

TUBER INSPECTION PROCEDURES IN FOUR COUNTRIES

Scotland (United Kingdom)

1. General

A sample of every lot prepared for marketing is officially inspected to check compliance with tolerances for tuber diseases and faults. All inspectors are government officials who are also responsible for checking seed potatoes for compliance with phytosanitary requirements, both national and those of the importing country.

All inspections are conducted when seed potatoes are in their final containers and are sealed or will be sealed immediately after inspection in the presence of the inspector. In addition, inspectors are instructed to try to see the seed potatoes being graded in order to obtain an impression of their quality and uniformity.

2. Legal requirements

The Scottish Regulations specify the minimum sampling rates as follows:

1. Up to 50kg – all tubers to be examined
2. >50kg and up to 5 tonnes – sample should be 5% by weight or 50kg, whichever is the greater
3. >5 tonne – at least 250kg sample should be examined

3. Implementation

3.1 In practice, over 70% of seed potatoes are marketed in containers of 1 tonne or more. Most of remainder are marketed in 50 or 25kg containers; the latter size is increasingly being specified as a requirement by importers (non-EU marketing).

3.2 Large containers (1t or >)

The sampling rate is 2 containers for lots containing up to 8 containers and then a sampling rate of 1:4 is applied up to a minimum of 5 containers. For export markets, the sampling rate for lots of >20 tonnes is 5 containers plus 1 additional container for every 10 tonnes above the initial 20 tonnes. From each sampled container, at least 100 tubers should be collected from different areas and depths within the container and assessed for faults. If the sample result is borderline (incidence of any fault > 80% of the tolerance), a full sample as specified above must be collected and inspected.

3.3 Small containers (50kg or <)

For 50 kg containers, 2 containers must be sampled from lots of 2 tonnes or less and then a sampling rate of 1:20 is applied up to a minimum of 5 containers. For export markets, the sampling rate for lots of >5 tonnes is 5 containers plus 1 container for every 10 tonnes above the initial 5 tonnes. For 25 kg containers, the sampling rate is doubled. All the contents of the sampled bags should be examined.

Germany

Landesamt für Landwirtschaft, Lebensmittelsicherheit und Fischerei MV

-Pflanzenschutzdienst-
Anerkennungsstelle für Saat- und Pflanzgut

Person: qualified and by certification agency authorized sampler

1. ***Sampler has to check the requirements:***

- Multiplied field is successfully inspected
- Seed potatoes are successfully tested to virus and quarantine diseases
- identity of lot
- Lot has to be uniform, homogeny in regard of external quality

2. ***Sampling***

Time of sampling: during grading

Lot of inspection: maximum 50 t per one submitted sample

Procedure:

- a) Sampler has to draw more than 10 primary samples.
- b) Mixing of primary samples
- c) Drawing of submitted sample - 25 kg
- d) Checking of tubers and weighting (% of weight)
visual check: rot (wet and dry)
potato scab, when more than 1/3 of surface are covered
external defects (misshaped or damaged tubers)

earth and other substances
- e) cutting of 50 tubers to detect internal defects

Testing of seed potatoes / lot inspection/

- After grading
- Official sampler takes of max. 50 t / lot :
Sampling of several single samples and
test at 25 kg
- Of them are cutting 50 tubers to detect
internal defects

Tuber diseases and external defects (max. weight %)

Parameters	PB	B	CA
Wet and dry rot	0,5	0,5	0,5
Common scab	5,0	5,0	5,0
Outer defects (misshaped, damaged tubers)	2,0	2,0	2,0
total	6,0	6,0	6,0
soil and other	1,0	2,0	2,0

30

Certificate

- Information about the results by the end of
 - Field inspection
 - Virus and quarantine diseases tests
 - Test of tuber diseases and outer defects

The certificate form is titled 'ANERKENNUNGSBELEG' and is issued by the Landesforschungsanstalt für Landwirtschaft und Fischerei Mecklenburg-Vorpommern. It contains fields for 'Kulturland' and 'Produktionsjahr'. Below these are several tables for recording inspection results, including a table with columns for 'Anzahl', 'Ergebnis', and 'Bemerkungen'. The form also includes a section for 'Die Vorrichtungsnr. mit der i. d. Anfertigungsnummer ist anerkennungslos' and a table for recording 'Anzahl' and 'Ergebnis' for various tuber diseases and defects.

33

United States

Excerpt from USDA Potato Inspection

Sampling

Representative sampling is fully as important as grade interpretation. Samples selected should cover all portions of the carrier or lot. Samples should be selected proportionately from each size, grower's lot, grade or brand.

At Shipping Point

Samples for grade and size determination. Individual samples shall consist of at least 20 pounds (9kg). When individual packages contain at least 20 pounds(9kg), each individual sample is drawn from one package; when packages contain less than 20 pounds (9kg), a sufficient number of adjoining packages are opened to provide at least a 20 pound(9kg) sample. The number of such individual samples drawn for grade and size determination will vary with the size of the lot

Count *may* be used as the method of determining percentages when potatoes are packed for size B or smaller only. The sample size must still be at least 20 pounds(9kg).

Guidelines for number of samples :

NUMBER OF CONTAINERS	MINIMUM NUMBER OF SAMPLIES
1-49	2 (1 for on-line)
50-99	2
100-199	3
200--299	4
300-499	5
500- over	add 1 sample for each additional 100 containers or portions thereof.

At market, it is the inspector's responsibility to examine enough samples to ensure an accurate picture of the lot. Due to potential variations in quality and condition no definite rule can be provided as to the required number of samples. However, as a guide, for lots containing less than 100 packages, a minimum of three samples shall be inspected.

Individual Sample 2 times the tolerance specified.

Except 1 defective and 1 offsize permitted.

En Route or Destination:

1/10 of samples 3 times the tolerance for frozen, soft rot, wet breakdown.
Provided, Lot averages within tolerance.

The inspector should take at least ten samples when encountering large amounts of soft rot or frozen potatoes. This is to ensure that the high sample allowance stated in the application of tolerances has not been overlooked.

Netherlands

Seed potatoes are usually graded on the farms, but also at central grading stations. Before marketing can take place, each seed lot is checked for:

- tuber diseases
- defects
- weight of the consignment
- tuber size
- contamination (e.g. adhering soil).

In addition, soil samples are taken from the dressing machine and analysed for PCN- cysts (potato cyst nematode). This test is an extra check on the official field test for PCN, before planting.

In assessing the potatoes for defects, the inspector watches for (quarantine) diseases, sprouting, bruising, damage, misshapen tubers, and damage due to low temperatures. During the grading process, the inspector visits the farm at least once a day. As a rule, 0.5% of the containers has to be checked. This may be less, if a seed lot is sufficiently homogeneous. After a seed lot has been finally approved, it is released for marketing. Under the inspector's supervision the NAK certificate is attached to each container. The certificate is the evidence of approval.

The NAK-certificate is also a “plant passport” of the EU (NAK-certificate is combined with the plant passport in one document) to illustrate that all national and EU phytosanitary requirements are met. National standards have to comply with EU requirements of the marketing directive.

Tuber inspection tolerances

DISEASE OR DEFECT	TOLERANCE THE NETHERLANDS	TOLERANCE EUROPEAN UNION
Rhizoctonia	S/SE : max 10% mild¹ E/A/C: max 25% mild¹	Not specified Not specified
Scab	Scab scale 2.5 (max. 1/8 of surface)	Max 25% of weight > 1/3 of surface
Wet rot	Practically free	1% of weight²
Dry rot	1 to 4 tubers per 50 kg³	1% of weight²
Phytophthora	1 per 100 kg	Included in tolerance for rot (1% of weight)
External Defects	4 to 12 tubers per 50 kg³; mild defects not taken into account	3% of weight
Soil	1%	2%

¹ a mild infection is tolerated on 10% of the tubers

² total dry- and wetrot: 1% of weight

³ depending on size

Any additional requirements of countries outside the European Union, that exceed the NAK-tolerances and standard phytosanitary requirements, are provided for by the export inspection of PPS. As a proof of meeting the phytosanitary requirements, a phytosanitary certificate is issued by this service.