue
No

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 SEWG]
Yes: Continue
No

DATA QUALITY
G1 - Is the quality of the data sufficient to recommend the pest to be listed as RNQP? [by SEWG]
Yes: Recommended for RNQP status – based on data
No: Recommended for RNQP status – by default
Blackleg
Bacterial species complex

• Blackleg symptoms
• Wet rot symptoms
• Species identification still in progress
• Cause similar damage
• Identification at genus level
Taxonomy

– Old name *Erwinia*

- *Pectobacterium atrosepticum*
- *Pectobacterium carotovorum* subsp. *carotovorum*
- *Pectobacterium carotovorum* subsp. *brasiliense*
- *Pectobacterium parmentiere* (= *P. wasabiae*)
- *Dickeya dianthicola*
- *Dickeya solani*
- *Dickeya chrysanthemi*
- *Dickeya dadantii*
- *Dickeya zeae*
Flowchart of the methodology
Blackleg disease on seed potatoes

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Status in EU

• Not a quarantine organism

• *Pectobacterium* spp. and *Dickeya* spp. reported to be present in many EU countries
Flowchart of the methodology
Blackleg disease on seed potatoes

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Finnish Food Safety Authority Evira, Finland
Pathways

• Spread of *Dickeya* spp. and *Pectobacterium* spp. in seed potato fields takes place mainly via specific plants for planting (= latently infected seed tubers) rather than natural spread (soil, river water, other hosts etc.)
Flowchart of the methodology
Blackleg disease on seed potatoes

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Economic impact

• A lot of data of high disease incidences

• Yield reductions: Israel 30 %, Finland 50 %

• Downgrading or rejections during seed potato certification: the Netherlands losses 30 M € annually

• Sector Expert Working Group concluded that economic impact was ’Major’
Flowchart of the methodology
Blackleg disease on seed potatoes

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Risk management measures

Examples:
• Pest free areas, pest free production sites
• Isolation distance, buffer zone
• Inspection of the facilities, fields, consignments, lots
• Seed or crop treatment (chemical, physical, biological)
• Soil or growing media requirements
• Cultural practices
• Sampling and testing
• Resistance
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 %
UNECE Seed Potato Standard
Blackleg tolerances

UNECE Standard S-1 Seed Potatoes 2016 Edition:

Minimum conditions to be satisfied by the crop. The proportion of growing plants affected by blackleg shall not exceed:

Production of Pre-basic category seed, 0%
Production of Basic I class, 0.5% and Basic II 1%
Production of Certified I class seed 1.5% and Certified II class 2%

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Flowchart of the methodology
Blackleg disease on seed potatoes

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Data quality

- Recommendation to list *Pectobacterium* spp. and *Dickeya* spp. as RNQPs based on data

- Continue using thresholds of EU marketing directive of seed potato
Pests recommended for the RNQP Status

- **Blackleg** -> *Pectobacterium* and *Dickeya*;
- **Common scab** -> *Streptomyces* (listing at the genus level is appropriate, provided that the measures continue to be based on a tolerance for visual symptoms);
- **Black scurf** -> *Thanatephorus cucumeris*;
- **Powdery scab** -> *Spongospora subterranea* (based on visual inspection of tubers);
- **Silver scurf** -> *Helminthosporium solani* (but there is a question about the availability of effective risk management measures);
- **Dry rots** -> *Alternaria, Fusarium, Boeremia (Phoma), Phytophthora infestans, Sclerotinia sclerotiorum, Sclerotinia minor, Helicobasidium brebissonii (Rhizoctonia crocorum)*;
- **Wet rots** -> *Athelia rolfsii (Sclerotium rolfsii), Geotrichum candidum, Phytophthora erythroseptica, Phytophthora infestans, Pythium, Pectobacterium, Dickeya*;
- **Viruses** -> targeted viruses listed individually:
  - Potato leaf roll virus, Potato virus A, Potato virus M, Potato virus S, Potato virus X, Potato virus Y, *Tomato spotted wilt virus*;
  - Potato virus V, Potato mop-top virus, Alfalfa mosaic virus, Cucumber mosaic virus, Tobacco rattle virus, Tobacco mosaic virus, Potato aucuba mosaic virus, Tomato mosaic virus, *Tomato black ring virus, Tobacco necrosis virus* (only for nuclear stock);
  - *Potato stolbur mycoplasm* -> ‘*Candidatus Phytoplasma solani*’;
  - *Ditylenchus destructor*;
44 pest/host combinations evaluated for the seed potato sector

Additional pests evaluated:
• *Potato spindle tuber viroid* - Recommended for the RNQP status - if the QP Status is changed. The SEWG is not competent to advise on whether the quarantine status of this organism should be changed, and is not recommending any such change.
• *Candidatus Liberibacter solanacearum*’ - Recommended for the RNQP status - If haplotypes A and B are regulated as quarantine pests, the RNQP Status should then be restricted to European haplotypes C, D and E.

Pests disqualified:
• *Viruses & Viruses* (mosaic symptoms and leaf roll virus together) - targeted viruses listed individually:
• *Helicoverpa armigera* (Seed potatoes not considered to be a significant pathway);

Revised RMM and/or thresholds proposed for:
• *Tomato spotted wilt virus* (zero tolerance based on symptom for all categories, except for nuclear stock where zero tolerance by testing or derived from mother plants tested);
• *Candidatus Phytoplasma solani*’ (Zero tolerance of symptoms in the growing crop);
• *Ditylenchus destructor* (Zero tolerance, on the basis of visual inspection of the tubers);
• *Potato spindle tuber viroid* (Zero tolerance for all categories);
• *Candidatus Liberibacter solanacearum*’ (Zero tolerance, based on symptoms, or inspection and testing)
UNECE Guide to Seed Potato Diseases, Pests and Defects

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Thank You