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Specialized Section on Standardization of Seed Potatoes

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Item 7 of the provisional agenda
Tolerances for mild and severe virus symptoms

Proposal on regulating viruses

This note is submitted by the delegation of the United States for discussion.

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Annex II

Minimum conditions to be satisfied by the crop; field inspection procedures

A. Minimum conditions to be satisfied by the crop

1. The field shall not be contaminated by *Globodera rostochiensis* (Woll) nor *Globodera pallida* (Stone).

2. The proportion of growing plants affected by blackleg shall not exceed:

(a) In crop for the production of Pre-basic category seed, 0 per cent

(b) In crop for the production of Basic I class seed, 0.5 per cent and of Basic II ass seed, 1 per cent

(c) In crop for the production of Certified I class seed, 1.5 per cent and of certified II class seed, 2 per cent.

3. The proportion of growing plants showing symptoms of virus diseases shall not exceed:

(a) In crop for production of Pre-basic TC class seed, 0 per cent

(b) In crop for production of Pre-basic class seed, 0.1 per cent

(c) In crop for production of Basic I class seed, 0.4 per cent, ~~with no more than 0.2 per cent of plants showing severe virus disease~~

(d) In crop for production of Basic II class seed, 0.8 per cent, ~~with no more than 0.4 per cent of plants showing severe virus disease~~

(e) In crop for production of Certified I class seed, 2 per cent, ~~with no more than 1 per cent of plants showing severe virus disease~~

(f) In crop for production of Certified II class seed, 6 per cent virus disease, ~~with no more than 2 per cent of plants showing severe virus disease~~.

4. The proportion of growing plants not true to the variety and plants of another variety should not exceed:

(a) In crop for production of Pre-basic TC class seed, 0 per cent

(b) In crop for production of Pre-basic class seed, 0.01 per cent

(c) In crop for production of Basic category seed, 0.25 per cent

(d) In crop for production of Certified category seed, 0.5 per cent.

5. The crop shall be free from:

(a) *Synchytrium endobioticum* (Schilb) Perc.

(b) *Clavibacter michiganensis* spp. *sepedonicus* (Spieck. and Kotth.) Skapt. and Burkh.

(c) *Ralstonia solanacearum*

(d) Potato spindle tuber viroid

(e) Tomato Stolbur.

6. Depending on the circumstances and character of potato production in the country, requirements for isolation and rotation of the crop may be considered.

7. The satisfaction of the above-mentioned standards or other conditions shall be established by official inspection and/or testing.

Annex IV

Minimum conditions to be satisfied by direct progeny of seed potatoes; post-harvest evaluation procedures

A. Minimum conditions to be satisfied by direct progeny of seed potatoes

1. Pre-basic seed

(a) The proportion, in direct progeny, of plants of other varieties should be 0 per cent for Pre-basic TC class.

The proportion, in direct progeny, of plants not true to the variety and of other varieties should not exceed 0.01 per cent for Pre-basic class.

(b) The proportion, in direct progeny, of plants showing symptoms of mild or severe virus diseases should not exceed:

- 0 per cent for Pre-Basic TC class
- 0.5 per cent for Pre-Basic class.

2. Basic seed

(a) The proportion, in direct progeny, of plants not true to the variety and of other varieties should not exceed 0.25 per cent.

(b) The proportion, in direct progeny, of plants showing symptoms of virus disease should not exceed 2 per cent, ~~with not more than 1 per cent showing severe virus disease~~, for Basic I class seed, and 4 per cent, ~~with not more than 2 per cent showing severe virus disease,~~ for Basic II class seed.

3. Certified seed

(a) The proportion, in direct progeny, of plants not true to the variety and of other varieties should not exceed 0.5 per cent.

(b) The proportion, in direct progeny, of plants showing symptoms of virus disease should not exceed 8 per cent, ~~with not more than 5 per cent showing severe virus~~, for Certified I class seed and 10 per cent showing severe virus for Certified II class

seed. ~~Mild mosaic symptoms of discoloration and no leaf deformation should be ignored in categorizing virus for Certified II class seed.~~

The tolerances allowed under points 1(b), 2(b) and 3 are applicable only where the virus diseases are caused by viruses already prevalent in countries applying the UNECE Standard for Seed Potatoes.

The incidence of the virus and/or other pathogens in the direct progeny may be determined by inspection and/or testing of tubers or plants derived from a sample of tubers from the crop, i.e. post-harvest evaluation.

Annex VII

Definitions of terms applicable to the standards

The definitions provided herein apply specifically to certified seed potatoes moving into international trade under provisions of this Standard and their meaning may therefore differ from their classical meaning.

Incorporation of the terms in this glossary signifies their unique use by countries, which have adopted the Standard.

Mild virus diseases:

Diseases which manifest themselves only by leaf discolorations or mottle (mild mosaic) and may not be easily discernible by visual inspection. The following viruses are usually the causes of mild virus diseases: PVX or PVS. Strains of PVY may be considered mild when observing symptoms only

Potato leaf roll disease:

A severe virus disease caused by potato leaf roll virus (PLRV). Plants are usually smaller than healthy plants and sometimes stunted. The top of the plant is paler and the leaves are more erect than usual. Older lower leaves roll upward and become brittle, such that they can be easily broken (metallic rustling) when squeezed gently. Primary infection may cause a slight rolling of the upper leaves, sometimes accompanied by discoloration.

Severe Mosaic:

Disease symptom caused by a virus, characterized by discolouration and distortion of foliage, and easily discernible by visual inspection.

Severe virus diseases:

Manifest themselves by deformations of the foliage with or without discolouration. Symptoms can be rugosity, crinkle, rolling and brittleness of the leaves or dwarfing of the plant, as with the severe mosaic or/and the potato leaf roll disease.

The following viruses or virus combinations are usually the origin of severe virus diseases:

PLRV, PVY, PVA or PVM,

PVY + PVX, PVA + PVX or PVX + PVS.

PVY is not necessarily causing severe mosaic. Depending on variety and strain it may cause mild mosaic.

Annex XI

UNECE standard for seed potatoes

(Summary table of tolerances)

	Pre-basic TC	*Pre-basic*	*Basic Class I*	*Basic class II*	*Certified class I*	*Certified class II*
1. Crop tolerances						
Virus tolerance	0	0.1	0.4 ~~(0.2 severe)~~	0.8 ~~(0.4 severe)~~	2 ~~(1 severe)~~	6 ~~(2 severe)~~
Phthorimaea operculella	0	0	0	0	0	0
3. Direct progeny tolerances						
Other varieties and off-types	0	0.01	0.25	0.25	0.5	0.5
Virus (%)	0	0.5	2 ~~(1 severe)~~	4 ~~(2 severe)~~	8 ~~(5 severe)~~	10