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Specialized Section on Standardization of Seed Potatoes

Revised position papers of the Specialized Section on Standardization of Seed Potatoes

Submitted by the secretariat

Summary

The following document is submitted to the Working Party for adoption and contains six revised position papers of the Specialized Section on Standardization of Seed Potatoes (GE.6). The document is based on ECE/CTCS/WP.7/GE.6/2023/5 and contains modifications agreed by GE.6 at its fiftieth session in 2023.



I. The position of the Specialized Section on potato virus Y

(Agreed at the thirty-seventh session of the Specialized Section in March 2007)

- Potato virus Y (PVY) is primarily transmitted by aphids.
- A number of strains and variants of PVY occur worldwide. PVY strains differ in their transmissibility and ability to cause leaf and/or tuber symptoms based on the specific strain, cultivar and environmental interactions. PVY infection may be asymptomatic in tubers and plants.
- Control of PVY is only possible through strict PVY tolerance thresholds within a seed potato certification scheme, through breeding and through adoption of best crop management practices. The level of infection can be determined by visual assessment and/or laboratory testing.
- Certain strains of PVY (PVY^{NTN}) can cause Potato Tuber Necrotic Ringspot Disease (PTNRD).¹ The Certifying Authority may determine a specific certification tolerance for PTNRD based on visual symptoms.
- Applying a zero tolerance for widely distributed viruses, such as PVY, is not effective, practical or feasible.

II. The position of the Specialized Section on blackleg of seed potatoes

(Agreed at the thirty-ninth session of the Specialized Section in March 2010)

- Blackleg (*Pectobacterium* spp. and *Dickeya* spp.) occurrence in seed potato crops is an important indicator of quality. In the United Nations Economic Commission for Europe (UNECE) Standard for Seed Potatoes, strict tolerances for blackleg in the growing crop and at lot inspection underpin, as part of the rot tolerance, the control of this disease in certified seed.
- Disease expression in the progeny crop is not always directly related to inspection findings or bacterial loading in mother tubers. This is due to the role of environmental and agronomic influences in the epidemiology of this disease. However, regular inspections remain an effective tool to limit the spread of the disease.
- Enforcing strict tolerance thresholds at certification continues to be the best available regulatory mechanism to control blackleg in marketed seed potatoes.
- Good agronomic and tuber handling practices, such as forced ventilation immediately after harvest, removal of diseased tubers prior to planting and allowing mother tubers to fully deteriorate prior to harvest, are all important in blackleg control. Sanitation of all equipment and storage facilities is an important factor in prevention of the disease, especially during seed cutting.

III. The position of the Specialized Section on silver scurf of seed potatoes

(Agreed at the fortieth session of the Specialized Section in March 2011)

- The cause of silver scurf, the fungus *Helminthosporium solani*, is spread by infected seed pieces and potato debris in soil. This disease disfigures the potato surface and separates the epidermis from the tuber, causing excess moisture loss and shrivelling of tubers during the storage period.

¹ United Nations Economic Commission for Europe, *Guide to Seed Potato Diseases, Pests and Defects* (ECE/TRADE/416). Available from <https://unece.org/info/Trade/WP.7/pub/18340>.

- As with all certification schemes, a standard for silver scurf has to take into consideration the feasibility and concerns of the buyer as well as the seller. Tubers can become infected with silver scurf in the field as well as in storage. Progression of the disease is higher at temperatures above 7°C and in the presence of high moisture on the tuber surface. Disease development can occur during handling and transport of tubers. Chemical treatments are limited.
- Research indicates that there is no correlation between the percentage of the surface of the tuber affected and the potential contamination towards the rest of the tubers and/or the next crop. Surveillance of the disease indicates that it is ubiquitous in potato-production systems.
- The effect of silver scurf on tubers is regulated in the UNECE Standard for Seed Potatoes through the tolerance for shrivelled tubers, i.e. tubers which have become excessively dehydrated and wrinkled, as these tubers lose vigour in the progeny crop.

IV. The position of the Specialized Section on cutting seed potatoes

(Agreed at the forty-first session of the Specialized Section in March 2013 and amended in October 2014)

- Seed cutting is an operation done after the certification of a seed lot. In the UNECE Standard for Seed Potatoes, once the seed is cut it is considered to be a defect and is no longer eligible for inspection.
- Cutting seed potatoes is a common practice in areas or cases where potato varieties with large tubers are in demand. Cutting facilitates the production of varieties with large tubers and reduces seed costs. However, marketing of cut seed is not allowed in some parts of the world, because seed cutting increases the risks of disease spread and seed piece decay. In some circumstances seed cutting may contribute to reduced emergence.
- In countries where cut seed is accepted into a certification scheme, the countries may enforce provisions to minimize the risk of spread of diseases. Cutting of seed potatoes is recommended to be done in a closed chain if possible, because cutting by third parties creates a greater risk.
- Extreme temperatures and difference in temperature between soil and cut seed tubers generally can cause poorer emergence and plant growth. The risks of seed cutting can be mitigated by pre-cutting and allowing the cut surfaces to suberize. It is important to take proper measures to prevent the spread of diseases between seed lots by thoroughly cleaning and disinfecting all equipment.
- Cut tubers may be accepted into a certification scheme if the inspection certificate of the seed lot before cutting indicates that the lot meets the Certifying Authority's requirements, or the cutting has been done for the purpose of production of the next generation. In all cases, the lot identity has to be maintained.
- Seed growers accept the risks and responsibilities of using cut seed.

V. The position of the Specialized Section on sprouted tubers

(Agreed at the forty-second session of the Specialized Section in October 2014)

- Under certain circumstances, sprouted tubers may be acceptable to the Certifying Authority at tuber inspection. Regulation of this aspect of tuber quality with a single prescriptive tolerance under the UNECE Standard for Seed Potatoes would be inappropriate given the dynamic nature of sprouting during the storage season and in the immediate period prior to planting.

- Sprouts can be damaged during transport, handling and planting, with the potential for uneven emergence. In some circumstances, excessive sprouting can result in the tubers being commercially unacceptable.
- De-sprouting tubers (running the potatoes over a grading line to knock sprouts off the tubers) can also be detrimental to tuber quality, as this process can lead to the spread of pathogens.
- Pre-sprouting (or chitting) seed potatoes can be used to promote dormancy breaking and to manage early emergence in crops. Where pre-sprouting is well managed, sprouts will be short with well-formed robust growth points capable of withstanding the handling process involved in mechanical planting.
- Seed pre-sprouting carries a certain risk, which should ideally be borne by the seed user rather than the seed producer (i.e. post certification). In practice, pre-sprouting may be conducted by the seed producer who may have the facilities and expertise to achieve the desired tuber growth stage on behalf of the customer, which is likely to take place before certification (tuber inspection).
- It is recommended that the Certifying Authority regulate the marketing of sprouted tubers at the point of inspection to reasonably ensure that sprouts be sufficiently robust to withstand mechanical planting. This should be done taking into account the time of inspection relative to the time of planting and the likely period and conditions of shipping and storage prior to planting.
- Ultimately the seller bears the risk of excessive sprouting which may take place after official inspection of tubers.

VI. The position of the Specialized Section on true potato seed

(Adopted at the seventy-fourth session of the Working Party on Agricultural Quality Standards in November 2018)

- Commercial trading of propagative material of potatoes for the purpose of commercial planting is mainly through the marketing of seed potato tubers. Potatoes can be traded as microplants and mini/microtubers, particularly early-generation material intended for further multiplication or for the purposes of moving high-health status potato propagative material between territories. Thus, the material being marketed is clonally propagated potatoes where the progeny is genetically identical to the preceding generation. The UNECE Standard for Seed Potatoes covers this trade.
 - Trade in botanical seed of potato, also known as true potato seed, has been limited due to non-uniformity of the progeny crops derived from true potato seed. However, in recent years several plant breeding companies are advancing knowledge and techniques in the production of true potato seed which provides for much more uniform progeny.
 - In countries with a well-established potato industry, tubers are the established method of trade in propagative material. However, the UNECE Specialized Section recognizes the potential merits of marketing true potato seed and/or material derived from true potato seed.
 - The UNECE Standard for Seed Potatoes does not currently cover true potato seed and/or material derived from true potato seed within its scope and the Specialized Section will consider how to include the certification of true potato seed and/or material derived from true potato seed within the scope of the standard in its future work programme.
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