

New Zealand Seed Potato Certification Authority

Seed Potato Sampling and Inspection by Growers

1. Grower guide to seed potato tuber inspection

1.1. Introduction

Rule 26 of the New Zealand Seed Potato Certification Scheme requires that growers “maintain a Quality Assurance system for monitoring the quality and certification standard of seed tubers during grading”. The Authority has developed this guide and a tuber inspection procedure and inspection record sheet to assist growers to fulfil these requirements.

The tuber inspection procedure should be implemented by the grower or quality controller during the grading process. The person responsible for inspections should be knowledgeable of the quality requirements of the Seed Potato Certification Authority.

The purpose of the tuber inspection procedure is to enable growers to check that graded lines comply with quality and size requirements while they are grading. In this way any corrective actions that may be needed can be taken quickly and on the minimum number of bins.

1.2. Traceability

Each “lot” of seed potatoes being graded should be identifiable and traceable to the tuber inspection record, on which the outcome of the inspection is recorded. This will enable Authority Inspectors to verify that the lot they are inspection has been inspected by the grower and meets the grade requirements.

1.3. Inspection

Growers are required to inspect and size at least four 100-tuber samples each day. The first inspection should be done within 30 minutes of the start of grading each day, so that any problems with the seed line can be detected as soon as possible.

1.4. Quality Monitoring

For each inspection sample the defects should be reviewed by the grower. If the defects in any one inspection sample exceed allowable tolerances, the grower should take action to correct the situation.

1.5. Contingency actions

If the sample is only slightly out of grade, acceptable corrective actions may be:

- to inform grading staff that defects are slipping through
- adjust sizing equipment
- slow down the grader
- or other measures that are likely to bring the grading operation back within tolerances.

These actions may be sufficient to bring the lot back within tolerances on average across all inspection samples. However, if the inspection sample is badly out of grade (e.g., if something went wrong with sizing rollers) it may not be possible to average the defects back within tolerances over time. In those circumstances the affected bins (those that were filled after the previous in-grade inspection sample was taken) can be easily segregated using the bin codes and they can be re-graded.

1.6. Grower Declaration

If, at the end of grading the lot is, on average, out of grade the grower must re-grade and re-inspect all or part of the lot before putting it up for Seed Potato Certification Authority Inspection.

2. Seed Potato Sampling and Inspection Procedure

This procedure is to be implemented by the grower or a grower-nominated quality controller. Growers must review the inspection records and confirm that quality requirements have been met by signing the grower declaration.

2.1. Equipment requirements

- Clean inspection area with good lighting.
- Scales and sizing equipment.

2.2. Bin labelling

- During grading ensure all bins (or bags) that are filled with graded seed potatoes are identified with a number or code that links the graded lot to the "Grower tuber inspection record" (a lot is all of the graded bins of a specified size class within a seedline).
- Enter these bin codes on the inspection record form.

2.3. Sampling Plan

- Establish a sampling plan for each lot being graded to ensure that:
 - Samples are taken across bins within each graded size class.
 - The first sample is drawn and inspection started no more than 30 minutes after grading starts each day.
 - A sample of 100 units is to be inspected at a minimum of every 2 hours.
 - A minimum of 4 samples are drawn per day of grading.
- Fill in the header section of the Grower Tuber Inspection Record with the required details.

2.4. Inspection

- Check that inspection table is clean, ensure lights are working, and that necessary equipment is available (hand lens, sizing squares, scales).
- Ensure a copy of the current New Zealand Seed Certification Authority standard and disease identification charts are available for reference.
- Thoroughly inspect every potato in the sample.
- Record any defects and sizing on the Tuber Inspection Record Sheet.
- When the inspection is complete, size all tubers in the sample and record the number of oversize or undersize tubers.
- Weigh the tuber sample and enter the total weight on the record sheet.
- Add up the cumulative total of Type 1 defects.
- If scab tolerance is exceeded obtain laboratory identification of the type of scab, and attach laboratory report to the inspection record.

2.5. Quality Monitoring

- For each sample review the inspection against the allowable grade and size tolerances and confirm whether the result is within allowable limits.
- If the defects are within allowable limits, mark the bins as passed.
- If tolerances are exceeded circle the defects on the inspection sheet and initiate corrective actions.

- If more than 2 tubers are infected with scab, draw a further 500 tubers from the same bin immediately and re-inspect.
- At the completion of grading, average the defects recorded in each inspection and enter this in the "Average" column.
- If the lot is within allowable tolerances, mark the lot as passed in the "Average" column.
- If the lot is outside allowable tolerances take corrective actions.

2.6. Grower Confirmation of Quality

The grower is to undertake this action.

- Review the inspection records and confirm that on average the lot is within allowable tolerances.
- Confirm that the lot is within grade by signing the Grower Declaration on the tuber inspection record.
- Lots that are not within grade tolerances may not be submitted for Seed Potato Certification Authority Inspection.

New Zealand Seed Certification Authority Grower Tuber Inspection Record

Date:	Grower:	Packhouse:
Seedline Reference No.:	Class:	
Variety:	Size:	
Bin identification No.s:	Inspector name:	
Bin No. Sampled		
Time of inspection		
No. units inspected		

Type 1 defects:	Average
Potato tuber moth (max. 4%)	
Dry <i>Fusarium</i> / Gangrene (max. 1%)	
Damaged (not infected) (max. 4%)	
Missshapen tubers (max. 3%)	
Stem end rot (max. 2%)	
Wet rot (max. 0.1%)	
Total Type 1 defects (max. 5%)	
Scab:	
Scab (max. 2%) - if exceeded take additional 500 sample	
Scab (max. 2 in additional 500 sample) - if exceeded obtain identification	
Scab Endorsement:	
Rhizoctonia:	
<i>Rhizoctonia</i> (max. 5% of tubers with 5% of surface covered)	
Rhizoctonia Pass/Fail	
Graded size range:	
No. undersize:	
No. oversize:	
Weight of 100 tubers (kg)	
Total over/under size (max. 3%)	
Bin sample Pass/Fail (if fail, note corrective actions)	

Details of corrective actions taken:

Post-harvest Treatment Details		
Product	Application rate	Date

Grower declaration: *The seed potatoes have been graded and inspected in accordance with Seed Potato Certification Authority requirements and are within allowable tolerances.*

Grower signature:.....