

Seed Sampling Handbook

For Laboratory Testing in Accordance with
ISTA International Rules for Seed Testing
(1 January 2024)

January 2024



Contents

1. Document History	4
1.1 Authorisation	4
1.2 Amendments	4
2. Introduction	5
3. Scope	5
4. Definition of Terms	5
5. Abbreviations	6
6. Sampling Equipment	6
6.1 Nobbe Trier	6
6.2 Sleeve Trier / Spiral Sleeve Trier	8
6.3 Sampling by Hand	9
6.4 Pelican Sampler	9
7. Actions Before Sampling	10
8. Intensity of Sampling	11
8.1 International Seed Testing Association (ISTA) Sampling Calculator	12
9. Taking Primary Samples	13
9.1 Sampling with the Nobbe Trier	13
9.2 Sampling with the Sleeve Trier / Spiral Sleeve Trier	14
9.3 Sampling Using the Hand Method	14
9.4 Sampling Using an Automatic Sampler	15
9.5 Sampling Seed Manually from the Seed Stream	15
10. Preparing the Submitted Sample	16
10.1 Setting up the Riffle Divider	16
10.2 Sample reduction using the Spoon Method	17
11. Submission of Samples to the AsureQuality Seed Laboratory NZ01	21
11.1 Samples for Moisture Testing	22
11.2 Sealing Sample Packets	23
11.3 Samples of Chemically Treated Seed	23
12. Re-bagging/Re-labelling of Seed Lots	24
12.1 Label Weights	26
13. Maintenance and Cleaning of Triers and Sampling Equipment	26
14. Verification of the Riffle Divider	27

15.	Identification of Sampling Equipment.....	32
16.	Ordering Sampling Supplies.....	33
17.	General Guidance.....	34
18.	Storage of Machine Dressed Certified Seed in Bulk	35
19.	Splitting of Seed Lots	36
19.1	<i>For OECD labelled Seed lots</i>	36
19.2	<i>For NZ domestic Seed Lots Only - 3 options</i>	36
20.	Samples for Disease and Pathogen Health Testing * Not included in AsureQuality Seed Laboratory NZ01 ISTA accreditation	37
20.1	<i>Process for Sampling for a Pea Seed Borne Mosaic Virus (PSbMV) Test.....</i>	37
20.2	<i>Hand Halving Method for Health Test Samples.....</i>	38

1. Document History

1.1 Authorisation

Authorised	Date
Justin Salter	22.12.2023

1.2 Amendments

The AsureQuality Seed Sampling Handbook: For Laboratory Testing in Accordance with ISTA International Rules for Seed Testing, has been updated to include changes adopted at the ISTA Ordinary General Meeting 2023 and editorial corrections. These changes have been shaded grey and are effective from 01 January 2024.

Version	Issued	Summary of changes
V 1	May 2017	First edition of the AsureQuality Seed Sampling Handbook for Laboratory Testing in accordance with ISTA rules.
V 2	June 2021	Revised to include active links and appropriate citations. Sections are split into ISTA requirements for Seed Samplers and those stipulated by the MPI Seed Varietal Certification Standard. The Handbook requires annual review and will be provided as a downloadable pdf.
V 3	March 2022	Changes highlighted
V 4	Jan 2023	<p>Changes shaded in grey.</p> <p>Section 7, added reference to ISTA Handbook, note on records, amended Table 1 example of Seed Sampling Log to cover ISTA re-bagging requirements.</p> <p>Updated Figure 6 to better represent trier locations when sampling.</p> <p>Added Spoon method for sample reduction, section 10.2.</p> <p>Moved and re-worded Re-bagging /Re-labelling of Seed Lots to section 12 for clarity of seed sampler responsibilities according to ISTA rules</p> <p>Changed riffle divider 'calibration' to 'verification' and changed Method 1 and 2 table formatting</p> <p>Removed the Seed Sampling Supplies Order Form in lieu of a link to AsureQuality Seed Certification Bureau website with current form.</p> <p>Removed tree seeds from Table 4, added note</p> <p>Added note to section 17 about failed test notices</p>
V5	Jan 2024	<p>Changes in shaded grey</p> <p>Section 7. Actions before sampling. Added text.</p> <p>Section 11.1 Samples for Moisture testing. Whole section re-worded.</p> <p>Section 12. Rebagging/ Relabelling of Seed Lots. Reworded and addition of Rebagging/Relabelling form.</p>

2. Introduction

This handbook was developed by the AsureQuality Seed Laboratory NZ01 as a reference manual for all International Seed Testing Association (ISTA) authorised Seed Sampling Officers (SSOs), trained, licenced and audited under the control of the AsureQuality Seed Laboratory NZ01. Seed Sampling Officers include AsureQuality SSOs and industry staff with appropriate authorisation, as listed in their Seed Store's Ministry for Primary Industries Approved Organisation (MAO) documented system.

It is the responsibility of the MAO to update the AsureQuality Seed Laboratory of any authorised SSO staff changes. Notification should be emailed to seedandplanthealth@asurequality.com at the same time as Staff Register updates are notified to . **If an authorised SSO moves to a new MAO, they must complete a Seed Sampling Competency assessment prior to sampling seed at the new site to ensure they know site-specific requirements.**

The procedures described in this handbook are based on the ISTA International rules for seed testing (effective 1st January 2024) and must be followed when sampling Certified Seed for official certification. Of particular relevance is ISTA rules 2024: [Chapter 2: Sampling](#). The associated section within Chapter 2: Sampling is referenced throughout the handbook. A further resource is the ISTA Handbook on Seed Sampling. Access to this Handbook can be arranged for authorised SSOs through the AsureQuality Seed Laboratory NZ01 or it can be purchased online. The ISTA Seed Sampling Calculator (Online Tool Application) can be used to verify the seed species requirements and is free to download.

ISTA recommends that the ISTA Rules be used by all seed testing laboratories (including non-ISTA accredited laboratories) when testing seed for trade transactions (exported and uncertified domestic) which do not require the use of an ISTA Certificate. This allows control of seed quality.

Careful sampling of a seed lot is essential to obtain a representative sample of suitable size for testing. The sample taken must accurately reflect the characteristics of the whole seed lot.

Any amendments to the ISTA Rules relating to authorised Seed Sampling will be updated in the Handbook annually and will be available through the AsureQuality website to ensure ongoing compliance. All authorised SSOs will be notified of Handbook updates.

3. Scope

The AsureQuality Seed Sampling Handbook, sections 1 to 15, apply to sampling of seed for official tests and certification provided by the AsureQuality Seed Laboratory NZ01 and other ISTA accredited laboratories in New Zealand. It is recommended that these instructions are followed for sampling of all seed lots even if an ISTA Certificate is not required.

Sections 16 to 19 provide information relating to requirements of the NZ MPI Seed Varietal Certification Standard and to Health tests. These requirements are not included in the AsureQuality Seed Laboratory NZ01 accreditation but are required for phytosanitary exports.

4. Definition of Terms

Also refer to ISTA rules 2024 Chapter 2, 2.2 Definitions.

Seed Lot: A seed lot is a specified quantity of seed that is physically and uniquely identifiable.

Homogeneous: A homogeneous seed lot is one which is adequately or practically uniform among its parts.

Heterogeneous: A heterogeneous seed lot is not adequately uniform.

Primary Samples: A small quantity of seed taken from a seed lot in one single sampling action.

Composite Sample: A sample, which comprises all the primary samples taken from a seed lot.

Submitted Sample: A sample submitted to the seed laboratory for testing. The sample may comprise either the whole of the composite sample or a divided subsample.

Seed Sampling Officer: An authorised Seed Sampler who has undergone the necessary training and been issued with an SSO license number allowing sampling for testing purposes leading to the issuance of:

- Orange International Seed Lot Certificate (OIC)
- Seed Analysis Certificate

NOTE: To apply to become an authorised Seed Sampling Officer, contact the AsureQuality Seed Laboratory NZ01. Training dates will be communicated through the New Zealand Grain and Seed Trade Association mailing list and on the AsureQuality [Grain and Seed](#) website.

5. Abbreviations

AQ: AsureQuality

ISTA: International Seed Testing Association

MD: Machine Dressed

MPI: Ministry for Primary Industries

ROP: Region of Production

SSO: Seed Sampling Officer

MAO: MPI Approved Organisation

SCB: Seed Certification Bureau

6. Sampling Equipment

Also refer to ISTA rules 2024 Chapter 2, 2.4 Apparatus.

Nobbe Type Trier: Used for sampling bags or sacks (*refer to Figure 1 and Table 2 for Sampling Frequency in bags, section 7*)

Long Nobbe Trier: (Approx.: 800mm long) can be used for sampling bulk bags and bulk bins where it is possible to sample through the liner wall (*Refer to Figure 1 and Table 2 for Sampling Frequency in Bulk Bins, section 7*).

Sleeve Trier / Spiral Sleeve Trier: Used for sampling seed in bulk bags or bulk bins.

Pelican Sampler: Used to take samples from free-flowing seed streams.

Sample container: Sample containers used to collect primary samples, composite samples and during mixing and dividing must be clean and static free.

Riffle Divider: Used to prepare the submitted sample for testing by reducing the composite sample.

Balances (weighing scales): Used for ensuring samples for submission meet minimum sample weights.

Automatic Sampler: Used to mechanically sample through a cross section of the seed stream during processing. An Automatic Sampler will be approved provided installation and operation meet requirements.

Seed sample envelope, calico bag, or approved moisture sample bag: Used to send samples to the Official Seed Testing Laboratory.

Seals: Paper seal for envelopes or sequentially numbered metal seal (silver) for calico bags, attaching extra labels or re-labelling.

AgC10 Form (Label and Seed Testing Application): Completed form to accompany sample sent to the AsureQuality Seed Laboratory NZ01.

6.1 Nobbe Trier

The Nobbe trier, photographed in *Figure 1* and illustrated in *Figure 2*, is used for sampling most kinds of seeds from closed bags, or penetrable containers. It consists of a pointed tube, long enough to reach at least the centre of the bag, with an oval or rectangular hole or slot near (just behind) the pointed end of the trier.

Triers must be long enough so that the slot opening at the tip reaches at least the centre of the bag / bin.

Seed passes through the slot and down the tube and is collected in a suitable container.

The minimum internal diameter of the Nobbe trier should be wide enough to allow the smooth free flow of seed and contaminants through the trier.

As a general rule, the width of the hole or slot should be at least two (2) times the maximum diameter of the seed or other contaminants to be sampled.

NOTE 1: Seed Diameter is measured as the length of the seed.

The length of the hole should be between two (2) and five (5) times the width of the hole.

The recommended minimum internal diameter of the Nobbe trier should be;

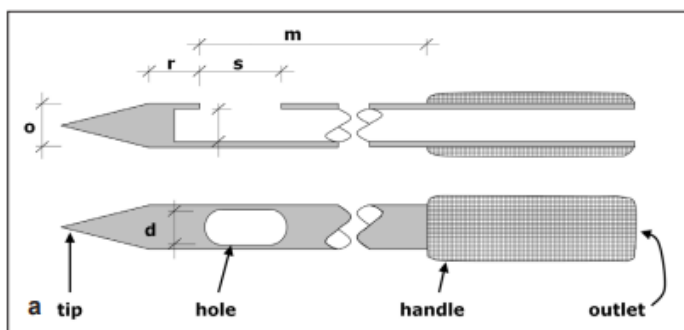
- 6mm for white clover or similar
- 10mm for red clover, brassica or similar size seed
- 14mm for ryegrass and cereals (barley, wheat)
- 16mm oats
- 20mm for maize

Figure 1: A range of Nobbe Triers



NOTE 2: For very large seed these dimensions may not be achievable for sampling in bags because the outside diameter of the trier would be too large. The key element in such cases is that the seed must be able to flow freely into the hole or slot in the trier.

Figure 2: The Nobbe Trier



(Image from ISTA Handbook on Seed Sampling 2022)

Schematic drawing of the external end and handle of the trier with relevant dimensions.

6.2 Sleeve Trier / Spiral Sleeve Trier

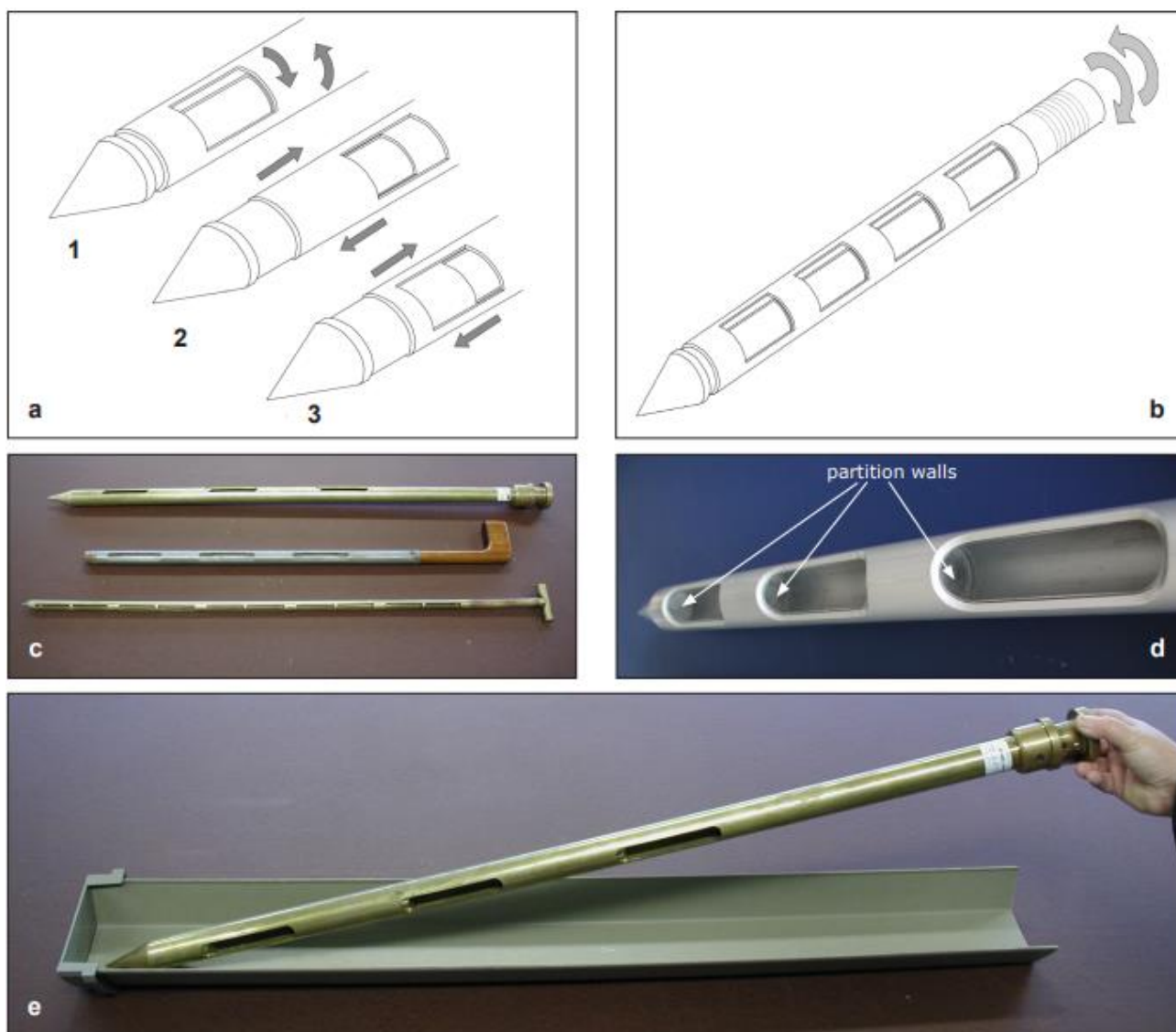
The sleeve trier is illustrated below in *Figure 3* and can be used for most kinds of seed in open or sealed bags or bulk bins.

This trier consists of a hollow tube inside a closely fitting outer shell or sleeve which has a solid pointed end.

The tube and sleeve have open slots in their walls so that when the tube is turned until the slots in the tube and sleeve are aligned, seeds can flow into the cavity of the tube, and when the tube is given a half turn the openings are closed.

The tubes vary in length and diameter, being designed for different kinds of seed and various sizes of containers and are made with, or without partitions.

Figure 3: The Sleeve or Stick Trier



(Image from *ISTA Handbook on Seed Sampling, 2022*)

a: Schematic drawing of different types for opening and closing the chamber (1: twisting the tubes; 2: longitudinal pushing the outer tube; 3: longitudinal pulling the inner tube).

b: Schematic drawing of a whole stick that is opened and closed by twisting the tubes.

c: Different types of stick samplers

d: Sleeve trier with partitions for vertical use

e: Special receiving pan for emptying the sleeve trier

The sleeve trier must be long enough to reach the opposite wall of a container.

The conditions for the dimensions of the slots in relation to the size of the seed to be sampled are the same as for the opening in the Nobbe trier with the exception that the slots may be longer than five times the width.

The minimum inside diameter should be about 25mm for all species.

This trier may be used horizontally, diagonally or vertically. However, when used vertically or diagonally downwards the trier must either have partitions dividing the instrument into a number of compartments, otherwise the seed will drop into the sampler from the upper layers when the trier is opened leading to an over-representation of seed from these layers.

A spiral sleeve trier has slots cut in a spiral arrangement and can be used to sample seeds smaller than *Triticum aestivum* L. subsp. *aestivum*. By slowly twisting the outer tube the slots at the bottom are opened and filled. Continuing to twist the tube progressively opens the upper slots ensuring that sampling evenly distributed. The advantage of a spiral sleeve trier is that it can be used vertically without partitions and that the sample can be collected by inverting the trier into a bowl. As with a sleeve trier, it must be long enough to reach the opposite wall of the container, can be used horizontally, vertically or diagonally and have a minimum inside diameter of 25mm.

NOTE: The ISTA Rules were amended in 2012 to prevent the use of non-partitioned sleeve triers in a vertical or diagonally downwards direction. As a result of this change and with the exception of spiral sleeve triers, non-partitioned sleeve triers may be used only in a horizontal direction. For this reason, it is recommended that partitions are fitted to all sleeve triers.

6.3 Sampling by Hand

In certain circumstances sampling by hand is sometimes the most satisfactory method e.g., Use for very chaffy seed as in the following examples: (*Agrostis*, *Dactylis*, *Festuca*, *Lolium*, *Paspalum* and *Poa*) or for non-flowing seed.

Sampling by hand is also the most suitable method for seed that may be damaged by the use of triers e.g., seed of large seeded legumes, seeds with wings or seed at low moisture content. It is also the only method applicable for sampling seed tapes and seed mats.

NOTE: Sampling by hand can be used for all species

6.4 Pelican Sampler

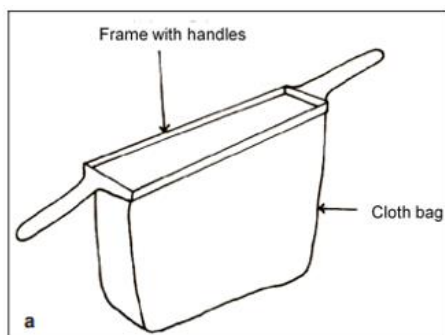
A Pelican sampler, shown below in *Figure 4*, can be used to take samples from free-flowing vertical seed streams, e.g., at the end of a conveyor.

It consists of one or two handles attached to a frame which holds open the mouth of a narrow cloth bag.

The length of the frame must be greater than the cross section of the seed stream.

After use, care must be taken to remove any seeds that have lodged or been trapped in the bag.

Figure 4: The Pelican Sampler



(Image from ISTA Handbook on Seed Sampling, 2022)

- a. Schematic drawing of the instrument
- b. Two different types of pelican sampler
- c. Pelican sampler held as it would be when in use.

7. Actions Before Sampling

Also refer to ISTA rules 2024 Chapter 2, 2.5.1.1 Preparation of a seed lot and conditions for sampling

The following is based on sampling from bags, bulk bags or bins. Sampling from plastic pails, tins, heat sealed packets and plastic lined bags require the same checks, but different sampling methods will be required. This is comprehensively covered in the *ISTA Handbook on Seed Sampling 2022: Chapter 5: Sampling seed lots*. Please contact the AsureQuality Seed Laboratory (seedlab@asurequality.com) if you require additional information.

1. Ensure the seed lot can be accessed safely.

If space permits, instruct the forklift driver to set out pallets, bins or bulk bags on the seed store floor to gain safe access to sample all sides of the stack. This also makes it easier to check labels and seed lot details. The SSO must have access to at least two sides for pallets stacked in rows. Pallets can be easily sampled if stacked two high. Do not climb pallets, or sample from a ladder as this may compromise the sample and is not safe working practice.

2. Ensure the seed lot is in an area that is well lit to ensure label details can be read. Check the seed lot has been processed and all bags / bins are correctly labelled and sealed.

NOTE 1: The top of bulk bags should be sealed with a single line of stitching / tied with string or wire and a metal seal attached. The machine dressed label is placed in the plastic sleeve and fixed with a single line of stitching. For bins, the machine dressed labels can be stapled to the side of the bin. This seals the bin cap to the bin.

3. Check the outer bags are clean and free of contaminants and seed. Use an air gun or brush to remove any contamination. Check contaminants are not trapped in the shrinkwrapping.

NOTE 2: MPI requires 30% of bag labels to be visible once stacked on pallets. This allows alternate stacking of bags to stabilize the pallet.

NOTE 3: All bulk bag labels must be visible.

4. Check documentation matches the bag tally and label reconciliation on the AgC10 label application and store inventory.
5. Check that the total weight does not exceed the maximum allowable seed lot size for international and national rules (see Table 4, section 10.1).
6. Check the AgC10 form to ensure it has been completed correctly especially if the form has been preprinted. If the AgC10 form is incomplete or incorrect refer it back to the Seed Store Manager to rectify.
7. Check the seed lot is identified as follows for:
 - **Certified Seed** - Machine dressed labels with an allocated official MPI reference number are attached to each bag, or container. Check Certified Seed bags or containers are sealed with a single line of stitching through the label or with a metal seal. Check branding of the merchant's reference number on each bag or container.
 - **Non-Certified Seed** - Attached SCB - issued Uncertified labels and/or branding of the merchant's reference number on each bag or container. Non-certified seed must have a single line of stitching to seal the bag or container.

NOTE 4: 'Sealed' means that the individual bags or containers are closed in such a way they cannot be opened to gain access to the seed and closed again without either destroying the seal or leaving evidence of tampering. If any problems or discrepancies are found **do not** sample the seed lot. Pails, tins, plastic lined bags can be sampled prior to sealing but the SSO must seal the seedlot immediately after sampling.

If any bags are missing labels **place the seed lot on hold**, check the inventory and carry out a label reconciliation, apply for replacement labels and attach prior to sampling being undertaken.

8. Ensure you have your Sample Logbook with you to record details of any samples taken. These details will be reviewed during sampling audits. Include the details identified in Table 1.

MAOs with multiple SSOs may wish to consider using a site SSO Sample Log. An excel template of such a SSO Sample Log can be provided on request to the AsureQuality Seed Laboratory.

NOTE 5: All seed sampling records must be kept for a minimum of 7 years.

NOTE 6: For ISTA requirements on re-bagging / re-labelling a tested seed lot Refer to section 12.

Supervision of re-bagging by an authorised SSO must be documented and provided to the ISTA accredited laboratory for issuance of an OIC. It is the MAO’s decision how this information is recorded. One option is to record information in the SSO Sample Logbook (Table 1).

Table 1. Required Sample Logbook Information

Required Information	Example	Example re-bagging (refer NOTE 6)
Name	Justin Salter	Justin Salter
SSO No.	3627	3627
Date	05.05.2021	05.05.2021
Location	XX Seed Store,	XX Seed Store,
Equipment ID	AQ PN 2 (trier) AQ PN 20 (riffle divider)	N/A – re-bagging
Seed lot weight	30,000 kg	Original – 30 / 1000kg, re-bagged – 400 / 25kg
Species	Pisum sativum	Pisum sativum
Variety	Massey	Massey
Official Ref. No.	202153087	202153087
Merchants Ref.	ASUR302	ASUR302
Label Type and Class	NZ:1G	OECD – 1G
Seal of Lot	Single line of stitching	Single line of stitching
Official Sample	Yes	N/A – re-bagging
Sample Type	P+G, Moisture	N/A – re-bagging
Sample sent to:	AsureQuality Seed Laboratory	N/A – re-bagging
Signature	<i>J.Salter</i>	<i>J.Salter</i>

8. Intensity of Sampling

Also refer to ISTA rules **2024 Chapter 2, 2.5.1.2 Minimum Sampling intensity.**

Prior to taking primary samples, establish the number of samples that need to be taken. The sampling frequencies outlined in *Tables 2 and 3* below are to be used or can be calculated using the ISTA Sampling Calculator (*refer to Figure 5*).

Table 2: Sampling Frequency for Bags (i.e., Containers 15 kg to 100 kg capacity)

NOTE: Containers means- Bags, Pails, Tins, Packets.

Number of Containers	Sampling Frequency
1 – 4	3 primary samples from each container
5 – 8	2 primary samples from each container
9 – 15	1 primary sample from each container
16 - 30	15 primary samples, one each from 15 different containers
31 - 59	20 primary samples, one each from 20 different containers
60 or more	30 primary samples, one each from 30 different containers

For containers holding less than 15 kg of seed, containers must be combined into sampling units not exceeding 100 kg. e.g., 20 containers of 5 kg, 33 containers of 3 kg or 100 containers of 1 kg. The sampling unit must be regarded as (Number of Containers) as described in *Table 2*:

Table 3: Sampling Frequency for Bulk Bins (i.e., Containers greater than 100 kg capacity) or when Sampling from the Seed Stream

Note: Containers means-Bins, Bulk bags.


Size of Lot	Sampling Frequency
Up to 500 kg	At least 5 primary samples
501 – 3,000 kg	1 primary sample for each 300 kg, but not less than 5
3001 – 20,000 kg	1 primary sample for each 500 kg, but not less than 10
20,001 kg & above	1 primary sample for each 700 kg, but not less than 40

In all cases, when sampling a lot of up to 15 containers, for those containers selected for sampling, the same number of primary samples shall be taken from each container.

8.1 International Seed Testing Association (ISTA) Sampling Calculator


[ISTA Bulking and Sampling Committee](#) has created an ISTA Sampling Calculator, which can be installed as an application on a Desktop, Android or iOS device. This is a useful tool to help with seed sampling and can be accessed here: [ISTA Sampling Calculator Application](#).

Figure 5: Instructions for ISTA Sampling Calculator Application Installation




Installation Instructions for ISTA Sampling Calculator:

1. Open Google Chrome (*Installing the App only works on Chrome at the moment. For other browsers, such as Firefox and Explorer, save the page as a bookmark*)
2. Go to the website (<https://sampling-calculator.seedtest.org>)
3. Go to Settings (*The three dots at the top right corner*)
4. Click "Install ISTA Sampling Calculator"



1. Open Google Chrome
2. Go to the website (<https://sampling-calculator.seedtest.org>)
3. Go to Settings (*The three dots at the top right corner*)
4. Tap "Add to Home Screen", then tap "Add"



1. Open Safari
2. Go to the website (<https://sampling-calculator.seedtest.org>)
3. Tap the Share button on Safari
4. Find "Add to Home Screen" by sliding to the right
5. Tap "Add to Home Screen", then tap "Add" at the top right corne

The App provides samplers access to current ISTA rules and information for sampling of seed lots. The sampler enters variables relating to a particular seed lot and the calculator calculates the minimum number of primary samples required.

To use the calculator, open the link / Application

- type in the species e.g., *Hordeum vulgare*,
- click on Show Species Info - this will show details for Maximum lot weight, Minimum sample Weight, Minimum sample Moisture etc
- click on Containers - enter number of containers
- click on Treated/Untreated or Coated
- enter Number of Containers
- enter Container/bag Weight
- Total lot weight - if the lot size is exceeded, **REFUSE SAMPLING** appears below

- the calculator will state the **Minimum Number of Primary Samples** required

9. Taking Primary Samples

Also refer to ISTA rules **2024 Chapter 2, 2.5.1.3 Taking Primary Samples**

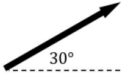
Primary samples can be drawn using the following:

- Nobbe Trier
- Sleeve Trier / Spiral Sleeve Trier
- Hand Sampling
- Automatic Sampler
- Manual sampling from the stream

9.1 Sampling with the Nobbe Trier

- Select the correct seed trier. (Check the trier has a Unique Number, either engraved, stamped, or with an identification sticker and is listed on the Seed Sampling Equipment Register. (Refer Section 15. Identification of Sampling Equipment).
- Check the trier is clean and fit for use.
- Insert the point of the trier gently into the side of the bag / bin with the slot facing down to prevent seed entering the trier.

NOTE 1: There should be a mark on the trier handle to show slot orientation.

- Angle the trier upwards at approximately 30°  and push the trier up to the handle (this should place the slot in the centre of the bag / bin).
- Hold the sample container over the end of the trier then turn the trier half a turn (180°) so the slot is now facing upwards.
- Withdraw trier immediately at decreasing speed from the centre to the side of the bag ensuring that seed is running freely.
- Gently agitate the trier while it is being withdrawn to maintain an even flow of seed.
- Run the point of the trier over the hole a few times to pull the sack threads back together. If the bag fibres break or there are holes in paper bags, use sticky tape to repair the bags.

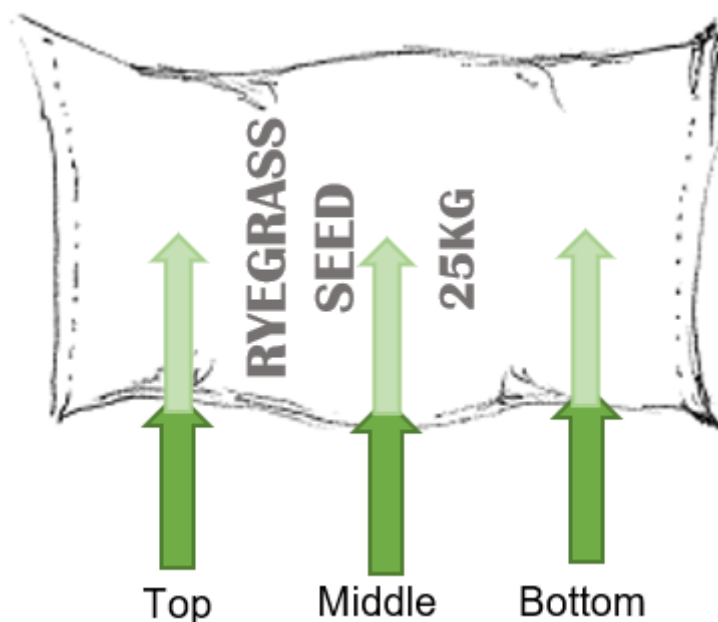
NOTE 2: Milking (or pushing trier in and out) is not permitted.

NOTE 3: If first attempt is not satisfactory, consider using another trier with a different slot size.

NOTE 4: If the bag is badly damaged during sampling, seed may be re-bagged /re-labelled under the supervision of the SSO. Ensure label reconciliation occurs.

- Take primary samples (sub-samples) alternately from top, middle and bottom of bag (*Figure 6*), and from different random positions in bulk bins. Start sampling the lower bags on pallets and work upwards to prevent contamination spilling into the sample container.
- Regularly check the primary samples to ensure homogeneity.
- If the sample does not appear uniform, stop sampling and notify the Seed Store Manager.
- Repeat until sufficient primary samples are obtained (*see Tables 2 and 3 – section 8 or determine using the ISTA Sampling Calculator*).
- Weigh the composite sample and check against *Table 4: Standard Minimum Weights of Submitted Samples, (Section 10.1)*.

Figure 6: 25kg bag positions for sampling



View of seed sack from above (as when stacked on a pallet).

Dark green arrows identify different positions for sampling with a Nobbe Trier.

Triers should be inserted into the centre of the sack (light green arrows) before being rotated. Seed is collected throughout trier withdrawal.

9.2 Sampling with the Sleeve Trier / Spiral Sleeve Trier

- Check the sleeve trier has partitions between each opening of the sleeve trier. This is not applicable for spiral sleeve triers.
- Check the trier is clean and free of seed or contaminants before sampling.
- Insert the trier horizontally, diagonally or vertically into the seed in the closed position at an angle between 0 – 90°.
- Open the trier then gently agitate to allow the compartments to fill. In the case of a spiral trier, ensure the bottom slot open first and gently twist until all slots have opened and closed.
- Close the trier, ensuring that the seeds are not damaged and withdraw.
- Transfer the primary samples into a clean, anti-static container (e.g., seed pan or a clean piece of paper) to form a composite sample.
- Repeat until sufficient primary samples are obtained (see Table 3, section 8).

NOTE: When holding the trier be careful where you place your fingers to prevent injury when rotating and closing.

9.3 Sampling Using the Hand Method

- Check that the sample collection container is clean and anti-static.
- Primary samples are taken by removing handfuls of seed from random positions and depths within the open bag. This position should be varied between bags.
- Prior to sampling ensure sleeve is rolled up and hands are clean.
- Insert the open hand into the bag of seed to the required position then close and withdraw the hand, taking care to keep fingers tightly closed about the seeds so none escape (as shown in Figure 7).
- Empty hand into the seed collection container.
- Brush hand down thoroughly into the sample collection container between primary samples.
- To ensure that lower layers of bags or bins are effectively sampled, it may be necessary to request that some bags be partially emptied, then refilled.
- Repeat until sufficient primary samples are obtained (see Table 2, section 8).

Figure 7: Hand Sampling

(Image from ISTA Handbook on Seed Sampling, 2022)

How to sample by hand.

- a.** Push the open hand into the container to the required position.
- b.** Close the hand with the seeds inside.
- c.** Withdraw the hand, taking great care that fingers remain tightly closed around the seeds so none may escape.
- d.** In case of treated seeds use appropriate gloves

9.4 Sampling Using an Automatic Sampler

Primary samples may be taken automatically from the seed stream during processing. This is an effective and efficient way of sampling. Drawing samples at regular intervals from the seed stream generally results in a better representation of the seed lot than can be achieved by random sampling.

Sampling frequency is determined using *Table 3* or the ISTA Seed Sampling calculator and will be documented in your MAO system.

The Automatic sampler must be approved for use by theASUREQuality Seed Laboratory NZ01 (ISTA accredited for Automatic Sampling) and MPI.

The [ISTA Bulking and Sampling Committee](#) have provided a technical guideline for the installation and approval of automatic samplers. This can be accessed here [Protocol for the approval of automatic seed samplers](#): The ASUREQuality Seed Laboratory NZ01 can provide more information and help with your machine registration, audit and subsequent testing.

9.5 Sampling Seed Manually from the Seed Stream

Use for any seed where the seed stream is uniform and continuous.

Ensure that the catching container and sample collection container are clean.

Primary samples can be removed from the seed stream by the use of a Pelican sampler or a suitable deep container which is wider than the cross-section of the seed stream but with a narrow opening and wider base, so that seeds entering the sampler do not bounce out.

Move the catching container completely through the seed stream in one continuous motion at a constant speed.

Primary samples should be drawn at regular intervals during processing to ensure that the entire seed lot is represented.

For further training or information on manual sampling seed from the seed stream contact the ASUREQuality Seed Laboratory NZ01

10. Preparing the Submitted Sample

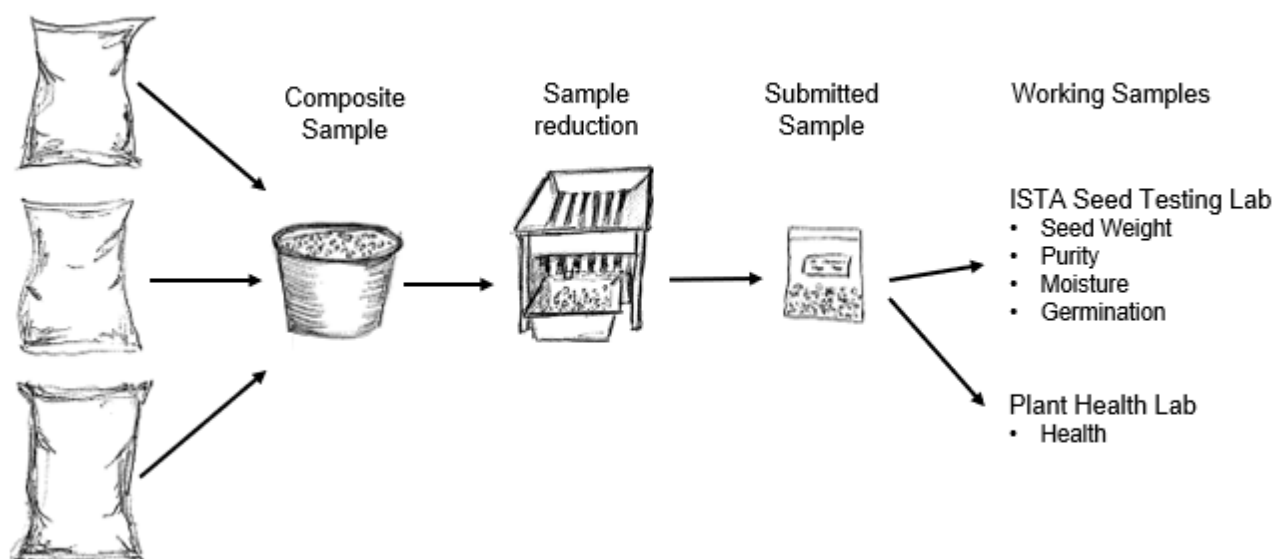
Also refer to ISTA rules 2024 Chapter 2, 2.5.2 Procedures for obtaining the submitted and working sample and ISTA Handbook on Seed Sampling 2022: Chapter 7: Preparation of submitted and working samples

After drawing the appropriate number of primary samples, the composite sample is often too large to be sent directly to the AsureQuality Seed Laboratory NZ01 and needs to be reduced (refer to Figure 8). A composite sample can be reduced in size to give a submitted sample by using a riffle divider, refer to Figure 9 or using the spoon method, refer Figure 10.

- Check the weight of the composite sample prior to mixing and dividing.

Figure 8: Reducing Sample Size

Primary Samples



10.1 Setting up the Riffle Divider

- Check the riffle divider is verified. If the riffle divider has rails that hold the tipping pans, the riffle divider only needs one annual verification. If tipping pans are loose, each SSO user must complete an annual verification. Keep a record for all SSO staff that use the divider and associated verification records (refer verification of the riffle divider, section 14).
- Check the divider is on a firm and level surface. (Use a spirit level to check)
- Check the divider and all four containers for cleanliness, and clean if required with a soft brush or air hose. Care should be taken to dislodge any matter trapped on the upper chute mountings.
- Place a seed pan under each of the two outlets.
- Pour the entire composite sample evenly into the seed pan so that when the sample is tipped into the hopper, all the chutes receive an even amount of seed. The chutes must be wide enough to allow the smooth and free flow of seed and contaminants.

NOTE: The riffle divider must have a minimum of 10 chutes.

- Once the seed pans are full, replace with empty seed pans.
- Seed pans maybe tipped simultaneously or alternately into the hopper at an even rate. Care is needed to ensure that the seed is evenly distributed.
- Repeat procedure once more for free running seeds and twice more for chaffy seeds.
- For most seed species the seed is mixed 3 times.
- Set the contents of one seed pan aside.

- Place empty seed pans under each outlet, then feed the contents of the other full tipping pans into the hopper.
- Repeat this operation until the appropriate sample size of the submitted sample is obtained. Weigh the sample (refer to *Table 4: Standard Minimum Weight of Submitted Samples*). For health test samples, refer to *Table 6 (section 20)*.
- Tip the whole sample from the pan into the sample packet.
- Package the sample in an approved sample packet or calico bag and discard the excess seed.

Figure 9: Riffle Divider and Tipping Pans



10.2 Sample reduction using the Spoon Method

Sample reduction using the spoon method is permissible for sampling species smaller than *Triticum* spp. which are single seeded.

Equipment required:

- A tray or similar clean, flat surface
- A flat edged spatula and a flat spoon with a straight edge and vertical sides

Procedure:

- Clean all the equipment

- Pour the sample uniformly over the tray with a side-to-side movement, alternatively in one direction, then at right angles. The depth of the seed layer should not exceed the depth of the vertical sides of the spoon.
- Do not shake or mix the seed
- Push the spatula vertically through the seed layer to the tray. Repeat with the spoon a small distance from the spatula. Tilt the spoon 45° and scoop seed against the back of the spatula, lift spatula and spoon containing seed from tray and place seed in collection pan.
- Repeat at least 4 times at randomly selected spots on the tray.

Figure 10: Sample reduction using the spoon method



a Sample of *Medicago sativa* to be reduced.
b Two spoons of different size.
c Distributing the seed over the pan.
d A spoon is pushed vertically into the seed layer (as a substitute for the spatula).
e The seed in front of the vertical spoon is collected with the second spoon.
f Both spoons are removed from the seed and the seed sample is transferred to a collection pan.
g One subsample as the result.

Table 4: Standard Minimum Weights of Submitted Samples

Common Name	Species	Minimum Sample Weight (g)	Maximum Lot Size (Kg)
Acacia	<i>Acacia spp</i>	70	1000
Asparagus	<i>Asparagus officinalis</i>	1000	20000
Browntop	<i>Agrostis spp</i>	5	10000
Barley	<i>Hordeum vulgare L. subsp. vulgare</i>	1000	30000
Beet	<i>Beta vulgaris</i>	500	20000
Black Mustard	<i>Brassica nigra</i>	40	10000
Borage	<i>Borago officinalis</i>	450	10000
Broad Bean	<i>Vicia faba</i>	1000	30000
Buckwheat	<i>Fagopyrum esculentum</i>	600	10000
Canary Grass	<i>Phalaris canariensis</i>	200	10000
Capsicum	<i>Capsicum sp</i>	150	10000
Carrot	<i>Daucus carota</i>	30	10000
Celery	<i>Apium graveolens</i>	10	10000
Chewing Fescue	<i>Festuca rubra</i>	30	10000
Chicory	<i>Cichorium intybus</i>	50	10000
Clover – Alsike	<i>Trifolium hybridum</i>	20	10000
Clover – Red	<i>Trifolium pratense</i>	50	10000
Clover – Subterranean	<i>Trifolium subterraneum</i>	250	10000
Clover – Strawberry	<i>Trifolium fragiferum</i>	40	10000
Clover – Suckling	<i>Trifolium dubium</i>	20	10000
Clover – White	<i>Trifolium repens</i>	20	10000
Cocksfoot	<i>Dactylis glomerata</i>	30	10000
Common Vetch	<i>Vicia sativa</i>	1000	30000
Coriander	<i>Coriandrum sativum</i>	400	10000
Crested Dogstail	<i>Cynosurus cristatus</i>	20	10000
Evening Primrose	<i>Oenothera biennis</i>	10	10000
Festulolium	<i>xFestulolium</i>	60	10000
Kale	<i>Brassica oleracea</i>	100	10000
Kentucky Bluegrass	<i>Poa pratensis</i>	5	10000
Kidney or Haricot Bean	<i>Phaseolus vulgaris</i>	1000	30000
Leek	<i>Allium porrum</i>	70	10000
Lentils	<i>Lens culinaris</i>	600	30000
Linseed	<i>Linum usitatissimum</i>	150	10000
Lotus	<i>Lotus corniculatus/ Lotus tenuis</i>	30	10000
	<i>Lotus uliginosus</i>	20	10000
Lucerne	<i>Medicago sativa</i>	50	10000
Lupin	<i>Lupinus spp</i>	1000	30000
Maize	<i>Zea mays</i>	1000	40000
Meadow Fescue	<i>Festuca pratensis</i>	50	10000
Mustard	<i>Sinapis alba</i>	200	10000
Oat	<i>Avena sativa</i>	1000	30000
Onion	<i>Allium cepa</i>	80	10000
Origanum	<i>Origanum vulgare</i>	5	10000
Paspalum	<i>Paspalum dilatatum</i>	50	10000
Pea	<i>Pisum sativum</i>	1000	30000
Phacelia	<i>Phacelia tanacetifolia</i>	50	10000
Phalaris	<i>Phalaris aquatica</i>	40	10000
Plantain	<i>Plantago lanceolata</i>	60	10000
Prarie Grass	<i>Bromus catharticus</i>	200	10000
Pumpkin, Squash	<i>Cucurbita maxima</i>	1000	20000
Quinoa	<i>Chenopodium quinoa</i> Willd.	100	10000
Radish	<i>Raphanus sativus</i>	300	10000
Rape	<i>Brassica napus</i>	100	10000
Ryecorn	<i>Secale cereale</i>	1000	30000
Ryegrass	<i>Lolium spp</i>	60	10000
Sainfoin	<i>Onobrychis viciifolia</i>	600 (fruit) 400 (seed)	10000
Sheeps Burnett	<i>Sanguisorba minor</i>	250	10000
Soybean	<i>Glycine max</i>	1000	30000

Common Name	Species	Minimum Sample Weight (g)	Maximum Lot Size (Kg)
Sulla	<i>Hedysarum coronarium</i>	300 (fruit) 120 (seed)	10000
Swede	<i>Brassica napus var napobrassica</i>	100	10000
Tall Fescue	<i>Festuca arundinacea</i>	60*	10000
Timothy	<i>Phleum pratense</i>	10	10000
Triticale	<i>xTriticosecale</i>	1000	30000
Turnip	<i>Brassica rapa</i>	70	10000
Wheat	<i>Triticum aestivum subsp. aestivum</i>	1000	30000
Wheat – Durum	<i>Triticum turgidum L. subsp.durum</i>	1000	30000
Yarrow	<i>Achillea millefolium</i>	5	10000
Yorkshire Fog	<i>Holcus lanatus</i>	10	10000

Minimum sample size is based on ISTA Rules, Chapter 2. Table 2C Part 1, 2 & 3, 2024.

NOTE 1: There is a 5% Tolerance for Maximum Lot Size

NOTE 2: If the Species is not on the list above contact the AsureQuality Seed Laboratory NZ01 for guidance, or use the ISTA Sampling Calculator

NOTE 3: Seed Stores must be MPI approved to assemble herbage (Poaceae) seed lots up to 25000 kg

NOTE 4: Cereal seed lots for domestic purpose only are limited to a lot size of 40000 kg and are ineligible for the issuance of an Orange International Seed Certificate

NOTE 5: The AsureQuality Seed Laboratory is not accredited for sampling or testing tree and shrub species.

11. Submission of Samples to the AsureQuality Seed Laboratory NZ01

- Complete the AgC10 form, listing all relevant information such as seedline details, tests required, the total weight of the seed lot, and number and type of containers e.g., Bags/Bins/Bulk.
- Complete the “Sampling Officer” section on the AgC10 form by printing your name, signing the form, recording your SSO licence number, and recording the date of sampling. Complete the same details on the sample envelope, calico bag or approved moisture bag.
- After preparing the submitted sample, check the details on the AgC10 form are correct and match the details on the sample packet and MD label.
- Seal the sample before dispatch by placing a MPI sticker seal over the fold in the top of the packet or tie/stitch calico or polypropylene bags and seal with metal tags. If necessary, tape the bottom corners of paper packets to guard against accidental spillage.
- Enclose completed AgC10 form(s) with the samples and dispatch promptly (within one or two days of sampling) to the AsureQuality Seed Laboratory NZ01:

Postal Address

AsureQuality Seed Laboratory
PO Box 609
Palmerston North 4440

Courier Address

AsureQuality Seed Laboratory
Batchelar House
Tennent Drive
Palmerston North 4472

NOTE: The current version of the AgC10 can be downloaded from the AsureQuality website: [AsureQuality Seed Laboratory](#)

11.1 Samples for Moisture Testing

Also refer to ISTA rules 2024 Chapter 2, 2.5.1.5.2 Obtaining the submitted sample for determination of moisture content, Chapter 9, Table 9A Part 1. Determination of moisture content and ISTA Sampling Calculator

Samples for moisture testing must be submitted in validated sealed moisture proof bags. The correct validated bags are obtained from the AsureQuality Seed Laboratory NZ01.

The minimum sample weights for Moisture Determination are:

- 100gms for species requiring grinding (refer to Table 5 and NOTE 3)
- 50gms for all other species

Table 5: Species Requiring Grinding for Accurate Determination of Moisture Content

Scientific Name:	Common Name:
<i>Avena spp</i>	Oat
<i>Hordeum vulgare L. subsp. vulgare</i>	Barley
<i>Phaseolus spp.</i>	Bean
<i>Pisum sativum</i>	Pea
<i>Secale cereale</i>	Rye corn
<i>Sorghum spp.</i>	Sorghum
<i>Triticum spp.</i>	Wheat
<i>X Triticosecale</i>	Triticale
<i>Zea mays</i>	Maize/Corn

NOTE 1: If you require an OIC with Purity, Germination and Moisture test results the moisture sample must be acquired from the same composite sample as the Purity and Germination samples. All testing required must be clearly identified on the AgC10 form.

Sample the seed lot and split down the submitted samples. The subsample for moisture must be taken as soon as possible to avoid changes in moisture content.

- First mix the composite sample. If using a riffle divider pass the seed through the divider once. Use a metal spoon or scoop to take a minimum of three samples from different positions and combine them to create the subsample for moisture of the required size. Avoid handling the seed.
- If the composite sample is in a metal jug/container. Mix with a spoon and take a minimum of three samples from different positions to get the required amount of seed.
- Tip the seed moisture sample into the approved moisture bag. Do not fill the approved moisture bag over halfway.
- Immediately expel the air and wrap.
- Seal the ziplock bag, or for the Fisherbrand bag fold the top 3 times and bend over wire ends.
- Placed the bagged sample inside a second validated polythene bag (double bagged) before despatch to prevent moisture loss.
- Seal the outer bag with an official MPI sticker seal.
- Attach the moisture sample to the sample packet with a rubber band to ensure samples are kept together.
- Note on the AgC10 form and sample packet that a moisture test is required.

Label the moisture sample bag appropriately with the following details:

- MPI Reference Number
- Merchants Reference
- SSO Signature
- SSO Licence Number
- Date

Forward without delay to the AsureQuality Seed Laboratory NZ01.

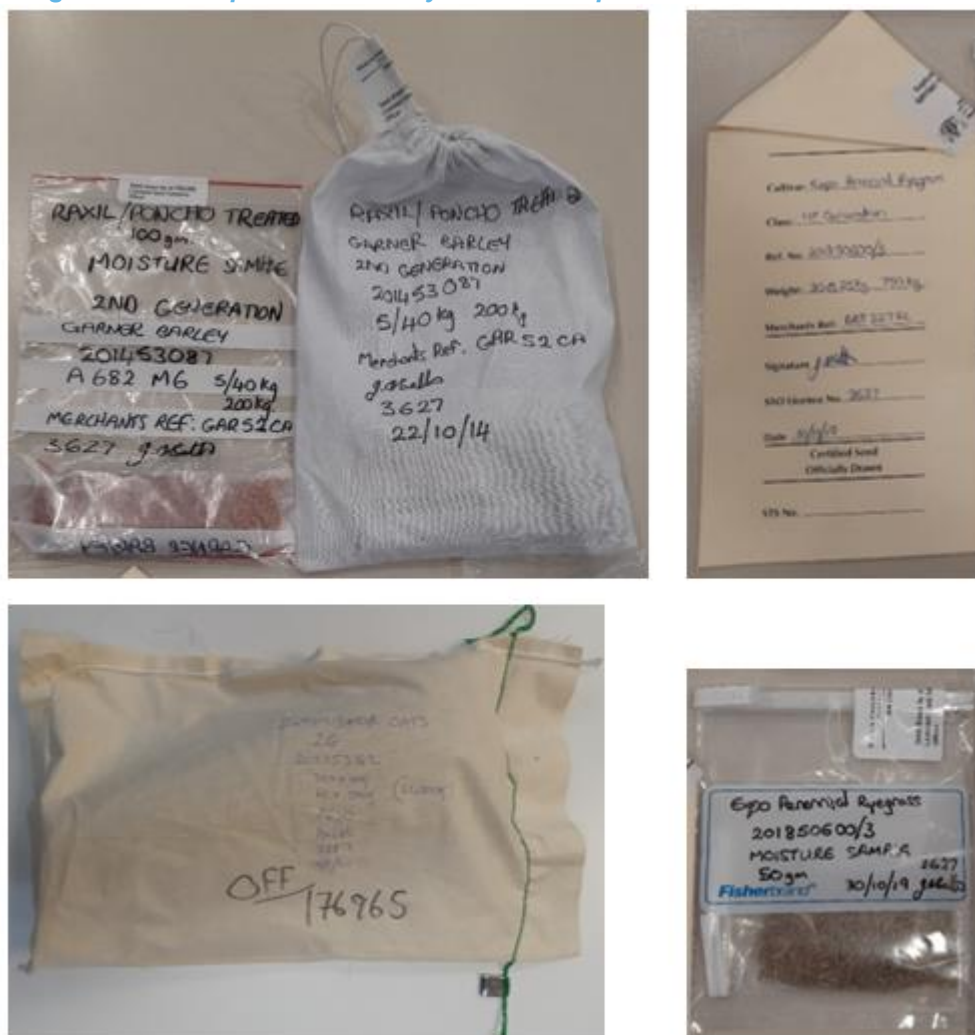
NOTE 2: If using the riffle divider continue mixing and dividing the composite sample for Purity and Germination testing.

NOTE 3: Moisture samples requiring grinding need to be thoroughly mixed by the laboratory staff prior to the sample being ground.

NOTE 4: If 'Conductivity' or 'Expected Field Emergence (EFE)' tests are stipulated under 'Other Tests', a moisture sample should be submitted with the P&G sample.

11.2 Sealing Sample Packets

Figure 11: Examples of Correctly Sealed Sample Packets



11.3 Samples of Chemically Treated Seed

- When samples are being prepared with the riffle divider, wear a disposable face mask (covering mouth and nose), safety glasses and disposable gloves.
- Place the submitted sample in a plastic bag, seal with a rubber band and place inside an outer cloth bag or sample packet before dispatch.
- Record the chemical treatment and active ingredient used (e.g., Vitaflo: Carboxin and Thiram) clearly on the sample packet, plastic bag and on the calico bag.
- Write the chemical treatment in the comments section of the AgC10 form.

12. Re-bagging/Re-labelling of Seed Lots

Also refer to ISTA rules [2024 Chapter 2, 2.5.4.4 Sampling from the seed lot](#).

Seed lots that have been machine dressed and cleaned in bulk and officially sampled and tested and passed may be re-bagged into smaller bags or containers prior to sale or export. Re-sampling or testing is not required provided the re-bagging is carried out under supervision of an authorised SSO. Documentation showing the re-bagging was completed under supervision of an authorised SSO must be kept at the Seed Store. This must include SSO name, license number, signature, date of re-bagging, MPI reference number / unique identifier, the number of original bags and final re-bagged number, the weight of original and re-bagged seed lot, and seal of lot. **The completed re-bagging/ re-labelling form only needs to be submitted to the testing laboratory when requesting or amending an Orange International Seed Lot Certificate for a re-bagged seed lot.**

NOTE 1: Supervision of re-bagging / re-labelling should be recorded onsite e.g., on the MAO's seed lot processing instructions / work order instructions or in the SSO sampling log, (refer Table 1) or on the re-bagging/ re-labelling notice.

- Request new labels from the Seed Certification Bureau (SCB).
- Maintain traceability and uniformity of the seed lot throughout the process.
- Resample for testing any seed that has undergone further processing or cleaning through the seed cleaning machine

NOTE 2: Damaged labels (e.g., torn or damaged during application) can also be replaced. Request replacement labels by applying to SCB on an AgC10 form for re-bagging / re-labelling.

- To prevent double stitching of the bag during replacement of a damaged re-labelling, thread the string end through the label hole and secure with a numbered metal clasp seal.
- Record all unused and damaged labels in your Label Destruction log.

NOTE 3: All excess labels need to be destroyed and reconciled.

- When re-bagging / re-labelling into a different Seed Scheme (e.g., NZ to OECD), fill in a label invalidation / withdrawal form and send this with a copy of the new AgC10 label request to the SCB. Alternatively, complete a new AgC10 form on eSeedCert and follow up with a manual submission of an invalidation / withdrawal form. This needs to be carried out for both full and partial seed lot re-bagging / re-labelling.

Management of seed lot traceability must be documented in the Seed Processor's MPI approved procedures.

Figure 12: Example of Re-bagging/Re-labelling form. Available on the AsureQuality website.



PO Box 609,
Palmerston North,
New Zealand
T 64 6 351 7940 | www.asurequality.com

RE-BAGGING / RE-LABELLING NOTICE

Complete as many seed lots as required. Submit completed form to seedlab@asurequality.com when requesting an updated Seed analysis Certificate.

Lot details	Seed Kind	Variety	Official Ref	Merchants Ref	Label scheme/class	Bag no. & wgt	Lot weight
Original							
New							
Comment							

Lot details	Seed Kind	Variety	Official Ref	Merchants Ref	Label scheme/class	Bag no. & wgt	Lot weight
Original							
New							
Comment							

Lot details	Seed Kind	Variety	Official Ref	Merchants Ref	Label scheme/class	Bag no. & wgt	Lot weight
Original							
New							
Comment							

Clear Form Prefill New line details

Re-bagging / Re-labelling supervised by:

SSO Name: SSO Number:

Date Completed: Signature:

Submitted by: Invoice to:

12.1 Label Weights

For New Zealand domestic labels printed weights on the label can be specified as:

- Bulk
- Actual Weight in kg or Pounds
- Blank (No Weight listed)

For OECD labels the printed weight must be the actual weight of the bag/container.

For AOSCA labels the printed weight must be the actual weight of the bag/container.

13. Maintenance and Cleaning of Triers and Sampling Equipment

- Check all manual sampling equipment prior to use. This includes triers, sample containers, riffle divider.
- Check tools are clean, dry and free from seed, chaffy matter, dust, chemical residues and extraneous matter which could cause cross contamination of the sample.
- Clean equipment with an air gun or brush. If washing is required (e.g., if residue from treated seed remains), use warm water and detergent or methylated spirits with a narrow bottle brush for triers. Ensure equipment is completely dry before use
- Ensure triers are clean and polished on inner and outer surface to allow seed to run freely and to aid penetration of sacks.
- Smooth rough edges of triers with fine sandpaper, check the points of sleeve triers.
- Confirm that the riffle divider pans and composite sample collection containers are metal or antistatic plastic to prevent electrostatic adhesion of chaffy matter.
- Set the riffle divider up on a permanent bench in a clean and dry area, place a cover over the divider when not in use to reduce dust
- Check the riffle divider with a spirit level and adjust by using a packing wedge under the legs if required
- Check the divider and seed pans are in good repair with no sharp/rough edges or dents/deformations that could cause bias during mixing
- Riffle dividers must be cleaned between seed lots.
- If sampling using an automatic sampler; ensure annual maintenance schedule is current and sampler is cleaned down between seed lots.

NOTE 1: Riffle dividers require annual verification as listed in section 14 and verification records must be kept.

NOTE 2: If an automatically sampled seed lot is not sampled at the programmed frequency, or if the resulting seed weight is greater or less than expected, manually resample the seed lot and carry out remediation.

14. Verification of the Riffle Divider

Riffle dividers are verified using either of the following two methods. Verification of riffle dividers should be carried out annually (*refer Setting up the Riffle Divider, section 10.1*). SSOs must provide records of verification and registered equipment during sampling audits. Demonstration of sample reduction may also be assessed.

Method 1 (*provided by the ISTA Bulking and Sampling Committee*)

Equipment required:

- ✓ Riffle Divider
- ✓ 2.5mm Sieve for separating clover seed
- ✓ Seed Tray
- ✓ Calibrated Scales to measure 0.1 gram
- ✓ Tweezers
- ✓ Calculator
- ✓ Wheat 800 grams
- ✓ Red Clover 200 grams

- Follow section 10.1 Setting up the Riffle Divider
- Mix the 1000g sample by running it 3 times through the riffle divider.
- Divide the sample 3 times giving a subsample of around 125g, weigh and record.
- Separate the wheat and red clover seeds in the subsample using a 2.5 mm sieve.
- Pick out by hand any remaining misplaced red clover seeds.
- Weigh the wheat and red clover fractions (one decimal place)
- Pour all seed back in the original sample and mix the sample.
- Repeat steps 2-6 until a total of 10 repetitions have been completed.
- Calculate the percentage red clover seed in each repetition.
- Calculate the average percentage red clover.
- Check the tolerance.

Repetition	Weight in grams			% Red clover
	Subsample	Red clover	Wheat	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Average percentage red clover: _____

Tolerance red clover: 20 % ± 5 %

Equipment approved

Equipment not approved

Riffle Divider ID _____

SSO Name: _____

SSO Number: _____

Signature: _____

Date: _____

Keep this record for audit purposes

Method 2 (presented at the ISTA Sampling Workshop, Ashburton, Sept 2016)

Equipment required:

- ✓ Riffle Divider
- ✓ Seed Tray
- ✓ Calibrated Scales to measure 0.1 gram
- ✓ Tweezers
- ✓ Calculator
- ✓ Pure wheat seed 1000 grams
- ✓ Buckwheat 40 seeds

NOTE 1: Other seed of similar size can be used e.g., 1 kg wheat and 40 coloured wheat, 1 kg maize/corn and 40 coloured corn seeds.

- Follow section 10.1 Setting up the Riffle Divider.
- Combine wheat and buckwheat sample and record the total sample weight (starting weight – first verification table)
- Mix the wheat and buckwheat sample once through the divider
- Tip the seed back through the divider and split into two samples
- Weigh the A and B samples separately and record this on the first verification table.
- Add A + B, record this weight. If there is a difference of more than 2g when compared with the starting weight, too much seed is being lost. Check positions of pans to ensure minimal loss, consider adding a cover to deflect any bouncing seed back into the collection pan.
- Search both samples of wheat and count the buckwheat seeds found on each side, record buckwheat count on second verification table.
- Remove the buckwheat and weigh the two pans of wheat, record on first verification table
- Add the buckwheat back to the 1 kg wheat sample
- Repeat step 1 to 6: 10 times, record each time
- Determine the difference in weight of each wheat sample
- Check the number of buckwheat seeds in sample 1 = that in sample 2
- Check the tolerance for both sample weight and the number of other seed count.

NOTE 2: Tolerance is set by theASUREQuality Seed Laboratory NZ01.

NOTE 3: Complete both charts 'Weight per side' and 'Other seed count per side'. Keep these records for audit purposes.

Method 2: Verification of Riffle Divider using 1kg of Wheat and 40 Buckwheat seeds

Divider ID: _____ Date: _____

Weight per side (allowed difference 5% of combined Side A + Side B weight)

Repetition	Starting weight (g)	Weight Side A (g)	Weight Side B (g)	Combined A+B weight (g)	Is starting weight & Combined A+B weight within 2g?	Difference of weights Side A-B (g)	Allowed difference = +/- 5% of combined weight (A+B)	Within allowed range?
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Combined maximum within 2g? Yes / No

Values within allowed range = _____

Other seed count per side (40 added, expected 20 per side, allowed range 12 to 28)

Repetition	Other seed number Side A	Other seed number Side B	Combined A+B count	Does Side A + Side B count equal 40?	Within allowed range?
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Combined A + B OK? Yes / No

Values within allowed range = _____

If 8/10 values are within range for both weights and numbers the divider can be approved for use.

Decision for Divider: Approved / Not approved

Approved by:

SSO Name: _____

SSO Number: _____

Signature: _____

Date: _____

Keep this record for audit purposes

15. Identification of Sampling Equipment

All seed sampling equipment must have a unique identification number. For example, use abbreviated MAO Seed Store name and sequential number &/or letter pattern (MSS 1A, MSS 1B, MSS 2). This includes seed triers, riffle dividers, pelican samplers, automatic sampler, and balances used to prepare seed samples.

A seed sampling equipment register must be maintained by the MAO seed store and identify the authorised SSO(s) using and maintaining specified equipment.

A current copy of the seed sampling equipment register is to be emailed (annually) to the AsureQuality Seed Laboratory NZ01 (seedlab@asurequality.com). Equipment used during seed sampling is to be recorded on the AgC10 form. For example, the Trier ID used when drawing a manual sample and, when applicable, how the sample was reduced e.g. Riffle Divider ID. Equipment used during sampling and the associated Equipment Register will be reviewed during seed sampling audits. Obsolete sampling equipment is to be removed from service and labelled "Do Not Use".

The minimum requirements for the Seed Sampling Equipment Register are:

- Equipment Type (Model)
- Equipment ID
- Equipment Location/Store
- Authorised SSO licence number
- Verification / Maintenance (riffle divider / balances)

Note: To comply with ISTA document control requirements. The equipment register must be signed and dated.

16. Ordering Sampling Supplies

Seed sampling supplies can be ordered from the AsureQuality Seed Laboratory NZ01 at Palmerston North. The approved order form is found on the AsureQuality website: [AsureQuality Seed Certification Bureau](#)

Figure 13: Supplies available to order:



Please complete the Supplies Order Form and email to the AsureQuality Seed Laboratory NZ01 located in Palmerston North for processing and dispatch. Please note that charges do apply for all these approved seed sampling products. Seed for Certification Testing will only be accepted where approved supplies have been used.

NOTE: Both original and new moisture bags may be used for submission of a moisture samples, however, only the new bags are available for order.

Please send your completed order form via email to: seed@asurequality.com

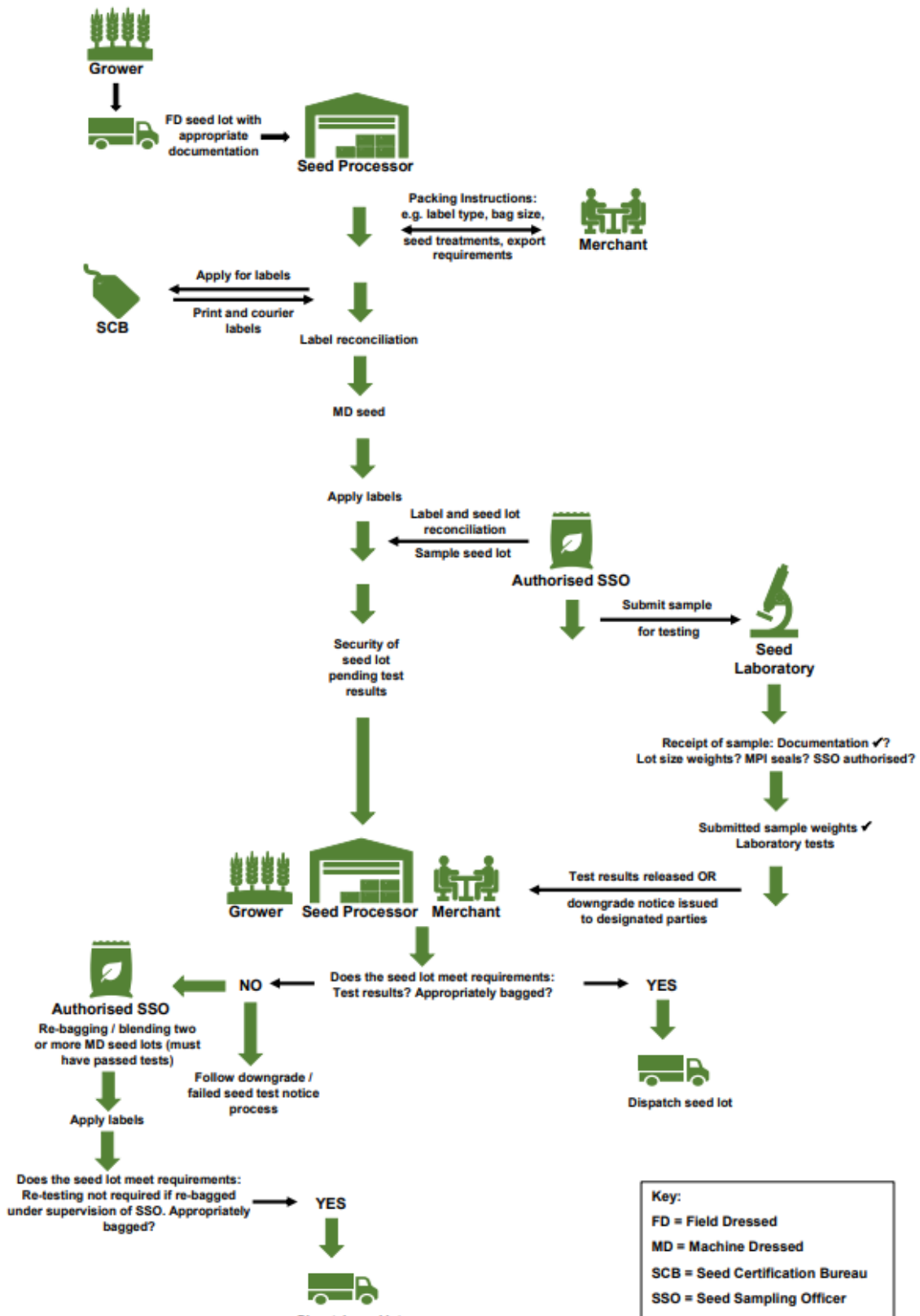
When ordering supplies please ensure you complete the order form with as much detail as possible to ensure you receive your supplies with minimum delays. Please note the supplies are in pre-packaged quantities and cannot be altered.

Orders will be processed and dispatched within 2 working days of being received.

17. General Guidance

The flow diagram below (*Figure 11*) specifically relates to seed sampling and testing in New Zealand. Phytosanitary requirements are additional to this. The information in sections 16 – 19 provide guidance to authorised SSOs to ensure that they work within the requirements of the NZ MPI Seed Varietal Certification Standard.

Figure 14. Chain of Custody for Seed Sampling and Testing in New Zealand



NOTE: If a seed lot fails a seed test, and a Downgrade / Failed seed test notice is received, follow the process described in your MAO System. Return the Failed Test Notice by email within 3 working days to AsureQuality. The minimum action is to place the seed lot on hold pending further instructions.

18. Storage of Machine Dressed Certified Seed in Bulk

When sampled manually from the stream, or by an automatic sampler, seed can be stored in either bags or in bulk and then re-bagged at a later date.

Acceptable forms of bulk storage include:

- Bulk Bags with top ties sealed.
- Metal bins with tight fitting lids
- Wooden boxes/bins with a clean internal liner and cap. Take all due care to ensure that the internal liner and cap are not compromised during stacking. If practical, place a hard board between boxes/bins.
- Storage silos which are self-emptying from the bottom.

NOTE: All bulk containers must have MD certification labels attached at all times. A seal must be attached to the lid and outside of the container. This must be described in your MPI approved procedures.

19. Splitting of Seed Lots

Splitting of seed lots of high-grade seed can only be performed by an authorised SSO. A bag of seed can be broken down to one or more bags.

Ensure the area in the store for the splitting operation is:

- Well lit
- Away from other seed which could cause contamination problems
- Located on a clean floor area
- Equipped with accurate (calibrated) scales
- Equipped with new sacks (hessian, polypropylene or paper)
- Equipped with plain buff blank labels

NOTE: Pay special attention to weights and keeping the seed free from contamination. Re-label a split seed lot as follows:

19.1 For OECD labelled Seed lots

- Apply to Seed Certification Bureau on an AgC10 form for new MD labels with the new correct weight in kg for each bag and attach/sew these onto the sacks.
- Do not deface/write on labels.
- Label details can be written on each bag as per the current OECD Seed Schemes Rules and Regulations, Common Rules and Regulations 10, 10.1.2, page 32., (see link to current Rules and Regulations at <https://www.oecd.org/agriculture/seeds/rules-regulations/>), provided approval has been given by MPI as the OECD National Designated Authority for New Zealand.

19.2 For NZ domestic Seed Lots Only - 3 options

- Apply to Seed Certification Bureau on an AgC10 form for new MD labels with the new correct weight in kg for each bag and attach/sew these onto the sacks

OR

- Copy seed lot information from the original label (with all the label details) onto a plain buff labels and attach/sew these onto the sacks,

OR

- Photocopy the original MD label, write on the copy the correct weight, SSO licence number, signature and date.

NOTE: This practice is only acceptable for split seed lots.

- Check the information is correct on the splitting labels.
- Record splitting of the seed lot in one of the following: a splitting logbook, store inventory, page 2 of the AgC10 form, or computer file

20. Samples for Disease and Pathogen Health Testing

* Not included in AsureQuality Seed Laboratory NZ01 ISTA accreditation

Seed Samples for health testing including Endophyte testing of grasses can be sent direct to the AsureQuality Plant Health Laboratory

The submission form is available on the AsureQuality website: [AsureQuality Plant Health Laboratory](#)

- Check Table 6 to determine the amount of seed to sample
- Have an authorized Seed Sampling Officer sample the seed lot
- Wrap the sample and seal inside polythene or paper bags before dispatch to prevent infected dust contamination from one sample to another.
- Note on the Sample Submission form and sample packet what test is required.
- Ensure this sample is kept separate from other samples being sent for routine testing.
- Dispatch samples for health testing to the AsureQuality Plant Health laboratory Lincoln University

Postal Address

AsureQuality Ltd
PO Box 85006
Lincoln University
Lincoln 7647

Courier Address

AsureQuality Ltd
South Drive
Lincoln University
Lincoln 7674

20.1 Process for Sampling for a Pea Seed Borne Mosaic Virus (PSbMV) Test

- Obtain an official seed sample of the parent line as requested.
- Forward the sample with completed submission form to AsureQuality Plant Health Laboratory for PSbMV analysis
- Record on the sample packet and AgC10 form/submission form under “Other Instructions/ Seed Treatment/ Health Tests” that a PSbMV test is required.
- Upon receipt of the test result, ensure that it is negative for PSbMV before designating the parent seed line as stock seed.

Table 6: Special Minimum Weights for Submitted Samples for Health Test

Seed type	Test	Sample Size	Max lot Size
Pea	Bacterial Blight (<i>Pseudomonas syringae</i> pv. <i>pisii</i>)	1.0 kg	30,000 kg
	<i>Ascochyta</i> spp.	0.5 kg	30,000 kg
	Pea Seedborne Mosaic Virus (PSbMV)	0.5 kg	30,000 kg
	Combination of any three above	1.5 kg	30,000 kg
	India Compliance	1.0 kg	30,000 kg
Wheat/ Barley/ Oats/ Rye	<i>Fusarium</i> spp.	1.0 kg	30,000 kg
Clover	Covers all export test requirements	50 g	10,000 kg
Grasses	Covers all export test requirements	100 g	10,000 kg
Grasses	Endopyte test	10 g	10,000 kg
Maize	<i>Sphacelotheca reiliana</i>	1.0 kg	40,000 kg

For seed lots requiring health testing for export certification, the submitted seed sample must have been drawn by an authorised seed sampling officer or MPI approved Phytosanitary Inspector and the sampler details must be clearly identified on the form.

Sample sizes depend on the type of seed and the test required.

If the minimum sample size for the disease or pathogen test is not listed, please enquire with theASUREQuality Plant Health Laboratory.

NOTE: If a purity and germination test is also required, send additional seed for each test, as specified in *Table 4: Standard Minimum Weight of Submitted Samples (section 10)*.

20.2 Hand Halving Method for Health Test Samples

Also refer to ISTA rules 2024 Chapter 2, 2.5.2.2.4 The hand halving method.

Hand halving is a suitable method for reduction of samples for seed health tests. This reduces the potential for cross contamination from pathogens present on sampling equipment.

- 1) Pour the seed evenly onto a smooth clean surface.
- 2) Thoroughly mix the seed into a mound with a flat edged spatula.
- 3) Divide the mound into half and then halve each half again, giving four portions. Each of the four portions is halved again giving eight portions, which should be arranged in two rows of four (*refer to Figure 12*).
- 4) Combine and retain alternate portions: e.g., combine the first and third portions in the first row with the second and fourth in the second row. Remove the remaining four portions.
- 5) Repeat steps 1, 2, and 3 using the retained portions from step 3 until the required submitted sample weight is obtained.

Figure 15: Portions of Seed in Hand Halving Process



Retain B piles, discard A piles.

Helping Aotearoa
shape a better food world

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