



Ontario's Natural Selections

SEED SOURCE CERTIFICATION MANUAL

(May 2002)

Certification of
The Source of Woody Plant
Propagation Material
In Southcentral Ontario



Suite 233, 266 Charlotte St. Peterborough, Ontario K9J 2V4
T: (705) 755-3284 F: (705) 755-3233 barb.boysen@ontario.ca

Foreword

Ontario's Natural Selections is a voluntary certification program for woody species. Seed and plants sold under this label are certified by the Forest Gene Conservation Association (FGCA) to be from the source identified on the label. The consumer can then decide how appropriate it is for their planting project. We hope this program will help plantings in southcentral Ontario survive and thrive to provide the many benefits we expect from our forests - both rural and urban. It is a 3 part program. The FGCA will

1. educate consumers about successful planting practices, of which source-identified seed is a start – contact the FGCA for copies of posters and brochures.
2. encourage seed collectors and growers to supply and market high quality source-identified seed and stock, and
3. administer the program with a system of documentation, registration, inspection and auditing.

The FGCA launched the program in the fall of 2000, with workshops to certify seed collectors. The next step is to certify seed, seed processors, growers and seedlings.

Who is the FGCA?

We are a non profit corporation of government and non-government organizations and individuals, including the Ontario Ministry of Natural Resources, Conservation Ontario and the Society for Ecological Restoration – Ontario Chapter, forest industry and other individuals and groups concerned about conservation of genetic diversity. We promote the maintenance and restoration of the genetic diversity of Ontario's native trees and shrubs in southcentral Ontario. One of our main goals is to ensure that appropriate seed sources are used in planting programs. We hope to achieve this goal through certification.

Why Seed Source Matters

It's all about working with, not against, the genetic adaptation that has evolved over so many generations, to ensure the long-term success of our tree planting efforts. Growth is maximized and risks minimized by using locally adapted seed sources. If material is brought in from dissimilar areas the result can be low survival or reduced growth from heat stress, winterkill, frost damage, or increased insect and disease problems. If the stock that is planted does not have the genetic potential to survive and thrive in the environmental conditions of the planting site, no amount of tending, fertilizing, irrigation or pest control will help the trees grow as vigorously as trees of the appropriate source.

Why Certify Seed Source?

Restorationists and forest managers are increasingly aware that the right seed source is key to long-term economic and ecological success of planting efforts. However, unlike stock quality (size and health), genetic quality (seed source) cannot be observed by the consumer. Seed source right now is a matter of trust. We want it to be a matter of certification of those who handle the product - from seed to seedling. Certification can help consumers get the most appropriate stock for their planting projects. **It can also give seed collectors and growers an advantage in marketing their product.**

Certification does not guarantee physiological quality (e.g., germination rate of seed, or size and health of a seedling). And purchasers must still match the appropriate species and seed source to the planting site. As such consumer education about other aspects of successful planting is part of the FGCA's program - the wrong seed source is only one of many reasons for planting failures.

Refer to Appendix A for an overview of the process outlined in detail in this manual. If you are interested in becoming certified or registering certified source-identified products please contact

Barb Boysen, FGCA Coordinator T: (705) 755-3284 F: (705) 755-3233 barb.boysen@ontario.ca
Suite 233, 266 Charlotte St, Peterborough, ON K9J 2V4

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INTRODUCTION

The Forest Gene Conservation Association (FGCA), is a not for profit corporation of groups and individuals in southcentral Ontario with a mandate to conserve the genetic diversity of our native forests. The FGCA has initiated *Ontario's Natural Selections*, a voluntary program to certify the source of native woody plant material and promote the use of source identified material.

RELATIONSHIP TO OTHER ORGANIZATIONS

FGCA has based these standards on those of other jurisdictions such as American state seed certification agencies and the U.S. Department of Agriculture. These standards equal or exceed the standards of the Association of Official Seed Certifying Agencies, the Organization for Economic Cooperation and Development (O.E.C.D.) and Directorate for Agriculture and Food, U.N.

PURPOSE OF CERTIFICATION

The purpose of certification is to maintain, ensure and make available to interested buyers the identity of seed source and species throughout the production, handling and distribution of the seed and stock of native woody plant species. (See Appendix A for an outline of the necessary procedures)

The term "woody plant propagation material" refers to all forms of material used to propagate woody plants, including seed, seedlings, cuttings, rooted cuttings, transplants, or other forms.

Certification DOES

- help ensure that any particular set of propagation material is, in fact, what it is labeled.

Certification DOES NOT

- guarantee the physiological quality of the material (e.g., germination rate of a seedlot or root:shoot ratio of a seedling).
- guarantee the performance of any given set of propagation material. Purchasers will still need to match the appropriate species/seed source to the intended planting site.
- mandate particular seed sources for particular uses - that remains the prerogative of the consumer or resource manager.

CHECKS & BALANCES:

Inspections, reporting and audits minimize the opportunity for carelessness and deception. However, the production and distribution of certified material depends on the integrity of those participating in the program. The FGCA Board of Directors will act on any case where rules established by FGCA are knowingly or intentionally violated. Action taken by the Board of Directors may result in the suspension of certification. Any applicant whose reputation is unsatisfactory will be refused field inspection and the privileges of certification.

It is the responsibility of every participant to abide by the rules, maintain the standards, and report irregularities or violations.

FGCA developed the following "Certification Standards". These standards will be used as the official document in all issues related to certification of woody plant propagation material.

CERTIFICATION STANDARDS (November 2001)

While these standards represent the best knowledge available at present, they are considered tentative. As we increase our knowledge and experience of the genetic diversity, particularly with respect to adaptedness, of woody plant species and also of certification, changes in these standards will be necessary. The Certification Standards as adopted by the Association are basic and together with the following specific standards constitute the standards for certification of source of native woody plant material.

The FGCA Board of Directors is responsible for application of the standards including applications for certification, consideration of deviation from the standards and proposed changes to the standards.

Production records must be maintained and available and FGCA reserves the right to inspect records, procedures or facilities of any certification program participant at any time. Application for certification must be made as described in the following pages. (See Appendix A for an outline of the certification procedure)

In general, the certification standards have two major elements:

1. accurate **written** documentation of processes and material.
2. **field** inspections by FGCA which are used to confirm adherence to the standards.

The type of documentation and field inspection required depends on what process and what material is being certified, as discussed below.

The Certification Standards being implemented are divided into four parts. It is possible that one person and business is involved with all aspects from collection to processing and growing and in that case all 4 parts of the standards will apply to them. The four parts are:

1. GENERAL STANDARDS
2. STANDARDS FOR COLLECTIONS OF MATERIAL
3. STANDARDS FOR PROCESSING OF MATERIAL
4. STANDARDS FOR PROPAGATION FACILITIES

PART ONE: GENERAL STANDARDS

I. Species & Material

Material generally refers to cones, seeds, nuts, cuttings, and other types of material and the new woody plants grown from it. The certification standards are for any woody plant species native to Ontario, as used in shelterbelts, windbreaks, ecological restoration, forest product plantings and urban forest plantings.

Depending on the precision with which the material is collected, two different levels, or classes, of certification are possible.

II. Classes of Certified material

In the initial implementation of this certification program only two (2) classes of material shall be recognized in certification. Only material which meets the standards listed below for the various classes of certification shall be eligible for certification. These classes are defined as follows:

A. Source Identified (SI)

The first class, requiring the least precise collection, is for native woody plant species seed or cuttings from natural stands or populations, or from plantations of proven performance (e.g. having attained $\frac{3}{4}$ of their mature life span with no signs of maladaptation). Comparisons with other collections or ecotypes of the same species are unknown (or un-described and un-registered). SI material can come from a tree, a seed collection stand, several stands in an area, a county, a cluster of counties, or any other definable geographic region. The "source" must simply be accurately described, but cannot be any more precise than the actual area of collection. For example, red oak seed collected from across southwestern Ontario and then bulked into a single seedlot could be identified as "Southwestern Ontario source," but could not be identified as "Essex County source." Certified Seed Collectors must submit an ONS FORM 2a/b - **Registration of Source for Seedlot Certification by Collector** (see Appendix B) 1 month prior to when certification is required.

B. Selected Material (SM)

The second class is for native woody plant species seed or cuttings from inspected and described natural trees and stands or plantations of proven performance (e.g. having attained $\frac{3}{4}$ of their mature life span with no signs of maladaptation). Their performance can be described in order to allow comparisons to other sources of the same species. There are 2 required steps:

1. A one time **Site Approval inspection** must be conducted before any material can be collected and certified. A Site Approval inspection is a thorough examination of the woody plants and site to confirm the stand is as described (e.g. growth rate, population size, disease-free or other marketable characteristic). The selected stand or population should contain enough of the desired species to insure genetic diversity and an adequate pollen supply. An Approval inspection can be requested by submitting an ONS FORM 3a/b - **Application for Site Approval Inspection** form (see Appendix B) to FGCA at least two months prior to the desired inspection date.
2. An inspection is also required prior to material being collected in any one year to ensure there is a crop that fully represents the approved stand. Submit an ONS FORM 2a/b - **Registration of Source for Seedlot Certification by Collector** (see Appendix B) 2 months prior to anticipated collection date.

Two additional classes of material may be introduced into the program in future years:

C. Untested Seed Orchard

Untested Seed Orchard material shall be from seed orchards for which progeny testing has not been completed. Seed orchards must contain trees of known genetic identity that show promise of superior traits, identifiable traits, or both, as contrasted with other germplasm of the same species.

D. Tested

Tested material shall be from trees of known identity with proven genetic traits, such as tested and rogued seed orchards, and tested clones. Selection criteria and supporting comparative data are required. Progeny testing is required to prove that traits of interest are heritable.

1. A detailed description of the morphological, physiological and/or other characteristic(s) of the plant that distinguish it from other sources.
2. Evidence of performance of the source, such as comparative yield data, insect and disease resistance, or other factors supporting the identity of the variety.
3. A statement delineating the geographic area or areas of adaptation of the source.

III. **Establishing the Source**

- A. Geographic location of the sources of all classes shall be given by county, township, lot and concession. Latitude & Longitude or UTM coordinates may also be used. Maps shall be provided to the FGCA to permit spot inspections to be carried out. Location information submitted will be held as confidential and used for audit purposes only.
- B. Additional information regarding the parent material shall be included for Selected Material (SM) (See Appendix B – ONS FORM 3a/b - Application for Site Approval).
- C. In the case of material derived from planted or otherwise artificially established trees, the geographic origin of the parent material must be known or be of proven performance (e.g. have attained $\frac{3}{4}$ of its mature age with no sign of maladaptation.)

IV. **Labeling**

All certified material **shall be identifiable whether by mapping and/or labels** properly affixed to each plant, container, bale, bundle or package to **distinctly reference** the certification information required.

- A. The certification information attests to the genetic identity of the material contained therein. The referenced information shall contain the information specified in the following sections on labeling.

V. **Inspections**

Inspections are designed to insure adherence to the standards. Three different types of inspections are possible.

A. Approval inspection

Sites for Selected Material class (SM) seed sources must receive a one-time Approval inspection. The Approval inspection is a thorough examination of the parent material and site to confirm compliance with field standards (described in Section IIB above). Approval inspections must be made prior to any collections being made.

Seed Processing and Propagation Facilities must also have a one time Site Approval Inspection to become Certified Participants under this program.

B. Periodic inspection

Periodic inspections will be used to confirm adherence to the current standards, and also for the 2 classes, which will potentially be added to the program - for seed orchard and tested material. Periodic inspections are now required only for certified facilities, which have expanded or changed their operations since the first approval inspection. For Seed Orchard and Tested Material Sources a periodic inspection will be required in the years when certified material is being produced. FGCA must be notified that an inspection is needed at least two months prior to anticipated collection dates or required facility certification dates.

C. Spot inspection

Inspections may be made without prior notice at any time during the production of certified propagation material, and could include audits of the sources described in documentation for certified Source Identified class material.

VI. **Qualification of Inspectors**

Inspectors shall be persons trained specifically for the job and officially recognized by FGCA.

VII. **Fees**

The initial implementation process of the certification program of the FGCA is supported by funding from the Ontario Ministry of Natural Resources and the Richard Ivey Foundation and through in-kind contributions of FGCA members. Once the cost of administration and implementation has been assessed, nominal fees may be assessed. However, the FGCA will work to get further support from its members to avoid fees or keep them as low as possible, especially for the Source Identified class.

VIII. **Adherence to Standards and Procedures**

All participants intending to handle and sell certified forest reproduction material must commit in writing to adhere to the standards and procedures set forth in these publications (as part of their application to the program). Certified Seed Collectors must sign ONS FORM 1 - **Code of Ethics and Practice** (Appendix B). Managers of Certified Seed Processing Facilities or Propagation Facilities must sign ONS FORM 4 - **Commitment to Adhere to the Standards in the Production and Sale of Certified Forest Reproductive Material** (Appendix B). In the event that any participant departs from the FGCA standards in any phase of certification or testing, the burden of proof that such action has not affected the certification of the material produced will rest with the producer. Inspection of harvested seeds, seedlings or other material may be made at any time by inspectors authorized to reject for certification any lot not properly protected from mixture, improperly identified or otherwise not meeting the standards of FGCA.

IX. **Complying with the Federal and Provincial Laws**

Any obligation, other than that concerned with certification of source, for example arising from the sale or shipment or regarding the physiological quality of material that has been certified is the responsibility of the seed collector, processor, the grower or subsequent handler.

X. **Review Board**

Questions regarding certification, application of the standards, inspections, amendment of the standards, etc. may be referred, in writing, to the Forest Gene Conservation Association, Suite 233, 266 Charlotte Street, Peterborough, Ontario, K9J 2V4.

PART TWO: STANDARDS FOR COLLECTIONS OF MATERIAL

1. Units of Certification – Material, Sites and Collectors

Material generally refers to cones, seeds, nuts, cuttings, and other types of propagation material.

A Site - an area or a portion of an area of plants may be certified;

Collectors will become certified by attending a training course or successfully completing an exam and then signing a code of ethics and practices (See Appendix B).

The following are examples of sources of material that may be used to produce one or more of the two classes of certified seed. They may be managed (thinned or rogued) or unmanaged.

- A. Any natural stands or populations of a native woody plant species
- B. Plantings of known source native woody plant species
- C. Plantings of unknown source but proven performance (3/4 mature age with no sign of maladaptation) of native woody plant species

II. Specific Requirements for Source Identified Class

Seed or cuttings may be certified as Source Identified provided that all regulations pertaining to the source of seed (Part ONE, Sections II & III) are met.

III. Specific Requirements for Selected Material Class

Individual trees may be certified. A certified stand should contain sufficient individuals of the desired species to maintain genetic diversity and an adequate pollen supply and be of sufficient age to be able to judge growth and form performance and be of good reproductive capacity. Seed or cuttings may be certified as Selected Material provided that all regulations pertaining to the source of seed (Part ONE, Sections II & III) are met.

IV. Field Inspections

A. Source Identified material

Field inspections are only done as spot inspections, otherwise only the collection documents will be audited by FGCA inspectors for all collections for which Source Identified certification is sought.

B. Selected Material

A one time approval inspection of the site and then an inspection of the annual crop potential will be done prior to any collections being made, after which collection documents will be audited by FGCA inspectors for all collections for which Selected Material certification is sought.

V. Propagation Material Handling

A. All propagation material shall be handled so as to prevent contamination and to maintain the identity of the lot from time of collection throughout processing.

B. Inspections may be made without prior notice at any time during collection, or storage, and any lot not properly protected from mixture, improperly identified, or otherwise not meeting the standards may be rejected for certification.

VI. Identification Labels

Labels which are affixed to each package of material, shall show the information that allows it to be certified **OR** information that references the unique information for which it is to be certified, including the following:

1. Certification class
2. Genus and species
3. Source
4. Year of harvest

Following certification, the information shall include in addition to the above:

5. A 4 digit number unique to this certified lot - See Appendix A – Certification Procedure.

Information which must be presented for review by the consumer whether it be on the package label and/or invoice, includes:

1. The label – “Ontario’s Natural Selection”
2. FGCA contact information to allow consumer to verify certification information
3. Certified Seed Collectors name and address and/or 3 digit Certified Participant # and 4 digit Certified lot # (See Appendix A – Certification Procedure.)

VII. Application for Certification & Reporting:

Application forms required by collectors are found in Appendix B:

ONS FORM 2a/b - *Registration of Source for Seedlot Certification by Collector*

ONS FORM 3a/b - *Application for Site Approval Inspection*

A CSC may be requested to submit a report

1. An accounting of certified lot numbers that have been sold out.

PART THREE: STANDARDS FOR SEED PROCESSING FACILITIES

I. Units of Certification – Material and Facility

Material generally refers to cones, seeds, nuts, cuttings, and other types of propagation material. A Facility that processes, test and/or stores material may be certified.

II. Inspections

Site Approval Inspection: A seed processing facility must pass a Site Approval Inspection. It may then process seed from any certification class. The following minimum standards must be met to pass inspection:

1. Permanent records are maintained for all certified lots.
2. The identity of each certified lot is maintained throughout the processing and testing process.
3. Procedures are used to prevent contamination among certified lots.
4. Following processing, all seed storage containers are clearly labeled to identify the contents.

A Periodic Inspection will be done if there has been any change in process or capacity of the facility.

Spot Inspection: Inspections may be made without prior notice at any time during processing, testing and storage, and any lot not properly protected from mixture, improperly identified, or otherwise not meeting the standards may be rejected for certification.

III. Requirements for Packaging

A. Precautions must be taken during processing and packaging to prevent contamination and maintain the identity of each lot under certification.

IV. Identification Labels

Identification labels must be affixed to propagation material for which certification is sought, during all periods of handling. Labels shall show information that allows it to be certified **OR** information that references the unique information for which it is to be certified, including:

1. Certification class
2. Genus and species
3. Source
4. Year of harvest
5. If originating from a different Certified participant – their 3 digit # & 4 digit product #.

The certified processor shall include in addition to the above:

6. A **3 digit certification #** unique to this facility & the 4 digit lot # – See Appendix A.

Information which must be presented for review by the consumer whether it be on the package label, packing slip and/or invoice, includes:

1. The label – “Ontario’s Natural Selections”
2. FGCA contact information to allow consumer to verify certification information
3. Seed Processor Name &/or 3 digit certified participant # & the 4 digit certified product # (See Appendix A).

I. Application for Certification and Reporting:

Application forms required by a processing facility are found in Appendix B:

ONS FORM 3a/b - Application for Site Approval Inspection

ONS FORM 5 - Application for Product Certification by Processing or Propagation Facility

Processing facilities may be required to report to FGCA

1. An accounting of certified lot numbers that have been sold out.

PART FOUR: STANDARDS FOR PROPAGATION FACILITIES

I. Units of Certification- Material and Facility

Material: The unit of production for bareroot seedlings or rooted cuttings is the nursery bed or portion of the bed where the seedlings/cuttings are produced. One unit of production for containerized seedlots/cutting lots is that grown in a single crop. All certified stock must have been grown from certified seeds or cuttings.

A Facility: A nursery, greenhouse, or other grower may be certified.

II. Inspections

A Site Approval Inspection must be done before a facility can propagate certified propagation material. Once a propagation facility passes its Approval inspection, it may grow planting stock of any certification class. However, the certification class of the planting stock can never exceed the certification class of the seed or cuttings from which it is produced.

A Periodic Inspection will be done if there has been any change in process or capacity of the facility.

Spot Inspection: Inspections may be made without prior notice at any time during seed handling, sowing, planting, lifting, storage or shipping, and any lot not properly protected from mixture, improperly identified, or otherwise not meeting the standards may be rejected for certification.

III. Specific Requirements for Seedling and Vegetative Propagation, Handling & Packaging

- A. General
 - 1. Each lot to be certified (e.g., seedlot, cutting lot) must be handled separately during all stages of production.
 - 2. Accurate written records must be maintained which can be used to verify the identity of certified lots.
- B. Bareroot Seedlings or Vegetative Stock
 - 1. Each bed area or row must be identified as to production lot with a marker or specifically mapped.
 - 2. Lots to be separately certified may not be mixed and must be separated by at least a 1½ foot parallel path to the side of the bed and on the ends.
- C. Containerized Seedlings and Vegetative Stock
 - 1. Only one lot may be grown in each container "block." Or individual pots must be labeled if mixed within a block
 - 2. Each block must be identified as to production lot with a marker or a map.
- D. Precautions must be taken during harvest and packaging to prevent contamination and maintain the identity of each lot under certification.

IV. Identification Labels

Propagation material for which certification is sought, must be mapped and/or labeled, during all periods of handling. Labels shall show information that allows it to be certified **OR** information that references the unique information for which it is to be certified, including the following:

- 1. Certification class
- 2. Genus and species
- 3. Source
- 4. Year of harvest
- 5. If originating from a different Certified participant – their 3 digit # & 4 digit product #.

The certified propagation facility shall include in addition to the above:

- 6. A **3 digit certification #** unique to this facility & their 4 digit lot # (See Appendix A.)

Information which must be presented for review by the consumer whether it be on the package label and/or invoice, includes:

- 1. The label – “Ontario’s Natural Selection”
- 2. FGCA contact information to allow consumer to verify certification information
- 3. Propagation Facility Identification &/or 3 digit Certification # & 4 digit lot #.

V. Application for Certification and Reporting:

Application forms required by a processing facility are found in Appendix B:

ONS FORM 3a/b - Application for Site Approval Inspection

ONS FORM 5 - Application for Product Certification by Processing or Propagation Facility

Propagation facilities may be required to report to FGCA

- 1. An accounting of certified lot numbers that have been sold out.

APPENDIX A

Certification Procedure

1. **Becoming a Certified Seed Collector (CSC)**. To become a CSC contact the FGCA to take a course, or write an exam. After taking the course or passing the exam sign **ONS FORM 1: Certified Seed Collector Code of Ethics & Practice** (see Appendix B), and then receive a unique 3 digit certified participant number.

2. **Collection Labeling**. As a CSC you must label each container, so that the following information can be referenced.

To ensure accuracy, you should record this information on site.

1. Certification class – SI or SM
2. Species
3. Source (& site number for Select Class)
4. Year of harvest
5. Collection lot identification (optional – as per CSC’s own system)

3. **To certify material in the Source Identified (SI) class**, you must submit **ONS FORM 2a/b - Registration of Source for Seedlot Certification by Collector**, at least 1 month prior to certification status being required (no field inspection required – an audit may occur after). On this form, you will assign a 4 digit number to each seedlot, your first registered seedlot to be 0001. If the seedlot is to be sold immediately, you can give the purchaser a copy of the Registration Form 2a/b, (without the location information if it is to be protected).

To certify material in the Select (SM) class, A SITE INSPECTION IS REQUIRED. Submit **ONS FORM 3a/b: Application for Site Approval Inspection** 2 months prior to collection. After the first inspection the FGCA will assign a unique site number. Each year, again 2 months before an anticipated collection contact the FGCA to arrange an inspection to ensure crop potential. After collection, you will assign a 4 digit number to each seedlot and submit **ONS FORM 2a/b: Registration of Source for Seedlot Certification by Collector** at least 1 month prior to certification status being required.

4. **ONS Database**. The FGCA will file the ONS Forms 2a/b and register each collection’s unique 4 digit number with the 3 digit CSC number (& site number for Select Class). This will form the beginnings of the database that allow us to track the source and custody of the material.

5. **Sales Labeling**. The customer of a CSC **MUST** receive, whether on a seedlot label, invoice or packing slip, the following information

1. Certification class
2. Species
3. Source
4. Year of harvest
5. FGCA certification information = 4 digit product #, ONS logo, FGCA contact information
6. Collector Identity and/or 3 digit Certified Participant #

Certification Procedure continued ...

6. **Becoming a certified processing or propagation facility**. Submit

ONS FORM 3a/b - Application for Site Approval 2 months before certification status is required - A SITE INSPECTION IS REQUIRED. After passing the inspection to ensure that the identity of all certified material can be maintained throughout all the facility's operations, complete and sign **ONS FORM 4 – Commitment to Adhere to the Standards** (see Appendix B), and then receive a unique 3 digit certified participant number.

7. **To certify material** the processing or propagation facility must submit

ONS Form 5 - Application for Product Certification by Processing or Propagation Facility 2 months before certification status is required (i.e. before shipping and sale). Only material that is already certified by a CSC can continue to have certified status at a seed processing or propagation facility. The certified facility will assign its own 4 digit number to each product – a seedlot or stocklot, starting at 0001 (to 9999). If they are also CSC's and collected the material they will continue to use the number they first assigned to the collection. If they purchased seed from another CSC they will renumber the seedlot, but that number will stay the same from seed through to seedling. It will only change if it changes custody. For example it may be sold as lining out stock to another nursery to produce caliper stock.

8. **Sales Labeling**. The customer of a processing or propagation facility **MUST** receive, whether on a plant label, invoice or packing slip, the following

1. Certification class
2. Species
3. Source
4. Year of harvest
5. FGCA certification information (4 digit #, logo, FGCA contact information)
6. Certified participant Identity information + 3 digit Certification #

Example: Custody of material and certification numbering system:

A 4 digit # from 0001 to 9999 is assigned to each seed or stock lot by a Certified participant, (a CSC or certified processing or propagation facility). They register this # with the FGCA who records it as a valid certified seed or stock lot # along with the participant's unique 3 digit #. The seed or stock lot must be re-numbered and re-registered if the certified participant handling the seed or stock changes.

071 = the 71st person to become certified (records show in 2000)– this person is a CSC only. ONS Form 1 is on file at FGCA for them

125 = the 125th person to become certified (records show in 2001) – this person is both a CSC and their nursery is a certified facility. ONS Forms 1, 3a/b and 4 are on file at FGCA for them

Scenario #1: 2 certified participants in the chain of custody

071 – 0045 is the 45th seedlot registered by CSC 071 with **ONS FORM 2a/b** sent to the FGCA = a 3hl red pine seedlot harvested from Olden Twp (SZ 35) in October 2002. CSC 071 sells the seed – 1 hl to an uncertified grower + 2 hl to Certified Grower 125 (071 does not need to report this to FGCA – it is the buyers duty to register it again under their # if they want to resell as certified)

Grower 125 asks the FGCA in December 2002 about Seedlot **071-0045** (SZ 35) that CSC 071 is trying to sell to them. They need SZ 30 red pine for a client but there is little seed due to poor red pine seed crops. The FGCA refers to its database and reports that it is from Olden Twp, and not bulked with any other collections from zone 35. As such the FGCA can compare the climate of the source to the client's destination and conclude that it is a suitable match even though it crosses zone boundaries. The FGCA can also verify that it was a yr 2002 crop picked in Olden Township by CSC 071, who was not audited on this seedlot but has passed other audits. Grower 125 decides to purchase this seed because it has a paper trail, which will help with his client's forest certification requirements.

125 – 0023 is the 23rd lot to be registered by CSC/Grower 125 with an **ONS FORM 5** sent to the FGCA, in January 2004, following their fall inventory of greenhouse container stock. It is a stock lot of approximately 137,000 seed zone 35 1-0 red pine (2 hl * 76,500 viable seed/hl * .90 germ. %), that was originally 071-0045.

Scenario #2: 1 certified participant in the chain of custody

125 – 0088 is the 88th certified product – a seedlot - registered by CSC/grower 125 with an **ONS Form 2a/b** sent to the FGCA = a 0.25 hl red maple seed harvested from Leeds County in June 2002. It is grown at this nursery, and so the lot number stays the same.

In January 2003 after fall inventory of the seedbeds CSC/grower 125 submits an **ONS FORM 5** certification registration report indicating that 125 – 0088 is now approximately 45,000 Seed zone 36, 1-0 red maple. (0.25hl * 350,000 viable seeds/hl * 0.5 % germination ~ 45,000 seedlings).

A Municipal Park Supervisor calls the FGCA in February 2003 and asks about Stocklot **125-0088** from Seed Zone 36 that Grower 125 has available. They have had problems with red maple in the past and are learning to be cautious about seed source. The FGCA reports that 125-0088 is red maple from their seed zone. The Park Supervisor decides to purchase this stock because it has a paper trail regarding its adaptability to their climate, and they can hopefully reduce their replanting costs.

APPENDIX B
Certification Forms

1. ONS Form 1 - Certified Seed Collector Code of Ethics and Practices
2. ONS Form 2a/b - Registration of Source for Seedlot Certification by Collector
3. ONS Form 3a/b - Application for Site Approval Inspection
4. ONS Form 4 - Application for Product Certification by Processing or Propagation Facility
5. ONS Form 5 - Commitment to Adhere to the Standards in the Production and Sale of Certified Forest Reproductive Material

Ontario's Natural Selections

ONS FORM 1

Certified Seed Collector Code of Ethics & Practice

*The following Code of Ethics & Practice list the expected standards for a
FGCA Certified Seed Collector (CSC).*

General:

As a CSC, I owe a duty to the program, to my clients, to other participants in the program, and to myself and shall act at all times with

- a) fairness in the interest of the sustainability of the forest; and*
- b) respect for the rights of landowners and other stewards of Ontario's forests.*

Duty to the FGCA Seed & Stock Certification Program

As a CSC, I shall

- a) ensure that appropriate seed collection techniques are used to maintain the highest possible seed quality;*
- b) ensure that accurate records are maintained for every seedlot collected;*
- c) ensure that all of the information required for each seedlot to be registered for certification with the FGCA is true and accurate; and*
- d) recognize the authority of the FGCA Seed & Stock Certification Board and its right to remove certified status from CSCs whose actions compromise the program's integrity.*

Duty to the client

As a CSC in independent practice, I shall

- a) advertise my service in a professional manner to inform my clients of my knowledge, skill and expertise; and*
- b) advertise as certified only those seedlots for which information has been registered with the FGCA and which have been granted certified status.*

Duty to other seed collectors

As a CSC, I shall

- a) conduct myself with courtesy toward other CSCs; and*
- b) not malign the work, reputation or business of another CSC.*

Duty to myself

As a CSC, I shall

- a) maintain the honour and integrity of my training and act at all times with responsibility and honesty;*
- b) undertake only such work as I am competent to perform by virtue of my training and experience; and*
- c) avoid and when in doubt disclose any conflict of interest which might influence my action or judgement as a CSC.*

I, _____
Print full name

have read the above Code of Ethics and Practice and understand all that is expected of me as a Certified Seed Collector within the Seed & Stock Certification Program of the Forest Gene Conservation Association.

signature _____

date - _____

address _____

phone - _____

e-mail - _____

FGCA Assigned CSC # _____

Return to FGCA to Register Seedlots

Ontario's Natural Selections

ONS FORM 2a

Registration of Source for Seedlot Certification by Collector

Check box if applying for certification of existing seed/seedlings

Required information:

APPLICANT Name: _____ CSC # (3 digits) ____ _

Certification Class:

- SI material** - submit 1 month prior to date certification is required
- SM material** - must complete ONS Form 3a/b to register site and number site. Also notify FGCA 2 months prior to anticipated collection date to allow a crop potential inspection
 - submit this form after collection and 1 month prior to shipping/sale date

Certified Seedlot number assigned by you (4 digits) ____ _ Collection Site Number (if SM Class) _____

Species: Scientific Name: _____
Common Name: _____

Requested Source identity: (cannot be more specific than the location info below) _____

Amount collected (hl): _____ Collection Date: Month- _____ Day- _____ Yr- _____

- Single source collection
- Bulked collection – send 1 form/source - Refer to ____ (#) other forms

Stand information: Number of Acres: _____ Number of seed producing plants: _____

- Natural Stand or Population
- Planting of known origin, specify _____
- If Planting is of unknown origin - complete Optional information form below

Collection Information: # of specimens collected from: 1 2-5 6-20 21 – 50

- picked directly from plant(s)
- from ground
- from squirrel cache

Location: Turn form over and provide Map (Form 2b)

Optional information: Required for plantations of unknown origin. Also helps to market other products
See page 18 of Certification Manual for guide to filling out this form

Population Description: Approximate age _____ Approx. size: Height _____ Stem Diameter _____
 exposed location understorey location

Crop: Heavy Medium Light Insect Damage on Seed Crop: no yes

Describe Insect damage - _____

Other vegetation: overstorey woody species _____
understorey woody species _____

ground vegetation species _____

Site: Soil texture _____ soil depth _____ drainage _____
Site aspect _____ topography _____

Signature of Applicant

Date Information Recorded

Did you do a cutting test to check for Seed Maturity?

Return to FGCA to Register Seedlots

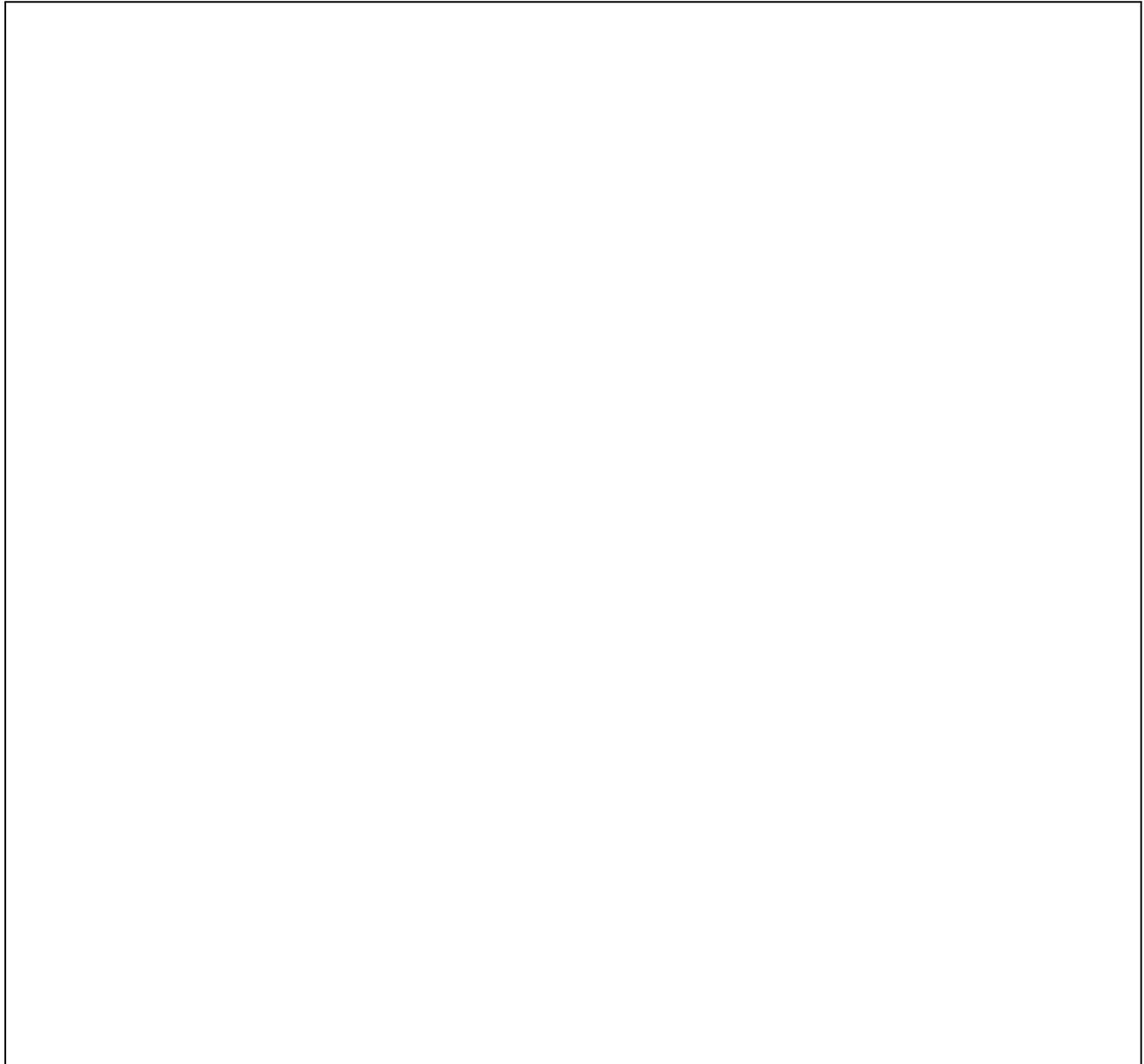
Ontario's Natural Selections

ONS FORM 2b

Registration of Source for Seedlot Certification by Collector

SEED SOURCE MAP for CSC # _____ & Collection # _____

- ◆ This map must be drawn in sufficient detail to allow an inspector to find the stand.
 - ◆ This map will be held confidential and only be used for CSC auditing purposes
- Check that
- North direction is indicated
 - directions and distance to nearest town, or marked intersection is indicated
 - landowner contact information is indicated.
 - stand location is shown from nearest Road access – e.g. distance, landmarks



Return to FGCA to Apply for Inspection and Site Registration

Ontario's Natural Selections

A guide to filling out the **Optional Information Section** on the **Registration of Source for Seedlot Certification by Collector**

Optional information:

This information must be filled out if you are registering a seed source from a plantation of unknown origin. This information could also help you to market your collections, as consumers become increasingly aware of the importance of seed source and want additional information. It may help them to choose your product over an unknown, un-described source.

Population Description:

Approximate age In years - this is needed to gain an estimate of the maturity of the parent population

Approximate size: **Height** in metres or feet - this should be the average height of the population
Stem Diameter – in centimeters or inches – should be average for the population

- at breast height for trees and large shrubs
- not necessary for small shrubs

exposed location **understorey location**

There is some evidence that there is genetic diversity in some species in their adaptation to exposed vs shaded locations. This information will be useful for restorationists who are dealing with very exposed conditions and want seed sources from similar areas.

Crop: **Heavy** **Medium** **Light**

Seed quality can be affected by the size of the crop (see Seed Manual of Ontario for explanation) with usually higher quality (i.e. more filled seed, larger seed, better germination energy and storability, genetic diversity) in heavy seed years. This information can also be used to help us track the periodicity of seed crops from year to year, which is especially important as we try to gauge the effects of climate change.

Insect Sign: **no** **yes**

Describe Insect damage –

Seed quality can also be affected by insects. Refer to the Seed Manual of Ontario insert: Management of Insect Pests of Cones in Seed Orchards in Eastern Ontario. Again this information can be used to help us track the effects of insects on seed supply.

The following general information on other **vegetation and the site** will help us to learn more about what conditions this species is suited to. It can help us make recommendations on where this species can be used so that we can restore whole plant communities not just a single species.

Other vegetation: **overstorey woody species** – list the main 2 or 3 other species in the main canopy
understorey woody species – list the main 2 or 3 species in the subcanopy
ground vegetation species – list the main 2 or 3 species of ground flora

Site: **Soil texture** - describe at least as sand, loam, or clay or be more specific if possible
Soil depth - general - shallow < 1 foot, moderate > 1 foot & < 3 feet, deep >3 feet
Soil drainage - well drained, imperfectly drained, or poorly drained.
Site aspect - north, south, east, west.
Topography - flat, rolling, hilly, steep or irregular.

Return to FGCA to Apply for Inspection and Site Registration

Ontario's Natural Selections

ONS FORM 3a

Application for Site Approval

For a facility - submit 2 months prior to shipping, sale of product
For SM material - submit 2 months prior to anticipated collection date to allow for crop potential inspection

APPLICANT:

Name: _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

SITE: (mark only one)

Seed Processing Facility – Capacity - # species - _____ # seedlots - _____

For FGCA use only: Certified Seed Processing Facility Number ____ _

Propagation Facility – Capacity - # species - _____ # stocklots - _____

For FGCA use only: Certified Propagation Facility Number ____ _

Selected Material Class (SM) Collection Site:

Species - Latin Name: _____

Common Name: _____

- single tree unmanaged Seed Collection Area Managed Seed Production Area
- Untested seed orchard Tested seed orchard

Description of tree or stand characteristics to be marketed:

stand size - # of seed producing trees = _____

growth rate (height, volume) = _____

age = _____

healthy = undamaged by _____

untested seed orchard – description of source attached

tested seed orchard – description of source and test results attached

For FGCA use only: Collection Site Number _____

LOCATION:

Address or Legal Description that allows **site or facility** to be located and inspected - **ATTACH MAP** _____

Contact Person (if different from above) _____

Phone (if different from above) _____

INSPECTION IS REQUESTED BY (Date) _____

Signature of Applicant

Date

Return to FGCA to Apply for Inspection and Site Registration

Ontario's Natural Selections

ONS FORM 3b

SITE MAP to send in with Application for Site Approval for

Seed Processing Facility **Propagation Facility** **Selected Material Class (SM) Collection Site**

- ◆ This map must be drawn in sufficient detail to allow an inspector to find the site.
 - ◆ Re Collection Site, this map will be held confidential and only be used for auditing purposes
- Check that
- North direction is indicated
 - directions and distance to nearest town, or marked intersection is indicated
 - landowner contact information is indicated, if necessary.
 - stand location is shown from nearest Road access – e.g. distance, landmarks



Return to FGCA to Register Facility

Ontario's Natural Selections

ONS FORM 4

***Commitment to Adhere to the Standards
in the Production and Sale of Certified Forest Reproductive Material***

I, _____
Print full name

have reviewed the "Ontario's Natural Selections Certification Manual – FGCA November 2001", and I understand all that is expected of me under this program as the person responsible for the operations at

legal name of facility

- Seed processing facility**
- Propagation facility**

I understand that in the event that I depart from the FGCA standards in any phase of certification or testing, the burden of proof that such action has not affected the certification of the material produced will rest with me.

I agree that an inspection of harvested seeds, seedlings or other material may be made at any time by FGCA inspectors authorized to reject for certification any lot not properly protected from mixture, improperly identified or otherwise not meeting the standards of FGCA.

signature

date

Certified Participant # _____
(to be assigned by FGCA)

This person is also a **Certified Seed Collector** registered under 3 digit # __ __ __, which is to be used for this facility also

- YES
- NO

APPENDIX C
Certification Inspection Process

Inspection Forms

1. **ONS Form 6** - Spot Inspection Checklist for SI Seed Source
2. **ONS Form 7** - Site & Collection Approval Inspection Checklist for SM Seed Source
3. **ONS Form 8a/b** – Inspection Checklist for Seed Processing Facility

Also Refer to Page 7 – PART THREE - STANDARDS FOR SEED PROCESSING FACILITIES

4. **ONS Form 9a/b** - Inspection Checklist for Propagation Facility

*Including **Instructions for Completing Propagation Facility Inspection***

Also Refer to Page 8 – PART FOUR – STANDARDS FOR PROPAGATION FACILITIES

Return to FGCA for Data Input & Record Retention

Ontario's Natural Selections

ONS FORM 6

Inspection Checklist for Source Identified Material

APPLICANT INFORMATION:

Name: _____ Certified Participant # (3 digit) _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

Species - Latin Name: _____ Common Name: _____

DOCUMENTATION AUDIT (mark box with an X)

1. Does the information provided on Form 2a accurately describe the source? Yes No

If no, explain, _____

2. Can the tree(s) easily be located using the Form 2b map provided? Yes No

SPOT INSPECTION (mark box with an X)

1. Can the tree(s) easily be located using the map provided? Yes No

2. Is the species identification correct? Yes No

3. Do the tree(s) appear mature and healthy? Yes No

4. Is there a serious disease or insect problem? Yes No

If yes, describe: _____

5. Is there a potential crop this year? Heavy Medium Light No Crop

RESULT OF INSPECTION **PASSED** **FAILED**

Explain reason for failure: _____

Inspector's Signature

Date of actual inspection

Return to

FGCA Coordinator
Suite 233, 266 Charlotte St, Peterborough, ON K9J 2V4

F: (705) 755-3233

Return to FGCA for Data Input & Record Retention

Ontario's Natural Selections

ONS FORM 7

Inspection Checklist for Selected Material

APPLICANT INFORMATION:

Name: _____ Certified Participant # (3 digit) _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

Species - Latin Name: _____ Common Name: _____

Collection Site Number _____

APPROVAL INSPECTION – single tree

- 1. Does the information provided about the tree match the tree's condition? Yes No
If no, explain _____
- 2. Can the tree easily be located using the Form 3b map provided? Yes No
- 3. Is the tree permanently marked with identifying numbers and/or letters? Yes No

APPROVAL INSPECTION – natural stand or plantation

- 1. Is it a Natural Stand? Yes No
Is it a known source Plantation? Yes No Give origin of seed _____
Is it an unknown source Plantation? Yes No If no, is it mature & healthy? Yes No
- 2. Does the information provided about the stand match its condition? Yes No
If no, explain _____
- 3. Is there a serious insect or disease problem? Yes No If yes, describe _____

COLLECTION INSPECTION - single tree, natural stand or plantation

- 1. Is the tree or stand permanently marked with identifying numbers and/or letters? Yes No
- 2. Is there a potential crop this year? Heavy Medium Light No Crop
- 3. Are containers labeled correctly (see P. 6, PART TWO, Section VI)? Yes No
- 4. Do written records correspond with visible evidence? Yes No
(e.g., quantity collected, date collected, shipping records, labels, tags, etc)?

RESULT OF INSPECTION

PASSED

FAILED

Explain reason for failure: _____

Inspector's Signature _____

Date of actual inspection _____

Return to

FGCA Coordinator
Suite 233, 266 Charlotte St, Peterborough, ON K9J 2V4

F: (705) 755-3233

Return to FGCA for Data Input & Record Retention

Ontario's Natural Selections

ONS FORM 8a

Inspection Checklist for Seed Processing Facility

- Site Approval or**
 Spot Inspection (also complete 8b)

APPLICANT INFORMATION:

Name: _____ Certified Participant # (3 digit) _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

Website: _____ Site Supervisor: _____

Type of processing plant (brief description including list of equipment-use extra sheet if necessary)

1. Are the certified seed lots records accurate Yes No
Required information that must be listed or referenced (See p. 7, PART THREE, Section IV):
Certification class, Species, Source, Year of harvest, Certification numbers registered with the FGCA
2. Is the unique identity of each seed lot maintained during every process? Yes No
3. Is the facility/equipment cleaned between the processing of
different lots, so that there is no possibility of contamination of lots? Yes No
4. Are seed containers clearly labeled to identify contents? Yes No
5. Have there been any changes in equipment since the last inspection? Yes No
If yes, what are they?

6. Additional Comments: (modifications required, etc) _____

RESULT OF INSPECTION

PASSED

FAILED

Explain reason for failure: _____

Inspector's Signature

Date of actual inspection

Return to

FGCA Coordinator
Suite 233, 266 Charlotte St, Peterborough, ON K9J 2V4

F: (705) 755-3233

Ontario's Natural Selections

Instructions for Completing Propagation Facility Inspections - ONS FORMS 9a/b

1. Fill in the site information as indicated.
2. With an "X" mark the type of propagation facility. If it is other, fill in the type of facility in the space provided.
3. Are production units (nursery beds, containers) properly labeled, yes or no?
4. Are production units properly separated as follows?
 - a. In nursery beds, different genetic lots must be separated by at least a 1.5 foot parallel path and by at least 1.5 feet on the ends.
 - b. In containers, only one genetic lot may be sown per container "block".
 - c. Do production units intended for certification contain only the designated genetic lot, yes or no?
 - d. In micro propagation facilities, do workers handle only one genetic lot at a time, yes or no?
 - e. Is the inspector satisfied that practices and procedures are sufficient to maintain control of genetic identity all through the process, from receiving through to growing, packing and shipping?

If no to any questions 'a' through 'e', explain where the process is not satisfactory.

5. Include any relevant observations regarding the operation of the facility.

Inspect each genetic lot for which application for certification has been made.

Page 2

Fill in the species Latin name, lot identification (supplied by applicant), and sowing dates in the spaces provided. Determine the approximate total inventory for each lot, and enter in the designated space. After inspection, determine the amount of the total inventory that is certifiable, and enter this amount in the designated space.

In the Comments space describe, as needed, where procedures and practices are not sufficient to certify all or any portion of a lot. List which production units (bed numbers, containers, etc.) are not certifiable.

Return to FGCA for Data Input & Record Retention

Ontario's Natural Selections

ONS FORM 9a

Inspection Checklist for Propagation Facility

- Site Approval or
- Spot Inspection (also complete 9b)

APPLICANT INFORMATION:

Name: _____ Certified Participant # (3 digit) _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

Website: _____ Site Supervisor: _____

Type of Propagation facility:

Bareroot nursery Container Vegetative Propagation Other _____

1. Can identity of certified lots be verified in records? Yes No

2. Is labeling system in production units satisfactory? Yes No

Describe system (mapping &/or labels) _____

3. Are propagule handling procedures satisfactory to maintain control of genetic identity?

Sowing/Establishing Yes No N/A

If no, explain _____

Transplanting Yes No N/A

If no, explain _____

Lifting Yes No N/A

If no, explain _____

Packing Yes No N/A

If no, explain _____

Shipping Yes No N/A

If no, explain _____

4. Additional Comments: (modifications required, etc) _____

RESULT OF INSPECTION

PASSED

FAILED

Explain reason for failure: _____

Inspector's Signature

Date of actual inspection

Return to

FGCA CoordinatorF: (705) 755-3233
Suite 233, 266 Charlotte St, Peterborough, ON K9J 2V4

