Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

SWI 132.1.1

SEED PROGRAM SPECIFIC WORK INSTRUCTION

OFFICIAL SEED SAMPLING

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DATE

This version of the Seed Sampling Specific Work Instruction (SWI) was issued April 1, 2007.

CONTACT

The contact for this Seed Program SWI is the Chief, Seed Design and Delivery Office, Seed Section.

REVIEW

This Seed Program Specific Work Instruction (SWI) is subject to periodic review. Amendments will be issued to ensure the SWI continues to meet current needs.

ENDORSEMENT

This Seed Program SWI is hereby approved.

_____ _____

Director, Plant Production Division Date

DISTRIBUTION

The most current version of this document will be maintained on the Canadian Food Inspection Agency Intranet site (Merlin) and/or Internet site. The signed original will be maintained by the National Manager, Seed Section.

0.0 INTRODUCTION

The certification of CFIA inspectors for seed sampling verifies the competency of staff to obtain official seed samples and ensures national consistency.

This certification also enables continued accreditation by the International Seed Testing Association (ISTA) of CFIA's seed testing laboratories and their ability to issue ISTA certificates thereby facilitating seed exports.

1.0 SCOPE

This Seed Program Specific Work Instruction (SWI) outlines the procedures for sampling seed for the purpose of obtaining a representative sample of a seed lot. Proper sampling technique is necessary for an accurate estimation of seed lot quality. To be practical and effective, verification and testing must be conducted on a timely, accurate and uniform basis. Official seed samplers are required for export certification, marketplace surveillance, responding to complaints and investigations.

This SWI is intended to be used :

a) by CFIA inspectors, who are training for official sampler certification
b) by CFIA samplers who are certified
c) in all cases where CFIA official samples are drawn
d) as a reference for all quality system documents with a seed sampling component.

2.0 REFERENCES

The publications referred to in the development of this Specific Work Instruction (SWI) are those identified in Seed Program Regulatory Authority SPRA 111, *Quality System Procedure* QSP 132.4 *Official Seed Sampler Certification*, QSP 142.1 *Pedigreed Seed Crop Inspection Procedures*, QSP 152.1 *Implementation and Administration of OECD Seed Schemes and the EU Seed Directives, International Rules for Seed Testing* published by the International Seed Testing Association (ISTA) and the ISTA *Handbook on Seed Sampling*.

3.0 DEFINITIONS, ABBREVIATIONS AND ACRONYMS

3.1 Definitions

The definitions set out in the *Seeds Act* and *Seeds Regulations* apply. Some are repeated here for ease of reference. Some have been modified for the specific purposes of this document.

The definitions in SPRA 101, the *Seeds Act and Seeds Regulations*, the ISTA Rules Chapter 2, QSP 152.1 *Implementation and Administration of OECD Seed Schemes and EU Seed*

Directives, QSP 132.4 *Official Seed Sampler Certification* and the following apply to this document:

Composite Sample:	Sample formed by combining and mixing all of the primary samples taken from the seed lot.
Homogeneous:	"Homogeneity". A state of being relatively uniform; in the case of a seed lot, the lot shall be as uniform as practicable.
Heterogeneous:	"Heterogeneity". A state of not being relatively uniform.
Inspector:	An employee of the CFIA who is designated as an inspector pursuant to Section 13 of the *Canadian Food Inspection Agency Act.*
ISTA Rules:	Means the International Rules for Seed Testing.
Investigation Sample:	A sample which may be used as evidence in a court case and for which the continuity of evidence must be maintained. This has also been referred to as a legal sample in the past.
Lot designation/number (unique identifier):	A set of numbers, letters or symbols that singly or combined uniquely identifies the seed lot. In the case of seed graded with one of the Canada Registered or Canada Foundation grade names, includes the pedigreed seed declaration number.
Official Seed Sampler:	An employee of the CFIA who is designated as an inspector pursuant to Section 13 of the *CFIA Act* and who is trained, evaluated and certified as a seed sampler.
Primary Sample:	A small portion taken from the seed lot during one single sampling action.
Retained sample:	A sample that represents the seed lot and is drawn by or under the authority of the person responsible for the seed lot according to appropriate sampling methods, clearly identified to kind, variety and lot number and stored in a manner that retains integrity.
Sealed (seed lot and/or sample):	The container or individual containers in which the seed that is held is closed in such a manner that the containers can not be opened to gain access to the seed, without either destroying the seal or leaving evidence of tampering.

Seed sample container:	Those types of containers that ensure that the integrity of the sample is maintained.
Static bulk lot:	A quantity of seed moved from the original storage container to facilitate the drawing of an official sample. This quantity of seed is temporarily stored in a conveyance bin such as a truck box, rail car, trailer.
Sub-sample:	A portion of the composite sample obtained by mixing and dividing the composite sample by an approved method.
Submitted sample:	A sample submitted to a seed testing laboratory. It may comprise either the whole or a sub-sample of the composite sample.
Untampered sample:	A sample that has been drawn in accordance with approved sampling and/or mixing and dividing methods which has not been examined, altered or tested in any manner.
Working Sample:	A sub-sample taken from the submitted sample in the laboratory on which a quality test is made.

3.2 Abbreviations and Acronyms

APHIS:	Animal and Plant Health Inspection Service of the United States Department of Agriculture.
EC	European Community
EU	European Union
JHA:	Job Hazard Analysis
ISTA:	International Seed Testing Association
LSTS:	Laboratory Sample Tracking System
OECD	Organisation for Economic Cooperation and Development
OSH:	Occupational Safety and Health
POV:	Purity of Variety
PPE:	Personal Protective Equipment

WHMIS: Workplace Hazardous Materials Information System

4.0 GENERAL REQUIREMENTS

The principles laid out for sampling, and the methods and procedures described in this SWI, are those set out in the ISTA Rules. The principles apply equally to domestic and export sampling. The only exception to the ISTA Rules is that the maximum lot sizes do not apply when sampling for domestic purposes.

The sampler plays a critical role in sampling seed lots for testing. The accuracy of the information submitted and the sampling performed by the inspector are vital to the integrity of any seed analysis certificate issued.

4.1 Outline

Seed is sampled in Canada for the purposes of issuance of export certificates, marketplace surveillance and grading, quality control, or other official purposes. It is important that the sample be taken in accordance with approved methods and techniques to ensure that it is representative of the seed lot.

4.2 Principles of Sampling

The prerequisite for random sampling is that each particle in the population being sampled has the same chance of being chosen. Ordinarily, the size of the seed sample tested is minute compared with the size of the seed lot which it represents. Ensuring the proper sampling technique is used in obtaining the sample for testing is necessary for the result to accurately reflect the quality of the seed lot. It is essential that the sample be taken with care and in accordance with the methods described in this SWI. Every effort must be made to ensure that the sample accurately represents the composition of the seed lot in question. Likewise, in reducing the composite sample, every effort must be made to obtain a representative submitted sample. No matter how accurately the analytical work is done, the results can only reflect the quality of the sample submitted for analysis.

As a sampler, it should be noted that the accuracy with which the results of seed analyses will represent the seed lot depends on:

a) the thoroughness of the blending of the seed lot from which the sample is drawn
b) the sampling equipment
c) the care used in drawing the primary samples
d) the care with which a number of primary samples drawn from several containers are mixed to form a composite sample representing a seed lot
e) the care used in mixing and dividing the composite sample to obtain the required sub-samples (submitted sample) for submission to the laboratory.

The sampler must ensure that each container or part of the seed lot is easily accessible.

Where the seed is to be treated and a test for germination and/or moisture is requested, the tests must be conducted on the treated product.

5.0 HEALTH AND SAFETY ISSUES IN SEED SAMPLING

Health and safety is of paramount concern in any seed sampling situation. Managers and supervisors have the responsibility to ensure that all inspection staff receive the appropriate level of Health and Safety as well as Transportation of Dangerous Goods training for the work duties assigned.

Appropriate safety procedures and precautions must be followed at all times when sampling. The sampler needs to be instructed on how to access any OSH and WHMIS publications, Operations Safety Manuals and the Job Hazard Analyses (JHA) that apply to the tasks performed. When sampling, the sampler must always wear the appropriate personal protective equipment (PPE) such as a hard hat, approved work boots, goggles, hearing protection, gloves and respirator. The sampler needs to be aware of and refer to the JHA for safe work procedures, hygiene practices, personal protective equipment/ clothing and safe work practices.

5.1 Sampling of Seed

If the appropriate precautions are not exercised, seed sampling can be hazardous.

Health and Safety training provided to the official seed sampler will instruct him/her to abide by the following requirements:

a) advise establishment owner/operator of his/her presence and area in which the sampler is working and when he/she expects to leave the premises.
b) enquire about potential hazards, emergency response plan/ exits and location of Material Safety Data Sheets (MSDSs).
c) ensure that he/she is aware of the fumigation schedule of the warehouse and allow sufficient time to pass after fumigation before sampling. Read product labels and consult the MSDS for the insecticide, fumigant or other chemicals used in the warehouse to determine what safety measures to follow in the event of an emergency.
d) exercise caution when sampling or when working in an area where there is treated seed (See Section 5.2 for further details).
e) use explosion proof flashlights since dust can easily be encountered in inspections.
f) never attempt to move bags/containers of seed. The sampler is to request that the owner/operator move the seed lot such that it will be stable, accessible and safe to sample. Alternately, the inspector needs to request that seed be removed from the storage container so that a representative sample may be taken.
g) request that the seed lot be moved when the seed lot is in bags stacked such that the top row can not be reached. The sampler must never climb the bags of seed.
h) be aware of and avoid electrical hazards.
i) be aware of lighting hazards. Lighting should be at least 500 lux for sampling to take place.
j) be aware of moving vehicle hazards such as forklifts. The sampler must watch for moving

equipment and give this traffic the right of way at all times.

k) exercise caution when sampling from bins, railcars and trucks.
l) use proper techniques when carrying equipment and when using sampling equipment. Exercise care to reduce risk of injury when sampling using double tube triers and when cleaning sampling equipment.
m) carry a cellular phone, when possible, when sampling.

5.2 Handling Treated Seed

Treated seed must be handled according to procedures outlined in the WHMIS Manual and the local Job Hazard Analysis Document.

5.2.1 Handling Seed Samples Treated with a Pest Control Product

When a person draws a sample of seed which has been treated with a pest control product, care must be taken to minimize the risk of unnecessary exposure to the treatment product. The official seed sampler must take the appropriate precautions as set out on the pest control products label which should be attached to the seed container, as well as those set out in the WHMIS Safety Manual:

a) wear protective clothing, e.g. coveralls, gloves, a mask that provides suitable protection.
b) wear a respirator equipped with air filters approved for pesticide use if prolonged exposure is expected.
c) documentation for the purposes of identifying the sample (e.g. labels, Sample Submission Form) must not be placed inside the sample container.
d) the sample must be identified as a treated sample. The name of the treatment product must be stated on the Sample Submission Form (Appendix V). The sample container must also carry sample and treatment identification.
e) a sample of treated seed must be placed in an inner cloth bag or envelope. The sample container must be closed securely and sealed. The container must be placed in a plastic bag and securely closed.

After sampling treated seed lots, the following precautions must be observed:

a) wash hands and face.
b) never smoke, drink or eat prior to washing hands and face.
c) clean sampling trier and other sampling equipment.
d) avoid consuming food or drink in plant or office areas exposed to treatment products.
e) ensure that respirator air filters are replaced within the recommended time period suggested by the manufacturer.

5.3 Handling Seed Samples Treated with Inoculant

a) The sample must be identified as inoculated. The common name (brand name) of the product used must be stated on the Sample Submission Form.
b) If the sample is dusty, the sample must be placed in an inner durable paper or cloth bag or

envelope. The container must be closed securely and sealed. The sample container must then be placed in a plastic bag and securely closed.

6.0 PLANNING SAMPLING ACTIVITIES

Any sampler obtaining samples for a complaint or for the issuance of an International Seed Lot Certificate or report of analysis from a CFIA laboratory must make every effort to respond to a request for sampling within a reasonable time frame (72 hours).

The drawing of samples for moisture determination should be timed so that the seed is delivered to the laboratory by courier within 24 hours of sampling. In addition, oilseeds, such as flax, rapeseed, mustard, radish or soybeans shall not be sampled in a time-frame that there is any chance that the sample will arrive at the lab for testing on a Friday or a holiday as the test requires a 17 hour drying period.

6.1 Reference Information Needed by the Sampler

References needed by the sampler to obtain a representative sample are specified in the table below. The sampler is responsible to ensure that the documents he/she is using are up-to-date.

Required Reference Material	
Name	**Area of Responsibility for update and distribution**
SPRA 101 Definitions for the Seed Program	Seed Program
QSP 132.1 Seed Certification and Inspection	Seed Program
QSP 132.4 Official Seed Sampler Certification	Seed Program - Available on Merlin
QSP 152.1 Implementation and Administration of the OECD Seed Schemes and EU Seed Directives	Seed Program - Available on Merlin
Seeds Act and *Regulations*	Seed Program - Internet - Justice Web Site
OECD List of Varieties Eligible for Seed Certification	**http://www.oecd.org/document/14/0,2340,** en_2649_33909_2485070_1_1_1_1,00.html
List of Varieties Which are Registered in Canada	Variety Registration Office - Available on CFIA Website
International Rules for Seed Testing Chapter 2	CFIA Seed Laboratory

EU Directives: 66/401/EEC (Fodder Seed) ; 66/402 EEC (Cereal) 2002/57/EC (Oil and Fibre)	http://www.oecd.org/document/0/0,2340,en_2649_33909_1933504_1_1_1_1,00.html
Operations Safety Manual	OSH Representative
Job Hazard Analysis	Available locally at Inspection Office or Lab
CFIA Accredited Laboratories	CFIA Seed Laboratories-Merlin
Canadian Methods and Procedures for Testing Seed	CFIA Seed Laboratories - CFIA Website

7.0 SAMPLING EQUIPMENT AND PROCEDURES

7.1 Principles when Sampling with Manual Instruments

The equipment listed in Appendix I shall be used for drawing official and export samples. This appendix lists the triers and sizes that are approved for the crop kind being sampled. **Only triers designated as approved for sampling in Appendix I or under the ISTA Rules may be used.**

When selecting the appropriate trier for sampling:

a) the trier must not select or separate seed during sampling, due to seed size, shape density, chaffiness or any other quality trait.
b) it shall not damage the seed being sampled.

Each primary sample is obtained by passing the sampling equipment through the seed once. Each trier or pass of the sampling equipment is one primary sample.

7.2 Triers

When selecting the appropriate trier for sampling, the sampler should consider the species being sampled, the size and type of the containers, the number of primary samples to be drawn and the required composite sample size. When sampling containers, all positions inside the container must be accessible. For free flowing seed in bags, the sampler must use an approved trier long enough to sample all portions of the bag. Non-free-flowing seed, such as certain grass seed, uncleaned seed, or screenings which are difficult to sample with a trier, may be sampled by the hand method.

Appendix I specifies appropriate trier sizes. The principle on which the trier size is based is that the width of the opening should be not less than two times the diameter of the seed (diameter meaning the longest part of the seed) for sampling. At no time is it permissible to use a trier that is smaller than that specified in Appendix I for the species being sampled unless the sampler provides evidence to the laboratory that the width of the opening is, at a minimum, two times the diameter of the seed.

There are triers with single or multiple chambers and also combination types. These instruments may have more than one opening (hole/slot).

The sampler must check the trier and other equipment for cleanliness before use.

The sampler must state the type and size of trier or the method used for sampling on the Sampler Submission Form (Appendix V). When the trier used is smaller than that specified in Appendix I for the species being sampled, the sampler must provide evidence that the width of the opening is, at a minimum, two times the diameter of the seed on the Sample Submission Form (LSTS).

7.2.1 The Nobbe Trier

This trier is a pointed tube with an oval opening near the pointed end. This trier is relativity compact and small, making it easy to transport. The risk of contamination is low as the trier is easy to keep clean.

A Nobbe trier is suitable for sampling free-flowing seed in bags (legumes, timothy, rapeseed, mustard) but not in bulk. **It may only be used horizontally**. Its use is limited to penetrable containers.

The Nobbe trier must be long enough that the opening (slot/hole) reaches the centre of the bag. If sampling from the side of the bag, the trier must reach the opposite side.

7.2.1.1 Procedure for Nobbe Trier Use

a) The trier is inserted gently into the centre of the bag with the trier opening facing downwards.
b) The trier is inserted into the bag upwards at an angle of approximately 30 degrees to the horizontal.
    i) **When sampling from the end of a container, the opening of the trier must reach the centre of the container.** The trier is inserted as close to the bottom edge of the container as possible (ie. below stitching).
    ii) **When sampling from the side, the opening of the trier must reach the opposite side of the container.** The trier is inserted at the bottom edge of the container such that the 30 degree angle is achieved.
c) The trier is then rotated through 180 degrees, bringing the hole to face upwards.
d) The trier is withdrawn:
    i) when sampling from the end, with decreasing speed so that the quantity of seed obtained from successive locations increases progressively from the centre to the side of the container.
    ii) when sampling from the side, with a constant speed. The trier should be gently agitated as it is being withdrawn to help maintain an even flow of seed. The trier must not be agitated without withdrawing.
e) Each primary sample must be placed into a suitable clean container(s) (pan, pail) to allow for checking for uniformity.

7.2.2 Double Sleeve Trier

This type of trier is suitable for sampling seed in open bags, large containers or in bulk as is the case in sampling containers that are 100 kg or greater such as, mini bulk containers or in static bulk lots of both small or large seeded crop kinds. This trier may be more suitable for drawing samples from the bottom rows of palletized containers that are stored at floor height than a Nobbe trier. This trier consists of a hollow tube with a close fitting inner tube such that seed can not slip between them. A handle is fitted to the inner tube so that it can be twisted inside the outer tube. The outer tube has a solid pointed end. Openings (slots/holes) are cut into both the inner and outer tubes. The trier consists of:

a) multi-openings without partitions or
b) multi-openings with partitions

The opening in the inner tube can be opened and closed by turning the inner tube until the openings in the inner and outer tubes are aligned. There is a greater risk of contamination with this type of trier. Care must be taken to ensure that all the openings in both the inner and outer tubes are clean.

The contents of the entire tube represent one primary sample.

A double sleeve trier with partitions may be used:

a) horizontally
b) vertically in both open and closed penetrable containers.

A double sleeve trier without partitions may be used horizontally only.

Care must be taken when closing the openings as there is a risk of damaging the seed trapped between the edges of the slots. The risk of damaging the seed can be reduced by slowly closing the openings to the point when resistance is felt.

There is no possibility of varying the amount of seed obtained from the inner and outer part of the container by adjusting the speed with which the trier is withdrawn as the trier draws the same size of sample in each sampling action. **The trier must always be long enough to reach the opposite end of the container on the diagonal. When sampling the containers vertically, the trier must be partitioned and reach the bottom of the container.**

7.2.2.1 Procedure for Multi - Opening Without Partitions Types

This type of trier can only be used horizontally.

a) The trier is carefully inserted diagonally on the horizontal plane into the container in the closed position until it reaches the opposite corner of the container. Care should be taken not to push the trier through the opposite corner of the container.
b) The trier is opened and agitated slightly to allow the openings to fill.
a) The trier is gently closed (to point of resistance) and withdrawn.

b) Each primary sample must be placed into a suitable clean container(s) (pan/pail) to allow for checking for uniformity.

7.2.2.2 Procedure for Multi - Opening With Partitions Types

This type of trier may be used horizontally or vertically.

a) The trier is carefully inserted into the container in the closed position until it reaches the opposite side of the container. Care should be taken not to push the trier through the opposite side of the container.
b) The trier is opened and agitated slightly to allow the openings to fill.
c) The trier is gently closed and withdrawn.
d) The sample is placed on to a clean long piece of paper or into a suitable clean container that is the same length as the trier to allow for checking for uniformity.

7.3 Principles of Seed Stream Sampling

Where the uncleaned seed is processed in a closed system and the cleaned seed is packed into sealed, marked containers, the primary samples may be taken from the seed stream.

Sampling from the seed stream can be conducted manually or by seed sampling devices. When devices are controlled automatically, they are called automatic seed samplers. Where there are open flow streams, manual sampling from the stream at the end of processing may be the best technique. The advantage to this technique is that each individual primary sample can be examined for uniformity.

For drawing stream samples, these conditions must be met:

a) the primary samples are to be taken during the process as the last step before the seed enters the containers which are to be sealed.
b) the equipment used for sampling must not select or separate seed during sampling, due to seed size, buoyance and chaffiness.
c) the entire cross section of the seed stream must be sampled.
d) seed entering the sampling instrument must not bounce out again.
e) sampling the flow of the seed stream should be at regular intervals to the extent practical.

7.3.1 Automatic Sampling

There are many types and designs of automatic sampling devices. An automatic sampling device is to be used and maintained within a seed establishment's Quality System. Where an automatic sampling device is used for sampling for the purpose of:

a) the issuance of International Seed Lot Certificates, CFIA must review and approve the validation system. The Official Seed Sampler should refer to Appendix XVIII - Approval Process for Automatic Samplers for Obtaining Samples for the Issuance of an ISTA Seed Lot Certificate - for more details.

b) drawing an officially recognized sample by an establishment, the licensed sampler must validate the system and keep records.

7.3.2 Manual Stream Sampling

An appropriate container must run through the entire cross section of the seed stream ensuring that a uniform primary sample is obtained. The container must not permit seed to enter and bounce out again. The sampler should draw primary samples at regular intervals. Sufficient primary samples shall be taken to ensure that at least the minimum number of primary samples taken are those specified in Appendix II.

The container used for taking primary samples from the seed stream must be designed as follows:

a) the opening must be at least two times larger than the largest diameter of the seed.
b) the sides of the container must be high enough to prevent seeds from bouncing out.
c) it must be of sufficient length to enable the container to cut a complete cross section of the seed stream.
d) it must be large enough to prevent any overflow when taking a primary sample.
e) it must be such that it can be cleaned properly between seed lots.

7.4 Principles of Hand Sampling

In exceptional cases (specialty seed), and for certain species especially chaffy, non-free-flowing grasses, hand sampling is the only alternative, where it has been determined by an attempt to sample by use of a trier, that the seed would be damaged or there could be separation and selection of the seed. Examples of chaffy, non-free flowing grasses include *Agropyron, Psathyrostachys* and *Elytrigia* (Wheatgrasses), *Agrostis* (Bentgrass and Redtop), *Alopercurus, Bromus* (Bromegrass), *Dactylis* (Orchardgrass), *Elymus* (Wildrye), *Festuca* (Fescues), *Lolium* (Ryegrasses), *Poa* (Bluegrass), Native Species such as *Anthoxanthum, Arrhenatherrum, Axonopus, Chloris, Cynodon, Cynosurus, Deschampsia, Digitaria, Holcus, Melinis, Panicum, Paspalum, Pseudoroegneria, Trisetum* and *Zoysia*.

All positions inside the seed container must be accessible. Where it may be impossible to obtain samples from the lower parts of bags or bins, the seed sampler must request that the containers be partially or completely emptied to ensure access to all positions of the container. The sampler must be able to reach the bottom of the container.

The following procedures must be followed when:

a) open containers are greater than 40 cm in depth; primary samples are taken directly from the open bag which has been emptied sufficiently to allow sampling from all parts of the bag. After sampling, the seed is repackaged into the appropriate container and sealed.

b) containers are less than 40 cm in depth; seed presented in this size container permits access to all parts of the seed lot containers. Primary samples are drawn. After sampling, the seed is repackaged into the appropriate container and sealed.

c) samples are taken from the seed stream as the container is emptied and refilled into a new container. The procedures for Manual Stream Sampling in 7.3.2 are to be used.

In the case of seed tapes or mats, the container(s) for sampling have to be opened and a sufficient number of units (tapes or mats) or a sufficient part, in the case of a long tape, has to be taken from the container.

7.4.1 Procedure for Hand Sampling

a) The open hand is inserted through the top of the bag with fingers held tightly together, until the desired depth is reached.
b) The hand is then closed with the fingers held tightly together to ensure that few, if any, seeds escape, and the hand slowly withdrawn.
c) This process is repeated a number of times in different parts of the seed lot and at different depths, until the required sample size is obtained.

7.5 Other Equipment Requirements

In addition to the approved trier, the following list of equipment may be required:
a) seals,
b) supply of suitable tape for patching openings made in the poly, cotton, or paper seed lot containers by the sampling trier,
c) pails (2-4) for collecting the primary samples or sheets of long clean paper, “non- static” stainless steel or metal seamless scoops, pans/pails are recommended,
d) Sample Submission Form,
e) note pad,
f) pocket light,
g) safety equipment as necessary,
h) containers for submission of samples to the laboratory: cotton bags, or manilla envelopes, plastic bags for treated or inoculated seed.

7.6 Cleaning and Care of Sampling Equipment

All equipment used for sampling must be thoroughly cleaned before each use, and free from all extraneous matter including crop and weed seeds; disease bodies or spores; any seed parts, chaff, dust and inert foreign bodies; chemical residues such as seed treatments. Triers with residue seed that contains genes with novel traits could cause cross contamination of other seed lots.

Nobbe trier: The more polished the inner surface of the trier is, the more freely the seed will flow.

Sleeve trier: The rough edges and point of a sleeve trier should be occasionally dressed (removing sharp edges) with a file, emery or very fine sandpaper. This will greatly improve its use through jute or poly bags.

The method for cleaning will be based on the type of equipment and the purpose and test for which the sample is to be drawn.

Recommended cleaning methods are:

a) cleaning wipes,
b) cleaning solutions such as hand or dish soap, citric acid, rubbing alcohol or water,
c) compressed air,
d) the use of bottle cleaning or gun cleaning tools.

8.0 SEALING OF SEED LOTS

8.1 Conditions for Sealing the Seed Lot

When sampling seed lots for the issuance of an ISTA International Seed Lot Certificate, whether the seed is pedigreed or non pedigreed, the seed lot must be sealed at the time of sampling. Seed lots shall be sealed in such a manner that if the container is opened, the seal is broken and can not be reused. This includes seed in bins, bags and " tote" bags. The sealing of the seed lot must be conducted by or under the direction of the Official Seed Sampler. The following must be noted:

a) when the seed lot to be sampled is packaged in bags, the seed lot must be sealed before sampling.
b) when the samples are taken from bins or bulk bags, they must be sealed immediately after the sample is drawn.
c) when the seed is being sampled by an automatic sampler, the container into which the conditioned seed is fed must be sealed.

All containers must be self-sealing or sealed (capable of being sealed). Any seed lot presented for the issuance of an International Seed Lot Certificate, whether the seed is pedigreed or non-pedigreed, must be sealed in tamper proof containers or be packaged in self-sealing or sealed (capable of being sealed) containers. In the case of seed lots tagged with OECD tags, the seed lot will be deemed to be sealed if the stitching that seals the bag opening also secures the tag to the bag.

When sampling for other official purposes (e.g. market place surveillance), the seed lot must be sealed when packaged in containers capable of being sealed, such as bags. The seed lot will be deemed to be sealed if the stitching that seals the bag opening also secures the tag to the bag.

8.2 Types and Methods of Sealing the Seed Lot

a) Snap on Seals
Snap on seals are made of metal and can be closed by squeezing between the finger and thumb. They should close with a snap sound. These seals are designed to break along the spine as evidence of tampering. As an identifier, there is to be a logo, sign or sequential number printed on each seal. The seal must be applied to the string, tie or stitching so it cannot be removed without destroying the integrity of the seal.

The official seed sampler may delegate the attachment of the seals to other individuals under his or her supervision. Care must be taken to ensure that individuals do not gain unauthorized

access to the seals.

b) Adhesive Patches (Appendix XVI) and Tapes and Adhesive Labels
These are used for seed lot identification and can also be used to close the containers or holes made in the containers while sampling.

The seal must have strong adhesive qualities as well as special cuts in the label such that it can not be removed without destroying the integrity of the label, and therefore, the seal. These labels can close, seal and mark the container in one step. The labels should have sequential numbers to identify the containers. These types of labels may not be effective in dusty conditions, on some types of containers (cardboard boxes, woven plastic) and are only effective in specific temperature ranges.

c) Self Sealing Containers
This system is acceptable for seed the size of *Triticum* spp. (wheat) or larger. A self sealing container (valve-pack) has a sleeve-shaped valve as part of the bag. Once the bag is filled, the pressure of the seed closes the valve inside the bag. To comply with the ISTA Rules, the sleeve shall be at most 20% of the width of the bag. Where valve-pack containers are used for seed smaller than *Triticum*, or where the sleeve is less than 20% of the width of the bag, the bag is not sealed. A direct sealing method must be used to seal the bags such as, sealing tape, a label, a patch, by gluing the mouth of the bag or sealing with a metal clip.

d) Sealing by Stitched Label
The method of sealing by sewing a single line of stitching through the label (tear resistant label, OECD tag, or adhesive label) and closing the bag, or adhesive labels which must be glued directly onto the container can only be used in the case where the official seed sampler has control of the tags. A tag inventory must be kept. Care must be taken to ensure that the stitching does not perforate any of the information on the label. Where there is evidence that there is a second line of stitching that was not within the official seed samplers control, the stitching must be sealed with a metal seal if the seed lot is for the issuance of an International Seed Lot Certificate.

The container must be also sealed by use of metal seals or non- removable adhesive labels, where there are only company tags stitched onto the containers, provided all the containers in the seed lot are uniquely identified by a lot designation/number, if the seed lot is for the issuance of an International Seed Lot Certificate.

e) Hermetically Sealed
Containers which can not be opened without causing damage to the package may be regarded as sealed without undertaking any additional sealing. These may be paper bags or boxes that are closed with glue on all sides, sealed tins, sealed bottled (not screw top types) or heat sealed foil packages. These containers must have a printing design on the package which would indicate if part of the original container is missing. These types of containers are difficult to sample as they are destroyed in sampling. The repackaging of these containers must be conducted in the presence of the sampler.

f) Tie/ Strip Seals
The tie/strip seals are usually made of plastic. They are closed by drawing the end through a self locking device which prevents it from being opened without destroying the label. When a tie/strip is identified with a logo or sign approved by the ISTA laboratory, it could become a seal.

g) Stapling of Labels on Stitched Bags
This method of sealing may be used where the company has stitched the containers closed and then staples the labels onto the bags, provided that all the containers in the seed lot are uniquely identified. **This method of sealing is not acceptable for sampling for the issuance of an ISTA Seed Lot Certificate as well as not acceptable for the EU.**

9.0 MARKING AND TAGGING THE SEED LOT

9.1 Lot Designation/Number

The marking of a seed lot must include a lot number/designation unique to the seed lot being sampled. Where seed lots sampled for the issuance of an ISTA Seed Lot Certificate are non - pedigreed seed, the company must mark or label each container in the seed lot with a unique number. The sampler's responsibility is to ensure that all the operations are conducted in accordance with ISTA Rules.

Where OECD tags (Appendix X) are affixed to the seed lot containers, a Seed Inspection Certificate (CFIA/ACIA 1118) must be completed (Appendix XIV). The number printed on the CFIA/ACIA 1118 becomes the lot number preceded by the prefix CDN and the province code e.g. CDN 9- 54321. The procedures in QSP 152.1 *Implementation and Administration of the OECD Seed Schemes and EU Seed Directives* must be followed for completion of the forms and tags.

The identification of the seed lot may be printed directly onto the container or onto tags or labels which may be stitched, tied, or glued onto the containers. Certified seed lots stored in bulk are exempt from the requirement to be sold in fastened, tagged packages, provided the provisions of section 37 of the *Seeds Regulations* are met.

Indelible ink must be used in the printing and stamping of labels. Where there is a change to the identification of the seed lot, either the tag must be removed and a new tag affixed, or a new tag must be glued over the original tag.

The containers must be labelled with:

a) lot number,
b) crop kind,
c) weight of the seed in container,
d) where applicable:

i) variety name
ii) crop certificate number
iii) grade name.

9.2 Types of Labels

a) Tear - Resistant Labels
These labels are made of tear-resistant material and are tied or sewn to the container.

b) Adhesive Labels
These labels must be affixed directly onto the container. They must have strong adhesive qualities and special cuts so that they can not be removed without being destroyed. These labels should only be used on smooth or non woven materials.

c) Pre-printed Labels
These labels are printed directly onto the bag with the lot number and additional lot information is printed onto the label during the filling of the bag.

d) Bulk Pedigreed Seed
The CFIA/ACIA 0067 Bulk Pedigreed Seed Certificate (Appendix XV) is an official label for bulk pedigreed seed.

9.3 Tagging the Seed Lot

Where tags are affixed to each container in a seed lot, the sampler must ensure that the information on the tag or label corresponds to all the documentation. A tag or a label (where possible) shall be forwarded to the lab. In the case of OECD tags (Appendix X), an outer tag must be forwarded to the lab.

OECD Tag

Where a seed lot for export is to be tagged with OECD tags (see Appendix X) and /or requires the issuance of an OECD varietal certificate (Appendices XII and XIII), the procedures set out in to QSP 152.1 *Implementation and Administration of the OECD Seed Schemes and EU Seed Directives* shall be followed. The species and variety must be listed on the OECD List of Varieties Eligible for Seed Certification. Where the variety is not listed in the OECD List of Varieties Eligible for Seed Certification, the sampler must obtain evidence that the variety is registered in a participating country and submit this information to the laboratory. Where the company prints the tags and seals the lot prior to sampling, the sampler must verify the sealing and that all information printed on the tags is correct on every container.

When OECD tags are affixed to a seed lot, the CFIA inspector/sampler assigns the lot number. A numbered CFIA Seed Inspection Certificate 1118 is completed (Appendix XIV). This number, along with the province code prefixed by CDN, comprises the lot number e.g. CDN 8-54321. The sampler shall leave a copy of the CFIA/ACIA 1118 with the owner/operator at the time of sampling.

Not Finally Certified Tag

The samples labelled with "not finally certified" tags are Seed Program Code: Not Finally Certified (NFC) (Appendix IV). The seed lot must be sampled according to ISTA sampling methods (maximum lot sizes are not applicable). The representative samples are submitted from export seed lots with not finally certified labelling for official storage for possible post control testing. The official seed sampler must refer to QSP 152.1 *Implementation and Administration of the OECD Seed Schemes and EU Seed Directives* for more details.

Other Tags

There are cases where pedigreed seed will not have a CDN number such as specialty lines, unregistered varieties.

Seed on occasion is exported with Canadian domestic tags.

Where seed lots for ISTA testing are non - pedigreed seed, the company must mark or label each container in the lot with a unique lot designation/number. The official seed sampler's responsibility remains the same: to ensure all the operations are conducted in accordance with ISTA Rules. Each container in a seed lot of non - pedigreed seed must be sealed with a metal seal or adhesive label.

EU Directives

Where the client requests that the seed lot be labelled as meeting " EC Rules and Standards", the standards of *66/401/EEC (Fodder Seed)* or *66/402 EEC (Cereal)* or *2002/57/EC (Oil and Fibre)* must be met. The official seed sampler must refer to QSP 152.1 *Implementation and Administration of the OECD Seed Schemes and EU Seed Directives* for direction. If the crop kind presented for sampling is not listed in the EU Directive, it can not be labelled or tested in accordance with the "EC Rules and Standards" but may still be eligible for export to the EU.

10.0 LOT HOMOGENEITY

When the seed lot is being sampled for any purpose (including export or grade determination, market place surveillance, complaint/ compliance sampling, investigations, etc.) the primary samples representative of the seed lot must be checked for uniformity. Indicators of seed lot heterogeneity may be:

a) different types or sizes of containers,
b) different labels or labelling information,
c) different types of seals.

When blended seed lots are presented, there should be documentation regarding the origin and about the mixing and blending of the seed lots. Upon request from the sampler/inspector, the owner

of the seed lot is required to provide full information regarding the bulking and mixing of each seed lot sampled. If the establishment cannot provide appropriate documentation to support the homogeneity of the seed lot, sampling should be refused.

The contents of each trier or handful etc. is known as a primary sample. During sampling, the sampler must keep each individual primary sample separate from the previously drawn primary sample. The sampler must assess the primary sample for uniformity before combining the primary sample with other primary samples drawn.

Uniformity can be assessed by:

a) verifying that the species is the kind presented for sampling,
b) verifying the colour, size and shape of the seed is uniform within and between each primary sample,
c) the amount of chaffy material is uniform within and between each primary sample,
d) the presence of visible impurities appears uniform throughout the seed lot.

Uniform primary samples are combined to produce the composite sample.

If the primary samples **are not uniform**:

a) For export or grade determination, the sampler should refuse to submit the sample where there is definite evidence that the seed lot is not reasonably uniform. The sampler shall refuse to sample the seed lot, until appropriate corrective action has been taken.

b) When sampling for other official purposes (e.g. market place surveillance), the sampler should submit the sample and note the evidence of heterogeneity on the Sample Submission Form (Appendix V). The seed sampler should take appropriate enforcement action to maintain control of the seed lot (e.g. detain the seed lot).

11.0 SEED SAMPLING

This section applies for all seed lot sampling. Special requirements for sampling for the purpose of the issuance of an ISTA International Seed Lot Certificate are included in bold.

11.1 Preparation for Sampling the Seed Lot

The sampler shall:

a) communicate with the operator, grower, owner/manager of the establishment regarding the number of seed lots for sampling and their location in the warehouse.

b) ensure that the seed lot is fully accessible for sampling.

c) refuse to sample when a seed lot:

i) is not labelled,
ii) labelled for export only (*Seeds Regulations, Section 5*) unless an ISTA International Seed Lot Certificate is requested or an official certificate of analysis from a government laboratory is requested,
iii) labelled for further conditioning (*Seeds Regulations, Section 5*),
iv) **the seed lot is being sampled for an ISTA International Seed Lot Certificate and exceeds the maximum lot size.**

The ISTA Rules state the maximum lot size which can be represented by a single sample and an International Seed Lot Certificate. The seed lot can not exceed the maximum lot size stated. If the seed lot does exceed the maximum lot size, the seed lot will have to be broken down into seed lots of a size that meet the lot size requirements. Both the ISTA Rules and the EC Directives allow a 5% tolerance on the maximum lot size. For example, if the maximum lot size was 10,000 kg, the seed lot could not exceed 10,500 kg.

d) verify:

i) the crop kind for sampling;
ii) that the seed lot is labelled with a unique lot designation/number;
iii) that all containers in the seed lot are identified with the lot designation/number;
iv) that all containers are labelled with kind, variety if applicable, grade name, lot number, weight of the container and packager. Where tags are affixed to a seed lot, the sampler must ensure that the information on the tag corresponds to all the documentation. For the issuance of an ISTA Seed Lot Certificate, where the company prints the tags prior to sampling, the sampler must verify that all information printed on the tags is correct on every container;
v) the size of the seed lot to determine the sampling intensity. There are no maximum lot sizes for domestic seed lots;
vi) that the seed lot is sealed whether the seed is pedigreed or non - pedigreed seed when the seed lot is being sampled for issuance of an ISTA Seed Lot Certificate. **The sampler must ensure that the seed lots are sealed in a tamper proof manner**. When sampling for other official purposes (e.g. market place surveillance), the seed lot must be sealed when packaged in containers capable of being sealed such as bags of greater or less than 100 kg. The seed lot will be deemed to be sealed if the stitching that seals the bag opening also secures the tag to the bag.

e) consult documentation related to the seed lot to verify lot size and identification, e.g. crop certificate, pedigreed seed declarations, blending certificates, certificates of analysis.

11.2 Sampling the Seed Lot

a) The sampling intensity must be determined as specified in Appendix II.

b) Before sampling the seed lot, the appropriate method for sampling based on the crop kind and

the packaging of the seed must be selected.

c) The seed lot must be sampled using the appropriate technique for the selected method or trier as described in Section 7.0.

d) Triers must not be inserted through labels or printed labelling on bags.

e) The containers chosen for sampling are selected randomly based on the minimum number of primary samples required to obtain a representative sample of the seed lot (Appendix II).

f) When drawing samples, approximately equal amounts of seed are to be taken from each container sampled, or from each place in such container, or when sampling seed in bulk, from each location sampled.

Examples:

There are 400 - 25 kg bags in the seed lot. The seed lot is stored on 10 pallets each containing 40 containers. The sampler should randomly select 3 containers on each pallet for sampling. The sampling pattern should vary from pallet to pallet.

When sampling containers over 100 kg, the primary samples shall be drawn, as applicable, from different locations or angles, in each container.

In all cases, when sampling a seed lot of up to 15 containers, all containers must be sampled. The same number of primary samples shall be taken from each container.

g) The container/pail in which the sample is placed as it is drawn must be thoroughly cleaned at the beginning of the sampling procedure and after each sampling operation.

h) The contents of each trier or handful, etc. is known as a primary sample. If the primary samples are uniform as described in Section 10.0, they are combined and form the composite sample.

Where a sample is being taken for an ISTA Seed Lot Certificate or grade determination and the primary samples are not uniform, the sampler should discontinue sampling, inform the client and request corrective action. The sampling may be resumed once appropriate corrective action is taken.

Where samples are being taken for market place surveillance and the primary samples are not uniform, the sampler should submit the sample and note the evidence of heterogeneity on the Sample Submission Form (Appendix V). The seed sampler should take appropriate enforcement action to maintain control of the seed lot (e.g. detain the lot).

i) Where the composite sample is to be mixed and divided for the submission of the sample to the laboratory, the sample (large seeded crop kinds only) must be mixed and divided by an approved method as described in Section 13.0.

j) Appendix III sets out the minimum sample sizes required for submission to a CFIA laboratory. The submitted sample must be forwarded to the lab in a timely manner. The sample must be stored in such a manner that the integrity and quality of the sample are not placed at risk. The sampler is to be in possession of the samples at all times. Samples for testing should never be left in the hands of the client.

k) The container in which the submitted sample is to be placed shall be labelled with:
   i) the inspection sample number,
   ii) crop kind
   iii) variety name, (for all pedigreed seed kinds; vegetables)
   iv) lot number,
   v) date of sampling,
   vi) signature of sampler.
   vii) as applicable, variety name (for all pedigreed seed kinds, vegetables)
   viii) as applicable, lot number (must be stated for all pedigreed seed and OECD sampling)

l) The samples shall be sealed as described in Section 15.0.

A Checklist for Sampling Domestic Seed can be found in Appendix VI. **A Checklist for Sampling for Issuance of an ISTA International Seed Lot Certificate can be found in Appendix VII.**

11.3 Sampling Seed Packaged in Small Containers

a) When sampling seed packaged in containers of less than 15 kg for the issuance of an International Seed Lot Certificate

The principles set out in the *ISTA Rules* Chapter 2 must be followed. Containers shall be combined to form sampling units not exceeding 100 kg. The sampling units shall be regarded as containers for determining sampling intensity.

$$\frac{\text{Number of containers} \times \text{the size of each container}}{100 \text{ kg}} = \text{Number of sampling units}$$

The number of sampling units is always rounded up when there is a fraction.

Seed tapes or seed mats, each with equal or less than 100,000 seeds can be combined to sampling units not exceeding 2,000,000 seeds.

See Appendices II and III.

The original containers must then be resealed or the seed placed into new containers, marked and labelled by the establishment under the supervision of the official seed sampler.

b) When sampling seed lots in containers smaller than 15 kg

The principles set out in the *ISTA Rules* Chapter 2 should be followed. In cases where the integrity of the packaging will be altered at the retail level such as tins, packets, paper bags or moisture-proof containers, a sufficient number of containers must be opened and sampled until a sample of a sufficient size is obtained. The original containers must then be resealed or the seed placed into new containers by the establishment. In the case of small packages of herbs, vegetables and lawn and turf grass mixtures, a sufficient number of sealed packets should be taken as a sample.

11.4 Sampling Containers Greater Than 15 kg

For seed lots packaged in containers of up to or less than in 100 kg in size, the sample shall be obtained from sealed, labelled containers.

Each sealed container containing seed (e.g. poly bag, paper bag, tins, cartons, etc) is considered to be a unit for determining the number of containers in a seed lot, not the numbers of pallets, etc. on which the seed is stored.

The sampler must randomly select the containers for sampling based on the number of primary samples required to obtain a representative sample of the seed lot (Appendix II).

The sampler must ensure that the containers selected for sampling and those adjacent to the container being sampled are clean and free from debris by brushing or sweeping any extraneous material from the containers and the area before inserting the trier. When sampling, the sampler should start sampling at the bottom and work upwards. The sampling pattern should be varied from bottom, middle and top bags on the pallet, and between pallets. Therefore, the likelihood of the sampling operation causing contamination is reduced. To facilitate diagonal sampling of standing bags of up to 100 kg, they must be laid flat. The bags may also be raised off the floor and placed on top of other bags.

The holes in jute or poly bags made by the trier must be closed by running the point of the trier across the hole a couple of times in opposite directions to pull the threads together and close the hole. When the hole can not be closed by this method, suitable adhesive patching tape/label (CFIA/ACIA 0013, Appendix XVI) shall be used. Such would be the case with paper bags. The patch must be signed and dated.

11.5 Sampling From Bulk Seed Lots Packaged in Containers of More Than 100 kg:

For seed packaged in bulk containers (mini-bulk totes), whether sampling for the issuance of an International Seed Lot Certificate or market place surveillance, the sample must be obtained from the sealed, tagged/labelled container(s) using an approved trier (Appendix I) and sampling intensity (Appendix II).

For Market Place Surveillance

a) When sampling at an approved conditioner or bulk storage facility where the seed is in containers such as a bin, railcar, truck box or a trailer or
b) When sampling non-pedigreed seed.

The sample shall be taken from the:

i) retained sample if it is an officially- recognized sample, unless there is reason to believe that the retained sample does not represent the seed lot or is not available;
ii) bin unless it is unsafe to do so;
iii) static bulk lot.

c) When obtaining market place surveillance samples from bins, it may be necessary to find an alternate method of obtaining a representative sample. Follow prescribed sampling methods and procedures to obtain a sample from the representation of the lot. The sampler should seek an alternate presentation of the seed lot when it is not accessible. In addition, the official seed sampler should note the following:

i) When sampling a seed lot stored in a bin with a side access door, the sample is obtained using a double sleeved trier.
ii) When sampling a seed lot from the bottom of a hopper bottom bin:
   a) withdraw a minimum of 10 kg
   b) obtain the laboratory's submitted sample (e.g. 1 kg) using the approved mixing and dividing method as described in Section 13 or
   c) if an approved dividing method is not available, the composite sample must be placed into a container (e.g. woven plastic bag) that can be sampled using an approved trier (Appendix I) and sampling intensity (Appendix II).

For each of the above scenarios stated in (c) above or similar situations for the purposes of submission of the official sample, the lot size should be that quantity from which the submitted sample was obtained. The method of sampling should be as specified in Section 7 and the sampling intensities as specified in Appendix II.

d) When a non compliance has been identified, a sample that better represents the seed lot (the seed lot being that which is available on site) must be taken to determine the appropriate corrective action.

11.6 Sampling the Retained Sample

The method of sampling shall be determined by the sample retention system (sample storage method) and the retained sample size at the seed establishment. Approved sampling equipment must be used to obtain the sample as described in Section 7.0 and Appendix I.

When the retained sample at the seed establishment cannot be sampled by use of approved sampling equipment, the sampler shall mix and divide the retained sample of large seeded crop kinds only by using an approved mixing and dividing method as described in Section 13.0. Where the sampler can neither draw a sample using approved sampling equipment or mix and divide the retained sample, the entire retained sample shall be submitted to the appropriate laboratory for testing.

12.0 PURPOSE OF SUBMITTED SAMPLES

The seed program code, assigned to a sample submitted to the laboratory, gives direction to the laboratory about the purpose for which it is taken. Consequently, the requirements for submitting the sample may vary. A listing and description of the seed program sample codes can be found in Appendix IV. Specific sample types are highlighted below.

12.1 Market Place Surveillance Samples (Seed Program Codes: MPP, MPN or MPI)

A sample for market place surveillance that is present at the place of sale or storage. The seed may be pedigreed, non-pedigreed, domestic or imported.

12.1.1 Sample Submission for Testing (Grade Tables I -VI)

When submitting samples for testing by the CFIA Seed Laboratories on those crop kinds listed in Grade Tables I -VI, at a minimum, the quantity specified in column 3 of Appendix III must be submitted. If a disease test for true loose smut is required, this must be specifically requested.

When the sampler **has conducted a purity examination,** (Appendix VIII provides the quantities and procedure), the sampler shall report the quantity examined and the name(s) and number(s) of the impurities found on the Sample Submission Form (Appendix V). The impurities found should be placed into an envelope and sealed. The envelope must be labelled with the Inspection Sample Number and lot number (where available). The envelope should be kept with the sample or could be attached to the Sample Submission Form for storage purposes.

When the sampler is requesting that the laboratory conduct:

a) a purity test and/or a germination and/or disease test, and the sampler has conducted a purity examination, the sampler shall submit an un-tampered sample to the laboratory.

b) a purity test and/or germination and/or disease test, and the sampler **has not** conducted a purity examination, the sampler shall submit an un-tampered sample to the laboratory.

c) a purity test, to verify the sampler's examination, the sampler's examined sample shall be submitted to the laboratory. The sampler shall state that the sample is the "examined sample" on the Sample Submission Form. The sampler may also request that a germination and/or disease test be conducted on the submitted sample.

d) the laboratory will only verify the impurities submitted with a sample upon request.

Crop kinds listed in Grade Tables VII to XX must be tested for purity and germination by a CFIA Seed Laboratory. At a minimum, an un-tampered sample of the quantity specified in column 3 of Appendix III must be submitted.

12.2 Compliance / Complaint Samples (Seed Program Code: COM)

A Compliance/ Complaint sample may only be taken by an official seed sampler. This sampling is normally done in response to a complaint, to follow-up corrective actions, when there is a suspected non-conformance or to verify compliance. Obtaining a representative sample of the entire seed lot may not be possible. A sample from the available part of the seed lot shall be taken using the appropriate approved sampling method and intensity.

The sample is submitted to the applicable CFIA Seed Laboratory for testing. When submitting Compliance/ Complaint samples, a detailed description of the non compliance as well as any related documentation (e.g. Certificates of Analysis) should be forwarded to the laboratory with the sample.

When Purity of Variety (POV) testing is required, an un-tampered sample of appropriate size shall be submitted to the appropriate CFIA Seed Laboratory (Appendix III). If the POV sample is extracted from the composite sample, it shall be mixed and divided as described in Section 13.0.

12.3 Investigation Samples (Seed Program Code: INV)

This procedure is to be followed by the sampler when sending a sample to the laboratory which is to be examined or analysed pursuant to an investigation under the *Seeds Act* and *Regulations* when a product is suspected of being in violation. The laboratory supplies the supporting analytical data to enforce the regulations. Data generated by the laboratory could support cases of adulteration, economic fraud, presence and level of pathogens, and grade standards not being met.

Investigation samples must be taken by an official seed sampler.

a) Continuity of evidence must be maintained at all times, i.e., from drawing of the sample to the written release of responsibility by the Seed Section, Operations or Enforcement and Investigation Services. The sampler must keep the sample and all relevant materials in his presence or locked in a secure cabinet/locker. All keys must be kept by the sampler. This continuity must be maintained until the sealed package containing the seed sample and relevant documentation is shipped to the laboratory by courier.

b) When submitting investigation samples, a detailed description of the investigation as well as any related documentation (e.g. Certificates of Analysis) should be forwarded to the laboratory with the sample.

c) The sample is submitted to the applicable CFIA Seed Laboratory for testing. It is recommended that the sampler contact the supervisor of the laboratory unit prior to sending an investigation sample to inform them of the impending sample. The sampler shall clearly address the package to the laboratory unit that it is destined and clearly **label it as an Investigation sample**.

12.3.1 Required Information for Investigation Samples

The following information must be recorded on the Sample Submission Form:

a) time/date and place sample was taken.
b) number and type of sample containers and nature of the sample, eg. seed envelope containing 1200 g soybean.
c) tests required.
d) identification of the origin of the sample, e.g. lot designation/number and location where it was taken.
e) a detailed description of the issue should be forwarded to the laboratory with the sample, where possible.

The sample shall be labelled with the appropriate information to identify it (at a minimum that stated in Section 15.3) and relate it to the Sample Submission Form.

12.3.2 Sealing and Shipping Procedures for Investigation Samples

a) Both the inner container and the outer container should be sealed (Section 16.2), to ensure that no unauthorized opening can occur without detection.

b) Address the package to the laboratory designated to conduct the tests and the specified authorized laboratory contact person to ensure maintenance of the continuity of evidence.

c) Clearly mark on the outside of the package, "Seed Investigation Sample" and "To be opened only by addressee".

d) Ship by courier so that there will be a record of receipt by the authorized laboratory personnel.

12.4 Samples for the Issuance of ISTA International Seed Lot Certificates

Samples taken for the issuance of ISTA International Seed Lot Certificates are subject to the procedures set out in *International Rules for Seed Testing* Chapter 2. Such samples can only be taken by individuals recognized by the International Seed Testing Association (ISTA) accredited member laboratories. CFIA Seed Laboratories are ISTA accredited member laboratories in Canada. The laboratory accepts samples from inspectors/seed samplers who have been certified to take samples for export sampling. The laboratories are required to keep records of those individuals who are official seed samplers.

When obtaining samples for the issuance of ISTA Seed Lot Certificates, the sampling prescriptions laid out in the ISTA Rules Chapter 2 must be followed. The ISTA Rules are amended annually. The Rule amendments are effective in January of each year. The laboratory will forward the Rule changes electronically in a PDF file to each official seed sampler and requires that each official seed sampler acknowledge receipt of the ISTA Rules for Sampling.

The ISTA Rules are not a standard or a legislation which state the minimum requirements for purity, germination and freedom from stated species that the seed lot must meet. They are methods and procedures for conducting the sampling of the seed lot and testing of the seed sample.

It is a requirement that the method of sealing be stated on the International Seed Lot Certificate.

Therefore, the sampler must state on the Laboratory Sample Tracking System what method of sealing was used, e.g. OECD stitched label, metal seal.

13.0 OBTAINING THE SUBMITTED SAMPLE

The composite sample is frequently too large and must be reduced to obtain the sample for submission to the laboratory. This latter sample is known as the submitted sample.

Sample reduction by appropriate mixing and dividing methods is a requirement to ensure that no more variation than what would be expected in simple random sampling is introduced.

If separate sub-samples from one seed lot are required for different tests (e.g. purity and/or germination, disease, POV, moisture determination), these sub-samples must be taken by:

a) sampling the seed lot again, using the same approved sampling method and intensity for each sub-sample required. **or**
b) mixing the entire composite sample (large seeded crop kinds only) using the approved mixing and dividing method (Riffle Divider) to obtain each sub-sample required **or**
c) submitting the entire composite sample to the seed testing laboratory as directed by the laboratory.

The samples or sub-samples should be submitted to the appropriate CFIA Laboratory on a timely basis. The sampler must state on the Sample Submission Form (Appendix V) if the sample has been mixed and divided or if the entire composite sample has been submitted. All sub-samples must be sealed (Section 15.2).

13.1 Mixing and Dividing Method for Large- Seeded Crop Kinds

The riffle divider method is the approved mixing and dividing method for those kinds listed in Grade Tables I-III, V-VI and XVIII. When the sampler is required to mix and divide a composite sample of these kinds, this procedure must be followed.

The divider consists of a hopper with attached channels or ducts, a frame to hold the hopper, four receiving pans and a pouring pan. Ducts or channels lead from the hopper to the collecting pans, alternate ones leading to opposite sides. This divider is suitable for most kinds of seeds, including pulse crops.

13.1.1 Riffle Divider Method for Mixing Large Seeded Crop Kinds

The composite sample must be removed from the container in which it was placed in such a manner that all seeds are retained. Therefore, if the composite sample is in:

a) a cloth bag - carefully remove the contents and turn the bag inside out and check the seams for seeds. Seed with barbs, awns, hairs etc. may adhere to the bag or become caught in the seams.

b) containers (e.g. pails) - carefully remove contents and check for seeds adhering to the sides and bottom of the container.

The entire composite sample should be placed into a clean pail/seed scoop or one of the riffle divider collection containers.

Caution: Care should be taken when mixing and dividing pulses crops such as peas and soybeans as the impact of the seed in the pan may cause seed breakage.

Method:
Mixing Operation

a) Ensure that the divider and four collection pans/containers are clean. Check all channels, joints and seams of the divider and collection pans to ensure there are no seeds or other plant matter present before each use.
b) place the riffle divider on a firm, level clean surface.
c) two clean empty containers shall be placed under the channels to receive the seed.

Placing the Seed into the Divider for Mixing

d) pour the whole sample into the divider by running the collection pan/ container backwards and forwards along the edge of the divider so that all the channels and spaces of the divider receive an equal amount of seed.
e) the two full containers shall be replaced with two clean empty containers.

Mixing Process Now Begins

f) the contents of one full collection pan/container shall be poured into the divider by holding the long edge of the pan against the long edge of the riffle hopper and then rotating the bottom up so that the seeds pour across all channels at the same time; followed by the other full container using the same procedure. **This process of mixing the entire composite sample shall be repeated a minimum of 3 times before successive halving begins.**

Dividing to Obtain the Sub-Samples for Submission to the Laboratory

g) The contents of one full collection pan/container is set aside. Empty collection pans/containers are placed under each outlet, and the contents of the other collection pan/container is poured into the hopper by holding the long edge of the pan against the long edge of the riffle hopper and then rotating the bottom up so that the seeds pour across all channels at the same time.
h) Continue the successive halving process until a sub-sample of not less than the minimum weight required is obtained.
i) Continue this process until the all the required sub-samples are obtained e.g. Sub-sample for the purity and/or germination and/or POV.
j) Ensure that the divider and containers are clean after each mixing operation. Check all channels of the divider, the joints and seams. Ensure that the collection pans are clean.

13.1.2 Care and Handling of the Riffle Divider

The riffle divider must be placed on a firm, level surface and be kept and stored in a clean, dry environment. The sampler must ensure that the divider and the collection pans/ containers are not damaged. The divider or the collection pans must not be banged together to clean nor tools such as mallet, hammer or knife used to clean them. Wherever possible, compressed air should be used to clean the divider and collection containers. If the divider is being transported, it should be packaged in a padded box or carrying case to ensure that it will not be damaged. If the divider or collections pans are dirty or oily, they can be washed with warm water and mild detergent. The divider should be dried thoroughly with a soft lint free cloth that will not leave any residue on the equipment and left to dry at least overnight.

13.2 Method for Small - Seeded Crop Kinds (Grade Tables IV, VII-XVII and XIX- XX)

The entire composite sample must be submitted to the laboratory. To reduce the risk of cross contamination (which is greater with small-seeded species), the laboratory shall conduct all mixing and dividing operations and submit any required sub-samples to the appropriate testing laboratories except where a moisture test is requested. Where a moisture test is required, the sampler must re-sample the seed lot using the same approved sampling method and intensity as was used to obtain the sample for purity and /or germination and/or POV. The sampler must state on the Sample Submission Form (Appendix V) what tests are required.

13.3 Types of Sub - Samples

The following are the types of sub- samples routinely taken by a seed sampler. When requests to sub-sample for other purposes are received, the seed sampler shall consult, as appropriate, with the Area Network Program Specialist and/or the CFIA Seed Laboratory.

13.3.1 Sub - Sample for Purity of Variety

Varietal purity tests are performed to verify that the pedigreed seed has maintained its original purity during multiplication, conditioning and marketing. This program for testing purity of variety of pedigreed seed is necessary to fulfil certain requirements respecting international trade and is a vital check on the Canadian seed certification system.

The levels of monitoring for purity of variety are:

a) all seed lots labelled with OECD tags are to be sampled.
b) seed lots of Foundation, Registered seed and Certified seed - only seed lots where there are concerns regarding the purity of variety should be sampled. Direction for sampling will be given through Seed Section. These samples are to be designated POV on the Sample Submission Form (Appendix V). The sampler shall indicate in the comments section of the Sample Submission Form any additional information deemed necessary.

The POV sample shall be drawn from the seed lot or taken from the composite/submitted sample as indicated in Appendix III by an official seed sampler or the CFIA Seed Laboratory. The following identification information must be included: crop kind, variety name, grower's name, crop certificate number and lot number.

Samples to be tested under the OECD Schemes must be identified with complete reference number, including the country code. If a seed lot is re-labelled or re-fastened, the previous reference number must also be mentioned. The sampler must refer to QSP152.1 *Implementation and Administration of the OECD Seed Schemes and EU Seed Directives* for further details. The Sample Submission Form must fully document all the information. Each shipment must be accompanied by a list organized by the crop kind and variety, the sampler's number, OECD reference number or seed sealing number. The sampler's number, OECD reference number or seed sealing number must also be stated on each sample. If there are ten or fewer samples in a shipment, there is no need to prepare the list, provided a copy of a Sample Submission Form is enclosed for each sample.

13.3.1.1 Submission of Samples for Purity of Variety (POV)

For sample sizes, addresses and deadlines for submission, the sampler must refer to Appendix III for further details.

a) The seed lot shall either be sampled as described in Section 7.0 to obtain the POV sample or the composite sample shall be sub-sampled (large seeded crop kinds only) following the approved mixing and dividing method to obtain the sub-sample as described in Section 13.0.

b) The seed lot information must be fully documented on the Sample Submission Form. A copy of the Sample Submission Form must accompany each sample.

13.3.1.2 POV Sample Containers

The seed for POV samples should be enclosed in good quality manilla envelopes or clean unused cotton bags. Envelopes containing small grass seeds and legumes such as timothy, bluegrass, bentgrass, clovers, bird's-foot trefoil and alfalfa should be taped with masking tape (**not scotch tape**) or official sealing tape to avoid escaping and mixing of seeds. Samples of beans and peas should be enclosed in clean unused cotton bags. All samples must be sealed.

The sample container shall be labelled with: Crop kind, complete variety name, Crop Certificate number (if Canadian origin), or Establishment Lot No., grower's name or dealer where sampled, inspection sample number, date of sampling and signature of sampler. All samples must be properly sealed (Sections 8.2 and 15.2). Samples should then be packed in strong cardboard boxes to avoid damage during transit.

13.3.2 Sub-Sampling for Moisture Test

Sampling for moisture must not be conducted when it will result in the sample being in transit over a

weekend or a holiday, as the moisture test must be initiated as soon as possible after sampling. In addition, oilseeds, such as flax, rapeseed, mustard, oilseed radish or soybeans shall not be sampled in a time-frame that there is any chance that the sample will arrive at the lab for testing on a Friday or a holiday.

13.3.2.1 Sampling Requirements for Moisture Test (Oven or Moisture Meter)

The sample for moisture determination must be obtained as quickly as possible. The samples must be packaged in a moisture proof container from which as much air as possible has been extruded. The moisture proof container must be strong enough to prevent spillage of the seed.
The seed lot shall be:

a) sampled by the same approved sampling method that was used to obtain the composite sample (for purity and/or germination) as described in Section 7.0. The sample for moisture testing shall be collected into a moisture proof container **or**
b) the entire composite sample shall be quickly subdivided (large-seeded crop kinds: **Grade Table I, II, V and VI only**) following the procedure described in Section 13 for use of the riffle divider except that the sample shall only be passed through the divider once and the sub-sample shall be taken from one of the collection pans by quickly taking small random sub-samples (5 or more) using a moisture proof container (e.g. small metal cup).
c) the official seed sampler must quickly place the sub-samples into a moisture proof container which, at a minimum, has been labelled with the lot number.
d) a sample of a sufficient size as described in Appendix III must be taken for submission to the laboratory.

Examples of suitable moisture proof containers include:

a) non woven plastic (plastic bags with a sealing top), re-sealable plastic bags from which all air has been removed.
b) polyethylene, or foil packages that can be hermetically sealed.
c) tins or glass bottles with an air-tight top.

When zip-lock bags or whirl-top bags are used, they are not considered moisture proof if just zipped or the ends of the wired ties twisted together. As much air as possible must be removed and the top of the bag must be folded over at least twice and then taped all around the top (securing the entire folded opening) with official sealing tape or masking tape (not scotch tape).
The moisture proof container, containing the sample for moisture testing, should be placed into a clean unused cotton bag. Samples for moisture determination must be labelled as described in Section 15.3. All samples drawn for moisture determination must be sealed (Section 15.2).

The moisture sample must not be enclosed inside the sample container containing the seed for the other test(s) (e.g. purity and germination) as this destroys the integrity of the sample for those test(s). A Sample Submission Form (Appendix IV) must accompany the sample. Where more than one sample (e.g. purity and/or germination) from the same seed lot is being submitted to the same laboratory, only one Sample Submission Form is required. The samples can be attached and sealed together (Section 15.0).

Where a moisture meter test is requested, the Saskatoon Laboratory (SSTS) must be contacted regarding the sample size requirements.

13.3.3 Requirements for Sub-Sampling for Disease Tests

Note that to avoid concerns about contamination, triers and riffle dividers need to be disinfected between each sampling and mixing operation.

The seed lot shall either be:

a) sampled by the same approved sampling method as was used to obtain the composite sample for purity and/or germination as described in Section 7.0. **or**
b) the entire composite sample (large-seeded crop kinds only) shall be subdivided using the procedure in Section 13.

A sample of a sufficient size as described in Appendix III must be taken for submission to the laboratory.

The sub-sample for testing should be placed into a clean unused cotton bag or manilla envelope which has been labelled with the required information as described in Section 15.3. The official seed sampler must not enclose the sample inside the sample container containing the seed for other test(s) (e.g. purity, germination, moisture) as this destroys the integrity of the sample for those tests. All samples drawn for disease test must be sealed (Section 15.2). A Sample Submission Form must accompany the sample. Where more than one sample (e.g. purity and/or germination) from the same seed lot is being submitted to the same laboratory, the samples can be attached and sealed together (Section 15.0) and only one Sample Submission Form is required.

13.3.4 Sampling at a Private Seed Testing Laboratory

Under the direction of Seed Section, and/or the CFIA Seed Laboratory, a seed sampler may be required to visit a private seed testing laboratory for the purposes of obtaining a sample and the related documentation.

The sampler shall:

a) request that the laboratory mix and divide the remaining unanalysed portion of the sample using the appropriate method described in Canadian Methods and Procedures to provide a sample of a sufficient size for the testing purpose. **or**
b) obtain the entire submitted sample including the laboratory's analysed portions.

The sample taken should be placed into a clean unused cotton bag or manilla envelope which has been labelled with the required information. The sample must be sealed as described in Section 15.0. The sampler must request a copy of the laboratories Report/Certificate of Analysis and all related worksheets. A completed Sample Submission Form (Appendix V) must accompany the sample.

The sampler shall provide the laboratory with a written, dated and signed notice that CFIA has removed part or all of the sample from the laboratory. The documentation shall include the laboratory's sample/test number, the crop kind, variety if applicable and any other information pertinent to the sample.

14.0 SAMPLE SUBMISSION FORM

14.1 Laboratory Sample Tracking System Submission (LSTS) Form (CFIA/ACIA 5160)

The CFIA/ACIA 5160 Sample Submission Form (Appendix V) must be completed for each sample submitted to the lab. The LSTS form for submission is found on CFIA Apps - LSTS Input. The instructions for the completion of the LSTS form can be found in Merlin. **http://merlin/english/sci/lab/labsys/centura/cent_pffse.asp.** The ISTA Rules require that the sample be submitted to the lab in a manner that establishes the connection between the sample and the seed lot. This is facilitated by the completion of the CFIA/ACIA 5160 Sample Submission Form (Appendix V). It is critical that the sampler completes the form thoroughly and accurately. When sampling for the issuance of an ISTA Certificate, the sampler must state on the LSTS form what method of sealing was used, e.g. OECD stitched label, metal seal.

Where the sampler makes an error in recording information on the Sample Submission Form (hard copy), each error must be crossed out (not erased, made illegible, no white-out) and the correct information written alongside. All corrections must be initialled and dated. All information must be written in ink.

When submitting samples of seed mixtures, the name and percentage of each component where available must be stated on or accompany the Sample Submission Form.

Where the trier size or methods for sampling deviate from those stated in this SWI, the reasons for the deviation must be documented on or accompany the Sample Submission Form.

Where the sampler is submitting a sample of seed that is treated, the name of the pest control product must be stated.

Where the sampler is submitting a sample that is inoculated, the name of the inoculant product must be stated.

When the sampler is submitting a marketplace surveillance sample, the information as described in Section 12.1.1 - Market Place Surveillance - shall be stated on the Sample Submission Form.

When the sampler has mixed and divided the sample, this shall be stated on the Sample Submission Form.

When submitting samples for Plant Health (Seed Program Code PHY or PHS), the sampler must state on the Sample Submission Form for what species the sample must be examined, or the specifications must be attached to the Sample Submission Form.

The Inspector sample number is a very important part of the information on the Sample Submission Form. For example, 57-07-013-0123. The following is a description of the number:

First number:	represents the year 2005 (fiscal year)
Second number:	seed program code
Third and fourth numbers:	the region code
Fifth to seventh:	Inspector Identification number
Eighth to the eleventh:	A sequential number representing the cumulative number of samples taken by the inspector in a fiscal year for all sampling programs assigned to that inspector.

14.2 Application for Seed Analysis for Export Purposes (CFIA/ACIA 1113)

Where the client has requested that an official sample be drawn for export testing and the issuance of an ISTA International Seed Lot Certificate, a completed "*Application for Seed Analysis for Export Purposes*" (Appendix IX) must be submitted to the laboratory for each sample. The official seed sampler must refer to QSP152.1 *Implementation and Administration of the OECD Seed Schemes and EU Seed Directives* for further details.

This form should be completed by the client. The application must clearly state the test(s) required and the minimum specifications the seed lot is to meet. A legislative statement is not adequate (e.g. Argentine Import Regulations) with the exception of European Union (EU) and Higher Voluntary Standard (HVS). CFIA Seed Laboratories do not receive or endeavour to obtain the current foreign country seed legislation (rules or regulations). It is the responsibility of the applicant to provide the specifications required for testing.

15.0 PACKAGING, SEALING AND SUBMISSION OF THE SAMPLE

All official seed samples submitted to the laboratory shall be submitted in a sealed tamper proof container.

15.1 Sample Submission Containers

A suitable container for the submission of the sample to the seed laboratory is one that will ensure the integrity of the quality of the sample during transit and any storage of the sample before testing. The minimum size of the sample submitted shall be as stated in Appendix III.

The suitability of the sample container will depend on the quality of the seed lot and the types of tests requested:

a) where percentage pure seed, germination, other seed counts, purity of variety, disease test or tetrazolium test are requested, the most suitable container is an unused clean cloth or good quality manilla envelope. Samples for these tests should never be packaged in plastic bags. The exception is treated seed. (Section 5.0).

b) where a test for moisture determination is requested, these samples shall be packaged in moisture proof containers as described in Section 13.3.2.

15.2 Sealing the Sample

Each sample submitted to the Saskatoon Laboratory (SSTS) or the Quarantine Plant Pathology Laboratory (Fallowfield) must be sealed by the sampler as follows:

a) Where samples are packaged in cloth bags, metal seals shall be affixed to the strings so that the sample can not be opened without breaking the seal.

b) Where samples are packaged in paper bags or manilla envelopes, the samples shall be sealed by affixing a label (CFIA/ACIA 0013) (Appendix XVI) or official sealing tape. The label or tape must be affixed so that the sample can not be opened without breaking the seal. The label or tape must be marked with the sampler's initials and dated.

c) Where a) or b) is not possible and samples from the same sampler are packaged in the same container together and submitted to the laboratory in the same shipment, the container into which the samples are packaged must be sealed in a tamper-proof manner such as:

   i) taping the box and initialing and dating through the tape so that the container can not be opened without showing evidence that it has been opened.
   ii) placing samples into a courier envelope and sealing.
   iii) enclosing a statement with the samples that the samples have been in the sampler's possession at all times, that the sampler packaged the samples him/her self into the shipping container and sealed the container.
   iv) samples should not be left unprotected and should not be exposed to moisture, heat or direct sunlight.

15.3 Labelling the Submitted Sample

Each sample must be legibly labelled with the following information:

a) the inspection sample number
b) crop kind
c) date of sampling
d) signature of sampler.
e) as applicable, variety name (for all pedigreed seed kinds; vegetables)
f) as applicable, lot number (must be stated for all pedigreed seed and OECD sampling)

Where the seed lot is to be exported, the sampler must also submit a tag with each sample which

has been affixed to the containers (e.g. OECD outer tag or company tag in the case of non-pedigreed seed) to the laboratory.

15.4 Accompanying Documentation

Documentation

The official seed sampler must complete the Sample Submission Form (Section 14.0 and Appendix V) and forward it with the sample. For samples submitted for the Issuance of ISTA International Seed Lot Certificates, the Application for Seed Analysis for Export Purposes (Appendix IV) must also be completed and submitted.

Tags

The official seed sampler must ensure the following:
a) tags are completed correctly; and
b) that a tag accompanies the sample/documentation .

15.5 Submission of the Samples to the Laboratory

After the sample has been packaged and identified for submission to the appropriate laboratory, it is necessary to protect the samples and documents during transit. Samples should be packed in sturdy containers, e.g. cardboard box, with packing materials such as newspaper, bubble pack, etc. or other shipping containers provided that the integrity of the sample will be secured.

Samples must not be left in the hands of the client. They must remain in the sampler's possession at all times until they have been securely sealed and packaged for submission to the laboratory.

Samples should be submitted to the laboratory without delay. Where samples can not be submitted immediately, they must be stored appropriately in a cool, dry secure area. Samples that are not for moisture determination must not be shipped or stored in moisture proof containers.

Samples for moisture determination can be shipped in the same container as samples submitted for other tests provided the samples are well secured in moisture proof containers. Sampling for moisture must not be conducted when it will result in the sample being in transit over a weekend or a holiday, as the moisture test must be initiated as soon as possible after sampling. In addition, oilseeds, such as flax, rapeseed, mustard, oilseed radish or soybeans shall not be sampled in a time-frame that there is any chance that the sample will arrive at the lab for testing on a Friday or a holiday.

Mode of transportation will be at the discretion of the person submitting the sample and will be influenced by the priority of the test(s). Where the sample is for the issuance of an ISTA Seed Lot Certificate, a moisture test, an Investigation Sample, or is a high priority, the sample should be shipped by courier or the quickest mode available.

In general, regular mail, priority post, courier, and bus are used. Appendix III provides CFIA seed laboratory addresses and contact information.

16.0 SEED LABORATORY ROLES

16.1 Documentation and Sample Verification

When the samples are received, the Saskatoon Laboratory (SSTS) will verify:

a) the sampler is an official seed sampler.

b) the sample, Sample Submission Form (Appendix V), and as applicable, the Application for Seed Analysis for Export Purposes (Appendix IX), provide detailed information regarding the identity of the seed lot, requirements for testing, any seed investigation, labelling information in the case of seed mixtures and, where the seed is treated, that the name of the pest control product has been provided.

c) for testing and issuance of ISTA Seed Lot Certificates (Appendix XI), the submitted sample size, as a minimum, is that stated in the ISTA Rules. Where less than the required minimum sample size is submitted, the laboratory will not accept the sample for testing and will require that the seed lot be re-sampled.

d) each sample is sealed. Where the sample is received unsealed, the laboratory will not accept it for testing and will require that the seed lot be re-sampled.

e) the seed lot has been identified with a lot designation/number, which includes CDN numbers and that the lot designation/number is the same on all documents, tags, sample container etc. or that it is clearly indicated that there was no lot number assigned in the case of non-pedigreed seed.

f) all information on the sample tag, the Sample Submission Form and, where applicable, the Application for Seed Analysis for Export Purposes is the same.

g) the number of containers and the weight of each container equals the declared size of the seed lot.

h) the weight of the seed lot does not exceed the permissible lot size in the case of a seed lot sampled for ISTA Seed Lot Certificates. Where the seed lot exceeds the maximum lot sizes stated in the ISTA Rules, the laboratory will not accept the sample for testing and will require that the seed lot be broken into seed lots of a permissible size and that each seed lot be sampled.

i) the crop kind and variety in the cases where OECD tags (Appendix X) are affixed, and verify that the variety is recognized under the OECD scheme. Where the variety is not listed in the OECD List of Varieties Eligible for Seed Certification, the sampler must obtain evidence that the variety is registered in a certification system and submit this information to the laboratory.

The ISTA certificate can not be issued until the variety is accepted by OECD or there is evidence that the variety is registered in a certification system or the OECD tags are removed.

j) In the case where the OECD tags are labelled with EC Rules and Standards, the laboratory verifies that the species is listed in the EU Directives. If the species is not listed in the EU Directives, the sampler and the client shall be notified and testing will not be initiated until there is assurance that the EC Rules and Standards statement has been removed from the OECD tags and direction for testing has been received.

k) the name and address of the applicant and grower.

l) crop certificate numbers in the case of pedigreed seed produced in Canada and the pedigreed reference number in the case of seed produced outside of Canada.

m) the sampling intensity. If the sampling intensity does not meet the minimum requirement stated in Appendix II, the laboratory will not accept the sample for testing and will require that the seed lot be re-sampled.

n) the type and size of trier used or the method. If the trier is not appropriate for sampling the crop kind submitted, the laboratory will not accept the sample for testing and will require that the seed lot be re-sampled.

o) the mixing and dividing method used to obtain the submitted sample or that the entire composite sample has been submitted for testing.

16.2 Action Request

The laboratory will issue an "Action Request" when:

a) the sample or the documents submitted do not meet the requirements set out in this SWI or the ISTA Rules.
b) the information contains discrepancies.
c) a document and/or a sample is missing.

The classification of non-conformances (Appendix VII) and the Standard Action Request form (Appendix VIII) can be found in QSP 132.4 Official Seed Sampler Certification.

16.3 Issuance of ISTA International Seed Lot Certificates

For the issuance of ISTA International Seed Lot Certificates, the following is required:

a) Stated by Applicant - The applicant is responsible for the accuracy and validity of the information stated.

The lab is responsible to state the information accurately as provided by the application in the "stated by applicant" section (e.g. lot designated as sweet clover, the applicant states " yellow

blossom sweet clover", the ISTA Certificate will state "yellow blossom sweet clover" but *Melilotus* species in the section "Species").

b) Testing and issuing laboratory - the lab name and location.

c) Sampling by Branch or a recognized agency (Canadian Food Inspection Agency).

d) Marks of the lot- is the CDN No. or the company lot number present.

e) Seal of the lot is the actual method used to seal the lot, e.g. OECD stitched tag, metal seal.

f) Other
   i) this section will report the germination methodology.
   ii) special procedures or requirements by the rules.
   iii) the search for stated species in the quantity specified, either in the rules or by the applicant if greater than that required by the Rules. This search may be identified as a:
      a) complete test: which means a search for all contaminants was conducted and the botanical name and rate of incident by numbers are reported for each species found.
      b) limited test: a search for only those species stated by the applicant. The botanical name and rate of incident by numbers are reported.
      c) reduced test: a reduced quantity has been searched for stated species which are deemed to be difficult to separate. The botanical name and rate of incident by numbers are reported.
      d) limited - reduced - test: is one in which less than the prescribed weight of seed for a working sample is examined for the stated species only.

ISTA certificates must be free of errors, can not have type overs or erasures. Where a test is not conducted, an "N" shall be reported.

There can not be more than one original certificate issued. Corresponding duplicate(s) will be issued upon request. If subsequent testing is conducted, the previous test(s) must be cancelled. A statement will be made on the certificate being issued cancelling any previous tests on the seed lot.

When a request for an update for germination is received, a certificate shall be issued stating the current percentage germination. The certificate will also state that the previous germination results are cancelled.

When a result does not meet the specification, the applicant shall be notified.

In the case where EC Rules and Standards are part of the specification, and are not met, the designated CFIA contact person and the client will be notified. Upon the request of the client, an ISTA Seed Lot Certificate can be issued even if the testing indicates that the specifications including EC Rules and Standards are not met, as the certificate is a statement of the test results. It is the sampler's responsibility to ensure that the applicable Variety Certificate (Appendix XII or XIII) is issued and that the corrected OECD tags are affixed to the seed lot.

All certificates of analysis must be signed, dated and stamped with the laboratory seal.

All reports or results to the samplers shall be signed and dated.

Where an ISTA certificate has been issued on a seed lot, **it is not** permissible to issue another certificate of the same colour as a result of a further sampling operation from the same seed lot within one month of the previous sampling operation unless the seed has been treated. If the seed lot is re-cleaned and re-labelled, then it can re-sampled. The ISTA Certificate is valid indefinitely.

16.4 Laboratory Retention of Samples and Documentation

a) EXP and PHY samples are retained for one year. All other samples are retained for two years.

b) Documentation is retained for ten years.