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**Economic Commission for Europe**

Steering Committee on Trade Capacity and Standards

**Working Party on Agricultural Quality Standards**

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**Specialized Section on Standardization of Seed Potatoes****Capacity-building guide for implementation of a seed potato certification scheme****Submitted by the secretariat**

The following document is submitted to the Working Party for adoption as a capacity-building guide for implementation of a seed potato certification scheme.

This document is submitted according to ECE/CTCS/2019/10 section IV, ECE/CTCS/2019/2 decision 2019-8.6, and A/75/6 (Sect.20) and supplementary information.

**Introduction**

The guideline is intended to be an all-encompassing approach to training which can be used in its entirety for large capacity building projects or use individual components for more focused capacity-building.

**About the United Nations Economic Commission for Europe**

The primary goal of the United Nations Economic Commission for Europe (UNECE) is to encourage greater economic cooperation among its member states.

The Working Party on Agricultural Quality Standards has elaborated a wide range of UNECE standards for food such as fresh fruit and vegetables, meat, eggs, seed potato and others.

UNECE standards aim at harmonizing existing national commercial quality standards in order to facilitate international trade, encourage production of high-quality produce and thus protect consumer interests.

**Specialized Section on Standardization of Seed Potatoes**

The Specialized Section on Standardization of Seed potatoes, made up of national certification experts, regularly reviews and updates the Standard to reflect changes in production, marketing and certification procedures.

UNECE offers assistance to countries by organizing workshops on the harmonization of national with international standards.

The Specialized Section on Seed Potatoes is willing to contribute to capacity-building for countries with limited experience in seed potato certification, but also to strengthen capacity among countries already participating in the UNECE standardization work by further cooperation.

Use of high quality planting material is the most important strategy available to potato growers to ensure high yields whilst minimising inputs, particularly the reliance on pesticides and avoiding crop losses due to disease and other quality issues

### **Capacity-building to introduce a seed potato certification scheme**

When production of potatoes is initiated in a country (without a seed potato certification scheme), the supply of healthy seed potatoes in sufficient quantities will become of increasing importance. At such a stage, the implementation of a certification scheme for seed potatoes will be considered.

Such considerations are usually initiated by the Ministry of Agriculture or the potato (processing) industry, preferably in close cooperation with the seed potato producers and the commercial growers.

Once the decision has been taken to implement a seed potato certification scheme, an action plan should be developed with the involvement of the stakeholders. Training needs should be identified at this stage.

The UNECE Secretariat should be addressed early on, so the Secretariat or member/s of the Specialized Section can assist the country in identifying the areas of training needed, in organizing a training programme and in selecting experts from member countries.

Each training programme will be tailor made to meet the specific needs of the trainee.

## **1. General Introduction to the UNECE Standard**

The UNECE Standard sets provisions concerning the variety, quality, sizing, packaging and labelling. It provides rules for field inspection, tuber inspection and post-harvest evaluation procedures.

Seed potatoes are classified in three categories: pre-basic category seed, basic category seed and certified category seed. The number of seed potato generations is usually limited. Pre-basic and basic category seed are intended to produce seed potatoes. Certified category seed are mainly intended for the production of potatoes other than seed potatoes. The Certifying Authority (CA) maintains all classification data to provide traceability and the classification is controlled officially.

Countries intending to introduce a seed potato certification system should first of all get acquainted with the main aspects of the Standard.

A training course could cover:

Annex I: Minimum conditions to be satisfied in the production of pre-basic TC seed potatoes  
(*Note: probably only relevant at a later stage*)

Annex II, A: Minimum conditions to be satisfied by the crop

Annex II, B: Field inspection procedures

Annex III, A: Tolerances for defects and disorders in lots of seed potatoes

Annex III, B: Zero tolerances

Annex III, C: Tuber inspection procedures

Annex IV, A: Minimum conditions to be satisfied by direct progeny of seed potatoes

Annex IV, B: Post-harvest evaluation procedures

Annex V: Label

Annex XI: Summary table of tolerances

The general introduction would be part of other capacity-building programmes.

## 2. Capacity-building for the Ministry of Agriculture

The Ministry of Agriculture (MoA) might wish to get support in the legislative process to implement a seed potato directive or regulation. (This area cannot be covered by UNECE; the MoA should address MoAs of other countries directly).

The MoA might wish to get support in the decision-making process of establishing the CA for seed potato certification. To decide, which form of organization would be most suitable for the country, the different aspects of a CA as a government department or agency, an industry organization, or a private company must be considered. The CA needs to have the official authorisation to be responsible for the implementation of the Standard, which may be provided through national law or regulations or by administrative processes.

Capacity-building may cover:

- Forms of organization of Certifying Authorities
- Aspects of the different organizational and legal structures
- Responsibilities of Certification Authority and responsibilities of National Plant Protection Organization (NPPO)
- Legal requirements to ensure the CA, inclusive of inspectors, are independent, competent, impartial and free from conflict of interest

Materials:

- UNECE Standard S-1
- UNECE Guide on Operating a Seed Potato Certification Service

## 3. Capacity-building for managerial staff

The CA has responsibility for ensuring that all of the provisions of the Standard are complied with. It might wish to get support in establishing a service with the appropriate skills and resources for seed potato certification.

**Theoretical training** should be aimed at managerial staff responsible for the system of field inspection, tuber inspection and post-harvest evaluation.

The following aspects are to be covered:

- Organizational structure of a seed potato certification service
  - stand-alone service or
  - personnel working in several agencies and organizations
  - positions, their activities and scope of authorization
  - other organizations involved, e.g. diagnostic laboratory, a.o.
- Human resources: staff numbers, training and competency
  - Factors determining the number of staff needed, e.g. climate zone, size of crop, distance between crops, number of inspections per crop
  - Training for inspectors and administrative staff
- Setting up a scheme of rules and standards
  - Adoption of the UNECE Standard as the national standard, or
  - Establishing national standard containing additional requirements or more stringent tolerances, or
  - Standard used as a point of reference in developing a national standard
  - Specification of inspection procedures

- Record keeping and data processing
  - Crop application process
  - Traceability through generations
  - Database
- Certification
- Fees

Materials:

- UNECE Standard S-1
- UNECE Guide to Operating a Seed Potato Certification Service

#### 4. Capacity-building for inspectors

In order to qualify to perform seed potato field inspection or lot inspections, the inspector must have completed the appropriate training. Initially field inspection or lot inspection must be done in collaboration with a "senior/mentor" inspector (mentoring/shadowing process). Prior to doing seed potato field inspections or lot inspections on their own, newly trained inspectors should undergo an evaluation to ensure they are qualified to conduct the inspection by themselves.

In addition to training for field inspection and lot inspection, the CA might wish to get support for the mentoring/shadowing process and for evaluation of the newly trained inspectors.

**Practical training** will focus on field inspection, lot inspection, post-harvest evaluation, closing/sealing and labelling. All aspects are closely related.

##### 4.1 Field inspection

Field inspection aims to confirm compliance with the Standard for the various categories and classes of seed potatoes, and to assess the overall health status of the crop. Annex II in the Standard lists tolerances for pests and diseases and varietal off-types upon field inspection for all categories and classes of seed potatoes.

An inspector must be familiar with the variety to be inspected to ascertain varietal identity and purity, and with disease expression. Taking an appropriate number of counts to assess the crop properly at the most suitable time of crop development is essential for assigning the appropriate class at the end of the final inspection.

Training on field inspection should cover the following subjects:

- Aim of the field inspection
- Varietal identity, varietal purity
- Zero tolerance pests and diseases (quarantine organisms)
- Regulated non-quarantine pests
- Quality pests
- Scheduling inspections
- Information available to the inspector
- Field inspection procedures, including the assessment of faults
  - Minimum sample size
  - Walking patterns for random sampling

- Reasons for termination of field inspection
- Subsequent inspections and second opinion inspection
- Crops not meeting the standards
  - Corrective actions
  - Downgrading or rejection
- Classification

Materials:

- UNECE Standard S-1
- UNECE Guide to Seed Potato Diseases, Pests and Defects
- UNECE Guide to Seed Potato field inspection
- UNECE Guide on Operating a Seed Potato Certification Service, Annex 1: crop inspection training plots

#### 4.2 Post-harvest evaluation

The aim of post-harvest evaluation is to determine compliance with the Standard (or the national regulation) of the direct progeny of seed potatoes. Minimum conditions to be satisfied are specified in Annex IV as tolerances for plants that are not true to the variety and plants showing virus symptoms. Post-harvest evaluation can be done by visual assessment of morphological characteristics and virus symptoms in grow-outs or by laboratory tests.

Training on post-harvest evaluation includes the following subjects

- Organisms to be tested for
- Identification of off-types
- Testing methods
- Statistics and Classification

Materials:

- UNECE Standard S-1

#### 4.3 Lot inspection, closing and labelling

The aim of lot inspection is the visual examination of tubers within a lot by an authorized person, to determine compliance with Annex III of the Standard or the national regulations. Knowledge of the relevant requirements is essential for the inspector.

Containers are sealed officially or under official control, by either the inspector or by other persons authorised by the CA, and each container shall bear on the outside an official label.

Training on lot inspection should cover the following subjects

- Aim of lot inspection
- Eligibility of the lot for certification, and other requirements
- Information available to the inspector
- Lot inspection procedures
- Zero tolerance pests and diseases (quarantine organisms)
- Regulated non-quarantine pests
- Quality pests

- Other faults: shrivelled tubers, external defects, chilling injury, pest damage, earth and extraneous matters
- Tuber size
- Sampling
- Reports
- Interpretation of results
- Classification
- Closing, sealing and labelling

Materials:

- UNECE Standard S-1
- UNECE Guide to Seed Potato Diseases, Pests and Defects
- UNECE Guide on Seed Potato Lot Inspection
- UNECE Guide on Operating a Seed Potato Certification Service

## **5. Training for administrative staff**

Training for administrative staff should cover the following subjects

- Varieties accepted for certification
- Registration of crops
- Record keeping
- Issuing reports
- Rejection procedures
- Generating invoices

## **6. Training organization and trainer**

Training is best organized by a member's country national Certifying Authority for seed potato certification, and can be carried out in cooperation with research institutes and/or universities. The training should be given by experienced staff members who have a good theoretical knowledge of the UNECE Standard and who are familiar with their practical implementation.

To ensure that the national context of the trainee country is taken into consideration by the training programme, interaction among participants should be encouraged and discussions on the best way of implementing the Standard should be stimulated.

In preparation of the training, participants should study the most relevant parts of the Standard and send questions to the trainer beforehand.

Ideally training is provided over a two-year period. The number and duration of training sessions will be tailor made for each training programme depending on the specific needs of the trainee country.

- First year: theoretical and practical sessions either in the host country (training country) or in the trainee country. The latter being the preferred location, as more persons can be trained, which reduces the costs for the training.
- Second year: in the trainee country, once a certification scheme has been established.

Theoretical sessions should always be followed by practical application of the newly acquired knowledge. Having gained some experience, practical assignments should be carried out by trainees and results may be compared and discussed.

## **7. Acceptance of varieties for certification**

According to the Standard, varieties shall be accepted for certification under the Standard if an official description and a reference sample can be made available to the CA.

The variety should be distinct, uniform and stable according to the guidelines of the International Union for the Protection of New Varieties of Plants (UPOV) and have a denomination allowing its identification.

Tests on Distinctness, Uniformity and Stability (DUS) assess whether a variety is distinct, uniform and stable. Testing is carried out on the basis of internationally recognised test guidelines such as UPOV. Each guideline contains a set of mainly morphological characteristics, which are assessed over a number of years. The results of these recordings are included in a variety description.

Training on setting up a variety testing and variety listing and /or plant variety protecting system is best organized by a country with experience in DUS testing. Training on assessment of characteristics for DUS should take place in a country, where the same or similar species are tested as the trainee country.

## **8. Conclusions**

Capacity-building is a major aspect to establish and ensure the production of high quality seed potatoes. This Guide is aimed for capacity building courses or seminars in countries that have not yet implemented a Seed Potato Scheme but are intending to adopt the UNECE Seed Potato Standard or national rules based on the Standard.

After the introduction of a certification scheme further training programmes drafted according to the needs might be considered, in order to tackle challenges or obstacles and difficulties in field inspection, tuber inspection or post-harvest evaluation. New methods or techniques should be explained and discussed. Training for trainers might become more important. And at a later stage capacity-building for experienced staff could be considered.

Capacity-building in the framework of the UNECE Standard not only encourages knowledge exchange on an international level but will in addition lead to an increase in the production of healthy seed potatoes of high quality.

For further information, please contact:

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