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**Specialized Section on Standardization
of Seed Potatoes**

Food loss/waste – the case of seed potato certification *

Submitted by the secretariat

The following document is submitted to the Working Party for adoption as the Specialized Section's position on food loss/waste and the case of seed potato certification. It is prepared according to ECE/CTCS/2015/7 (part II, section A, subsection c).

* Submitted on the above date to allow for modifications from the September 2017 Rapporteurs meeting.

Food loss and waste – the case of seed potato certification

Maximising useable yield and quality from potato production

Feeding the planet and reducing food loss – the case of UNECE seed potato certification standard

A. Introduction

Potatoes are the fourth most important staple food in the world grown in about 130 countries, 95 of which are developing countries. Over the past year world potato production has been continuously growing, also in developing countries, however, it is also estimated that approximately 32 per cent of potatoes are lost every year owing to diseases and pests.

Use of high quality seed is one of the major contributors to improving quality maximising the yield from the inputs uses and minimising production losses.

B. How certification of seed potatoes contributes to limit food losses

Good seed quality ensured through seed certification reduces food loss by:

Ensuring the grower receives the seeds of the variety and quality that they need to produce a successful crop

Less pests and diseases lead to lower production losses in the growing crop in the field and in storage. This in turn results in lower costs for the consumer and greater access to potatoes for lower income countries.

Improving plant health limits the introduction and spread of diseases and preserves the environment for ongoing production. This increases sustainable production and lowers risks for the grower

Planting high quality seed potatoes maximizes the proportion of the crop that is acceptable to the consumer and reduces waste throughout the food chain

Potatoes that do not meet certification tolerances can be used for other purposes such as food industry, starch production, animal feed or energy production, and as such do not contribute to food waste

The quality of seed potatoes is of strategic importance because it is a key element for the success of potato production.

Indeed, it is essential for the grower to plant seeds that correspond to the expected variety, that have a sufficient varietal purity, that present appearance defects at the lowest possible level and that are healthy.

For this purpose, the implementation by countries of seed certification schemes and marketing rules allow them to ensure the supply of high quality seed potatoes to growers. In this respect, the UNECE Standard S-1 concerning the marketing and commercial quality control of seed potatoes is a very useful tool. It is a reference to be used by countries or international organizations to help them set up their regulations. It is the only international comprehensive standard for certification which takes into account all the necessary characteristics to be checked related to varietal, health and presentation quality. Through its meetings of experts from many different countries, representing various production areas of the world, the UNECE's Specialized Section on Seed Potatoes (under the Working Party on Agricultural Quality Standards), regularly improves and updates this Standard. The definition

of the provisions, the appropriate rules and norms on seed is therefore the result of the compromises between the willingness to limit, in the most efficient way, the possible risk of poor quality of potato production and their technical and financial feasibility.

Potatoes are affected by plant health issues, in particular as potatoes are vegetative propagated, their production is conducive to the spread of various pathogens causing different types of diseases. These diseases are responsible for the deterioration of the quality, yield losses, rotting in store and, therefore, are the main source of food waste and financial losses in the potato production chain.. For this reason the main focus of seed potato certification is ensuring the high health status of seed potatoes in commerce.

Many of these diseases, like the widespread “Blackleg” and Potato Virus Y, which cause severe losses in the potato production, can be limited by preventive measures consisting mainly of planting healthy seeds produced within the parameters of a certification scheme.

In fact, experience and studies have shown that use of non-certified seeds may contribute to the expansion of diseases, which can dramatically reduce both tuber yields and quality. In some situations, where there is a lack of awareness or training among potato growers combined with the use of non-certified seeds, yield shortfalls can reach up to 80% due to viral diseases.

While not all the diseases and defects addressed by the UNECE Standard result in loss of yield or loss during the storage, some of them affect the tuber appearance and make potatoes unsuitable for marketing and sale. This is the case of the bacterial disease “Common scab” which is responsible for skin blemishes on tubers. This disease results not only in financial loss because the product is downgraded but also in food waste because it obliges the consumer to peel very deeply in order to remove the scabbed skin.

It is therefore evident that setting up an efficient system of certification for the marketing of high quality seed potatoes, as it is promoted by the UNECE Specialized Section, contributes to a sustainable potato production and, indirectly, to the reduction of food loss and waste.

C. Possible use of seed potatoes that do not meet certification requirements

That said, certification can lead to rejection of crops or harvested lots of seed potatoes when the inspection reveals that they do not meet the requirements. These rejected potato tubers that can no longer be used as seeds could theoretically be considered as waste. However, in practice, different other uses are possible for the rejected seed potatoes. In particular, instead of being used as seeds, the tubers can be used for human food or animal feed when they are not treated.

The following scheme illustrates possible outcomes for seed potatoes and the ways in which yield can be maximized and losses can be minimized:

Lot inspection result:	
Seed lot approved	<ul style="list-style-type: none"> • Yield in the planted crop is maximized • Subsequent losses in the supply chain, are minimized through the high quality of the material
If the seed is rejected it can be used for the following, out grades can also be used in this way	<ul style="list-style-type: none"> • Food consumption • Animal feed • Ethanol • Biogas

It is necessary that rejected seed potatoes shall be destroyed when they are contaminated by quarantine pests, which present the risk of spreading to the environment. In those cases, destruction is the safest solution to protect the potato production area of a country and may be considered as the lesser evil.

D. Conclusion

In a context where sustainable development, food security and waste reduction are of concern, there is a need to support the work which contributes to an improvement of quality production of one of the major global staple crops – potatoes. The work of the UNECE to promote the certification of seed potatoes in the world helps to achieve this objective.

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