

# Delivering Quality for You

The Canadian seed system is proven to meet customer requirements around the globe.

Canada produces some of the best quality seed in the world. Not only do Canadian seed producers benefit from rich soils and a climate that grows some of the highest quality crops in the world, but the Canadian seed industry also uses a rigorous, multi-level quality system. Seed is produced under strict regulatory guidelines that ensure high standards for purity and quality.

The Canadian government and the seed industry, through organizations like the

- Canadian Seed Trade Association,
  - Canadian Seed Growers' Association,
  - Commercial Seed Analysts Association of Canada,
  - and the Canadian Seed Institute
- work together to ensure that the seed certification system in Canada works efficiently and effectively and continues to be one of the most sophisticated regulatory regimes in the world.

The Canadian seed industry has systems in place to make sure customers get the seed they are expecting in the areas of:

- **VARIETAL PURITY** – ensuring the seed is of the variety claimed.
- **MECHANICAL PURITY** – processing the seed to ensure minimal impurities.
- **TESTING** – verifying germination percentages and purity levels.
- **GRADING** – confirming the standard to which the final product conforms.

It's all there – on the seed tag and on the certificate of analysis – the information a customer needs to rest assured they've got the right product. This information is backed up by a series of steps to live up to these high standards. Specifically, the Canadian seed system focuses on three key areas that are critical in seed production:

- **FIELD STANDARDS** – production regulations developed by recognized Plant Breeders to maintain varietal purity through seed source verification, isolation, clean fields, appropriate crop rotations and official third party inspections and verifications.
- **PROCESS CONTROL** – Canadian seed facilities have quality assurance manuals and systems in place covering the entire processing enterprise, all accredited by a third party.
- **TESTING** – varietal purity, mechanical purity, germination, and quality traits are tested in accredited labs.

Whether it is canola, forages, corn, soybeans, cereals, or pulses, Canada has the expertise to deliver top quality seed.



The seed system in Canada is integrated to ensure that every step in the process of seed production is working properly. Both people and facilities are accredited to ensure the right people have the right equipment and training to do the job.

Canadian Pedigreed seed **TAGS** are a great example of the success of the seed system both domestically and internationally. Customers have confidence when they see those tags that the seed is of the highest quality. Standing behind those tags is a detailed quality management system that includes a well documented paper trail that ensures appropriate product handling practices, segregation, auditing, verification, process control, and personnel training.

Those measures ensure **TRACEABILITY** through all steps of seed production. From the original Breeder seed to the Certified level, from field inspection to seed crop certificates, the steps are in place to trace that seed from start to finish. It's an assurance for products that need an auditable chain, such as identity-preserved crops; and it's peace of mind for every customer.

Add to that Canada's **ENVIRONMENT**, which also plays a role in delivering high quality seed. There are a broad range of climate zones and fertile soil conditions that allow seed producers to grow many of the major food crops used around the world. Canadian seed is often bred for greater winter hardiness and early maturity. Plus our famous Canadian winters break the natural cycles of many insects and diseases, reducing many of the pests that plague seed producers elsewhere.

Canadian seed companies are at the forefront of technology and innovation. Whether it is speeding the development of new agronomics or nutritional traits or integrating the latest in seed testing technology, Canadians are putting the most advanced tools to work in the seed industry. Canada enjoys a regulatory environment where intellectual property is protected, and policy is driven by science-based considerations, encouraging investment in research and development.

Built on a foundation of common sense and tradition while incorporating the latest in science and technology, the Canadian seed system is ready to deliver for you.

# Field Activities

When it comes to seed multiplication, it all starts in the field. That's why seed crop production in Canada has been administered for nearly 100 years by the Canadian Seed Growers' Association. This organization determines the standards for field hygiene that maintain varietal identity and purity. It also tracks the pedigree of all agricultural seed crops, with the exception of potatoes.

From Breeder seed to Certified seed, Canada's pedigreed seed system is about varietal identity and purity. The pedigreed seed system establishes an independent trail of records and inspections that ensure varietal purity and traceability.

For each class of pedigreed seed, the Canadian Seed Growers' Association has developed standards for isolation, crop rotation, and maximum levels for off-types, other crop kinds, and weeds. These standards are developed under the direction of professionally recognized plant breeders and dictate the steps all seed growers must take to produce pedigreed seed. This system is then checked through third

## The Canadian Pedigreed Seed System

From the earliest development of a new variety, steps are taken to ensure its integrity through a pedigreed system that can trace back to the original seed created by the plant breeder through several stages:

- Select
- Foundation
- Registered
- Certified

volunteers and weeds. Managing off-types and volunteers can entail anything from cleaning out seeding, harvesting, handling and storage equipment, to walking fields and pulling out weeds and unsuitable plants by hand. Proper field practices are a cornerstone of high quality seed production and Canadian pedigreed seed producers have plenty of experience to maintain varietal purity.

And this isn't the final check on the system. Varietal purity is monitored through a post



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party inspections conducted on all fields to ensure that standards for isolation, seed planting source material, volunteer crops, off-types, and weeds are met. These third party inspectors are provided through the Canadian Food Inspection Agency, which is the government body responsible for regulating the seed industry. All of the criteria must be met for a crop to be eligible for pedigreed status.

Meeting the field standards demands long-term planning from seed growers to ensure crop rotations and isolations can be met, as well as intensive management to minimize

control testing system. At various pedigreed classes, samples are sent to the Agency for purity of variety monitoring. Submitted samples are grown side by side with reference samples for that variety in order to compare important visually distinguishing characteristics. Sometimes laboratory tests are also used.

The auditable, traceable system established by the Canadian Seed Growers' Association's field requirements is a key component of the Canadian pedigreed seed system that is able to deliver high quality seed year after year, right from the field.

# Process Control

The Canadian seed industry strives to get it right every time for every customer by recognizing that it is better to create processes that deliver quality seed than just producing seed and hoping the test turns out all right. By making sure proper facilities, run by trained people are used to process seed, Canada is able to consistently deliver high quality, pure seed to its customers.

The Canadian Seed Institute is an independent body that administers the accreditations of both people and facilities that handle seed in Canada. In order to have a facility accredited by the Institute, seed handlers and processors must have a documented quality management system in place that meets all of the elements of the Institute's standards. Everything from equipment hygiene to record keeping must be covered in the quality management system. The seed facility must then be audited by an approved auditor. Based on the audit report, the Institute will determine whether or not to accredit the facility. Only accredited facilities are allowed to process seed of pedigreed status.

The Canadian Seed Institute's standards combine the process improvement and customer focus of the ISO 9000 series of quality systems standards, with the regulatory requirements for documentation and traceability of the Canada Seeds Act. The Institute currently has programs in place for seed companies and facilities that wish to store, handle, process, package, test, grade, import, or export seed. In addition to general quality processes, the

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sampling, and grading seed is aware of both the Canadian regulatory requirements and the practical aspects of working with seed.

Documentation and traceability are important aspects of Canadian seed regulations. Specific rules surrounding labelling, tagging, documentation, and retained samples provide a robust framework that differentiates the Canadian seed system. By controlling processes and training people, Canada's seed customers get what they are expecting in every seed lot.

As a further measure of assurance in the Canadian seed system, the Canadian Food Inspection Agency, an agency of the federal government, monitors accredited facilities and people for compliance with federal seed regulations.

In today's world of tough customer demands, some seed producers have set an even higher bar for themselves. In recognition of the fact that some members of the industry go extra steps in



The Canadian seed industry strives to get it right every time for every customer...

Institute also monitors the technical aspects of the processing industry that ensure the facility is operating according to industry standards and using approved methods and procedures.

Knowledgeable, well trained people are a definite strength for the Canadian seed industry. Both the Canadian Seed Institute and Canadian Food Inspection Agency administer accreditation programs for people who process, sample, or grade seed. Candidates must pass both theoretical and practical exams in order to be recognized. This ensures that everyone involved in processing,

meeting their customers' needs, initiatives like the Canadian Seed Institute's Integrated Seed Quality Management System have been put in place. This system gives seed producers flexibility in defining their own quality management practices, including field activities. In order to achieve the Integrated Seed Quality Management accreditation, the quality system must be audited by the Institutes's trained personnel.

All of these measures are taken to ensure that Canadian seed industry members get the job done right from start to finish.

# Testing

Canada produces high quality seed and we've got the tests to prove it. Customers demand high quality, and seed testing labs in Canada have all the right tools to demonstrate it. Canadian lab methods and procedures are well researched and well documented and Canadian seed analysts are among the most knowledgeable in the world.

In Canada, seed testing for domestic certification purposes is carried out by accredited seed testing laboratories. In order to qualify as an accredited lab, both the facility and the seed analyst must be accredited by the Canadian Food Inspection Agency. This accreditation involves extensive testing of both theoretical knowledge and practical skills. Accredited labs are required to perform



reference testing on a regular basis to ensure consistent results. The Agency works with the Commercial Seed Analysts Association of Canada to help ensure that the methods and procedures used in Canadian labs represent the leading edge of seed testing technology. As evidence of this, our labs are also recognized by APHIS which is acknowledgement by the United States Department of Agriculture of the quality of our lab system.

Any seed that carries a Canadian pedigreed grade name must have been tested in an accredited Canadian seed testing lab, according to Canadian methods and procedures. Agricultural seed produced in Canada (pedigreed or common) carries a grade name and meets government standards for mechanical purity and germination.

Only people recognized as Graders are allowed to establish a grade name for seed. In order to establish the grade of a seed lot the Grader must ensure that:

- the crop has passed an official field inspection;
- the seed lot was processed at an approved facility;
- the seed lot was sampled properly; and
- the seed sample was tested by an accredited analyst at an accredited lab.

The Grader will then determine which Canadian pedigreed grade the seed lot is eligible for based on the certificate of analysis. At each of

## Testing and Grading Seed in Canada

### Pedigreed Grade (Foundation, Registered, Certified) requires:

- an official field inspection
- an accredited processing, storage, and handling facility
- a certificate of analysis by an accredited lab and analyst
- an accredited Grader

### Common Grade (Common) requires:

- germination and mechanical purity testing conducted according to approved methods



these steps in the Canadian seed system, the safeguards of accredited people and facilities, and third party monitoring, stand behind the seed producer.

The Canadian seed system is built upon quality processes. Based on a foundation of field expertise, and adding the quality assurance benefits of process control, seed test results prove quality standards are met and even surpassed. Seed regulations in Canada dictate strict standards for mechanical purity and germination. Mechanical purity standards include noxious weeds, other weeds, seeds of other crops, diseased seeds, and inert matter. Strict limits on germination testing provide a clear indication of the health of the seed and the percentage that will germinate.

Canada is a member of both the Association of Official Seed Analysts and the International Seed Testing Association. Canadian participants in both of these organizations play a key leadership role. These international commitments ensure that Canadian laboratory methods and procedures align with continually improving techniques that are used worldwide.

Accurate, reliable, and repeatable seed testing, performed in accredited labs has helped build Canada's international reputation as a high quality seed producer and will continue to be an important part of the Canadian seed system.

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