
CANADIAN REGULATIONS AND PROCEDURES FOR BREEDER SEED CROP PRODUCTION



Canadian Seed Growers' Association

Revision 01-2009

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This revised version 01-2009 of the *Canadian Regulations and Procedures for Breeder Seed Crop Production* supersedes all previous versions.

Active Plant Breeders will be advised of changes in these regulations.

The official version of *Canadian Regulations and Procedures for Breeder Seed Crop Production* is maintained at the CSGA website: www.seedgrowers.ca. This version is published for convenient reference.

TABLE OF CONTENTS

RECORD OF AMENDMENTS 3

1.0 INTRODUCTION 4

2.0 BREEDER SEED CROPS 4

3.0 RECOGNITION OF PLANT BREEDERS 4

 3.1 Plant Breeder 4

 3.2 Associate Plant Breeder 5

 3.3 Variety Maintainer 6

 3.4 Application for Plant Breeder, Associate Plant Breeder or Variety Maintainer .. 6

 3.5 Review of Recognition 6

 3.6 Suspension and Cancellation of Recognition 6

4.0 IMPORTS AND UNREGISTERED VARIETIES 7

5.0 VARIETY REGISTRATION 7

6.0 BREEDER SEED PRODUCED OUTSIDE CANADA 8

7.0 BREEDER SEED AND GERMPLASM PRESERVATION 8

8.0 SOURCE OF SEED 8

9.0 LAND AND ISOLATION REQUIREMENTS 8

 9.1 Previous Land Use 9

 9.2 Isolation 9

 9.3 Planting Pattern 9

 9.4 Area: Size of Breeder Seed Plots 9

10.0 CROP INSPECTION 9

 10.1 Varietal and Mechanical Purity 9

 10.2 Diseases 10

11.0 HARVESTING AND PROCESSING 11

12.0 SEED ANALYSIS (MECHANICAL PURITY AND GERMINATION) 11

13.0 APPLICATION FOR BREEDER SEED CROP CERTIFICATE 12

14.0 BREEDER SEED TAGS 12

15.0 QUALITY MANAGEMENT SYSTEMS (QMS) 12

16.0 ADDITIONAL INFORMATION 12

APPENDIX A DOCUMENTS 13

A.1 *Application For Breeder Seed Crop Certificate (Form 43)*

A.2 *Field Disease Inspection Report*

A.3 *Application for Plant Breeder Recognition (Form 43A)*

A.4 Quality Management System (QMS) Requirements

CANADIAN SEED GROWERS' ASSOCIATION



**CANADIAN REGULATIONS AND PROCEDURES
FOR BREEDER SEED CROP PRODUCTION**

RECORD OF AMENDMENTS

Amendments to the *Canadian Regulations and Procedures for Breeder Seed Crop Production* will be issued as required. Amendments will be numbered and dated. Please ensure the amendments outlined below have been inserted. If any amended pages are missing, contact the CSGA or download pages from the CSGA website (www.seedgrowers.ca). Remove obsolete pages.

Amendment Number & Date	Description of Amendment (Section, Sub-section, Page Numbers)	Entered by:

1.0 INTRODUCTION

The Canadian Seed Growers' Association (CSGA) is designated in the federal Seeds Act and Regulations as the official pedigreeing agency for seed crops in Canada except potatoes. To support quality assurance in the seed crop certification program, CSGA provides peer-reviewed professional recognition of Plant Breeders' qualifications and issues Breeder status seed crop certificates for those crops that meet CSGA requirements.

Breeder status plots, the highest status seed crops pedigreed by the CSGA, produce the original parent seed for all other classes of pedigreed seed crops. Breeder seed should be as free as practically possible from varietal impurities, weed seeds and other foreign material.

Since the Plant Breeder controls production and certification of Breeder seed, it is the Plant Breeder's responsibility to ensure that Breeder seed is grown and conditioned to the highest standards.

These Breeder seed crop regulations should be used in conjunction with the CSGA *Regulations and Procedures for Pedigreed Seed Crop Production (Circular 6)* which outlines the requirements for production of Select, Foundation, Registered and Certified seed crops.

This publication provides guidance to Plant Breeders responsible for the production of Breeder seed crops that are pedigreed by the CSGA. The official version of this publication is available from CSGA website at: www.seedgrowers.ca.

2.0 BREEDER SEED CROPS

Definition: Breeder seed crops are those crops certified by the CSGA as being produced by a recognized Plant Breeder under conditions, such as third party audited Quality Management Systems, which have ensured that the specific characteristics of the variety have been maintained. Breeder seed is the original source for all increases of seed crops of other pedigreed classes.

For the CSGA to ensure varietal purity through subsequent generations, Breeder seed crops certified by CSGA are produced by Plant Breeders who meet the qualifications established by the CSGA.

3.0 RECOGNITION OF PLANT BREEDERS

According to CSGA regulations, a Plant Breeder, Associate Plant Breeder and Variety Maintainer are defined as follows:

3.1 Plant Breeder

For pedigreed seed crop certification, a Plant Breeder is any person recognized as such by the Plant Breeders' Committee of the CSGA for being knowledgeable in the principles and practices of plant breeding and related disciplines, engaged in the selection and synthesis of varieties, and producing and maintaining the identity and purity of varieties.

By providing peer-reviewed professional recognition of Breeders' qualifications, the CSGA recognizes the Plant Breeders' ability to maintain or supervise the maintenance of Breeder seed plots. Since Breeder seed is the basis of all seed crop varieties, it is important that great care and attention be given to this critical step in the multiplication of varieties.

To be granted recognition as a fully qualified Plant Breeder an individual must meet the following criteria:

1. Ph.D. in plant breeding plus 1 year independent plant breeding experience in a country participating in the OECD Seed Schemes;
- or-
2. M.Sc. in plant breeding plus 3 years independent plant breeding experience in a country participating in the OECD Seed Schemes;
- or-
3. B.Sc.A. plus 10 years on-the-job training (5 years in a country participating in the OECD Seed Schemes) plus release of a recognized variety.
- or-
4. Ph.D or M.Sc. in a closely related field/discipline plus seven years on-the-job training, including at least one year training in a country participating in the OECD Seed Schemes. The number of years of training may be reduced depending on the amount and relevancy of formal training in plant breeding.
- or-
5. Ph.D, M.Sc., or B.Sc. in an unrelated field/discipline plus qualification as an Associate Plant Breeder plus successful completion of graduate level course work or equivalent in plant breeding.

3.2 Associate Plant Breeder

An Associate Plant Breeder is allowed to produce Breeder seed crops or inbreds for hybrid seed production, under the supervision of a fully qualified Plant Breeder recognized by the CSGA.

To be granted Associate Plant Breeder status an individual must meet the following criteria:

1. M.Sc. in plant breeding plus 1 year on-the-job training in a country participating in the OECD Seed Schemes under the direction of a recognized Plant Breeder;
- or-
2. B.Sc.A. plus 7 years on-the-job training, one of which must be in a country participating in the OECD Seed Schemes, under the direction of a recognized Plant Breeder;
- or-
3. Ph.D. or M.Sc. in a closely related field/discipline plus 5 years on-the-job training under supervision of a recognized Plant Breeder plus successful completion of an appropriate short course in seed production. The number of years of training may be reduced depending on the amount and relevancy of formal training in plant breeding and/or closely related field(s)/discipline(s);
- or-
4. Bachelor degree in an unrelated field plus 10 years on-the-job training under the supervision of a Plant Breeder, including at least one year training in a country participating in the OECD Seed Schemes. Successful completion of a university course in seed production or demonstration of competence as a Select/Foundation Plot grower is also required.

Note: All new candidates recognized as a Plant Breeder or Associate Plant Breeder are encouraged to attend Select/Foundation Plot Production training programs.

3.3 Variety Maintainer

A Variety Maintainer is a special status elite parent seed or Select/Foundation Plot grower who is allowed to produce Breeder seed crops or inbreds for hybrid seed production, under the supervision of a Plant Breeder recognized by the CSGA.

To be granted Variety Maintainer status, an individual must have 15 years successful elite parent or Select/Foundation Plot production including 5 years experience in growing Breeder seed plots for others.

3.4 Application for Plant Breeder, Associate Plant Breeder or Variety Maintainer

An *Application for Plant Breeder Recognition* (Form 43A) for an individual must be completed and submitted to the CSGA for consideration by the Plant Breeders' Committee. The names and addresses of at least three persons familiar with the applicant's experience must be provided for references to assist the committee in evaluating the application. Not more than one of the three references should be from the applicant's employer. The Plant Breeders' Committee reviews applications and makes recommendations to the CSGA Board of Directors.

3.5 Review of Recognition

If individuals recognized by the CSGA as Plant Breeder, Associate Plant Breeder or Variety Maintainer bring pedigreed seed into disrepute, do not comply with the requirements of these Regulations or the *CSGA Regulations and Procedures for Pedigreed Seed Crop Production* (Circular 6) or do not maintain their professional competence, then their recognition will be reviewed by the Association and will be subject to appropriate suspension or cancellation measures.

3.6 Suspension and Cancellation of Recognition

Suspension is a temporary, conditional removal of CSGA recognition of a Plant Breeder. Cancellation is an official withdrawal of CSGA recognition of a Plant Breeder.

3.6.1 (1) Subject to subsection (2) and section 3.6.3, the CSGA shall suspend the recognition of a Plant Breeder where (a) false or misleading information was submitted in support of the application for recognition; or (b) the Plant Breeder does not comply with these Regulations.

(2) The CSGA shall not suspend the recognition of a Plant Breeder where, before the Plant Breeder is heard pursuant to section 3.6.3 (b), the Plant Breeder takes corrective measures and CSGA verifies that those measures have been taken.

3.6.2 Subject to sections 3.6.3 and 3.6.4, the CSGA shall cancel the recognition of a Plant Breeder where (a) the Plant Breeder does not pay crop certification fees prescribed by CSGA; (b) the Plant Breeder falsely represents any seed to be of pedigreed status; (c) the Plant Breeder provides false or misleading information to CSGA or (d) the suspension of a recognition has been in effect for one year and the Plant Breeder has not yet implemented corrective measures.

3.6.3 The CSGA shall not suspend or cancel the recognition of a Plant Breeder unless (a) the CSGA has provided the Plant Breeder with a written report setting out the reasons for the suspension or cancellation; (b) the CSGA has given the Plant Breeder an opportunity to be heard, either by written or oral representations, in respect of the suspension or cancellation; and (c) the CSGA has sent a notice of suspension or cancellation of recognition to the Plant Breeder.

3.6.4 The CSGA shall not cancel the recognition of a Plant Breeder for a reason set out in any of sections 3.6.2 (a) to (c) where (a) the Plant Breeder establishes that the basis for the cancellation was the result of an error and the Plant Breeder took precautions and exercised due diligence to prevent the occurrence of the error; (b) the Plant Breeder undertakes to bring the error to the attention of the persons likely to be affected by the error by placing an announcement in such media, and within such time, not exceeding 30 days, as the CSGA indicates; and (c) the CSGA verifies that the announcement referred to in paragraph (b) was made within the time period indicated by the CSGA.

3.6.5 A suspension of recognition shall remain in effect until (a) the CSGA verifies that the Plant Breeder has taken corrective measures; and (b) the CSGA notifies the Plant Breeder in writing that the suspension is lifted.

3.6.6 The CSGA shall not, before the expiration of a period of 24 months following a cancellation of a recognition, accept an application for the recognition of a Plant Breeder from a Plant Breeder whose recognition was cancelled for a reason set out in any of sections 3.6.2 (b) to (e).

4.0 IMPORTS AND UNREGISTERED VARIETIES

Plant Breeder status can provide professional recognition by several federal regulatory agencies. Canadian Seeds Regulations, administered by the Canadian Food Inspection Agency (CFIA), permits importation of unregistered varieties for research or plant breeding purposes by a recognized Plant Breeder. Having imported such seed for research or plant breeding, it is the responsibility of the Plant Breeder to ensure that the unregistered variety does not escape into commerce or become a source of potentially destructive weed, disease or insect pests.

When unregistered varieties are imported for seed increase in anticipation of registration and/or for export as pedigreed seed, a variety description must be provided to the Canadian Food Inspection Agency (CFIA) and the CSGA.

Plant Breeders recognized by the CSGA are also recognized under the phytosanitary regulatory requirements, administered by the CFIA to import seed for breeding purposes. Health Canada (HC) has similar recognition for Plant Breeders recognized by CSGA in HC regulations governing industrial hemp production.

5.0 VARIETY REGISTRATION

Variety registration is described in *Procedures for the Registration of Crop Varieties in Canada* by the CFIA and is available on their website at www.inspection.gc.ca.

For varieties developed or maintained in Canada, the applicant for registration must indicate the name of the recognized Plant Breeder who will maintain Breeder seed of the variety.

It is the Plant Breeder's responsibility to ensure that Breeder seed will be maintained in a pure and useful form and that variety characterization, descriptions, and certification and registration applications accurately represent the variety.

6.0 BREEDER SEED PRODUCED OUTSIDE CANADA

Importing Breeder seed usually involves having the crop and seed inspected and the seed containers tagged or labelled as Breeder (or Pre-Basic) class seed by an official seed certification agency (a member of the OECD Seed Schemes or of the Association of Official Seed Certifying Agencies, AOSCA) or a CSGA-recognized Plant Breeder. Imported seed must be labelled as required by federal Seeds Regulations. This usually involves a tag carrying the following information: name of the variety, cultivar or strain, crop kind name, Breeder seed crop certificate number (issued by the CSGA) or certification reference number from an official agency in another country, lot number assigned by the Breeder or seed processor, as well as the signature, name and address of the Plant Breeder responsible for maintaining Breeder seed.

The Plant Breeder or agent should consult with the CFIA on current seed import requirements.

When seed is imported into Canada with a Breeder Seed label or tag, that has not been signed by a CSGA-recognized Plant Breeder nor issued by an official seed certification agency, the CSGA must verify that the imported seed would be recognized as equivalent to Breeder seed by the official certification agency in the state or country of origin. If equivalence is not recognized, this process could cause a financial loss to the importer because the seed may not be recognized by CSGA as Breeder seed that is eligible to produce pedigreed (certified) seed crops.

7.0 BREEDER SEED AND GERMLASM PRESERVATION

To support the preservation of varieties adapted to production in Canada, Plant Breeders are encouraged to deposit a representative Breeder seed sample of each non-hybrid crop variety developed in Canada in the national plant germplasm bank in Saskatoon, as part of the permanent national collection. A copy of the variety description and a representative sample of the variety (minimum 12,000 seeds) are usually sent at the time of applying for variety registration or certification eligibility recognition to:

Plant Gene Resources of Canada
Agriculture and Agri-Food Canada, Saskatoon Research Centre
107 Science Place, Saskatoon, SK, S7N 0X2
Telephone: 306-956-7641, Fax: 306-956-7246, E-mail: pgrc@agr.gc.ca

8.0 SOURCE OF PARENT SEED

Breeder seed is normally produced from Breeder seed, parental clones or Breeder lines or their pre-Breeder seed equivalent.

For Breeder seed crop certification, CSGA does not recognize Select, Foundation, Registered or Certified seed that has been elevated to a higher pedigreed class without prior approval of the CSGA and the recognized Plant Breeder seed maintainer.

9.0 LAND AND ISOLATION REQUIREMENTS

The requirements for previous land use and isolation for the production of Breeder seed crops are normally the same as the requirements for the highest pedigreed class of that crop kind in the *CSGA Regulations and Procedures for Pedigreed Seed Crop Production (Circular 6)*.

9.1 Previous Land Use

The land requirements in Circular 6, for the highest pedigreed class for the specific crop kind involved (e.g. Select for wheat, Foundation for alfalfa, canola) will normally be the standard for previous land use in certifying Breeder seed plot production of that crop kind.

Breeder seed plots should not be grown on land where volunteer growth from a previous crop may cause contamination. Refer to the appropriate crop kind section in CSGA Circular 6 for specific land requirements.

9.2 Isolation

Breeder seed crops should be planted in areas that will provide maximum protection from outside sources of contamination. The minimum isolation distance permitted in Circular 6, for the highest pedigreed class applicable to the crop kind involved, will normally be considered the minimum isolation distance required for certifying Breeder seed plots of that crop kind.

9.3 Planting Pattern

Breeder seed crops should be planted in such a manner as to facilitate inspection and the effective removal of off-type plants, other varieties or kinds, and objectionable weeds.

9.4 Area: Size of Breeder Seed Plots

The acreage of individual Breeder seed plots should not exceed one hectare (2.5 acres) in order to meet the varietal purity requirements of Breeder seed and to permit adequate inspection intensity. There is no limit on the total acreage or number of Breeder seed plots applied for inspection.

10.0 CROP INSPECTION

10.1 Varietal and Mechanical Purity

The Plant Breeder should take all possible precautions with parent seed material to ensure the continued varietal and mechanical purity of the seed.

It is the responsibility of the Plant Breeder to apply to CSGA for crop inspection. Certification of Breeder seed plots is subject to crop inspections that verify compliance with CSGA standards and application for inspection is the responsibility of the Plant Breeder.

An *Application for Crop Inspection* should be completed and submitted to the CSGA, in the name of the Plant Breeder, prior to the deadline dates published by the CSGA. These application forms are available from the CSGA and completed crop inspection reports are submitted to the CSGA office.

Seed crop certification proprietary concerns can be addressed on the *Application for Crop Inspection* form by assigning CSGA crop certificate(s) to variety developer(s) or distributor(s).

Crop inspections of Breeder seed plots should be conducted by qualified inspectors recognized by the CSGA such as CFIA inspectors or inspectors authorized by the CFIA.

After crop inspections, a completed *Application for Breeder Seed Crop Certificate (Form 43)* is required by the CSGA for each Breeder seed plot to be certified.

10.2 Diseases

Plant Breeders must take all necessary precautions to ensure Breeder seed is not a source of disease. Breeder seed plots should be inspected for the presence and severity of seedborne diseases, using procedures developed by the Plant Breeder or a plant pathologist familiar with the crop kind. For example, at least two inspections of field bean plots should be made while plants are still green to determine the presence of Bacterial Blight and Anthracnose.

Field Disease Inspection Report forms are available from the CSGA and are referenced in Appendix A. If required, completed copies of this report should be provided as required to the distributor or recipient of the seed and to CSGA when applying for a Breeder seed crop certificate.

For the following crop kinds and seedborne diseases, a *Report on Health Condition of the Seed Sample* should be obtained by submitting a representative seed sample from the Breeder seedlot to recognized labs such as those referenced in Appendix A:

Crop kind	Disease	Test Sample Size
Barley	True loose smut <i>Ustilago nuda</i>	250 grams
Canola/ Rapeseed	Blackleg <i>Leptosphaeria maculans</i>	100 grams
Chickpeas	<i>Ascochyta rabiei</i>	400 grams
Field Beans	Bacterial blight Anthracnose	1 kg
Field Peas	<i>Ascochyta pisi</i> <i>Ascochyta pinodella</i> , <i>Mycosphaerelia</i>	400 grams
Wheat	True loose smut, <i>Ustilago tritici</i>	200 grams
Winter Wheat	Dwarf bunt, <i>Tilletia controversa</i>	200 grams

NOTE: Testing may be required for other diseases when prescribed by official seed and phytosanitary requirements.

In crop kinds for which there are treatments to control seedborne diseases, Breeder Seed should be treated when required. If treatment is not possible and disease presence is suspected, then the requirement for seed treatment should be clearly marked on the Breeder Seed container. If disease incidence is widespread or severe, recipient(s) of Breeder Seed should be advised.

Plant Breeders should also be familiar with current quarantine regulations concerning movement of seed within Canada as well as phytosanitary requirements prescribed by the Canadian Food Inspection Agency (CFIA) for importing and exporting seed. Canadian Seeds Regulations also specify standards for some crop kinds and maximum disease levels permitted in seedlots that are offered for sale.

11.0 HARVESTING AND PROCESSING

Harvesting and processing of Breeder seed must ensure the maintenance of varietal and mechanical purity.

12.0 SEED ANALYSIS (MECHANICAL PURITY AND GERMINATION)

A representative sample of Breeder seed should be submitted to an accredited seed analysis laboratory for a *Seed Testing Certificate* indicating germination and mechanical purity. These Breeder seed test results should meet the mechanical purity and germination standards for Foundation No. 1 seed in federal Seeds Regulations. For Breeder seed of crop kinds not in *Schedule I* grade tables, a purity test is required and actual germination should be on the seed label. If Breeder seed does not meet Foundation No. 1 grade standards, then the distributor or recipient of Breeder seed must be advised.

Minimum size of seed sample to submit for mechanical purity and germination tests

Crop Kind	Sample Size	Crop Kind	Sample Size
Alfalfa	125 grams	Peas	1 kg
Alsike Clover	60 grams	Radish	250 grams
Barley	1 kg	Canola/Rapeseed	250 grams
Beans	1 kg	Red Clover	125 grams
Bentgrasses	30 grams	Redtop	30 grams
Birdsfoot Trefoil	60 grams	Reed Canary Grass	60 grams
Bluegrasses	60 grams	Rye	1 kg
Bromegrass	125 grams	Ryegrasses	125 grams
Buckwheat	1 kg	Sainfoin	500 grams
Canaryseed	125 grams	Soybeans	1 kg
Corn	1 kg	Sunflower	1 kg
Crested Wheatgrass	60 grams	Sweet clover	125 grams
Fescues	60 grams	Timothy	60 grams
Flax	500 grams	Tobacco	8 grams
Lentils	500 grams	Triticale	1 kg
Meadow Fescue	125 grams	Wheat	1 kg
Mustard	250 grams	Wheat grasses	125 grams
Oats	1 kg	White clover	60 grams
Orchard grass	60 grams		

For sample sizes of other crop kinds, contact the Canadian Food Inspection Agency (CFIA) or a seed lab accredited by the CFIA.

13.0 APPLICATION FOR BREEDER SEED CROP CERTIFICATE

For CSGA certification of Breeder seed crops, whether produced in Canada or another country, a completed *Application for Breeder Seed Crop Certificate* (Form 43) must be submitted to the CSGA office after Breeder plots have been inspected. This application, which is referenced in Appendix A, includes verification of germination and mechanical purity testing, of audited Quality Management System requirements and, when required, verification of seedborne disease testing, variety eligibility for Breeder seed crop certification and compliance with other federal regulatory requirements.

For prompt issuance of crop certificates, when this *Application for Breeder Seed Crop Certificate* (Form 43) is submitted to CSGA, it should be accompanied by all required documentation, such as seed analysis certificates.

The information on other crop kinds, off-types and variants, provided by Plant Breeders in the *Application for Breeder Seed Crop Certificate*, should be supplied to distributors or recipients of Breeder seed. This information can be useful for growers in meeting certification requirements in subsequent seed crops.

14.0 BREEDER SEED TAGS

Breeder seed tags may be obtained from the CSGA by recognized Plant Breeders or their representative for seed produced from Breeder crops certified by the CSGA. Breeder seed containers must be tagged or labelled and the tag should include the CSGA crop certificate number issued for that Breeder seed plot and must be signed by the Plant Breeder or his representative. While it is not mandatory to use the Breeder seed tags provided by the CSGA, it is encouraged. Breeders may request CSGA Breeder seed tags when they submit an *Application for Breeder Seed Crop Certificate*. For Breeders using other tags, they should provide information that is equivalent to the information on CSGA Breeder seed tags.

15.0 QUALITY MANAGEMENT SYSTEMS (QMS)

Breeder seed crops that are certified by the CSGA are produced within a third party audited Quality Management System that meets the requirements outlined in the *Quality Management System (QMS) Requirements for Breeder Seed Crop Certification* in Appendix A of these regulations.

16.0 ADDITIONAL INFORMATION

Related information on seed and crop certification is available from the following websites:

- CSGA: www.seedgrowers.ca
- Canadian Seed Institute: www.csi-ics.ca
- CFIA: www.inspection.gc.ca

The following publications are available from the Canadian Seed Growers' Association (CSGA):

- Regulations and Procedures for Pedigreed Seed Crop Production (Circular 6)
- Rogues and Roguing
- Pedigreed Seed Plot Production Manual
- Pedigreed Forage Seed Production

The following publications are available from the Canadian Food Inspection Agency (CFIA):

- Seeds Act and Regulations
- Plant Protection Act and Regulations
- Procedures for the Registration of Crop Varieties
- Pedigreed Seed Crop Inspection Procedures
- Regulatory Directives on Plants with Novel Traits

APPENDIX A

DOCUMENTS

In this Appendix:

Documents that are used only in Breeder seed crop certification are described in Appendix A of these CSGA *Regulations and Procedures for Breeder Seed Crop Production*.

These documents are available from the CSGA's website: www.seedgrowers.ca or by phone (613-236-0497) or fax (613-563-7855) from the CSGA office at the address below.

- A.1** Application for Breeder Seed Crop Certificate (Form 43)
 - A.2** Field Disease Inspection Report
 - A.3** Application for Plant Breeder Recognition (Form 43A)
 - A.4** Quality Management System (QMS) Requirements for Breeder Seed Crop Certification
-

A.1 APPLICATION FOR BREEDER SEED CROP CERTIFICATE (Form 43)

After each Breeder plot is inspected, the CSGA sends an *Application for Breeder Seed Crop Certificate* (Form 43) to each Plant Breeder who applied for crop inspection. For prompt issuance of crop certificates, these applications should be completed and submitted to CSGA as soon as all required seed test results and information is available.

Like most CSGA forms, the official version and additional copies of these applications are available from the CSGA's website at: www.seedgrowers.ca. or by phone (613-236-0497) or fax (613-563-7855) from the CSGA office at the address below.

All crops for pedigreed status, including Breeder seed plots, shall be grown according to the CSGA *Regulations and Procedures for Pedigreed Crop Production (Circular 6)* which are also available from the CSGA website or office.

All crops for pedigreed status are inspected for CSGA by authorized seed crop inspectors. Then CSGA appraises the crop inspection reports and any additional required information, such as *Applications for Breeder Seed Crop Certificate* (Form 43) for Breeder plots. If all crop certification requirements are met, then CSGA issues official crop certificates which are the varietal identity assurance required for all official pedigreed seed certification in Canada.

-Applications are submitted:

By post to:

Canadian Seed Growers' Association
Box 8455
Ottawa, Ontario K1G 3T1

By courier to:

Canadian Seed Growers' Association
21 Florence St.,
Ottawa, Ontario K2P 0W6

Electronic application forms are also available from the CSGA website at: www.seedgrowers.ca.

A.2 **FIELD DISEASE INSPECTION REPORT**

Each Breeder Plot should be inspected by the Plant Breeder or designate, using procedures developed by a plant pathologist familiar with the crop kind, to determine disease incidence and severity, especially of seedborne diseases.

Field Disease Inspection Report forms are available from the CSGA to report these inspections. These reports usually accompany submissions to CSGA of the *Application for Breeder Seed Crop Certificate* (Form 43).

Plant Breeders must take all necessary precautions to ensure Breeder seed is not a source of disease. If required, copies of this *Field Disease Inspection Report* should be provided to distributors or recipients of the Breeder seed and also to CSGA when applying for a Breeder seed crop certificate.

For the crop kinds* listed below, a *Report on Health Condition of the Seed Sample*, for the seedborne diseases indicated, must be submitted to CSGA. A representative sample of the Breeder seed should be submitted for disease testing at recognized laboratories such as those listed below:

For BARLEY & WHEAT:

Any Canadian seed testing lab accredited for True Loose Smut testing.
A listing is available from: Seed Science and Technology Section, Saskatoon Lab,
301-421 Downey Road, Saskatoon, SK S7N 4L8, Email: SSTS@inspection.gc.ca

For ALL OTHER CROP KINDS:

Quarantine Plant Pathology Lab, ADRI-CPQP,
Floor 2, 3851 Fallowfield Road, P.O. Box 11300, Ottawa, ON K2H 8P9

Crop Kind*	Disease	Test Sample Size
BARLEY	True loose smut, <i>Ustilago nuda</i>	250 grams
CANOLA / RAPESEED	Blackleg, <i>Leptosphaeria maculans</i>	100 grams
CHICKPEAS	<i>Ascochyta rabiei</i>	400 grams
FIELD BEANS	Bacterial blight, Anthracnose	1 kg
FIELD PEAS	<i>Ascochyta pisi</i> , <i>Ascochyta pinodella</i> , <i>Mycosphaerelia</i>	400 grams
WHEAT	True loose smut, <i>Ustilago tritici</i>	200 grams
WINTER WHEAT	Dwarf bunt, <i>Tilletia controversa</i>	200 grams

NOTE: Testing may be required for other diseases as prescribed by official seed and phytosanitary requirements.

In crop kinds for which there are treatments to control seedborne diseases, all Breeder Seed suspected of being contaminated should be treated. If treatment by the Plant Breeder is not possible then requirements for seed treatment should be clearly marked on the Breeder Seed container. If disease incidence is widespread or severe, recipient(s) of Breeder Seed should be advised.

A.3 **APPLICATION FOR PLANT BREEDER RECOGNITION (Form 43A)**

To be recognized by the CSGA as a Plant Breeder, an individual must complete and submit to CSGA this *Application for Plant Breeder Recognition* (Form 43A) for consideration by the Plant Breeders' Committee. The names and addresses of at least three persons familiar with the applicant's experience must be provided for references to assist the committee in evaluating the application. The Plant Breeders' Committee reviews the education and experience qualifications of applicants and makes recommendations to the CSGA Board of Directors.

For pedigreed seed crop certification, a Plant Breeder is any person recognized as such by the Plant Breeders' Committee of the CSGA for being knowledgeable in the principles and practices of plant breeding and related disciplines, actively engaged in the selection and development of varieties, and producing and maintaining the identity and purity of varieties.

By providing peer-reviewed professional recognition of a Plant Breeder's qualifications, the CSGA recognizes the Plant Breeder's ability to maintain or supervise the maintenance of Breeder seed plots.

Breeder seed crops certified by CSGA are produced by Plant Breeders who meet the qualifications established by the CSGA to assure varietal purity through subsequent generations of pedigreed seed crops.

A.4 QUALITY MANAGEMENT SYSTEM (QMS) REQUIREMENTS for CSGA Breeder seed crop certification

As required by Section 15 of the *CSGA Regulations and Procedures for Breeder Seed Crop Production*, Breeder seed crops certified by the CSGA are produced within a third party audited Quality Management System (QMS) that meets the requirements outlined in this Appendix A.4. In each *Application for Breeder Seed Crop Certificate* (Form 43), Plant Breeders declare compliance with these QMS requirements (Section 12.(a)), confirm the date of their last audit (Section 12.(b)) and identify the qualified auditor who conducted the last QMS audit (Section 12.(c)).

Quality Management System (QMS) Requirements for CSGA Breeder seed crop certification include:

- 1. Audit Scope**
- 2. Audit Frequency**
- 3. Auditor Qualifications**

1. Audit Scope

The audit scope requirement is a Full audit of all QMS elements related to the requirements of *CSGA Regulations and Procedures for Breeder Seed Crop Production*. These elements generally include the elements, documents and records recommended in the *CSGA ASSESSMENT CHECKLIST for Breeder Seed Production Quality Management System (QMS)* of this Appendix A.4.

Breeder seed crops certified by CSGA involve many different types of production systems. The recognized Plant Breeder and the third party auditor have traditionally been considered the most qualified persons to identify the appropriate elements to include in the audited documents and records.

2. Audit Frequency

The audit frequency requirement for Breeder seed crop quality management systems (QMS) is a compliance-based protocol, similar to the *Seed Program Audit Frequencies* used by the Canadian Seed Institute (CSI) and approved by the Canadian Food Inspection Agency (CFIA) for Authorized Importers and Exporters.

All Breeder seed crop quality management systems (QMS) start at a NORMAL frequency requirement for an Annual audit (beginning with the 2008 audit). After the third (3rd) successive audit without a *Major non-conformance, audit frequency switches to a REDUCED requirement for an audit every second (2nd) year; as explained below.

Audit Frequency and Switching Rules:

Audit FREQUENCY	Type of Audit SCOPE
TIGHTENED - Annual audit	Full audit of all elements with monitoring samples required
NORMAL - Annual audit	Full audit of all elements
REDUCED - Audit every second (2 nd) year	Full audit of all elements

Note:

1. All Breeder seed crop quality systems (QMS) start at the NORMAL audit frequency (beginning with the 2008 audit).
2. Full audits examine all elements of the quality system for conformance with the requirements of all CSGA crop certification regulations.
3. CSGA reserves the right to determine or change audit frequency.

2. Audit Frequency and Switching Rules continued:**Audit Frequency SWITCHING RULES**

Audit Frequency Shift	Conditions: CAR = Corrective Action Request
Reduced or Normal - <i>to</i> - Tightened	one (1) CAR for a *Major non-conformance; one (1) CAR for the same (repeated) **Minor non-conformance; or four (4) or more CAR's for Minor non-conformances
Tightened - <i>to</i> - Normal	allowed one (1) Minor CAR but cannot be a repeat from last audit
Normal - <i>to</i> - Reduced	allowed one (1) Minor CAR and one other CAR issued for a different non-conformance
Reduced - <i>to</i> - Normal	three (3) Minor CARs issued for non-conformances

*Major non-conformances put at risk the varietal purity or identity of Breeder seed crop(s) being certified.

**Minor non-conformances are deviations from the requirements of the CSGA regulations that do not put at risk the varietal purity or identity of Breeder seed crop(s) being certified.

3. Auditor Qualifications

These audits of Breeder seed crop certification quality systems are supplementary verification for CSGA to prior peer reviewed professional recognition of the Plant Breeders. Therefore CSGA recognizes audits conducted by any auditor who is recognized by either the *International Register of Certificated Auditors* (IRCA - <http://www.irca.org>) which is recognized throughout the EU or *RABSQA* (<http://www.rabqsa.com>), the major ISO auditing agencies which are recognized outside the EU.

All qualified third-party auditors of ISO and other recognized quality management systems, including those auditors reporting to the Canadian Seed Institute (CSI), are recognized by one of these two international organizations.

CSGA



ACPS

CANADIAN SEED GROWERS' ASSOCIATION
 Box 8455, Ottawa, Ontario K1G 3T1 Tel : (613) 236-0497 Fax: (613) 563-7855
 E-mail: seeds@seedgrowers.ca, Web site: www.seedgrowers.ca

ASSESSMENT CHECKLIST

Breeder Seed Production Quality Management System (QMS)

NAME and ADDRESS of Plant Breeder and/or Establ.:				
DATE:		Assessment No.:		
AREA / ACTIVITY ASSESSED:		DOCUMENTATION REVIEW		
Client's Documentation related to Area/Activity (QSP's, SWI's etc.) conformance with:				
a) <i>CSGA Regulations and Procedures for Pedigreed Seed Crop Production (Circular 6)</i> including the maximum plot size of 2.5 acres; and b) <i>CSGA Regulations and Procedures for Breeder Seed Crop Production</i>				
PERSONNEL INTERVIEWED:				
DOCUMENTS VERIFIED:		RECORDS VERIFIED:		
Plant Breeder's own: <ul style="list-style-type: none"> • QA Manual • Breeder Seed Production Procedures • Other procedures (attach list) 		<ul style="list-style-type: none"> • • • • • 		
Element No.	Review of: DOCUMENTS	Addressed (YES / NO)	RECORDS: Addressed (YES / NO)	CSGA OFFICE USE ONLY
	Seed Source			
	Previous Land Use			
	Planting			
	Crop Isolation			
	Selection / Roguing			
	Crop Inspection			
	Harvesting			
	Transfer and Storage			
	Seed Testing			
	Seed Labeling			
	System Documentation			
	Training and Qualifications			
ASSESSOR COMMENTS:				
ASSESSOR SIGNATURE:				
ASSESSOR NAME / No.:				