

# THE SEED PROGRAM IN CANADA



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Agriculture  
Canada

Canada



Canada, with much arable land, a small population and diverse geography and climate, produces seed of many crops. It has traditionally been a major exporter of forage seed, and has become a major contractor for multiplying seed of foreign varieties for re-export to the countries of origin. In recent years, we have also begun exporting seed of other species, such as corn and oilseeds.

Canada enjoys a number of advantages for quality seed production. It can easily meet isolation requirements because of its large arable land base and large fields. Climatic variation not only allows a diversity of crops to be grown in the summer, but cold winter temperatures act as a natural barrier against infestations of insects and diseases. To ensure that unwanted diseases

and pests are not brought into the country, our strict import requirements are enforced by government inspectors at points of entry and origin, and by appropriate tests whenever warranted.

Pedigreed seed production in Canada is strictly regulated. Growers must either have or develop the expertise needed for quality production. As there is a long history of seed production in support of our plant breeding programs, we have growers experienced in producing seed of all significant Canadian crops.

Because of these advantages, Canada provides a suitable environment for the production of quality seed of both Canadian-bred varieties and those imported for contract multiplication.

#### SEED PRODUCTION OF MAJOR FORAGE SPECIES IN CANADA – 5-YEAR AVERAGE, 1981-85 ('000 kg)

	Maritimes	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Canada
Alfalfa	–	–	6	989	700	1460	4	3159
D.C. red clover	3	56	907	–	60	–	24	1050
S.C. red clover	–	–	1	238	700	1800	195	2914
Alsike clover	–	–	–	15	168	1650	340	2173
Sweet clover	–	–	1	1930	1580	160	–	3671
Timothy	90	579	638	3705	480	920	292	6704
Bromegrass	–	–	–	73	169	620	51	913
Creeping red fescue	–	–	–	–	4	4090	2370	6464
Bird's-foot trefoil	–	–	990	2734	417	583	70	4794

Figures include pedigreed and commercial seed

#### AREA INSPECTED FOR PEDIGREED STATUS – CEREALS, OILSEEDS AND SPECIALTY CROPS – 5-YEAR AVERAGE, 1981-85

	Acres	Hectares
Wheat : Winter	25 088	10 153
Spring	271 316	109 800
Durum	44 604	18 051
Total wheat	341 005	138 003
Oats	56 361	22 809
Barley	178 179	72 108
Rye	5 809	2 351
Triticale	928	382
Flax	69 363	28 071
Corn	33 684	13 638
Mustard	1 109	449
Rapeseed	50 903	20 600
Buckwheat	3 973	1 608
Field beans	7 482	3 028
Field peas	25 039	10 133
Lentils	7 206	2 918
Soybeans	27 925	11 301
Fababeans	1 305	528

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*Programme canadien des semences.*







## Plant breeding

Agriculture Canada's Research Branch is the country's major plant breeder. It has breeding programs for all major crops in all parts of the country, run by researchers in numerous disciplines such as breeding, physiology and pathology. Many Canadian universities also have extensive plant breeding programs and are our second most important source of varieties.

Private companies are becoming more involved in plant breeding – several have bred corn for many years. More recently, some have set up programs for cereals, oilseeds and other crops. This is expected to increase with the introduction of legislation on plant breeders' rights.

## Registration of new varieties

For a new variety to be sold in Canada it must first be registered (known as "listing" in some countries). The authority to register new varieties comes from the Seeds Act, administered by the Seed Division.

To become registered, a variety must show agronomic merit. The major criterion is that it must equal or surpass accepted check varieties, or have some unique characteristic, such as disease resistance, that would be of value to Canadian agriculture. Merit is determined after a number of years of trials.

When a variety has been accepted, a description is published, which gives a botanical description, breeding history and performance data. Foreign varieties may also be submitted for registration, but must follow the same procedures and meet the same requirements if they are to be sold in Canada.









## Pedigreed seed production

Once a new variety has been accepted for registration it is multiplied through the pedigreeing system, which ensures genetic purity. Canada uses a limited-generation system, with the number of generations dependent on the kind of crop and method of reproduction. This provides adequate supplies of high quality seed and ensures that only the best quality may be sold as pedigreed.

Canada's highest pedigree class is Breeder, which is produced and maintained by a plant breeder. Multiplication through to the Certified class is handled by seed growers who have demonstrated the necessary skill to meet the requirements for each level.

The Canadian pedigreeing agency, which establishes the standards for genetic purity, is the Canadian Seed Growers' Association (CSGA). The CSGA draws its authority from the federal Seeds Act. Government inspectors check the crop on behalf of the association, and submit a report to the CSGA for appraisal. If the crop meets the required standards, a certificate is issued attesting to the identity and genetic purity of the crop. The association also keeps records to maintain continuity of identity of the seed back to the Breeder class.



1985

CANADIAN SEED GROWERS' ASSOCIATION  
CSGA  
BOX 8455, OTTAWA ONTARIO K1G 3T1 (613) 236 0437

ASSOCIATION CANADIENNE DES PRODUCTEURS DE SEMENCES  
ACPS

CERTIFIED \*\* CROP CERTIFICATE \*\* CERTIFIED  
85-0001234-41

GROWN BY :  
0001234  
DOE, John H.  
123 ANYWHERE ST.  
RIVERTON, Manitoba

September 06, 1985  
DATE CROUD TRAFFERS

THIS CERTIFIES THAT THE FOLLOWING CROPS HAVE MET THE REQUIREMENTS OF THE CANADIAN SEED GROWERS' ASSOCIATION, FOR VARIETAL PURITY AND CROP STANDARDS FOR:  
CECI CERTIFIE QUE LES RECOLTES SUIVANTES ONT ETE PRODUITES CONFORMEMENT AUX EXIGENCES DE L'ASSOCIATION DES PRODUCTEURS DE SEMENCES DU CANADA CONCERNANT LA PURETE DE LA VARIETE ET LES NORMES DE RECOLTE POUR:

CLIMAX  
TIMOTHY

CERTIFIED \*\* CERTIFIED \*\* CERTIFIED \*\* CERTIFIED

FIELD NUMBER 7  
AREA 12.00  
12.00 AC (4.86 Ha.)

W.K. Robertson  
SECRETARY SECRETAIRE

COMPLÉTEZ LE VERSO DE CE CERTIFICAT (COMPLETE THE REVERSE SIDE OF CERTIFICATE)

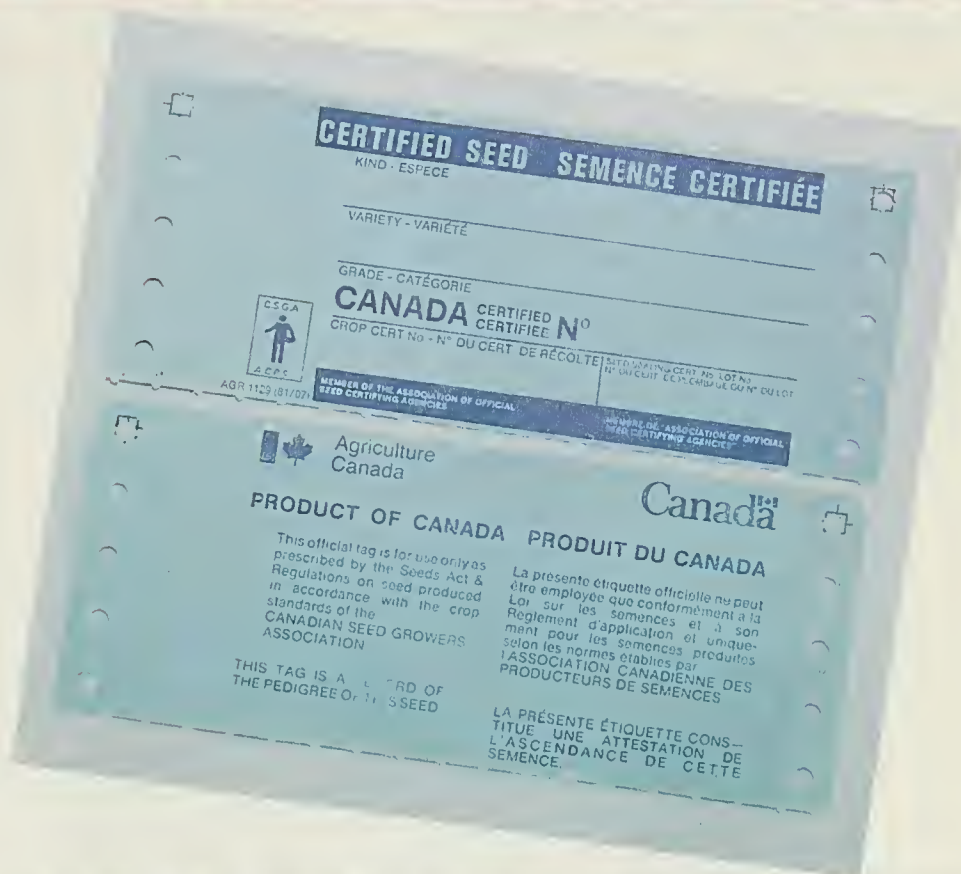
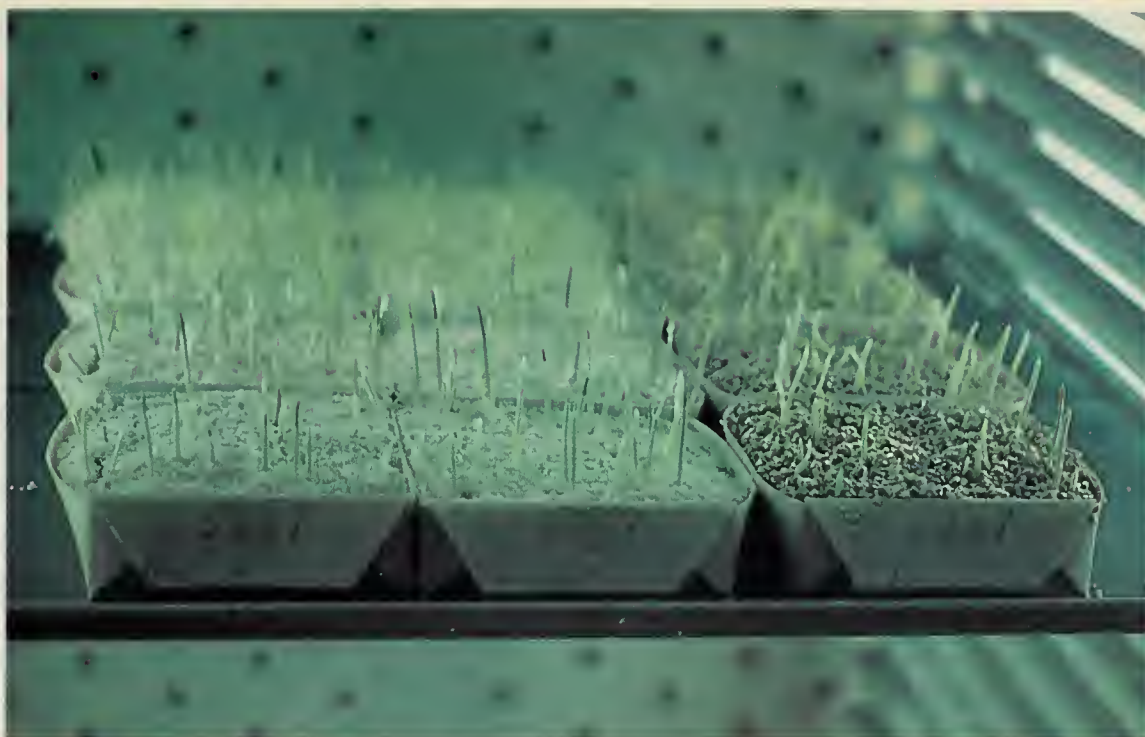




After the crop is harvested and then processed to remove impurities and undesirable seeds, the seed is packaged and presented for inspection and grading. This entails sampling and analysis of the seed, followed by labeling and sealing of the lot.

Seed analysis is done in laboratories to verify purity, germination, and general quality. Agriculture Canada has its own seed laboratories, which are affiliated with the International Seed Testing Association. In addition, the department accredits private laboratories, which have qualified analysts and specified equipment, to carry out tests for domestic markets.

Agriculture Canada inspectors have the responsibility of labeling and sealing seed lots. However, under the Seeds Regulations, the department may authorize private seed companies that have proper cleaning and handling equipment plus qualified staff to grade, seal and tag the lowest class of pedigreed seed for domestic use. These establishments must submit a sample of each lot they seal to the department for verification that the seed meets the required standards; unsatisfactory performance can mean cancellation of authorization. Agriculture Canada inspectors monitor these establishments, as well as sampling seed in the marketplace, to ensure quality.





## Import requirements

Seed imports are regulated under both the Seeds Act and Regulations and the Plant Quarantine Act and Regulations.

The Seeds Act and Regulations establish standards for minimum purity (freedom from weeds and other crops) and germination levels. Seed must meet these standards before it can be imported. The regulations also exclude varieties not registered for sale and weeds and crops deemed detrimental to Canadian agriculture.

The Plant Quarantine Act and Regulations protect Canadian agricultural and forestry crops against exotic plant pests from other countries. Such pests include fungi, bacteria, viruses, insects, snails, nematodes and even weeds. Canada is physically isolated by geography and climate from all other countries except the United States; however, increased trade and travel have provided new means of entry for many of these foreign plant pests. Phytosanitary certification of seed is the way we keep them out.



## Multiplication of foreign varieties

For many years, Canada has multiplied seed of foreign varieties and returned the progeny to the country of origin. Generally, the work is done under the seed schemes of the Organization for Economic Cooperation and Development (OECD). These internationally accepted schemes allow seed to be produced and certified in one country and accepted in another. Countries that have too little land or a poor climate for seed production can ship small quantities of early generation (Prebasic or Basic) seed to Canada, where it is multiplied under contract. The progeny is then returned to the country of origin.

Seed multiplication under the OECD program first took place in the early 1960s. A number of varieties of three species were multiplied under the Herbage and Oilseed Scheme, and amounted to about 9550 kg. In 1985, 60 varieties of 20 species of both domestic and foreign origin were multiplied under the Herbage and Oilseed, Cereal, and Maize schemes, with total production amounting to 6 235 427 kg. Canada also uses the OECD seed schemes to certify Canadian varieties destined for export.

Seed lots of both foreign and Canadian varieties destined for export and multiplied under the OECD schemes are sampled under International Seed Testing Association (ISTA) rules for purity and germination to assure the importing country that the seed is acceptable.

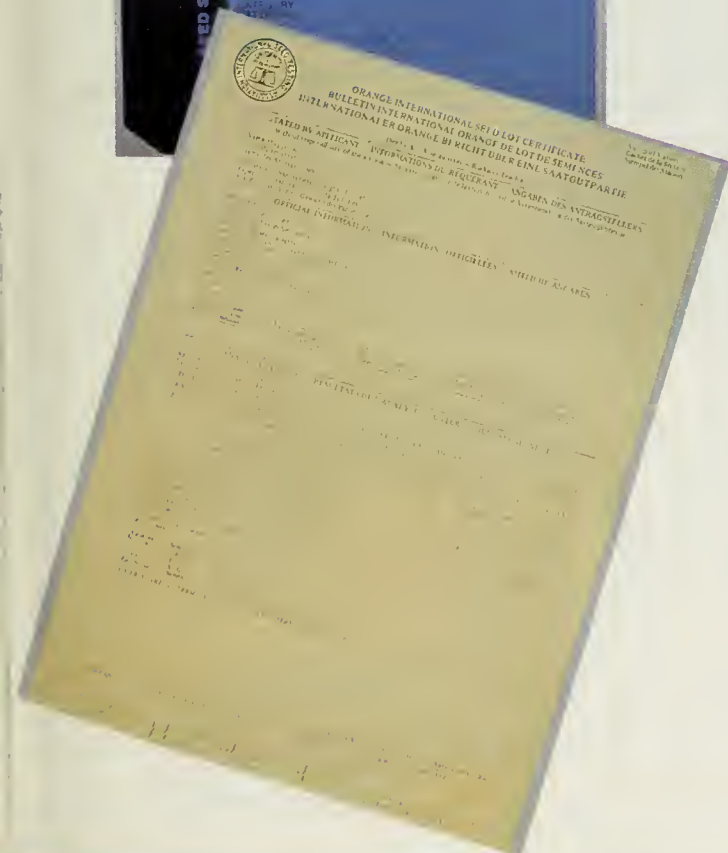
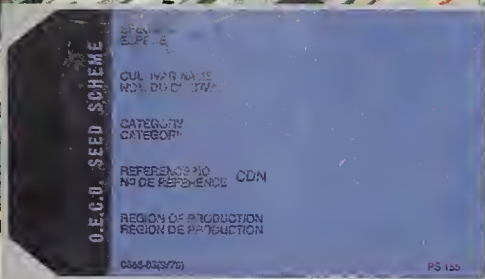
Canada is also a member of the Association of Official Seed Certifying Agencies (AOSCA), along with most states of the U.S. Its requirements allow seed pedigreed in one state or Canada to be accepted in another. It also sets rules for seed multiplication by member agencies.



## Overseas testing of Canadian varieties

Many countries maintain national lists of crop varieties that have agronomic merit to them. These lists generally contain varieties that have been officially tested and are allowed to be sold. Tests are conducted regularly so that new varieties or those from other countries can be evaluated for possible inclusion. The Seed Division supplies samples from public breeding programs to other countries on request; it will also give the names of contacts for information on, and/or samples of, privately-bred varieties.

The division also gives test samples to foreign, private or government agencies for other purposes. This not only makes varieties of demonstrated merit available to other countries, but lets Canadian scientists discover how the varieties perform in these locations.





# Organizations impacting on the National Seed Program

## Agriculture Canada

**SEED DIVISION** This division regulates the quality and representation of seed marketed in Canada. It provides analytical and inspection documentation and labeling to ensure that seed exported from Canada meets the requirements of importing countries and companies.

K.W. Neatby Building  
960 Carling Avenue,  
Ottawa, Canada K1A 0C6



**PLANT PROTECTION DIVISION** This division protects Canadian agricultural (including horticultural) and forestry plants and plant products from foreign pests and diseases. It also facilitates export of Canadian plants and plant products to other countries.

K.W. Neatby Building,  
960 Carling Avenue,  
Ottawa, Canada K1A 0C6

**RESEARCH BRANCH** The branch supplies new knowledge and improved technology that ensures efficient production of adequate, safe and nutritious food, a stable and profitable agrifood industry, and judicious use of Canada's natural agricultural resources.

Sir John Carling Building  
930 Carling Ave.  
Ottawa, Canada K1A 0C5



**INTERNATIONAL PROGRAMS BRANCH** This branch improves the efficiency of the Canadian agricultural marketing system, increases agricultural exports and promotes greater domestic use of Canadian-produced supplies.

Sir John Carling Building  
930 Carling Ave.  
Ottawa, Canada K1A 0C5





## External Affairs Canada

AGRICULTURE, FISH AND FOOD PRODUCTS BUREAU The bureau provides information on export opportunities and market conditions overseas, helps exporters explore new markets through the Program for Export Market Development and helps businesses contact foreign customers through Canadian trade commissioner posts.

Lester B. Pearson Building  
125 Sussex Drive  
Ottawa, Canada K1A 0S2



# ▶ Canada

### Non-government organizations

▶ CANADIAN SEED GROWERS' ASSOCIATION (CSGA) This is the recognized pedigreeing agency in Canada, and establishes standards for genetic purity of all crops except seed potatoes.

Box 8455, Ottawa, Canada K1G 3T1

▶ CANADIAN SEED TRADE ASSOCIATION (CSTA) This association is made up of companies involved in the marketing of seed; it promotes its members' interests both at home and abroad.

207-2948 Baseline Road,  
Ottawa, Canada K2H 8T5



▶ SECAN This organization is responsible for the multiplication and promotion of publicly bred varieties.

885 Meadowlands Drive, Suite 512,  
Ottawa, Canada K2C 3N2

