CANADIAN
REGULATIONS AND PROCEDURES
FOR PEDIGREED SEED CROP PRODUCTION

Canadian Seed Growers' Association

Circular 6

Revision 1.12-2017 **February 1, 2017**

This revised version 1.12-2017 of the *Canadian Regulations and Procedures for Pedigreed Seed Crop Production — Circular 6* supersedes all previous versions.

Active seed growers and crop certificate assignees will be advised of changes in these regulations.

The official version of *Canadian Regulations and Procedures for Pedigreed Seed Crop Production — Circular 6* is maintained at the CSGA's website: www.seedgrowers.ca. This version is published for convenient reference.

QUICK REFERENCE SUMMARY

MAJOR SEED CROPS AND SPECIFIC SECTION REQUIREMENTS IN CIRCULAR 6

CROP	SECTION	PEDIGREED CLASS
Bean	**03** **12**	except Select plots Select plots
Canola, Rapeseed, Mustard Hybrid Other All	 **05** **04** **13**	 except Foundation plots except Foundation plots Foundation plots
Cereals (e.g. Barley, Oats, Wheat)	**02** **12**	except Select Plots Select plots
Corn Hybrid Open-pollinated	 **08** **09**	
Flax	**02** **12**	except Select plots Select plots
Forage Grasses	**06**	
Forage Legumes	**07**	
Industrial Hemp	**10** **11**	except Foundation plots Foundation plots
Other Crops	**14**	
Pea	**03** **12**	except Select plots Select plots
Pulse Crops (e.g. Lentils)	**03** **12**	except Select plots Select plots
Soybean	**03** **12**	except Select plots Select plots
Sunflower	**16** **13**	except Foundation plots Foundation plots

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CANADIAN SEED GROWERS' ASSOCIATION

CANADIAN REGULATIONS AND PROCEDURES FOR PEDIGREED SEED CROP PRODUCTION – CIRCULAR 6

RECORD OF AMENDMENTS

Amendments to the *Canadian Regulations and Procedures for Pedigreed 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 Number(s), page number(s), etc.)	Entered by:
01-20050509	**Sections 4.4.2, 6.4.6, 12.4.3.**	
01.1-20060201	**Sections: 0-1, 0-3, 0-11, 1.7.1, 1.7.4, 1.7.7, 2 (In this Sec.), 2.2.2a), 2.2.5, 2.4.4, 3.3.7, 4.3.3, 5.5.5f), 9.1.2, 9.2.1, 9.2.2, 11.6.1b), 12 (In this Sec.), 12.4.2, 12.4.3, Appendix A.5.**	
01.2-20070201	**Sections: 0-1, 2 (In this Sec.), 2.2.2a), 2.2.5, 4.4.1b), 4.4.4, 4.5.4, 5.5.1b), 5.5.5, 5.6.2, 8.5.1a), 13.6.1b), 13.6.4, 13.8.3.**	
01.3-20080201	**Sections: 0-1, 0-3, 0-4, 0-5, 0-11, 0-12, 1.9.1, 1.17.7, 1.21.3, 2 (In this Sec.), 2.2.5, 2.5.1, 3.2.5, 3.2.6, 3.4.2, 6.5.5, 10.4.4, 11.2.8, 11.2.9, 11.3.4, 11.3.5, 11.6.2, 11.6.4, 12(In this Sec.), 12.2.10, 12.2.11, 12.3.9, 12.3.10, 12.4.3, 13.2.10, 13.2.11, 13.3.5, 13.3.6, Sec. 14, Sec. 17, Sec. 19, Appendix A, A-1, A-15, Appendix C, C-10.**	
01.4-20090201	**Sections: 0-1, 0-4, 0-5, 0-10, 0-11, 0-12, 1.12.3, 2.2.5, 2.4.2, 4.4.2, 5.5.2, 12.4.3, 12.6.2, 12.6.4, 13.6.1, 13.6.4, Sec. 14, Appendix A: A.14 on A-1 and A-15.**	
01.5-20100201	**Sections: 0-1, 0-2, 0-3, 0-4, 0-5, 0-11, 0-12, 1.5.1, 1.12.3 1.16.3, 1.17.4, 1.17.6, 1.21.3, 2.2.5, 3.1.4, 3.2.2, 3.3.5, 4.4.1, 4.4.4, 4.5.4, 5.5.1, 5.5.5. 5.6.2, 6.2.2, 6.4.6, 7 (In this Sec.), 7.2.2, 7.4.5, 7.5.3, 10.4.4, 11.6.4, 12 (In this Sec.), 12.3, 12.4.3, 12.5.7, 13.6.1, 13.6.4, 13.8.3, Sec. 14, Sec. 16, Appendix A: A.11 A.14 on A-1 and A-15, Appendix C: C-5, C-6, C-12.**	

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01.6-20110201	**Sections: 0-1, 0-2, 0-4, 0-6, 0-7, 0-8, 0-9, 0-10, 0-11, 0-12, 0-13, 0-14, 0-15, 0-16, 0-17, 0-18, 0-19, 0-20, 3.1.4, 6.1.1, 6.1.2, 7.1.1, 7.1.2, 7.4.4, 8.5.1, 12.4.3, 12.6.1, 12.6.2, Sec. 14 on 14-1, 14.4.5.1, 14.5.4.3, Section 14.11, Section 14.12, Appendix A: A.15 on A-1 and A-15, Appendix C: C-5, C-6.**	
01.7-20120201	**Sections: 0-1, 0-4, 0-6, 0-12, 2.2.5, 3.4.1, 6.5.7, 7.5.6, 12.4.3, Sec. 14 on 14-1, Section 14.4, Section 14.7, Section 14.13, Appendix A: A.16, A.17 on A-1 and A-15, A-2, A-3, A-4, Appendix C: C-6, C-7, C-8, C-9, C-10, C-11, C-12, C-13, C-14, C-15, C-16**	
01.8-20130201	**Sections: 0-1, 0-4, 0-6, 1-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 4-1, 4-2, 4-3, 4-4, 4-5, 12-5, 12-6, 12-7, 12-8, 12-9, 12-10, 12-11, 12-12, 12-13, 13-1, 13-4, 13-5, 13-6, 13-7, 13-8, 13-9, 13-10, 13-11, 14.4-2, 14.4-3, 18-1, Appendix A : A-1, A-2, A-3, A-4, A-16, Appendix C: C-1, C-2, C-15, C-16**	
01.9-20140201	**Sections: 0-1, 0-3, 0-4, 0-6, 0-11, 0-12, 0-13, 0-14, 0-17, 0-18, 1-1, 1-2, 1-3, 1-4, 1-7, 1-8, 2-1, 2-3, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 3-3, 5-4, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 12-9, 12-10, 12-11, 12-12, 12-13,14.10-1, 14.10-2, Appendix A: A-1, A-2, A-3, A-6, A-7, A-8, A-11, A-12, A-13, A-16, Appendix C: C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9, C-10, C-11, C-12, C-13, C-14, C-15, Appendix D: D-1, D-3**	
01-10-20150201	**Sections : 0-1, 0-3, 0-4, 0-6, 0-13, 0-14, 0-17, 0-18, 1-1, 1-2, 1-5, 1-7, 3-4, 4-1, 4-2, 4-3, 4-4, 4-5, 5-2, 5-3, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 8-4, 11-5, 11-8, 12-2, 12-5, 12-10, 13-1, 13-2, 13-3, 13-4, 13-5, 13-6, 13-7, 13-8, 13-9, 13-10, 13-11, Sec. 14 on 14-1, 14.14-1, 14.14-2, 18-2, 18-3, Appendix A: A-1, A-2, A-3, A-4, A-5, A-6, A-7, A-8, A-9, A-10, A-11, A-16 Appendix C: C-1, C-2, C-4, C-5, C-7, C-9, C-10, C-11, C-13, C-14**	
01-11-20160201	**Sections : 0-1, 0-3, 0-4, 0-6, 0-12, 0-13, 0-19, 1-2, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 3-1, 3-2, 3-3, 3-4, 3-5, 4-4, 5-3, 6-8, 7-4, 10-3, 11-5, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 12-9, 12-10, 12-11, 12-12, 12-13, 12-14, 12-15, 13-5, 13-10, 14.1-2, 14.1.2-2, 14.2-1, 14.2-2, 14.3-2, 14.4-3, 14.5-2, 14.6-2, 14.7-2, 14.8-2, 14.9-2, 14.10-2, 14.11-2, 14.12-3, 14.13-2, 14.14-2, 15-2, 16.1-2, 16.2-1, 16.2-2, 17-2, 19-2, 19-3, 19-4, Appendix A : A-1 to A-14, Appendix B: B-1, B-2, Appendix C: C-2, C-5 to C-14**	
01-12-20170201	**Sections : 0-1, 0-6, 0-12, 0-13, 2-8, 3-5, 10-1, 10-2, 10-3, 10-4, 10-5, 11-2, 11-3, 11-4, 11-5, 11-6, 11-8**	

SEED CROP CERTIFICATION

Seed crop certification is a program of planned production, record keeping, unbiased inspections, and rigid standards to ensure the production of high quality, variety specific seed. Whether by traditional means or with the use of biotechnology, plant breeders continue to produce superior varieties of field crops. By overseeing production of seed crops, CSGA provides the vital link between plant breeders and farmers who benefit from these advances. Certified seed is derived from a seed crop that has been issued a CSGA crop certificate, is labelled with an official blue Certified tag (or bulk pedigreed certificate) and graded with a Canada pedigreed grade name when sold in Canada. The blue Certified tag is a symbol of the high quality standards of certification assuring dependable performance.

Certification is a limited generation concept whereby variety specific characteristics are maintained. New varieties developed by plant breeders are increased to supply farmers with seed of superior performance.

Breeder Seed is developed and maintained by the CSGA-recognized plant breeders of public research institutions and private companies.

Foundation Seed is the first generation for most open-pollinated crops, and second generation for most self-pollinated crops, produced from Breeder seed and rogued for off-types to meet variety descriptions and strict Foundation purity standards.

Certified Seed is the first generation for most open-pollinated crops, and second generation for most self-pollinated crops, produced from Foundation seed by CSGA seed growers for sale to farmers to use in planting their commercial grain acreage.

For most self-pollinated crops, Select plots are the first generation from Breeder seed and Registered crops are the first generation from Foundation seed. Most open-pollinated crops are produced in Foundation plots.

Seed crop certification is performed for CSGA seed growers and processors dedicated to taking the extra steps necessary in planting, harvesting, handling, storage, and conditioning to produce Certified seed.

FOREWORD

The Canadian Seed Growers' Association (CSGA) is recognized by the federal *Seeds Act and Regulations* as the official Canadian pedigreeing agency responsible for prescribing varietal purity standards and certifying seed crops of all agricultural crops, with the exception of potatoes. The Association came into being in 1904, when both President and Secretary were officials from the federal Department of Agriculture. It was not until 1923 that the first non-government employee took over as Secretary, and not until 1925 was the office of President filled by other than a federal government officer. In 1926, the Association elected its first grower President.

The *Canadian Regulations and Procedures for Pedigreed Seed Crop Production*, as prepared by the CSGA, represent the collective experience of federal, university and provincial research and regulatory specialists and representatives of the seed trade assisted by the practical experience of seed growers.

Changes in methods and operations have taken place over the years, but the aims and objectives of the CSGA – to improve pedigreed seed production and usage – have not changed. The co-regulatory relationship with the inspection branch of the Department of Agriculture, now the Canadian Food Inspection Agency (CFIA), has continued over the years on a partnership basis. The CSGA also works closely with the Research Branch of Agriculture and Agri-Food Canada, the agricultural faculties of universities throughout the country, provincial ministries of agriculture, the Canadian Seed Institute (CSI), the Canadian Seed Trade Association (CSTA), the Commercial Seed Analysts Association of Canada (CSAAC), the Association of Official Seed Certifying Agencies (AOSCA), the Organisation for Economic Cooperation and Development (OECD) Seed Schemes, and many other related organizations.

The CSGA's affairs are conducted by a President and a 24-member Board of Directors. Fourteen directors are active growers elected by the general membership, and nine are appointed by Provincial Ministers of Agriculture. The CSGA is located in Ottawa under the supervision of the Executive Director, who is also a director of the Association.

Provision is made for the formation of provincial or regional organizations affiliated with the CSGA. These provincial organizations are not authorized to issue crop certificates or to act in any way as pedigreeing agencies. They act as a liaison between seed growers and the national Association, and conduct promotional and extension programs on a provincial basis.

The CSGA assures Breeder seed quality through its *Canadian Regulations and Procedures for the Production of Breeder Seed Crops*, which include requirements for professional recognition of Breeders, audited Quality Management Systems, and seedlot testing for compliance with federal seed grade standards.

Most self-pollinated crops are pedigreed through five classes: Breeder, Select, Foundation, Registered and Certified. Most open-pollinated crops are pedigreed through three classes: Breeder, Foundation and Certified.

Varietal purity is maintained by limits on generations or multiplications as well as pedigreed classes, parent seed pedigree verification, restrictions on previous land use, isolation distance, impurities, seed crop inspections and other regulations established by the CSGA. Perennial crops are also subject to limits on the age of stand or number of crops eligible for pedigreed status.

Breeder, Select, Foundation and Registered seed are principally multiplication classes. Certified seed – the terminal pedigreed class – is the seed recommended for commercial crop production.

The pedigreeing of seed and seed crops ensures varietal purity. This is especially important to maintain yield, quality, disease resistance and the other distinguishing characteristics of a variety.

From its office in Ottawa and through Certified seed growers, government representatives, and the seed trade across the country, the CSGA has worked since 1904 to ensure the supply of high quality seed for crop production.

OBJECTIVES

The objectives of the Canadian Seed Growers' Association are:

- To ensure, and certify to, the varietal purity of seed crops produced by its members and to maintain the pedigree thereof.

- To identify, and certify to, for purposes other than further pedigreeing, the varietal purity of seed crops produced from superior propagating material.

- To encourage the development and introduction of superior varieties and strains of plants.

- To develop programs which expand the use of pedigreed seed.

- Generally to contribute to the establishment and maintenance of high standards in yield and quality of agricultural crops.

- To co-operate with other agencies which have an interest in seed production, promotion and distribution in Canada and abroad.

- To coordinate the endeavors of pedigreed seed growers with those of plant breeders and commercial crop producers.

INFORMATION AND CONTACTS

Canadian Seed Growers' Association
For more information on CSGA requirements, contact:

Mailing Address:

Canadian Seed Growers' Association
P.O. Box 8455
Ottawa, Ontario
Canada K1G 3T1

Telephone: (613) 236-0497
Fax: (613) 563-7855

Courier Address:

Canadian Seed Growers' Association
202-240 Catherine Street
Ottawa, Ontario
Canada K2P 2G8

Website: www.seedgrowers.ca

A complete list of CSGA office staff is available from the CSGA's website at:
www.seedgrowers.ca/contact-us/

Canadian Food Inspection Agency
Enquiries relating to enforcement of the federal *Seeds Regulations* should be directed to seed inspection staff at the Canadian Food Inspection Agency (CFIA). A complete list of CFIA office contact information is available at: www.inspection.gc.ca

Canadian Food Inspection Agency Agence canadienne d'inspection des aliments

CANADIAN FOOD INSPECTION AGENCY (CFIA) Central Offices for Seed Inspection		
District	**Address**	**Phone/Fax**
Alberta North	8403 Coronet Road NW Edmonton, AB T6E 4N7	Tel: (780) 395-6700 Fax: (780) 395-6792
Alberta South	3605-14 Avenue North Lethbridge, AB T1H 6P7	Tel: (403) 382-3122 Fax: (403) 382-3148
Saskatchewan	421 Downey Rd.- Room 201 Saskatoon, SK S7N 4L8	Tel: (306) 385-4949 Fax: (306) 385-4942
Manitoba	269 Main Street- Room 613 Winnipeg, MB R3C 1B2	Tel: (204) 479-6624 Fax: (204) 259-1331
Ontario	174 Stone Road West Guelph, ON N1G 4S9	Tel: (226) 217-8555 Fax: (226) 217-8495
Quebec	2954 boul. Laurier, Suite 100 Quebec, QC G1V 5C7	Tel: (418) 648-7373 Ext. 139 Fax: (418) 648-4792
Atlantic	Box 6088, 5th Floor, 1081 Main St. Moncton, NB E1C 8R2	Tel: (506) 777-3939 Fax: (506) 777-3942
CFIA Headquarters		
Ottawa	Seed Section Canadian Food Inspection Agency 59 Camelot Drive Ottawa, ON K1A 0Y9	Tel: 1-800-442-2342 (613) 773-2342 Fax: (613) 773-7261 SeedSemence@inspection.gc.ca

SECRETARIES OF CSGA PROVINCIAL AND REGIONAL BRANCHES AND ASSOCIATIONS		
Name	**Address**	**Phone/Fax**
BRITISH COLUMBIA Vacant	10043 100th Street Fort St. John, BC V1J 3Y5	Tel: (250) 787-3241 Fax: (250) 787-3299 Email:
ALBERTA Kelly Chambers	Seed Industry Partnership 5030 - 50 St. Lacombe, AB T4L 1W8	Tel: (403) 325-0081 Fax: (866) 798-1826 Email: kelly@seedalberta.ca
SASKATCHEWAN Dave Akister	10 - 41 West Broadway Yorkton, SK S3N 0L6	Tel: (306) 786-6266 Fax: (306) 783-2211 Email: saskseed@sasktel.net
MANITOBA Jennifer Seward	Box 1910 Carman, MB R0G 0J0	Tel: (204) 745-6274 Fax: (204) 745-6282 Email: jennifer.seward@seedmanitoba.ca
ONTARIO Harold Rudy	1 Stone Rd. West Guelph, ON N1G 4Y2	Tel: (519)826-4214/800-265-9751 Fax: (519) 826-4224 Email: harold.rudy@ontariosoilcrop.org
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MARITIMES Daniel Savoie	Regional Crop Development Officer Agriculture & Aquaculture P.O. Box 5001 Grand-Falls, N.B. E3Z 1G1	Tel: (506)-473-7755 Fax: (506)-473-6641 Email: daniel.savoie@gnb.ca

FIRST STEPS TO PRODUCING A PEDIGREED SEED CROP

1. Obtain the information you require, such as:
   - *Canadian Regulations and Procedures for the Production of Pedigreed Seed Crops – Circular 6*.
   - *Application for Seed Crop Certification and CSGA Membership Application/Renewal Form*.
   - Fee schedule for current crop year.
   - Contact information for seed crop inspection services.
   - The CSGA calendar of application deadline dates and events.
   - Variety descriptions of the varieties you intend to produce.
   - *Rogues and Roguing* manual.
   - *Forage Production* manual (if producing forage crops for seed).

   Samples and explanations of documents are provided in Appendix A.

2. Purchase pedigreed seed of Foundation or Registered class.

   This seed may be purchased in bags or in bulk. The bagged seed must be tagged with official tags. Pedigreed seed purchased in bulk must be accompanied by official pedigree documentation supplied by the seller. The tags and/or documentation must be kept to present to the authorized seed crop inspector and the CSGA on request. This is proof of the pedigree of the seed you sow. A copy of the mechanical purity and germination analysis certificate should also be available to you for this seed.

3. Make sure that the seed is sown on land meeting the requirements of the regulations. Isolate the crop according to requirements.

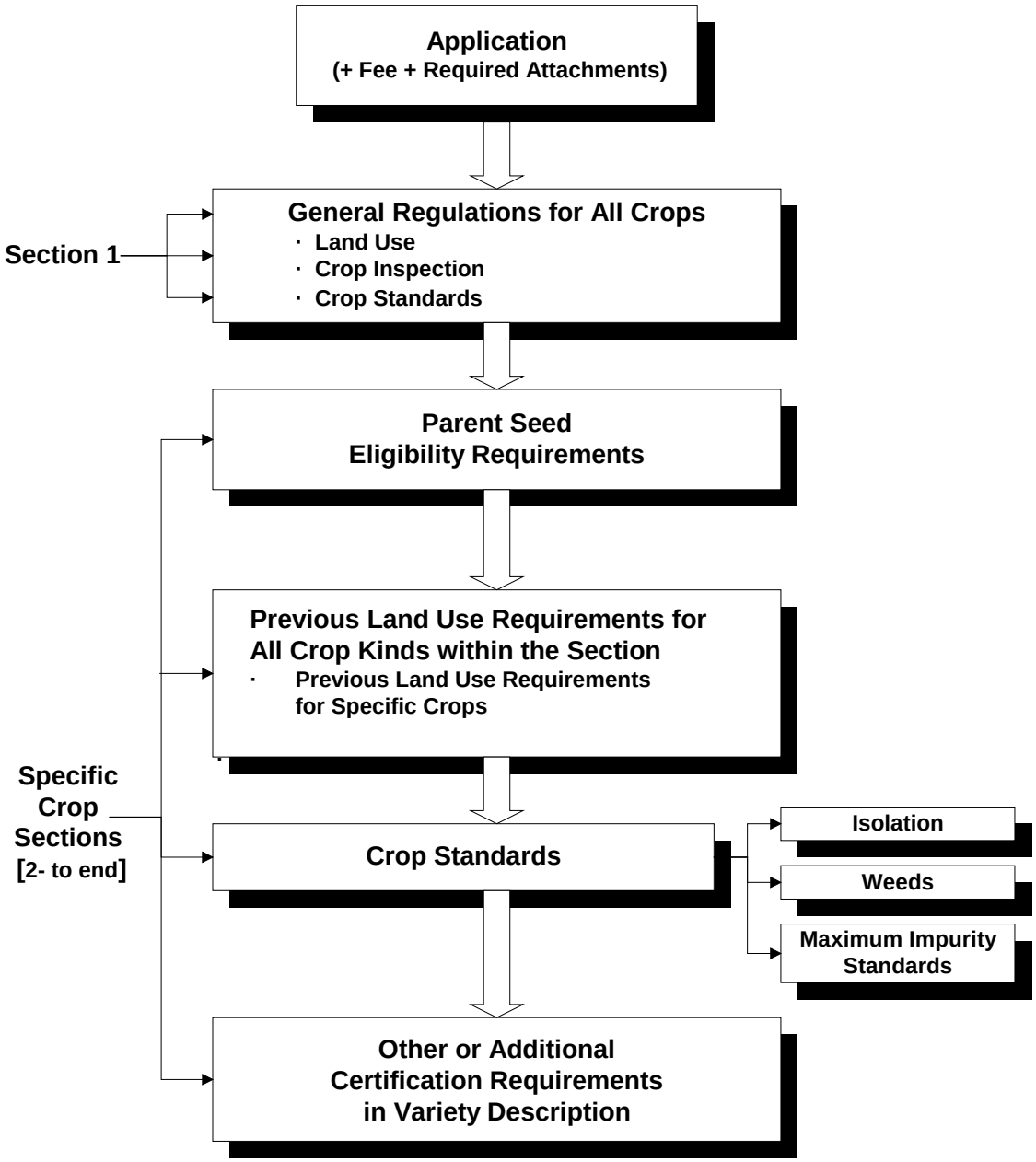
4. The *Application for Seed Crop Certification and CSGA Membership Application/Renewal Form* must be completed and received by the CSGA before the prescribed deadline dates on the CSGA calendar. Fees must accompany the application.

5. The crop must be rogued throughout the growing season to remove plants of other varieties, off-types, difficult-to-separate other crop kinds, as well as objectionable weeds.

6. **Do not harvest the crop until you are positive that the crop has been inspected by an inspector licensed by the CFIA.**

   The inspector provides you with a report of crop inspection. This report is used by the CSGA to appraise the crop and determine its eligibility for certification.

Summary of CSGA Requirements for Seed Crop Certification Circular 6



PROCEDURES FOR THE PRODUCTION OF PEDIGREED SEED CROPS

This portion of the manual explains the general procedures for the production and certification of a pedigreed seed crop.

There are three stages in the production and identification of pedigreed seed. The first is the production of a pedigreed seed crop. If all the requirements for this are met, the CSGA issues a crop certificate. This certifies that the crop meets the requirements for varietal purity and crop standards and shows the pedigreed status (Breeder, Select, Foundation, Registered, Certified) for which the seed is eligible. The second stage is the careful harvesting, handling, conditioning and storage of the seed to preserve purity and quality. The third stage is inspection of the seed to determine its eligibility for a grade under the federal *Seeds Act and Regulations*. Factors in this are germination, freedom from weed seeds and other crop kinds and general quality. If, from this inspection, the seed qualifies for an official grade, the grader, accredited by the CFIA, authorizes printing of official labels confirming the class of seed and the grade. For pedigreed seed handled in bulk, Bulk Storage Facilities, registered by the CFIA, may also issue a certificate which guarantees that the seed meets grading requirements.

Regulations
Growers should study the CSGA regulations in this manual and plan their operations to comply with them. The official current version of the *Canadian Regulations and Procedures for Pedigreed Seed Crop Production* is maintained at: www.seedgrowers.ca. If there are questions as to correct procedures, the grower should contact the CSGA for clarification.

Land Requirements
To produce pedigreed seed crops, land is chosen which meets requirements with respect to previous crops and isolation, as outlined in the regulations for each crop kind. Certain crops grown in previous years may render the land unacceptable for pedigreed seed production of some crops in following years. It is necessary to plan ahead and to keep accurate records of crops grown on land in previous years.

Seed Requirements
The seed used must be of a class eligible to produce an additional class of pedigreed seed (e.g., Certified seed cannot normally be used for pedigreed seed production). These classes are specified in the regulations. In cereals, for example, while a grower wishing to produce Certified seed may normally sow Registered, Certified seed may also be produced from Select or Foundation.

The grower must retain documents to prove the class of seed planted. This document is the *Crop Certificate* if the grower produced the seed. If purchased seed was sown, the documents are the official seed labels which were attached to the bags and/or bulk seed certification documents. The crop certificate and/or all labels are to be retained and available to the inspector when the crop is inspected. The CSGA may also require the grower to forward one or more of the labels to the CSGA.

Application for Seed Crop Certification and CSGA Membership Application/Renewal Form
The grower decides on the land and seed to use and plants the crop. The grower completes an *Application for Seed Crop Certification* for each field* and one *CSGA Membership Application/Renewal Form* annually; (Appendix A.1a) and A.1b)). The grower must designate an *Authorized Seed Crop Inspection Service* (ASCIS) for each field* and, other than for CFIA inspections, pay crop inspection fees directly to that authorized inspection service. Applications from a partnership or corporation must be signed by a designated signing officer. The *Application for Seed Crop Certification* is submitted to CSGA by the Application Deadline Date for that crop kind. The *CSGA Membership Application/Renewal Form* is submitted annually to CSGA with the required fees for CSGA, for Branches, and for CFIA inspections when required.
* To maintain inspection integrity, fields should have separate applications and crop inspection reports if they are managed separately or are separated by large physical barriers or are clearly not contiguous or adjacent.

The *Application for Seed Crop Certification* for each field is forwarded by CSGA to the specific *Authorized Seed Crop Inspection Service* (ASCIS) designated by the grower. As long as the designated inspection service accepts the application, then that ASCIS contacts the grower and inspects the crop at the correct stage of crop maturity. If the designated inspection service (ASCIS) rejects the application, it is returned to the grower who re-submits the *Application for Seed Crop Certification* with a different inspection service designated.

The *Application for Seed Crop Certification and the CSGA Membership Application/Renewal Form* is available from the CSGA office and from the CSGA members' website at www.seedgrowers.ca. A list of *Authorized Seed Crop Inspection Services (ASCIS)*, Application Deadline Dates and Application Fee Worksheets are on the CSGA website: www.seedgrowers.ca, and also available from the CSGA office. Crops for which applications for crop certification are received by the CSGA after the deadline date may be inspected, but only when inspection resources are available.

Isolation, Roguing and Management
Isolation of seed crop fields, as required by the regulations, should be completed before crop inspection. Roguing must be done when impurities and off-types can be readily identified and before crop inspection. Failure to remove impurities and off-types could result in decline of the crop's pedigree certification. Weed control should be done using recommended control measures.

Crop Inspection and Crop Certificate
It is the grower's responsibility to:
- advise the designated inspection service prior to crop inspection if the crop is not to be certified;
- ensure that the crop has been inspected prior to cutting the crop.

A crop certificate will not be issued if a grower harvests or swaths the crop before inspection. The crop should be inspected at a stage of growth when varietal purity is best determined.

The grower should have available for the inspector all the necessary documents.

After the crop has been inspected, the inspector will complete a *Seed Crop Inspection Report*; a copy is forwarded to the CSGA and to the grower. If the CSGA determines, from its appraisal of this report, that the crop conforms to the required standards, a crop certificate may then be issued.

Assigning a Crop Certificate
The grower of a pedigreed seed crop may assign the crop certificate to an assignee (usually the vendor of the parent seed or vendor's designate). Assignment of a crop certificate to an assignee means that the grower has directed the CSGA to issue that crop certificate in the names of both the grower and the assignee, to send that crop certificate to the assignee and a notification of issuance to the grower and also to permit the assignee to access all CSGA certification records for that crop. Growers assign crop certificates to an assignee on the *Application for Seed Crop Certification.* The *Application for Seed Crop Certification* should be submitted to CSGA in the name of the grower.

Seed harvested from an assigned crop must be processed, graded and labeled according to the federal *Seeds Act and Regulations* before it can be sown for further pedigreed seed crop production by anyone other than the grower of the seed crop. (Refer to Section 1.19.)

Grower's Records
Records should be kept of all pedigreed seed planted and should include quantity of seed and acres planted as well as field identification. Parent seed records should include crop certificate and CSGA sequence numbers from the *Seed Crop Inspection Report* for a grower's own seed and, for purchased seed, crop certificate and seed certificate numbers from bag labels or bulk seed certification documents.

A grower should keep a complete file of the following documents:
- *Application for Seed Crop Certification and CSGA Membership Application/Renewal Form*;
- crop inspection reports;
- crop certificates issued, unless the certificate was assigned to another party;
- seed analysis certificates (purity and germination);
- pedigreed labels (tags) of parent seed planted;
- quantity of seed planted;
- year-to-year records of the grower's farm(s) showing:
    - all fields, with identification numbers;
    - the area of each field;
    - the kind and, if known, the variety of crop grown in each field or land use in that year;
    - on fields used for pedigreed seed production, the crop certificate number of the seed planted and the crop certificate number issued for each pedigreed seed crop produced.

Seed Equipment
All equipment used in the production, handling and processing of pedigreed seed, including seed planters and drills, combines, trucks and seed cleaning or processing equipment, must be cleaned thoroughly before use, particularly if it has been used previously for a different variety or kind of seed or grain. This is essential to prevent contamination.

Seed Storage
Seed from each field should be stored separately from all other fields in cleaned storage facilities. If a grower has more than one field of the same variety, and one field is rejected, all seed of that variety may be rejected for certification if the seed from other fields is stored with it. Seed of different kinds, varieties, or classes must be stored separately.

Grading and Labeling of Seed
Harvested seed for which a crop certificate has been issued is not considered as pedigreed seed eligible for sale with a variety name, unless it is processed, inspected, graded and labeled according to the federal *Seeds Act and Regulations*.

Maintaining the reliable reputation of pedigreed seed requires processing to very high quality standards. Processing to a lower standard involves potential purity risks and could damage the reputation for quality of pedigreed seed. Tags should remain on bags of pedigreed seed until seeding time.

Reasons Why Crops are Declined Pedigreed Status

CSGA records indicate that less than 2 percent of the crops that are inspected each year are declined pedigreed status for one or more of the following reasons:

- ***Other Crop Kinds in excess of the CSGA standards for difficult-to-separate crop kinds*** (e.g., barley plants in a wheat crop). This type of problem is usually the result of volunteer growth from a previous crop grown on the land or the improper cleaning of seeding equipment prior to sowing the field. All crops for pedigree should be intensively rogued throughout the growing season and prior to inspection. Official variety descriptions define the characteristics of a variety.

- ***Off-types or Other Varieties in excess of the maximum impurity standard for the variety*** (e.g., bearded types in a non-bearded variety). This may result from seed contamination, previous crops volunteering, poorly cleaned equipment or mixing of seed lots at seed processing or seeding. All crops for pedigree should be intensively rogued throughout the growing season and prior to inspection.

- ***Previous Land Use not conforming to the regulations*** (e.g., growing a seed crop on land which produced a commercial crop of the same crop kind the previous year). Some crop kinds, especially for plot production, require careful selection of land because of previous land use conditions, which may extend up to 5 prior years. Accurate land history records are essential.

- ***Very Weedy crops*** are declined because the excessive presence of weeds or other crops does not allow adequate inspection of the crop for varietal impurities and other crop kinds. Very weedy crops can also damage the quality reputation of pedigreed seed. For some crop kinds, there are specific weeds that must not be present, e.g., Cleavers Bedstraw or Wild Mustard in Canola/Rapeseed/Mustard crops and prohibited noxious weeds in all pedigreed seed crops.

- ***Insufficient Isolation*** of the crop. CSGA regulations require that crops for pedigree be isolated from other crops which might offer a source of varietal or mechanical contamination through cross-pollination or harvesting mistakes.

- ***Seed Planted not Eligible*** results from Certified seed being sown; seed of foreign origin for which pedigree cannot be established or seed not tagged or properly documented according to the federal *Seeds Act and Regulations*.

- ***Crop Cut before Inspection*** results in an automatic decline of pedigree to the crop. Standing crops must be inspected to determine varietal purity by an authorized inspector recognized by the CSGA.

- ***Age of Stand*** may be reason for demotion or decline of pedigree for perennial crops. Tables 6.4.6 and 7.4.5 prescribe the age of stand for grass and legume seed crops.

Demotion to a Lower Pedigree Class

Crops may also be demoted to a lower pedigree class if the problem is not sufficiently severe to cause a decline of pedigree. Before declining or demoting a crop, the CSGA carefully considers all information available. An appeal process for declines and demotions is available to provide new information to the CSGA (Refer to Section 1.9 and Appendix A.8.)

SECTION 1

REGULATIONS FOR ALL PEDIGREED SEED CROPS

1.1 A condition which will bring pedigreed seed into disrepute may be cause for declining pedigreed status.

1.2 MEMBERSHIP

1.2.1 Any person, partnership or organization producing or undertaking to produce pedigreed seed must apply for membership in the Canadian Seed Growers' Association (CSGA), in accordance with the By-Laws.

1.2.2 All *Applications for Seed Crop Certification and CSGA Membership Application/ Renewal* must be made to the CSGA each year in which a crop is grown and presented for pedigreed status certification.

1.2.3 An applicant must be of legal age. In the case of a partnership, at least one member of the partnership must be of legal age.

1.2.4 In provinces or regions where there is a seed growers' organization approved by the Board of Directors of the CSGA, an applicant for membership in the CSGA is required to become a member of the Branch or Association in the province or region in which the crop is grown as a condition of being admitted to membership in the CSGA.

1.3 APPLICATION FOR SEED CROP CERTIFICATION AND CSGA MEMBERSHIP APPLICATION/RENEWAL

1.3.1 Growers must apply for crop certification on the application form supplied by the CSGA. The *Application for Seed Crop Certification and the CSGA Membership Application/Renewal* is available from the CSGA or from CSGA's website at www.seedgrowers.ca.

1.3.2 Crops for which applications for seed crop certification are received by the CSGA after the CSGA's deadline date may be inspected but only when inspection resources are available.

1.3.3 All inspections depend on an authorized inspector being able to safely provide the requested service at the proper time. Acceptance of application and fees by CSGA does not guarantee field inspection.

1.3.4 In order to ensure field inspection, the *Application for Seed Crop Certification and the CSGA Membership Application/Renewal,* accompanied with the necessary fees, must be received by the CSGA by deadlines dates published by the CSGA.

1.4 EVIDENCE OF PEDIGREE

1.4.1 Growers must present satisfactory evidence of the pedigree of the parent seed of crops offered for pedigreed status. When seed is purchased, all pedigreed seed labels or documentation must be retained and made available to the authorized seed crop inspector and to the CSGA upon request.

1.5 DETERMINATION OF ELIGIBILITY, STATUS AND CLASS

1.5.1 The CSGA reserves the right to determine the eligibility of any crop for pedigree and the status of the seed crop produced. A crop planted with Certified seed is not eligible to produce a pedigreed crop unless otherwise specified by the CSGA (e.g., for export only, Certified second generation under the Organization for Economic Cooperation and Development (OECD) Seed Certification Schemes).

1.6 CROP UNIT AND ISOLATION

1.6.1 Isolation requirements are stated in the specific regulations for crop kinds and are the minimum isolation distances required.

a) Boundaries must be clearly defined and adjacent crops must not overlap. To maintain inspection integrity, fields must have separate applications, and seed crop inspection reports, if they are managed separately or are separated by large physical barriers or are clearly not contiguous or adjacent
b) Isolation strips are not considered part of the crop area.
c) A part of the crop may be refused pedigreed status if it does not meet the standards. The remainder of the field may be granted pedigreed status if it has the proper isolation from the unacceptable portion and meets all other standards.
d) The area, density and location of contaminants within isolation strips may determine eligibility for pedigreed status.

1.6.2 A crop for pedigreed status may be grown with a companion crop provided permission is obtained from the CSGA and the seed used to plant the companion crop is of a purity acceptable to the CSGA. The companion crop must not interfere with the seed crop inspection.

1.6.3 The crop should be planted in such a manner as to facilitate inspection and effective removal of plants of off-types, other varieties, other crop kinds and weeds.

1.7 CROP INSPECTION

1.7.1 The number of inspections required is determined by the crop kind.

1.7.2 The crop must be inspected at a stage of growth when varietal purity is best determined. A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

1.7.3 It is the grower's responsibility to ensure that crops are inspected prior to swathing or harvesting.

1.7.4 It is the responsibility of the grower at the time of application to correctly identify the location of the crops to be inspected.

1.7.5 The inspector will provide the grower with a *Seed Crop Inspection Report* (refer to Appendix A.2).

1.7.6 If not satisfied with the *Seed Crop Inspection Report* or if corrective action verification is required, the grower has the right to request a re-inspection at the grower's expense.

1.7.7 If the classification or identification of off-type plants is challenged, the grower may request a reinspection, by an authorized seed crop inspector. Any charges incurred for such reinspections will be the responsibility of the grower.

1.7.8 The CSGA is under no obligation to authorize reinspections requested because of a grower's failure to comply with regulations.

1.7.9 A commercial crop may be inspected to assess the eligibility of the land for pedigreed seed production the following year. This is called "land use" inspection. Fees for this service are paid directly to the CFIA or authorized crop inspection service. (Refer to Section 1.17.)

1.8 CROP CERTIFICATES

1.8.1 A *Crop Certificate* (refer to Appendix A.5) will be issued in the name of the seed grower responsible for the management and production of the seed crop as indicated on the *Application for Seed Crop Certification and the CSGA Membership Application/Renewal*, except as set out below (1.8.2 and 1.8.5).

1.8.2 Crop certificates for hybrid crops may be issued to the person or company responsible for the variety.

1.8.3 The record of seed crop production is credited to the CSGA production record of the grower of the crop.

1.8.4 Crops for which a crop certificate has not been issued by April 30 of the year following crop inspection will be considered as ineligible for pedigree unless approved by the CSGA.

1.8.5 The grower may assign a crop certificate to another party on the *Application for Seed Crop Certification*. The names of both the grower and the assignee will appear on the crop certificate provided that the assignment is received by the CSGA before the crop certificate is issued. Refer to Section 1.19.

1.8.6 The CSGA reserves the right to issue a crop certificate to the grower if an assignment has not been received prior to certificate issuance.

1.8.7 The CSGA reserves the right to delay issuing a crop certificate until the applicant's account has been paid in full.

1.9 APPEALS

1.9.1 A grower may request an appeal of the CSGA decision on an inspected crop. The appeal request must include a completed *Appeal Application* (Form 200), factual, verifiable information and, for most crop kinds, be submitted to CSGA by October 15 of the year of crop inspection.

1.9.2 Although an assignee may support the appeal, the *Appeal Application* must be submitted under the signature of the grower of the crop.

1.9.3 The appeal may be reviewed by the Appeals Committee of the CSGA Board of Directors.

1.9.4 If corrective action is taken by the grower to correct a problem with the crop, the grower should immediately request a reinspection by an authorized seed crop inspector.

1.10 FEES

1.10.1 Applicable fees for pedigreeing crops are as published by and payable to the CSGA.

1.10.2 The CSGA does not collect fees incurred for reinspection and inspection for "land use". These fees are paid directly to the authorized crop inspection agency, such as the CFIA.

1.10.3 Where applicable, the annual membership fee of the provincial affiliated organization (Branch or Association) of the CSGA must be paid as a condition of membership in the CSGA.

1.11 BREEDER SEED PRODUCTION

1.11.1 It is the responsibility of the Breeder to make application to the CSGA for Breeder seed crop inspection. All production of Breeder seed crops for CSGA certification are subject to CSGA crop inspection requirements for Breeder seed crops. The standards for Breeder seed crop production are published in the *Canadian Regulations and Procedures for Production of Breeder Seed Crops*, which is available from the CSGA and on the CSGA website at www.seedgrowers.ca .

1.11.2 Breeder seed can only be demoted and sold as Foundation or Registered seed provided the seedlot is subject to official varietal purity verification testing and a crop certificate of the demoted class has been issued by the CSGA.

1.11.3 Breeder seed must be transferred in closed containers, identified by tags or labels signed by the Breeder. The seed should have a minimum mechanical purity at least equal to that required for Canada Foundation seed verified by a seed analysis certificate which should accompany the seed.

1.12 TRANSFER AND SALE OF SEED FROM PEDIGREED SEED CROPS

1.12.1 A grower does not need to have parent seed graded and labelled if the crop applied for inspection is grown by the same grower who produced the parent seed. Otherwise, documented pedigreed seed of an eligible class must be obtained to produce a crop for further pedigree. If imported seed is sown, it must be labeled as authorized by an official certifying agency recognized by the CFIA.

1.12.2 The CSGA may refuse to recognize the pedigree of parent seed if:

a) When the seed left the premises or the responsibility of the vendor or distributor, the pedigreed seed was not officially graded, tagged, labeled or documented.
b) Original container(s) of seed were split into different lots and then the lots were not resealed according to the federal *Seeds Act and Regulations* requirements.

c) Official certification labels or documents were not on the parent seed containers when received by the purchaser.

1.12.3 Select seed being sold or transferred must be in closed containers, identified with Select tags provided by the CSGA and must meet the grading and conditioning, as well as germination and purity requirements, of the Canada Foundation grade of the federal *Seeds Act and Regulations*. A seed analysis certificate indicating mechanical purity and germination and test date should accompany Select seed.

1.12.4 Unless otherwise prescribed by the CSGA:
a) Accredited plot growers may produce Select or Foundation plots from Breeder seed. Accredited plot growers may also produce Select plots from Select seed.
b) Probation plot growers may produce only one Probation plot in each year of Probation.
c) Growers, other than Select and Foundation plot growers accredited by the CSGA, planting Breeder seed or Select seed may be granted Registered or Certified status.

1.12.5 Seed from pedigreed crops, other than Breeder or Select seed, may be transferred to other parties for processing and grading in accordance with the federal *Seeds Act and Regulations*.

1.12.6 Bulk pedigreed seed may be delivered only by a Bulk Storage Facility registered pursuant to the federal *Seeds Act and Regulations*.

1.12.7 Applicants for crop inspection are responsible for ensuring that seed crops destined for seed certification under the OECD Seed Schemes meet all the certification requirements of the OECD Seed Schemes.

1.13 NUMBER OF VARIETIES PERMITTED

1.13.1 The CSGA reserves the right to refuse pedigreed status to any or all varieties when a seed grower is growing more varieties and kinds than the CSGA considers an acceptable seed production practice especially for plot production. For Select and Foundation plot production requirements, refer to Sections 11, 12 and 13.

1.14 DISEASE

1.14.1 Prevention of disease in pedigreed crops and seed is a very important factor in maintaining high production and seed quality. A crop may be declined pedigreed status because of the presence of disease which exceeds the limits established from time to time by the CSGA, unless the crop or seed is treated as recommended.

1.14.2 Seed borne disease standards may be established by official regulations.

1.14.3 A strict watch should be maintained for plant diseases at all levels of production. Suspicion of an unknown disease should be reported to the CFIA or provincial authority who can advise as to the necessary control treatment.

1.14.4 When seed treatment is recommended, all seed should be treated before planting.

1.15 REGULATIONS FOR OTHER CROPS

1.15.1 Regulations for most crop kinds not provided in this publication are available from the CSGA.

1.16 IMPORTATION OF PEDIGREED SEED

1.16.1 Pedigreed seed imported into Canada must meet the minimum standards for mechanical purity as prescribed by the federal *Seeds Act and Regulations*.

1.16.2 If the variety is subject to registration and is not registered for sale in Canada, the importer must comply with all requirements of the federal *Seeds Act and Regulations*, which may include an import declaration, sale pursuant to a contract and responsibility for all production.

1.16.3 Pedigreed seed of foreign origin may be imported into Canada but, if offered for sale by variety name, the seed must be graded and labelled with a Canada pedigreed grade name.

1.17 LAND USE INFORMATION

1.17.1 Regulations governing the land which is eligible to produce a pedigreed seed crop are based on sound cropping practices.

1.17.2 Crops should not be grown on land where volunteer growth from a previous crop may cause contamination.

1.17.3 Minimum requirements have been established for each crop kind and are outlined in the crop specific sections of these regulations.

1.17.4 When choosing land for a pedigreed seed crop the seed grower must consider the following:

a) Will volunteer growth from the previous crop on this land provide a source of varietal contamination to the proposed seed crop?
b) Will any volunteer plants be difficult to rogue from the seed crop, or will their seed be difficult to separate?
c) Will seedborne disease problems occur in the crop as a result of previous crops?
d) Was the previous crop inspected for pedigree and did it meet CSGA standards?

1.17.5 If uncertain of the eligibility of land for seed production, the grower should use the *Land Use Verification* form (Form 101, Appendix A.9) to provide the following information to CSGA in writing, prior to planting:

a) What variety, kind and class is intended for planting on the land this year?
b) When was the proposed crop kind (or variety) last grown on this land?
c) What was the variety and kind of the previous crops in the past 3 years?
d) Was a pedigreed class of seed used to sow the previous crops? If so, provide the crop certificate number covering the seed planted in the past 3 years.
e) Was the previous crop field inspected? If so, provide the crop certificate number issued for the inspected crop (not the crop certificate number of the seed sown).
f) Was the previous crop free of plants of the proposed crop kind to be grown this year?

1.17.6 If the land use plans outlined in the *Land Use Verification* (Form 101, Appendix A.9) meet the CSGA requirements, notice of approval is sent to the grower.

1.17.7 If a grower wishes to establish a land use eligibility record for subsequent pedigreed seed crop production on a particular field, this field should be included on the *Application for Seed Crop Certification*. Fees for land use inspections are paid directly to the CFIA or authorized crop inspection agency. Land use inspections are not used for subsequent production of the same crop kind.

1.18 STORING OF PARENT SEED

1.18.1 Clean, clearly identified and separate storage for all pedigreed seed is essential. Requirements and recommended procedures for handling and labelling pedigreed seed are outlined in Sections 2 and 5 of the Canadian Seed Institute (CSI) *Technical Manual for Approved Conditioners and Bulk Storage Facilities* and some conditions can require a new crop certificate to be issued by the CSGA.

1.19 ASSIGNMENT OF CROP CERTIFICATES

1.19.1 The grower of a pedigreed seed crop may assign the crop certificate to an assignee. The grower of the crop is defined as the person responsible for production of the seed crop from sowing to harvesting.

1.19.2 Inspectors will report to the CSGA those crops which do not appear to be grown under the direct management of the applicant for crop inspection.

1.19.3 Growers assign crop certificates to an assignee on the *Application for Seed Crop Certification.*

1.19.4 The *Application for Seed Crop Certification* should be submitted to the CSGA in the name of the grower.

1.19.5 The seed used to plant a crop with an assigned crop certificate must either be the grower's own seed or seed that has been graded and labeled according to the federal *Seeds Act and Regulations*. (Refer to Section 1.12 for details governing movement of pedigreed seed.)

1.19.6 Assignment of a crop certificate to an assignee means that the grower has directed the CSGA to issue that crop certificate in the names of both the grower and the assignee, to send that crop certificate to the assignee, to send a notification of issuance to the grower and to permit the assignee to access all CSGA certification records for that crop.

1.19.7 Cancellation of an assigned crop certificate which has been issued requires a request to the CSGA that is signed by all parties involved.

1.20 VARIETAL PURITY SEED STANDARD

1.20.1 Although crop inspection remains the primary method for assessing varietal purity in Canada, the standards for varietal purity of seed for Foundation, Registered and Certified grades are those established by the Association of Official Seed Certifying Agencies (AOSCA) and published in the AOSCA Certification Handbook.

1.20.2 A CSGA exception to the AOSCA seed standards are the following maximum impurity standards for off-types and other varieties in Field Peas: 2/10,000 Foundation; 5/10,000 Registered; 20/10,000 Certified.

1.21 HIGHER VOLUNTARY OR ADDITIONAL CERTIFICATION STANDARDS

1.21.1 Seed crops may require higher voluntary or additional certification standards that are clearly defined in the variety description, provided that:

a) the higher voluntary or additional certification standards have been communicated by the Breeder or variety distributor to all parties involved with regulation and production of the variety; and
b) when required to verify varietal identity, the CSGA has been authorized by the Breeder or variety distributor to require varietal purity verification testing before a crop certificate is issued by the CSGA.

1.21.2 Examples of higher voluntary or additional certification standards include previous land use or isolation distance requirements that exceed the standards in Circular 6, border row requirements and lab tests for varietal identity verification.

1.21.3 For additional certification standards that involve varietal blends, a refuge declaration (Form 182) stating the percent refuge must be submitted to CSGA before a crop certificate is issued. Unless otherwise specified in the additional certification standards, the refuge declaration shall provide the year the seed was produced, the CSGA crop sequence numbers, the test method name or number, the number of seeds tested and the confidence level of the test results.

SECTION 2

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF BARLEY, BUCKWHEAT, CANARYSEED, DURUM, FLAX, OAT, RYE, TRITICALE, AND WHEAT

In this Section:

- ***Barley*** includes spring and winter Barley.
- ***Oat*** includes covered and naked Oat.
- ***Rye*** includes spring and winter Rye.
- ***Triticale*** includes spring and winter Triticale.
- ***Wheat*** includes spring and winter Wheat, Einkorn, Emmer and Spelt (unless otherwise specified). ***Durum*** is not included.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.
Section 2.6 describes the *Additional Minimum Requirements for Hybrid Varieties.*

2.1 SEED CLASSES AND GENERATIONS

2.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

a) Breeder: controlled by the Plant Breeder. No generation limit.
b) Select: normally 5 generations. Grown by accredited plot growers.
c) Foundation: one generation.
d) Registered: one generation.
e) Certified: one generation.

2.1.2 For Select and Probation plot production, refer to Section 12.

2.1.3 For those growers who are not accredited by the CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, the CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

2.2 LAND REQUIREMENTS

2.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

2.2.2 **Status granted to crops determined by the previous crop**

a) Land requirements prevent production of a higher pedigreed status crop (of the same variety) than the pedigreed status of the crop produced on that land the previous year.
b) Breeder or Select seed of the same variety may be sown in two consecutive years on the same land and the crop will be eligible for Foundation status. The third and fourth consecutive crops of the same variety on the same land, if planted with Breeder, Select or Foundation seed, will be eligible for Registered status.
c) Foundation seed of the same variety may be sown in two consecutive years on the same land and the crop will be eligible for Registered status. The third and fourth consecutive crops of the same variety on the same land, if planted with Breeder, Select, Foundation or Registered seed, will be eligible for Certified status.

d) Breeder, Select, Foundation or Registered seed of the same variety may be sown to produce a Certified seed crop on the same land for unlimited consecutive years.

2.2.3 **"Land Use" Inspection**

Non-pedigreed crops may be inspected to determine the eligibility of the land for pedigreed crop production the following year. Authorized seed crop inspectors conduct these inspections on request at the grower's expense. Refer to Section 1.17.

2.2.4 **"Land Use" Verification**

If uncertain of the eligibility of land for pedigreed crop production, growers may submit to the CSGA a request for "Land Use Verification Prior to Planting." Refer to Section 1.17 and Appendix A.9.

2.2.5 **Specific Crop Land Requirements**

The basic standards for all crops are set out in Section 1.17. In addition, the following apply to crops in this section:

Table 2.2.5: Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Barley (Spring and Winter) Certified	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different variety of Barley. • In the previous year produced a non-pedigreed crop of Canaryseed, Flax, Safflower or Sunflower which followed a non-pedigreed crop of Barley 2 years prior or a different variety of Barley 2 years prior.
Barley (Spring and Winter) Foundation and Registered	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different variety of Barley. • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower which followed a non-pedigreed crop of Barley 2 years prior or a different variety of Barley 2 years prior.
Buckwheat Certified	• In the previous year produced: - a non-pedigreed crop of Buckwheat; - a crop of a different variety of Buckwheat.
Buckwheat Foundation and Registered	• In either of the preceding 2 years produced: - a non-pedigreed crop of Buckwheat; - a crop of a different variety of Buckwheat.
Canaryseed Foundation, Registered and Certified	• In the previous year produced: - a non-pedigreed crop of Canaryseed; - a crop of a different variety of Canaryseed; - a crop of Flax. • In the previous year produced a non-pedigreed crop of Barley, Bean, Buckwheat, Chickpea, Durum, Fababean, Lentil, Lupin, Oat, Pea, Rye, Safflower, Soybean, Sunflower, Triticale or Wheat which followed a non-pedigreed crop of Canaryseed 2 years prior or a different variety of Canaryseed 2 years prior.

Table 2.2.5 (continued): Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Durum Certified	• In the previous year produced: - a non-pedigreed** crop of Barley, Durum, Oats, Rye, Triticale, Winter Wheat or Spring Wheat; - a crop of a different* variety of Durum.
Durum Foundation and Registered	• In the previous year produced: - a non-pedigreed** crop of Barley, Durum, Oats, Rye, Winter Wheat or Triticale; - a crop of a different* variety of Durum; • In either of the preceding 2 years, produced a crop of Spring Wheat; • In the previous year produced a non-pedigreed crop which followed a non-pedigreed** crop of Durum 2 years prior or a different variety of Durum 2 years prior.
Flax Foundation, Registered and Certified	• In the previous year produced: - a non-pedigreed crop of Flax; - a crop of a different variety of Flax; - a crop of Canaryseed. • In the previous year produced a non-pedigreed crop of Barley, Bean, Buckwheat, Chickpea, Durum, Fababean, Lentil, Lupin, Oat, Pea, Rye, Safflower, Soybean, Sunflower, Triticale or Wheat which followed a non-pedigreed crop of Flax 2 years prior or a different variety of Flax 2 years prior.
Oat Certified	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different variety of Oat. • In the previous year produced a non-pedigreed crop of Canaryseed, Flax, Safflower or Sunflower which followed a non-pedigreed crop of Oat 2 years prior or a different variety of Oat 2 years prior.
Oat Foundation and Registered	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different variety of Oat. • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower which followed a non-pedigreed crop of Oat 2 years prior or a different variety of Oat 2 years prior.
Rye (Spring and Winter) Certified	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different variety of Rye. • In the previous year produced a non-pedigreed crop of Canaryseed, Flax, Safflower or Sunflower which followed a non-pedigreed crop of Rye 2 years prior or a different variety of Rye 2 years prior.

Table 2.2.5 (continued): Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Rye (Spring) Registered (Winter) Foundation and Registered	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different variety of Rye. • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower which followed a non-pedigreed crop of Rye 2 years prior or a different variety of Rye 2 years prior.
Rye (Spring) Foundation	• In the previous year produced a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Triticale or Wheat. • In either of the preceding 2 years produced: - a non-pedigreed crop of Rye; - a crop of a different variety of Rye. • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower which followed a non-pedigreed crop of Rye 3 years prior, or a different variety of Rye 3 years prior.
Triticale (Spring and Winter) Certified	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale, or Wheat; - a crop of a different variety of Triticale. • In the previous year produced a non-pedigreed crop of Canaryseed, Flax, Safflower or Sunflower which followed a non-pedigreed crop of Triticale 2 years prior, or a different variety of Triticale 2 years prior.
Triticale (Spring) Registered (Winter) Foundation and Registered	• In the previous year produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale, or Wheat; - a crop of a different variety of Triticale. • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower which followed a non-pedigreed crop of Triticale 2 years prior, or a different variety of Triticale 2 years prior.
Triticale (Spring) Foundation	• In the previous year produced a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, or Wheat. • In either of the preceding 2 years produced: - a non-pedigreed crop of Triticale; - a crop of a different variety of Triticale. • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower which followed a non-pedigreed crop of Triticale 3 years prior or a different variety of Triticale 3 years prior.

Table 2.2.5 (continued): Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Wheat (Spring and Winter) Certified	• In the previous year produced: - a non-pedigreed** crop of Barley, Buckwheat, Oat, Rye, Triticale or Wheat; - a crop of a different* variety of Wheat; - a crop of Durum. • In the previous year produced a non-pedigreed crop of Canaryseed, Flax, Safflower or Sunflower, and which followed a non-pedigreed** crop of Wheat or a different* variety of Wheat 2 years prior.
Wheat (Spring) Registered **(Winter)** Foundation and Registered	• In the previous year produced: - a non-pedigreed** crop of Barley, Buckwheat, Oat, Rye, Triticale or Wheat; - a crop of a different* variety of Wheat; - a crop of Durum. • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower, and which followed a non-pedigreed** crop of Wheat, or a different* variety of Wheat 2 years prior.
Wheat (Spring) Foundation	• In the previous year produced: -a non-pedigreed crop of Barley, Buckwheat, Oat, Rye or Triticale. -a crop of Durum • In either of the preceding 2 years produced: - a non-pedigreed** crop of Wheat; - a crop of a different* variety of Wheat; • In the previous year produced a non-pedigreed crop of Bean, Canaryseed, Chickpea, Fababean, Flax, Lentil, Lupin, Pea, Safflower, Soybean or Sunflower and which followed a non-pedigreed** crop of Spring Wheat 3 years prior, or a different* variety of Spring Wheat 3 years prior.

* In crops of pest tolerant varietal blends, "different" variety means a variety other than the varieties prescribed in the description of the pest tolerant variety.
** "non-pedigreed crop" means a crop that did not meet the requirements of Circular 6.

2.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section.

2.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

2.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

2.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

2.3.4 **Cereal** crops must be inspected between heading and maturity.

2.3.5 **Flax** crops must be inspected at full bloom. The inspection should take place in the morning.

2.3.6 **Buckwheat** and **Canaryseed** crops must be inspected when the crops are in bloom.

2.4 CROP STANDARDS

2.4.1 **Isolation for All Crops in this Section**

a) The perimeter of the crop to be inspected must be clearly defined.
b) The required isolation must be provided prior to the time of flowering and crop inspection, and may be clean summerfallow, non-contaminating native growth, forage crop, cultivated row crop of another crop kind, the seeds of which can be easily separated, or a mowed grain crop, provided the plants in the mowed isolation do not form seed heads or in any way constitute a source of contamination.
c) Any plants considered a source of contamination found within 3 meters (10 feet) of the inspected crop may be reason for declining pedigreed status.

Table 2.4.2: Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Barley	- Inspected pedigreed Barley of same variety	1 meter (3 feet)
	- Buckwheat, Durum, Oat, Rye, Triticale, Wheat - Different varieties of Barley - Non-pedigreed Barley	3 meters (10 feet)
Buckwheat	- Inspected pedigreed Buckwheat of same variety	1 meter (3 feet)
	- Barley, Durum, Oat, Rye, Triticale, Wheat	3 meters (10 feet)
	- Crop planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 200 meters (660 feet) from non-pedigreed or different varieties of Buckwheat
	- Different varieties of Buckwheat - Non-pedigreed Buckwheat	200 meters (660 feet)
Canaryseed	- Inspected pedigreed Canaryseed of same variety	1 meter (3 feet)
	- Flax - Different varieties of Canaryseed - Non-pedigreed Canaryseed or Flax	3 meters (10 feet)
Durum	- Inspected pedigreed Durum of the same* variety	1 meter (3 feet)
	- Barley, Buckwheat, Oat, Rye, Triticale, Wheat - Different* varieties of Durum - Non-pedigreed** Durum	3 meters (10 feet)

Table 2.4.2 (continued): Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Flax	- Inspected pedigreed Flax of same variety	1 meter (3 feet)
	- Canaryseed - Different varieties of Flax - Non-pedigreed Flax or Canaryseed	3 meters (10 feet)
Oat	- Inspected pedigreed Oat of same variety	1 meter (3 feet)
	- Barley, Buckwheat, Durum, Rye, Triticale, Wheat - Different varieties of Oat - Non-pedigreed Oat	3 meters (10 feet)
Rye	- Inspected pedigreed Rye of same variety	1 meter (3 feet)
	- Barley, Buckwheat, Durum, Oat, Triticale, Wheat	3 meters (10 feet)
	- Crop planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 300 meters (984 feet) from non-pedigreed or different varieties of Rye
	- Different varieties of Rye - Non-pedigreed Rye	300 meters (984 feet)
Triticale	- Inspected pedigreed Triticale of same variety	1 meter (3 feet)
	- Barley, Buckwheat, Durum, Oat, Rye, Wheat - Different varieties of Triticale - Non-pedigreed Triticale	3 meters (10 feet)
Wheat	- Inspected pedigreed Wheat of same* variety	1 meter (3 feet)
	- Barley, Buckwheat, Durum, Oat, Rye, Triticale - Different* varieties of Wheat - Non-pedigreed Wheat	3 meters (10 feet)

* In crops of pest tolerant varietal blends, "different" variety means a variety other than the varieties prescribed in the description of the pest tolerant variety.
** "non-pedigreed crop" means a crop that did not meet the requirements of Circular 6.

2.4.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

2.4.4 **Maximum Impurity Standards**

a) Crops contaminated with limited amounts of other crop kinds which are readily removable in processing and do not hinder crop inspection may be allowed pedigreed status.

b) Impurities in pedigreed crops should be removed prior to crop inspection.

c) The impurities outlined in Table 2.4.4 are the maximum levels for impurities. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

d) Any combination of impurities may be reason for declining pedigreed status.

e) Table 2.4.4 indicates the maximum number of plants of other varieties or other crop kinds permitted in approximately 10,000 plants of the inspected crop. The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average must not exceed the maximum impurity standards in Table 2.4.4.

Table 2.4.4: Maximum Impurity Standards

Inspected Crop	IMPURITIES IN CROP																
	Off-types or Other Varieties of the same crop kind			Barley		Buckwheat		Durum		Oats		Rye		Triticale		Wheat	
	F	R	C	F & R	C	F & R	C	F & R	C	F & R	C	F & R	C	F & R	C	F & R	C
Barley	1	1	5	n/a	n/a	1	3	1	2	2	4	1	3	2	4	2	8
Buckwheat	1	1	5	2	4	n/a	n/a	2	4	2	4	2	4	2	4	2	4
Canaryseed	1	1	5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Durum	1	1	5	1	2	1	3	n/a	n/a	4	8	1	3	1	5	1	5
Flax	1	1	5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Oat*	1	1	5	1	2	1	3	2	4	n/a	n/a	1	3	4	8	4	8
Rye	1	1	5	2	4	1	3	2	4	2	4	n/a	n/a	2	4	2	4
Triticale	1	1	5	2	4	1	3	1	5	4	8	1	3	n/a	n/a	1	5
Wheat	1	3	8	2	4	1	3	1	5	4	8	1	3	1	5	n/a	n/a

F = Foundation R = Registered C = Certified n/a = Not Applicable

* In Oat crops, counts of Wild Oats are subject to the maximum impurity standards for Off-types or Other Varieties of the same crop kind.

2.5 SPECIFIC REQUIREMENTS

2.5.1 CSGA may require submission of a seed sample for varietal identity verification testing.

2.6 ADDITIONAL MINIMUM REQUIREMENTS for HYBRID VARIETIES

Definitions of *Parent Lines*

a) Parent line or population: a relatively true breeding strain or selection used for seed crop production.
b) Inbred parent line: a relatively true breeding homozygous strain.
c) A line: line or population which is male sterile.
d) B line or Maintainer line: male fertile line or population capable of maintaining male sterility.
e) Restorer line: line or population used as male parent which has the capability of restoring fertility to male sterile lines/populations when crossed onto them.

2.6 ADDITIONAL MINIMUM REQUIREMENTS for HYBRID VARIETIES

Table 2.6.1: Minimum Isolation Distances Required from an Inspected Hybrid Crop to Other Crops

Inspected Hybrid Crop	Other Crops	Isolation Distance Required
Rye (Spring and Winter) Certified	- Inspected pedigreed Rye of same variety	3 meters (10 feet) to a crop planted with Breeder or Foundation seed of the same pollen bearing (male) parent line, provided the pedigree of the seed planted can be verified and that the adjacent crop is free for 500 meters (1640 feet) from non-pedigreed or different varieties of Rye
	- Buckwheat, Durum, Oat, Triticale, Wheat	3 meters (10 feet)
	- Crop planted with Certified seed of the same variety	3 meters (10 feet) provided the pedigree of the Certified seed planted can be verified and that the adjacent crop is free for 500 meters (1640 feet) from non-pedigreed or different varieties of Rye
	- Different varieties of Rye - Non-pedigreed Rye	500 meters (1640 feet)
Rye Parent lines (Spring and Winter) Foundation	- Inspected pedigreed Rye of same variety	3 meters (10 feet) to a crop planted with Breeder or Foundation seed of the same pollen bearing (male) parent line, provided the pedigree of the seed planted can be verified and that the adjacent crop is free for 1000 meters (3280 feet) from non-pedigreed or different varieties of Rye
	- Buckwheat, Durum, Oat, Triticale, Wheat	3 meters (10 feet)
	- Crop planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 1000 meters (3280 feet) from non-pedigreed or different varieties of Rye
	- Different varieties of Rye - Non-pedigreed Rye	1000 meters (3280 feet)

2.6 ADDITIONAL MINIMUM REQUIREMENTS for HYBRID VARIETIES

2.6.2 **Maximum Impurity Standards**

a) The impurities outlined in Table 2.6.2 are the maximum levels for impurities.

b) Any combination of impurities may be reason for declining pedigreed status.

c) Table 2.6.2 indicates the maximum number of plants of other varieties or off-types permitted in approximately 10,000 plants of the inspected crop. The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average must not exceed the maximum impurity standards in Table 2.6.2.

Table 2.6.2: Maximum Impurity Standards

Impurity	Maximum Permitted in each Class	
	Foundation	Certified
Other varieties or off-types of Rye	1	5

2.7 SPECIFIC REQUIREMENTS

2.7.1 a) The CSGA, at its discretion, may require a declaration stating the actual percent seed of a representative sample of the hybrid seed crop and the method of determining the percent hybrid seed. Unless otherwise specified in the variety description, the declaration of percent hybrid seed shall also provide the following information: CSGA Crop Sequence Number, the test method name or number, the number of seeds tested and the confidence level of the test.

b) If required, the percent hybrid seed shall be determined by a method approved by the CFIA.

c) If required, the percent hybrid seed shall not be less than 95%. The balance of theseed should be parent line derivatives resulting from incompletely controlled pollination in the seed field.

SECTION 3

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF BEAN, CHICKPEA, FABABEAN, LENTIL, LUPIN, PEA, AND SOYBEAN

In this Section:

- ***Bean*** includes field, garden, white, coloured, navy or dry edible type Bean.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

3.1 SEED CLASSES AND GENERATIONS

3.1.1 The number of official pedigreed classes is determined by the Breeder of the variety. Normally these are Foundation, Registered and Certified, unless otherwise specified by the Breeder.

a) Breeder: controlled by the Plant Breeder. No generation limit.
b) Select: normally 5 generations. Grown by accredited plot growers.
c) Foundation: one generation.
d) Registered: one generation.
e) Certified: one generation.

3.1.2 For Select and Probation plot production, refer to Section 12.

3.1.3 For those growers who are not accredited by the CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, the CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

3.1.4 A Foundation Soybean crop may be produced by a grower not accredited by the CSGA as a Plot Grower subject to the following requirements:

a) Parent seed planted to produce the Foundation Soybean seed crop must be Breeder or Select status;

b) In three of the past five years, the grower must have produced pedigreed Soybean seed crops;

c) The Foundation Soybean seed crop must be produced under a contract and assigned to a Registered Seed Establishment (RSE) within an officially recognized Quality Management System subject to audit by the Canadian Seed Institute; and

d) Seedlot(s) from the Foundation Soybean seed crop will be tested, by the grower or the RSE, for variety verification and test results will be available for CSGA audit.

3.2 LAND REQUIREMENTS

3.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

3.2.2 **Status granted to crops determined by previous crop**

a) Land requirements prevent production of a higher pedigreed status crop, of the same variety, than the pedigreed status of the crop produced on that land the previous year.

b) Breeder or Select seed of the same variety may be sown in two consecutive years on the same land and the crop will be eligible for Foundation status. The third and fourth consecutive crops of the same variety on the same land, if planted with Breeder, Select or Foundation seed, will be eligible for Registered status.

c) Foundation seed of the same variety may be sown in two consecutive years on the same land and the crop will be eligible for Registered status. The third and fourth consecutive crops of the same variety on the same land, if planted with Breeder, Select, Foundation or Registered seed, will be eligible for Certified status.

d) Breeder, Select, Foundation or Registered seed of the same variety may be sown to produce a Certified seed crop on the same land for unlimited consecutive years.

3.2.3 "Land Use" Inspection

Non-pedigreed crops may be inspected to determine the eligibility of the land for pedigreed crop production the following year. Authorized seed crop inspectors conduct these inspections on request at the grower's expense. Refer to Section 1.17.

3.2.4 "Land Use" Verification

If uncertain of the eligibility of land for pedigreed crop production, growers may submit to the CSGA a request for "Land Use Verification Prior to Planting." (Section 1.17 and Appendix A.9.)

3.2.5 Specific Crop Land Requirements

The basic standards for all crops are set out in Section 1.17. In addition, the following apply to crops in this section:

Table 3.2.5: Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which in the previous year produced:
Bean	A non-pedigreed crop of Bean or a different variety of Bean.
Chickpea	A non-pedigreed crop of Chickpea or a different variety of Chickpea.
Fababean	A non-pedigreed crop of Fababean or a different variety of Fababean.
Lentil	A non-pedigreed crop of Lentil or a different variety of Lentil.
Lupin	A non-pedigreed crop of Lupin or a different variety of Lupin.
Pea	A non-pedigreed crop of Pea or a different variety of Pea.
Soybean	A non-pedigreed crop of Soybean or a different variety of Soybean except as in Section 3.2.6.

3.2.6 Land Requirements for Certified Crops of Herbicide Tolerant Soybean Varieties

The following applies only when a *herbicide tolerant soybean variety* is to be grown for Certified crop status following a soybean crop of a different variety. (*Herbicide tolerant soybean variety* is defined for the purpose of pedigreed seed production as a variety of soybean in which plants of different soybean varieties can be eradicated in the crop by a herbicide.) A *herbicide tolerant soybean variety* for Certified status may be produced on land, which in the previous year produced a soybean crop of a different variety only if the following conditions are met:

(i) The crop to be Certified is a soybean variety tolerant to at least one herbicide active ingredient.

(ii) At least one of the herbicide active ingredients applied to the soybean crop for Certified status is a different herbicide active ingredient than that which was applied to the previous soybean crop.

(iii) The previous soybean crop was sown with pedigreed seed of a variety not tolerant to at least one of the herbicide active ingredients being applied to the crop for Certified status.

3.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

3.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

3.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

3.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

3.3.4 **Soybean** crops must be inspected at maturity when at least 90% of the plants have dropped their leaves and the mature plants have distinguishing pod, pubescence and hilum colour characteristics.

3.3.5 **Fababean** crops must be inspected at full flower (low tannin small seeded varieties) or at maturity as leaves begin to drop (other varieties).

3.3.6 **Chickpea, Lentil and Lupin** crops must be inspected at full flower.

3.3.7 **Bean** (all types) crops must be inspected between 7 to 14 days after inception of flowering when flower colour can be observed.

3.3.8 **Pea** (all types) crops must be inspected at the early flower stage about 60 days after planting.

3.4 CROP STANDARDS

3.4.1 Isolation for All Crops in this Section

a) The perimeter of the crop to be inspected must be clearly defined.

b) The required isolation must be provided prior to the time of flowering and crop inspection, and may be clean summerfallow, non-contaminating native growth, forage crop, a grain crop or a cultivated row crop of another crop kind the seeds of which are easily separated from the inspected crop.

c) Adjacent crops must not overlap.

d) Any plants considered a source of contamination found within 3 meters (10 feet) of the inspected crop may be reason for declining pedigreed status.

Table 3.4.2: Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Bean – Registered, Certified	- Any crop of Bean	3 meters (10 feet)
Bean – Foundation	- Inspected pedigreed Bean seed crop	3 meters (10 feet)
	- Non-pedigreed Bean crop	20 meters (65 feet)
Bean – all classes	- Chickpea, Fababean, Lentil, Lupin, Pea, Peanut, Soybean	3 meters (10 feet)
Chickpea	- Inspected pedigreed Chickpea of same variety	1 meter (3 feet)
	- Bean, Fababean, Lupin, Pea, Peanut, Soybean - Crops of different varieties of Chickpea - Non-pedigreed crop of Chickpea	3 meters (10 feet)
Fababean	- Inspected pedigreed Fababean of same variety	1 meter (3 feet)
	- Bean, Chickpea, Lentil, Lupin, Pea, Peanut, Soybean	3 meters (10 feet)
	- Crops of different varieties of Fababean - Non-pedigreed crop of Fababean	10 meters (30 feet)
Lentil	- Inspected pedigreed Lentil of same variety	1 meter (3 feet)
	- Bean, Fababean, Lupin, Peanut, Soybean - Crops of different varieties of Lentil - Non-pedigreed crop of Lentil	3 meters (10 feet)
Lupin	- Inspected pedigreed Lupin of same variety	1 meter (3 feet)
	- Bean, Chickpea, Fababean, Lentil, Pea, Peanut, Soybean - Crops of different varieties of Lupin - Non-pedigreed crop of Lupin	3 meters (10 feet)
Pea	- Inspected pedigreed Pea of same variety	1 meter (3 feet)
	- Bean, Chickpea, Fababean, Lupin, Peanut, Soybean - Crops of different varieties of Pea - Non-pedigreed crop of Pea	3 meters (10 feet)
Soybean	- Inspected pedigreed Soybean crops of same variety	1 meter (3 feet)
	- Bean, Fababean, Lentil, Lupin, Pea, Peanut - Crops of different varieties of Soybean - Non-pedigreed crop of Soybean	3 meters (10 feet)

3.4.3 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

3.4.4 Maximum Impurity Standards

a) Crops with limited amounts of other crop kinds which are not difficult to separate, readily removable in processing and do not hinder crop inspection may be allowed pedigreed status.

b) Impurities in pedigreed crops should be removed prior to crop inspection.

c) The impurities outlined in Table 3.4.4 are the maximum levels for impurities. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

d) Any combination of impurities may be reason for declining pedigreed status.

e) Table 3.4.4 indicates the maximum number of plants of off-types or other varieties of the same crop kind permitted in approximately 10,000 plants of the inspected crop. The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average must not exceed the maximum impurity standards in Table 3.4.4.

Table 3.4.4: Maximum Impurity Standards

Inspected Crop	Off-types or Other Varieties of the same crop kind		
	Foundation	Registered	Certified
Bean	1	2	5
Chickpea	1	2	5
Fababean	1	2	5
Lentil	1	2	5
Lupin	1	2	5
Pea	1	2	5
Soybean	2	4	20

3.5 SPECIFIC REQUIREMENTS

3.5.1 Foundation status crops may require submission of a 1 lb. (500 gram) seed sample for varietal purity verification testing.

SECTION 4

CERTIFIED PRODUCTION OF CANOLA, MUSTARD, RADISH, AND RAPESEED

In this Section:

- ***Canola*** and ***Rapeseed*** includes spring and winter varieties of *Brassica napus*, *Brassica rapa*, and canola-quality *Brassica juncea*.
- ***Mustard*** includes varieties of Brown or Oriental types (*Brassica juncea*), White/Yellow types (*Sinapis alba*) and Ethiopian types (*Brassica carinata).*
- ***Radish*** includes varieties of *Raphanus sativus.*
- Composite varieties have descriptions that confirm they are not hybrids and that at least 70% of progeny result from crossing of the parent lines.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

4.1 SEED CLASSES AND GENERATIONS

4.1.1 Breeder: controlled by Breeder. No generation limit.

4.1.2 Select Synthetic: a physical blend of specific proportions of seed harvested from Breeder or Foundation plots used in the production of Certified seed crops of composite varieties. Crops sown with Synthetic Select Canola/Rapeseed are for Certified status only.

4.1.3 Foundation: one generation, grown by accredited Foundation plot growers. Refer to Section 13.

4.1.4 Certified: one generation.

4.1.5 For Certified Hybrid Canola and Certified Hybrid Rapeseed crops, refer to Section 5.

4.1.6 For growers not accredited to grow Foundation plots and who plant crops with Breeder seed, the CSGA reserves the right to determine the status of the inspected crop and may issue a Certified crop certificate.

4.1.7 The direction of the cross of a composite variety must remain unchanged throughout certification unless adequate data, which verifies that parentage reversal does not change distinguishing characteristics or performance, are provided to the authority responsible for certification eligibility recognition.

4.2 LAND REQUIREMENTS

4.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

4.2.2 **Status granted to crops determined by previous crop**

a) Crops for Certified status must not be grown on land which in the preceding 3 years produced a crop of Canola, Mustard, Radish, or Rapeseed.

b) Crops for Certified status may be grown on land which in the preceding 3 years produced a plot of the same variety that was granted Foundation status.

4.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section.

4.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

4.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

4.3.3 Inspection must be made when the crop is in the early flowering stage as this is the stage when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

4.4 CROP STANDARDS

4.4.1 **Isolation for All Crops in this Section**

a) Under optimum conditions, not more than 3 plants per square meter of harmful contaminants (such as species in Section 4.5.4 that can cross-pollinate with the inspected crop) are permitted within the required isolation distance(s) adjacent to the inspected crops. The conditions of each crop are assessed by the CSGA which may alter this standard, usually by reducing the number of contaminant plants permitted per square meter, according to the contamination risks involved.

b) Harmful contamination within the required isolation distance, depending on density, location and distance from the inspected crop, may be cause for declining pedigreed status. Harmful contaminants for crop certification include the species in Section 4.5.4. More information on other potential harmful contaminants, that are not crop certification requirements, is available from the CFIA's Biology reference documents at: www.inspection.gc.ca.

c) The required isolation must be provided prior to the time of flowering and crop inspection.

Table 4.4.2: Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Canola or Rapeseed –except canola-quality *Brassica juncea*	-Different varieties of Canola or Rapeseed -Non-pedigreed Canola or Rapeseed -Brown or Oriental or Ethiopian Mustard	100 meters (328 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
	-White/Yellow Mustard - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
Brown or Oriental Mustard and canola-quality *Brassica juncea*	-Different varieties of Brassica crop species -Non-pedigreed Brassica crop species	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination, i.e. other species which can cross pollinate with the inspected crop.
	-White/Yellow or Ethiopian Mustard - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
White/Yellow Mustard	-Different varieties of White/Yellow Mustard -Non-pedigreed White/Yellow Mustard	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species which can cross pollinate with the inspected crop).
	-Canola, Brown or Oriental or Ethiopian Mustard -Rapeseed - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).

Table 4.4.2 (continued):
Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Radish	-Different varieties of Radish -Non-pedigreed Radish	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species which can cross pollinate with the inspected crop)
	-Canola, Brown or Oriental, or White/Yellow or Ethiopian Mustard -Rapeseed -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
Ethiopian Mustard	Different varieties of Brassica crop species -Non-pedigreed Brassica crop species	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species which can cross pollinate with the inspected crop)
	-White/Yellow Mustard - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).

4.4.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) The presence of either Cleavers Bedstraw or Wild Mustard is cause for declining pedigreed status.
d) Very weedy crops may be declined pedigreed status.

4.4.4 **Maximum Impurity Standards**

a) Crops for pedigreed status must be practically free from plants of:
   - other varieties or distinct off-types foreign to the variety being grown;
   - other crop kinds, the seeds of which are difficult to separate from the crop presented for pedigreed status, e.g., Mustard in Canola.

b) In Radish seed crops, impurity standards apply for plants of other *Brassica* crop species and Wild Mustard, but not for White Mustard (*Sinapis alba*).

c) Impurities in pedigreed crops should be removed prior to crop inspection.

d) The impurities outlined in Table 4.4.4 are the maximum levels for impurities. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

e) Any combination of impurities may be reason for declining pedigreed status.

f) Table 4.4.4 indicates the maximum number of plants of other varieties, off-types or other crop kinds permitted in approximately 10,000 plants of the inspected crop. The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average of the 6 counts must not exceed the maximum standards in Table 4.4.4.

Table 4.4.4: Maximum Impurity Standards

Inspected Crop	Off-types/Other Varieties	Plants of harmful contaminant species (Section 4.5.4)
Canola, Rapeseed, Mustard and Radish	1.5	1

4.5 SPECIFIC REQUIREMENTS

4.5.1 It is recommended that not more than one variety or crop kind of Canola, Mustard, Radish, or Rapeseed be grown under the management of one grower.

4.5.2 The CSGA may require seed test results from a recognized laboratory, indicating a satisfactory erucic acid and/or glucosinolate content, before a crop certificate is issued.

4.5.3 Composite varieties are subject to hybridity seed testing requirements of Section 5.5.5 prior to a crop certificate being issued.

4.5.4 Species considered harmful contaminants for crop certification, that may cross pollinate successfully with inspected crops of species in this Section, include the following:

- *B. juncea:* Brown or Oriental Mustard;
- *B. napus:* Argentine Canola;
- *B. rapa:* Polish Canola;
- *S. alba*: White or Yellow Mustard;
- *R. raphanistrum*: Wild Radish;
- *R. sativus:* Radish.

SECTION 5

CERTIFIED PRODUCTION OF HYBRID CANOLA AND RAPESEED

In this Section:

- ***Canola*** and ***Rapeseed*** includes spring and winter varieties of *Brassica napus*, *Brassica rapa*, and canola-quality *Brassica juncea*, except where otherwise indicated.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

5.1 SEED CLASSES, GENERATIONS, DEFINITIONS AND TYPES

5.1.1 Seed Classes/Generations

a) Breeder: controlled by the Breeder. No generation limit.
b) Foundation: one generation, grown by accredited Foundation plot growers. (Refer to Section 13.)
c) Certified: one generation.

5.1.2 Definitions

a) Parent line or population: a relatively true breeding strain or selection used for seed crop production.
b) Inbred line: a relatively true breeding homozygous strain.
c) A line: line or population which is male sterile.
d) B line: male fertile line or population capable of maintaining male sterility.
e) Restorer line: line or population used as male parent which has the capability of restoring fertility to male sterile lines/populations when crossed onto them.
f) Self-incompatible (S.I.) line: male fertile line or population incapable of self-pollination due to self incompatibility.
g) Self-compatible (S.C.) line: male fertile line or population which is capable of self pollination.
h) Composite variety: a plant population in which at least 70% of progeny result from crossing of the parent lines. (Refer to Section 4.)

5.1.3 Types

a) Single-cross hybrid: the first generation of a cross between two specified inbred parent lines or relatively homogeneous parent populations.
b) Foundation single-cross: a single-cross used in the production of a double-cross, a Foundation three-way cross hybrid or a top-cross hybrid.
c) Double-cross hybrid: the first generation of a cross between two Foundation single-cross hybrids.
d) Three-way cross hybrid: the first generation of a cross between an inbred parent line or parental population and a Foundation single-cross.
e) Top-cross hybrid: The first generation of a cross between an inbred parent line and an open pollinated variety.

5.2 SEED REQUIREMENTS

5.2.1 Breeder or Foundation status seed must be used to establish all stands of Hybrid Canola and Hybrid Rapeseed for pedigreeing.

5.2.2 The direction of the cross of a Hybrid Canola or Hybrid Rapeseed or composite variety must remain unchanged throughout the certification of the variety unless adequate data, which verifies that parentage reversal does not change the variety's distinguishing characteristics or performance, are provided to the authority responsible for certification eligibility recognition.

5.3 LAND REQUIREMENTS

5.3.1 Crops of *Brassica rapa* or winter *Brassica napus* for Certified status must not be planted on land which has produced:

a) *Brassica rapa* or winter *Brassica napus* during the preceding 5 years;

or

b) spring *Brassica napus*, Mustard or Radish during the preceding 3 years.

5.3.2 Crops of spring sown *Brassica napus* for Certified status must not be planted on land which has produced Canola, Rapeseed, Mustard or Radish during the preceding 3 years.

5.4 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

5.4.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

5.4.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

5.4.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

5.4.4 All Hybrid Canola and Hybrid Rapeseed crops must be inspected by an authorized inspector when the crop is in the early flowering stage of the female parent. Additional inspections may be warranted.

5.4.5 Crops for inspection include all parent lines (e.g., both A line and Restorer line).

5.5 CROP STANDARDS

5.5.1 Isolation

a) Under optimum conditions, not more than 3 plants per square meter of harmful contaminants (species in Section 5.6.2 that can cross-pollinate with the inspected crop) are permitted within the required isolation distance(s) adjacent to the inspected crops. The conditions of each crop are assessed by the CSGA which may alter this standard, usually by reducing the number of contaminant plants permitted per square meter, according to the contamination risks involved.

b) Harmful contamination within the required isolation distance, depending on density, location and distance from the inspected crop, may be cause for declining pedigreed status. Harmful contaminants for crop certification include the species in Section 5.6.2. More information on other potential harmful contaminants, that are not crop certification requirements, is available from the CFIA's Biology reference documents at: www.inspection.gc.ca.

c) The required isolation must be provided prior to the time of flowering and crop inspection.

Table 5.5.2: Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Canola or Rapeseed planted with Breeder or Foundation Seed for Certified Hybrid seed production	-Any other Canola or Rapeseed crop	800 meters (2624 feet) (or more, as specified by the Breeder)
	-Crop planted with Foundation seed of the same pollen bearing (male) parent -Does not apply to S.I. hybrid crop production	3 meters (10 feet), provided the pedigree of the Foundation seed used can be established and the prescribed isolation distance is free from harmful contamination (i.e., other species which can cross pollinate with the inspected crop, including A-line pollen shedders)
	-Brown or Oriental or Ethiopian Mustard crop	100 meters (328 feet), provided the Brown or Oriental or Ethiopian Mustard crop is free of Canola or Rapeseed plants for a distance of 800 meters (2624 feet) from the inspected crop
	-White/Yellow Mustard crop - Radish crop -Camelina	3 meters (10 feet), provided the White/Yellow Mustard, Radish or Camelina crop is free of Canola or Rapeseed plants for a distance of 800 meters (2624 feet) from the inspected crop.

5.5.3 Border Rows

a) Must be planted with the same seed as the pollen (male) parent rows.

b) Must be planted such that synchronous flowering occurs with pollen (male) parent rows and, more importantly, with receptive female parent plants of the inspected crop.

5.5.4 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.

b) All crops for pedigree should be free of Primary noxious weeds.

c) The presence of either Cleavers Bedstraw or Wild Mustard in the area of the crop to be harvested for seed is cause for declining pedigreed status.

d) Very weedy crops may be declined pedigreed status.

5.5.5 **Maximum Impurity Standards**

a) Impurities in pedigreed crops should be removed prior to crop inspection.

b) The impurities outlined in Table 5.5.5 are the maximum levels for impurities. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

c) Any combination of impurities may be reason for declining pedigreed status.

d) Table 5.5.5 indicates the maximum number of plants of other varieties, off-types or other crop kinds permitted in approximately 10,000 plants of the inspected crop. The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average must not exceed the maximum impurity standards in Table 5.5.5.

Table 5.5.5: Maximum Impurity Standards

Inspected Crop	Off-types/Other Varieties	Plants of harmful contaminant species (Section 5.6.2)
Brassica napus, Brassica rapa and **Canola-quality *Brassica juncea***	1.5	1

e) Percent hybrid seed shall be determined by a method approved by the CFIA.

f) Percent hybrid seed shall not be less than 80% for hybrid Canola or hybrid Rapeseed and not less than 70% hybridity or heterozygosity for composite varieties of Canola. The balance of the seed should be parent line derivatives, resulting from incompletely controlled pollination in the seed field.

g) A declaration (CSGA Form 180, Appendix A.10) stating the actual percent hybrid seed of a representative sample of the Hybrid Canola, Hybrid Rapeseed or composite variety seed crop, and the method of determining the percent hybrid seed, must be submitted to the CSGA prior to a crop certificate being issued. Unless otherwise specified in the variety description, the declaration of percent hybrid seed shall also provide the following information: CSGA Sequence number, the test method name or number, the number of seeds tested and the confidence level of the test.

5.6 SPECIFIC REQUIREMENTS

5.6.1 The CSGA, at its discretion, may require the results from a recognized laboratory indicating a satisfactory erucic acid and/or glucosinolate content before a crop certificate is issued.

5.6.2 Species considered harmful contaminants for crop certification, that may cross pollinate successfully with inspected crops of species in this Section, include the following:

- *B. juncea:* Brown or Oriental Mustard;
- *B. napus:* Argentine Canola;
- *B. rapa:* Polish Canola;
- *S. alba*: White or Yellow Mustard; and
- *R. raphanistrum*: Wild Radish.

SECTION 6

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF GRASSES

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

6.1 SEED CLASSES AND GENERATIONS

6.1.1 Varieties will normally be multiplied through Breeder, Foundation and Certified classes with one generation in each class unless otherwise specified by the Breeder and the official seed certification authority in the state or country of origin.

6.1.2 A Foundation seed crop is normally grown from planting Breeder seed.

6.1.3 A Registered seed crop is grown from planting Breeder or Foundation seed.

6.1.4 A Certified seed crop is grown from planting Breeder, Foundation or Registered seed.

6.1.5 Tags from seed planted must be retained for the life of the stand and made available to the crop inspector and/or the CSGA on request.

6.2 LAND REQUIREMENTS

6.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

6.2.2 **Specific Crop Land Requirements**
The following applies except where chemical control measures acceptable to the CSGA have been taken to eradicate growth from a previous crop of the same crop kind.

Table 6.2.2: Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Foundation	In the 5 years prior to seeding produced a non-pedigreed crop of the same crop kind or a crop of a different variety of the same crop kind.
	In the 3 years prior to seeding produced a pedigreed crop of the same variety.
Registered	In the 3 years prior to seeding produced a crop of the same crop kind.
Certified	In the 2 years prior to seeding produced a crop of the same crop kind.
Inspected Crop	**May be grown on land which:**
Annual Ryegrass – Certified	In the 2 years prior to seeding produced a pedigreed crop of the same variety

6.2.3 No manure or other potential sources of contamination should be applied to the land prior to seeding or during the productive life of the stand.

6.2.4 The land should be free of plants of the same crop kind prior to seeding.

6.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

6.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

6.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

6.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

6.3.4 Crop inspection by an authorized inspector is required each year that a pedigreed seed crop is to be harvested.

6.3.5 Crop inspection shall be made when the crop is headed and before harvest.

6.4 AGE OF STAND

6.4.1 The pedigreed class of the seed crop will vary by crop species, the number of classes designated by the Breeder or the authorized agent of the Breeder and the Age of Stand. (Refer to Table 6.4.6.)

6.4.2 Additional limitations on Age of Stand through which a variety may be multiplied outside the region of adaptation may be specified by the Breeder or the authorized agent of the Breeder.

6.4.3 If rejuvenation is used as a management practice, it will count as a year of production in calculating the Age of Stand.

6.4.4 For most perennial crops there is a specified maximum number of years during which pedigreed seed may be harvested from one planting.

6.4.5 **Calculating Age of Stand**

a) For calculating Age of Stand, the first seed crop is the first year in which a seed crop could normally be harvested, irrespective of time or method of planting.
b) Each calendar year thereafter will be considered a seed crop year. For example: Timothy sown without a companion crop in the fall is normally considered capable of producing seed the following year. Timothy seeded with pedigreed seed of Winter Wheat as a companion crop in the fall will be considered for the first year of seed production in the second year after planting.

Table 6.4.6: Effect of Age of Stand on Pedigreed Class of Major Grass Seed Crops* (Breeder, Foundation, Certified)

INSPECTED CROP		When crop is established with Breeder Seed			When crop is established with Foundation Seed	Mode of pollination
		No. of years for Foundation		No. of years for Certified	No. of years for Certified	
Bentgrass		3	+	2	5	C.P.
Bluegrass	Alpine	4	+	2	6	A.
	Big	4	+	2	6	A.
	Canada	4	+	2	6	A.
	Kentucky	4	+	2	6	A.
	Rough	4	+	2	6	A.
Bromegrass	Meadow	4	+	2	6	C.P.
	Smooth	4	+	4	8	C.P.
Fescue	Chewing's	4	+	2	6	C.P.
	Creeping Red	4	+	2	6	C.P.
	Hard	4	+	2	6	C.P.
	Meadow	3	+	3	6	C.P.
	Sheep	4	+	2	6	C.P.
	Tall	3	+	3	6	C.P.
Foxtail	Creeping	3	+	2	5	C.P.
	Meadow	3	+	2	5	C.P.
Junegrass		2	+	1	3	C.P.
Needlegrass		2	+	2	4	C.P.
Orchardgrass		3	+	3	6	C.P.
Reed Canarygrass		4	+	4	8	C.P.
Red Top		4	+	2	6	C.P.
Ryegrass	Annual	1	+	0	1	C.P.
	Italian	1	+	0	1	C.P.
	Intermediate	1	+	2	3	C.P.
	Perennial	2	+	1	3	C.P.
	Westerwold	1	+	0	1	C.P.
Timothy		3	+	2	5	C.P.
Wheatgrass	Broadglumed	3	+	2	5	C.P.
	Crested	4	+	4	8	C.P.
	Green	4	+	2	6	C.P.
	Intermediate	3	+	3	6	C.P.
	Northern	4	+	2	6	C.P.
	Pubescent	3	+	3	6	C.P.
	Slender	3	+	2	5	S.P.
	Streambank	4	+	2	6	C.P.
	Tall	4	+	2	6	C.P.
	Western	4	+	2	6	C.P.
Wild Rye	Altai	5	+	5	10	C.P.
	Dahurian	3	+	0	3	S.P.
	Russian	5	+	5	10	C.P.

* Information on other grass seed crops is available from CSGA A. = Apomictic C.P. = Cross Pollinating S.P. = Self Pollinating

6.5 CROP STANDARDS

6.5.1 Isolation

a) A crop offered for inspection must be isolated from any possible source of contaminating pollen in compliance with the minimum isolation distance requirements in Table 6.5.2 and Table 6.5.3.

b) The area, density, stage of maturity and location of the contaminating source is an important factor in cross pollination, and therefore must be noted on the *Seed Crop Inspection Report* for consideration in determining pedigreed status. Under optimum conditions, not more 3 plants per square meter of harmful contaminants should be in the required isolation adjacent to an inspected crop of a Cross Pollinated (C.P.) species.

c) The required isolation must be provided prior to the time of flowering and crop inspection.

d) For the following Cross Pollinated (C.P.) species, interpretation of "Same Crop Kind" in Table 6.5.2 and "harmful contamination" in Table 6.5.3 should include the following considerations:

i) **Bromegrass:** Hybrid varieties readily cross-pollinate with non-hybrid varieties and are therefore considered the Same Crop Kind as non-hybrid varieties. Although non-hybrid Meadow Bromegrass and Smooth Bromegrass varieties can cross-pollinate, asynchronous flowering can provide adequate temporal isolation and typically exceeds two weeks in the major production regions of western Canada.

ii) **Fescue:** Chewings and Creeping Red Fescue varieties can cross pollinate and are considered the Same Crop Kind. Chewings, Creeping Red, Hard, and Sheep Fescue varieties will not cross with Meadow and/or Tall Fescue varieties and are therefore not considered the Same Crop Kind.

iii) **Ryegrass**: Annual, Italian, Westerwolds, Intermediate and Perennial varieties (of the same ploidy level) may cross-pollinate and are therefore considered the Same Crop Kind. To maintain equivalence with AOSCA standards, the minimum isolation required between diploid and tetraploid varieties shall be 5 meters.

iv) **Wheatgrass**: Crested Wheatgrass: Diploid varieties (e.g. Fairway) and Tetraploid varieties (e.g. Kirk) are not considered the Same Crop Kind. Intermediate and Pubescent Wheatgrasses may cross-pollinate and are therefore considered the Same Crop Kind. None of the other Wheatgrasses in Table 6.4.6 are considered the Same Crop Kind.

v) **Wild Rye:** Altai, Dahurian and Russian Wild Rye are not considered the Same Crop Kind.

Table 6.5.2: Minimum Isolation Distances Required Between Inspected Grass Crops and Different Varieties or Non-pedigreed Crops of the Same Crop Kind*

Mode of pollination (Refer to Table 6.4.6)	Field size (if applicable)	Isolation distance required from a crop of a different variety or non-pedigreed crop of the Same Crop Kind* for production of:		
		Foundation	Registered	Certified
Cross-pollinated species (C.P.)	5 acres or less	400 m (1312 ft)	300 m (984 ft)	150 m (492 ft)
	More than 5 acres	300 m (984 ft)	100 m (328 ft)	50 m (164 ft)
Highly self-pollinated species (S.P.)		20 m (65 ft)	10 m (33 ft)	5 m (16 ft)
Apomictic species (A.)		20 m (65 ft)	10 m (33 ft)	5 m (16 ft)

Table 6.5.3: Minimum Isolation Distances Required Between Inspected Grass Crops and Other Crop Kinds and Other Pedigreed Crops Planted with Seed of the Same Variety

Inspected Crop	Other Crop	Isolation Distance Required
Grasses – all classes	- Crops of different classes of the same variety - Crop kinds with seeds that are difficult to separate.	3 meters (10 feet)
Grasses for Certified crop status	- Planted with Certified seed of the same variety	3 meters (10 feet), provided there is no harmful contamination* within 50 meters (164 feet) of the inspected crop

6.5.4 **Border Removal in Lieu of Isolation Distances**

a) Border removal is not practical for fields of 5 acres or less.
b) Border removal is not recommended if the pedigreed seed field is a thin stand.
c) For crops in excess of 5 acres in area, removal of a border from the inspected crop in lieu of required isolation is permitted if arrangements can be made for a second inspection. Costs for a second inspection must be paid directly by the grower to the CFIA or authorized crop inspection service.
d) The border must be allowed to shed pollen before being discarded. Evidence of the discarded border must be verified at the second inspection.
e) The distance between the inspected crop and a crop of a different variety or a non-pedigreed crop of the same crop kind is outlined in Table 6.5.4.

Table 6.5.4: Border Removal in Lieu of Isolation Distances

Inspected Crop	Actual isolation distance from contaminating source	Distance to be removed from the inspected seed crop
Foundation	300 m (984 ft) +	0 m (0 ft)
	200-299 m (656-983 ft)	3 m (10 ft)
	150-199 m (492-655 ft)	5 m (16 ft)
	less than 150 m (492 ft)	5 m (16 ft) + 150 m (492 ft) minus the actual isolation distance
Registered	100 m (328 ft) +	0 m (0 ft)
	75-99 m (246-327 ft)	3 m (16 ft)
	50-74 m (164-245 ft)	5 m (16 ft)
	less than 50 m (164 ft)	5 m (16 ft) + 50 m (164 ft) minus the actual isolation distance
Certified	50 m (164 ft)	0 m (0 ft)
	30-49 m (98-163 ft)	3 m (10 ft)
	25-29 m (82-97 ft)	5 m (16 ft)
	less than 25 m (82 ft)	5 m (16 ft) + 25 m (82 ft) minus the actual isolation distance)

6.5.5 Border Removal in Lieu of Isolation for Certified Crops of Creeping Red Fescue

a) Isolation requirements for Certified status crops of Creeping Red Fescue, of more than 5 acres, are based on the size of the Certified crop and the percentage of the crop within 50 meters (164 feet) of a Creeping Red Fescue crop of another variety or a Creeping Red Fescue crop planted with non-pedigreed seed.

b) For a Certified status crop of Creeping Red Fescue, 50 meters (164 feet) is normally required from the edge of the seed crop to the nearest Creeping Red Fescue crop or a Creeping Red Fescue crop planted with non-pedigreed seed.

c) If the isolation distance provided is less than 50 meters (164 feet), then determine if border removal is required by using the procedures outlined in Chart 6.5.5, 10% Rule – Procedures for Determining if Border Removal is Required for Certified Crops of Creeping Red Fescue.

d) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source is 10% or less of the total area of the inspected Certified seed crop, then border removal in lieu of isolation is NOT required and only 3 meters (10 feet) of isolation distance is required.

e) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source is more than 10% of the total area of the inspected Certified crop, then border removal in lieu of isolation IS required as prescribed in Section 6.5.4.
Certified crops of Creeping Red Fescue must still meet any other isolation requirements such as Table 6.5.3.

Chart 6.5.5: 10% RULE – PROCEDURES for DETERMINING IF BORDER REMOVAL IS REQUIRED FOR CERTIFIED CROPS OF CREEPING RED FESCUE

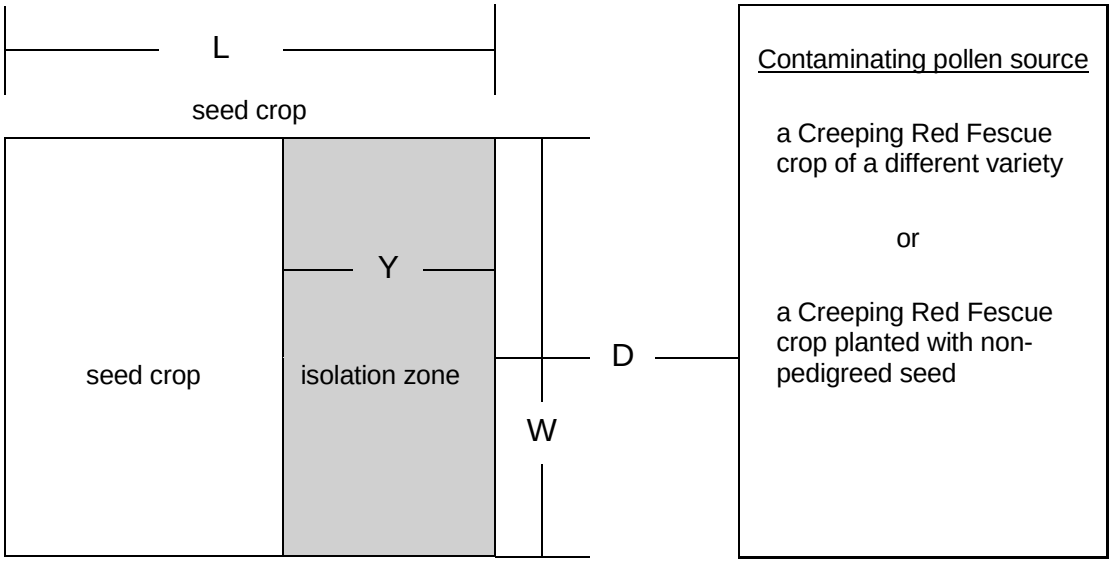
a) To determine if border removal is required, calculate the area of the isolation zone using the following example:

Example:

L	= length of inspected seed crop	W	= width of inspected seed crop
Y	= 50 meters minus D	L x W	= total area of inspected seed crop
D	= isolation distance provided		
W x Y	= area of isolation zone		

If; L = 200 meters; W = 40 meters; D = 30 meters and Y = (50-D) = 20 meters, then calculations for 10% rule procedures to determine if border removal is required are:

1. Isolation zone area: W x Y (40m x 20m) = 800 sq. m
2. Total area of inspected seed crop: W x L (40m x 200m) = 8,000 sq. m.
3. Since the isolation zone area (800 sq. m.) is 10% or less of the total area of inspected seed crop (8,000 sq. m.), therefore border removal is NOT required.



b) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source (WxY) is more than 10% of the total area of the inspected Certified crop (LxW), then border removal in lieu of isolation is required as prescribed in Section 6.5.4. i.e. (WxY) is greater than 10% of (LxW).

c) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source (WxY), is 10% or less of the total area of the inspected Certified crop (LxW), then border removal in lieu of isolation is NOT required and only 3 meters (10 ft.) isolation distance is required. i.e. (WxY) is 10% or less of (LxW).

6.5.6 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

6.5.7 **Maximum Impurity Standards**

a) In a crop offered for Foundation status, the inspector makes 6 counts (100 square meters each) to determine the number of impurities. The resulting average count, of other varieties, types foreign to the variety or other crop kinds (the seeds of which are difficult to separate from the seeds of the inspected crop) must not exceed 0.1 percent of the plant population of the inspected crop (1 plant per 100 square meters). Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

b) In a crop offered for Registered or Certified status, the inspector makes 6 counts (10 square meters each) to determine the number of impurities. The resulting average count, of other varieties, types foreign to the variety or other crop kinds (the seeds of which are difficult to separate from the seeds of the inspected crop) must not exceed 1 percent of the plant population of the inspected crop (1 plant per 10 square meters). Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

SECTION 7

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF ALFALFA, BIRDSFOOT TREFOIL, CLOVER, CROWN VETCH, MILKVETCH, PHACELIA AND SAINFOIN

In this Section:

- ***Alfalfa*** crops of hybrid alfalfa varieties have additional requirements (refer to Section 14).
- ***Clover*** includes all types of clover, such as Alsike, Persian, Red (single cut and double cut), Sweet and White types.
- ***Phacelia*** includes crops of *Phacelia tanacetifolia*.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

7.1 SEED CLASSES AND GENERATIONS

7.1.1 Varieties will normally be multiplied only through Breeder, Foundation and Certified classes with one generation in each class unless otherwise specified by the Breeder and the official seed certification authority in the state or country of origin.

7.1.2 A Foundation seed crop is normally grown from planting Breeder seed.

7.1.3 A Registered seed crop is grown from planting Breeder or Foundation seed.

7.1.4 A Certified seed crop is grown from planting Breeder, Foundation or Registered seed.

7.1.5 Tags from the seed planted must be retained for the life of the stand and made available to the authorized seed crop inspector and/or the CSGA on request.

7.2 LAND REQUIREMENTS

7.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

7.2.2 **Specific Crop Land Requirements**
The following applies except where chemical control measures acceptable to the CSGA have been taken to eradicate growth from a previous crop of the same crop kind.

Table 7.2.2: Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Foundation	In the 5 years prior to seeding produced a non-pedigreed crop of the same crop kind or a crop of a different variety of the same crop kind.
	In the 3 years prior to seeding produced a pedigreed crop of the same variety.
Registered	In the 3 years prior to seeding produced a crop of the same crop kind.
Certified	In the 2 years prior to seeding produced a crop of the same crop kind.

7.2.3 No manure or other potential sources of contamination should be applied to the land prior to seeding or during the productive life of the stand.

7.2.4 The land should be free of plants of the same crop kind prior to seeding.

7.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

7.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized crop inspector prior to swathing or harvesting.

7.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

7.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

7.3.4 Crop inspection by an authorized crop inspector is required each year that a pedigreed seed crop is to be harvested.

7.3.5 Crop inspection shall be made when the crop is in bloom and before harvest.

7.4 AGE OF STAND

7.4.1 The pedigreed class of the seed crop will vary by crop species, the number of classes designated by the Breeder or the authorized agent of the Breeder and the Age of Stand. (Refer to Table 7.4.5.)

7.4.2 Additional limitations on Age of Stand through which a variety may be multiplied outside the region of adaptation may be specified by the Breeder or the authorized agent of the Breeder.

7.4.3 For most perennial crops there is a specified number of years during which pedigreed seed may be harvested from one planting.

7.4.4 **Calculating Age of Stand**

a) If rejuvenation is used as a management practice, it will count as a year of production in calculating the Age of Stand.
b) For calculating Age of Stand, the first seed crop is the first year in which a seed crop could normally be harvested, irrespective of time or method of planting.
c) Each calendar year thereafter will be considered a seed crop year. For example: Alfalfa sown without a companion crop in the fall is normally considered capable of seed production the following year. Alfalfa seeded with pedigreed seed of Winter Wheat as a companion crop in the fall will be considered for the first year of seed production in the second year after planting.

Table 7.4.5: Effect of Age of Stand on Pedigreed Class of Forage Legume Seed Crops (Breeder, Foundation, Certified)

Inspected Crop		When crop is established with:			
		Breeder seed			Foundation seed
		No. of years for Foundation		No. of years for Certified	No. of years for Certified
Alfalfa		5	+	3	8
Birdsfoot Trefoil		4	+	no limit*	no limit*
Clover	Alsike	2	+	2	4
	Red – double cut	1	+	1	2
	Red – single cut	2	+	1	3
	Sweet	1	+	0	1
	White	2	+	2	4
Phacelia		1	+	0	1
Sainfoin		5	+	0	5
Vetch	Crown	5	+	3	8
	Milk	5	+	3	8

*When stands have been established for 5 years, and at each 5 year interval thereafter, a 100 gram sample of the Birdsfoot Trefoil seed crop produced in that year must be submitted for a variety verification test.

7.5 CROP STANDARDS

7.5.1 Isolation

a) A crop offered for inspection must be isolated from any possible source of contaminating pollen in compliance with the minimum isolation distance requirements in Table 7.5.2.

b) The area, density and location of the contaminating source is an important factor in cross pollination, and therefore must be noted on the *Seed Crop Inspection Report* for consideration in determining pedigreed status.

c) The required isolation must be provided prior to flowering and crop inspection.

Table 7.5.2: **Minimum Isolation Distances Required Between Inspected Forage Legume Crops and Different Varieties or Non-pedigreed Crops of the Same Crop Kind**

Area of Inspected Crop	Isolation distance required from a crop of a different variety or non-pedigreed crop of the same kind for production of:		
	Foundation	Registered	Certified
5 acres or less	300 m (984 ft)	150 m (492 ft)	50 m (164 ft)
More than 5 acres	200 m (656 ft)	100 m (328 ft)	50 m (164 ft)

Table 7.5.3: Minimum Isolation Distances Required Between Inspected Forage Legume Crops and Other Pedigreed Crops of the Same Variety and Other Crop Kinds

Inspected Crop	Other Crops	Isolation Distance Required
Alfalfa, Birdsfoot Trefoil, Clover, Phacelia, Sainfoin, Vetch	- Pedigreed crops of different classes of the same variety - Crop kinds with seeds that are difficult to separate	3 meters (10 feet)

7.5.4 **Border Removal in Lieu of Isolation for Certified Crops of Alfalfa**

a) Isolation requirements for the Certified class are based on the size of the Certified crop and the percentage of the crop within 50 meters (164 feet) of another variety of Alfalfa.

b) For a Certified crop, 50 meters (164 feet) is normally required from the edge of the seed field to the nearest contaminating pollen source.

c) Contaminating sources of pollen include: a crop of a different variety of Alfalfa; a crop sown with commercial Alfalfa seed; or a crop of Alfalfa where the seed sown cannot be verified as being pedigreed seed.

d) If the distance provided is less than 50 meters (164 feet) then the area of the seed crop to be discarded is determined by the procedure outlined in Chart 7.5.4 (next page) "Procedure for Determining Area of Alfalfa Seed Crop to be Discarded."

7.5.5 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.

b) All crops for pedigree should be free of Primary noxious weeds.

c) Very weedy crops may be declined pedigreed status.

7.5.6 **Maximum Impurity Standards**

a) In a crop offered for Foundation status, the inspector makes 6 counts (100 square meters each) to determine the number of impurities. The resulting average count, of other varieties, types foreign to the variety or other crop kinds (the seeds of which are difficult to separate from the seeds of the crop inspected) must not exceed 0.1 percent of the plant population of the inspected crop (1 plant per 100 square meters). Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

b) In a crop offered for Registered or Certified status, the inspector makes 6 counts (10 square meters each) to determine the number of impurities. The resulting average count, of other varieties, types foreign to the variety or other crop kinds (the seeds of which are difficult to separate from the seeds of the crop inspected) must not exceed 1 percent of the plant population of the inspected crop (1 plant per 10 square meters). Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

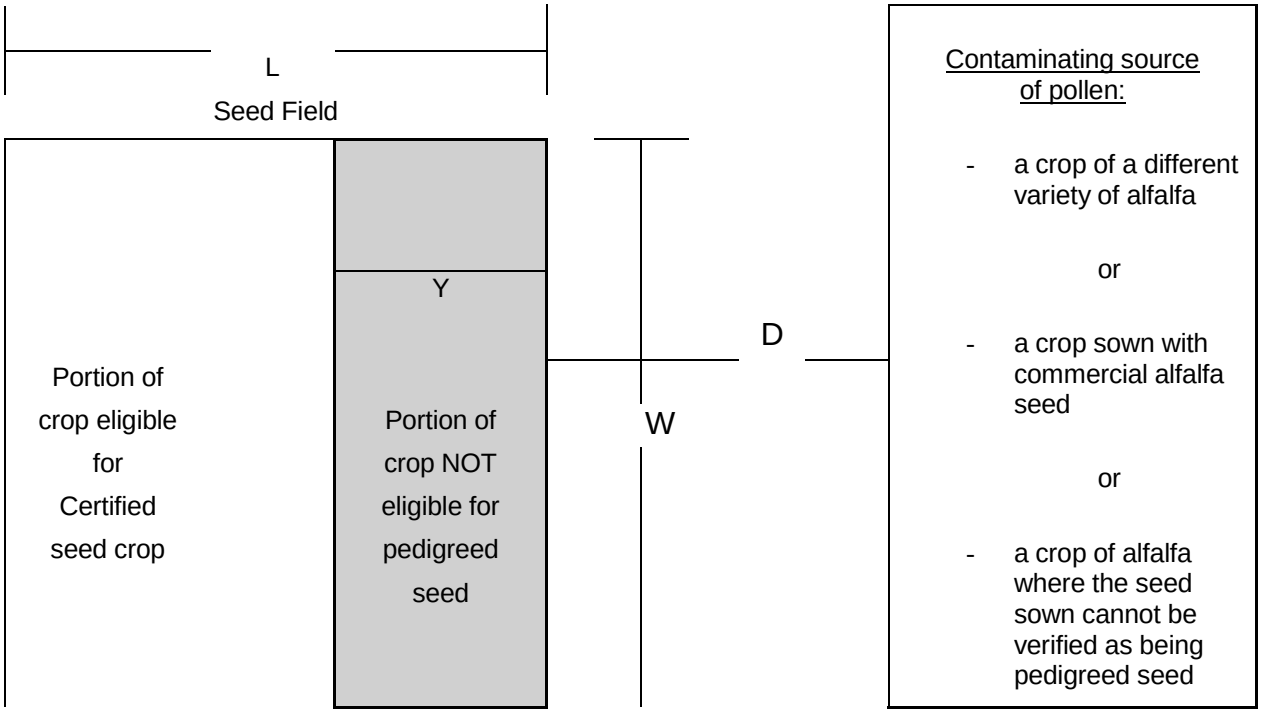
Chart 7.5.4:

PROCEDURE FOR DETERMINING AREA OF ALFALFA SEED CROP TO BE DISCARDED

L = length of seed field	W = width of seed field
Y = 50 meters minus D	L x W = total area of seed field
D = Distance	
W x Y = zone which may not be eligible for pedigree	

Example:
If L = 200 meters; W = 40 meters; D = 30 meters and Y = (50-D) = 20 meters.

Calculation of ineligible area: W x Y (40 x 20) = 800; W x L = (40 x 200) = 8,000



If 10% or less of the Certified field is within the 50 meters (164 ft.) isolation zone (WxY), 3 meters (10 ft.) of isolation is required. If more than 10% of the field is within the isolation zone (WxY), that part of the field must not be harvested as Certified seed. The isolation zone is that area calculated by multiplying the length (L) of the seed field by the average width (W) of the seed field falling within the 50 meters (164 ft) isolation distance requirements, then a clear line of demarcation shall be established between the Certified and non-Certified portion of the field.

SECTION 8

FOUNDATION AND CERTIFIED PRODUCTION OF HYBRID FIELD CORN

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

8.1 SEED CLASSES, TYPES, AND GENERATIONS

8.1.1 **Classes:** Breeder, Foundation, and Certified.

8.1.2 **Types**

a) Inbred Line: a relatively true breeding strain resulting from at least five successive generations of controlled self fertilization or of back crossing to an inbred recurrent parent with selection or its equivalent.
b) Single-Cross Hybrid: the first generation of a cross between 2 specified inbred lines.
c) Foundation Single Cross: a single cross used in the production of a double-cross, a three-way cross or a top cross.
d) Double-Cross Hybrid: the first generation of a cross between 2 single-cross hybrids.
e) Three-Way Cross Hybrid: the first generation of a cross between an inbred line and a single-cross hybrid.
f) Top-Cross Hybrid: the first generation of a cross between an inbred line and an open pollinated variety.
g) Varietal-Cross Hybrid: the first generation of a cross between recognized stocks of 2 open pollinated varieties.
h) Open Pollinated: seed produced as a result of natural pollination as opposed to hybrid seed produced as a result of controlled pollination.

8.1.3 **Generations**

a) Inbred: no generation limit for Breeder or Foundation classes.
b) Hybrid: the crop produced as described in Sections 8.1.2. b), d), e), f) and g), and granted Certified class.

8.2 SEED REQUIREMENTS

8.2.1 Breeder or Foundation seed must be planted to produce Certified crops.

8.2.2 The direction of the cross of Corn hybrids must remain unchanged throughout the life of the hybrid variety.

8.3 LAND REQUIREMENTS

8.3.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

8.3.2 There are no requirements as to previous land use, except the "Corn after Corn" inspection requirements in Section 8.4.

8.4 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

8.4.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

8.4.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

8.4.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

8.4.4 All fields must be inspected 3 times by an authorized inspector when the silks of the seed (female) parent are receptive.

8.4.5 The entire field must be inspected, but a portion or all of a field may be approved for certification provided corrections for improper isolations are made by either:

a) discarding or detasselling the necessary amount of contaminating Corn before its pollen is shed; or
b) discarding before harvest the female parent plants which are improperly isolated from contaminating Corn, and having the discard verified by inspection prior to harvesting the portion of the crop eligible for pedigree.

8.4.6 When Corn is planted on land that produced a Corn crop in the previous or current year, an inspection must be made to determine freedom of the seed crop from plants which have volunteered from the previous crop.

8.4.7 The removal of interplanted male rows should be done within a reasonable time after pollination to allow for inspection prior to harvest.

8.5 CROP STANDARDS

8.5.1 **Minimum Isolation Distances Required**

a) Table 8.5.1 indicates the relationship of the size of field, distance from contaminating pollen source and the required number of border rows in order to provide isolation for the hybrid seed crop's (female) parent plants.

Table 8.5.1: Minimum Isolation Distances Required for Pedigreed Hybrid Corn

Distance separating seed crop (female) parent row from contaminating corn	Number of pollen (male parent) Border Rows to be provided is:	
	Total acres of field unit for seed crop inspection	
	Less than 20 acres	20 acres or more
Less than 90 ft (27.5 m)	24 [1]	16 [2]
[3] ≥ 90 ft (27.5 m)	18	14
≥ 150 ft (45.7 m)	16	12
≥ 210 ft (64.0 m)	14	10
≥ 270 ft (82.3 m)	12	8
≥ 330 ft (100.6 m)	10	6
≥410 ft (125.0 m)	8	4
≥ 490 ft (149.4 m)	6	2
≥ 570 ft (173.7 m)	4	1
≥ 660 ft (201.2 m)	0	0

[1] Minimum of 60 ft (18.3 m) including border rows.
[2] Minimum of 40 ft (12.2 m) including border rows.
[3] ≥ means greater than or equal to

b) The concept of adjacent fields is considered to be more satisfactory than small separated fields, even with full isolation. Adjacent seed fields using the same pollen (male) parent may be considered as one crop for isolation purposes and the combined area of adjacent seed fields may be used to determine the required border rows.
c) A farm lane, or similar gap, must exceed 10 meters (33 feet) to be considered as dividing a field for isolation purposes.
d) To accommodate a public road, railroad, etc., a vacant strip not more than 20 meters (66 feet) wide is acceptable between the required border rows, provided there are at least 4 border rows within the seed field and the remaining border rows are outside the vacant strip.
e) A vacant turning strip not more than 10 meters (33 feet) wide across the end of the rows between the seed (female) parent and the required border rows in the same field is acceptable.
f) Different pollination dates are permitted for modifying isolation distances provided there are no receptive silks in the seed (female) parent at the same time pollen is being shed by the contaminating corn.
g) In the production of Foundation Inbred Lines or Foundation Single-Crosses, an isolation of 200 meters (656 feet) is required from other contaminating corn that is shedding pollen at the same time as the inspected pedigreed seed crop.

8.5.2 **Border Rows**

a) Border rows must be planted with the same seed as the pollen (male) parent rows.
b) Border rows must be planted on land managed by the producer.
c) Border rows must shed pollen simultaneously with the pollen (male) parent and silk emergence of the seed (female) parent.
d) Spacing between border rows shall not be less than 40 cm (15 inches) in width and be consistent with the row spacing used throughout the field.
e) Plant density of border rows on a per acre basis shall not be less than 80% of that of the pollen (male) parent in the seed field.
f) Border rows are not required when the seed (female) parent is more than 200 meters (656 feet) from the contaminating corn.

8.5.3 **Maximum Impurity Standards**

a) Volunteer plants must not exceed 1 plant in 2,000 plants in the seed crop immediately prior to detasselling or the commencement of the pollination period.

b) A crop may not be eligible for pedigreed status if more than 1 plant in 1,000 (0.1%) obvious off-type plants in the pollen (male) parent have shed pollen. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

c) A crop may not be eligible for pedigreed status if more than 1 plant in 1,000 (0.1%) obvious off-type plants are found in the seed (female) parent at the time of last inspection. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

8.5.4 **Detasselling**

a) When 5% or more seed (female) parent plants have receptive silks, a crop may not be eligible for pedigreed status if on any one inspection more than 1% of the seed (female) parent plants possess tassels which have shed or are shedding pollen, or if the total for three inspections on different dates exceeds 2%.
b) When 5% or more seed (female) parent plants have receptive silks, sucker tassels and/or portions of tassels on the main plants will be counted as shedding pollen when 5 cm (2 inches) or more of the central stem and/or the side branches have their anthers extended from their glumes and are shedding pollen.

8.5.5 **Male Sterile (Female) Parent**

a) A male sterile seed (female) parent can be used to produce Certified hybrid corn seed by either of two methods:
   (i) by blending seed produced by the sterile seed (female) parent with seed produced by the fertile seed (female) parent, where the ratio of male sterile (female) parent seed shall not exceed 2 to 1; or
   (ii) by using a pollen (male) parent which contains a specific restorer line or lines so that not fewer than one-third of the plants grown from the resulting hybrid will produce pollen which appears normal in all respects.

SECTION 9

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF OPEN POLLINATED CORN

Section 1, *Regulations for All Pedigreed Seed Crops,* together with the following, constitute the production regulations.

9.1 SEED CLASSES AND GENERATIONS

9.1.1 Breeder: under the control of the Breeder.

9.1.2 Foundation: limited to one generation.

9.1.3 Registered: limited to one generation.

9.1.4 Certified: limited to one generation.

9.2 SEED REQUIREMENTS

9.2.1 Breeder seed must be used to establish all Foundation corn crops.

9.2.2 Breeder, Foundation or Registered seed must be used to establish all Certified corn crops.

9.3 LAND REQUIREMENTS

9.3.1 There are no requirements as to previous crop, except the "Corn after Corn" inspection requirements in Section 9.4.

9.4 CROP INSPECTION REQUIREMENTS

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

9.4.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

9.4.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

9.4.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

9.4.4 A field inspection must be made at the time the silks are receptive to determine whether isolation has been provided in accordance with the regulations and whether there are any detectable off-type plants.

9.4.5 A crop or a portion of a crop may be eligible for pedigreed status but the rejected parts of the crop must be removed, and confirmed by an authorized seed crop inspector.

9.4.6 When corn is planted following a corn crop in either the previous or current year, an inspection must be made to determine freedom of the seed crop from plants which have volunteered from the previous crop.

9.5 CROP STANDARDS

9.5.1 Isolation

a) Open pollinated corn must be isolated by a minimum of 200 meters (656 feet) from any contaminating corn. This isolation distance may be modified by designating certain rows of the same variety for pollen-shedding purposes only.
b) The minimum isolation and border requirements appearing for Hybrid Field Corn production, in Table 8.5.1, shall apply to open-pollinated corn crops.
c) Rows that function to provide isolation shall not be harvested for pedigreed seed and their removal shall be confirmed by an authorized seed crop inspector.
d) Three meters (10 feet) isolation is required between different pedigreed classes of the same variety.

9.5.2 Maximum Impurity Standards

a) There shall not be more than 1/20 of 1 per cent (0.05% or 1 plant in 2,000) detectable admixture with plants of other varieties or off-type plants in the variety being inspected.

SECTION 10

REGISTERED AND CERTIFIED PRODUCTION OF INDUSTRIAL HEMP

In this Section:

- Industrial Hemp (*Cannabis sativa L.*) includes varieties of these kinds:
  - Dioecious type: with male and female flowers on separate plants.
  - Monoecious type: with male and female flowers on the same plant.
  - (Unisexual Female) Hybrids: with sterile male and fertile female flowers on the same plant.
- "Approved Cultivar" means any variety designated in Health Canada's *List of Approved Cultivars*.
- "THC" means delta-nine (Δ9) tetrahydrocannabinol, which is the component of Industrial Hemp regulated by Health Canada.
- Although traditionally a crop with a Dioecious plant type similar to open pollinated corn, many Monoecious varieties of hemp (*Cannabis sativa L.*) have been developed. Hemp is sexually polymorphic and often produces many different ratios of intersexual plant types that can increase roguing requirements. Variety descriptions normally define these ratios.
- All production of Industrial Hemp crops in Canada is subject to license application approval by Health Canada.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

10.1 SEED CLASSES AND GENERATIONS

10.1.1 Breeder or Pre-Basic seed: determined by Breeder.

10.1.2 Foundation seed: one generation, grown by accredited Foundation plot growers. (Refer to Section 11.)

10.1.3 Registered seed: one generation.

10.1.4 Certified seed: one generation.

10.1.5 Only varieties of Industrial Hemp approved by Health Canada are eligible for certification.

10.2 LAND REQUIREMENTS

10.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

Table 10.2.2: Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Registered	In the preceding 3 years produced a crop of Industrial Hemp.
Certified	In the preceding 3 years produced a non-pedigreed crop of Industrial Hemp or a different variety of Industrial Hemp.
	In the preceding 2 years produced a pedigreed crop of the same variety.

10.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

10.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector at least once prior to swathing or harvesting.

10.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

10.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

10.3.4 The inspection must be made during the receptive stage of female plants in the inspected crop, normally within 3 weeks of first flowering.

10.4 CROP STANDARDS

10.4.1 **Isolation**

a) The area, density, stage of maturity and location of any contaminating pollen source is an important factor in cross pollination, and therefore must be noted on the *Seed Crop Inspection Report* for consideration in determining pedigreed status. There shall not be any industrial hemp plants within 100 m of the crop and not more than 10 plants/ha beyond 100 m.

b) The required isolation must be provided prior to flowering and crop inspection.

Table 10.4.2: Minimum Isolation Distances Required Between Inspected Industrial Hemp Crops and Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Dioecious type – Registered	- Different varieties of Industrial Hemp - Non-pedigreed crop of same kind	4800 meters (15,748 feet)
	- Lower pedigreed class seed crop of same variety	2000 meters (6460 feet)
	- Same pedigreed class seed crop of same variety	1 meter (3.32 feet)
Dioecious type – Certified	- Different varieties of Industrial Hemp - Non-pedigreed crop of same kind	1000 meters (3230 feet)
	- Lower pedigreed class seed crop of same variety	200 meters (646 feet)
	- Same pedigreed class seed crop of same variety	1 meter (3.32 feet)
Monoecious type and Hybrids – Registered	- Dioecious variety of Industrial Hemp - Non-pedigreed crop of same kind	4800 meters (15,748 feet)
	- Different varieties of the same type of Industrial Hemp (Monoecious or Female Hybrid)	2000 meters (6460 feet)
	- Lower pedigreed class seed crop of same variety	1000 meters (3230 feet)
	- Same pedigreed class seed crop of same variety	1 meter (3.23 feet)
Monoecious type and Hybrids – Certified	- Dioecious variety of Industrial Hemp - Non-pedigreed crop of same kind	1000 meters (3230 feet)
	- Different varieties of the same type of Industrial Hemp (Monoecious or Female Hybrid) - Lower pedigreed class seed crop of same variety	200 meters (646 feet)
	- Same pedigreed class seed crop of same variety	1 meter (3.23 feet)

10.4.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) The presence of Broomrape *(Orobanche* spp.*)* in Industrial Hemp crops is cause for declining pedigreed status.

10.4.4 **Maximum Impurity Standards**

a) Impurities should be removed prior to crop inspection.
b) Any combination of impurities may be reason for declining pedigreed status.
c) An Industrial Hemp crop for pedigreed status, unless otherwise specified by the Breeder, must be practically free from harmful contaminants (species that can cross pollinate with the inspected crop), plants of other varieties or distinct types foreign to the variety being inspected, weeds or other crops with seeds that are difficult to separate from Industrial Hemp seed (e.g. Hemp Nettle).
d) Table 10.4.4 indicates the maximum number of impurities permitted by the CSGA in approximately 10,000 plants of the inspected crop. The inspector makes at least 6 counts (10,000 plants each) or the equivalent to determine the number of impurities. The resulting average of these counts must not exceed the maximum impurity standards in Table 10.4.4.

Table 10.4.4: Maximum Impurity Standards

Inspected Crop	Maximum Impurity Standards per 10,000 plants in Registered and Certified Industrial Hemp Seed Crops		
	Maximum Number of "Too Male" Monoecious Plants	Maximum Number of Dioecious Male Plants Shedding Pollen	Maximum Number of Other Impurities
Dioecious type Registered and Certified	–	–	10
Monoecious type Registered	1000	2	10
Monoecious type and Hybrids Certified	–	100	10

10.4.5 **Roguing**

a) All male flowers rogued from the crop should be removed from the field.
b) Regrowth of rogued male flowers or plants must be prevented.

10.5 SPECIFIC REQUIREMENTS

10.5.1 It is recommended that not more than one variety of Industrial Hemp be grown under the management of one grower.

10.5.2 Growers are required by Health Canada to obtain THC test results, from a recognized laboratory, verifying that the THC content of their Industrial Hemp crop complies with Health Canada regulations. Growers may be required to submit these results to the CSGA before a crop certificate is issued.

Table 10.6: Summary of Seed Crop Inspection Standards for Industrial Hemp (*Cannabis sativa L.*) in Canada

All Types		
	Registered	**Certified**
Minimum Size of Field (acres) (Health Canada requirement)	1.0	1.0
Maximum Size of Field (acres)	---	---
Previous Land Use: minimum number of years without hemp production	3	3/2
Maximum Impurity Standards:		
• Maximum number of Monoecious "too male" plants shedding pollen during inspection (#/10,000 plants)	1000 (10.0%)	---
• Maximum number of Dioecious male plants** shedding pollen during inspection (#/10,000 plants)	2 (0.02 %)	100 (1.0 %)
• Maximum other impurity tolerances (#/10,000 plants)	10 (0.1 %)	10 (0.1 %)
Dioecious Type		
Number of Inspections	1	1
Minimum Isolation Distance (meters):		
• from Other Varieties and non-pedigreed hemp crops	4800	1000
• from other pedigreed classes, same variety	2000	200
• from same pedigreed class, same variety	1	1
Monoecious Type and (Unisexual Female) Hybrids		
Number of Inspections	1	1
Minimum Isolation Distance (meters):		
• from Dioecious varieties and non-pedigreed Hemp crops	4800	1000
• from other Monoecious varieties	2000	200
• from lower pedigreed classes, same variety	1000	200
• from same pedigreed class, same variety	1	1

** If Dioecious male plants start flowering before removal from field, all plants around them should be destroyed for a radius of 3 meters for Foundation and 2 meters for Registered seed crops.

SECTION 11

PROBATION AND FOUNDATION PLOT PRODUCTION OF INDUSTRIAL HEMP

In this Section:

- Industrial Hemp (*Cannabis sativa* L.) varieties of these kinds:
  - Dioecious type: with male and female flowers on separate plants.
  - Monoecious type: with male and female flowers on the same plant.
  - (Unisexual Female) Hybrids: with sterile male and fertile female flowers on the same plant.
- "Approved Cultivars" means any variety designated in Health Canada's *List of Approved Cultivars*.
- "THC" means delta-nine (Δ9) tetrahydrocannabinol, which is the component of industrial hemp regulated by Health Canada.
- Although traditionally a crop with a Dioecious plant type similar to open pollinated corn, many Monoecious varieties of hemp (*Cannabis sativa* L.) have been developed. Hemp is sexually polymorphic and often produces many different ratios of intersexual plant types that can increase roguing requirements. Variety descriptions normally define these ratios.

- All production of Industrial Hemp crops in Canada is subject to license application approval by Health Canada.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

11.1 SEED CLASSES AND GENERATIONS

11.1.1 Breeder or Pre-Basic seed: determined by the Breeder.

11.1.2 Foundation seed: one generation, grown by accredited Foundation plot growers.

11.1.3 Registered seed: one generation (refer to Section 10).

11.1.4 Certified seed: one generation (refer to Section 10).

11.1.5 Only varieties of Industrial Hemp approved by Health Canada are eligible for certification.

11.1.6 For growers not accredited by CSGA to grow Foundation plots and who plant crops with Breeder or Pre-Basic seed, the CSGA reserves the right to determine the status of the inspected crop and may issue a Registered or Certified crop certificate.

11.2 PROBATION PLOT PRODUCTION

11.2.1 An individual grower wishing to produce a Foundation plot must receive permission from the CSGA before commencing Probation plot production.

11.2.2 An *Application to Commence Probation Plot Production* (Form 154, Appendix A.6), must be submitted to the CSGA.

11.2.3 The grower may be required to have grown Certified seed crops of the crop kind in which the grower is commencing Probation.

11.2.4 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Foundation plot grower status.

a) This status is granted to an individual seed grower only.
b) This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Foundation plot growers.

11.2.5 Breeder or Pre-Basic seed of varieties approved by Health Canada must be sown each year.

11.2.6 The status granted to plots grown during the Probation period is as follows:

a) First Year: provided all requirements are met, the First Year plot will be granted Foundation status. Breeder or Pre-Basic seed must be obtained for the Second Year plot.
b) Second Year: provided all requirements are met, the Second Year plot will be granted Foundation status. Breeder or Pre-Basic seed must be obtained for the Third Year plot.
c) Third Year: provided all requirements are met, the Third Year plot will be granted Foundation status. The grower is then granted Foundation plot grower status and is then eligible to grow Foundation plots of Industrial Hemp.

11.2.7 Any means of processing or conditioning of seed from a Probation plot which may contaminate the varietal purity of the seed is prohibited.

11.2.8 A *Report of Plot Production* (Form 50) for each Probation plot must be completed and submitted to the CSGA.

11.2.9 A sample of clean seed from each Probation plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.

11.2.10 **Area of Probation Plot**

a) The area of the Foundation plot during the 3-year Probation period must not be less than 0.4 hectare (1.0 acre) nor exceed 0.5 hectare (1.25 acres). Health Canada regulations require a minimum plot size of 0.4 hectare (1.0 acre).
b) When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of pedigreed crop. The remainder must meet the requirements for Probation plot production. Health Canada regulations require a minimum plot size of 0.4 hectare (1.0 acre).

c) The total area of a Probation plot includes the "walkways" provided within the plot to facilitate effective roguing.
d) In each year of Probation, a Probation grower may only produce one (1) Probation plot.

11.3 FOUNDATION PLOT PRODUCTION

11.3.1 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Foundation plot grower status.
a) This status is granted to an individual seed grower only.
b) This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Foundation plot growers.

11.3.2 Plots for Foundation status must be planted with Breeder or Pre-Basic seed of Approved Cultivars approved by the CSGA.

11.3.3 Any means of processing or conditioning of seed from a Foundation plot which may contaminate the varietal purity of the seed is prohibited.

11.3.4 A *Report of Plot Production* (Form 50) for each Foundation plot must be completed and submitted to the CSGA.

11.3.5 A sample of clean seed from each Foundation plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.

11.3.6 **Area of Foundation Plots**
a) The area of a Foundation plot of one variety must not be less than 0.4 hectare (1.0 acre) nor exceed 1 hectare (2.5 acres).
b) When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of Pedigreed seed. The remainder of the plot must meet the requirements for Foundation plot production. Health Canada regulations require a minimum plot size of 0.4 hectare (1.0 acre).
c) The area of a Foundation plot includes the "walkways" provided within the plot to facilitate effective roguing.

11.4 LAND REQUIREMENTS

11.4.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

11.4.2 Plots for Foundation status of Industrial Hemp must not be planted on land which in the previous 3 years grew a crop of Industrial Hemp.

11.5 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

11.5.1 It is the grower's responsibility to ensure that plots are inspected by an authorized inspector at least twice prior to swathing or harvesting.

11.5.2 A plot that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

11.5.3 The plot must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

11.5.4 First inspection must be made before female (pistillate) flowers of the inspected crop are receptive and after the formation of male (staminate) flowers, preferably before pollen is shed.

11.5.5 Second inspection must be made during the receptive stage of the female plants in the inspected plot, normally within 3 weeks of first inspection.

11.5.6 Third inspections must be made when off-type female flowers can be identified.

11.5.7 Isolation areas will be inspected for volunteer Industrial Hemp plants and harmful contaminants on each inspection visit.

11.6 CROP STANDARDS

11.6.1 **Isolation**

a) The area, density, stage of maturity and location of any contaminating pollen source is an important factor in cross pollination, and therefore must be noted on the *Seed Crop Inspection Report* for consideration in determining pedigreed status. There shall not be any industrial hemp plants within 100 m of the crop and not more than 10 plants/ha beyond 100 m.

b) The required isolation must be provided prior to the time of flowering and crop inspection.

Table 11.6.2: Minimum Isolation Distances Required Between Inspected Industrial Hemp Plots and Other Crops

Plot Crop	Other Crops	Isolation Distance Required
Dioecious type	- Different varieties of Industrial Hemp - Non-pedigreed crop of same kind	4800 meters (15,748 feet)
	- Lower pedigreed class seed crop of same variety	2000 meters (6460 feet)
	- Breeder or Pre-Basic plot of same variety	3 meters (10 feet)
Monoecious type or Hybrid	- Dioecious variety of Industrial Hemp - Non-pedigreed crop of same kind	4800 meters (15,748 feet)
	- Other Monoecious varieties - Lower pedigreed class seed crop of same variety	3000 meters (9690 feet)
	- Breeder or Pre-Basic plot of same variety	5 meters (16 feet)

11.6.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) The presence of Broomrape *(Orobanche* spp.) in an Industrial Hemp plot is cause for declining pedigreed status.
d) Very weedy crops may be declined pedigreed status.

11.6.4 **Maximum Impurity Standards**

a) Impurities should be removed prior to crop inspection.
b) Any combination of impurities may be reason for declining pedigreed status.
c) An Industrial Hemp plot for Foundation status, unless otherwise specified by the Breeder, must be practically free from harmful contaminants (species that can cross pollinate with the inspected crop), plants of other varieties or distinct types foreign to the variety being inspected, weeds or other crops with seeds that are difficult to separate from Industrial Hemp seed (e.g. Hemp Nettle).
d) Table 11.6.4 indicates the maximum number of impurities permitted by the CSGA in approximately 10,000 plants of the inspected crop. The inspector makes at least 6 counts (10,000 plants each) or the equivalent to determine the number of impurities. The resulting average of these counts must not exceed the maximum impurity standards in Table 11.6.4.

Table 11.6.4: Maximum Impurity Standards

Plot Crop	Maximum Impurity Standards per 10,000 plants in Foundation Industrial Hemp Seed Plots		
	Maximum Number of "Too Male" Monoecious Plants	Maximum Number of Dioecious Male Plants Shedding Pollen	Maximum Number of Other Impurities
Dioecious type	–	–	3
Monoecious type	500	1	3

11.7 RECOMMENDED PRODUCTION PROCEDURES FOR PLOTS

11.7.1 Planting of Plots

a) Plots should be planted to facilitate inspection, roguing and harvesting.
b) Plots should be planted in areas easily accessible for frequent maintenance and to provide the maximum protection from outside sources of contamination, such as roadways and building sites.
c) Regulations for land requirements are minimum standards and caution is necessary in choosing land, as volunteer growth from previous crops may vary according to local conditions.
d) The regulations for isolation are minimum standards. It is always to the grower's advantage to provide more isolation than required. When planting Probation and Foundation plots, specific requirements may influence the location and size of the plot. It is a safeguard if adjacent crops are the same variety as the plot and are inspected for pedigreed status.

11.7.2 Roguing of Probation and Foundation Plots

a) The plot must be thoroughly and intensively rogued many times throughout the crop season.
b) Off-type male flowers must be removed before the receptive stage of female flowers in the inspected crop.
c) The numbers and kinds of plants removed should be recorded and described on the *Report of Plot Production* (Form 50).
d) All male flowers rogued from the crop must be removed from the plot area.
e) Regrowth of rogued flowers or plants must be prevented.

11.7.3 Harvesting, Cleaning and Storing of Probation and Foundation Plot Seed

a) A Probation or Foundation plot grower should have access to the necessary equipment for harvesting and cleaning the seed from the plot in such a manner as to ensure that the varietal purity of the seed is maintained.
b) The seed should be stored, in compliance with Health Canada regulations, in a clean, cool, dry area.
c) The seed containers should be labelled for identification.

11.7.4 **Probation and Foundation Plot Grower Courses**

a) Probation and Foundation plot growers are encouraged to attend courses on plot production.

11.8 SPECIFIC REQUIREMENTS

11.8.1 It is recommended that not more than one variety of Industrial Hemp be grown under the management of one grower.

11.8.2 Growers are required by Health Canada to obtain THC test results, from a recognized laboratory, verifying that the THC content of their Industrial Hemp crop complies with Health Canada regulations. Growers may be required to submit these results to the CSGA before a crop certificate is issued.

Table 11.9: Summary of Seed Crop Inspection Standards for Industrial Hemp (*Cannabis sativa L.*) in Canada

	Foundation	Registered	Certified
All Types			
Minimum Size of Field (acres) (Health Canada requirement)	1.0	1.0	1.0
Maximum Size of Field (acres)	2.5	---	---
Previous Land Use: minimum number of years without hemp production	3	3	3/2
Maximum Impurity Standards:			
• Maximum number of Monoecious "too male" plants shedding pollen during inspection (#/10,000 plants)	500 (5.0 %)	1000 (10.0%)	---
• Maximum number of Dioecious male plants** shedding pollen during inspection (#/10,000 plants)	1 (0.01 %)	2 (0.02 %)	100 (1.0 %)
• Maximum other impurity tolerances (#/10,000 plants)	3 (0.03 %)	10 (0.1 %)	10 (0.1 %)
Dioecious Type			
Number of Inspections	At least 2	1	1
Minimum Isolation Distance (meters):			
• from Other Varieties and non-pedigreed hemp crops	4800	4800	1000
• from other pedigreed classes, same variety	2000	2000	200
• from same pedigreed class, same variety	3	1	1
Monoecious Type and (Unisexual Female) Hybrids			
Number of Inspections	At least 2	1	1
Minimum Isolation Distance (meters):			
• from Dioecious varieties and non-pedigreed Hemp crops	4800	4800	1000
• from other Monoecious varieties	3000	2000	200
• from lower pedigreed classes, same variety	3000	1000	200
• from same pedigreed class, same variety	25	1	1

** If Dioecious male plants start flowering before removal from field, all plants around them should be destroyed for a radius of 3 meters for Foundation and 2 meters for Registered seed crops.

SECTION 12

PROBATION AND SELECT PLOT PRODUCTION OF SEED CROPS: BARLEY, BEAN, BUCKWHEAT, CAMELINA, CANARYSEED, CHICKPEA, DURUM, FABABEAN, FENUGREEK, FLAX, LENTIL, LUPIN, OAT, PEA, RYE, SOYBEAN, TRITICALE, AND WHEAT

In this section:

- ***Barley*** includes spring and winter Barley.
- ***Bean*** includes field, garden, white, coloured, navy or dry edible type Bean.
- ***Oat*** includes covered and naked Oat.
- ***Rye*** includes spring and winter Rye.
- ***Triticale*** includes spring and winter Triticale.
- ***Wheat*** includes spring and winter Wheat, Einkorn, Emmer and Spelt (unless otherwise specified). ***Durum*** is not included.

This Section also includes the requirements for Probation and Select Plot production of other crop kinds.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

12.1 SEED CLASSES AND GENERATIONS

12.1.1 Breeder seed: determined by the Breeder.

12.1.2 Select seed: five generations, unless otherwise specified by the Breeder; except Field Beans, which are limited to one generation. Select seed is grown by accredited plot growers.

12.1.3 Foundation seed: one generation (refer to Sections 2 and 3).

12.1.4 Registered seed: one generation, unless otherwise specified by the Breeder (refer to Sections 2 and 3).

12.1.5 Certified seed: one generation (refer to Sections 2 and 3).

12.1.6 For growers not accredited to grow Probation or Select plots and who plant crops with Breeder seed, the CSGA reserves the right to determine the status of the inspected crop and may issue a Registered or Certified crop certificate.

12.2 PROBATION PLOT PRODUCTION

12.2.1 A grower wishing to produce a Select plot must receive permission from the CSGA and meet the requirements of the CSGA before commencing Probation plot production.

12.2.2 An *Application to Commence Probation Plot Production* (Form 154) is available from the CSGA and should be submitted prior to March 31 for spring seeded crops and prior to July 31 for fall seeded crops. Refer to Appendix A.6.

12.2.3 The grower may be required to have grown pedigreed seed crops of the crop kind in which the grower is commencing Probation, in at least 3 of the previous 5 crop seasons.

12.2.4 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Select plot grower status.

a) This status is granted to an individual seed grower only.
b) This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Select plot growers.

12.2.5 Plots for First Year Probation status must be planted with Breeder seed. Select seed may be planted with the prior approval of the CSGA.

12.2.6 Breeder seed is obtained directly from the organization responsible for the variety. (Check with distributor for deadline dates).

12.2.7 Probationary growers may change variety, but not the crop kind, in which they started their probation without receiving prior permission from the CSGA.

12.2.8 The status granted to plots produced during the probation is as follows (refer to Chart 12.2.8, next page):

a) First Year: provided all requirements are met, the First Year plot will be granted Foundation status. Sufficient seed is selected from this plot to plant the Second Year Probation plot and the balance of this seed may be used to produce Registered seed or Certified seed.
b) Second Year: provided all requirements are met, the Second Year plot will be granted Foundation status. Sufficient seed is selected from this plot to plant the Third Year Probation plot and the balance of this seed may be used to produce Registered seed or Certified seed.
c) Third Year: provided all requirements are met, the Third Year plot will be granted Select status and the seed may be used for further Select or Foundation production. The grower is now eligible to produce Select and Foundation plots.

12.2.9 Any means of processing or conditioning of seed from a Probation plot which may contaminate the varietal purity of the seed is prohibited.

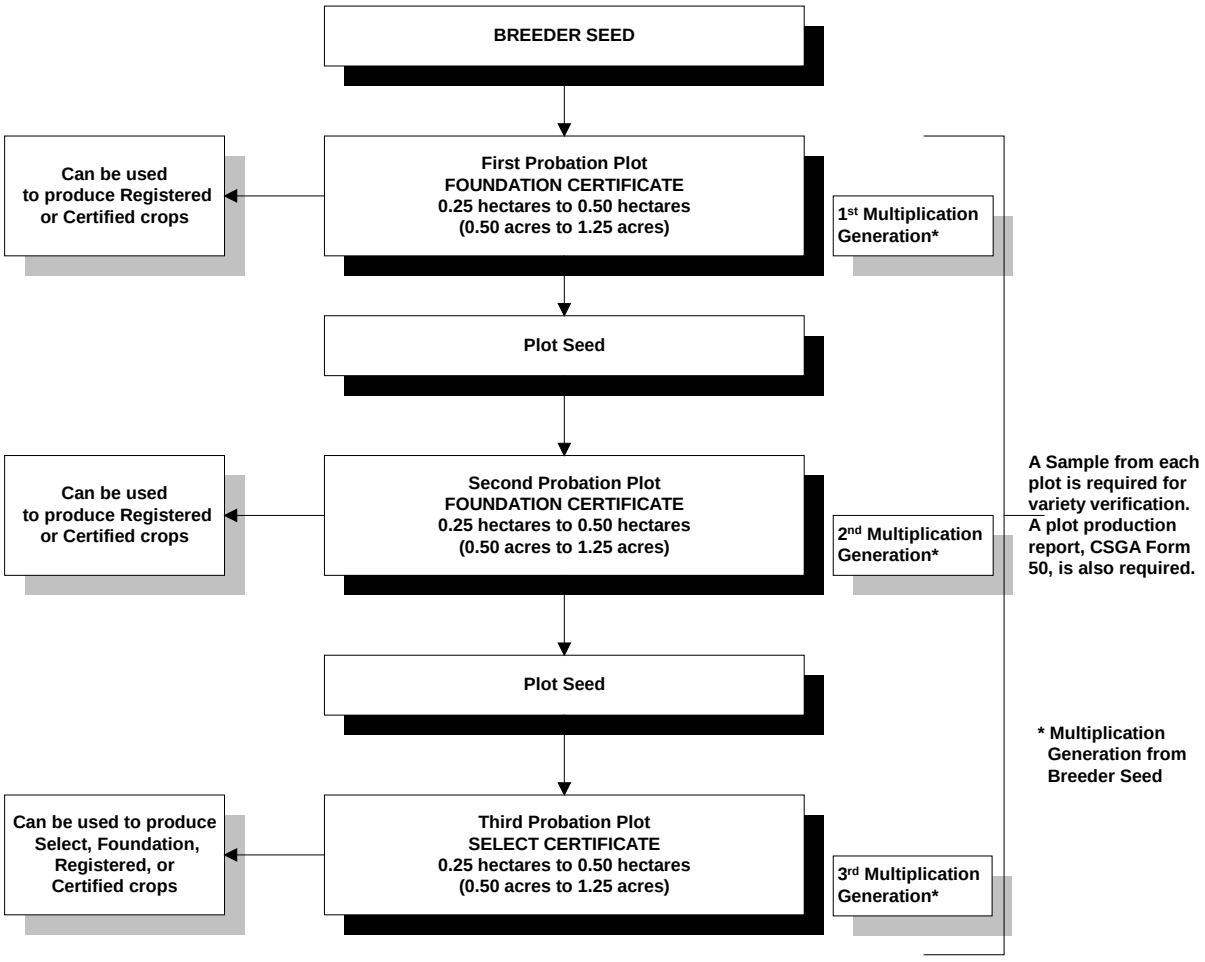
12.2.10 A *Report of Plot Production* (Form 50) for each Probation plot will be sent to the grower and must be completed and submitted to the CSGA.

12.2.11 A sample of clean seed from each Probation plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.

12.2.12 Probation plot growers must obtain new Breeder or Select seed if the plot is declined pedigreed status.

12.2.13 Probation plot growers may produce only 1 plot in each year of Probation.

Chart 12.2.8



12.2.14 **Area of Probation Plot**

a) The total area of a Probation plot must not exceed 0.5 hectare (1.25 acres) or be less than 0.25 hectare (0.5 acre).
b) When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of pedigreed seed. The remainder must meet the requirements for Probation plot production.
c) The total area of a Probation plot includes "walkways" provided within the plot to facilitate effective roguing.

12.2.15 Probation plots in this section are subject to all Select plot production requirements.

12.3 SELECT PLOT PRODUCTION

12.3.1 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Select plot grower status.

a) This status is granted to an individual seed grower only.
b) This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Select plot growers.

12.3.2 Plots for Select status must be planted with Breeder seed or Select seed.

12.3.3 Select seed obtained from another Select seed grower may not be used for the production of a Select or Probation plot unless transferred in compliance with CSGA requirements.

12.3.4 Normally 5 generations of Select plot production from Breeder seed are allowed. Field Beans are limited to one generation.

12.3.5 Information on the number of generations permitted in the Select class is available from the CSGA.

12.3.6 Select and Probation Bean plots must be planted with Breeder seed unless otherwise specified by the Breeder, to reduce the risk of seedborne disease transmission.

12.3.7 Breeder seed is obtained directly from the organization responsible for distribution of the variety. (Check with distributor for application deadline dates).

12.3.8 Any means of processing or conditioning of seed from a Select plot which may contaminate the varietal purity of the seed is prohibited.

12.3.9 A *Report of Plot Production* (Form 50) for each variety will be sent to the grower and must be completed and submitted to the CSGA.

12.3.10 A sample of clean seed from each Select plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.

12.3.11 A Select seed grower must obtain new Breeder seed or Select seed if the plot is declined for any reason other than excess acreage.

12.3.12 **Area of Select Plots**

a) There is no limit on total acreage of plots, number of crop kinds, number of varieties or acreage of one variety. Each plot is limited to 1 hectare (2.5 acres) in size.
b) When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of pedigreed seed. The remainder of the plot must meet the requirements for Select plot production.
c) The area of a Select plot includes "walkways" provided within the plot to facilitate effective roguing.

12.4 LAND REQUIREMENTS

12.4.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

12.4.2 Plots may be grown, for example, on land which in the required previous years was effectively summerfallowed or produced perennial forage crops.

12.4.3 **Previous Land Use**

a) The basic standards for all crops are set out in Section 1.17. In addition to the basic standards, the following apply to crops in this section:

Table 12.4.3: Specific Crop Land Requirements

Select Plot Crop	Land Requirements
Barley (Spring and Winter)	**Must NOT be grown on land which:** • In the previous year produced: - a Foundation, Registered or Certified crop of Barley; • In either of the preceding 2 years produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale, or Wheat; - a crop of a different variety of Barley; - a Certified crop of Barley.
Bean	**Must NOT be grown on land which:** • In the previous year produced: - a non-pedigreed Bean crop; - a crop of a different variety of Bean; - a Foundation, Registered or Certified crop of Beans.
Buckwheat	**Must NOT be grown on land which:** • In the previous year produced: - a Foundation, Registered or Certified crop of Buckwheat; • In either of the preceding 2 years produced: - a non-pedigreed crop of Buckwheat; - a crop of a different variety of Buckwheat; - a Certified crop of Buckwheat.
Camelina	**Must NOT be grown on land which:** • In the previous year produced a crop of Camelina, Canola, Mustard, Oilseed Radish or Rapeseed.
Canaryseed	**Must NOT be grown on land which:** • In the previous year produced: - a Foundation, Registered or Certified crop of Canaryseed; • In either of the preceding 2 years produced: - a non-pedigreed crop of Canaryseed, Fenugreek or Flax; - a Certified crop of Canaryseed.
Chickpea	**Must NOT be grown on land which:** • In the previous year produced a Chickpea crop.
Durum	**Must NOT be grown on land which:** • In the previous year produced: - a Foundation, Registered or Certified crop of Durum. • In either of the 2 preceding years produced: - a crop of Spring Wheat; - a non-pedigreed** crop of Barley, Buckwheat, Durum, Winter Wheat, Oat, Rye, or Triticale; - a crop of a different* variety of Durum; - a Certified crop of Durum.

Table 12.4.3 (continued): Specific Crop Land Requirements

Select Plot Crop	Land Requirements
Fababean	**Must NOT be grown on land which:**
	• In the previous year produced: - a non-pedigreed Fababean crop; - a crop of a different variety of Fababean; - a Foundation, Registered or Certified crop of Fababeans.
Fenugreek	**Must NOT be grown on land which:**
	• In the previous year produced a crop of Fenugreek, Canaryseed or Flax.
Flax	**Must NOT be grown on land which:**
	• In the previous year produced: - a Foundation, Registered or Certified crop of Flax; • In either of the preceding 2 years produced: - a non-pedigreed crop of Canaryseed, Fenugreek or Flax; - a crop of a different variety of Flax; - a Certified crop of Flax.
Lentil	**Must NOT be grown on land which:**
	• In the previous year produced a Lentil crop.
Lupin	**Must NOT be grown on land which:**
	• In the previous year produced a Lupin crop.
Oat	**Must NOT be grown on land which:**
	• In the previous year produced: - a Foundation, Registered or Certified crop of Oat; • In either of the preceding 2 years produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different variety of Oat; - a Certified crop of Oat.
Pea	**Must NOT be grown on land which:**
	• In the previous year produced a Pea crop.
Rye (Spring and Winter)	**Must NOT be grown on land which:**
	• In the previous year produced: - a Foundation, Registered or Certified crop of Rye; • In either of the preceding 2 years produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Triticale, or Wheat; • In any of the preceding 3 years produced: - a non-pedigreed crop of Rye or a different variety of Rye; - a Certified crop of Rye.

Table 12.4.3 (continued): Specific Crop Land Requirements

Select Plot Crop	Land Requirements
Soybean	**Must NOT be grown on land which:**
	• In the previous year produced: - a non-pedigreed Soybean crop; - a crop of a different variety of Soybean; - a Foundation, Registered or Certified crop of Soybeans.
Triticale (Spring and Winter)	**Must NOT be grown on land which:**
	• In the previous year produced: - a Foundation, Registered or Certified crop of Triticale; • In either of the preceding 2 years produced: - a non-pedigreed crop of Barley, Buckwheat, Durum, Oat, Rye or Wheat; • In any of the preceding 3 years produced: - a non-pedigreed crop of Triticale or a different variety of Triticale; - a Certified crop of Triticale.
Wheat (Winter)	**Must NOT be grown on land which:**
	• In either of the preceding 2 years produced: - a non-pedigreed** crop of Barley, Buckwheat, Durum, Oat, Rye, Triticale or Wheat; - a crop of a different* variety of Wheat; - a Certified crop of Wheat.
Wheat (Spring)	**Must NOT be grown on land which**:
	• In the previous year produced: - a Foundation, Registered or Certified crop of Wheat; - a crop of Durum • In either of the preceding 2 years produced: - a non-pedigreed** crop of Barley, Buckwheat, Oat, Rye, Durum or Triticale; - a non-pedigreed** crop of Wheat; - a crop of a different variety of Wheat • In the third (3rd) year prior produced: - a non-pedigreed** crop of Spring Wheat, a different* variety of Spring Wheat or a Certified crop of Spring Wheat unless, in the previous year, the land produced a corn crop or a cultivated row crop such as a potato or vegetable crop.

* In crops of pest tolerant varietal blends, "different" variety means a variety other than the varieties prescribed in the description of the pest tolerant variety.
** "non-pedigreed" crop means a crop that did not meet requirements of Circular 6.

12.5 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

12.5.1 It is the grower's responsibility to ensure that plots are inspected by an authorized inspector prior to swathing or harvesting.

12.5.2 A plot that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

12.5.3 The plot must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

12.5.4 All plots must be inspected by an authorized inspector at least once before harvest.

12.5.5 **Cereal** plots must be inspected between heading and maturity.

12.5.6 **Soybean** plots must be inspected at maturity when at least 90% of the plants have dropped all their leaves and the mature plants have distinguishing pod, pubescence and hilum colour characteristics.

12.5.7 **Fababean** plots must be inspected at full flower (low tannin small seeded varieties) or at maturity as leaves begin to drop (other varieties)

12.5.8 **Chickpea, Lentil and Lupin** plots must be inspected at full flower.

12.5.9 **Bean** (all types) plots must be inspected between 7 to 14 days after inception of flowering when flower colour can be observed.

12.5.10 **Pea** (all types) plots must be inspected at the early flower stage about 60 days after planting.

12.5.11 **Flax** plots must be inspected at full bloom. The inspection should take place in the morning.

12.5.12 **Buckwheat** and **Canaryseed** plots must be inspected when the crops are in bloom.

12.6 CROP STANDARDS

12.6.1 Isolation

a) Except for Bean plots for which this is not permitted, a 1 meter (3 feet) isolation strip is required between plots of the same variety and between plots and crops eligible for Foundation status providing that Foundation status crops were planted:
   (i) with seed of equivalent pedigreed status to that of the plot; and
   (ii) on land that meets equivalent land use requirements of that plot.

b) The isolation strip must not be a source of contamination.

c) Plots of Barley, Buckwheat, Camelina, Canaryseed, Durum, Fenugreek, Flax, Oat, Rye, Triticale and Wheat need not be isolated from crops of Bean, Chickpea, Fababean, Lentil, Lupin, Pea and Soybean.

d) Staking of a plot perimeter is permitted, except for Bean plots, in lieu of the 1 meter (3 feet) isolation strip required in 12.6.1 a), if it meets CSGA requirements for plot staking, which include the following:
   (i) Stake locations must be clearly identified on map(s) provided to crop inspectors.
   (ii) Staking must include at least 8 stakes that are clearly visible and clearly define the perimeter of the plot at the time of inspection.
   (iii) Impurities reported within a plot's isolation distance required in Table 12.6.2 are considered within the plot for CSGA appraisal purposes.

Table 12.6.2: Minimum Isolation Distances Required Between Select Plots and Other Crops

Note: A "Pedigreed crop of the same variety" is a crop that is inspected and eligible for pedigreed status. It does not mean a crop planted with pedigreed seed for commercial production.

Select Plot Crop	Other Crops	Isolation Distance Required
Barley	- Inspected pedigreed Barley of same variety - Buckwheat, Durum, Oat, Rye, Triticale, Wheat	3 meters (10 feet)
	- Different varieties of Barley - Non-pedigreed Barley - Inspected pedigreed Barley of same variety contaminated with off-types or other varieties of Barley	10 meters (33 feet)
Bean	- Chickpea, Fababean, Lentil, Lupin, Pea, Peanut, Soybean	3 meters (10 feet)
	- Inspected pedigreed Bean of same variety - Different varieties of Bean - Non-pedigreed Bean - Inspected pedigreed Bean of same variety contaminated with off-types or other varieties of Bean	30 meters (100 feet)
Buckwheat	- Inspected pedigreed Buckwheat of same variety - Barley, Durum, Oat, Rye, Triticale, Wheat	3 meters (10 feet)
	- Crop planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 400 meters (1,320 feet) from non-pedigreed or different varieties of Buckwheat
	- An adjacent crop that has more than 0.5% plants of Buckwheat	150 meters (492 feet)
	- Different varieties of Buckwheat - Non-pedigreed Buckwheat - Inspected pedigreed Buckwheat of same variety contaminated with off-types or other varieties of Buckwheat	400 meters (1,320 feet)
Camelina	- Inspected pedigreed Camelina of same variety - Canaryseed, Canola, Flax, Mustard, Oilseed Radish, Rapeseed	3 meters (10 feet)
	- Different varieties of Camelina - Non-pedigreed Camelina - Inspected pedigreed Camelina of same variety contaminated with off-types or other varieties of Camelina	10 meters (33 feet)

Table 12.6.2 (continued): Minimum Isolation Distances Required Between Select Plots and Other Crops

Select Plot Crop	Other Crops	Isolation Distance Required
Canaryseed	- Inspected pedigreed Canaryseed of same variety - Camelina, Fenugreek, Flax	3 meters (10 feet)
	- Different varieties of Canaryseed - Non-pedigreed Canaryseed - Inspected pedigreed Canaryseed of same variety contaminated with off-types or other varieties of Canaryseed	10 meters (33 feet)
Chickpea	- Inspected pedigreed Chickpea of same variety - Bean, Fababean, Lupin, Pea, Peanut, Soybean	3 meters (10 feet)
	- Different varieties of Chickpea - Non-pedigreed Chickpea - Inspected pedigreed Chickpea of same variety contaminated with off-types or other varieties of Chickpea	10 meters (33 feet)
Durum	- Inspected pedigreed Durum of same variety - Barley, Buckwheat, Oat, Rye, Triticale, Wheat	3 meters (10 feet)
	- Different* varieties of Durum - Non-pedigreed Durum - Inspected pedigreed Durum of same variety contaminated with off-types or different* varieties of Durum	10 meters (33 feet)
Fababean	- Inspected pedigreed Fababean of same variety - Bean, Chickpea, Lentil, Lupin, Pea, Peanut, Soybean	3 meters (10 feet)
	- Different varieties of Fababean - Non-pedigreed Fababean - Inspected pedigreed Fababean of same variety contaminated with off-types or other varieties of Fababean	100 meters (328 feet)
Fenugreek	- Inspected pedigreed Fenugreek of same variety - Camelina, Canaryseed, Flax	3 meters (10 feet)
	- Different varieties of Fenugreek - Non-pedigreed Fenugreek - Inspected pedigreed Fenugreek of same variety contaminated with off-types or other varieties of Fenugreek	10 meters (33 feet)
Flax	- Inspected pedigreed Flax of same variety - Canaryseed, Fenugreek	3 meters (10 feet)
	- Different varieties of Flax - Non-pedigreed Flax - Inspected pedigreed Flax of same variety contaminated with off-types or other varieties of Flax	10 meters (33 feet)

Table 12.6.2 (continued): Minimum Isolation Distances Required Between Select Plots and Other Crops

Select Plot Crop	Other Crops	Isolation Distance Required
Lentil	- Inspected pedigreed Lentil of same variety - Bean, Chickpea, Fababean, Lupin, Peanut, Soybean	3 meters (10 feet)
	- Different varieties of Lentil - Non-pedigreed Lentil - Inspected pedigreed Lentil of same variety contaminated with off-types or other varieties of Lentil	10 meters (33 feet)
Lupin	- Inspected pedigreed Lupin of same variety - Bean, Chickpea, Fababean, Lentil, Pea, Peanut, Soybean	3 meters (10 feet)
	- Different varieties of Lupin - Non-pedigreed Lupin - Inspected pedigreed Lupin of same variety contaminated with off-types or other varieties of Lupin	10 meters (33 feet)
Oat (All types)	- Inspected pedigreed Oat of same variety - Barley, Buckwheat, Durum, Rye, Triticale, Wheat	3 meters (10 feet)
	- Different varieties of Oat - Non-pedigreed Oat - Inspected pedigreed Oat of same variety contaminated with off-types or other varieties of Oat	10 meters (33 feet)
Oat (Hulless only)	- Any crop contaminated with Wild Oat	20 meters (66 feet)
Pea	- Inspected pedigreed Pea of same variety - Bean, Chickpea, Fababean, Lupin, Peanut, Soybean	3 meters (10 feet)
	- Different varieties of Pea - Non-pedigreed Pea - Inspected pedigreed Pea of same variety contaminated with off-types or other varieties of Pea	10 meters (33 feet)

Table 12.6.2 (continued): Minimum Isolation Distances Required Between Select Plots and Other Crops

Select Plot Crop	Other Crops	Isolation Distance Required
Rye	- Inspected pedigreed Rye of same variety - Barley, Buckwheat, Durum, Oat, Triticale, Wheat	3 meters (10 feet)
	- Crop planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 400 meters (1,320 feet) from non-pedigreed or different varieties of Rye
	- An adjacent crop that has more than 0.5% plants of Rye	150 meters (492 feet)
	- Different varieties of Rye - Non-pedigreed Rye - Inspected pedigreed Rye of same variety contaminated with off-types or other varieties of Rye	400 meters (1,320 feet)
Soybean	- Inspected pedigreed Soybean of same variety - Bean, Chickpea, Fababean, Lentil, Lupin, Pea, Peanut	3 meters (10 feet)
	- Different varieties of Soybean - Non-pedigreed Soybean - Inspected pedigreed Soybean of same variety contaminated with off-types or other varieties of Soybean	10 meters (33 feet)
Triticale	- Inspected pedigreed Triticale of same variety - Barley, Buckwheat, Durum, Oat, Rye, Wheat	3 meters (10 feet)
	- Different varieties of Triticale - Non-pedigreed Triticale - Inspected pedigreed Triticale of same variety contaminated with off-types or other varieties of Triticale	30 meters (100 feet)
Wheat	- Inspected pedigreed Wheat of same variety - Barley, Buckwheat, Durum, Oat, Rye, Triticale	3 meters (10 feet)
	- Different* varieties of Wheat - Non-pedigreed Wheat - Inspected pedigreed Wheat of same variety contaminated with off-types or different*varieties of Wheat	10 meters (33 feet)

* In crops of pest tolerant varietal blends, "different" variety means a variety other than the varieties prescribed in the description of the pest tolerant variety.

12.6.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

12.6.4 **Maximum Impurity Standards**

The inspector makes 6 counts (20,000 plants each) in the plot to determine the number of impurities. The resulting average must not exceed the maximum impurity standards.

a) The plot must not contain more than 1 plant in approximately 20,000 plants of another variety or off-type unless variants are specified by the responsible Breeder.

b) In a **Soybean** plot, the plot must not contain more than 2 plants in approximately 20,000 plants of another variety or off-type unless otherwise specified by the Breeder of the variety.

c) The plot must not contain more than 1 plant in approximately 20,000 plants of other crop kinds difficult to separate from the seed produced in the plot.

12.7 RECOMMENDED PROCEDURES FOR THE PRODUCTION OF PROBATION AND SELECT PLOTS

12.7.1 **Planting of Plots**

a) The plot should be planted in such a manner as to facilitate inspection and effective removal of plants of off-types, other varieties, other kinds and weeds.
b) **Bean**, **Chickpea**, **Fababean**, **Fenugreek**, **Lentil**, **Pea** and **Soybean** should be planted in rows over 18 cm (7 inches) apart.
c) To facilitate roguing and harvesting, the seed should be sown in single or double rows or in blocks of 4 to 6 rows with a space of approximately 50 cm (20 inches) between rows or blocks of rows.
d) Plots should be planted in areas easily accessible for frequent maintenance and provide the maximum protection from outside sources of contamination, such as roadways and building sites.
e) Plots susceptible to ergot should not be located adjacent to grassland.
f) Regulations for land requirements are minimum standards and caution is necessary in choosing land, as volunteer growth from previous crops may vary according to local conditions.
g) The regulations for isolation are minimum standards. It is always to the grower's advantage to provide more isolation than required.
h) When planting Probation and Select plots, specific requirements may influence the location and size of the plot. It is a safeguard if adjacent crops are the same variety as the plot and are inspected for pedigreed status.

12.7.2 **Roguing of Probation and Select Plots**

a) The plot must be thoroughly and intensively rogued many times throughout the crop season.
b) The numbers and kinds of plants removed should be recorded and described on the *Report of Plot Production* (Form 50).
c) All rogued plants must be removed from the plot area.

12.7.3 **Harvesting, Cleaning and Storing of Probation and Select Plots**

a) A Probation or Select plot grower should have access to the necessary equipment for harvesting and cleaning the seed from the plot in such a manner as to ensure that the varietal purity of the seed is maintained.
b) The seed should be stored in a clean, cool, dry area.
c) The seed containers should be labelled for identification.

12.7.4 **Probation and Select Plot Grower Courses**

a) Probation and Select plot growers are encouraged to attend courses on plot production.

SECTION 13

PROBATION AND FOUNDATION PLOT PRODUCTION OF CANOLA, MUSTARD, RADISH, RAPESEED, SAFFLOWER, AND SUNFLOWER

In this Section:

- ***Canola*** and ***Rapeseed*** includes spring and winter varieties of *Brassica napus, Brassica rapa*, and canola-quality *Brassica juncea*, except when otherwise indicated.
- ***Mustard*** includes varieties of Brown or Oriental types (*Brassica juncea*), White/Yellow types (*Sinapis alba*) and Ethiopian types (*Brassica carinata)*.
- ***Radish*** includes varieties of *Raphanus sativus.*

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

13.1 SEED CLASSES, GENERATIONS, DEFINITIONS AND TYPES

13.1.1 **Seed Classes**

a) Breeder: determined by the Breeder.
b) Foundation: one generation, grown by accredited Foundation plot growers.
c) Certified: one generation. Refer to Section 4.
d) For Certified Hybrid Canola and Rapeseed production, refer to Section 5.

13.1.2 For growers not accredited by the CSGA to grow Foundation plots and who plant crops with Breeder seed, the CSGA reserves the right to determine the status of the inspected crop and may issue a Certified crop certificate.

13.1.3 **Definitions**

a) Parent line or population: a relatively true breeding strain or selection used for seed crop production.
b) Inbred line: a relatively true breeding homozygous strain.
c) A line: line or population which is male sterile.
d) B line: male fertile line or population capable of maintaining male sterility.
e) Restorer line: line or population used as male parent which has the capability of restoring fertility to male sterile lines/populations when crossed onto them.
f) Self-incompatible (S.I.) line: male fertile line or population incapable of self-pollination due to self incompatibility.
g) Self-compatible (S.C.) line: male fertile line or population which is capable of self pollination.

13.1.4 **Types**

a) Single-cross hybrid: the first generation of a cross between two specified inbred lines or relatively homogeneous parent populations.
b) Foundation single-cross: a single-cross used in the production of a double-cross, a Foundation three-way cross hybrid or a top-cross hybrid.
c) Double-cross hybrid: the first generation of a cross between two Foundation single-cross hybrids.
d) Three-way cross hybrid: the first generation of a cross between an inbred parent line or parent population and a Foundation single-cross.

e) Top-cross hybrid: The first generation of a cross between an inbred parent line and an open pollinated variety.

13.2 PROBATION PLOT PRODUCTION

13.2.1 A grower wishing to produce a Foundation plot must receive permission from the CSGA before commencing Probation plot production.

13.2.2 An *Application to Commence Probation Plot Production* (Form 154) is available from the CSGA and should be submitted prior to March 31 for spring seeded crops and prior to July 31 for fall seeded crops.

13.2.3 The grower may be required to have grown Certified seed crops of the crop kind in which the grower is commencing Probation in at least 3 of the previous 5 crop years.

13.2.4 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Foundation plot grower status.
a) This status is granted to an individual seed grower only.
b) This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Foundation plot growers.

13.2.5 Breeder seed, approved by the CSGA, must be sown each year.

13.2.6 Breeder seed is obtained directly from the organization responsible for the variety. (Check with the distributor for deadline dates).

13.2.7 Probationary growers of Canola and Mustard may change varieties within the crop kind which they started their probation without receiving prior permission from the CSGA.

13.2.8 The status granted to plots grown during the Probation period is as follows:
a) First Year: provided all requirements are met, the First Year plot will be granted Foundation status. Breeder seed must be obtained for the Second Year plot.
b) Second Year: provided all requirements are met, the Second Year plot will be granted Foundation status. Breeder seed must be obtained for the Third Year plot.
c) Third Year: provided all requirements are met, the Third Year plot will be granted Foundation status. The grower is now eligible to grow Foundation and Select plots.

13.2.9 Any means of processing or conditioning of seed from a Probation plot which may contaminate the varietal purity of the seed is prohibited.

13.2.10 A *Report of Plot Production* (Form 50) for each Probation plot will be sent to the grower and must be completed and submitted to the CSGA.

13.2.11 A sample of clean seed from each Probation plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.

13.2.12 Probation plot growers may produce only one (1) plot in each year of Probation.

13.2.13 **Area of Probation Plot**

a) The area of the Foundation plot during the 3-year Probation period must not be less than 0.25 hectare (0.50 acre) nor exceed 0.5 hectare (1.25 acres).
b) When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of pedigreed seed. The remainder must meet the requirements for Probation plot production.
c) The total area of a Probation plot includes the "walkways" provided within the plot to facilitate effective roguing.

13.2.14 Probation plots in this section are subject to all Foundation plot production requirements.

13.3 FOUNDATION PLOT PRODUCTION

13.3.1 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Foundation plot grower status.

a) This status is granted to an individual seed grower only.
b) This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Foundation plot growers.

13.3.2 Plots for Foundation status must be planted with Breeder seed approved by the CSGA.

13.3.3 For Breeder seed information, growers should contact the Breeder or Canadian representative of the variety. Check with distributor for deadline dates.

13.3.4 Any means of processing or conditioning of seed from a Foundation plot, which may contaminate the varietal purity of the seed, is prohibited.

13.3.5 A *Report of Plot Production* (Form 50) for each Foundation plot will be sent to the grower and must be completed and submitted to the CSGA.

13.3.6 A sample of clean seed from each Foundation plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.

13.3.7 **Area of Foundation Plots**

a) There is no limit on total acreage of plots, number of crop kinds, number of varieties or acreage of one variety. Each plot is limited to 1 hectare (2.5 acres) in size.
b) When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of pedigreed seed. The remainder of the plot must meet the requirements for Foundation plot production.

13.4 LAND REQUIREMENTS

13.4.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

13.4.2 Plots for Foundation status of Canola, Mustard, Radish and Rapeseed must not be planted on land which in the previous 5 years grew a crop of Canola, Mustard or Radish, or Rapeseed.

13.4.3 Plots for Foundation status of Safflower and Sunflower must not be planted on land which produced a crop of the same kind in the previous year.

13.5 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section.

13.5.1 It is the grower's responsibility to ensure that plots are inspected by an authorized inspector prior to swathing or harvesting.

13.5.2 A plot that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

13.5.3 The plot must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

13.5.4 For **Canola, Mustard, Radish** and **Rapeseed**, inspection must be made when the crop is in the early flowering stage in order to best determine varietal purity. A crop not inspected at this stage may be cause for not granting pedigreed status.

13.5.5 For **Safflower**, field inspection should be made during the bloom stage but not before at least 50 percent of the plants are showing one or more blossoms.

13.5.6 For **Sunflower**, field inspection should be made after the crop is at least 50 percent in bloom and before it is fully matured.

13.6 CROP STANDARDS

13.6.1 **Minimum Isolation Distances Required Between Foundation Plots and Other Crops**

a) Under optimum conditions, not more than 3 plants per square meter of harmful contaminants (such as species in Section 13.8.3 that can cross-pollinate with the inspected crop) are permitted within the required isolation distance(s) adjacent to the inspected crops. The conditions of each crop are assessed by the CSGA which may alter this standard, usually by reducing the number of contaminant plants permitted per square meter, according to the contamination risks involved.

b) Harmful contamination within the required isolation distance, depending on density, location and distance from the inspected crop, may be cause for declining pedigreed status. Harmful contaminants for crop certification include the species in Section 13.8.3. More information on other potential harmful contaminants, that are not crop certification requirements, is available from the CFIA's Biology reference documents at: www.inspection.gc.ca.

c) The required isolation must be provided prior to the time of flowering and crop inspection.

Table 13.6.1: Minimum Isolation Distances Required Between Foundation Plots and Other Crops

Foundation Plot Crop	Other Crops	Isolation Distance Required
To produce the parent seed of Hybrid Canola, Hybrid Rapeseed and synthetic/ composite varieties: **Canola** and **Rapeseed** (*Brassica napus*, *Brassica rapa* and canola-quality *Brassica juncea*), planted with Breeder seed (A, B, R, S.C. and S.I. lines)	- Different varieties of Canola, Rapeseed crops - Non-pedigreed crops of the same kind	800 meters (2624 feet) or more, as specified by the Breeder
	- Planted with Certified seed crops of the same variety (except S.I. lines)	3 meters (10 feet) to a crop planted with Foundation seed of the same pollen bearing (male) parent, provided the pedigree of the Foundation seed used can be established and the prescribed isolation distance is free from harmful contaminants, i.e. other species which will cross pollinate with the inspected crop and includes A line pollen shedders.
	- Planted with Breeder or Foundation seed of the same variety	3 meters (10 feet)
	- Brown or Oriental or Ethiopian Mustard	200 meters (656 feet), provided the adjacent crop is free from harmful contamination (e.g. other species that can cross pollinate with the inspected crop) for a distance of 800 meters (2624 feet)
	- White/Yellow Mustard, Radish or Camelina	3 meters (10 feet), provided the adjacent crop is free from harmful contamination for a distance of 800 meters (2624 feet)

Table 13.6.1 (continued):
Minimum Isolation Distances Required Between Foundation Plots and Other Crops

Foundation Plot Crop	Other Crops	Isolation Distance Required
To produce the parent seed of Open-pollinated varieties: Canola and **Rapeseed** (*Brassica napus*, canola-quality *Brassica juncea*)	- Different varieties of Canola, Rapeseed - Non-pedigreed crops of the same crop kind	200 meters (656 feet)
	- Planted with Certified seed of the same variety	100 meters (328 feet), provided the pedigree of the Certified seed used can be established and the adjacent crop is free from harmful contamination (e.g. other species that can cross-pollinate with the inspected crop) for a distance of 200 meters (656 feet)
	- Brown or Oriental or Ethiopian Mustard	100 meters (328 feet), provided the adjacent crop is free from harmful contamination (e.g. other species that can cross-pollinate with the inspected crop) for a distance of 200 meters (656 feet)
	- White/Yellow Mustard, Radish or Camelina	3 meters (10 feet), provided the adjacent crop is free of Canola or Rapeseed plants for a distance of 200 meters (656 feet)
	- Planted with Breeder or Foundation seed of the same variety	3 meters (10 feet)

Table 13.6.1 (continued):
Minimum Isolation Distances Required Between Foundation Plots and Other Crops

Foundation Plot Crop	Other Crops	Isolation Distance Required
To produce the parent seed of Open-pollinated varieties: Canola and **Rapeseed** (*Brassica rapa)*	- Different varieties of Canola, Rapeseed (*Brassica rapa*) - Non-pedigreed crops of the same kind	400 meters (1312 feet)
	- Planted with Certified seed of the same variety	100 meters (328 feet), provided the pedigree of the Certified seed used can be established and the adjacent crop is free from harmful contamination (e.g., other species that can cross-pollinate with the inspected crop) for a distance of 400 meters (1312 feet)
	- Brown or Oriental or Ethiopian Mustard - *Brassica napus, Brassica juncea*	100 meters (328 feet), provided the adjacent crop is free from plants of *Brassica rapa* species for 400 meters (1312 feet)
	- White/Yellow Mustard, Radish or Camelina	3 meters (10 feet), provided the adjacent crop is free of Canola or Rapeseed plants for a distance of 400 meters (1312 feet)
	- Planted with Breeder or Foundation seed of the same variety	3 meters (10 feet)

Table 13.6.1 (continued):
Minimum Isolation Distances Required Between Foundation Plots and Other Crops

Foundation Plot Crop	Other Crops	Isolation Distance Required
Brown or Oriental Mustard and canola-quality *Brassica juncea*	- Different varieties of Brown or Oriental Mustard - Non-pedigreed crops of the same kind	200 meters (656 feet)
	- Planted with Certified seed of the same variety	100 meters (328 feet), provided the pedigree of the Certified seed used can be established and the adjacent crop is free from harmful contamination (e.g. other species that can cross-pollinate with the inspected crop) for a distance of 200 meters (656 feet)
	- Canola, Rapeseed, Ethiopian Mustard	100 meters (328 feet), provided the adjacent crop is free of plants of Brown or Oriental Mustard for 200 meters (656 feet)
	- White/Yellow Mustard, Radish or Camelina	3 meters (10 feet), provided the adjacent crop is free of Canola, Oriental, Brown or Ethiopian Mustard or Rapeseed for a distance of 200 meters (656 feet)
	- Planted with Breeder or Foundation seed of the same variety	3 meters (10 feet)
White/Yellow Mustard or Radish	- Different varieties of White/Yellow Mustard or Radish - Non-pedigreed crops of the same kind	400 meters (1312 feet)
	- Planted with Certified seed of the same variety	100 meters (328 feet), provided the pedigree of the Certified seed used can be established.
	- Canola, Rapeseed, Oriental, Brown or Ethiopian Mustard or Camelina	3 meters (10 feet), provided the adjacent crop is free of plants of White/Yellow Mustard or Radish for 400 meters (1312 feet)
	- Planted with Breeder or Foundation seed of the same variety	3 meters (10 feet)

Table 13.6.1 (continued):
Minimum Isolation Distances Required Between Foundation Plots and Other Crops

Foundation Plot Crop	Other Crops	Isolation Distance Required
Ethiopian Mustard	- Different varieties of Ethiopian Mustard - Non-pedigreed crops of the same kind	200 meters (656 feet)
	- Planted with Certified seed of the same variety	100 meters (328 feet), provided the pedigree of the Certified seed used can be established and the adjacent crop is free from harmful contamination (e.g. other species that can cross-pollinate with the inspected crop) for a distance of 200 meters (656 feet)
	- Canola, Rapeseed, Brown or Oriental Mustard	100 meters (328 feet), provided the adjacent crop is free from harmful contamination (e.g. other species that can cross pollinate with the inspected crop) for a distance of 200 meters (656 feet)
	- White/Yellow Mustard, Radish or Camelina	3 meters (10 feet), provided the adjacent crop is free of Ethiopian Mustard for a distance of 200 meters (656 feet)
	- Planted with Breeder or Foundation seed of the same variety	3 meters (10 feet)
Safflower	- Different varieties of Safflower - Non-pedigreed crops of Safflower	400 meters (1312 feet)
	- Foundation or Certified crop of the same variety	3 meters (10 feet)
Sunflower	- Different varieties of Sunflower - Non-pedigreed crops of Sunflower - Wild annual Sunflower - Volunteer Sunflower plants	805 meters (2640 feet)
	- Foundation or Certified crop of the same variety	3 meters (10 feet)

13.6.2 **Border Rows**

a) Must be planted with the same seed as the pollen (male) parent rows.
b) Must be planted such that synchronous flowering occurs with pollen (male) parent rows and, more importantly, with receptive female parent plants of the inspected crop.

13.6.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) The presence of either Cleavers Bedstraw or Wild Mustard in the Canola, Mustard, Radish or Rapeseed plot is cause for declining pedigreed status.
d) Very weedy plots may be declined pedigreed status.

13.6.4 **Maximum Impurity Standards**

The inspector makes 6 counts (20,000 plants each) in the plot to determine the number of impurities. The resulting average must not exceed the maximum impurity standards.

a) A Canola, Mustard, Radish or Rapeseed plot for Foundation status, unless variants are specified by the responsible Breeder, must not contain more than 1 plant in approximately 20,000 plants of harmful contaminants (species in Section 13.8.3 that may cross pollinate successfully with the inspected crop), other varieties or distinct off-types.
b) A Canola, Mustard, Radish or Rapeseed plot for Foundation status, unless exceptions are specified by the responsible Breeder, must not contain more than 1 plant in approximately 20,000 plants of other crop kinds, the seeds of which are difficult to separate from the crop presented for pedigreed status, e.g., Mustard in Canola or Rapeseed.
c) For Safflower, the maximum standard permitted is 1 per 10,000 plants.
d) For Sunflower, the maximum standard allowed is one-half of 1 percent (0.5%) that is 1 plant per 200 plants of inspected crop, of other varieties or clearly distinguishable off-types.

13.7 RECOMMENDED PROCEDURES FOR THE PRODUCTION OF PROBATION AND FOUNDATION PLOTS

13.7.1 **Planting of Plots**

a) The plot should be planted in such a manner as to facilitate inspection, roguing and harvesting.
b) Plots should be planted in areas easily accessible for frequent maintenance and provide the maximum protection from outside sources of contamination, such as roadways and building sites.
c) Regulations for land requirements are minimum standards and caution is necessary in choosing land, as volunteer growth from previous crops may vary according to local conditions.
d) The regulations for isolation are minimum standards. It is always to the grower's advantage to provide more isolation than required.
e) When planting Probation and Foundation plots, specific requirements may influence the location and size of the plot. It is a safeguard if adjacent crops are the same variety as the plot and are inspected for pedigreed status.

13.7.2 **Roguing of Probation and Foundation Plots**

a) The plot must be thoroughly and intensively rogued many times throughout the crop season.
b) The numbers and kinds of plants removed should be recorded and described on the *Report of Plot Production* (Form 50).
c) All rogued plants must be removed from the plot area.

13.7.3 **Harvesting, Cleaning and Storing of Probation and Foundation Plots**

a) A Probation or Foundation plot grower should have access to the necessary equipment for harvesting and cleaning the seed from the plot in such a manner as to ensure that the varietal purity of the seed is maintained.
b) The seed should be stored in a clean, cool, dry area.
c) The seed containers should be labelled for identification.

13.7.4 **Probation and Foundation Plot Grower Courses**

a) Probation and Foundation plot growers are encouraged to attend courses on plot production.

13.8 SPECIFIC REQUIREMENTS

13.8.1 Probation and Foundation plot growers may be required to submit to the CSGA the results from a recognized laboratory indicating the erucic acid and/or glucosinolate content of Canola varieties. A crop certificate may be issued if the seed meets the officially recognized variety description standards.

13.8.2 In the case of canola-quality *Brassica juncea*, Probation and Foundation plot growers must submit to the CSGA the results from a recognized laboratory indicating the allyl glucosinolate level of a crop. A crop certificate may be issued if the seed meets the maximum standard of 1 micro mole of allyl glucosinolate per gram of seed.

13.8.3 Species considered harmful contaminants for crop certification, that may cross pollinate successfully with inspected crops of species in this Section, include the following:

- *B. juncea:* Brown or Oriental Mustard;
- *B. napus:* Argentine Canola;
- *B. rapa:* Polish Canola;
- *S. alba*: White or Yellow Mustard;
- *R. raphanistrum*: Wild Radish;
- *R. sativus:* Radish.

SECTION 14

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF OTHER CROPS

In addition to the crop kinds in this Section, Regulations are available from the CSGA for pedigreed seed crop production of other crops.

14.1 Millet

14.2 Sorghum

14.3 Hybrid Sorghum

14.4 Hybrid Alfalfa

14.5 Coriander

14.6 Hybrid Pearl Millet

14.7 Niger

14.8 Peanut

14.9 Fenugreek

14.10 Camelina

14.11 Hybrid Asparagus

14.12 Sugar Beet

14.13 Dill

14.14 Borage

SECTION 14.1

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF CROSS-POLLINATED MILLET

In this Section:

- ***Cross-Pollinated Millet*** includes all varieties of cross-pollinated Millet (*Panicum miliaceum).*
- ***Millet*** includes all Millet (*Panicum miliaceum*) including self-pollinated Millet but excluding Pearl Millet ((*Pennisetum glaucum).*

Regulations for production of Self-Pollinated Millet are in Section 14.1.2.
Regulations for production of Hybrid Pearl Millet (*Pennisetum glaucum)* are in Section 14.6.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.1.1 SEED CLASSES AND GENERATIONS

14.1.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

14.1.1.2 For Select and Probation plot production, refer also to the plot requirements of Section 12. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.1.1.3 For those growers who are not accredited by CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

14.1.2 LAND REQUIREMENTS

14.1.2.1 Cross-Pollinated Millet crops must not be grown on land which in the previous year grew a non-pedigreed crop of Millet or a different variety of Millet.

14.1.2.2 Cross-Pollinated Millet crops must not be grown on land which in the previous year grew a crop of Canola, Mustard, Oilseed Radish or Rapeseed.

14.1.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.1.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.1.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.1.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.1.3.4 For Foundation and Registered crops: A first crop inspection should be made after the crop is headed, preferably at the half-bloom stage (when 50 percent of the plants are showing one or more blossoms). A second crop inspection should be made before harvest after the seed begins to assume a mature colour.
For Certified crops: A crop inspection is required before harvest after the seed begins to assume a mature colour.

14.1.4 CROP STANDARDS

14.1.4.1 **Isolation**

a) Cross-Pollinated Millet crops for Foundation or Registered status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Millet or from a non-pedigreed crop of Millet.
b) Cross-Pollinated Millet crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Millet or from a non-pedigreed crop of Millet.
c) Isolation between Millets of a different genus shall be 2 meters (6 feet).
d) The required isolation must be provided prior to the time of flowering and crop inspection.

14.1.4.2 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Some weeds and other crop kinds can produce seeds that are difficult to separate from Cross-Pollinated Millet. Seed crops with excessive numbers of these difficult to separate weeds or other crop kinds may be declined pedigreed status.

14.1.4.3 **Maximum Impurity Standards**

The maximum impurity levels outlined in Table 14.1.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.1.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in each class		
	Foundation	**Registered**	**Certified**
Other varieties of Cross-Pollinated Millet	1 per 20,000 plants	1 per 10, 000 plants	1 per 5,000 plants

SECTION 14.1.2

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF SELF-POLLINATED MILLET

In this Section:

- ***Self-Pollinated Millet*** includes all varieties and types of self-pollinated Millet (*Panicum Miliaceum)* including Proso and Foxtail.
- ***Millet*** includes all Millet (*Panicum miliaceum)* including cross-pollinated Millet but excluding Pearl Millet ((*Pennisetum glaucum).*

Regulations for production of Cross-Pollinated Millet are in Section 14.1.
Regulations for production of Hybrid Pearl Millet (*Pennisetum glaucum)* are in Section 14.6.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.1.2.1 SEED CLASSES AND GENERATIONS

14.1.2.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

14.1.2.1.2 For Select and Probation plot production, refer also to the plot requirements of Section 12. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.1.2.1.3 For those growers who are not accredited by CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

14.1.2.2 LAND REQUIREMENTS

14.1.2.2.1 Self-Pollinated Millet crops must not be grown on land which in the previous year grew a non-pedigreed crop of Millet-*Self Pollinated* or a different variety of Millet.

14.1.2.2.2 Self-Pollinated Millet crops must not be grown on land which in the previous year grew a crop of Canola, Mustard, Oilseed Radish or Rapeseed.

14.1.2.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.1.2.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.1.2.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.1.2.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.1.2.3.4 A crop inspection is required before harvest after the crop is headed and the seed begins to assume a mature colour.

14.1.2.4 CROP STANDARDS

14.1.2.4.1 **Isolation**

a) Self-Pollinated Millet crops must be isolated by a distance of 3 meters (10 feet) from other varieties of Millet or from a non-pedigreed crop of Millet.
b) Self-Pollinated Millet crops must be isolated by a distance of 1 meter (3 feet) from inspected Self-Pollinated Millet of the same variety.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

14.1.2.4.2 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Some weeds and other crop kinds can produce seeds that are difficult to separate from Self-pollinated Millet. Seed crops with excessive numbers of these difficult to separate weeds or other crop kinds may be declined pedigreed status.

14.1.2.4.3 **Maximum Impurity Standards**

The maximum impurity levels outlined in Table 14.1.2.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.1.2.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in each class		
	Foundation	Registered	Certified
Other varieties of Self-Pollinated Millet	1 per 3,000 plants	1 per 2,000 plants	1 per 1,000 plants

SECTION 14.2

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF SORGHUM

In this Section:

- ***Sorghum*** includes all varieties of Sorghum (*Sorghum vulgare).*

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.2.1 SEED CLASSES AND GENERATIONS

14.2.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

14.2.1.2 For Foundation and Probation plot production, refer also to the plot requirements of Section 13. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.2.1.3 For those growers who are not accredited by CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

14.2.2 LAND REQUIREMENTS

14.2.2.1 Sorghum crops must not be grown on land which in the previous year grew a non-pedigreed crop of Sorghum or a different variety of Sorghum.

14.2.2.2 Sorghum crops must not be grown on land which in the previous year grew a crop of Sudangrass or Broomcorn.

14.2.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.2.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.2.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.2.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.2.3.4 For Foundation and Registered crops: A first crop inspection should be made after the crop is headed, preferably at the half-bloom stage (when 50 percent of the plants are showing one or more blossoms). A second crop inspection should be made before harvest after the seed begins to assume a mature colour.
For Certified crops: A crop inspection is required before harvest after the seed begins to assume a mature colour.

14.2.4 CROP STANDARDS

14.2.4.1 Isolation

a) Sorghum crops for Foundation or Registered status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Sorghum, from a non-pedigreed crop of Sorghum and from Sudangrass and Broomcorn.
b) Sorghum crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Sorghum, from a non-pedigreed crop of Sorghum and from Sudangrass and Broomcorn. The required isolation must be provided prior to the time of flowering and crop inspection.

14.2.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

14.2.4.3 Maximum Impurity Standards

The maximum impurity levels outlined in Table 14.2.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.2.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in each class		
	Foundation	Registered	Certified
Other varieties of Sorghum	1 per 20,000 plants	1 per 10, 000 plants	1 per 5,000 plants

SECTION 14.3

FOUNDATION AND CERTIFIED PRODUCTION OF HYBRID SORGHUM

In this Section:

- ***Hybrid Sorghum*** includes all varieties of Hybrid Sorghum (*Sorghum vulgare).*
- ***Sorghum*** includes all Sorghum (*Sorghum vulgare).*

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.3.1 SEED CLASSES AND GENERATIONS

14.3.1 The number of official pedigreed classes is determined by the Breeder of the variety and Foundation parental material is normally planted to produce Certified hybrid crops.

14.3.2 Foundation seed: limited to one generation.

14.3.3 Certified seed: limited to one generation.

14.3.2 LAND REQUIREMENTS

14.3.2.1 Hybrid Sorghum crops must not be grown on land which in the previous year grew a non-pedigreed crop of Sorghum or a different variety of Sorghum unless the previous crop was a pedigreed crop of one or both of the parents of the inspected hybrid crop.

14.3.2.2 Hybrid Sorghum crops must not be grown on land which in the previous year grew a crop of Sudangrass or Broomcorn..

14.3.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.3.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.3.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.3.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.3.3.4 Two crop inspections shall be made during the bloom stage, one in early bloom and one in full bloom. A third crop inspection shall be made befor harvest but after the seed begins to assume mature colour.

14.3.4 CROP STANDARDS

14.3.4.1 Isolation

a) Sorghum parental material crops for Foundation status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Sorghum, from a non-pedigreed crop of Sorghum or from Sudangrass or Broomcorn.
b) Hybrid Sorghum crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Sorghum or from a non-pedigreed crop of Sorghum and 400 meters from Sudangrass or Broomcorn.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

14.3.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

14.3.4.3 Maximum Impurity Standards

The maximum impurity levels outlined in Table 14.3.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.3.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted At One Crop Inspection	
Other varieties of Sorghum	**Foundation**	**Certified**
Definite	1 per 50,000 plants	1 per 20,000 plants
Doubtful	1 per 20,000 plants	1 per 1,000 plants

14.3.5 SPECIFIC REQUIREMENTS

14.3.5.1 Flowering

At any one crop inspection, the maximum pollen shedding permitted by seed (female) parent plants is 1 per 3,000 plants for Foundation crops and 1 per 1,500 plants for Certified hybrid crops.

SECTION 14.4

PRODUCTION OF HYBRID ALFALFA

In this Section:

- ***Hybrid Alfalfa*** includes all varieties of Hybrid Alfalfa (*Medicago sativa*) but not interspecific hybrids of *Medicago sativa* and *Medicago falcata* .

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.4.1 SEED CLASSES AND GENERATIONS

14.4.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and either Select Synthetic or Foundation status parental material is normally planted to maintain male sterile parent material and to produce Certified hybrid crops.

Currently in Canada, hybrid alfalfa production involves the blending of parental seed lines in specific ratios. Select Synthetic or Foundation seed of male and female lines are blended in a specific proportion under the supervision of the plant breeder. The ratio of male sterile and either maintainer line or male fertile line shall not be more than 2:1.

14.4.2 LAND REQUIREMENTS

14.4.2.1 Hybrid Alfalfa crops must not be grown on land which in the previous two (2) years grew a non-pedigreed crop of Alfalfa or a different variety of Alfalfa.

14.4.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.4.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.4.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.4.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.4.3.4 A crop inspection shall be made during the bloom stage, after 75% of the plants are showing one or more blossoms but before most seed has set. At the time of crop inspection, the Pollen Production Index (PPI) of the male sterile (female) parent must be determined as explained in the Specific Requirements in Section 14.4.5.1.

14.4.4 AGE OF STAND

14.4.4.1 The pedigreed class of the seed crop will vary by crop species, the number of classes designated by the Breeder or the authorized agent of the Breeder and the Age of Stand.

14.4.4.2 Additional limitations on Age of Stand through which a variety may be multiplied outside the region of adaptation may be specified by the Breeder or the authorized agent of the Breeder.

14.4.4.3 For most perennial crops there is a specified number of years during which pedigreed seed may be harvested from one planting.

14.4.4.4 **Calculating Age of Stand**

a) If rejuvenation is used as a management practice, it will count as a year of production in calculating the Age of Stand.
b) For calculating Age of Stand, the first seed crop is the first year in which a seed crop could normally be harvested, irrespective of time or method of planting.
c) Each calendar year thereafter will be considered a seed crop year. For example: Alfalfa sown without a companion crop in the fall is normally considered capable of seed production the following year. Alfalfa seeded with pedigreed seed of Winter Wheat as a companion crop in the fall will be considered for the first year of seed production in the second year after planting.

14.4.5 CROP STANDARDS

14.4.5.1 **Isolation**

a) Hybrid Alfalfa female parent crops for Foundation status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Alfalfa or from a non-pedigreed crop of Hybrid Alfalfa.
b) Hybrid Alfalfa crops for Certified status, or male parent crops for Foundation status, must be isolated by a distance of 50 meters (165 feet) from other varieties of Alfalfa or from a non-pedigreed crop of Hybrid Alfalfa.
c) In producing either Foundation parent material or Certified hybrid crops of the same variety, at least 3 metres (10 feet) isolation is required between crops.
d) The required isolation must be provided prior to the time of flowering and crop inspection.

14.4.5.2 **Border Removal in Lieu of Isolation for Certified Crops of Hybrid Alfalfa**

a) For a Certified crop, 50 meters (165 feet) is normally required from the edge of the seed field to the nearest contaminating pollen source.
b) Contaminating sources of pollen include: a crop of a different variety of Alfalfa; a crop sown with commercial Alfalfa seed; or a crop of Alfalfa where the seed sown cannot be verified as being pedigreed seed.
c) If crop area is more than 5 acres and the isolation distance provided is less than 50 meters (165 feet), then the area of the seed crop to be discarded is determined by the procedure outlined in Chart 14.4.5.2 (next page) "Procedure for Determining Area of Alfalfa Seed Crop to be Discarded."

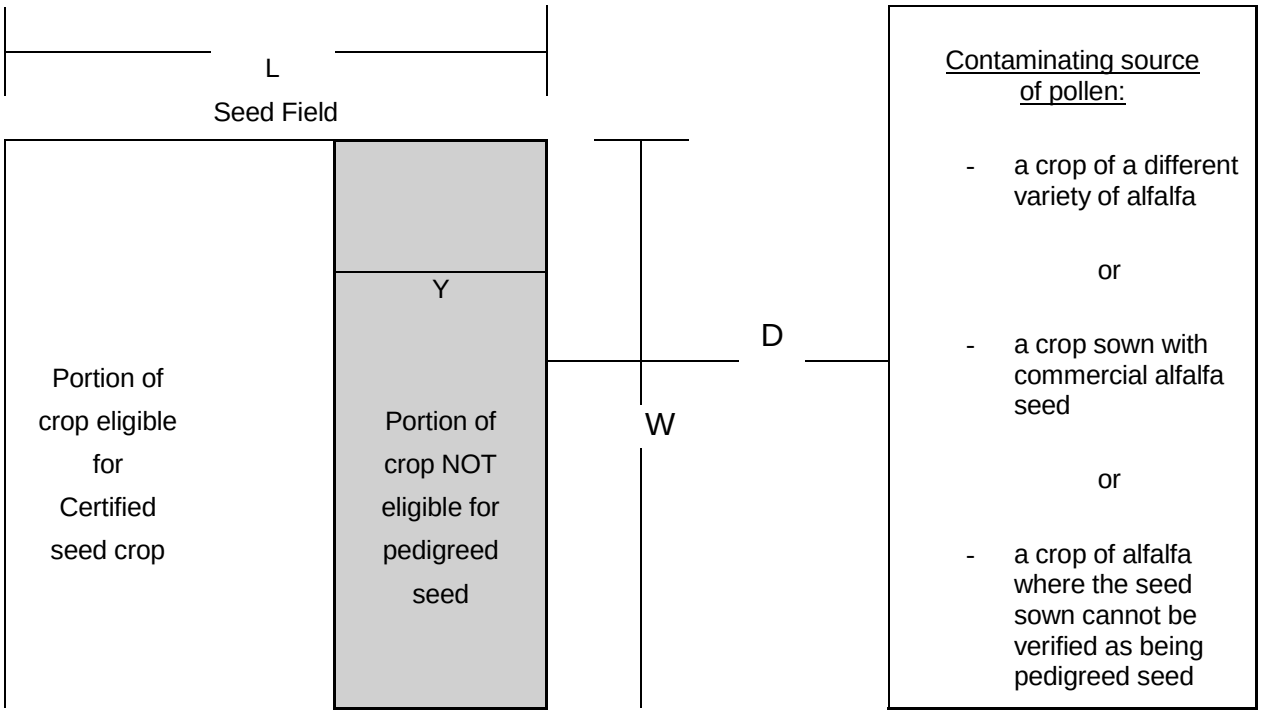
Chart 14.4.5.2:

PROCEDURE FOR DETERMINING AREA OF ALFALFA SEED CROP TO BE DISCARDED

L = length of seed field	W = width of seed field
Y = 50 meters minus D	L x W = total area of seed field
D = Distance	
W x Y = zone which may not be eligible for pedigree	

Example:
If L = 200 meters; W = 40 meters; D = 30 meters and Y = (50 - D) = 170 meters.

Calculation of ineligible area: W x Y (40 x 20) = 800; W x L = (40 x 200) = 8,000



If 10% or less of the Certified field is within the 50 meters (165 ft.) isolation zone (WxY), then 3 meters (10 ft.) of isolation is required. If more than 10% of the field is within the isolation zone (WxY), that part of the field must not be harvested as Certified seed. The isolation zone is that area calculated by multiplying the length (L) of the seed field by the average width (W) of the seed field falling within the 50 meters (165 ft.) isolation distance requirements, then a clear line of demarcation shall be established between the Certified and non-Certified portion of the field.

14.4.5.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

14.4.5.4 **Maximum Impurity Standards**

The maximum impurity levels outlined in Table 14.4.5.4 apply, unless variants are specified by the responsible Breeder.

Table 14.4.5.4: Maximum Impurity Standards

Impurity	Maximum Permitted	
	Foundation	Certified
Other varieties of Alfalfa	1 per 1,000 plants	1 per 1,000 plants

14.4.6 SPECIFIC REQUIREMENTS

14.4.6.1 **Pollen Production Index**

During crop inspection, at the bloom stage after 75% of the plants are showing one or more blossoms but before most seed has set, the Pollen Production Index (PPI) of the male sterile (female) parent must be determined. This is done by examining untripped flowers on 200 plants. Plants must be sampled in a manner that is representative of the crop and inspectors classify each of the 200 plants as:

Male Sterile (MS) - no pollen
Partially Male Sterile (PMS) - trace amount of pollen
Partially Fertile (PF) - substantially less than normal amount of pollen
Fertile (F) - normal pollen

To determine the PPI, the number of plants in each class of fertility must be multiplied by a factor, the results all classes are added together and divided by the total number of plants examined to come up with a Pollen Production Index (PPI) value for the crop. The factors are as follows:

MS multiply the number of plants by 0
PMS multiply the number of plants by 0.1
PF multiply the number of plants by 0.6
F multiply the number of plants by 1

As outlined in Table 14.4.6.1 below, the maximum allowable Pollen Production Index (PPI) for a Foundation crop would be 0.14. For crops with separate male and female plants, the maximum allowable PPI for a Certified crop with a 95% hybridity standard is 0.06 and the maximum allowable PPI for a Certified crop with a 75% hybridity standard is 0.42. For composite crops of male and female plants, the maximum allowable PPI for a Certified crop with a 75% hybridity standard is 0.25.

If less than 68% of the plants are male sterile, then no further examinations are required because the crop will not meet CSGA requirements. If more than 80% of the plants are male sterile, no further examinations are required because the crop will clearly meet CSGA requirements. If between 68% and 80% of the plants are male sterile, then another 100 plants shall be sampled and included in the calculation.

Table 14.4.6.1: Maximum Pollen Production Index (PPI)

Inspected Crop	Parent Seed Planted	Maximum PPI Index
Foundation	(A)* in rows	0.14
Certified	separate female and male	
95% hybrid	(A)* x (B)* in rows	0.06
75% hybrid	(A)* x (B)* in rows	0.42
	composite of female and male	
75% hybrid	((A)* x (B)*) + (C)*	0.25

* Parent Seed Identity

SECTION 14.5

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF CORIANDER

In this Section:

- ***Coriander*** includes all varieties of Coriander (*Coriandrum sativum).*

Section 1, *Regulations for All Pedigreed Seed Crops,* together with the following, constitute the production regulations.

14.5.1 SEED CLASSES AND GENERATIONS

14.5.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

14.5.1.2 For Select and Probation plot production, refer also to the plot requirements of Section 12. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.5.1.3 For those growers who are not accredited by the CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, the CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

14.5.2 LAND REQUIREMENTS

14.5.2.1 Coriander crops for Foundation or Registered pedigreed status must not be grown on land which in the preceding 5 years grew a different variety or non-pedigreed crop of Coriander.

14.5.2.2 Coriander crops for Certified pedigreed status must not be grown on land which in the preceding 3 years grew a different variety or non-pedigreed crop of Coriander.

14.5.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.5.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.5.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.5.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.5.3.4 A field inspection should be made during the bloom stage after at least 50 percent of the plants are showing one or more blossoms.

14.5.4 CROP STANDARDS

14.5.4.1 Isolation

a) Coriander crops for Foundation or Registered status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Coriander or from a non-pedigreed crop of Coriander.
b) Coriander crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Coriander or from a non-pedigreed crop of Coriander.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

14.5.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Wild Buckwheat (*Polygonum convolvulus*) plants can produce seeds that are difficult to separate from Coriander. Seed crops with excessive numbers of difficult to separate weeds or other crop kinds may be declined pedigreed status.

14.5.4.3 Maximum Impurity Standards

The maximum impurity levels outlined in Table 14.5.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.5.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in Each Class	
	Foundation and Registered	Certified
Other varieties of Coriander	1 per 30 sq. metres	1 per 10 sq. metres

SECTION 14.6

FOUNDATION AND CERTIFIED PRODUCTION OF HYBRID PEARL MILLET

In this Section:

- ***Hybrid Pearl Millet*** includes all varieties of hybrid Pearl Millet (*Pennisetum glaucum).*
- ***Pearl Millet*** includes all Pearl Millet (*Pennisetum glaucum)* but excludes all Self-Pollinated and all Cross-Pollinated Millet (*Panicum miliaceum*).

Regulations for production of Cross-Pollinated Millet (*Pennisetum glaucum)* are in Section 14.1. Regulations for production of Self-Pollinated Millet (*Pennisetum glaucum)* are in Section 14.6.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.6.1 SEED CLASSES AND GENERATIONS

14.6.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and Foundation parental material is normally planted to produce Certified hybrid crops.

14.6.1.2 Foundation seed: limited to one generation.

14.2.1.3 Certified seed: limited to one generation.

14.6.2 LAND REQUIREMENTS

14.6.2.1 Hybrid Pearl Millet crops must not be grown on land which in the previous year grew a non-pedigreed crop of Pearl Millet or a different variety of Pearl Millet.

14.6.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.6.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.6.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.6.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.6.3.4 A field inspection should be made during the bloom stage after 50 percent of the plants are showing one or more blossoms.

14.6.4 CROP STANDARDS

14.6.4.1 **Isolation**

a) Hybrid Pearl Millet crops for Foundation or Registered status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Pearl Millet or from a non-pedigreed crop of Pearl Millet.
b) Hybrid Pearl Millet crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Pearl Millet or from a non-pedigreed crop of Pearl Millet.
c) Isolation between Millets of a different genus shall be 2 meters (6 feet).
d) The required isolation must be provided prior to the time of flowering and crop inspection.

14.6.4.2 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

14.6.4.3 **Maximum Impurity Standards**

The maximum impurity levels outlined in Table 14.6.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.6.4.3: Maximum Impurity Standards

Impurity	**Maximum Permitted At Any One Crop Inspection**	
Other varieties of Pearl Millet	**Foundation**	**Certified**
Definite	1 per 50,000 plants	1 per 20,000 plants
Doubtful	1 per 20,000 plants	1 per 1,000 plants

14.6.5 SPECIFIC REQUIREMENTS

14.6.5.1 **Flowering**

At any one crop inspection, the maximum pollen shedding permitted by seed (female) parent plants is 1 per 3,000 plants for Foundation crops and 1 per 1,500 plants for Certified hybrid crops.

SECTION 14.7

FOUNDATION AND CERTIFIED PRODUCTION OF NIGER

In this Section:

- ***Niger*** includes all varieties of Niger (*Guizotia abysinnica)*.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.7.1 SEED CLASSES AND GENERATIONS

14.7.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation and Certified.

14.7.1.2 Foundation: limited to one generation. For Foundation and Probation plot production, refer also to the plot requirements of Section 13. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.7.1.3 For those growers who are not accredited by the CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, the CSGA reserves the right to determine the status of the crop and may issue a Certified crop certificate.

14.7.2 LAND REQUIREMENTS

14.7.2.1 Niger crops must not be grown on land which in the preceding 2 years grew a non-pedigreed crop of Niger or a different variety of Niger.

14.7.2.2 Niger crops must not be grown on land which in the previous year grew a crop of Canola, Mustard, Oilseed Radish or Rapeseed.

14.7.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.7.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.7.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.7.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.7.3.4 Inspection should be made during the bloom stage after at least 50 percent of the plants are showing one or more blossoms.

14.7.4 CROP STANDARDS

14.7.4.1 Isolation

a) Niger crops for Foundation status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Niger or from a non-pedigreed crop of Niger.
b) Niger crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Niger or from a non-pedigreed crop of Niger.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

14.7.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Some vetches (*Vicia* spp.) produce seeds that are difficult to separate from Niger seed. Seed crops with excessive numbers of difficult to separate weeds or other crop kinds may be declined pedigreed status.

14.7.4.3 Maximum Impurity Standards

The maximum impurity levels outlined in Table 14.7.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.7.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in Each Class	
	Foundation	Certified
Other varieties of Niger	1 per 30 sq. metres	1 per 10 sq. metres

SECTION 14.8

FOUNDATION AND CERTIFIED PRODUCTION OF PEANUT

In this Section:

- ***Peanut*** includes all varieties of Peanut (*Arachis hypogaea).*

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.8.1 SEED CLASSES AND GENERATIONS

14.8.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

14.8.1.2 For Select and Probation plot production, refer also to the plot requirements of Section 12. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.8.1.3 For those growers who are not accredited by the CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, the CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

14.8.2 LAND REQUIREMENTS

14.8.2.1 Peanut crops for pedigreed status must not be grown on land which in the previous year produced a different variety or non-pedigreed crop of Peanut.

14.8.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.8.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.8.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.8.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.8.4 CROP STANDARDS

14.8.4.1 **Isolation for All Crops in this Section**

a) The perimeter of the crop to be inspected must be clearly defined.
b) The required isolation in Table 14.8.4.2 (below) must be provided prior to the time of flowering and crop inspection.
c) Any plants considered a source of contamination found within 3 meters (10 feet) of the inspected crop may be reason for declining pedigreed status.

Table 14.8.4.2: Minimum Isolation Distances Required from Inspected Peanut Crop

Inspected Crop	Other Crops	Isolation Distance Required
Peanut	- Inspected pedigreed Peanut crop of same variety	1 meter (3 feet)
	- Bean, Fababean, Lentil, Lupin, Pea, Soybean - Different varieties of Peanut - Non-pedigreed crop of Peanut	3 meters (10 feet)

14.8.4.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

14.8.4.4 **Maximum Impurity Standards**

Impurity	Maximum Permitted in Each Class		
	Foundation	Registered	Certified
Other varieties of Peanut	10 per 10,000 plants	20 per 10,000 plants	50 per 10,000 plants

14.8.5 SPECIFIC REQUIREMENTS

14.8.5.1 Foundation status crops may require submission of a 1 lb. (500 gram) seed sample for varietal purity identification testing.

SECTION 14.9

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF FENUGREEK

In this Section:

- ***Fenugreek*** includes all varieties of Fenugreek (*Trigonella foenum-graecum).*

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.9.1 SEED CLASSES AND GENERATIONS

14.9.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

14.9.1.2 For Select and Probation plot production, refer to the plot requirements of Section 12. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.9.1.3 For those growers who are not accredited by CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

14.9.2 LAND REQUIREMENTS

14.9.2.1 Fenugreek crops must not be grown on land which in the previous year grew a non-pedigreed crop of Fenugreek or a different variety of Fenugreek.

14.9.2.2 Fenugreek crops should not be grown on land which in the previous year grew a crop of Canaryseed or Flax.

14.9.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.9.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.9.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.9.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.9.3.4 Inspection should be made during the bloom stage after at least 50 percent of the plants are showing one or more blossoms.

14.9.4 CROP STANDARDS

14.9.4.1 **Isolation**

a) Fenugreek crops for Foundation status must be isolated by a distance of 10 meters (33 feet) from other varieties of Fenugreek or from a non-pedigreed crop of Fenugreek .
b) Fenugreek crops for Certified status must be isolated by a distance of 3 meters (10 feet) from other varieties of Fenugreek or from a non-pedigreed crop of Fenugreek.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

14.9.4.2 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Flax and Canaryseed produce seeds that may be difficult to separate from Fenugreek and crops with excessive numbers of these impurities may be declined pedigreed status.

14.9.4.3 **Maximum Impurity Standards**

The maximum impurity levels outlined in Table 14.9.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.9.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in Each Class	
	Foundation and Registered	Certified
Other varieties of Fenugreek	1 per 10,000 plants	5 per 10,000 plants

SECTION 14.10

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF CAMELINA

In this Section:

- ***Camelina*** includes all varieties of Camelina (*Camelina sativa).*

Section 1, *Regulations for All Pedigreed Seed Crops,* together with the following, constitute the production regulations.

14.10.1 SEED CLASSES AND GENERATIONS

14.10.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation, Registered and Certified.

14.10.1.2 For Select or Probation plot production, refer to the plot requirements of Sections 12 or 13. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.10.1.3 For those growers who are not accredited by CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, CSGA reserves the right to determine the status of the crop and may issue a Registered or Certified crop certificate.

14.10.2 LAND REQUIREMENTS

14.10.2.1 Camelina crops must not be grown on land which in the previous year grew a non-pedigreed crop of Camelina or a different variety of Camelina.

14.10.2.2 Camelina crops must not be grown on land which in the previous year grew a crop of Canola, Mustard, Oilseed Radish or Rapeseed.

14.10.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.10.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.10.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.10.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.10.3.4 A field inspection should be made during the bloom stage but not before at least 50 percent of the plants are showing one or more blossoms.

14.10.4 CROP STANDARDS

14.10.4.1 Isolation

a) Camelina crops for Foundation, Registered and Certified status must be isolated by a distance of 1 meter (3 feet) from a crop of the same variety and 3 meters (10 feet) from crops of other varieties of Camelina or from a non-pedigreed crop of Camelina.
b) The required isolation must be provided prior to the time of flowering and crop inspection.

14.10.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Prickly Lettuce (*Lactuca serriola*), Stinkweed (*Thlaspi arvensis*) and Shepherds Purse (*Capsella bursa-pastoris*) plants can produce seeds that are difficult to separate from Camelina and seed crops with excessive numbers of these weeds may be declined pedigreed status.

14.10.4.3 Maximum Impurity Standards

The maximum impurity levels outlined in Table 14.10.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.10.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in Each Class		
	Foundation	Registered	Certified
Other varieties of Camelina	2 per 10,000 plants	5 per 10, 000 plants	10 per 10,000 plants

SECTION 14.11

CERTIFIED PRODUCTION OF HYBRID ASPARAGUS

In this Section:

- ***Hybrid Asparagus*** includes all varieties of hybrid asparagus (*Asparagus officinalis).*

Regulations for production of self-pollinated Asparagus (*Asparagus officinalis)* are in Section 19.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.11.1 SEED CLASSES AND GENERATIONS

14.11.1.1 The male and female planting stock used to establish Certified status hybrid asparagus crops must be tissue culture produced plants, or vegetative propagules of such plants, that have been produced in compliance with the production, maintenance and multiplication requirements of the CFIA directive (eg. D-97-08) for certification of Nuclear Stock class seed potatoes, and with the requirements of the recognized Breeder responsible for maintaining the variety.

14.11.1.2 Certification of hybrid asparagus is limited to Certified status crops

14.11.2 LAND REQUIREMENTS

14.11.2.1 Hybrid Asparagus crops must not be grown on land which in the previous year grew Asparagus. The land must also be free of volunteer asparagus plants at the time of planting.

14.11.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.11.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to harvesting.

14.11.3.2 A crop that is harvested prior to crop inspection is not eligible for pedigree.

14.11.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.11.3.4 At least one field inspection shall be made of Hybrid Asparagus crops during the mid-bloom stage.

14.11.4 CROP STANDARDS

14.11.4.1 **Isolation**

a) Hybrid Asparagus crops that are not produced in an enclosed protected environment, such as greenhouses, mesh tents or cages, and Hybrid Asparagus crops produced in a protected environment that is not in good condition, must be at least 1610 meters (5280 feet) from any other asparagus crops except pedigreed crops produced from the same pollen bearing (male) parent planting stock, which require a minimum isolation distance of at least 3 meters (10 feet).

b) Hybrid Asparagus crops that are produced in an enclosed protected environment, such as greenhouses, mesh tents or cages, that is in good condition, must meet the following isolation requirements:

i) Crops must be in an enclosure that is located at least 50 meters (164 feet) from any other asparagus crops except pedigreed crops produced from the same pollen bearing (male) parent planting stock or other pedigreed seed crops in enclosed protected environments that are in good condition, which require a minimum isolation distance of at least 3 meters (10 feet).

ii) Each enclosure may not contain plants of more than one pollen bearing (male) parent line.

c) The required isolation must be provided prior to flowering and crop inspection.

14.11.4.2 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

14.11.4.3 **Maximum Impurity Standards**

a) During flowering or pollination, the maximum number of plants of other varieties, off-types or volunteers permitted is ten (10) plants in approximately 10,000 plants in both male and female plants of the inspected crop.
b) The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average must not exceed the maximum impurity standard.
c) Impurities in pedigreed crops should be removed prior to crop inspection.

14.11.5 SPECIFIC REQUIREMENTS

14.11.5.1 CSGA may require submission of a seed sample for varietal identity verification testing.

SECTION 14.12

FOUNDATION AND CERTIFIED PRODUCTION OF SUGAR BEET

In this Section:

- ***Sugar Beet*** includes all varieties of sugar beet (*Beta vulgaris).*

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.12.1 SEED CLASSES AND GENERATIONS

a) Breeder: controlled by the Breeder
b) Foundation: one generation
c) Certified: one generation

14.12.2 LAND REQUIREMENTS

14.12.2.1 Sugar Beet crops for foundation or Certified status must not be planted on land which has been planted with or produced any *Beta vulgaris* during the preceding 5 years (60 months from harvest to planting).

14.12.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.12.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to harvesting.

14.12.3.2 A crop that is harvested prior to crop inspection is not eligible for pedigree.

14.12.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.12.3.4 Two field inspections shall be made of Sugar Beet crops. First inspections shall be made when plants are in the early leaf stage and second inspections are at the flowering stage.

14.12.3.5 Sugar Beet crops must be planted in distinct rows.

14.12.4 CROP STANDARDS

14.12.4.1 **Isolation**

a) Under optimum conditions, not more than 3 plants per square meter of harmful contaminants (other Sugar Beet varieties and all sub-species of genus *Beta*) are permitted within the required isolation distance(s) adjacent to the inspected crops. The conditions of each crop are assessed by the CSGA which may alter this standard, usually by reducing the number of contaminant plants permitted per square meter, according to the contamination risks involved.

b) Harmful contamination within the required isolation distance, depending on density, location and distance from the inspected crop, may be cause for declining pedigreed status. Harmful contaminants for crop certification include other Sugar Beet varieties and all other sub-species of genus *Beta*. Examples include Fodder Beet, Mangels, Red Beet and Swiss Chard.

c) The required isolation in Table 14.12.4.2 must be provided prior to the time of flowering and crop inspection.

Table 14.12.4.2: Minimum Isolation Distances Required from an Inspected Sugar Beet Crop to Other Crops

Inspected Crop	Other Crops	Minimum Isolation Distance Required
Foundation	Crops planted with Foundation seed of the same pollen source	3 meters (10 feet), provided the pedigree of the Foundation seed used can be established and the prescribed isolation distance is free from harmful contamination (i.e. other species which can cross pollinate with the inspected crop)
	Non-pedigreed Sugar Beet pollen source	1525 meters (5000 feet) or more, as specified by the Breeder
	Other or unknown pollinator of genus *Beta* (including fodder beet, mangel, red beet, swiss chard)	3110 meters (10200 feet)
Foundation -Varieties with Monogerm pollinator	- Monogerm pollinator sources	1525 meters (5000 feet)
Certified	Crops planted with Foundation seed of the same pollen source	3 meters (10 feet), provided the pedigree of the Foundation seed used can be established and the prescribed isolation distance is free from harmful contamination (i.e. other species which can cross pollinate with the inspected crop)
	Non-pedigreed Sugar Beet pollen source	975 meters (3200 feet) or more, as specified by the Breeder
	Other or unknown pollinator of genus *Beta* (including fodder beet, mangel, red beet, swiss chard)	2440 meters (8000 feet)
Certified -Varieties with Monogerm pollinator	- Monogerm pollinator sources	1525 meters (5000 feet)

14.12.4.2 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

14.12.4.3 **Maximum Impurity Standards**

a) During flowering or pollination, the maximum number of plants of other varieties, off-types or volunteers of genus *Beta* plants permitted in Certified status crops is fifty (50) plants in approximately 10,000 plants of the inspected crop (i.e. 0.5%).
b) During flowering or pollination, no plants of other varieties, off-types or volunteers of genus *Beta* plants are permitted in Foundation status crop (i.e. 0.0%).
c) The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average must not exceed the maximum impurity standard.
d) Impurities in pedigreed crops should be removed prior to crop inspection.

14.12.5 SPECIFIC REQUIREMENTS

14.12.5.1 CSGA may require submission of a seed sample for varietal identity verification testing.

SECTION 14.13

FOUNDATION AND CERTIFIED PRODUCTION OF DILL

In this Section:

- ***Dill*** includes all varieties of Dill (*Anethum graveolens)*.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.13.1 SEED CLASSES AND GENERATIONS

14.13.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation and Certified.

14.13.1.2 Foundation: limited to one generation. For Foundation and Probation plot production, refer also to the plot requirements of Section 13. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.13.1.3 For those growers who are not accredited by the CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder or Select seed, the CSGA reserves the right to determine the status of the crop and may issue a Certified crop certificate.

14.13.2 LAND REQUIREMENTS

14.13.2.1 Dill crops must not be grown on land which in the preceding 2 years grew a non-pedigreed crop of Dill or a different variety of Dill.

14.13.2.2 Dill crops must not be grown on land which in the previous year grew a crop of Canola, Mustard, Oilseed Radish or Rapeseed.

14.13.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.13.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.13.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.13.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.13.3.4 Inspection should be made during the bloom stage after at least 50 percent of the plants are showing one or more blossoms.

14.13.4 CROP STANDARDS

14.13.4.1 Isolation

a) Dill crops for Foundation status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Dill or from a non-pedigreed crop of Dill.
b) Dill crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Dill or from a non-pedigreed crop of Dill.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

14.13.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Some vetches (*Vicia* spp.) produce seeds that are difficult to separate from Dill seed. Seed crops with excessive numbers of difficult to separate weeds or other crop kinds may be declined pedigreed status.

14.13.4.3 Maximum Impurity Standards

The maximum impurity levels for off-types and other varieties of Dill are outlined in Table 14.13.4.3, unless variants are specified by the responsible Breeder.

Table 14.13.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in Each Class	
	Foundation	Certified
Off types and Other varieties of Dill	1 per 30 sq. metres	1 per 10 sq. metres

SECTION 14.14

FOUNDATION AND CERTIFIED PRODUCTION OF BORAGE

In this Section:

- ***Borage*** includes all varieties of Borage (*Borago officinalis)*.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

14.14.1 SEED CLASSES AND GENERATIONS

14.14.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation and Certified.

14.14.1.2 Foundation: limited to one generation. For Foundation and Probation plot production, refer also to the plot requirements of Section 13. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

14.14.1.3 For those growers who are not accredited by the CSGA to grow Probation or Foundation plots, and who plant crops with Breeder seed, the CSGA reserves the right to determine the status of the crop and may issue a Certified crop certificate.

14.14.2 LAND REQUIREMENTS

14.14.2.1 Borage crops must not be grown on land which in the preceding 2 years grew a non-pedigreed crop of Borage or a different variety of Borage.

14.14.2.2 Borage crops must not be grown on land which in the previous year grew a crop of Canola, Mustard, Oilseed Radish or Rapeseed.

14.14.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

14.14.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

14.14.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

14.14.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

14.14.3.4 Inspection should be made during the bloom stage after at least 50 percent of the plants are showing one or more blossoms.

14.14.4 CROP STANDARDS

14.14.4.1 Isolation

a) Borage crops for Foundation status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Borage or from a non-pedigreed crop of Borage.
b) Borage crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Borage or from a non-pedigreed crop of Borage.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

14.14.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.
d) Some vetches (*Vicia* spp.) produce seeds that are difficult to separate from Borage seed. Seed crops with excessive numbers of difficult to separate weeds or other crop kinds may be declined pedigreed status.

14.14.4.3 Maximum Impurity Standards

The maximum impurity levels outlined in Table 14.14.4.3 apply, unless variants are specified by the responsible Breeder.

Table 14.14.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted In Each Class	
	Foundation	Certified
Other varieties of Borage	1 per 30 sq. meters	1 per 10 sq. meters

SECTION 15

CERTIFIED PRODUCTION OF SAFFLOWER

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

15.1 SEED CLASSES AND GENERATIONS

15.1.1 Breeder seed: controlled by the Breeder. No generation limit.

15.1.2 Foundation seed: limited to one generation.

15.1.3 Certified seed: limited to one generation.

15.2 LAND REQUIREMENTS

15.2.1 Safflower crops must not be grown on land which grew a different variety of Safflower in the previous year.

15.2.2 Safflower crops must not be grown on land which grew a non-pedigreed crop of Safflower in the previous year.

15.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

15.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

15.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

15.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

15.3.4 A field inspection should be made during the bloom stage but not before at least 50 percent of the plants are showing one or more blossoms.

15.4 CROP STANDARDS

15.4.1 **Isolation**

a) Safflower crops for pedigreed status must be isolated by a distance of 400 meters (1312 feet) from other varieties of the same kind or from a non-pedigreed crop of Safflower.
b) The required isolation must be provided prior to the time of flowering and crop inspection.

15.4.2 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

15.4.3 **Maximum Impurity Standards**

The maximum impurity levels outlined in Table 15.4.3 apply, unless variants are specified by the responsible Breeder.

Table 15.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in each Class	
	Foundation	Certified
Other varieties	1 per 10,000 plants	5 per 10,000 plants

SECTION 16.1

FOUNDATION AND CERTIFIED PRODUCTION OF OPEN-POLLINATED SUNFLOWER

In this Section:

- ***Open-Pollinated Sunflower*** includes all varieties of open-pollinated Sunflower ***(****Helianthus annus*).
- ***Sunflower*** includes all Sunflower species (*Helianthus spp.*).

Regulations for production of Hybrid Sunflower *(Helianthus annus)* are in Section 16.2.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

16.1 SEED CLASSES AND GENERATIONS

16.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and are normally Foundation and Certified.

16.1.2 Foundation seed: limited to one generation. For Foundation and Probation plot production, refer also to the plot requirements of Section 13. Land and crop inspection requirements for plot production are the same as for Foundation status crops.

16.1.3 For those growers who are not accredited by CSGA to grow Probation, Select or Foundation plots, and who plant crops with Breeder seed, CSGA reserves the right to determine the status of the crop and may issue a Certified crop certificate.

16.2 LAND REQUIREMENTS

16.2.1 Open Pollinated Sunflower crops must not be grown on land which produced a crop of Sunflower in the previous year.

16.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

16.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

16.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

16.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

16.3.4 Crop inspection should be made after the crop is at least 50 per cent in bloom and before it is fully matured.

16.4 CROP STANDARDS

16.4.1 Isolation

a) Open-Pollinated Sunflower crops must be isolated by a distance of 805 meters (2640 feet) from other varieties, strains, hybrids, non-pedigreed crops of the same kind, volunteer Sunflower or wild annual Sunflower. Isolation distance between oil types, non-oil types and wild annual Helianthus species must be at least 1610 meters (5280 feet).
b) A distance of 3 meters (10 feet) must be provided from a crop of Open-Pollinated Sunflower planted with Foundation or Certified seed of the same variety.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

16.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

16.4.3 Maximum Impurity Standards

a) The maximum standard allowed is (0.5%), 50 plants per 10,000 plants of inspected crop, of other varieties or clearly distinguishable off-types. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

SECTION 16.2

PRODUCTION OF HYBRID SUNFLOWER

In this Section:

- ***Hybrid Sunflower*** includes all varieties of Hybrid Sunflower (*Helianthus annus*).
- ***Sunflower*** includes all Sunflower species (*Helianthus spp.*).

Regulations for production of Open Pollinated Sunflower *(Helianthus annus)* are in Section 16.1.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

16.2.1 SEED CLASSES AND GENERATIONS

16.2.1.1 The number of official pedigreed classes is determined by the Breeder of the variety and normally Foundation parental material is planted to produce Certified hybrid crops.

16.2.1.2 Foundation seed: limited to one generation.

16.2.1.3 Certified seed: limited to one generation.

16.2.2 LAND REQUIREMENTS

16.2.2.1 Hybrid Sunflower crops must not be grown on land which in the previous year grew a non-pedigreed crop of Sunflower or a different variety of Sunflower.

16.2.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

16.2.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

16.2.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

16.2.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

16.2.3.4 A first crop inspection shall be made during early bloom stage and a second crop inspection shall be made at full bloom stage.

16.2.4 CROP STANDARDS

16.2.4.1 Isolation

a) Hybrid Sunflower crops for Foundation or Registered status must be isolated by a distance of 400 meters (1312 feet) from other varieties of Hybrid Sunflower or from a non-pedigreed crop of Hybrid Sunflower.
b) Hybrid Sunflower crops for Certified status must be isolated by a distance of 200 meters (656 feet) from other varieties of Hybrid Sunflower or from a non-pedigreed crop of Hybrid Sunflower.
c) The required isolation must be provided prior to the time of flowering and crop inspection.

16.2.4.2 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

16.2.4.3 Maximum Impurity Standards

The maximum impurity levels outlined in Table 16.2.4.3 apply, unless variants are specified by the responsible Breeder.

Table 16.2.4.3: Maximum Impurity Standards

Impurity	Maximum Permitted in each class		
	Foundation	Registered	Certified
Other varieties of Sunflower	1 per 1,000 plants	1 per 1,000 plants	1 per 1,000 plants

16.2.5 SPECIFIC REQUIREMENTS

16.2.5.1 Flowering

At least 50 percent of the male parent plants must be flowering and producing pollen when the female parent is in full bloom. Female plants flowering and shedding pollen, before the male parent plants are shedding pollen, must be removed.

16.2.5.2 Roguing

In Foundation crops of parental materials, to be used for the production of Certified hybrids and in the male rows of Certified hybrid crops, all off-type plants must be removed before any cross pollination has occurred.

SECTION 17

CROPS OF CARROT, MANGEL AND RUTABAGA (TURNIP)

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

17.1 CLASSES, GENERATIONS AND REQUIREMENTS

17.1.1 Breeder: under the control of the Breeder.

17.1.2 Foundation: the progeny of Breeder. One generation.

17.1.3 Registered: the progeny of Breeder or Foundation. One generation.

17.1.4 Certified: the progeny of Breeder, Foundation or Registered. One generation.

17.2 LAND REQUIREMENTS

17.2.1 Foundation, Registered and Certified crops must be established on land which did not produce a crop the previous year which would naturally cross pollinate with the seed crop.

17.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

17.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

17.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

17.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

17.3.4 First inspection shall be made at the time the roots are mature and ready to be taken up for storage.

17.3.5 Second inspection shall be made at blossom time in the second year.

17.4 CROP STANDARDS

17.4.1 Isolation

a) A crop for pedigreed status must be isolated from crops or plants that are a source of contamination through cross pollination by the distances in Table 17.4.1.
b) Isolation distances must be provided before flowering commences and prior to crop inspection.

Table 17.4.1: Minimum Isolation Distances Required

Crop Kind	Isolation Distances Required
Carrot	400 meters (1312 feet)
Mangel	
Rutabaga (Turnip)	400 meters (1312 feet)

17.4.2 Sources of Contamination by Cross Pollination

a) Bolters among roots being produced for field or vegetable purposes within the specified isolation distance will cross with a seed crop. A careful examination on two or three occasions during the blooming period should be made and all bolters removed.
b) Wild Carrot, wild forms of the *Cruciferae* family, and Wild Radish will cross with cultivated forms.
c) Mangel will cross with other Mangel varieties and the Garden Beet.
d) Rutabaga (Turnip) will cross with other Swede varieties, Swede-like Rape, Swede-like Kale, Turnip-like Rape, Bird Seed Rape, Chinese Cabbage, Tori Rape and Chinese or Indian Mustard.
e) Carrot will cross with other varieties of Carrot including the garden varieties and the Wild Carrot.

17.4.3 Weeds

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

17.4.4 Type and Purity

Purity shall consist of morphological similarity in the following respects:

a) Colour: red, rose, green, bronze, purple, white and the various shades of each of these individual colours. Yellow shall include the various shades of orange, yellow, and combinations of the two.

b) Shape: unless definitely stated, type shall be determined by the ratio of length to depth in ground, the standards for which are herein stated for each general type. Where variety differentiations within the types outlined are based on definitely described peculiarities or shape, the variety described shall conform to the described shape to the extent designated by the purity requirements.

Table 17.4.4: Range of Types and Limits for Shape

Mangel Type	Length-Width Ratio		Length-Depth Ratio	
	Average	Range	Average	Range
Long	3.6	2.6-5.5	2.1	1.4-2.5
Half Long	2.7	2.0-3.3	2.1	1.4-3.0
Intermediate	2.2	1.6-2.7	2.4	1.6-3.3
Ovoid	1.8	1.2-2.6	2.4	1.6-2.4
Globe	1.1	0.8-1.4	2.4	2.0-3.0
Tankard	1.7	1.1-2.3	2.8	2.3-4.0
Rutabaga (Turnip) Type	**Length-Width Ratio**		**Length-Depth Ratio**	
	Average	Range	Average	Range
Round	1.1	1.0-1.3	2.0	1.7-2.5
Flat	0.8	0.6-1.0	2.2	1.9-3.0
Ovoid	1.5	1.2-2.0	2.6	2.1-3.5
Tankard	1.4	1.0-1.7	3.1	2.3-4.0

17.4.5 **Maximum Impurity Standards**

a) The standard of purity required for eligibility of varieties of rutabaga (turnip) and mangels, expressed in percentage of roots within the ranges in Table 17.4.4 shall be 90% free from definite off-types.

b) All type determinations shall be made when the roots have reached (as nearly as practicable) the limits of growth for that year.

c) Obvious immature roots shall not be included for shape determinations.

d) All varieties of field roots to be eligible for pedigreed status must be reasonably free from prongs, multiple crown or undesirable characteristics.

SECTION 18

CROPS OF TOBACCO

In this Section:

- ***Type*** includes burley, flue-cured, and dark.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

18.1 CLASSES, GENERATIONS AND REQUIREMENTS

18.1.1 Breeder: under the control of the Breeder.

18.1.2 Certified: the progeny of Breeder. One generation.

18.2 PROPAGATION REQUIREMENTS

18.2.1 Each variety should be grown in a separate greenhouse.

18.2.2 Greenhouses must be kept free of plants after the completion of the transplanting season.

18.2.3 Greenhouses must be thoroughly sterilized before seeding Breeder seed.

18.2.4 Seed plots must be managed to produce as uniform a stand as possible.

18.2.5 Selection of seed plants must be completed within 10 days of first flowering.

18.3 LAND REQUIREMENTS

18.3.1 A Tobacco crop for certification must be planted on land which did not produce a Tobacco or Industrial Hemp crop the previous year.

18.4 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

18.4.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

18.4.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

18.4.3 The crop must be inspected at a stage of growth when varietal purity is best determined, usually at flower bud stage or later. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

18.4.4 At least three inspections should be made: one of the seedbed and two of the seed plot.

18.5 CROP STANDARDS

18.5.1 Isolation

There are different types of tobacco (i.e. burley, flue-cured and dark) and isolation between varieties of the different types shall be least 1320 feet.

Between varieties of the same type of tobacco, isolation must be provided as prescribed below.

a) **Self-Pollinated Varieties**

Fields producing any class of seed shall be separated by any one of the following methods:

1. isolation of at least 150 feet
2. protected from cross pollination by bagging prior to pollen shedding
3. separated by four rows of male-sterile tobacco not to be used for seed purposes
4. in fields where two or more self pollinated varieties of the same type are grown side by side, four rows of each variety, between the two varieties, shall be allowed to bloom and set seed, but shall not be harvested for seed
5. isolation between varieties of different types shall be least 1320 feet.

b) **Parents for Producing Hybrids**

Female parental variety refers to the male sterile variety being used as the female parent of a hybrid; and pollen-producing parent refers to the male fertile parent of a hybrid (i.e. self-pollinating variety).

1. Male Fertile (Pollen Producing Parent). These varieties shall adhere to one of the following isolation requirements:

a) Varieties producing pollen of the same type shall be separated by at least 50 feet.
b) Protected from cross pollination by bagging.
c) Separated by four rows of male-sterile tobacco not to be used for seed purposes.
d) In fields where two or more self pollinated varieties of the same type are grown side by side, four rows of each variety, between the two varieties, shall be allowed to bloom and set seed, but shall not be harvested for seed.
e) In fields where two or more self-pollinated varieties of the same type are grown side by side, no separation is required if closed flower removal for the purpose of pollen collection is strictly adhered to. Seed may not be harvested from these plants.

2. Male Sterile. These varieties shall adhere to the following isolation requirements:

a) Varieties of the same type shall be isolated from all the pollen.
b) Male sterile varieties of the same type require no isolation from each other.
c) Different types of male sterile varieties must be separated by at least 660 feet.
d) Male sterile varieties and pollinators of different types must be separated by at least 1320 feet.

18.5.2 Maximum Impurity Standards

a) All off-type and diseased plants and other varieties should be rogued and removed from the seed plot and destroyed before flowering.
b) A crop must be reasonably free of weeds.

18.6 SPECIAL PROVISIONS

18.6.1 No limit is placed on the number of Tobacco varieties a member may produce.

18.6.2 Seed from a Certified crop will be verified for varietal or strain purity, yield, quality and freedom from disease when considered necessary by the CSGA.

18.6.3 When bagging plants, all open flowers should be removed before the bag is placed on the Head, and all damaged bags should be replaced immediately.

SECTION 19

CROPS OF VEGETABLES

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

19.1 CLASSES, GENERATIONS AND REQUIREMENTS

19.1.1 Breeder: under the control of the Breeder.

19.1.2 Foundation: the progeny of Breeder and limited to one generation.

19.1.3 Registered: the progeny of Breeder or Foundation seed and seed produced for Registered status from biennial plants grown under conditions which do not permit inspection at the marketable stage shall be demoted to Certified.

19.1.4 Certified: the progeny of Breeder, Foundation or Registered and limited to one generation.

19.2 LAND REQUIREMENTS

19.2.1 Foundation, Registered and Certified crops must be established on land which did not produce a crop the previous year which would naturally cross pollinate with the seed crop.

19.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section:

19.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

19.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

19.3.3 The crop must be inspected at a stage of growth when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

19.3.4 For **Hybrid Sweet Corn**, a minimum of three inspections shall be made to determine that requirements for isolation, planting, detasselling, weed control and harvesting have been carried out in accordance with the regulations for Hybrid Field Corn in Section 8.

Table 19.3.5: Stages of Growth for Crop Inspection

Crop	Stage of Growth for Crop Inspection
Asparagus	First inspection: not sooner than 10 days after cutting has been discontinued. Second inspection: prior to "blooming time."
Bean, *Dwarf* and *Pole*	One inspection to be made at the marketable stage. Where inspection for disease is required, it shall be made just prior to ripening.
Bean, *Broad* and *Lima*	One inspection to be made at green shell stage.
Beet, Celeriac, Parsnip	First inspection: about the time the roots are mature and ready to be taken up for storage. Second inspection: blooming time in the second year.
Broccoli, Brussel Sprout Cabbage, Cauliflower, Celery, Parsley	First inspection: marketable stage. Second inspection: blooming time.
Cucumber, *Pickling* and *Table*	First inspection: marketable stage. Second inspection: when fruits are mature.
Leek, Swiss Chard	First inspection: marketable stage. Second inspection: blooming time in the second year.
Lettuce	First inspection: marketable stage. Second inspection: late bloom or early seed setting stage.
Onion	First inspection: field-run mature bulbs. Second inspection: blooming time in the second year.
Parsley	First inspection: marketable stage. Second inspection: during bloom.
Pea	First inspection: blooming stage. Second inspection: when crop has reached early edible stage.
Radish	First inspection: edible stage. Second inspection: when crop is in bloom.
Spinach	First inspection: marketable stage. Second inspection: when crop is in bloom.
Tomato	One inspection to be made when the crop is in full fruit.
Eggplant, Pepper	One inspection to be made at the marketable stage.
Corn, *Open-pollinated Sweet*	First inspection: edible stage. Second inspection: when the seed is mature in the ear.
Citron, Muskmelon (Cantaloupe), Pumpkin, Squash, Vegetable Marrow, Watermelon	One inspection to be made when in full fruit.
Vegetable Soybean	One inspection to be made just prior to maturity.

19.4 CROP STANDARDS

19.4.1 Isolation

a) A crop for pedigreed status must be separated from crops or plants that are a source of contamination through cross pollination by the distances given in Table 19.4.2.
b) Isolation distances must be provided before flowering commences and prior to crop inspection.

Table 19.4.2: Minimum Isolation Distances Required

Crop Kind	Isolation Distance Required
Beet, Swiss Chard	800 meters (2624 feet)
Asparagus, Broccoli, Brussel Sprout, Cabbage, Cauliflower, Citron, Cucumber, Leek, Muskmelon, Onion, Parsley, Parsnip, Pumpkin, Radish, Squash, Vegetable Marrow, Watermelon	400 meters (1312 feet)
Celeriac, Celery, Spinach	200 meters (660 feet)
Eggplant, Pepper	45 meters (150 feet)
Tomato	30.5 meters (100 feet)
Bean, Lettuce, Pea	7.6 meters (25 feet)
***Hybrid Sweet Corn**	300 meters (990 feet) with at least four border rows of pollen parent plants around all sides of the crop
***Sweet Corn – Open-pollinated**	400 meters (1320 feet) with at least four border rows of the same pollen parent plants around all sides of the crop

*The corn from border rows, male rows and rejected parts of the field must not be mixed with the seed presented for pedigreed status.

19.4.3 Prevention of Disease and Varietal Contamination

a) The minimum required isolation distances of 7.6 meters (25 feet) to 45 meters (150 feet) are not sufficient to prevent the spread of many diseases. Wherever possible a separation of at least 90 meters (300 feet) should be provided for pedigreed seed crops of Bean, Eggplant, Lettuce, Pepper, Tomato, and Pea from other crops susceptible to same diseases.
b) Care must be taken to prevent varietal contamination of pedigreed seed crops, which may occur by:
   (i) volunteer plants of the same kind or species;
   (ii) cultivars of the same family or genus but of a different kind;
   (iii) a different variety of the same kind.

19.4.4 Rogues and Bolters

a) Rogue plants of all types must be removed as soon as they show in the crop. In certain vegetable crops this may mean frequent examination of the growing crop and the removal of rogue plants at three or four different times.
b) A strict watch must be maintained at all times to prevent cross-pollination from bolters amongst adjacent root crops grown for seed or commercial vegetable production. A careful examination on two or three occasions during the blooming period should be made of crops growing within the specified isolation distance and the bolters removed.

19.4.5 **Disease**

a) A strict watch must be maintained for disease at all periods of seed crop production.
b) When seed treatment is required, the producer should treat all seed before planting to control the spread of seed borne diseases.
c) The presence of disease in the crop or seed should be reported immediately to the nearest plant pathologist for advice on treatment to control the disease.
d) Diseased plants removed must be immediately destroyed.

19.4.6 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) All crops for pedigree should be free of Primary noxious weeds.
c) Very weedy crops may be declined pedigreed status.

19.4.7 **Maximum Impurity Standards**

a) For other than OECD certification, the maximum standards for impurities of pedigreed vegetable seed crops shall be those standards established by the Association of Official Seed Certifying Agencies (AOSCA). For more information, refer to www.aosca.org.

APPENDIX A

DOCUMENTS

In this Appendix:
Documents and forms that are used in pedigreed seed crop certification are described in Appendix A of the CSGA *Regulations and Procedures for Pedigreed Seed Crop Production (Circular 6).*

A.1.1 SEED CROP INSPECTION REPORT

The decision to grant pedigreed status to an inspected crop rests solely with the CSGA. This decision is based on the CSGA's appraisal of the crop's compliance with their regulatory requirements. CSGA's appraisal requires the information on the crop inspection report prepared by an authorized crop inspector and other information which may be provided by the grower. The inspector is responsible for completion of the crop inspection report. The inspector does not make a decision on the status of the crop.

Once the *Application for Seed Crop Certification and Membership Application/Renewal Form* is received by the CSGA, a *Seed Crop Inspection Report* is created for each field. Data from the *Application for Seed Crop Certification, the Membership Application/Renewal Form* and the crop inspection report form for each field is sent to the authorized crop inspector.

The *Seed Crop Inspection Report* for each pedigreed seed crop is completed at the time of inspection by an authorized crop inspector.

Much of the information for the *Seed Crop Inspection Report* comes from the *Application for Seed Crop Certification* which the grower completes. Accuracy in completing the application reduces the risk of additional information being required by the CSGA, which delays the issuance of a crop certificate.

The *Seed Crop Inspection Report* is forwarded to the CSGA as soon as possible and to the grower. The completed *Seed Crop Inspection Report* is appraised by the CSGA. A Crop Certificate, a request for further information or a decline letter is issued based on the CSGA's appraisal.

The CSGA's appraisal of the *Seed Crop Inspection Report* considers all certification requirements of the crop. If the crop does not meet the requirements outlined in the *Canadian Regulations and Procedures for Pedigreed Seed Crop Production* (Circular 6), the crop will be declined pedigreed status.

The onus is on the grower to ensure, prior to the time of inspection, that the crop meets the standards established by the CSGA. Growers should carefully review the completed *Seed Crop Inspection Report* for accuracy and compliance with CSGA's requirements. If growers have any questions concerning the crop inspection report, they should contact the CSGA as soon as possible, and/or call to arrange a reinspection if necessary.

The letters below correspond to the following example of the CFIA *Seed Crop Inspection Report* form.

A. This section is pre-printed by the CSGA and verified by the inspector. The **Grower Number** and **Sequence Number** are assigned to each crop report by the CSGA. Refer to these numbers when contacting the CSGA.

B. **Estimated yield**. This may only be given in general terms and should not be used for other purposes.

C. **Company**. The assignee's name should appear here if the crop certificate is assigned.

D. **Crop Location**. This is the legal land location or GPS coordinates of the inspected crop.

E. **Plot area**. The perimeter of plots is measured in meters.

F. **Year sown** is used only for perennial crops.

G. **Crop Certificate, Lot number, Class**. The inspector verifies the pedigreed seedlot identity numbers recorded from a grower's own crop certificate, seedlot sealing tags, or bulk seed certification documentation. The grower must keep the parent seed tags or certification documents until a crop certificate is received. The grower may be asked to send the tags or proof of parent seed identity to the CSGA. The inspector may attach one tag of each different imported seedlot to the CSGA copy of the report. Tags must be kept for the full seed crop life or age of stand of a perennial crop.

H. **Number of Tags Checked** by the crop inspector.

I. **Previous Land Use**. The inspector verifies and records previous land use information. The variety and the crop certificate number issued for the pedigreed crop(s) harvested in previous year(s) must be included. Do not record the pedigree of the seed sown in previous years.

J. **Isolation**. It is important for growers to provide isolation for pedigreed seed crops throughout the growing season. The inspector records the isolation of the crop as it appears at the time of the crop inspection, including distance between the crop for inspection and adjacent crops, condition of the isolation strip and a description of adjacent crops and land use.

K. **Uniformity of Stand, General Appearance, General Weed Condition, Disease**. These are recorded to provide a description to the CSGA appraiser of what the crop generally looks like and of specific seed borne disease symptoms.

L. The inspector records incidence of specified "objectionable" weeds in the crop. "Very weedy" crops and/or crops containing Prohibited or Primary Noxious weeds may be declined pedigreed status.

M. **Off-Types or Other Varieties**. The inspector counts the number of off-types, variants and other varieties in the crop on the basis of random selections of a specific population size within the crop. Refer to the maximum impurity standards for each crop kind.

N. The inspector determines the number of plants of other crop kinds or weeds, the seeds of which may be difficult to separate from the inspected crop. This is done on the basis of random selections of a specific population size within the crop. Refer to the impurity standards for each crop kind.

Note: The information in Items N and O is used to determine the contamination in the crop. If contamination is in excess of the CSGA's standards, the crop may be declined pedigreed status.

O. **Inspector's additional comments**. The inspector may provide more details on any required information.

P. The **date of the inspection** and the **inspector's identification number**. The inspector also signs the crop inspection report.

SEED CROP INSPECTION REPORT (CSGA e-version(s))

Canadian Seed Growers' Association
Association canadienne des producteurs de semences

Seed Crop Inspection Report

Seed crops are certified by the Canadian Seed Growers' Association (CSGA). The certification status of this crop is available on the CSGA Members' Area.

Grower Information

Grower Name Ummer, Scott		Business Name Summer Farms	
Grower No. 5064422	Accreditation BR	Contact Info. (613)-271-2849	
Address 240 CATHERINE ST OTTAWA,ON K2P 2G8			

Field Information

Variety Code 354	Variety & Kind AC AYLMER/OATS-SPRING-WHITE HULL			Inspection Type Seed Crop	
Sequence No. 19267	Field ID 23	Acres 27.00	Plot Type	Plot Area 0	Sown Date 05/27/2015
Assignee			Crop Location 23 9 MCKILLOP HURON		

Parent Seed Source — Checked: 2

Year	Crop Certificate No. / Pedigreed Reference No.	Seed Lot No.	Class
2014	145064422205	OWN SEED	Registered

Comments

Previous Land Use

Year	Variety/Kind	CC No. Issued	Year	Variety/Kind	CC No. Issued
2014	alliance/Barley	145064422402			
2013	R2T1449/SOYBEAN	145064422114			

Comments

Isolation

Direction	Strip Width (m)	Description of Isolation Strip	Condition	Adjacent Crop Description
East	1	unseeded/cultivated	G	red clover
South	3	sod	F	wide ditch
West	1	sod	F	corn
North	1	sod	F	bush

Comments

General Condition of Crop

Uniformity Average	Appearance Good	Weeds Trace	Disease None Present	Yield Average

Impurities

Weed ID	Level	Weed ID	Level	Weed ID	Level	Weed ID	Level

10,000

Description of Impurity	Type	1	2	3	4	5	6	Average
two row barley	Other Kind	0	2	0	0	0	0	0.3333333

Comments Barley observed outside counts = 4 plants

Inspector Name Doug Miller	Inspector No. 1	Inspector Signature Doug Miller
Inspection Service CFIA	Date Inspected 07/14/2015	

2013 CSGA Pilot —Seed Crop Inspection Report

A.1.2 CSGA CROP CERTIFICATE

The *Crop Certificate* issued by CSGA is the official legal document designating that pedigreed status has been granted to the crops identified on the certificate.

It is issued to the grower of the crop provided that all requirements established by the *Canadian Regulations and Procedures for Pedigreed Seed Crop Production* (Circular 6) of the CSGA have been met.

Growers may assign *Crop Certificates* to another party using the *Application for Seed Crop Certification.*

The letters below correspond to the following example *Crop Certificate*.

EXAMPLE: 14-5064422-203

14 Year crop was produced

5 Province in which the crop was grown

064422 Growers number

2 Class of seed

03 Number assigned by CSGA

0 = Pre-Variety Germplasm
5 = Breeder
6 = Select
1 = Foundation
2 = Registered
3 = Select Synthetic/Composite
4 = Certified
8 = Recertified
9 = Certified 2nd Generation under OECD Seed Schemes

0 = International
1 = Prince Edward Island
2 = Nova Scotia
3 = New Brunswick
4 = Québec
5 = Ontario
6 = Manitoba
7 = Saskatchewan
8 = Alberta
9 = British Columbia

A. **Crop Certificate number** — a 12-digit number representing the pedigree of the crop(s).

B. **Grown by**. The name(s) and address(es) of Applicant as indicated on the *Application for Seed Crop Certification and Membership Application/Renewal Form.* These will be the only name(s) on the certificate unless the certificate has been assigned to another party.

C. If the Crop Certificate has been assigned to another party, the **assigned name** and address appears here. The *Crop Certificate* will be sent to the Assignee and notification to the applicant.

D. The **Crop Season**. The year in which the crop was grown.

E. **Date issued.** The date the *Crop Certificate* was issued by the CSGA.

F. **Variety** of the crop covered by the *Crop Certificate*.

G. **Kind** of the crop covered by the *Crop Certificate*.

H. **Status**. The pedigreed class of the crop listed on the *Crop Certificate*.

I. **Field Number** and **Area**. This section includes the field number and area for each field covered by the *Crop Certificate*. The unique sequence number from the *Seed Crop Inspection Report* is provided for traceability. More than one field of the same variety and status can be included on one *Crop Certificate*.

J. **Total Area**. The total acreage covered by the *Crop Certificate*.

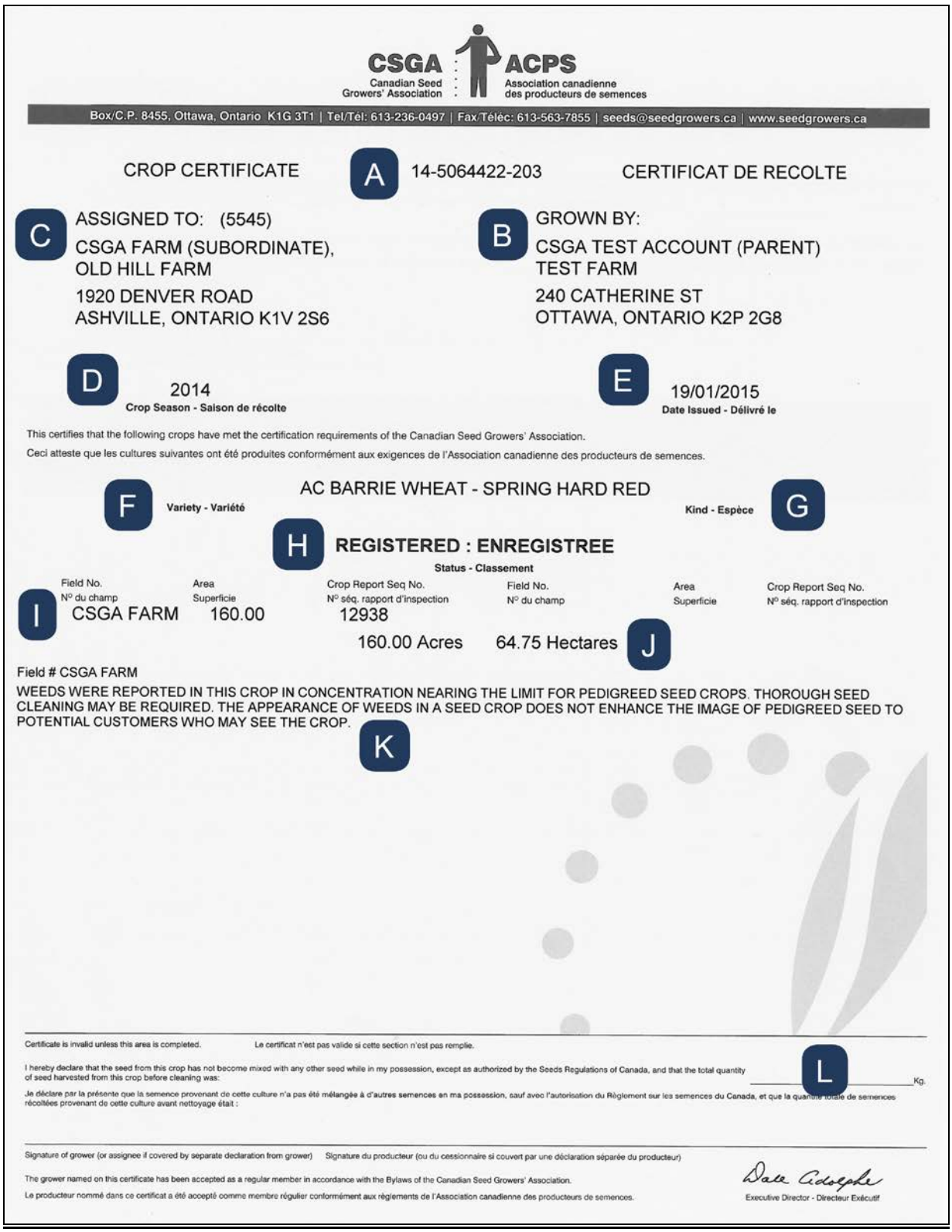
K. **Additional Information/Comments**. This section of the *Crop Certificate* may contain an important message relating to the seed harvested from the pedigreed crops specified.

L. The **total quantity of seed harvested** from the pedigreed crop(s) listed must be entered by the grower of the crop, together with the signature of the grower or the signature of the *Crop Certificate* assignee if the assignee has received a signed declaration of quantity harvested from the grower.

M. **Seed Disposal**. The bottom and reverse side of the *Crop Certificate* provides information regarding disposal of the seed harvested from a pedigreed crop. This section is completed to indicate the quantities and identification of each lot of seed graded, labelled (or tagged) by the Registered Seed Establishment (or official inspector) as required by the federal *Seeds Act and Regulations*. Only one *Crop Certificate* is issued for a pedigreed seed crop, therefore this form should be returned to the grower of the seed after grading/labelling and other documentation have been completed.

All details concerning grading and labelling of seed from these crops should be completed on this form. For additional information, contact the Canadian Seed Institute (CSI) or the Seed Section of the CFIA.

CSGA CROP CERTIFICATE



CSGA Canadian Seed Growers' Association / ACPS Association canadienne des producteurs de semences

Box/C.P. 8455, Ottawa, Ontario K1G 3T1 | Tel/Tél: 613-236-0497 | Fax/Téléc: 613-563-7855 | seeds@seedgrowers.ca | www.seedgrowers.ca

CROP CERTIFICATE **A** 14-5064422-203 CERTIFICAT DE RECOLTE

C ASSIGNED TO: (5545)
CSGA FARM (SUBORDINATE),
OLD HILL FARM
1920 DENVER ROAD
ASHVILLE, ONTARIO K1V 2S6

B GROWN BY:
CSGA TEST ACCOUNT (PARENT)
TEST FARM
240 CATHERINE ST
OTTAWA, ONTARIO K2P 2G8

D 2014
Crop Season - Saison de récolte

E 19/01/2015
Date Issued - Délivré le

This certifies that the following crops have met the certification requirements of the Canadian Seed Growers' Association.
Ceci atteste que les cultures suivantes ont été produites conformément aux exigences de l'Association canadienne des producteurs de semences.

F Variety - Variété: AC BARRIE WHEAT - SPRING HARD RED
Kind - Espèce **G**

H REGISTERED : ENREGISTREE
Status - Classement

Field No. / N° du champ	Area / Superficie	Crop Report Seq No. / N° séq. rapport d'inspection	Field No. / N° du champ	Area / Superficie	Crop Report Seq No. / N° séq. rapport d'inspection
I CSGA FARM	160.00	12938			

160.00 Acres 64.75 Hectares **J**

Field # CSGA FARM
WEEDS WERE REPORTED IN THIS CROP IN CONCENTRATION NEARING THE LIMIT FOR PEDIGREED SEED CROPS. THOROUGH SEED CLEANING MAY BE REQUIRED. THE APPEARANCE OF WEEDS IN A SEED CROP DOES NOT ENHANCE THE IMAGE OF PEDIGREED SEED TO POTENTIAL CUSTOMERS WHO MAY SEE THE CROP. **K**

Certificate is invalid unless this area is completed. Le certificat n'est pas valide si cette section n'est pas remplie.

I hereby declare that the seed from this crop has not become mixed with any other seed while in my possession, except as authorized by the Seeds Regulations of Canada, and that the total quantity of seed harvested from this crop before cleaning was: **L** Kg.

Je déclare par la présente que la semence provenant de cette culture n'a pas été mélangée à d'autres semences en ma possession, sauf avec l'autorisation du Règlement sur les semences du Canada, et que la quantité totale de semences récoltées provenant de cette culture avant nettoyage était :

Signature of grower (or assignee if covered by separate declaration from grower) Signature du producteur (ou du cessionnaire si couvert par une déclaration séparée du producteur)

The grower named on this certificate has been accepted as a regular member in accordance with the Bylaws of the Canadian Seed Growers' Association.
Le producteur nommé dans ce certificat a été accepté comme membre régulier conformément aux règlements de l'Association canadienne des producteurs de semences.

Executive Director - Directeur Exécutif

Completed by Inspector or
Registered Seed Establishment

Rempli par l'inspecteur ou l'agent de
l'établissement semencier agréé

SEED DISPOSAL RECORD - DISPOSITION DE LA SEMENCE

The quantity of conditioned seed from this crop certificate eligible to be graded on the basis of the declaration of the grower is _____ kilograms and the quantity certified is indicated below.

La quantité de semences conditionnées en vertu du présent certificat de culture qui est admissible à une classification en fonction de la déclaration du producteur est de _____ kilogrammes et la quantité attestée est indiquée ci-dessous.

Signature of Operator/Grader of Registered Seed Establishment
Signature de l'opérateur ou du classificateur de l'établissement semencier agréé

Grade Classe	Lot No. N° de lot	Quantity Quantité	Date Date	Registered Seed Establishment No. Établissement semencier agréé N°	Grader No. Classificateur N°
		M			

QMF 22 – 2014

A.1.3 OFFICIAL SEED TAGS

Official seed tags, labels and other forms containing official certification marks are very important documents. These provide officially recognized third-party verification that indicates the variety, kind, class and grade, crop certificate number and seed sealing certificate and lot numbers. All tags or official certification documents that identity parent seed must be kept by the grower for verification by the authorized crop inspector and/or the CSGA office. This includes Breeder, Select, Foundation, Registered, bulk, Interagency, OECD and foreign certification tags.

When applying for pedigreed crop inspection, include the parent seed identity information from the tags on the *Application for Seed Crop Certification* (Appendix A.1a).

If seed used to plant a pedigreed crop is labelled with an Interagency or OECD tag (Figures 4 and 5, below), attach one tag to the *Application for Seed Crop Certification*.

Sample tags are shown on the following pages (Figures 1 – 9).

The lettered areas on the sample tags provide the following information:

A. Class of Pedigreed Seed.
B. Crop Kind.
C. Variety.
D. Grade and Class of Seed (as designated by the Canada *Seeds Act*).
E. Crop Certificate Number (taken from the Crop Certificate, A.5).
F. Seed Sealing Number (issued by CFIA or an Authorized Establishment on each distinct lot of seed which has been graded).
G. Lot Number (the seed processor's identification number for the seed).
H. Origin of the seed (Figures 6, 7 and 8).
I. Name of institution or company (Figure 1).
J. Signature of Plant Breeder or agent
K. Name of Grower (Figure 2).
L. Signature of grower (Figure 2).

Figure 1

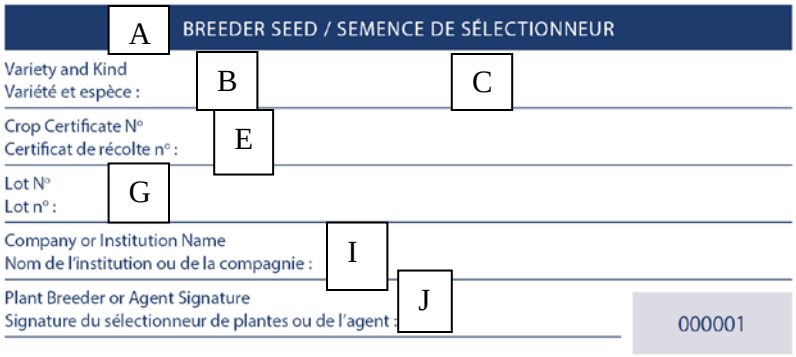


Figure 2

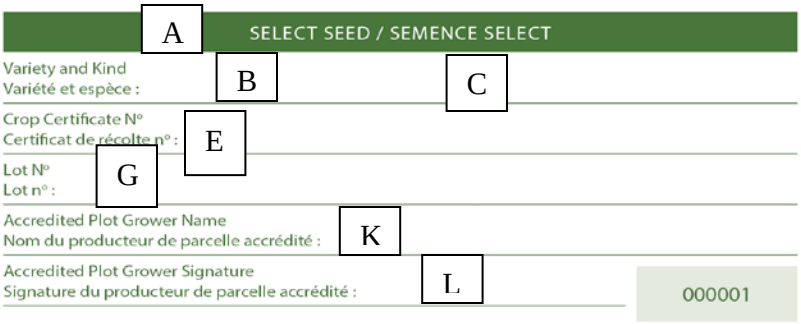


Figure 3

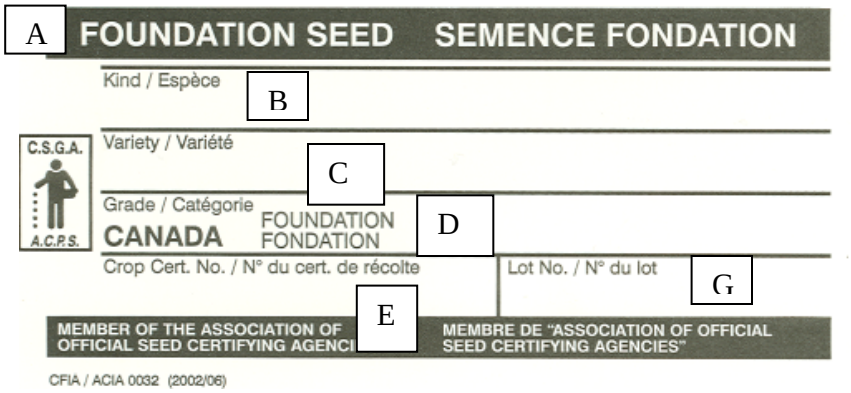


Figure 4

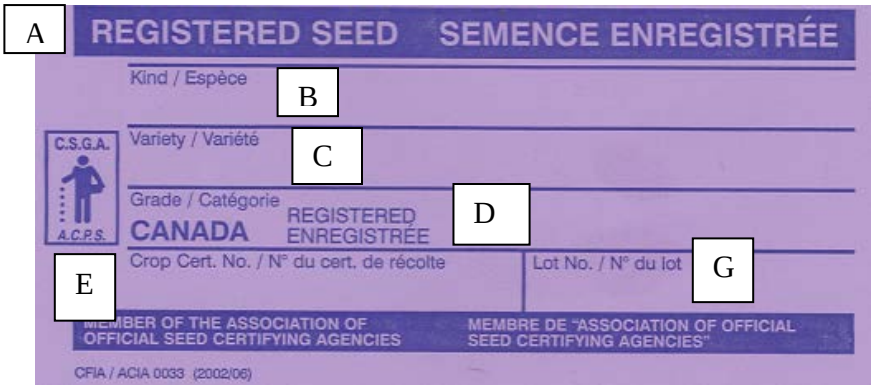


Figure 5

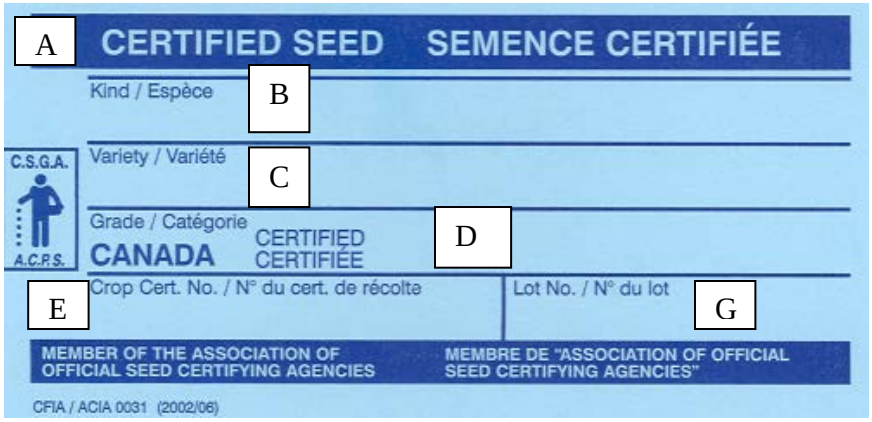


Figure 6

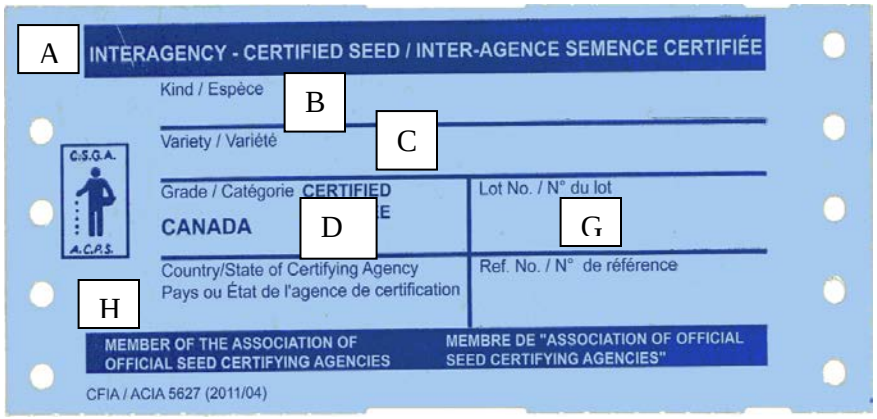
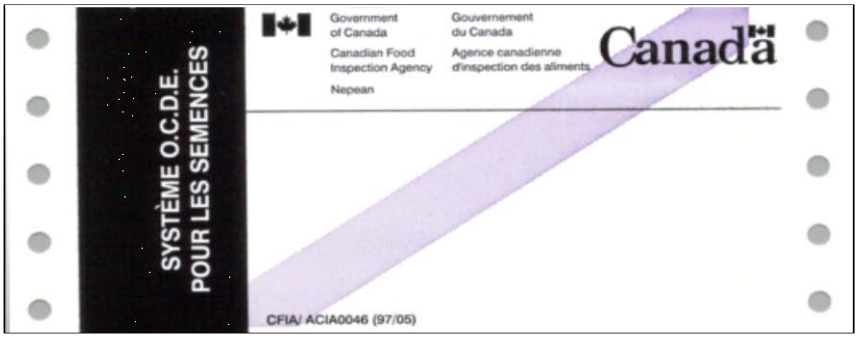


Figure 7



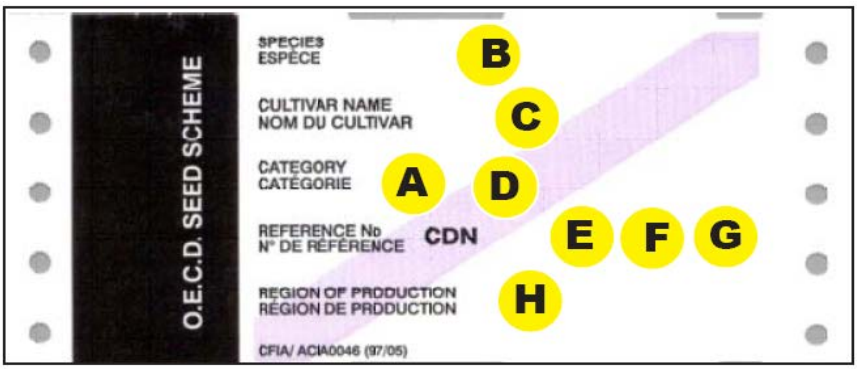


Figure 8

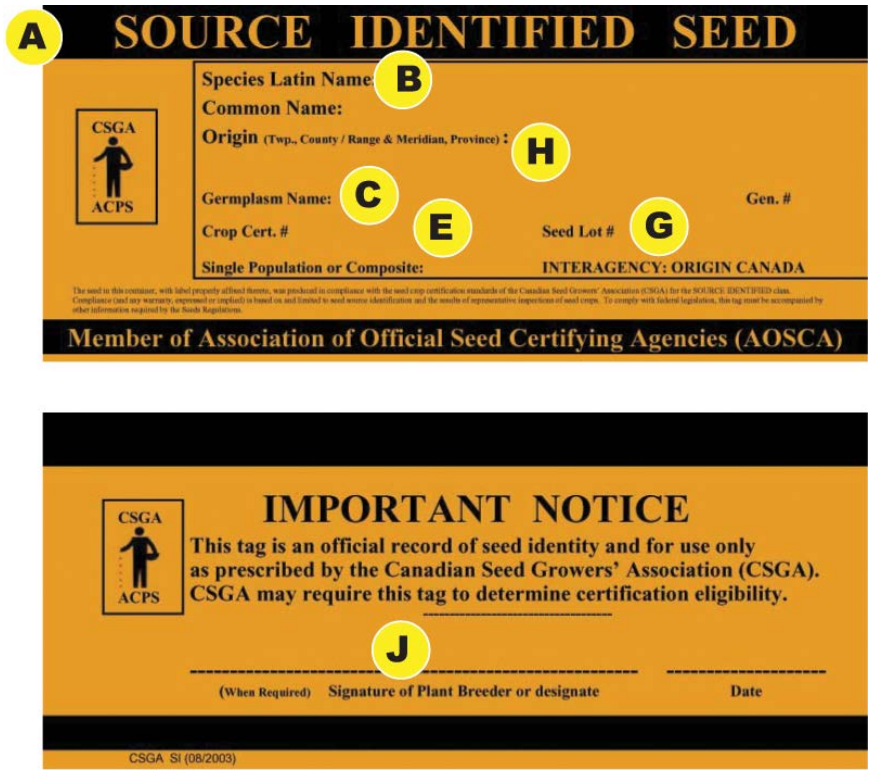
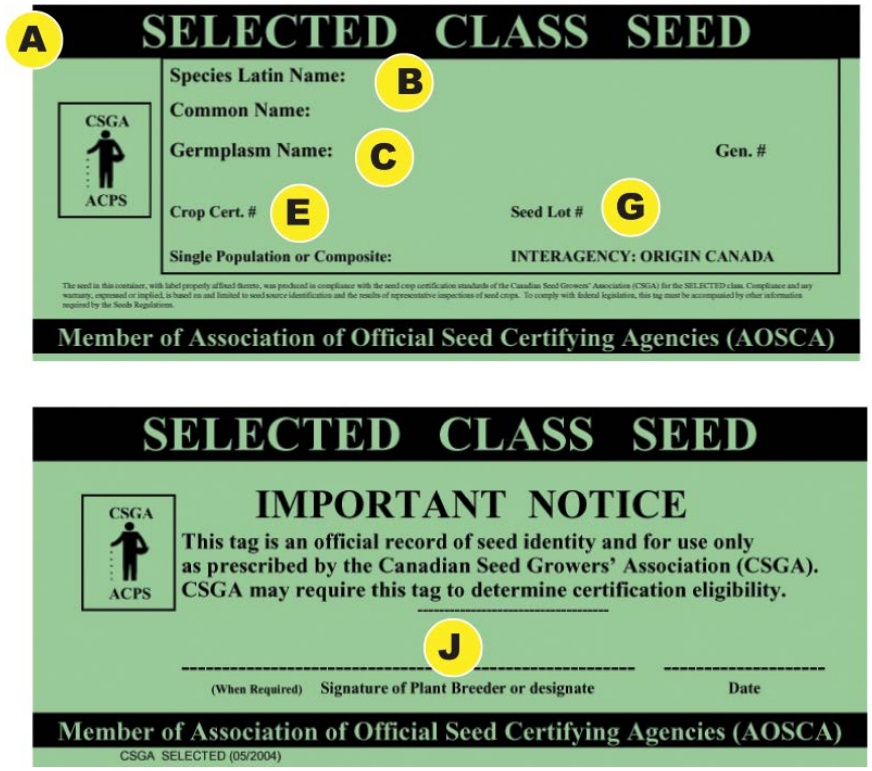


Figure 9



A.2 SEED CROP CERTIFICATION FORMS

The seed crop certification forms described below can be found on the CSGA website at www.seedgrowers.ca. Contact CSGA if you require a password for the electronic forms which are available on the Members' Area of the website. Forms can also be obtained by contacting the CSGA by phone (613-236-0497).

Each spring, CSGA sends the Application for Membership/Renewal and Application for Seed Crop Certification to growers who applied to the CSGA for seed crop certification in the previous two (2) years. An *Application Support Document* which outlines the application process in more detail, including deadline dates and fees can be found on the CSGA website.

A.2.1 APPLICATION FOR MEMBERSHIP/RENEWAL

The first step in the seed crop certification process for new members is to complete the Application for Membership/Renewal to provide CSGA with contact information. For existing members, the Application for Membership Renewal is reviewed each spring to ensure that the contact information on file is current.

A.2.2 APPLICATION FOR SEED CROP CERTIFICATION

An Application for Seed Crop Certification must be submitted for each field to provide information such as the location and the size of the field, the parent seed source and previous land use. Growers must also designate the Authorized Seed Crop Inspection Service (ASCIS) who will be inspecting each field.

A.2.3 ADDITIONAL SEED CROP CERTIFICATION FORMS

In addition to the forms described above, forms are available online for:

All growers

a) *Appeal Application* for growers who wish to appeal the demotion or decline of their seed crop.

b) *Land Use Verification* for growers who wish to have their land use verified for pedigreed seed crop production.

c) *Field Map Verification* for growers who wish to have their field maps reviewed to ensure that they meet CSGA field definition (Field Map Verification).

Select & Probationary Growers

a) *Report on Plot Productio*n which must be completed by the Select or Probationary grower for each variety grown in their plots in a given year.

b) *Probation Plot Application* which is used for a non-Select grower to apply to be on probation to become a Select grower.

Plant Breeders

a) *Application for Breeder Seed Crop Certificate and Certification Eligibility* which is used to certify Breeder seed crops and verify the eligibility of a variety for certification.

b) *Variety Certification Eligibility* which is used to verify the eligibility of a variety for certification for varieties not subject to variety registration or varieties which will be identified by variety name on official seed certification tags prior to registration.

c) *Demotion of Breeder Seed* which is used by plant breeders to apply for a demotion of Breeder seed in order to sell it as Foundation, Registered and/or Certified.

APPENDIX B

B.1 THE ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD) SEED CERTIFICATION SCHEMES
B.2 ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES (AOSCA)

B.1 THE ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT SEED CERTIFICATION SCHEMES (OECD)

There are seven OECD schemes in operation involving the varietal certification of seed moving in international trade: herbage (grass and legume), oilseed, cereal, vegetable, sugar and fodder beet, maize and sorghum, subterranean clover and similar species. The objectives of these schemes are to encourage the use of seed of consistently high quality for the improvement of forage, food and fibre production in participating countries and to facilitate the international movement of Certified seed.

Canada has been a participating member country of the original Herbage and Oilseed Seed Scheme since four years after its inception. The Cereal Scheme was established in 1966, and the Vegetable Scheme in 1968. The OECD Scheme for Sugar Beets and Fodder Beets came into being in 1968 and the Maize Scheme was proposed in 1976.

The schemes are operated by the government of the participating country, which may designate an authority that will be responsible for the implementation and operation of the schemes in that country. The designated authority in Canada is the Plant Production Division of the Canadian Food Inspection Agency. As such, it is responsible for:

- arranging for approval from the country of origin for the multiplication of their varieties in Canada according to OECD rules;
- receiving from the country of origin approval of a generation system for each variety and the number of seed crops to be harvested from a stand;
- maintaining pedigreed records;
- carrying out field inspection;
- issuing the OECD certificates;
- labelling and sealing the seed; and
- conducting the pre-and post-control tests.

Because the CSGA is empowered to certify seed crops and maintain pedigreed records, a number of the above responsibilities are assigned to the CSGA and it therefore has an important and necessary function in the operation of the schemes in Canada. CSGA administers the applications for OECD crop inspections, reviews the crop inspection reports for adherence to field standards, maintains the pedigreed records and issues domestic crop certificates.

The labels and certificates that can be used under the schemes are prescribed by OECD and are readily identifiable as belonging to the OECD schemes. The schemes are not intended to replace the national pedigreed seed certification systems of participating countries, but rather are designed so that they can be operated in co-existence with national systems.

Canada's interest in the schemes is the CSGA's recognition of certification eligibility for imported parent seed, winter or contra season certification for Canadian variety developers and the multiplication of varieties for export either to the country of origin or to some other market. Canadian seed exporters play an important part in the multiplication of foreign varieties since they make the initial contact with the variety developers and contract, process and export these pedigreed seedlots.

Three categories or classes of seed are recognized in the schemes: Pre-Basic, Basic and Certified seed. Pre-Basic Seed is equivalent to Breeder or Select. Basic seed of forage varieties is equivalent to Foundation seed under Canadian terminology and is imported and multiplied to Certified seed. Most foreign varieties are not registered for sale in Canada. Therefore, all production of these varieties is for export only. Pedigreed seed of Canadian varieties is also eligible to be sealed with the appropriate OECD labels and exported. Basic seed is equivalent to Foundation and eligible only to produce Certified crops. Select seed may be produced from Pre-Basic Seed and Registered may be produced from Basic seed, provided these extra generations in Canada are approved by the originating Plant Breeder, owner of the variety, the Canadian distributor of the variety, the CFIA and the CSGA.

B.2 ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES (AOSCA)

AOSCA is an association of certification agencies in North America, Argentina, Chile, South Australia and New Zealand. Canada was a founding member in 1919, when the association was known as the International Crop Improvement Association.

The purpose of AOSCA is to coordinate, standardize and establish minimum standards for genetic purity and identify as well as recommend minimum standards for seed quality for all classes of pedigreed seed. It also assists its members in the promotion, production, identification, distribution and use of pedigreed seed.

No member agency may establish genetic crop standards lower than AOSCA standards, but they may establish higher standards.

Membership in AOSCA facilitates the movement of pedigreed seed across country and state boundaries as all member agencies recognize seed as meeting the genetic standards for the class as labelled.

The certification standards established by AOSCA are included in the U.S.A. Federal Seeds Act.

APPENDIX C

GLOSSARY

AOSA – Association of Official Seed Analysts. Membership is composed of seed analysts in Canada and the United States.

AOSCA – Association of Official Seed Certifying Agencies. Membership composed of the CSGA, CFIA, New Zealand, Australia, Chile, Argentina, Brazil, South Africa and most certification agencies from states of the U.S. Refer to Appendix B.

ASTA – American Seed Trade Association.

Acute – Having a sharp (and rather abrupt) point.

After-harvest cultivation – Any cultivation of the land after harvesting the crop which will incorporate seed from the crop residue into the soil so that subsequent deterioration will prevent the seed from volunteering in the following crop.

Age of Stand – The number of years during which a perennial crop may be offered for pedigree from one planting. The first seed crop is considered the first year in which a seed crop would normally be harvested, irrespective of time or method of planting. Each calendar year thereafter is considered a seed crop year.

Aleurone – The layer of high protein cells surrounding storage cells of the endosperm; it secretes hydrolytic enzymes for digesting food reserves.

Annual – The type of plant that normally starts from seed, produces flowers, sets seed and then dies within one growing season.

Anther – The sac-like structure of the male part (stamen) of a flower in which the pollen is formed. There are normally two lobes which dehisce at anthesis and allow the pollen to disperse.

Anthesis – The flowering stage when the anthers burst, pollen is shed and the stigma is ready to receive the dispersed pollen.

Apomixis – The development of seed without the sexual fusion of an egg and a sperm cell.

Appeal – Refers to the process whereby a seed grower may request the CSGA to reconsider the status of an inspected crop based on factors not given on the *Report of Crop Inspection*. The Appeals Committee of the CSGA Board of Directors reviews the case and recommends a decision to the CSGA Board of Directors. All cases brought to the Appeals Committee are considered anonymously and without bias.

Application for Seed Crop Certification – The form on which seed growers apply to the CSGA to request their crops be inspected. Details of the form include field identification, variety and kind, acreage, pedigree of seed sown, previous crop history, date seeded, crop location and crop certificate assignment.

Application for Membership – Refers to the "*Membership Application/Renewal Form*", on which seed growers apply to the CSGA for membership, agree to pay assessed fees and comply with all requirements in the CSGA regulations (Circular 6).

Asexual reproduction – Reproduction by vegetative means without fusion of two sexual cells.

Assignment of crop certificate – Refers to the process, described in Section 1.8, whereby by a grower assigns a Crop Certificate to another party.

Associate Plant Breeder – A person recognized by the CSGA Plant Breeders' Committee and approved by the CSGA to produce Breeder seed or inbreds under the supervision of a fully qualified and recognized Plant Breeder.

Auricles – Clasping appendages arising at the junction of the leaf blade with the sheath (e.g., Barley auricles are large and clasping).

Authorized Seed Crop Inspection Service (ASCIS) – A service provider that has been authorized by the CFIA (Seed Section National Manager) and the CSGA to conduct pedigreed seed crop inspections.

Authorized Seed Crop Inspector – An official and/or licensed seed crop inspector as prescribed by the scope of the Quality System Procedure for that activity.

Authorized Establishment – See Registered Seed Establishment (RSE)

Backcross, backcross method – Pollen of the hybrid used on either parent or pollen from either parent used on the hybrid produces a backcross generation.

Bacterial blight – A plant disease spread by bacteria which causes death of leaves, spotting of bean pods and discoloration of seed.

Basic seed – A class of seed designated by OECD as the progeny of Pre-Basic seed. Normally this is considered equivalent to Foundation class seed in Canada and is used to produce Certified class seed.

Biennial – A crop kind that normally produces only vegetative growth the first growing season, overwinters then produces a seed crop after which the plant dies. The plant requires two years to complete its life cycle.

Bran – The outer layers of a cereal grain removed in milling, consisting of the pericarp, the testa and an aleurone layer.

Brand – A legal trademark registered by a company or distributor for its exclusive use in marketing a product.

Breeder – See Plant Breeder.

Breeder seed – Seed recognized by the CSGA as being seed of a variety (cultivar) that has been produced by a recognized plant breeder, or a plant breeder responsible for the maintenance of the variety, under conditions which have ensured that the specific traits of the variety have been maintained. It is the source for the initial and recurring increases of seed for the pedigreed classes.

Breeder Seed Crop Regulations – See *Canadian Regulations and Procedures for Production of Breeder Seed Crops*.

Breeders' Rights – See Plant Breeders' Rights.

Broadleaf – Used in weed terminology to designate a group of non-grasslike plants.

Bulk method – A plant breeding system of growing segregating generations of self-pollinating crops in a randomly mixed block. Seed for the next generation may be obtained by mass selection or a random sample. Individual selection for specific plants is not conducted until the F6 (sixth generation) or later generations.

CFIA – Canadian Food Inspection Agency.

CSAAC – Commercial Seed Analysts Association of Canada.

CSGA – Canadian Seed Growers' Association.

CSI – Canadian Seed Institute.

CSTA – Canadian Seed Trade Association.

Canada Seeds Act and Regulations – The Canadian legislation that covers all pedigreed seed certification. The official version is available from the CFIA website.

Canadian Regulations and Procedures for Production of Breeder Seed Crops – The CSGA's requirements for professional recognition for Plant Breeders and for certification of Breeder status seed crops.

Canola – Cultivars of *Brassica napus*, *Brassica rapa* and *Brassica juncea* with specified low erucic acid and low glucosinolate content in the seed.

Cell – The basic structural unit of living organisms. The plant cell is comprised of protoplasm enclosed, in plants, in a cell wall. The protoplasm consists of a nucleus and cytoplasm which contains plastids and other small bodies. Cells may contain a cavity filled with starches, salts, sugars or other substances.

Cereal grains – Grasses (monocotyledons) cultivated primarily for their edible seeds or grains.

Certified seed – The approved progeny of Breeder, Select, Foundation or Registered seed produced by seed growers and so managed to maintain varietal identity and purity. It is the class of seed recommended for commercial crop production. The seed is graded by CFIA accredited graders, usually at Registered Seed Establishments under the federal *Seeds Act and Regulations*.

Chaff – Fragments of straw including the glume and hull removed from cereal grains in harvesting or processing.

Character, characteristic – An identifiable hereditary property of a variety, such as the specific component for flower colour, a morphological detail or resistance to a specific disease.

Circular 6 – The designation commonly used for this publication entitled, *Canadian Regulations and Procedures for Pedigreed Crop Production,* published by the CSGA.

Class (of seed and seed crop) – Refers to the generations of pedigreed seed and seed crops, such as Breeder, Select, Foundation, Registered and Certified which have met the standards prescribed by recognized seed and seed crop certification agencies.

Companion crop – A crop grown in association with a forage seeding to act as a cover crop, usually to suppress weeds. If different crop kinds, not difficult to separate, are grown in association and are harvested as one crop, each species may be considered for pedigree, provided each is inspected as an individual field unit.

Composite variety – A plant population in which at least 70% of progeny result from cross of the parent lines.

Conditioning of seed – A term used to describe the cleaning of seed, usually to improve mechanical purity.

Corn – *Zea mays* or Indian Corn, Sweet Corn, Popcorn, Field Corn and Hybrid Corn.

Cotyledon – Seed leaves of the embryo which are usually thickened for storage of food reserves and may serve as true foliage leaves.

Crop Certificate – A document issued by the CSGA which certifies that the crops identified have met the CSGA standards for the class of crop designated. A person authorized by the CSGA or the CFIA must complete the reverse side of the Crop Certificate at the time of grading and labelling the pedigreed seed. It may be assigned to another party on the Application for Seed Crop Certification.

Crop rotation – Growing of crops in a regularly scheduled sequence on the same land area, as contrasted to continuous culture of one crop or the growing of different crops in haphazard order.

Cross-pollinate – Fertilization by pollen from another plant. Cross fertilization.

Cultivar – A variety of a cultivated crop. See Variety.

Cytoplasm – The contents of a cell between the nucleus and the cell wall. In reproduction the cytoplasmic constituents from the female parent become part of the cytoplasm of the offspring. There may be a transfer of traits determined by factors contained in the cytoplasm not associated with chromosomes.

Damping-off – A disease of seeds and young seedlings caused by fungi, usually occurring at the post-emergence stage.

Defoliant – A chemical or method of treatment causing the leaves of a plant to drop off or abscise and the seeds remain attached.

Detassel – To remove the tassel or pollen producing organ at the top of the monoecious plant, usually in hybrid corn production before pollen is released.

Dicotyledonous (dicot) – Refers to plants which have two seed leaves in the seed and leaf veins that are branched.

Double-cross hybrid – The first generation progeny of a cross between two single cross hybrids.

Ecovar ™ (ecological variety) – A seed source of a plant species that can be licensed and that is the result of merging plant collections from a diversity of populations and environments within an ecozone with the objective of providing a diverse commercial seed source.

Electrophoresis – The movement of colloidal particles through a fluid under the action of an electric field.

Emasculation – Removal of anthers from a flower before pollen is shed to prevent self pollination.

Embryo – The rudimentary plant within the seed.

Endosperm – Food storage material in the seed.

Enzymes – Substance produced from a gene that controls or regulates cell functions and hence the entire organism. It may catalyze and initiate a biochemical reaction.

F1 – The first generation progeny from a cross. The first filial generation.

FIS – *Federation International des Semences*, an international federation of the seed trade.

Fatuoid – A common mutant found in Oat crops. Sometimes called a False Wild Oat. It usually has heavier protruding black awns distinguishable at maturity.

Federal *Seeds Act and Regulations* – See *Canada Seeds Act and Regulations*.

Floret – The stamens, pistil and lodiculae enclosed by the lemma and palea.

Forages – Plants grown primarily for livestock feed and in which nearly all the top growth is harvested.

Foundation seed – The approved progeny of Breeder or Select seed produced by seed growers authorized by the CSGA for the production of seed of this class, and which has been so managed to maintain its specific varietal identity and purity. The seed is graded by a person authorized by the CFIA. Foundation is the highest official pedigreed class of seed of commerce.

Foundation plot grower – A seed grower approved by the CSGA to produce Foundation class seed plots, such as plots of Canola, Rapeseed, Mustard, Oilseed Radish and Industrial Hemp. This person has completed a three-year probationary period in plot production after three recent years of pedigreed seed production.

Foundation single cross – A single cross used in the production of a double-cross, a three-way cross or a top cross.

Fungi – Microscopic plants consisting of a vegetative structure called a mycelium, lacking chlorophyll and conductive tissue and reproduced by spores.

Fusiform – A plant's seed head spike that is widest in the middle and tapers to both its tip and base.

Gene – The unit of inheritance composed of DNA forming part of a chromosome, which controls the transmission and development of inherited characteristics. Its effect is generally conditioned by its interaction with other genes, the cytoplasm and environmental factors.

Generation – The designation for multiplication generations, in the Native Plant Certification program, which replaces pedigreed class names. For example, Generation 1 (G1) is equivalent to Breeder status and Generation 2 (G2) is equivalent to Foundation status in the Source Identified and Selected classes of pre-variety germplasm certification.

Genetic code – The means of storing genetic information as sequences of nucleotide bases in the chromosomal DNA.

Genetic engineering – The deliberate modification of an organism's characteristics by manipulation of DNA and transformation of certain genes.

Genotype – The genetic composition of the plant.

Germination – The resumption of growth by the embryo and development of a young plant from seed.

Germplasm – Refers to plant materials that serve as a basis of crop improvement or a reservoir of genes for research. The total hereditary makeup of organisms that determines the hereditary properties of an organism.

Glume – Two bracts found at the base of a grass or cereal spikelet.

Grower – See Seed grower.

Haploid – A term indicating one-half the normal diploid complement of chromosomes.

Haploid method – A plant breeding method for obtaining embryos with half the chromosome number followed by a doubling, usually using colchicines, to produce a homozygous plant.

Hard seed – A seed which is dormant due to the nature of its seed coat which is impervious to either water or oxygen or both.

Head – An inflorescence in which the floral units on the peduncle are tightly clustered surrounded with a group of flower-like bracts called an involucre, e.g., sunflower.

Herbicide – A chemical toxic to plants.

Heterosis – See Hybrid vigour.

Heterozygous – Refers to not breeding true for a specific hereditary characteristic, usually determined by both dominant and recessive alleles. Plants may be heterozygous for some characteristics and homozygous for others.

Hilum – The scar remaining on the seed (ovule) at the place of its detachment from the seed stalk (funiculus).

Homozygous – Refers to breeding true for a specific hereditary characteristic, usually by identical alleles.

Honorary Life Award of CSGA – A person, who is not a grower member of the CSGA, elected by the membership of the CSGA to receive this award in recognition of distinguished service to the CSGA and Canadian agriculture.

Hooded – Refers to awns on glumes that terminate in various wing-like structures.

Hull – The outer covering of a seed which may be removed freely as in Wheat or adhere as in Barley.

Hybrid – The first generation progeny of a cross between two different plants of the same species often resulting in a plant that is more vigorous and productive than either parent.

Hybrid vigour – The increase in vigour of hybrids over their parental inbred types, also known as heterosis.

Hypocotyl – The part of the embryo axis between the cotyledons and the primary root which gives rise to the stalk of the young plant.

ICIA – International Crop Improvement Association. Former name of the Association of Official Seed Certifying Agencies (AOSCA).

lSTA – International Seed Testing Association.

In vitro – Conducted outside a living organism (in contrast to in vivo).

Inbred – A relatively true breeding strain resulting from several successive generations of controlled self fertilization or back-crossing to a recurrent parent with selection or its equivalent.

Identity Preserved (IP) **–** Programs that segregate commercial crops, usually by variety or group of varieties, for delivery to markets with variety-specific requirements. IP program requirements usually include the planting of Certified seed.

Increase – To multiply a quantity of parent seed through a generation of production.

Inflorescence – The arrangement of flowers of a plant such as umbel, raceme, spike, tassel and panicle.

Inspection – The act of inspecting a pedigreed seed crop by an inspector authorized to report to the CSGA on the condition of the seed crop offered for pedigreed status. The inspector reports on varietal impurities, difficult to separate other crop kinds, isolation, objectionable weed content, previous land use and the pedigree of the parent seed planted.

Inspector – A person designated under the authority of the federal *Seeds Act and Regulations* or other person recognised by the CSGA as an inspector of seed crops.

Intellectual property protection (IPP) – The legal measures, such as patents, Plant Breeders' Rights, trademarks, contracts and licenses, usually developed to ensure adequate returns on investment in the development of a new technology.

Interagency tags – Labels or tags applied to pedigreed seed moving from one country or state to another. Pedigreed seed brought into Canada for resale is usually labelled with Interagency tags.

ISO – International Standards Organization.

Isolation Requirements – The distance required to isolate pedigreed seed crops from other crops which may be a source of pollen or seed contamination. Used by most seed certification agencies as one of the requirements to maintain varietal purity of pedigreed seed crops.

Kernel – The seed or grain.

Labels – Issued by the CFIA, breeding institutions or the CSGA to identify the variety, pedigree identity and class of a seed lot. Sometimes called "tags."

Land use inspection – An official inspection of a non-pedigreed crop to determine the degree of contamination in the crop which may pose a varietal purity problem in a pedigreed seed crop planned to be grown on the same land the following crop season.

Legume – A plant which is a member of the *Leguminosae* family having the characteristic of forming nitrogen-fixing nodules on roots and also have dry, dehiscent multiseeded pods.

Lemma – The lower or dorsal bract of a grass spikelet enclosing the caryopsis. In Wheat it is readily removed at harvesting, but usually adheres in Barley and Oats.

Lesion – A localized spot of diseased tissue (spots, cankers, blisters, scabs).

Ligule – A membranous fringe on the inner side of a leaf at the top of the sheath; arises from the junction of the leaf blade and the leaf sheath in many grasses.

Licensed Seed Crop Inspector (LSCI) – An individual who has been licensed to conduct pedigreed seed crop inspection for an authorized seed crop inspection service.

Lodging – The displacement of the stems of crops from an upright position.

Male sterility – An inherited factor, useful in hybrid seed production; prevents viable pollen from being produced.

Mechanical purity – Refers to the degree of freedom of a seed lot from seeds of other crop kinds, weed seeds and inert matter.

Member: Regular Member of CSGA – Any person, partnership or organization producing or undertaking the production of pedigreed seed may become a Regular Member of the CSGA by applying for inspection of crops planted with parent seed eligible for certifying and paying the applicable fees.

Monocotyledon – Refers to plants with single seed leaf at the first node of the lead shoot or stem.

Monoculture – The production of a single species, often the same cultivar, over a wide geographical area.

Morphology – The form, structure and development of plants.

Multiline – A composite (blend) population of several genetically related lines of a self-pollinated crop.

Mutagen – Substance which causes or induces genetic changes or mutations.

Mutant – A plant that differs from its normal or parent strain by virtue of an altered genetic characteristic.

Mutation – A sudden heritable variation that results from changes in a gene or genes.

Native Plant Certification (NPC) – A voluntary quality control process provided by the CSGA for native plant seed identification. Although legally separate from pedigreed seed crop certification, similar CSGA documents and procedures are used to verify the origin, of collection or production, of native plant reproductive materials which have not been released as a variety. The CSGA's NPC program documents the identity of plant material and verifies that it is from a designated geographic location (Source Identified class) or selected for specific characteristics (Selected class).

Nicking – Synchronization of the receptivity of the male sterile plant to the maximum pollen load of the pollinator for cross pollination in hybrid seed production.

Non-Pedigreed crop – A crop for which a crop certificate has not been issued or recognized by the CSGA.

Norm (as applies to plant description) – The description of the characteristics of a variety as supplied by the Breeder. Also known as a variety description.

Novel traits – See Plants with novel traits.

Noxious weed – A weed or plant that is considered undesirable and so categorized by the Canada *Seeds Act.*

OECD – The Organization for Economic Co-operation and Development, an international agency which, among other things, has developed specifications, procedures and standards for international seed certification among member countries. Refer to Appendix B.

Official Seed Crop Inspector – A CFIA employee who is qualified to conduct pedigreed seed crop inspection.

Off type – Plants in a seed field which deviate in one or more characteristics from the official description of the variety.

Open pollinated – Seed produced as a result of natural pollination as opposed to hybrid seed produced as a result of a controlled pollination.

Open pollinated variety – A heterogeneous cultivar resulting from a cross-pollinated crop allowed to inter-pollinate freely during seed production (as opposed to a controlled crossed pollination).

Other crop seed – One of the four components of a seed purity test and usually refers to the number of seeds of other crop kinds in the seed sample being tested.

Outcross – The plant resulting from pollen of a different variety of the same species.

Parent or stock seed – Seed used to produce a crop eligible for pedigreed status.

Partnership – The CSGA may establish a partnership record for the production of pedigreed seed restricted to those members who are actively participating in a single farm unit and may include contractual employees or shareholders.

Pathogen – Any organism capable of causing disease in a host or range of hosts.

Pedigreed class or status – See Class.

Pedigreed crop – A crop for which the CSGA, based on a crop inspection report and compliance with all certification requirements, has issued a crop certificate which indicates that the crop has been granted Breeder, Select, Foundation, Registered or Certified crop status.

Pedigreed seed – Seed is recognized as having pedigreed status when derived from a pedigreed crop. Seed originating outside of Canada must be certified by a foreign certification agency recognized by the CFIA before being considered pedigreed seed in Canada.

Pedigreed graded seed – Pedigreed seed meeting the grade requirements of the federal *Seeds Act and Regulations*.

Perennial – A plant that produces vegetative growth each year without replanting.

Perfect flower – A flower having both staminate (male) and pistillate (female) organs.

Phenotype – A set of observable characteristics of an individual or group usually determined by genotype and environment.

Plant Breeder – For pedigreed seed production, a plant breeder is any person recognized as such by the Plant Breeders' Committee of the CSGA and the CSGA Board of Directors and who is knowledgeable in the principles and practices of plant breeding and related disciplines and actively engaged in the selection and synthesis of superior varieties, production and maintenance of cultivars true to identity and purity.

Plant Breeders' Rights (PBR) – Canadian legislation, enacted in 1990, that allows Plant Breeders to legally protect their new varieties of plants, for up to a fixed term, through exclusive rights respecting multiplication and sale; provides a legal basis for compensation for the use of a cultivar by others. Similar legislation is known as Plant Variety Protection (PVP) in the U.S. and UPOV Convention in the European Union. Refer to Appendix B.

Plant breeding – An organized effort to produce progressively better adapted plants.

Plant Breeding Station – An institution or facility where varieties are developed and Breeder seed is produced and maintained.

Plant with novel traits (PNT) – A plant variety or genotype, with characteristics that demonstrate neither familiarity nor substantial equivalence to those present in a distinct, stable population of a cultivated species of seed in Canada, that has been intentionally selected, created or introduced into a population of that species through a specific genetic change.

Pollen – The cells that are borne in the anthers of flowers and contain the male generative cells.

Pollen parent – The parent that furnishes the pollen which fertilizes the ovules of the other parent in the production of seed.

Pollination – The process by which pollen is transferred from an anther to the stigmatic surface of the pistil of a flower.

Pre-Basic seed – An OECD class of pedigreed seed which is considered in Canada as equivalent to Breeder seed and is used for the production of Basic seed or Foundation seed.

Pre-Variety Germplasm – The category of AOSCA certification standards used for the collections and selections of plants, usually perennial native forage grasses, legumes and forbs, that are not sufficiently distinct, uniform or stable to be certified as varieties. In Canada, separate from pedigreed seed crop certification, these standards are used in the CSGA's Native Plant Certification (NPC) program for Source Identified and Selected class seed crop certification.

Progeny – Offspring or plants grown from seed.

Prohibited noxious weed – A weed or plant that is considered so undesirable that it is categorized as Prohibited Noxious (Class 1) in the Weed Seeds Order of the Canada Seeds Act.

Pubescent – Describing a hairy covering.

Quality Management System (QMS) – The clearly defined and documented quality standards, procedures and responsibilities for an organization.

Quality System Procedures (QSP) – The activities involved in a specific sector of a quality management system as well as the roles and responsibilities of all parties involved. Examples related to the CSGA include the CFIA's Pedigreed Seed Crop Inspection Procedures, QSP 142.1, which is used to describe and audit the CSGA and the CFIA seed crop inspection requirements and references Specific Work Instructions (SWI) for different crop kinds.

Raceme – A type of flower cluster in which single-flowered pedicels are arranged along the sides of a flower shoot terminus. There is space along the shoot between the pedicels.

Radicle – A rudimentary root, the lower end of the hypocotyl of the embryo and the primary root of the seedling.

Referee Plant Breeder – A plant breeder recognized by the CSGA to make decisions on varietal identification of crops.

Registered seed – The approved progeny of Breeder, Select or Foundation seed produced by members of the CSGA and so managed to maintain specific varietal identity and purity. Registered seed is graded and labelled by persons authorized by the CFIA under the requirements of the federal *Seeds Act and Regulations*.

Registered Seed Establishment (RSE) – A seed cleaning and/or seed storage establishment operated by seed growers or companies that has been accredited by the CFIA to grade and sell bulk or bagged pedigreed seed and which is audited by the Canadian Seed Institute (CSI) for compliance with the federal *Seeds Act and Regulations* and CSI standards.

Registration – The process, formerly known as licensing, whereby CFIA under the authority of the federal *Seeds Act and Regulations* and recommendations from committees established to make judgements on the acceptability of new varieties, prescribes which varieties are registered for sale in Canada.

Renovation or rejuvenation – The process of restoring productivity to plants growing in solid stands by cultivation, fertilization, reseeding or other methods.

Replications – Repetition of treatments or plots in experiments which allows for statistical analysis.

Responsible Plant Breeder – The plant breeder or breeding organization that is officially recognized as the maintainer of Breeder seed reference samples and production for a variety.

Robertson Associate – An award of recognition presented to a Regular Member of the CSGA for distinguished service to CSGA, as voted by the membership.

Rogues – Undesirable plants growing in a pedigreed seed crop. May arise as a result of a mutation, intercrossing, mechanical mixtures or cross pollination.

Roguing – Process of removing rogues, off-types, other crop kinds and undesirable plants from seed fields.

SCST – Society of Commercial Seed Technologists.

Sampling – The method by which a representative sample is taken from a seed lot to be used for analysis.

Sclerotia (sclerotium) – Compact mass of fungus hyphae usually with a black outer surface and white inside. May remain dormant for long periods and eventually gives rise to more fungus.

Seed Crop Inspection Report – A form on which the crop inspector describes the crop offered for pedigreed status and which is appraised by the CSGA to determine if the crop as described meets the requirements of the CSGA's regulations (Appendix A.2 of Circular 6).

Seed grower (pedigreed) – An applicant for the inspection of a crop offered for pedigree, grows the crop in accordance with the *Canadian Regulations for Pedigreed Seed Crop Production* of the CSGA and who accepts full responsibility for the production and management of the seed crop and all related financial obligations.

Seedborne – Carried on or in seeds.

Seedcoat – The protective covering of a seed usually composed of inner and outer integuments. Also called the testa.

Seedling – A young plant grown from seed.

Seeds Regulations – See Federal *Seeds Act and Regulations*.

Selected – The seed certification class of pre-variety germplasm which provides third party assurance of identity, usually for perennial native forage grasses, legumes and forbs produced from selected parent populations with distinctive, identifiable characteristics or potential genetic improvement. Selected class seed labels, issued by the CSGA, identify the name assigned to the selection by the responsible Plant Breeder.

Select seed – The approved progeny of Breeder or Select seed produced in a manner by seed growers authorized by the CSGA to maintain its varietal identity and purity. Select seed may be produced from Select seed for a maximum of five multiplications from Breeder seed.

Select (Synthetic) – A CSGA category for a specific combination of seed lots from inspected Breeder or Foundation of Canola used in the production of a Certified seed crop.

Select plot grower – A seed grower who has been approved by the CSGA for the production of Select seed crops. This person has completed a three-year probationary period of plot production after three recent years of pedigreed seed crop production.

Single-cross hybrid – The first generation of a cross between two specified inbred lines.

Source Identified (SI) **–** The seed certification class of pre-variety germplasm which provides third party assurance of geographic origin, usually for perennial native forage grasses, legumes and forbs produced from parent populations which have not been selected. Source Identified class seed labels, issued by the CSGA, identify the original geographic location, of the collection or production, that has been declared by the responsible Plant Breeder.

Specific Work Instructions (SWI) – The procedures required to implement specific requirements of a Quality System Procedure (QSP). Examples related to the CSGA include the CFIA's Field Corn Seed Crop Inspection Procedures, SWI 142.1.2-1 and Soybean Seed Crop Inspection Procedures, SWI 142.1.2-6.

Spike – A basic type of inflorescence in which the flowers arise along the rachis.

Spikelet – The unit of the grass flower which includes the two basal glumes subtending one to several florets.

Stamen – The part of the flower, bearing the male reproductive cells, composed of the anthers on a stigma (stalk).

Stigma – The upper part of the pistil that receives the pollen.

Stock or parent seed – Seed used to produce a crop eligible for pedigreed status.

Stolons (stoloniferous) – Plants with laterally creeping stems at or below the soil surface from which buds and new plants arise. Some bear tubers at their ends.

Strain or line – A term used to designate an improved selection of a variety.

Tassel – The flower cluster at the tip of monoecious plants, such as corn, comprised of pollen bearing flowers (staminate inflorescence).

Test weight – The weight of a specified volume of grain.

Three-way cross hybrid – The first generation of a cross between an inbred and a single-cross hybrid.

Top-cross hybrid – The first generation of a cross between an inbred line and an open pollinated variety.

Tramlines – Unseeded, equispaced tracks established in a field at seeding time to provide a pass in the field for tractors to use to aid in the application of chemicals and fertilizer.

Transgenic – Traditionally refers to having genetic material introduced from another species.

Trier – A hand manipulated probe for sampling seeds.

Variant – Any seed or plant which (a) is distinct within the variety but occurs naturally within the variety; (b) is stable and predictable with a degree of reliability compared to other varieties of the same kind, within known tolerances; and (c) is described as a variation in the official variety. It is not an off-type, and only considered an impurity if reported in excess of the acceptable level specified by the responsible Breeder.

Varietal purity – Trueness to type or variety.

Varietal-cross hybrid – The first generation of a cross between recognized stocks of two open pollinated varieties.

Variety (cultivar) – Denotes an assemblage of cultivated individual plants which is distinguished by characteristics (morphological, physiological, cytological, chemical or other) significant for the intended purpose and which retains its distinguishing characteristics when reproduced. Is uniform, stable and reproducible.

Variety description – Document in which the responsible Plant Breeder specifies the distinguishing characteristics of a variety.

Variety maintainer – A special status elite parent seed or Select/Foundation Plot seed grower recognized by the CSGA as eligible to produce Breeder, inbreds or hybrid seed under the supervision of a Plant Breeder recognized by the CSGA.

Vernalization – The exposure to certain conditions of cold temperature and photoperiod to seed and young plants which promotes floral induction without development of the plant especially with Winter Wheat or Winter Barley.

Vigour – The vitality or strength of germination especially under unfavourable conditions.

Volunteer plants – Unwanted plants growing from residual seeds from the previous crop.

Weed – Any plant in a place where it is a nuisance. Usually denotes uncultivated plants growing in fields.

Weed seed (percentage) – The percentage by weight of a seed lot which is composed of seeds of plants considered to be weeds.

Wheat – In the CSGA regulations, includes all kinds of Wheat (durum, spring and winter), as well as einkorn, emmer and spelt.

Winter annual – A plant that develops a seedling stage in the early fall, becomes vernalized over the winter and then produces vegetative and reproductive growth the following season.

Winter hardiness – Ability of a plant to withstand the conditions of a cold winter.

Zero Tillage – A system to improve soil conservation where the new crop is planted into the stubble of the previous crop with even less soil disturbance than with minimum tillage.

APPENDIX D

LIST OF SEED CROPS AND SCIENTIFIC NAMES

Alfalfa
—Medicago sativa L. (incl.M. sativa L. ssp. falcata (L.) Arcangeli)

Barley, six-row
—Hordeum vulgare L. convar. hexastichon Alef.

Barley, two-row
—Hordeum vulgare L. convar. distichon Alef.

Bean, field
—Phaseolus vulgaris L.

Bean, horse, tick and faba
—Vicia faba L.

Bean, mung
—Vigna radiata (L.) Wilczekver. radiata

Beet
—Beta vulgaris L.

Beet, sugar
—Beta vulgaris L. var. saccharifera Lange

Bentgrass, colonial (browntop)
—Agrostis capillaris L. (= A. tenuis Sibth.)

Bentgrass, creeping
—Agrostis stolonifera L. (+ A. palustris Hudson)

Bentgrass, velvet
—Agrostis canine L.

Bluegrass, annual
—Poa annua L.

Bluegrass, Canada
—Poa compressa L.

Bluegrass, fowl
—Poa palustris L.

Bluegrass, Kentucky
—Poa pratensis L.

Bluegrass, rough
—Poa trivialis L.

Bluegrass, wood
—Poa nemoralis L

Bluestem, big
—Andropogon gerardii

Bluestem, little
—Schizachyrium scoparium (Michx.) Nash.

Bromegrass, fringed
—Bromus ciliatus

Bromegrass, meadow
—Bromus biebersteinii Roem. Schult.

Bromegrass, nodding
—Bromus porteri (Coult.) Nash.

Bromegrass, Richardson's
—Bromus richardsonii Link

Bromegrass, smooth
—Bromus inermis Leysser

Bromegrass, sweet
—Bromus carinatus Hook. et Am.

Buckwheat, common
—Fagopyrum esculentum Moench

Buckwheat, tartarian
—Fagopyrum tataricum (L.) Gaertner

Camelina
-Camelina sativa L.

Canarygrass
—*Phalaris canariensis L.*

Canola
—*Brassica napus L.*
—*Brassica rapa L.*
—Canola-quality *Brassica juncea*

Chickpea
—*Cicer arietinum L.*

Clover, alsike
—*Trifolium hybridum L.*

Clover, crimson
—*Trifolium incarnatum L.*

Clover, Persian
—*Trifolium resupinatum L.*

Clover, prairie, purple
—*Dalea purpureum* Ventenat

Clover, prairie, slender white
—*Dalea candidum*

Clover, red
—*Trifolium pratense L.*

Clover, subterranean
—*Trifolium subterraneum L.*

Clover, sweet (white blossom)
—*Melilotus alba Medikus*

Clover, sweet (yellow blossom)
—*Melilotus officinalis (L.) Pallas*

Clover, white
—*Trifolium repens L.*

Coriander
—*Coriandrum L.*

Cordgrass, prairie
—*Spartina pectinata*

Corn, field
—*Zea mays L.*

Cowpea
—*Vigna unguiculata (L.) Walpers ssp. unguiculata*

Crested dogtail
—*Cynosurus cristatus L.*

Dill
—*Anethum graveolens L.*

Fenugreek
—*Trigonella L.*

Fescue, Chewing's
—*Festuca rubra L. var. commutata Gaudin*

Fescue, fine-leaved
—*Festuca tenuifolia Sibth (= F. ovina L. var. tenuifolia (SiDth.) Dumort.)(= F. capillata Lam.)*

Fescue, hard
—*Festuca longifolia Thuill. (= F. ovine L. var. duriuscula auct. amer.)*

Fescue, meadow
—*Festuca pratensis Hudson*

Fescue, red and creeping red
—*Festuca rubra L. var. rubra*

Fescue, rough, plains
—*Festuca hallii* (Vasey) Piper

Fescue, sheep
—*Festuca ovina L.*

Fescue, tall
—*Festuca arundinacea Schreber*

Flax, oil
—*Linum usitatissimum L.*

Foxtail, creeping
—*Alopecurus arundinaceus Poiret*

Foxtail, meadow
—*Alopecurus pratensis L.*

Grama, blue
—*Bouteloua gracilis*

Hedysarum, American
—*Hedysarum alpinum* L.

Hemp (Industrial)
—*Cannabis L.*

Junegrass, prairie
—*Koeleria macrantha (Ledeb.) J.A. Schultes*

Kale, forage
—*Brassica oleracea L. var. acephala DC.*

Lentil
—*Lens culinaris Medikus*

Lupine, field
—*Lupinus spp.*

Medick, black
—*Medicago lupulina L.*

Mustard, black
—*Brassica nigra (L.) Koch*

Mustard, Ethiopian
-*Brassica carinata L.*

Mustard, Oriental or Indian
—*Brassica juncea (L.) Czern. et Coss.*

Mustard, white (= yellow)
—*Sinapis alba L. (= B. hirta Moench)*

Needle and Threadgrass
—*Hesperostipa comata*

Needlegrass, green
—*Nasella viridula* (formerly *Stipa viridula*)

Oat
—*Avena sativa L.*

Oatgrass, hookers
—*Helictotrichon hookeri*

Oatgrass, tall
—*Arrhenatherum elatius (L.) Beauv. ex J. & K. Presl.*

Orchardgrass
—*Dactylis glomerata L.*

Pea, field
—*Pisum sativum L.*

Peanut
—*Arachis hypogea L.*

Porcupinegrass
—*Stipa Spartea* Trin.

Radish
—*Raphanus sativus L.*

Rapeseed, Oilseed Rape incl. Canola
—*Brassica rapa L.* (Polish type)
—*Brassica napus L.* (Argentine type)

Redtop
—*Agrostis gigantea Roth (= A. alba auct.)*

Reed Canarygrass
—*Phalaris arundinacea L.*

Ricegrass, Indian
—*Achnatherum hymenoides*

Rutabaga (swede)
—*Brassica napus L. var. napobrassica (L.) Reichb.*

Rye
—*Secale cereale L.*

Ryegrass, annual (Italian and fluorescent types)
—*Lolium multiflorum Lam.*

Ryegrass, intermediate
—*Lolium hybridum Husskn.*

Ryegrass, perennial
—*Lolium perenne L.*

Safflower
—*Carthamus tinctorius L.*

Sainfoin
—*Onobrychis vicifolia Scop.*

Sandreed, prairie
—*Calamovilfa longifolia* (Hook.) Scribn.

Sorghum
—*Sorghum bicolor (L.) Moench (= S. vulgare Pers.), S. almum Parodi*
Soybean
—*Glycine max (L.) Merrill*

Sudangrass
—*Sorghum sudanese (Piper) Stapf*

Sunflower
—*Helianthus anuus L.*

Timothy, common
—*Phleum pratense L.*

Timothy, dwarf
—*Phleum bertolonii DC. (= P. Nodosum auct.)*

Tobacco (fine-cured and burley types)
—*Nicotiana tabacum L.*

Trefoil, bird's-foot
—*Lotus corniculatus L.*

Triticale
—*X Triticosecale Wittmack*

Vetch, crown
—*Coronilla varia L.*

Vetch, milk, cicer
—*Astralagus cicer L.*

Vetch, milk, Canadian
—*Astragalus canadensis*

Wheat, common
—*Triticum aestivum L. amend. Fiori et Paol*

Wheat, durum
—*Triticum durum Desf.*

Wheat, einkhorn
—*Triticum monococcum*

Wheat, emmer
—*Triticum dicoccon Schrank*

Wheat, spelt
—*Triticum spelta*

Wheatgrass, awned
—*Agropyron subsecundum*

Wheatgrass, beardless
—*Pseudoroegneria spicata*

Wheatgrass, crested, fairway
—*Agropyron cristatum (L.) Gaertner*

Wheatgrass, crested, standard
—*Agropyron desertorum (Fischer ex Link) Schult.*

Wheatgrass, intermediate
—*Elytrigia intermedia*

Wheatgrass, northern
—*Elymus lance olatus*

Wheatgrass, pubescent
—*Agropyron trichophorum (Link) Richter*

Wheatgrass, Siberian
—*Agropyron sibiricum (Wild.) Beauv.*

Wheatgrass, slender
—*Elymus trachycaulus*

Wheatgrass, streambank
—*Agropyron riparium Scrib. & Smith*

Wheatgrass, tall
—*Elytrigia elongata*

Wheatgrass, western
—*Agropyron smithii Rydb.*

Wildrye, Altai
—*Elymus angustus Trin.*

Wildrye, hairy
—*Elymus innovatus*

Wildrye, Russian
—*Elymus junceus Fische*