

Seed Regulatory Modernization Seed Certification Task Team Final Report

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Special recognition and gratitude for the dedication of all the individuals who participated, led and supported the Seed Certification Task Team.

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Executive Summary

The CFIA is committed to a full-scale review of Part I-Seeds other than Seed Potatoes, Part II-Seed Potatoes, Part III-Variety Registration and Part IV-Registration of Establishments that Prepare Seed and Licensing of Operators of the *Seeds Regulations*. The objective of the Seed Certification Task Team was to provide recommendations in a report to the Seed Regulatory Modernization Working Group on opportunities for improvement with respect to how the *Seeds Regulations* govern seed certification in Canada.

The *Seeds Act* and *Seeds Regulations* have undergone periodic amendments and modernizations since the first laws were established in 1905. During this current initiative the CFIA is looking to update the *Seeds Regulations* to:

- improve responsiveness and consistency
- reduce complexity
- become adaptable and flexible to address future technical advances and scientific innovation
- protect producers and consumers by strengthen existing requirements

Canada's seed certification system is internationally recognized and respected for producing high quality seed as it ensures varietal identity, varietal purity, germination and mechanical purity. In Canada, for seed to be certified it must:

- Be of a recognised variety (covered by the Variety Registration Task Team);
- Be multiplied and maintained to strict process standards;
- Meet crop varietal purity standards established by the Canadian Seed Growers' Association (CSGA); and
- Meet physical purity, germination and disease standards set out in the *Seeds Regulations*.

The lack of flexibility and the inability to adapt standards and requirements quickly to industry changes has been identified as a challenge to stakeholders. Based on the initial topics suggested by the Seed Regulatory Modernization Working Group, the Task Team presented a work plan for the analysis and discussion of the following eight topics:

- Varietal Purity
- Variety Names
- Seed Crop Production Rules and Regulations
- Crop Inspection
- Registered Seed Establishments
- Varietal Blends
- Mixtures
- Big Picture Discussion - Should there be a Seed Certification System in Canada?

The Task Team focused on three major opportunities for improvement:

1. Ability to adapt the standards and requirements to changes occurring within the seed sector
2. Simplifying standards for sale of seed in Canada
3. Strengthening existing requirements

The Task Team discussed multiple options considering the pros/benefits and cons/risks of each possible option prior to providing recommendations on each Topic. Each Task Team Topic report submitted to the Seed Regulatory Modernization (Seed-RM) Working Group (WG) is available in [Appendix 1](#). A total of 27 options were proposed and discussed by the Task Team which generated 29 recommendations being presented to the Seed-RM WG:

Topic 1 – Varietal Purity

1. Continue to use option #3: status quo where field inspections for pedigreed seed certification is the primary assessment for varietal purity in the field but allow flexibility in the system to adopt other options, including biochemical and molecular techniques (BMTs) in the future if required.
2. The use of BMTs could be an additional tool to confirm the varietal identity and/or the presence of off-types and variants in the field during crop inspection.
3. Maintain option #3: status quo for the seed varietal purity standards.

Topic 2 – Variety Names

4. The Seed Certification Task Team recommends option #3¹: maintain restrictions on the use of variety names for certain crop kinds and species to pedigreed seed sold in Canada with incorporation by reference (IbR) of Schedule II in the *Seeds Regulation* with the provision that the CFIA controls the document and consults extensively prior to any changes.
5. CFIA should be the entity to control an IbR document for Schedule II.
6. The Common Seed Task team should further discuss the “Variety Names” topic to provide the Seed-RM WG with a fulsome discussion from a pedigreed and non-pedigreed seed perspective.
7. If option #2 (do not restrict the use of variety names on all crop kinds and species sold in Canada) is considered by the Seed-RM WG or the Common Seed Task Team, then the “Variety Names” Topic should be discussed by the Information (records and labelling) Task Team to determine if this should be a mandatory or voluntary requirement on non-pedigreed seed sold.
8. Consider a seed specific IbR policy document prior to adding/removing a crop kind or species listed in an IbR document of Schedule II, this document should include:
 - a. The duration of a consultation period; and

¹As the Task Team discussions progressed, the members reviewed and update their final recommendation to remove the reference to option #4 (i.e., status quo) from the initial recommendation submitted to the Seed-RM WG for Topic 2-Variety Names.

- b. The impacted stakeholder groups to be consulted.

Topic 3 – Seed Crop Production Rules and Regulation

9. The Seed Certification Task Team recommends option #1: CSGA should continue to broaden their consultation process to include key stakeholders in the value chain when seed crop production rules and procedures are modified through the Regulatory Service Committee. The CSGA should continue to set the national standards for pedigreed seed crops and remain as the single body issuing pedigreed seed crop certificates.
10. There should be one national seed crop production rules and regulations.
11. The Seed Certification Task Team supports continuing to allow Breeders/ Variety Developers or Variety Distributors to specify higher voluntary requirements and additional certification requirements for their own varieties.

Topic 4 – Pedigreed Seed Crop Inspection

12. There was general support for option #5: CFIA maintains flexibility to improve and develop inspection procedures and Licensed Seed Crop Inspector (LSCI) training material; explore options for delivering practical training; continues to evaluate LSCI; continues to deliver oversight activities on Authorized Seed Crop Inspection Services (ASCIS) and LSCIs.
13. The other options in this report should also be further explored as they are not mutually exclusive to option #5 as there is flexibility in the current system to encompass these options such as increasing the scope of non-third party inspections to include other crop kinds, other companies and seed growers to inspect their own seed crops; review check inspection frequencies and re-design the oversight system; and LSCI training and mentoring to be delivered by an ASCIS and CFIA only conducts the evaluation.

Topic 5 – Registered Seed Establishment

14. The Task Team recommends improving the current system to enhance flexibility, which could be achieved by option #4: incorporation by reference (IbR) Part IV of the *Seeds Regulations*. The Task Team identified a benefit if CFIA were to control this IbR document but would like the Seed-RM WG to further discuss who should be responsible as part of their 'Big Picture' topics.
15. The topics on digitalization and labelling requirements should be further explored by the Information (records and labelling) Task Team.
16. The discussion on common seed processing and grading should be considered a topic for the Common Seed Task Team.

Topic 6 – Varietal Blends

17. The Task Team recommends option #2: simplify the requirements by eliminating the varietal blend restrictions and grade names to allow pedigreed seed of different

varieties mixed by an approved conditioner (AC) to be sold as certified seed of a varietal blend.

18. The discussion on the requirements for labelling, records, transparency, traceability and information availability to support option #2 should be considered as a topic for Varietal Blends with the Information (records and labelling) Task Team.

Topic 7 - Mixtures

19. Option #2: any single component of seed issued a crop certificate must meet the requirements for a Canada pedigreed grade name (e.g., Canada Certified No.1) to be mixed together and sold as a mixture of Certified Seed in Canada for all crop kinds and species with the exception of forages and turf.
20. Option #3: Any crop issued a crop certificate could be blended together by an AC then graded to meet an established standard for a mixture of Certified seed for forages and turf crop kinds and species.
21. The requirement for common mixtures, including the use of the Canada grade name, should be further discussed by the Common Seed Task Team.
22. The discussion on the requirements for labelling, records, transparency, traceability and information availability to support the recommendations for mixtures of Certified seed should be explored by the Information (records and labelling) Task Team.

Topic 8 – Big Picture

23. Yes, there should continue to be a seed certification system in Canada.
24. Flexibility to use alternate pathways or methods for seed certification in Canada.
25. Ensure the current processes for oversight, traceability, transparency and accountability are adaptable, accessible and balanced in the Canadian seed certification system.
26. Regulatory agility to encompass sustainability needs in the future.
27. Flexibility to update the Weeds Seed Order should be discussed by the Seed Standards and Grade Tables Task Team.
28. The concept of more varieties versus better varieties discussion should be deferred to the Variety Registration Task Team.
29. Information requirements including a single digital platform, oversight, transparency, labelling, traceability and accessibility should be further explored by the Information (records and labelling) Task Team.

Additional support was provided to the Task Team from an expert on Registered Seed Establishments (Jennifer Scott, Seeds Canada) and an Advisory Group of seed sector stakeholders. In addition, written feedback from Advisory Group members was brought forward to the Task Team to incorporate into each topic's Options and Recommendations report.

Introduction

In Canada, the Canadian Food Inspection Agency (CFIA) is responsible for administering and enforcing the [Seeds Act](#) and [Seeds Regulations](#) and the ultimate authority for the national seed certification system. The main purpose of the *Seeds Act* and *Seeds Regulations* is to protect producers and consumers from misrepresentation, prevent the use of low quality seed, and to create a level playing field for companies and individuals involved in seed production.

The CFIA has delegated authority to:

- individuals to inspect seed crops, sample seed lots, test seed samples, grade and label seed lots with pedigreed grade names/official labels, and conduct seed import conformity assessments;
- entities operating under the direction of a licensed operator to process pedigreed seed, store seed graded with a pedigreed grade name in unsealed containers, or import seed; and
- seed testing laboratories to test seed for pedigreed grading (certification) and import conformity assessment purposes.

All these individuals are responsible for conducting the activities for which they have been delegated authority – through licensing, accreditation, and registration – in a manner consistent with the regulations, policies and procedures that CFIA administers. Import conformity assessments will be deferred to the Import Task Team.

The Canadian Seed Growers' Association (CSGA) is responsible for providing a national program of seed crop certification in collaboration with the CFIA. Paragraph [4\(1\)\(a.1\)](#) of the *Seeds Act* and subsection [2\(2\)](#) of the *Seeds Regulations* provides this authority to CSGA instead of it being delegated by the CFIA. The [Seeds Regulations](#) defines the *crop certificate* as a document issued by the CSGA *certifying the crop identified has met the standards for varietal purity established by the Association for crops of that kind or species*. The *Seeds Regulations* also defines *pedigreed status*, *foundation status*, *registered status* and *certified status* with mention of the standards for varietal purity established by the Association and, where the crop from which the seed is derived was not grown in Canada, the crop and the seed meet standards approved by the Association.

The CFIA is the national authority for the seed certification system in Canada. Seed certification is the process of assuring high quality seed for producers and consumers by maintaining varietal identity, varietal purity, quality and traceability throughout the system. This includes high standards of germination, seed health, and mechanical purity as seed is increased through a specific, limited number of generations. The CFIA [variety verification \(VV\) program](#) evaluates the effectiveness of Canada's seed certification system.

The pedigreed classes of seed and seed crops may be one of the following generations once a variety has been developed: Breeder, Select, Foundation, Registered and Certified. These generations may be limited by crop kind and by the plant breeder to ensure the varietal purity of Certified seed sold to producers and consumers. Breeder and Select seed lots are approved by the CSGA.

The *Seeds Regulations* defines [foundation, registered and certified status](#) for crops grown and not grown in Canada. For seed crops produced outside of Canada, the crop must meet the standards established by an official certifying agency and approved by the CSGA. Prior to sale in Canada, they must meet the seed standards set out in *the Seeds Regulations*. The CFIA is also the National Designated Authority (NDA) for the implementation of the [Organisation for Economic Co-operation and Development \(OECD\) Seed Schemes](#) in Canada which limits the number of generations internationally of pedigreed seed production. [Appendix 2, QSP 152.1](#) provides the OECD eligibility for the equivalent Canadian pedigreed classes produced in Canada. Both CFIA and CSGA are participating members of the Association of Official Seed Certifying Agencies (AOSCA) and the CSGA supports the CFIA at the OECD Seed Schemes.

Topics

The following topics were provided by the Seed Regulatory Modernization Working Group (Seed-RMWG) to the Seed Certification task team:

- Varietal Purity
- Variety Names
- Seed Crop Production Rules and Regulations
- Seed Crop Inspection
- Sale- the Seed Certification Task Team recommended this topic be discussed by the Information (records and labelling) Task Team as it encompasses both pedigreed and non-pedigreed (i.e., common) seed and removed the topic from the work plan.
- Registered Seed Establishments

In addition, the following overarching topics provided by the Seed-RM WG were to be considered during the discussion of specific topics:

- Future Trends
- Government versus Industry Role
- Linkages and unintended consequences
- Incorporation by Reference
- International obligations
- Alternative service delivery including licensing and accreditation

The Task Team decided to defer the topic on Sale to the Information (records and labelling) Task Team with the rationale that this topic encompasses both pedigreed and non-pedigreed

(i.e., common) seed and is not specific to pedigree seed sales in Canada. The following individual topics were added by the Task Team:

- Varietal Blends
- Mixtures
- Seed Certification Big Picture

In addition to these topics, the Seed Certification Task Team decided to add the following overarching considerations to the ones provided by the Seed-RM WG:

- Timeliness of certification
- Transparency throughout the seed certification system (Big Picture topic)

Based on the above, the Task Team developed a work plan consisting of 24 meetings with the following finalized list of topics:

- Varietal Purity
- Variety Names
- Seed Crop Production Rules and Regulations
- Seed Crop Inspection
- Registered Seed Establishments
- Varietal Blends
- Mixtures
- Seed Certification Big Picture

The initial Work Plan was presented to the Seed-RMWG at their May 18, 2021 meeting and subsequently re-submitted on January 31, 2022 when amended by the Seed Certification Task Team for the Seed-RM WG meeting on February 3, 2022.

[Task Team Representation, Review and Opportunities for Improvements](#)

Task Team members were from the following groups (see [Appendix 2](#)):

1. Seed industry
2. Producer groups
3. Commodity associations/value chain associations
4. Other non-government stakeholders

In addition to support provided by government representatives, the Task Team incorporated feedback from an Advisory Group of seed sector stakeholders. Written feedback from Advisory Group members was brought forward to the Task Team to incorporate into each topic's Options and Recommendations report. Additional support was provided to the Task Team from an expert on Registered Seed Establishments (Jennifer Scott, Seeds Canada).

The Task team reviewed the current seed system:

1. Identifying the issues/ gaps/ inconsistencies associated with the current regulatory framework and providing context, identifying which sectors of the value chain are currently affected.
2. Engaging with affected stakeholders when needed.
3. Considering if there was agility in the current system to adapt to changes and incorporate improvements without requiring a regulatory change.
4. Providing options and developing recommendations that allow for present and future improvements and enhancements to the current seed regulatory framework in a report for consideration by the Seed Regulatory Modernization Working Group.

Based on the review, the following are examples of questions considered by the Task Team when the topics were assessed:

- Does Canada still need a seed certification system?
- If Canada maintains a seed certification system, are there areas in the current regulations which could be simplified by incorporation by reference?
- Is there flexibility to accommodate future trends in the environment, sustainability, technology, innovation and niche markets in the seed certification system?
 - How should varietal purity standards be determined and is there flexibility to modify this in the future?
- Should Canada have one national crop certification body or multiple crop certification bodies?
- How will changes impact the costs in the seed certification system?

The Task Team members discussed different elements of an ideal seed certification system in Canada. There was consensus during this discussion that key components should be consistent, accessible and cost effective. During this discussion, some of the elements of an ideal seed certification system included:

- positioning Canada to be a strong, reliable and trusted seed producer at the international level;
- providing end-users with the assurance that the pedigreed seed you purchased is what you receive;
- providing a clear path to certification with as few hurdles as possible;
- providing uniform and timely access to delegated inspection services, including access to training and on-going training for new and established accredited graders and analysts, licensed seed crop inspectors for various crop types (e.g., the forage scope for licensed seed crop inspectors was delayed in the rollout of training), conformity verification body auditors, etc.;
- increasing flexibility and responsiveness by using tools like incorporation by reference for standards and requirements;

- providing quick and easy access to information for the individual purchasing pedigreed seed and throughout the certification system;
- being adaptable to incorporate new technologies versus relying on visual crop inspections;
- including assurances of a mechanism for consistent and regular training for anyone involved in the inspection process;
- providing a repository of information in a single window platform for user access to support trust and confidence (i.e. provides information about the seed);
- providing a digital single window for the entire seed certification system process;
- serving all players in the seed sector without being burdensome on small and medium sized producers;
- ensuring effective and efficient traceability in the system where all seed can be traced in a single window platform;
- establishing national consistency (East to West) with respect to oversight and service delivery; and
- ensuring equal access to services in remote and rural areas.

The Task Team members agreed that access and consistency were key components in a seed certification system. There was consensus that implementation costs should be considered when implementing changes into the seed certification systems. Some considerations on who will cover the cost(s), how are the cost(s) built into the system (e.g., on the seed sold or through service delivery), what are the cost(s) required to implement changes (e.g., initial and on-going training), etc. should be analyzed prior to implementing improvements to the certification system.

Opportunities for Improvements:

The Task Team identified 5 major opportunities for improvement based on the issues identified in the Introduction:

- 1. Increase flexibility and adaptability to address:**
 - a. future technical advances and scientific innovation within the Seed Sector**
 - b. future environmental and sustainability pressures**

This could be addressed through the following recommendations:

- Flexibility to use alternate pathways or methods for seed certification in Canada.
- Regulatory agility to encompass sustainability needs in the future.
- Allow the flexibility in the future to adopt other options (e.g., BMTs) to verify varietal purity.
- Using BMTs as an additional tool to confirm the varietal identity and/or the presence of off-types and variants in the field during crop inspection.
- Removing crop specific restriction to allow blends of two or more varieties to be sold as Certified seed of a varietal blend in Canada.

- Removing restrictions to allow pedigreed seed of two or more crop kinds to be mixed together and sold as a mixture of Certified seed in Canada.
- 2. Improve consistency through oversight, training, stakeholder interactions, maintaining one national seed crop certification body and transparency within the seed certification system.**

This could be addressed through the following recommendations:

- Ensuring the current processes for oversight, traceability, transparency and accountability are adaptable, accessible and balanced in the Canadian seed certification system.
- The CSGA should continue to set the national standards for pedigreed seed crops and remain as the single body issuing pedigreed seed crop certificates.
- There should be one national seed crop rules and regulations.
- CFIA maintains flexibility to improve and develop inspection procedures and Licensed Seed Crop Inspector (LSCI) training material; explore options for delivering practical training; continues to evaluate LSCI; continues to deliver oversight activities on Authorized Seed Crop Inspection Services (ASCIS) and LSCIs. Further explore other options for seed crop inspection as there is flexibility in the current system to encompass the options discussed.

3. Simplify the requirements to sell varietal blends and mixtures as certified seed.

This could be addressed through the following recommendations:

- Simplify the requirements by eliminating the varietal blend restrictions and grade names to allow pedigreed seed of different varieties mixed by an approved conditioner (AC) to be sold as certified seed of a varietal blend.
- Any single component of seed issued a crop certificate must meet the requirements for a Canada pedigreed grade name (e.g., Canada Certified No.1) to be mixed together to be sold as a mixture of Certified Seed in Canada for all crop kinds and species with the exception of forages and turf.
- Any crop issued a crop certificate could be blended together by an AC then graded to meet an established standard for a mixture of Certified seed for forages and turf.

4. Incorporate by reference or remove prescriptive requirements to increase flexibility and address complexity in the current *Seeds Regulations*.

This could be addressed through the following recommendations:

- Maintain restrictions on the use of variety names for certain crop kinds and species to pedigreed seed sold in Canada and incorporating by reference (IbR) Schedule II of the *Seeds Regulation* with the provision that the CFIA controls the document and consults widely before making any changes.
- Incorporation by reference (IbR) of Part IV of the *Seeds Regulations*.

5. Protect producers and consumers by consulting broader on changes to documents incorporated by reference, increasing transparency and modifying oversight requirement in the seed certification system.

This could be addressed through the following recommendations:

- Ensure the current processes for oversight, traceability, transparency and accountability are adaptable, accessible and balanced in the Canadian seed certification system.
- CSGA should continue to broaden their consultation process to include key stakeholders in the value chain when seed crop rules and procedures are modified through the Regulatory Services Committee.
- Consider a seed specific IbR policy document prior to adding/removing a crop kind or species listed in an IbR document of Schedule II, this document should include:
 - The duration of a consultation period; and
 - The impacted stakeholder groups to be consulted.
- CFIA maintains flexibility to improve and develop inspection procedures and Licensed Seed Crop Inspector (LSCI) training material; explore options for delivering practical training; continues to evaluate LSCI; continues to deliver oversight activities on Authorized Seed Crop Inspection Services (ASCIS) and LSCI.

Appendix 1: Task Team Topic Reports submitted to the Seed Regulatory Modernization Working Group

The Seed Certification Task Team continued to meet without CFIA during the Caretaker convention period starting in August 2021 and ending in November 2021. During this period the Task Team did not submit reports to the Seed Regulatory Modernization (Seed-RM) Working Group (WG) until they started to meet after the Caretaker Convention period was over. The Task Team Topics were discussed over multiple meetings and the dates appearing on the options and recommendations reports are the dates the Task Team approved the report to be submitted to the Seed-RM WG.

The options and recommendations reports are comprised of background in the current system, considerations addressing improvements and gaps in the current system, options, rationale for the option, pros/benefits and cons/risks for each option, discussion and recommendations. The topics will appear in the following order:

- Topic 1-Varietal Purity
- Topic 2-Varety Names
- Topic 3-Seed Crop Production Rules and Regulations
- Topic 4-Seed Crop Inspection
- Topic 5-Registered Seed Establishments
- Topic 6-Varietal Blends
- Topic 7-Mixtures
- Topic 8-Seed Certification Big Picture

Topic 1 – Varietal Purity

**SEED REGULATORY MODERNIZATION
SEED CERTIFICATION TASK TEAM
Topic #1: Varietal Purity
Options and Recommendations Report
July 05th, 2021**

Currently, pedigreed seed crop inspection is the primary method used to assess varietal purity in Canada. The requirements for pedigreed seed production are in the Canadian Seed Growers' Association's (CSGA's) [Canadian Regulations and Procedures for Pedigreed Seed Crop Production](#) (Circular 6). Seeds of other varieties of the same crop kind are considered varietal impurities during field inspection and when grading pedigreed seed lots.

Varietal impurities are not included in *Schedule I* (Grade Tables) of the *Seeds Regulations*. If such seeds are obvious (e.g. yellow pea in a green pea variety) then the accredited grader must apply the seed varietal purity standards as required by paragraph [10\(5\)\(d\)](#) of the *Seeds Regulations*. CFIA has a [notice to seed graders](#) for assigning grades based on visually distinguishable varietal impurities when grading pedigreed seed.

The CSGA establishes the field requirements for pedigreed seed and CFIA establishes the seed processing, sampling, testing, grading and labelling requirements for pedigreed seed in Canada.

The following gaps and/or issues were discussed when considering the options:

- There are some high standards for crop specific field and/or seed varietal purity, could they be lowered and if so to what extent?
- Do current regulations allow for a new technology to be applied or is there a way to craft language that would allow a new technology that meets standard X to be applied in the future?
- If there is flexibility for new technologies to be utilized, how would this impact the grower, processor and end user (e.g. costs) and should this be in addition to or replace current requirements?
- How would using biochemical and molecular techniques impact varietal purity standards?
- Would there be a different set of varietal purity standards and requirements depending on whether a genetic or phenotypic varietal identification method is used?

Option #1: Lower the field and seed varietal purity standards in Canada.

Rationale: There is flexibility in the current system to reduce crop specific varietal purity standards for certified seed without negatively impacting commercial end uses for common seed and grain.

Pros/Benefits

- There is room to lower the current varietal purity standards which are higher than required without impacting the CGC varietal declaration.
- Increasingly sophisticated seed cleaning equipment, including colour sorters, enable seed to be cleaned to a higher standard and industry would be able to remove some unwanted seed impurities.

Cons/Risks:

- The quality of the product may be reduced with lower standard but not the cost.
- Potential increase of other type of impurities (e.g. weed seeds) and other pests (e.g. disease) introduced into the seed and grain systems impacting crop specific export market access.

- Potentially increase transgenic and non-transgenic varieties of the same crop kind in the field impacting field trait and end use selections, plus potential export market access.
- Current system allows for combinations of errors along the production chain without reaching a critical failure which may increase if the standards are lower.
- The variety of the product is also important when exporting to specific markets, the higher varietal purity standards facilitate trade for these specific crop kinds.
- When purchasing pedigreed seed, a farmer relies on the varietal purity of this seed to select specific traits for performance in the field when saving seed and for specific end uses. Lowering the varietal standards could negatively impact the performance in the field where there are regional growing differences, plus a producer may not be able to save seed and grow it out as long before it does not meet a grain quality standard.
- Potentially increase undesirable varieties in forage and lawn mixtures which may contain more than one variety of the same crop kind.
- Potential risk if the standards are too low it may remove market access of pedigreed seed under AOSCA or the OECD Seed Schemes.

Option #2: Flexibility to use alternate methods like biochemical and molecular techniques in addition to or as an alternate certification method.

Rationale: Biochemical and molecular techniques (BMTs) are increasingly being used to make selections and identify varieties. The cost of some BMTs is decreasing and have been shown to accurately identify and distinguish varieties. Some varieties are difficult to distinguish using only visual characteristics.

Pros/Benefits:

- Build flexibility into the seed certification system to use biochemical and molecular techniques (BMT) for crops domestically and imported into Canada to verify impurities if the morphological standards are not met.
- Testing of seed could potentially expedite the pedigreed seed grading process and reduce human error when looking at varietal impurities in a seed lot.
- Flexibility to allow imported seed into the Canadian seed certification system as technology evolves and other countries adopt BMTs.
- Flexibility to remain competitive internationally as technology advances.
- OECD has an advisory group on BMTs if they are proposed for use in seed varietal certification in the future.
- Additional “tool” in the toolbox to identify varieties accurately when in doubt.
- Crop specific industries could propose and verify acceptable methods for a potential path forward with BMTs with a determined degree of confidence when the science becomes available.

Cons/Risks:

- Current technology may not lend itself to replace crop inspection as BMTs on their own may be inadequate to verify the varietal identity of large quantities (e.g. hundreds of millions) of individual seeds in one lot.
- Currently BMTs may be more of an identification method as it is difficult to quantify to compare against an established varietal purity standard with a specified confidence in the testing and sample size compared to field inspections.
- AOSCA and OECD Seed Schemes do not accept BMTs in lieu of crop inspection for certification purposes. Currently, there is no international agreement on the manner in which BMTs shall be used in seed varietal certification.
- Potentially increased time and economic costs into the seed certification system for lab analysis versus field inspections; and seed cleaning if impurities are not removed at the field level that may impact the end product.
- Sales could potentially be impacted if fields are not morphologically uniform.
- Potentially increase testing requirements and standards internationally causing potential barriers when exporting seed and grain.
- It would be difficult to include heterogeneous material which is phenotypically selected into a BMT seed certification system.
- May not be cost effective in determining varietal purity at current levels. All varietal purity standards are based on visual distinguishing characteristics. Using BMTs for varietal purity may require revisions to these standards.
- Parameters would have to be established and verified. For instance, maximum lot sizes may be required for domestic production with BMTs as an alternate certification route.
- Downstream grading and sample sizes may have to differ between crops assessed using BMTs to a varietal identity standard versus crops assessed via field inspections to a varietal purity standard.
- There may be inconsistencies between crop specific industries, companies, breeders, etc. adopting the use of BMTs for a varietal identification standard leading to two separate pathways for certification.

Option #3: Status Quo

Rationale: The current pedigreed seed certification system is linked to the issuance of a crop certificate. The varietal purity seed standards are not published in the *Seeds Regulations* and are based on the AOSCA standards. This allows for flexibility to be built into the current seed certification system in Canada to update policies, procedures and CSGA regulations without updating the *Seeds Regulations*.

Pros/Benefits:

- The issuance of a crop certificate is flexible as technology advances.
- Every seed certification system in the world requires a field inspection including AOSCA and OECD Seed Schemes. There are so many other things occurring during inspection

like isolation assessments for species that could cross pollinate back into the inspected field (may not be as huge of a deal with self-pollinating crops kinds), land use requirements (e.g. dormancy in hard red wheat) and assessment for volunteers, prohibited noxious weed seeds, etc.

- Canada is actively involved as members of OECD and AOSCA working with international standards and methods.
- The current system accommodates pedigreed seed production of unregistered varieties in Canada.
- Field inspections allow growers to remove impurities prior to harvest.
- Uniform fields may increase repeat customers; trusted, internationally recognized system
- CSGA rejects very few crops each year even with the current standards based on visual field inspections.

Cons/Risks:

- Current varietal purity standards are high.
- The requirement that an authorized inspector must inspect a seed crop prior to it being certified by CSGA would have to be amended in Circular 6 to adopt new technologies.
- Off-type and variant identification is based on phenotypic characteristics of plants observed in the field during crop inspection. Suspect plants may be submitted to CFIA for further official testing to confirm off-types and variants.

DISCUSSION

The task team members decided to limit this discussion to varietal purities in the field and seed. The option for mechanical impurities was discussed but deferred to be further discussed in other task team topics.

The option for using colour sorters to clean out varietal purity was discussed and not proposed as an option since it was a specific change only for soybean hila colour verified at the time of crop inspection as other crops like peas and lentils are inspected during flowering. Task team members discussed if there should be an appeal process implemented to allow for colour sorters to clean out hila colour differences. There was a concern that this could lead to increased varietal contaminates downstream in the system if they are not removed from the field. For instance, if off-types are not removed in the field a genetically modified off-type with the same hila colour may be present in a non-genetically modified variety and vice versa. The discussion on what are the standards required for a soybean variety to be considered a variety and the importance of hila colour during crop inspection should be forwarded to the Variety Registration Task Team prior to making a decision on this crop specific varietal purity standard.

Option #1 to lower the varietal purity field and seed standards was not supported by the task team members.

For option #2 with the discussion on BMTs, the task team was split and recognized the technology may not currently be available to quantify a standard for the use of BMTs as an alternate approach to field inspections. There are concerns with cost, timing and potential market access on commodities for grain and common seed if BMTs are used as an alternate path forward. There was a concern that any standards or technologies should not jeopardize domestic or international market requirements. Furthermore, it was uncertain how to consider varietal identity traits (e.g. oil content or herbicide tolerance) which currently are not assessed during a visual field inspection. It was acknowledged that the onus should be on the crop specific industry to bring forward scientific evidence, potential methods, confidence levels to be approved as a potential avenue for certification in the future. The definition of a variety may have to be redefined to further incorporate genetics if/when BMTs are used as a potential avenue. There may have to be two different standards and requirements if allowing crop specific industries to use BMTs and continue to use field inspections for others. There was support for using BMTs in addition to field inspections to confirm off-type and/or variants observed in the field or a seed source.

For option #3, the task team was supportive to use field inspections as the primary assessment for varietal purity as per status quo as it is the current method recognized under AOSCA and the OECD Seed Schemes. The task team was supportive to maintain the status quo for the current seed varietal purity standards by adopting the AOSCA standards and establishing the current pea standards. The members would also like to ensure there is flexibility in the system to adopt other options in the future if they are accepted internationally and have access to pedigreed seed in foreign certification systems that adopt new approaches.

RECOMMENDATIONS:

- 1. Continue to use option #3 where field inspections for pedigreed seed certification is the primary assessment for varietal purity in the field but allow flexibility in the system to adopt other options, including BMTs in the future if required.**
- 2. The use of BMTs could be an additional tool to confirm the varietal identity and/or the presence of off-types and variants in the field during crop inspection.**
- 3. Maintain option #3 for the seed varietal purity standards.**

[Topic 2 – Variety Names](#)

**SEED REGULATORY MODERNIZATION
SEED CERTIFICATION TASK TEAM
Topic #2: Variety Names
Options and Recommendations Report
June 21st, 2021**

Subsection [10\(4\)](#) of the *Seeds Regulations* lists the requirements for the use of variety names. Variety names shall not be used on crop kinds and species listed in [Schedule II](#) of the *Seeds Regulations* unless:

- the seed is graded with a Canada **pedigreed** grade name and labelled under sections 32 to 37 when sold;
- for a mixture or varietal blend it was made by an approved conditioner under Part IV and all the seed named as a variety is of **pedigreed** status; or if it was imported, it is accompanied at the time of importation by a certificate of an official certifying agency confirming all of the seed named as a variety is of **pedigreed** status; or
- the seed is a vegetable-type variety.

This currently allows Canada to use an approach restricting the use of variety names of specific crop kinds and species to pedigreed seed sales.

The following gaps and/or issues were discussed when considering the options:

- Should Canada continue to restrict the use of variety names to seed of pedigreed status for those crop kinds listed in *Schedule II*?
- Pedigreed seed is assessed to varietal purity standards and requirements where non-pedigreed seed (common seed or brown bag) is not, should this impact the use of variety names?
- It is difficult to regulate unregistered varieties of common seed of those crop kinds and species listed in *Schedule II* of the *Seeds Regulations*.
- Are there crops and species listed in *Schedule II* that are outdated and should be removed? Are there crops and species where the varietal purity could remain intact and used in successive generations (e.g. self-pollinating) in common seed and not impact the market or integrity of the seed certification system if common seed is sold with a variety name? Similarly, are there crops that should be added?
- When non-pedigreed (common or brown bag) seed is sold domestically, customers will sometimes request the variety name of a *Schedule II* crop kind.
- There are regional and commodity differences with purchasing and growing common seed.
- Prohibiting the use of variety names on common seed of varieties with Plant Breeders' Rights makes it more difficult for rights holders to enforce their intellectual property protection.

Option #1: Restricting the use of variety names only to pedigreed seed for all crop kinds and species sold in Canada

Rationale: Seed certification provides assurances to the varietal identity and varietal purity of pedigreed seed sold in Canada. Restricting the use of varietal names only to pedigreed seed ensures seed sold with a variety name will meet the varietal purity requirements of that specific variety. The use of variety names does not guarantee that the varietal purity requirements have been met in non-pedigreed (common) seed production. Depending on whether a crop kind is open pollinating or self-pollinating, successive generations may segregate variety specific traits at varying frequencies.

Pros/Benefits:

- Ensures that the varietal standard for this seed has been met and the confidence that the variety has specific traits and characteristics is higher.
- Crop kinds like field corn and industrial hemp are currently limited to pedigreed seed production and being sold as certified seed in Canada.
- There is flexibility in the current variety registration system to accommodate the use of variety names to be restricted to certified seed.
- Contracts for certain types of grain already limit the use to certified seed to access specific end-uses.
- Consumers/producers currently request a variety name to compare traits between varieties of the same crop kind or species.
- *Schedule II* in the *Seeds Regulations* would no longer be required.

Cons/Risks:

- Producers in different regions may only be looking for specific traits not necessarily a specific variety when saving seed.
- Contracts for specific end-use products (e.g. malting) are limited to pedigreed seed for the first year of production; however, common seed from this production may be used in the following year.
- Potentially increase the sale of unregistered common seed.
- Potentially increase burden and costs to sectors which currently are not restricted by the use of variety names. For example, vegetable seeds and herbs use variety names on common seed, this option could force seed certification on a high value crop to use a variety name to sell seed.

Option #2: Do not restrict the use of variety names on all crop kinds and species sold in Canada

Rationale: Unrestricted use of variety names would allow for the use of variety names on non-pedigreed (common) seed sales in Canada. It would be easier to enforce unregistered varieties offered for sale and align with seed import requirements.

Pros/Benefits:

- Easier to enforce the sale of unregistered varieties of common seed in Canada if it is a mandatory requirement to label all seed sold with a variety name in Canada.
- Increase transparency of the use of variety names for non-pedigreed seed.
- Meet customer demands on common seed when they request the certified variety(ies) the seed was derived from for selecting specific agronomic traits.
- Potentially eliminate non-compliances affiliated with the current *Schedule II* requirements restricting the use of a variety name only to pedigreed seed.
- Potentially could increase sales of common seed to market, advertise and label seed with specific traits associated with a variety.
- *Schedule II* of the Seeds Regulations would no longer be required.

Cons/Risks:

- The use of variety names on common seed for specific crop kinds and species could jeopardize the seed certification system.
- Common seed production is less regulated (not inspected) and more difficult to ensure that varieties sold are true to the variety.
- Producers in different regions will purchase seed based on agronomic traits versus the variety name to save seed, would the use of variety names be a requirement for all seed or applied inconsistently due to consumer demand.
- Compliance and enforcement costs could increase. For example, a facility that is not a registered seed establishment (RSE) and not on a quality program could process and handle non-pedigreed seed and potentially increase the mislabeling, mixing, etc. of seed and be misrepresented as the variety of the seed lot.
- Increase the emphasis on buyer beware.
- The rights holder for plant breeders' rights could potentially refuse allowing the use of a variety name on non-pedigreed (common) seed.
- If the use of a variety name is allowed, this could potentially increase royalties on common and may impact the cost of non-pedigreed (common) seed sold or when saving seed.
- The traits associated with a specific variety are based on the varietal purity of the seed. If there are no restrictions on the variety name then common (non-pedigreed/brown bag) seed is not assessed to varietal purity standards.
- Reduce the protection on intellectual property affiliated with a variety name and specific agronomic characteristics affiliated with a variety (similar to buyer beware).
- Certain sectors may be at a competitive disadvantage if the use of variety names becomes unrestricted to non-pedigreed seed.
- Certain crop kinds are restricted to pedigreed status in regulations or by contracts, could this increase if the likelihood that end-users will request pedigreed seed products to ensure desired traits.
- It would be difficult to enforce one name and one variety in the marketplace.

Option #3: Maintain restrictions on the use of Variety Names for certain crop kinds and species to pedigreed seed sold in Canada with [incorporating by reference](#) (IbR) *Schedule II* in the Seeds Regulations

Rationale: Canada will continue to use a blended approach on restricting the use of variety names to pedigreed seed based on specific sector requirements to ensure varietal purity is represented in crop kinds and species listed. Due to range of crop kinds sold in Canada, additions or removals may be crop specific based on a benefit/risk analysis. Incorporation by reference (IbR) of *Schedule II* increases timeliness and provides flexibility to amend the list. Amendments are still consulted on when there are changes to an IbR document. A document that is IbR could either be the responsibility of CFIA or delegated to an external party.

Pros/Benefits:

- Maintain the current blended approach on using variety names for sector specific requirements limiting variety names to pedigreed seed production.
- Allows for flexibility to update this list outside of the *Seeds Regulations* in a more timely manner.
- Incorporation by reference documents still go through a consultation prior to amending the document.
- The use of variety names can be restricted to pedigreed seed for certain crop kinds to ensure varietal purity when required.
- Allow the use of variety names on crop kinds where successive generations could still meet varietal purity in Canada when used in common seed production.
- Easier to maintain a one variety one name policy on specific crop kinds.
- Allows for variety names to be used in seed sold in the export market without restrictions.

Cons/Risks:

- Sale of unregistered varieties in common seed would be difficult to verify and enforce.
- Difficult to ensure that varieties sold as common are true to the variety and guarantees specific agronomic traits.
- Limits the sale of common seed being sold domestically with a variety name for specific crop kinds and may be difficult for a customer to know which variety the seed they are purchasing is derived from.

Option #4: Status Quo

Rationale: Canada will continue to use a blended approach on restricting the use of variety names to pedigreed seed due to specific sector requirements and ensuring varietal purity is represented in crop kinds and species listed in *Schedule II* of the *Seeds Regulations*. Due to range of crop kinds sold in Canada, additions or removals may be crop specific based on a benefit/risk analysis in the *Seeds Regulations*.

Pros/Benefits:

- *Schedule II* can be thoroughly reviewed and updated during Seed Regulatory Modernization.

- Maintain the current blended approach on using variety names for sector specific requirements limiting variety names to pedigreed seed production.
- The use of variety names can be restricted to pedigreed seed for certain crop kinds to ensure varietal purity when required.
- Allow the use of variety names on crop kinds where successive generations could still meet varietal purity in Canada when used in common seed production.
- Easier to maintain a one variety one name policy on specific crop kinds.
- Allows for variety names to be used in seed sold in the export market without restrictions.

Cons/Risks:

- Updating *Schedule II* requires a formal regulatory change which typically takes 18 months to 3 years which could increase the likelihood of the list being outdated.
- Sale of unregistered varieties in common seed would be difficult to verify and enforce.
- Difficult to ensure that varieties sold as common are true to the variety.
- Limits the sale of common seed being sold domestically with a variety name for specific crop kinds and may be difficult for a customer to know which variety the seed they are purchasing is derived from.

DISCUSSION

The consensus from all sectors was to continue with a blended approach, where crop kinds or species could be added/removed to a list or *Schedule II* as per option #3 and option #4 status quo.

The support was split for recommending option #3 to use incorporating by reference (IbR) of *Schedule II* in the *Seeds Regulations* and option #4 for status quo. There was concern about the consultation period and stakeholder consultation requirements to add/remove crop kinds and species in an IbR document. The majority of the task team members were comfortable to recommend option #3 if the IbR document would remain with CFIA to increase flexibility on updating the list.

Task team members were split in ranking options #1 and #2 and the majority of the task team members do not recommend these options. This topic should be deferred to other task teams for further discussion. For option #2, the discussion for whether a variety name should be a mandatory or a voluntary labelling requirement for all non-pedigreed (common) seed sales in Canada. The use of variety names on common seed for export purposes is currently accommodated in the current system.

The task team members began the discussion on branding of seed as an option and there was consensus to move this discussion to the "Sale" task team topic.

RECOMMENDATIONS:

1. The Seed Certification Task Team would recommend either option #3 to IbR *Schedule II* of the *Seeds Regulation* with the provision CFIA controlled the document and consultation or option #4 for status quo.
2. CFIA would have control over an IbR document for *Schedule II*.
3. Move the “Variety Names” task team topic for further discussed during the Common Seed Task Team to provide the Seed-RM WG with a fulsome discussion.
4. If option #2 is considered by the Seed-RM WG, move the “Variety Names” task team topic to the Information (records and labelling) Task Team to discuss if this should be a mandatory or voluntary requirement on non-pedigreed seed sold.
5. Provide consideration for a seed specific IbR document for follow-up prior to adding/removing a crop kind or species listed in an IbR document of *Schedule II*:
 - a. The duration of a consultation period
 - b. Determine the stakeholder groups to be consulted

Topic 3 – Seed Crop Production Rules and Regulation

**SEED REGULATORY MODERNIZATION
SEED CERTIFICATION TASK TEAM
Topic #3: Seed Crop Production Rules and Regulation
Options and Recommendations Report
November 29th, 2021**

In the current seed certification system, pursuant to paragraph [4\(1\)\(a.1\)](#) of the *Seeds Act* the Governor in Council may make regulations *providing, with respect to grades requiring varietal purity, for the determination of varietal purity of seed crops and, in particular, for any such determination to be made by the Canadian Seed Growers’ Association (CSGA) and any standards established by that Association to be used.* The [Seeds Regulations](#) defines the *crop certificate* as a document issued by the CSGA certifying the crop identified has met the standards for varietal purity established by the Association for crops of that kind or species. The *Seeds Regulations* also defines *pedigreed status, foundation status, registered status and certified status* with mention of the standards for varietal purity established by the Association and, where the crop from which the seed is derived was not grown in Canada, the crop and the seed meet standards approved by the Association. The CSGA is a member of the Association of Official Seed Certifying Agencies (AOSCA) and participates in the Organisation for Economic Co-operation and Development (OECD) Seed Schemes to align field standards and requirements internationally for seed crop purity standards and certification.

Therefore, the requirements that a seed grower and a seed crop must meet for a seed lot to be eligible for certification, including imported seed, are established by [CSGA’s Canadian Regulations and Procedures for Pedigreed Seed Crop Production](#), commonly referred to as Circular 6. Currently, there is flexibility to update these regulations annually if required. When changing a standard or requirement in Circular 6 that is more stringent, the CSGA will provide a one-year notification prior to implementing this change to address any potential gaps to issue a

crop certificated. When standards and requirements are less stringent, changes are implemented quicker as the risk is mitigated when issuing a crop certificate. Furthermore, the CSGA conducts pilot projects to verify if a standard or requirement could be changed prior to implementing a change. For instance, a pilot project was conducted prior to removing the standards for wild oats in oats in Circular 6. Currently, the CSGA is conducting a research project exploring the current mechanical impurities to verify if change will have any downstream implications prior to implement a change to the standards in Circular 6.

The CSGA has a Regulatory Services committee consisting of seed growers, provincial advisors, three seed trade representatives and one seed analyst representative that reviews and recommends changes to update Circular 6. Amendments to standards and requirements go through this committee. The Canadian Food Inspection Agency (CFIA) participates on the committee as an official observer to provide input and recommendation but does not vote on the changes.

In addition to the certification requirements in Circular 6, a Breeder/Variety Developer or Variety Distributor may provide Higher Voluntary (HVR) or Additional Certification Requirements (ACR) for their varieties. A HVR is defined as a requirement that is over and above the standards and requirements prescribed in the *Canadian Regulations and Procedures for Pedigreed Seed Crop Production* (Circular 6) where the additional standard or requirement is intended to meet an objective that is not directly related to maintaining the varietal identity and purity of the seed crop, e.g., the post-harvest requirement to have midge tolerant wheat varieties tested to verify the proportion of the refuge (susceptible) variety in the blend to meet the objective of maintaining the viability of the midge tolerance gene. An ACR is defined as a requirement that is over and above the standards and requirements prescribed in the *Canadian Regulations and Procedures for Pedigreed Seed Crop Production* (Circular 6) where the additional standard or requirement is directly related to maintaining the varietal identity and purity of the seed crop, e.g., where a variety requires a higher minimum isolation distance than prescribed in Circular 6 to reduce the risk of contamination from other crops due to a higher level of outcrossing than typical varieties. CDC Triffid is an example of a variety that had additional voluntary requirements for seed growers to follow. The requirements for HVR and ACR are prescribed in section 1 of Circular, General Requirements for All Pedigreed Seed Crops, 23. Higher Voluntary or Additional Certification Requirements. These requirements include:

- (1) Seed crops may be subject to higher voluntary or additional certification requirements that are clearly defined provided that the higher voluntary or additional certification requirements have been approved by the CSGA.
- (2) The higher voluntary or additional certification requirements must be communicated by the Breeder/Variety Developer or Variety Distributor to all parties involved with regulation and production of the variety.
- (3) Where the Breeder/Variety Developer or Variety Distributor specifies that a laboratory test shall be completed on a representative sample of the harvested seed prior to certification of the seed crop, the CSGA shall withhold the crop certificate, pending receipt of satisfactory test results from a laboratory recognized by the Breeder/Variety Developer or

Variety Distributor as defined in the higher voluntary or additional certification requirement.

- (4) Examples of higher voluntary or additional certification requirements include previous land use or isolation distance or border row requirements that exceed the requirements set out in this document, and lab tests for variety or trait purity verification.
- (5) For higher voluntary requirements that involve varietal blends for plant pest tolerance management purposes, a *Refuge Declaration* (Form 182) stating the percentage of each component must be submitted to CSGA before a crop certificate is issued. Unless otherwise specified in the higher voluntary requirements, 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.

The following gaps and/or issues were discussed when considering the options:

- Is there an opportunity to look at the amendment process for crop standards?
- Should contract growers be considered seed growers?
- Are there changes to the *Seeds Regulations, Seeds Act, Circular 6* and policies that would be required?
- Are there any requirements that should be reviewed, are there any standards or policies for CSGA to consider?
- Should probation plot seed grower requirements be reassessed?
- Should there be more than one body issuing crop certificates?

Option #1: CSGA informed their Seed Regulatory Committee of its recent consultation on proposed changes to Rules and Procedures. CSGA intends to continue the practice of consulting more broadly on proposed changes to Circular 6. The Task Team would encourage and support CSGA to continue to broaden their consultation process to include key stakeholders in the value chain when seed crop rules and procedures are modified through the Regulatory Service Committee. The CSGA should continue to set the national standards for pedigreed seed crops and remain as the single body issuing pedigreed seed crop certificates.

Rationale: Expand the stakeholder consultation of seed crop production rules and regulations amendments beyond CSGA's current Regulatory Service Committee for broader stakeholder engagement.

Pros/Benefits:

- Engage more producers/end users who may be affected when purchasing pedigreed seed.
- Provide an opportunity for the broader stakeholder community to respond and provide input on significant proposed changes.
- Increase awareness of proposed amendments to a broader stakeholder community and increase implementation time in the system to adapt to significant changes.

- Alleviate potential concerns when significant standards or requirements are believed to be updated too quickly without enough consultation.
- CSGA is open to feedback on revisions to the seed crop requirements and standards for example, for Probation plot growers, the number of years required was changed in 2021 from 3 years to 2 years.
- One National body assessing field inspection reports based on inspectors' observations for the issuance of a crop certificate mitigating inconsistent interpretations by multiple assessors.
- The CSGA SeedCert platform is adaptable to submit electronic applications, seed crop reports, trace pedigreed and the issuance of a seed crop certificate.

Cons/Risks:

- This would potentially increase the time to amend and implement changes in the standards and requirements versus the current system.
- Potentially increase dedicated resources to standards consultation and development.
- It may be difficult to engage more stakeholders who are not actively involved in pedigreed seed production.

Option #2: CSGA sets the national standards for pedigreed seed crops but allow for other bodies to issue crop certificates.

Rationale: Canada would continue to use one set of national pedigreed seed crop standards set by CSGA. CSGA could authorize other bodies to issue a pedigreed seed crop certificate based on the national standards.

Pros/Benefits:

- The body issuing a crop certificate is not limited to one entity creating flexibility to name the same body or other bodies in the future to assess field standards to issue a crop certificate.
- There would continue to be only one set of seed crop standards assessed used to issue a pedigreed seed crop certificate.

Cons/Risks:

- Internationally, there is no other system in the world that has multiple seed crop certifying bodies. In other countries the seed crop certifying organization is the seed certifying agency for the country or the state in the United States. Canada is unique as CSGA is the seed crop certifying organization and CFIA is the seed certifying agency for all crops with the exception for seed potatoes where CFIA certifies both.
- The Seeds Act may have to be amended as CSGA is named to set the standards and make the determination of the standards as the authority is from the governor in council not CFIA.

- There would be increased oversight and resources of individual certifying bodies and audits in the system for consistency to issue a crop certificate.
- Private crop inspection services and official crop inspectors for EU OECD certification may have to submit reports to more than one service which could increase inconsistencies.
- Potentially increase costs of service providers issuing crop certificates and crop inspection services
- There may be multiple types of crop certificates and seed crop inspection reports as the current versions of these documents are CSGA forms.

Option #3: Redefine the seed crop certifying body to allow other bodies to set seed crop field standards and issue crop certificates based on these standards.

Rationale: This would allow flexibility to provide authority to a seed crop certification body to set seed crop standards and issue a crop certificate without naming a specific body in the *Seeds Regulations*. This could allow for multiple bodies who could issue a crop certificate based on field standards.

Pros/Benefits:

- The body issuing a crop certificate is not limited to one entity creating flexibility to name the same body or other bodies in the future to assess field standards to issue a crop certificate.

Cons/Risks:

- Potentially increase inconsistencies in the varietal standards throughout Canada.
- Internationally, there is no other system in the world who has multiple seed crop certifying bodies. In other countries the field certifying organization is the seed certifying agency for the country or the state in the United States. Canada is unique as CSGA is the seed crop certifying organization and CFIA is the seed certifying agency for all crops with the exception for seed potatoes where CFIA certifies both.
- The Seeds Act may have to be amended as CSGA is named to set the standards and make the determination of the standards as the authority is from the governor in council not CFIA.
- There would be increased oversight and resources of individual certifying bodies and audits in the system for consistency to issue a crop certificate.
- Private crop inspection services and official crop inspectors for EU OECD certification may have to submit reports to more than one service which could increase inconsistencies and standards would have to be verified that they are aligned to meet OECD requirements.

- Depending on how it is structured, there could end up being domestic movement issues if regions have different/higher voluntary standards.
- Potentially negatively impact the provincial CSGA branches.
- CSGA's standards and requirements are its intellectual property rights.
- Potentially increase costs of service providers or producers moving seed domestically if there are regional differences.
- Breeder and Select seed is certified by CSGA (not CFIA) which could limit the certifying bodies to issue crop certificates for Foundation, Registered and Certified only.
- Different types of processes to amend seed crop standards and requirements.
- Multiple standards and requirements for a seed grower to review prior to selecting a service body.

DISCUSSION

Seed production rules and regulations for storing, processing and handling seed will be discussed further in the RSE task team topic. This topic was focused more on the seed crop production rules and regulations.

The option to trace pedigreed status through a quality management system operating under CSGA and CFIA as an alternate seed certification pathway was discussed. It was acknowledged that this option is more of a grower declaration of the pedigreed status of seed versus seed certification. This option will be moved forward to the big picture topic for further discussion as it encompasses more than just seed crop certification and components of this may be explored further during the crop inspection topic.

The discussion on mechanical impurities for seed certification will be moved to the registered seed establishment topic for further consideration as an option. The task team members did bring forward the option to certify a seed crop only based on varietal impurities but still report impurities during pedigreed seed crop inspection.

The discussion topic on the pedigreed seed crop inspection procedures will be deferred to the crop inspection topic for further consideration.

The task team would like to forward the following consideration to CSGA as they are specific to current CSGA requirements: reviewing the limitations of plot sizes, the number of generations for select plot production and implementing a quality management system (QMS) for contract growers in lieu of them becoming a seed grower member.

The consensus from all sectors was to continue with the Canadian Seed Growers' Association (CSGA) to issue the seed crop certificate and establish the seed crop production rules and regulations.

There was consensus to recommend option #1 to modify CSGA's current consultation process to implement changes to seed crop rules and regulations with the CSGA continuing to be the national body issuing crop certificates and establish the national pedigreed seed crop standards and requirements in Canada.

Task Team members were split in ranking options #2 and #3 and the majority of the task team members do not recommend either option. Option #2 was slightly favoured over option #3 where the CSGA would continue to hold the pen on the crop production rules and standards with considerable oversight over another body issuing crop certificates. The majority of the task team members support a national body for issuing seed crop certificates and setting seed crop rules and regulations. There were concerns with having multiple seed crop rules and regulations and the potential capacity for oversight of these activities.

Breeders could continue to add variety specific higher voluntary and additional certification requirements for their own varieties.

RECOMMENDATIONS:

- 1. The Seed Certification Task Team would recommend option #1 to modify CSGA's current process for consultation and implementing changes to the seed crop rules and regulations.**
- 2. There should be one national seed crop rules and regulations.**
- 3. The Seed Certification Task Team support to continuing to allow Breeders/Variety Developers or Variety Distributors to continue to add higher voluntary requirements and additional certification requirements on their own varieties.**

Topic 4 – Pedigreed Seed Crop Inspection

**SEED REGULATORY MODERNIZATION
SEED CERTIFICATION TASK TEAM
Topic #4: Pedigreed Seed Crop Inspection
Options and Recommendations Report
November 29th, 2021**

The Canadian Seed Growers' Association (CSGA) establishes the standards and assesses the field inspection reports to determine if a seed crop is eligible for a specific pedigreed status. The Canadian Food Inspection Agency (CFIA) is the national designated authority (NDA) for seed crop inspection, establishing the inspection procedures for inspecting all pedigreed seed crops in Canada. CFIA licenses and oversees private inspectors who conduct pedigreed seed crop inspection. Once the Seed Grower plants the eligible seed source on the location selected to produce seed, they will apply for seed crop certification to the CSGA and select an authorized seed crop inspection service (ASCIS) to conduct the inspection. The primary purpose of

pedigreed seed crop inspection is to identify varietal impurities in the field based on visually distinguishable morphological characteristics, but inspectors also verify isolation distances, report the presence of weeds, other crop kinds and other factors. Field inspections are required to be unbiased, and inspectors must clearly report observations based on CFIA's inspection procedures for CSGA to assess. CFIA establishes [pedigreed seed crop inspection policies \(quality system procedures-QSPs\) and procedures \(specific work instructions-SWIs\)](#) to ensure consistency of inspections.

Field inspections may be conducted by official CFIA certified crop inspectors or by Licensed Seed Crop Inspectors (LSCI) who report to an ASCIS. This alternative service delivery (ASD) program for pedigreed seed crop inspection was designed to ensure that there was adequate training, evaluation as per [QSP 142.2](#) and oversight as per [QSP 142.3](#) and [SWI 142.3.1](#) of the LSCI and ASCIS to ensure the integrity of the Canadian seed certification system, adherence to the OECD Seed Schemes requirements, and to maintain international market access. Currently, the majority of the ASCIS are independent third-party inspection services. Some hybrid corn and hybrid canola seed production companies have also been authorized to conduct inspections on these specific crop kinds. One company is authorized to inspect soybean seed crops of its own varieties grown under contract by seed growers. The following table is a breakdown of the third party and non-third party ASCIS licensed by CFIA in 2021:

2021 Licensed Authorized Seed Crop Inspection Services (ASCIS)	
Total number of third party ASCIS	20
Total number of non-third party ASCIS	4

The CFIA reviews an ASCIS's documented quality management system to be approved for the program and continues ongoing oversight. LSCI are trained and evaluated by CFIA. Their licence specifies the groups of crop kinds and generations of seed they may inspect. A percentage (5%, 10%, 15%) of an LSCI's seed crop inspections are verified by an officially certified CFIA inspector based on their performance history. Higher generation plots are currently checked at a higher rate (20%) by CFIA regardless of the LSCI's performance history. As per the OECD Seed Schemes, authorized inspectors must be either trained the same way as official inspectors or their competencies must be confirmed in official examinations. Similar to LSCI, CFIA official inspectors are trained, certified and monitored to conduct inspections on pedigreed seed fields and plots in Canada. The following table is a breakdown of the 2021 returning LSCI licensed check inspection frequencies (new LSCI start at a 10% inspection frequency):

2021 Check Inspection Frequency	Number of third party LSCI	Number of non-third party LSCI
5% (reduced)	124	21
10% (normal)	82	8
15% (tightened)	32	1

The total number of LSCI licensed to conduct plot inspections in 2021 prior to training was 152.

As per section 5.5, [QSP 142.2](#) an LSCI licence is renewed annually unless it is recommended to be revoked by a CFIA ASCIS auditor or check inspector; the LSCI has an unresolved critical non-conformance that was not closed by the resolution date; the LSCI has not completed a total of 20 inspections in the previous two seasons; or the LSCI requests not to be renewed. The number of LSCI licences that were not renewed/revoked from 2016 to 2021 are in the following table:

Number of LSCI licenses revoked from 2016 to 2021						
Year	2016	2017	2018	2019	2020*	2021
Total LSCI licences revoked	40	56	48	40	34	53

*in 2020 CFIA extended the 20 fields to three years due to COVID-19 training restrictions.

As per section 5.1, [QSP 142.2](#) the crop kinds listed in CSGA's Circular 6 have been divided among 6 Groups. LSCI may be licensed for one or more Groups. Currently, the CFIA offers LSCI training for Groups 1, 2, 3, 4 and 6. Group 1 training consists of a classroom theory and practical training delivered by CFIA. An LSCI must successfully pass the theory and practical evaluations to obtain a Group 1 licence. The CFIA will allocate training spots for LSCI based on the capacity to accommodate practical evaluations for Group 1 candidates. In 2021, the CFIA conducted virtual Group 1 theory training and evaluations for the first time. In addition to the online theory component, there was a pilot where the ASCIS would mentor their Group 1 candidates and CFIA would only administer the candidate's practical evaluation. The only two Groups previously presented in an online theory format followed with CFIA mentoring practical training (i.e. no evaluation) were Groups 3 and 6. The theory and practical components must be successfully completed within 2 crop years for a candidate to receive their licence scope or they will have to retake both components again.

From 2018 to 2021, CFIA offered the following training spots per Group (note: not all candidates successfully completed their training or may have withdrawn during the process):

CFIA offered training spots per group from 2018 to 2021				
Year	2018	2019	2020*	2021
Group 1	46	49	2	49
Group 2	3	1	0	8
Group 3	25	9**	1	10
Group 4	4	3	0	15
Group 6	26	15	20	16

*in 2020 CFIA did not deliver Group 1 training due to COVID-19 restrictions but extended expiring LSCI licences, candidates for Groups 1 and 3 were a case-by-case situation.

**3 candidates participated in practical training after the theory.

The following gaps and/or issues were discussed when considering options:

- Should there be more non-third party inspections?

- Who should train private seed crop inspectors for CFIA to evaluate?
- Should the check inspection frequencies be modified?
- Should there be different frequencies based on risk of the LSCI for domestic and those inspectors/crops being exported for OECD?
- With the CFIA check inspection based on individual LSCI frequencies is there more scrutiny on seed growers with multiple LSCIs inspecting their pedigreed seed crops?
- Is there more scrutiny on the oversight inspection of the LSCI and reporting of issues in the inspected seed crop?
- How may industry ensure continued access to LSCI training to meet regional capacity requirements for an ASCIS?

Option #1: Explore increasing the scope of non-third party inspections to include other crop kinds, other companies and seed growers to inspect their own seed crops.

Rationale: Expanding the scope of non-third party ASCIS provides the flexibility for a company, assignee, or seed grower to inspect their own seed crops if they choose to become an ASCIS and/or LSCI. The system currently is in place for non-third party hybrid corn and hybrid canola ASCIS and LSCI.

Pros/Benefits:

- Seed Growers and companies may already have an agronomist working or the resources to conduct these inspections.
- Ability to conduct seed crop inspections without hiring an ASCIS could potentially reduce costs for a non-third party inspection service.
- Oversight is consistent with non-third party inspection services.
- A contracting company could conduct inspections on the fields assigned or grown under their supervision.
- Control and manage human resources in an efficient and effective manner.
- Inspections are not dependent on ASCIS availability.

Cons/Risks:

- There may not be adequate training available for new inspectors to become LSCI.
- Potentially increase end user fees due to oversight and human resource requirements.
- May not be feasible for smaller growers and the cost of oversight could potentially be larger than the savings.
- Potential increase in conflict of interest with a non-third party ASCIS contracting company.
- Not all seed growers or companies would have high internal standards during pedigreed seed production and this may also cause issues for field inspection bias which may impact the overall quality of the seed produced.

- The fees affiliated with oversight and administration may cause a non-third party to have a fiscal advantage over a third party ASCIS.
- CFIA resources to administer and oversee more ASCIS and LSCIs may be lacking.
- Third party ASCIS may go out of business reducing competition.
- There may be limited uptake of non-third party inspection services if the program is expanded.

Option #2: Reduce the separate plot oversight frequency using a risk-based approach. Reduce the frequency over time based upon experience/results (a staged approach).

Rationale: OECD only requires a 5% oversight frequency of the seed crops inspected. The initial 20% rate was implemented as a separate frequency for inspectors conducting high generation plot inspections (as a CFIA policy). For an LSCI to add a group 6 (plot) scope to their licence they must meet the following criteria before they are eligible to attend the theory training and practical CFIA mentoring (i.e. there is not practical evaluation):

- have a reduced or normal inspection frequency
- inspected for a minimum of two years; and
- Inspected a total of 60 or more fields.

Pros/Benefits

- Reducing the number of check inspections would decrease costs for ASCIS and for the CFIA.
- Reducing the cost to the ASCIS for check inspection oversight, potentially may be reflected in the system reducing costs to the farmer.
- Still meets OECD oversight requirements.
- Oversight will remain on LSCI conducting plot inspections to ensure confidence of inspections.
- Samples from all plots are submitted to the CFIA for variety verification purposes and is an addition check on the program.
- Suggestion to implement a staggered reduction from 20% to 5% and adapt based on experience as necessary.

Cons/Risks:

- The quality of inspections may decline if oversight is reduced.
- Errors in higher generation pedigreed seed may compound if an inspection is not properly conducted and there is little oversight.

Option #3: Explore re-designing the crop inspection oversight system to differentiate between seed destined to the domestic market and seed destined under OECD in the international market.

Rationale: OECD requires a minimum of 5% oversight on seed crop inspections destined under the OECD Seed Schemes. Pedigreed seed sold domestically would not require the 5% check inspection frequency rate. Oversight could be more risk based and less frequent for seed crops inspected for the domestic market. The 5% oversight requirement would remain for seed destined for export to ensure international obligations under OECD.

Pros/Benefits:

- Potentially mitigate additional costs in the system that are passed onto the seed grower and the farmer/end user.
- Seed certified in Canada sold domestically would not be subject to the OECD 5% minimum inspection frequency and check inspections could be more of a risk-based approach.
- Check inspections would only be conducted on LSCI inspecting OECD fields reducing the number of check inspections on an LSCI.

Cons/Risks:

- This would lead to a tiered oversight system and may increase potential gaps when seed is certified OECD after harvest.
- Reduces oversight for checks and balances of LSCI conducting inspections.
- There may be segments of the seed industry that could benefit from this option; on the other hand, some companies may decide to not take the risk. In the context of seed shortages, anything that limits the opportunity to move seed domestically or internationally may not be advantageous.
- Growers may not know if their crop will be exported under OECD or not at the time of applying for crop inspection.

Option #4: Licenced seed crop inspectors (LSCI) are trained and mentored by an authorized seed crop inspection service (ASCIS) and CFIA only evaluates LSCI.

Rationale: Since the implementation of alternative service delivery (ASD) of pedigreed seed crop inspection the expertise and competencies of LSCI have increased. With more experienced LSCI, an ASCIS could train new LSCI, or current LSCI on additional scopes, without being subject to CFIA availability to deliver theory and/or practical training. CFIA would have the flexibility to arrange evaluations on LSCI once candidates have successfully been trained and/or mentored. The theory component could also be an online training.

Pros/Benefits:

- Increase flexibility for an ASCIS to train potential candidates, while requiring less resources from CFIA.
- Candidates would no longer be limited to specific dates for CFIA delivered training.

- Reduce CFIA training costs for the LSCI or ASCIS which may reduce downstream costs to the seed grower in the system.
- Potential to move the theory component to an e-Learning platform.
- CFIA will continue to administer evaluations to meet the OECD requirements for licensing a private inspector.
- ASCIS is accountable for training prior to the crop inspection season, continued mentorship, and ongoing support of their LSCI throughout the end of the season.
- Potentially increase the consistency of inspections between LSCI working for the same ASCIS.

Cons/Risks:

- CFIA may still have to potentially train LSCI(s) for a new ASCIS.
- Private sector training may increase costs.
- The potential for regional differences to creep in over time, where some regional differences may or may not be warranted.

Option #5: CFIA maintains flexibility to improve and develop inspection procedures and LSCI training material; explore options for delivering practical training; continues to evaluate LSCI; continues to deliver oversight activities on ASCIS' and LSCIs.

Rationale: The majority of the seed crops inspected in Canada (approximately 95%) are conducted by an authorized seed crop inspection service. Limiting the number of non-third party ASCIS ensures there are more third party inspections conducted on the majority of the seed crops inspected in Canada. CFIA oversight with a minimum of 5% as a check inspection frequency ensures that international obligations under OECD are met for any crop inspected in Canada and oversight of LSCI at higher levels is based on performance in the previous seed crop inspection season.

Pros/Benefits:

- Once licensed an ASCIS may provide services in the region(s) and are not limited to specific crop kinds.
- LSCI may provide crop inspection services as soon as they are licensed.
- CFIA oversight of an ASCIS and LSCI have increased the service standards which increases the confidence of the seed being produced by the grower.
- CFIA has the flexibility to adapt the training format of the Group training. In 2021, Group 1 training was piloted with an online theory training format and the practical training transitioned to the ASCIS prior to a candidate being evaluated by CFIA.
- Seed growers tend to be comfortable and select the same ASCIS to conduct fields annually.
- Third party ASCIS and LSCI have more flexibility in their inspection schedule.

- LSCI and CFIA inspectors are trained and maintain competencies to meet standards and requirements in the domestic and global markets.

Cons/Risks:

- Different competency levels on the check inspector for oversight versus an LSCI
- Less competition in some areas for third party service providers.
- Some ASCIS will only stay within a specific area especially when it may take five hours to drive to one field. There are a few factors like how many fields you can inspect in a day, etc. which is another thing observed with a third party provider.
- Providers are really trying to ensure that they can do a variety of crops that are ready at the same time and may become more efficient but distance is a factor in some respects depending on the location.
- There are relationship and collaboration inconsistencies/ gaps between CFIA and ASCIS's.
- When multiple LSCI inspect a single seed grower's fields, this could potentially increase CFIA oversight on the seed growers as the check inspection frequencies are based on individual LSCI rates.
- Potentially increase the probability of identifying issues in the field beyond requirements due to the scrutiny of the inspection and the CFIA check inspection.

DISCUSSION

There was a general concern about fees affiliated with CFIA oversight, training, alternative service delivery and seed crops in remote locations. When a farmer purchases certified seed they expect a higher quality product and this should be maintained. Potential issues that would result in a lower quality product or reduction in confidence needs to be mitigated. One concern was that whatever option(s) are eventually taken, the seed quality and the perception of high seed quality in Canada must be maintained.

It was recommended to bring in an expert panel to discuss alternate methods for seed certification, including seed crop inspection, during the Big Picture Seed Certification task team topic.

The use of drones during seed crop inspection was brought forward by the task team as an option. This option is currently being explored in the current system with preliminary data provided under a drone pilot conducted with one ASCIS, CFIA and CSGA. It was recommended to continue to explore this option in the current system to verify which aspects of pedigreed seed crop inspection can be verified using drone data as technology advances.

During the 2021 crop year, the CFIA conducted a pilot where an ASCIS would deliver practical Group 1 training to a potential candidate and the CFIA would administer the practical evaluations. There were gaps identified and areas for improvement to be addressed based on

this pilot. There is a need for this aspect of crop inspection to evolve; this is set by CFIA policy (not by regulations). Providing more authority to the ASCIS for training is beneficial, with CFIA oversight and more flexibility on how the inspectors are evaluated. There is value in privatizing training more and more, while ensuring consistency of training materials and an appropriate level of oversight.

It was recommended that the process for crop inspection procedures should be reviewed between the CFIA and the CSGA.

During the discussion for option #1 to explore increasing the scope of non-third party inspections, it was mentioned by the task team that the CFIA may not be recovering all of its costs for administration and oversight of third parties but many benefit from this system. It was suggested that non-third party ASCIS parties should pay full cost recovery because they are the direct beneficiaries of the authorization to inspect.

During the discussion for option #2 on reducing the separate plot oversight frequency using a risk-based approach was generally supported among the task team members.

The task team did not reach a consensus during the discussion on exploring option #3.

For option #4, the task team members have no major issue with private sector delivery of the training, and government evaluation; however, not all are sufficiently familiar with this topic to make a formal recommendation to the industry as a whole. The Task Team supports the option, which can be considered further by the Working Group.

Option #5 is how the current system operates in Canada. The task team members recognize that there are current gaps/issues existing in the system where improvements could be identified.

RECOMMENDATIONS:

- 1. General support status quo as per option #5 where CFIA maintains flexibility to improve and develop inspection procedures and LSCI training material; explore options for delivering practical training; continues to evaluate LSCI; continues to deliver oversight activities on ASCIS' and LSCIs.**
- 2. The other options should also be further explored as they are not mutually exclusive to option #5 and there is flexibility in the current system to encompass these options.**

Topic 5 – Registered Seed Establishment

SEED REGULATORY MODERNIZATION

SEED CERTIFICATION TASK TEAM
Topic #5: Registered Seed Establishment
Options and Recommendations Report
January 11th, 2022

In the current system, Seeds Canada (formerly the Canadian Seed Institute, CSI) is the conformity verification body recognized by CFIA. [Subsection 2\(1\), Seeds Regulations](#) defines the **conformity verification body** as *an independent body that has an agreement with the Agency under subsection 14(1) of the [Canadian Food Inspection Agency Act](#) to administer specific tasks, including assessing, recommending for acceptance and subsequent audit of establishments, operators, graders, samplers or laboratories that process, import, sample, test, grade or label seeds.*

Seeds Canada audits registered seed establishments (RSEs) authorized by the CFIA to process, grade, sample and analyze pedigreed seed in Canada. Seeds Canada is responsible for assessing, recommending and auditing to verify competencies of:

- approved conditioners (ACs)
- bulk storage facilities (BSFs)
- authorized importers (AIs)
- recommending the authorization of graders and operators; and
- recommending the annual renewal of laboratories' accreditation [based on quality system programs].

Seeds Canada's audit scopes for ACs and BSF seed establishments are the following:

- AC audit scope: every two years with the option after two audits to participate in the increased interval program. ACs are required to meet all the criteria established by Seeds Canada to participate in the increased interval program in Canada. Once on the program, every second audit is replaced with the AC submitting three samples of graded seed for monitoring.
- BSF audit scope: every two years with the option after two audits to participate in the increased interval program. Similar to ACs, BSFs are also required to meet the criteria to participate on the increased interval program. Once on the program, every second audit is replaced with the BSF submitting one sample of graded seed for monitoring.

Seeds Canada audits the establishment to their quality manual which may include seed graded by a grader onsite at an AC or at an accredited seed lab. Non-conformances are issued to the RSE and not individual graders.

If an auditor is concerned with an establishment's ability to maintain compliance over the audit period due to the outcome of the audit, the auditor may recommend the following:

- the RSE is placed on a “normal” audit frequency of every two years and is not provided the opportunity to participate in the increased interval program;
- the RSE is placed on a “tightened” schedule and audited on an annual basis; or
- recommend to the [Registrar](#) to suspend the RSE.

Samples from pedigreed seed lots graded or stored at a registered seed establishment (RSE) are submitted as part of the Seeds Canada audit for monitoring purposes to a lab accredited under the Seeds Canada RSE monitoring lab program. There are technical manuals developed and maintained under Seeds Canada (formerly CSI) for ACs and BSFs with respect to handling, grading and labelling pedigreed seed which outlines best practices based on current industry needs and the *Seeds Regulations*. The authorized importer program will be discussed in detail by the Import Task Team.

The CFIA registers ACs, BSFs and AIs; accredits/licenses graders, operators and samplers; and accredits laboratories and analysts. The [Registrar](#) is defined as the person designated by the President to register establishments and license operators.

[Part IV](#) of the *Seeds Regulations* outlines the requirements for the registration of establishments that prepare pedigreed seed and the licensing of operators. The requirements are in the following sections:

- Sections [80 to 85](#) are the requirements for the registration of an establishment;
- Section [86](#) are the requirements for the conditions respecting registered establishments;
- Sections [87 to 92](#) are the requirements for suspension and cancellation of registration for an establishment;
- Section [93](#) are the requirements for operation of a registered establishment which includes one requirement where every RSE must have a licensed operator to supervise the operations of the establishment and when applicable is responsible for the proper handling, storage, sampling, testing, processing, grading, labelling and documentation of all seed in the establishment;
- Section [94](#) is the requirement where no individual shall operate a registered establishment without being licensed by the Registrar for that purpose;
- Sections [95 to 98](#) are the requirements for licences of Operators which also includes minimum evaluation results to be licensed; and
- Sections [99 to 106](#) are the requirements for the suspension and cancellation of licences for an operator.

Sections [13.1 and 13.2](#) of the *Seeds Regulations* prescribes the requirements, renewal, suspension and cancellation of samplers and graders.

Once the harvested seed has been stored in a controlled manner and declared as per paragraph [13\(1\)\(c\)](#), the seed is processed by the grower of the seed on the grower's premises or by an [approved conditioner](#). Under the current system, an RSE under the AC program is accredited to [condition](#) pedigreed seed which includes prepare by cleaning, processing, packing, treating or changing in any other manner the nature of a seed lot. An [officially recognized sample](#) is drawn to be tested as per [section 11](#) and examined by an accredited grader or analyst. As per paragraph [13\(1\)\(d\)](#), an [accredited grader](#) will grade pedigreed seed based on the standards set forth in the *Seeds Regulations*. Seed graded with a Canadian Pedigreed grade name may remain in bulk at an RSE accredited as a BSF. When pedigreed seed is imported it must also meet the standards for grading and labelling prior to sale in Canada. During the entire process there is a traceability system linking the crop certificate issued, quantity of seed harvested, amount of seed cleaned from the field and further processed, sampled, graded, tagged and labeled which is audited by the conformity verification body.

As per [subsection 10\(5\), Seeds Regulations](#) Seed loses its pedigreed status when

- (a) sealed packages are opened elsewhere than in an approved conditioner registered under Part IV;*
- (b) the seed moves in unsealed packages to a place that is neither an approved conditioner nor a bulk storage facility registered under Part IV;*
- (c) the Association withdraws the crop certificate that was issued for the crop from which the seed is derived; or*
- (d) the seed has been contaminated such that it does not meet the standards for varietal purity established by the Association.*

The following gaps and/or issues were discussed when considering options:

- How could the oversight of the process from the issuance of a crop certificate to the creation of the pedigreed seed declaration be improved?
- How to address inconsistencies with official seed tags?
- How can we provide flexibility into the regulations as Part IV is very prescriptive and not outcome based?
 - Currently there are differences between what is prescribed in the *Seeds Regulations* and what happens in practice.
- Should access to the technical manual be public?

Option #1: Status quo allowing for conformity verification bodies; a conformity verification body controls a technical manual/standard operating procedure program guidance document; the CFIA registers establishments and licenses operators and seed graders. Part IV of the *Seeds Regulations* will remain in the regulations.

Rationale: The technical guidelines and procedures have evolved since CSI, now Seeds Canada, was created and auditing RSE's. Stakeholders in the system have expressed confidence in the current system and its evolution.

Pros/Benefits:

- The responsibilities of and procedures for RSEs are clearly outlined and relatively easy to implement.
- Seeds Canada's (formerly CSI's) technical manuals provide clear guidelines for RSEs on the regulatory requirements.
- Implementation of the quality management system approach is of value.
- The system has flexibility to evolve and continually improve.
- There is a good relationship between RSEs and Seeds Canada auditors.
- The elements associated with being recognized as an RSE (training, knowledge of the rules and regulations, quality manual, oversight, etc.) all contribute to trust and confidence in the system and trust when seed buyers purchase pedigree seed.
- The current system enables and supports traceability in an integrated and robust manner.
 - The pedigreed seed system provides traceability (record keeping and traceability being at the core of the system); the RSE system enables CFIA to delegate the authority for sampling, testing, grading and labelling seeds.
 - If there are complaints or issues, the system provides the ability to investigate them.
- The certification system in Canada provides a framework that other programs were able to leverage to increase efficiency and effectiveness (examples: authorized exporter program, plant health program, etc.); the RSE framework has been leveraged to the benefit of the CFIA and the Canadian agriculture economy.
- The accountability of the system, along with the audit system provides strength and integrity.
- The current system is flexible to have more than one conformity verification body.

Cons/Risks:

- The technical requirements are not publicly available, this is inconsistent to other documents within the seed certification system like the requirements to become an authorised seed crop inspection service.
- Parts of the Seeds Regulations, including Part IV, could be improved by incorporation by reference (see option #4) or not being so prescriptive within the regulations.
- Information on the oversight of RSEs (and labs) by Seeds Canada and of the conformity verification body by the CFIA is not publicly available.

Option #2: Remove requirement for RSEs entirely.

Rationale: The Task Team discussed the concept of no requirements for RSE's. This option would align with the current requirements for non-pedigreed (i.e. common) seed.

Pros/Benefits:

- There were no pros/benefits identified for this option.

Cons/Risks:

- The elements associated with being recognized as an RSE (training, knowledge of the rules and regulations, quality manual, oversight, etc.) all contribute to trust and confidence in the system, if this is eliminated it could potentially compromise the integrity of the seed certification system.
- The CFIA would no longer have the legal framework within which to delegate authority for grading seed with a Canada pedigreed grade name and labelling with an official certification label/tag (i.e., seed certification under official supervision).

Option #3: Further Digitalization of the System.

Rationale: Further digitizing of the process (e.g. electronic records) could improve the requirements of information sharing and traceability within the RSE program and potentially streamline the process. Digitalization is related to the concept of “single window” for pedigreed seed.

Pros/Benefits:

- Potentially reduce storage requirements and paper work currently supporting the system.
- It may increase efficiencies to go back to samples and access information when there is a concern with a seed lot.
- As technology evolves, there is the ability for software to evolve and be adaptable over time.
- End to end digitization could provided a fully integrated system and address some of the current issues, like errors on tags, verify how well the audits work to ensure compliance with the regulations, level of oversight required in the system, gaps between the crop certificate being issued and the seed being delivered to a registered seed establishment.
 - The CSGA recently introduced the issuance of a digital crop certificate. This process could potentially be built upon to further digitize the rest of the seed certification system. For instance, the CSGA could develop that software as a service to the seed sector, going forward.
- Using technology to provide tools to facilitate meeting information requirements associated with the seed certification system (enhance traceability).

- Increase possibilities in terms of sharing information (as appropriate) and enhancing transparency.

Cons/Risks:

- Potential risks in security of information if the system was hacked and all in one place and how could this be protected.
- Concerns are associated with who would have access to proprietary information and the need for protection of the data as well as provisions to ensure that there are no accidental breaches (e.g. sending information to the wrong company, etc.).
- There is a risk of losing contract growers for multiplying seeds if costs or complexity increase (e.g. lack of access to a computer).
- Individuals that may not have access to technology to incorporate digitalization and potentially prevent them from growing, processing and handling pedigreed seed.

Option 4: Incorporation by Reference (IbR) of Part IV of the *Seeds Regulations*.

Rationale: Incorporation by reference of Part IV of the Seeds Regulations with the view it would make the RSEs technical guidelines and procedures more responsive. Part IV's requirements are very prescriptive in the Seeds Regulations for RSEs. If it moves to an IbR document then it would allow for flexibility to update the requirements. This would also align with the alternative service delivery requirements for pedigreed seed crop inspection.

Pros/Benefits:

- Increase flexibility and agility in the current system by making the regulations less prescriptive and addressing areas which are outdated in a separate IbR document.
- Ability to maintain aspects of the current RSE program which work well and update requirements as the system evolves.
- Increase the ability to incorporate other programs like the Authorized Exporter Program (AEP) and potentially align to incorporate future phytosanitary requirements and scopes into the program if CFIA controls the IbR document.

Cons/Risks:

- Potential risk may depend on the entity responsible for the IbR document, i.e. who will own the document.

DISCUSSION

There may be additional information based on the outcome of the discussions during the Seeds Canada summit proposed that the Seed-RM WG may like to consider.

The Task Team discussed transparency in the current system, which could include several different levels of transparency throughout the system. One level could be the information

required by a regulator for oversight, to monitor the system, to enforce the requirements, to deal with compliance issues, etc. in order to have confidence that the system is properly implemented. Another level of transparency is to ensure that seed consumers have the required information to make informed decision. A different level could be what would the general public have access to, to know the seed system is working properly, to have confidence and trust in the system. For example, when seed is sold, there is a grade name, however there is additional information that must be made available to the consumer of the seed (e.g. germination, purity, etc.). In terms of transparency of seed quality, should this information be available at the time of sale? Informing the public about how the system works and building trust is an ongoing challenge. Trust in the system is desirable; if transparency provides greater trust in the system, this is a pro/benefit. This topic also has an impact on the competitiveness of Canada on the international stage (i.e. depending on how it is done, it can either add burden or not – important to not impede competitiveness of Canada in terms of how things are done). The Task Team decided to defer this discussion to the Big Picture Topic as it extends beyond the RSE discussion.

The Task Team discussed whether additional information should be on the tag or not. In the USA, there is additional information provided on the tag (e.g. weeds, germination, etc.). It should be further explored to see if there is value in having more information on the tag in Canada, and if so would providing more information support greater transparency in the system or not. Should additional labeling information based on customer's requests like the thousand kernel weight for seedling rates be labelled/added to the tag. The Task Team members would like to defer this topic to the Information (records and labelling) Task Team.

The Task Team discussed option #1 to maintain status quo. There were no major issues identified around the current regulations with respect to RSEs. The general consensus was that the RSE system works well but could be improved to enhance flexibility, which could be achieved by IbR (i.e. option #4).

The Task Team saw value in the RSE program and there wasn't any support to move away from RSEs as described in option #2. RSEs need to be maintained in the Canadian seed certification system. The Task Team did raise concerns with establishments and graders who handle and process common seed which should be recommended as a topic to be considered by the Common Seed Task Team.

Option #3 on further digitalization of the system was supported by the Task Team which recommends that further digitization of the system be explored and implemented over time. The seed certification system should be digital from end to end and access to/sharing of information should be enhanced. There should be consideration for individuals who do not have access to the technology to input information into the system. When adopting an end to end system it was suggested to do a phased in approach with pilots to work through any issues prior to a full scale rollout. The Task Team recognized that there will be a learning curve with digitizing the system initially but it would be beneficial in the future. This topic can be further explored by the Information (records and labeling) Task Team.

Option #4 to incorporate by reference Part IV was generally supported by the Task Team members. The discussion of who would be responsible for the IbR document (CFIA or industry) should also be part of the considerations for the Seed-RM WG discussions.

RECOMMENDATIONS:

- 1. The Task Team recommends improving the current system in option #1 to enhance flexibility, which could be achieved by option #4 to incorporate by reference Part IV of the *Seeds Regulations*. The Task Team would like the Seed-RM WG to further discuss who would be responsible as part of their 'Big Picture' topics.**
- 2. The topics on digitalization and labelling requirements should be further explored by the Information (records and labelling) Task Team.**
- 3. The discussion on common seed processing and grading should be considered a topic for the Common Seed Task Team.**

Topic 6 – Varietal Blends

**SEED REGULATORY MODERNIZATION
SEED CERTIFICATION TASK TEAM
Topic #6: Varietal Blends
Options and Recommendations Report
January 31st, 2022**

The *Seeds Regulations* defines a [varietal blend](#) as a mixture of two or more varieties of the same kind or species of [pedigreed status](#) seed. Seed of varietal blends imported into Canada must be accompanied at the time of importation by a certificate from an [official certifying agency](#) confirming that all of the seed named as to variety is of pedigreed status as per subparagraph [10\(3\)\(b\)\(ii\)](#).

Some seed crops are produced as varietal blends and issued a crop certificate while other types of varietal blends are made by an approved conditioner (AC) as per subparagraph [10\(3\)\(b\)\(i\)](#) after a crop certificate is issued for each variety in the blend.

Varietal blends may be grown for pedigreed seed production in the case of a Plant Pest Tolerance Management (PPTM) variety (e.g. midge tolerant wheat blended with a susceptible refuge wheat variety) or a Select Technical Blend (TB). The CSGA's [Canadian Regulations and Procedures for Pedigreed Seed Crop Production](#) (Circular 6) defines a CSGA specific category for Select Technical Blends as a specific combination or mixture of seed lots used for the production of composite varieties (e.g. composite canola) or the production of Certified hybrid seed for cereals produced from a mixture of the two parent lines (e.g. hybrid rye). Composite varieties have descriptions that confirm they are not hybrids and at least 70% of progeny result

from crossing of the parent lines. CSGA may require additional information prior to issuing a crop certificate for a varietal blend during pedigreed seed crop production. A *Refuge Declaration* (CSGA Form 182) stating the percentage of each component must be submitted prior to a crop certificate being issued. Similarly, a declaration (CSGA Form 180) stating the actual percent hybrid seed of a representative sample of the crop kind, and the method of determining the percent hybrid seed, must be submitted to the CSGA prior to a crop certificate being issued.

If seed is graded with one of the varietal blend grades as per paragraph [7\(1\)\(e\)](#) then all of the seed must be of pedigreed status. Varietal blends of crop kinds or species listed in [Tables VIII to XII](#) of *Schedule I* are not grown as a TB, each component of the seed in the blend must be of pedigreed status prior to being blended by an approved conditioner. Once the seed is blended, then it may be graded with a varietal blend grade name which is equivalent to a Certified grade name in the appropriate Table. Varietal blend grade names differentiate this type of seed lot from seed lots graded with Common No. 1 or No. 2 grade names.

As per paragraph [13\(1\)\(e\)](#) seed may be graded with a Canada pedigreed name when the varietal blend is a PPTM varietal blend of crop kinds or species set out in any of the Tables I to II.1 and IV to VII of *Schedule I*. A PPTM varietal blend is a varietal blend for plant pest tolerance management that is intended to maintain the efficacy of a plant pest tolerance characteristic including wheat midge tolerant varietal blends and corn pest tolerant varietal blends. The seed from a hybrid corn production will receive a Certified status pedigreed crop certificate; therefore, the refuge seed component will have to be at least a lot of Certified status seed blended by an AC to be sold as a blended product. It is recommended that the component varieties be sampled and tested separately, prior to blending, in order to provide clear evidence of the quality of the seed lots that make up the blend. Progeny of Select TB's produce a certified crop different from the parent lines and are handled as Certified status seed during the grading process. If pedigreed seed is blended by an AC but is neither a PPTM nor within one of the Tables with a varietal blend grade name then it would be sold as common seed. Currently, the use of variety names would be allowed on a varietal blend only if it is blended by an AC and all of the seed named by variety is of pedigreed status. Subsection [10\(3\)](#) does not refer to a requirement for any grade name on a varietal blend, whereas there are restrictions on Canada pedigreed grade names for single crop kinds and species.

Discussions on varietal blend seed standards, grade tables, testing requirement and information (including records and labelling) requirements will be further discussed by other Task Teams.

The following gaps and/or issues were discussed when considering the options:

- Should there be more flexibility to sell varietal blends of certified seed for all crop kinds sold in Canada?
- How should a varietal blend be deemed acceptable for sale as certified seed?
 - Would this be through a government and/or industry review committee/board?
 - Could this be left up to the market to determine if there is value and a need?

- If the regulations are opened up more would this address the current gap with respect to synthetic and technical blends of parent seed pedigreed status?
- How would information be available to a consumer and accurate traceability be maintained by the AC mixing a certified varietal blend? Would this differ from a single variety blend at an AC?
- Should a varietal blend sold as certified seed be registered or only require the information for each varietal component to be provided at the time of sale?
- Would there be concerns with long term accountability for seed growers with respect to stewardship practices in pest tolerant traits for example or other varietal purity issues during pedigreed seed crop production?
- How are other jurisdictions (e.g. European Union) regulating varietal blends? Would a certified varietal blend be acceptable under OECD and AOSCA when exporting seed lots from Canada?
- Could there be more clarity on the type of certified varietal blends that are acceptable?
- Should a varietal blend be proven to have a beneficial outcome for specific markets before it is sold as certified seed?
- Could a varietal blend be sold with a Canada pedigreed name instead of a varietal blend grade since all the varieties present in the blend must be of pedigreed status?
- What type of requirements or standards should be maintained to reduce errors and increase transparency when selling a varietal blend as certified seed?

Option #1: Status Quo where the requirements for the types of species and crop kinds are listed in the regulations allowing the current tables with the varietal blend grade name will remain in Schedule I, PPTM varietal blends will be limited to crop kinds listed in Tables I to II.1 and IV to VII of *Schedule I* as per paragraph 13(1)(e) of the *Seeds Regulations* and synthetic or technical blends of parent seed for the production of certified seed will not be accommodated by the *Seeds Regulations*.

Rationale: The current requirements for the types of varietal blends of certified seed is based on information to ensure there is a proven benefit like performance in yield with alfalfa or in a PPTM varietal blend where there is a refuge to ensure the target pest remains susceptible to the pest control product trait. During pedigreed seed production, parent seed sources in a technical or synthetic blend or PPTMs for midge tolerant wheat have additional requirements to be issued a crop certificate and the CSGA has created a pedigreed class for synthetic select blends. The requirement for a varietal blend to be mixed by an AC enables traceability in the RSE program of each variety sold in the blend. Status quo would limit the number of species and crop kinds of varietal blends sold as certified seed which mitigates claims misrepresenting other species or crop kinds that are not sold as a varietal blend but as common seed.

Pros/Benefits:

- Varietal blends are required to be mixed by an AC and subject to the RSE traceability requirements when sold.
- Producers purchasing a varietal blend have some buyer protection to potentially manage cost of seed.
- Varietal purity is important to seed certification and for the most part, the status quo seems to be working.
- Reducing the number of species and types of crop kinds sold as a varietal blend derived from certified seed mitigates fraud in other species and crop kinds for which this is not permitted.
- Restricting the number of species and crop kinds allowed to be a varietal blend helps reduce issues that may be related to intellectual property of a variety if a Breeder does not want a specific variety of pedigreed status to be blended.

Cons/Risks:

- Only the species and crop kinds prescribed in the Seeds Regulations of varietal blends mixed by an AC of issued a pedigreed status may be sold with a varietal blend grade, all other pedigreed seed varietal blends of species or crop kinds mixed by an AC are sold as common seed even though each variety in the mixture was issued a crop certificate.
- There is reduced flexibility to add a new species or crop kind to be sold as a varietal blend as a regulatory change is required.

Option #2: Simplify the requirements by eliminating the varietal blend restrictions and grade names to allow pedigreed seed of different varieties mixed by an AC to be sold as certified seed of a varietal blend.

Rationale: Varietal blends of pedigreed seed would be able to be mixed into a certified seed lot for all species and crop kinds issued a crop certificate. The pedigreed seed varieties in the blend must be mixed by an AC with a quality management system overseen by a conformity verification body under the RSE program to ensure traceability and identity of each variety sold as certified seed in the varietal blend. The varietal blend would still have to meet the standards and requirements for the single species or crop kind being sold to apply a blue certified seed tag. This would increase flexibility to adapt to market, technology, quality, disease and environmental (e.g. climate change) trends allowing producers and sellers to select for different varietal traits as certified seed is required to meet a varietal purity standard for each separate variety prior to blending.

Pros/Benefits:

- Potentially provides a certain amount of buyer protection in regard to the cost of seed as each variety is required to be issued a crop certificate and meet the standards for the crop kind in the *Seeds Regulations*.
- Increases flexibility to allow any type of species and crop kind issued a crop certificate to be sold as certified seed of a varietal blend ensuring the varietal purity of each variety in the blend of a single crop kind.

- Adaptable to accommodate future-oriented trends that cannot yet be anticipated.
- Enables producers to try different things as driven by the market and evaluate the potential agronomic benefits or risks of varietal blends on their farm or in their region.
- Potential for an economic benefit to the farmer using a varietal blend of certified seed with known varietal traits.
- Potential for seed companies to utilize carry-over pedigreed seed for other end-uses versus only in a single variety blend as per the status quo.
- Potential for seed companies and seed growers to sell certified seed instead of down grading seed issued a crop certificate that meets the certification requirement to common seed for species and crop kinds not prescribed by government in the regulations.
- Using the blue certified tag would ensure buyer confidence is not diminished in the varietal purity of each component in the blend as the blue tag provides a level of confidence in the quality of the seed.
- Increases the ability to accommodate regional differences in growing conditions to select for beneficial traits from different varieties in a varietal blend to be sold as certified seed.
- The CSGA would still be able to evaluate standards and requirements for synthetic and technical blends of parent seed to ensure varietal purity of the certified seed produced.
- Potentially increase the options of certified seed sold to customers by industry and seed growers.

Cons/Risks:

- Potentially increase the number of claims for unproven mixtures in the marketplace.
- The availability and accountability of the information may not be accessible at the retail level when a purchaser requests information to verify accurate representation of the varietal blend sold of certified seed.
- Potentially increase other requirements (e.g. labelling, test results, percent of each variety, etc.) when selling varietal blends as certified seed.
- For certified seed production, there is a possibility that CSGA may not allow a varietal blend for certified seed certification
- A Breeder may not allow a variety to be sold in a varietal blend potentially causing intellectual property issues using that specific variety.
- There doesn't have to be a defined purpose for a varietal blend of certified seed to be sold in Canada.
- This could lead to issues with varietal blends sold not being evaluated for different regions.
- There may be unintended consequences on the cost of purchasing certified seed and inability to foresee potential barriers driven by consumers, trade or market issues if this option is opened up too much.

Option #3: An outcomes based approach prescribing requirements for a purpose/benefit to the market/producer and provide information/rationale to justify a varietal blend for all species and crop kinds to be sold as certified seed in Canada.

Rationale: This would remove restrictions on species and crop kinds in the *Seeds Regulations* that could be sold as certified seed for a varietal blend. The varietal blend would have a purpose and meet prescribed requirement to mitigate any misleading claims of agronomic benefits of the varietal blend when sold as certified seed. This creates flexibility and prescribes accountability for species and crop kinds sold as certified seed in a varietal blend.

Pros/Benefits:

- Provides flexibility to sell different types of species and crop kinds of a varietal blend as certified seed.
- Potentially accommodate regional differences and decisions requiring different types of varietal blends to be sold as certified seed.
- Provides confidence in the varietal blend sold as certified seed when farmers make purchasing decisions.
- Flexibility to evaluate the potential agronomic or risk tolerance benefits of a varietal blend prior to selling the blend as certified seed.
- Using the blue certified tag would ensure buyer confidence is not diminished in the varietal purity of each component in the blend as the blue tag provides a level of confidence in the quality of the seed.

Cons/Risks:

- A varietal blend of certified seed may produce different outputs pending on the region which could increase regional restrictions due to performance of the varietal blend.
- Criteria would have to be developed and available to determine how to review and approve a varietal blend to be sold as certified seed and by whom.
- A Breeder may not allow a variety to be sold in a varietal blend potentially causing intellectual property rights issues using that specific variety.
- Research to provide information may be too expensive and difficult to obtain. It could also be difficult to show a measurable significant difference between one way of doing things versus another.
- Buyers and sellers would need to think about what the foundational outcome is as well as the derivative outcome which could be based on regional environments.
- There may be unintended consequences on the cost of purchasing certified seed and market access if this option is opened up too much.
- Increase communication and/or information requirements may need to be implemented to ensure consumers and ACs know which types of varietal blends, including the portion of each variety in the blend, are approved to be sold as certified seed.

- If a varietal blend is end use specific then it may be misused or would have to be re-evaluated for a different end use if it wasn't previously approved in order to be sold as a varietal blend of certified seed.

DISCUSSION

The task team members discussed single varietal blends which are already accommodated under the current *Seeds Regulations*, these blends are not comprised of a mixture of two or more varieties in a blended seed lot sold as certified seed. It was discussed how some seed companies may blend left over seed or potentially below a purity or germination standard maybe mixed with another seed lot(s) of the same variety by an AC to meet the standards for a Canadian pedigreed grade name. It was clarified that Table III refers to cereal mixtures but limits the use of only one variety of every crop kind present in the mixture. The opinion was brought forward that it is important to maintain standards and reduce errors where possible.

There were concerns brought forward on the traceability and availability of information including laboratory results and the components of each variety in a blend; if there should be a separate tag to identify certified seed of a varietal blend when sold; misinformation and unfounded claims could increase; and there would have to be clarity on the types of varietal blends that are acceptable to be sold as certified seed. It was recommended that the Information (labelling and records) Task Team should discuss the requirements for varietal blends sold as certified seed.

There was a point brought forward that not many commercial crops in some regions are blended but there has been a trend of pooling crops like wheat to meet end use specifications determined by the customer which potentially would increase grower utilization of varietal blends.

The Task Team discussed option #1 to maintain status quo. It was identified that there is a need for flexibility to allow different species and crop kinds to be sold as a varietal blends of certified seed.

During the discussion of option #2, it was identified that the market would be able to drive the decision on varietal blends sold as certified seed versus the government. This would enable industry and individuals to try different things, be accountable to achieve objectives and assume risks involved with selling certified seed of a varietal blend. It was mentioned that the varieties in the mixture would be issued a crop certificate, mixed by an AC and still required to meet the standards for certified seed of that specific species or crop kind. The information provided for each blend would be required at the time of sale. Removing the regulatory restrictions would enable certified seed to be more adaptable to respond to market driven requirements. There was a concern that if protectionist measures are established then there could inadvertently create barriers on varietal blends. It was mentioned with considerations like

carbon taxes this could provide another avenue to sell certified seed in the future to adapt to climate change.

Option #3 provides an opportunity to approve varietal blends based on scientific rationale and require a benefit/value to a consumer. The outcome would have to be clearly defined and it was questioned if it would require an approval for specific end uses. Considerations for different regional requirements would have to be addressed as a varietal blend sold as certified seed may work in one area of Canada but not perform in other areas. The idea of registering a varietal blend with specific components and percentages in the mixture for one blend, if the percentages in the blend change then this would have to be a different registered varietal blend. If registering of varietal blends was considered then this information would have to be available. There was a concern that a recommending committee or equivalent may have to be formed to review information to determine if a varietal blend would be deemed acceptable. Pending how this option is defined it could be more flexible or strengthen standards. There was a concern that it may be difficult to prove the benefit of specific varieties blended together to identify outcomes that would be beneficial. There was a discussion of a fourth option between option #2 and the extreme on option #3 but this could be captured here depending on how the outcome is defined in the *Seeds Regulations*.

RECOMMENDATIONS:

- 1. The Task Team recommends option #2 to simplify the requirements by eliminating the varietal blend restrictions and grade names to allow pedigreed seed of different varieties mixed by an AC to be sold as certified seed of a varietal blend.**
- 2. The discussion on the requirements for labelling, records, transparency, traceability and information availability to support option #2 should be considered as a topic for Varietal Blends with the Information (records and labelling) Task Team.**

Topic 7 – Mixtures

**SEED REGULATORY MODERNIZATION
SEED CERTIFICATION TASK TEAM
Topic #7: Mixtures
Options and Recommendations Report
February 16, 2022**

A seed mixture is defined as containing two or more crop kinds or species whereas a varietal blend contains seed of two or more varieties of a single crop kind or species. To apply a Canada Certified grade name, mixtures must appear in Table III for cereal mixture, Table XIII for forage mixtures and Table XIV for lawn seed mixtures. Table XV does not have a pedigreed status grade name for ground cover mixtures.

Canada Certified No. 1 Cereal Mixture and Canada Certified No. 2 Cereal Mixture in Table III shall contain only seed of pedigreed status and only one variety per kind or species as per paragraph [7\(1\)\(g\)](#). This is different from Canada Certified No. 1 Forage Mixture or a Canada Certified No. 2 Forage Mixture in Table XIII, and Canada Certified No. 1 Lawn Mixture or a Canada Certified No. 2 Lawn Mixture in Table XIV which may contain more than one variety of a kind or species as per paragraphs [7\(1\)\(f\)](#) and [7\(1\)\(h\)](#).

A mixture must be blended by an approved conditioner (AC) as per subparagraph [10\(3\)\(b\)\(i\)](#) to be graded with a Canada Certified grade name. Mixtures of pedigreed seed imported into Canada must be accompanied at the time of importation by a certificate of an [official certifying agency](#) confirming that all of the seed named as to variety is of pedigreed status as per subparagraph [10\(3\)\(b\)\(ii\)](#). Furthermore, mixtures are not grown and inspected for the issuance a crop certificate like some varietal blends. Instead, each component in a mixture must be of pedigreed status seed to be blended into a Certified seed mixture.

It is recommended that mixtures are made with components that have met the standard for individual components set out in the *Seeds Regulations* prior to mixing/blending. This is to ensure that the mixture will meet the standards specified in the Tables for that mixture. For instance, canola, alfalfa, and wheatgrass intended for a grazing forage mixture should be analyzed and graded with the standards set out in the Tables in which they appear (Tables VII, VIII and XI), before mixing the three components into the final product. Once they are mixed, the mixture is required to meet the standards in Table XIII which are lower than those in the individual tables. If all components of the mixture are pedigreed status seed blended by an AC but the specific mixture is not accommodated within one of the Tables for mixtures, then the mixture cannot be sold as Canada Certified seed. Currently, the use of variety names would be allowed on a mixture if it is blended by an AC and all of the seed named by variety is of pedigreed status as per subsection [10\(3\)](#).

Mixtures seed standards, grade tables, testing requirements and information (including records and labelling) requirements will be further discussed by other Task Teams.

The following gaps and/or issues were discussed when considering the options:

- Should components of a Certified Mixture be finally certified, i.e., sampled, tested, and graded prior to mixing rather than pedigreed status only and testing of the final product?
 - Would there be an exemption to allow seed issued a crop certificate that has a lower grade be blended back into a mixture of Certified seed to be sold with a higher grade name when blended together with another crop kind or species?
 - Since a sample representative of each component in a mixture is difficult to draw, should the grade for a Certified mixture be based on the results of a test on the individual component in the mixture?
 - Would it be beneficial to test each component separately prior to mixing a seed lot due to the time and expense to separate each component in a mixture to determine the standards?

- What type of information is required for records to ensure good quality control?
- Would requirements for the traceability of components in a mixture sold as Certified seed differ from the current system?
- How could accurate information to ensure transparency be provided to the consumer if sold with a Certified status grade name?
- Would any changes impact the price for crops (e.g., cover crops), to ensure there is no cost burden put on industry?
- Would a Breeder or owner allow for a specific variety to be mixed in a blend to be sold as a mixture of Certified seed?
- Should any crop kind or species issued a crop certificate be allowed to be included as a component in a mixture of Certified seed?
- How would the impact of potential regional agronomic performance differences of a mixtures be determined?
- Would the current system have to be changed or could it be maintained or improved upon if any pedigreed seed component could be mixed and be sold as Certified seed if it meets the requirements?
- Should mixtures of Certified seed only be allowed after a crop kind is issued a crop certificate then mixed or are there any circumstances where a mixture should be considered during pedigreed seed crop production?
 - Should this be clarified that it would only be eligible to be sold as Certified status seed and not a higher generation once the mixture is blended?
- Should the use of the Canada grade name be reviewed for mixtures like lawn seed and ground cover seed sold in Canada to differentiate between common seed and a mixture of Certified seed?
- Should there be an allowance for a Varietal Blend and a Mixture with different crop kinds in a single seed lot to be sold as Certified status?
- When there are impurities of other crop kinds present in a seed lot issued a crop certificate how would this impact the varietal purity of the mixture of Certified seed?
 - Would there have to be requirements or restrictions when blending mixtures? For example, if there are oat plants in a barley field issued a crop certificate should this barley lot not be allowed to be blended with an oat lot due to the unknown variety of oats in the barley lot?
- Could the requirements for mixtures be simplified in the regulations or would a separate grade table be required?

Option #1: Maintain the current system for Mixtures sold as Certified seed in Canada.

Rationale: The current system limits the types of mixtures being sold as a mixture of Certified seed to ensure varietal purity of the mixtures.

Pros/Benefits:

- The current system is known for the specified mixtures of Certified seed and end uses.
- It is possible to blend a seed mixture when one component of a seed lot has a lower grade (i.e. Canada Certified No.2) with other crop kinds or species and meet a Canada Certified No. 1 mixture grade.

Cons/Risks:

- The current system restricts the sale of Certified mixtures to specific types of mixtures and if a mixture of Certified seed does not fall within these requirements it will not be allowed to be sold as Certified seed.
- The use of a Canada grade name instead of a Common grade name is not consistent in the different mixture grade tables, for instance the forage mixtures grade table uses a Common grade name whereas the lawn mixtures grade table uses a Canada grade name. Furthermore, the use of the Canada grade name could be misrepresented by a consumer as a mixture of Certified seed.
- There is a potential increase cost involved in testing mixtures in the current system.

Option #2: Any single component of seed crop issued a crop certificate and meets the requirements for a Canada pedigreed status grade name (e.g. Canada Certified No. 1) could then be mixed together to be sold as a Mixture of Certified Seed in Canada.

Rationale: This could simplify the grade tables for mixtures and would not be limited to specific end uses. The component in the mixture would have to meet the minimum standard for Certified seed in the grade table or established standards for this crop kind prior to blending the mixture. Mixtures of Certified seed would only be able to be sold after the single components are issued a crop certificate, conditioned, sampled, tested and meet a minimum of a Certified grade name and treated as a single seed lot prior to being mixed by an approved conditioner. The mixture would not have to be resampled or graded again eliminating the requirement for additional grade tables for mixtures.

Pros/Benefits:

- Provides flexibility while maintaining some rigor in the process based on the end-user's needs.
- Provides a simpler option with no additional standards (e.g. mixture grade tables).
- There would be flexibility in price point depending on the actual end-use.
- Provides clarity that Certified seed is in the mixture.
- Provides a clear path for new products coming to the market to be sold as a mixture of Certified seed.
- Increases the flexibility for any crop kind or species issued a crop certificate and meeting the standards to be blended into a mixture to be sold as a mixture of Certified seed. This would allow options for producers to look at specific crop kinds they would like in a mixture pending on the end-use.

- Potentially provide future markets for mixtures of Certified seed in the organic industry.
- Potentially provide opportunities to accommodate the environmental concerns associated with carbon sequestration, wetlands and grazing.
- Simplify the process with each component having to meet a Certified grade then selling it as a mixture of Certified seed without additional testing to certify lots after it is blended.
- Provides producers with greater flexibility in what they are looking for in their end-use for specific crop types they want in a mixture.

Cons/Risks:

- Pending on the standards and requirements for grading or labelling a mixture of Certified seed, this could potentially eliminate the option to mix a component with a Canada Certified No. 2 grade with a Canada Certified No. 1 (or higher pedigreed status) grade name to become a Canada Certified No.1 Mixture.
- If a crop kind is issued a crop certificate but does not meet the standard for Certified seed it will be demoted to common seed and cannot be used or diluted to meet a Certified status as a component in a mixture.

Option #3: Any crop kind issued a crop certificate could be blended together by an approved conditioner then graded to meet an established standard for a mixture of Certified seed.

Rationale: Any crop kind or species issued a crop certificate would be able to be blended into a mixture of Certified status seed. This may require standards for mixtures to be established after the components are mixed for grading purposes. This would allow for components that do not meet grade table standards of a single component issued a crop certificate to be added into a mixture to meet a Certified grade name.

Pros/Benefits:

- A seed lot issued a crop certificate which may not meet quality standards for a Certified grade could be blended to a higher standard when added to a mixture.
- Increases the flexibility for all species and crop kinds issued a crop certificate to be sold as Certified when blended into a mixture of Certified seed.
- Potentially provides options for industry to use a seed lot issued a crop certificate to ensure the varietal purity to be blended into a mixture sold as Certified seed. This would allow options for producers to look at specific crop kinds they would like in a mixture pending on the end-use.
- Potentially provide future markets for mixtures of Certified seed in the organic industry.
- Potentially provide opportunities to accommodate the environmental concerns associated with carbon sequestration, wetlands and grazing.
- Increases the ability for a seed seller to blend a single component to a higher standard for purity after it has been blended into a mixture to be sold as Certified seed. Each

component will still be required to meet the minimum germination standard prior to blending.

Cons/Risks:

- The varietal purity of a mixture could potentially be impacted if a crop is issued a crop certificate but has another crop kind present which could be difficult to separate (e.g. barley crop low level oats present), the variety of the other crop kind in the field is unknown. If this lot is mixed with the volunteer crop kind (e.g. oats) issued a pedigreed crop certificate it may be difficult to ensure the varietal purity of that component (e.g. oats) of the mixture with potential off-types blended after pedigreed seed crop production. This could potentially reduce varietal purity of single components if they are not graded prior to blending the mixture.
- Difficult to test representative samples of a mixture and potentially increase the costs in testing mixtures.
- A producer may not want to pay the premium for Certified seed if there is a single component that does not meet the Certified grade for purity prior to mixing even if the final product meets the standard for a mixture of Certified seed.

Option #4: Seed mixtures should be demoted to common seed when sold in Canada and not be sold as Certified seed.

Rationale: This would simplify the process by eliminating the ability of any crop kind or species issued a crop certificate to not be sold as Certified seed. If a component of a mixture is issued a crop certificate (i.e. pedigreed status) and blended by an approved conditioner, in the current system the variety name could still be labelled with a Common grade name. This would allow for the use of a variety name for pedigreed seed in a mixture but restrict the further certification of the mixture to be sold as Certified seed.

Pros/Benefits:

- This option is very simple as it would become common.
- Allows to still maintain the variety name if the crop kind or species was issued a crop certificate and blended by an approved conditioner.
- It would be possible to buy singular varieties and blend them yourself or buy common seed mixtures.

Cons/Risks:

- Potential financial implications with the loss of Certified status on the components of the mixture when it is blended since it would not be able to be sold as certified seed.
- It would eliminate current markets where a Certified Mixture is sold in Canada and would be inconsistent with the OECD and AOSCA requirements.
- Since royalty payments are linked to Certified seed, demoting an mixture to common could potentially eliminate the opportunity to collect royalty payments.
- There is very little oversight for common seed mixtures.

DISCUSSION

The Task Team decided to change this topic from Complex Mixtures to Mixtures. This decision enabled the Task Team to increase the scope of the discussion to all mixtures sold as Certified seed in Canada. During the Mixtures discussion the Task Team considered the value of intercropping, soil health, sustainability, the increase in and options which included intercropping and its benefits for soil health, potential opportunities for organic crops, environmental impact with respect to carbon sequestration, wetlands, cover crops, grazing and potentially other feed opportunities. In the current system there are restrictions on Certified Mixtures and the Task Team decided to discuss opening up this option to other crop kinds and end uses.

The current requirements for intercropping during pedigreed seed crop production were discussed by the Task Team. The current system does accommodate intercropping where each crop kind sown is not difficult to separate during cleaning and does not out compete each other during the growing season. It was clarified that each crop kind in a field with intercropping would require an inspection at the appropriate timing to identify varietal impurities and would be applied for as different fields for inspection in order to be issued a crop certificate for each crop kind. During the discussion the Task Team clarified that Mixtures must be issued a crop certificate for the single component then blended by an approved conditioner prior to selling a mixture of Certified seed. This would ensure the varietal purity standards would be met for each individual crop kind included in a mixture to be sold as Certified seed. It was clarified by the Task Team that if there is one non-pedigreed (i.e. common) crop kind blended into a mixture of Certified seed then the blend would be considered common seed and not sold as a mixture of Certified seed.

During the discussion on option #1 there were concerns with common seed standards for ground covers which currently are not sold as a Certified Mixture. The Task Team discussed the benefits and risks of opening up the market to include other types of mixtures to be sold as a mixture of Certified seed.

Option #2 would simplify the process since each component would have to meet a Certified grade before it is blended into a mixture. The Task Team discussed that this option provides the highest guarantee of assurance for final quality of the product since each component has met a grade standard. There was a concern where a crop or species that was issued a crop certificate but did not meet the purity standards for a Certified grade as a single component would no longer be eligible to be mixed to a Certified grade as a component in a mixture of Certified seed. They would support this option moving forward for crop kinds of grains/cereals and oilseeds.

Option #3, requiring only a crop certificate to be issued prior to mixing and sale as Certified seed, provides greater flexibility for seed sellers to use more seed lots without having to sell the

lot as common seed. Each component would have to be tested prior to blending and again for purity after to verify it meets standards if a single component does not meet a Certified grade. The Task Team saw value in this option for crop kinds like forages but not for other crop kinds like grains and oilseeds.

There was consensus for both options #2 and #3 to be recommended based on specific crop kinds or species to sell a mixture of Certified seed in Canada. There was the suggestion to tier the two options based on end-use. The Task Team discussed the benefits of allowing option #3 for forage crop kinds but restricting crop kinds for grains and oilseeds to only be allowed for option #2 to ensure flexibility and consumer confidence. The Task Team had a consensus that the combination of the two options allows for flexibility and protection across markets where appropriate. It would increase the options, providing breadth to marketing applications. Plus, quality would be maintained while allowing for added value.

The Task Team did not support option #4 during the discussions.

There were concerns raised with mixtures of common seed, including the introduction of weed seeds and the different risks posed by mixtures used in highly managed situations versus low management situations (i.e., land reclamation, along pipelines or roads). The Canada grade name was changed to a Common grade name in a number of agricultural crops in Canada but there are still some mixtures and crops like lawn and turf mixtures, ground cover mixtures, wildflowers, herbs and vegetable seeds which use a Canada grade name instead of a Common grade name. The use of the Canada grade name on a mixture for non-pedigreed (i.e. common) seed potentially could increase the confusion in the marketplace as being higher value when it is not graded with a common grade name. It was recommended that the Mixtures topic should be further discussed by the Common Seed Task Team.

There were concerns brought forward on the traceability and availability of information including laboratory results and the components of each crop kind or species in a blend; if there should be a separate tag to identify a mixture of Certified seed when sold; accurate and transparent labelling information; misinformation and unfounded claims could increase; and increased onus to track each component by an approved conditioner to indicate what is in the mixture. There is a need to enable accurate, transparent labelling information for any kind of mixture provided the components are Certified and the mixture made by an approved conditioner allowing consumers to have clear information that is relevant to them. The purpose of a mixture of Certified seed may have to be identified when it is sold to prevent potential misuse in the marketplace. For, example a mixture intended for ground cover should be labelled so it is not confused with a forage mixture. It was recommended that the Information (records and labelling) Task Team should discuss the requirements for Mixtures sold as Certified seed.

RECOMMENDATIONS:

- 1. Option #2 is recommended for all crop kinds and species with the exception of forages and turf to be sold as a mixture of Certified seed.**
- 2. Option #3 is recommended for forages and turf to be sold as a mixture of Certified seed.**
- 3. The requirement for common Mixtures, including the use of the Canada grade name, should be further discussed by the Common Seed Task Team.**
- 4. The discussion on the requirements for labelling, records, transparency, traceability and information availability to support the recommendations for mixtures of Certified seed should be explored by the Information (records and labelling) Task Team.**

Topic 8 – Big Picture

**SEED REGULATORY MODERNIZATION
SEED CERTIFICATION TASK TEAM
Topic #8: Seed Certification Big Picture Topic
Options and Recommendations Report
March 31, 2022**

In Canada, the Canadian Food Inspection Agency (CFIA) is responsible for the administration and enforcement of the *Seeds Act* and the *Seeds Regulations* and the ultimate authority for the national seed certification system.

The CFIA has delegated authority to:

- individuals to inspect seed crops, sample seed lots, test seed samples, grade and label seed lots with pedigreed grade names/official labels, and conduct seed import conformity assessments;
- entities operating under the direction of a licensed operator to process pedigreed seed, store seed graded with a pedigreed grade name in unsealed containers, or import seed; and
- seed testing laboratories to test seed for pedigreed grading (certification) and import conformity assessment purposes.

All these individuals are responsible for conducting the activities for which they have been delegated authority – through licensing, accreditation, and registration – in a manner consistent with the regulations, policies and procedures that CFIA administers. Import conformity assessments will be deferred to the Import Task Team.

The Canadian Seed Growers' Association (CSGA) is responsible for providing a national program of seed crop certification in collaboration with the CFIA. Paragraph [4\(1\)\(a.1\)](#) of the *Seeds Act*

and subsection [2\(2\)](#) of the *Seeds Regulations* provides this authority to CSGA instead of it being delegated by the CFIA. The *Seeds Regulations* defines the [crop certificate](#) as a document issued by the CSGA *certifying the crop identified has met the standards for varietal purity established by the Association for crops of that kind or species*. The *Seeds Regulations* also defines *pedigreed status, foundation status, registered status and certified status* with mention of the standards for varietal purity established by the Association and, where the crop from which the seed is derived was not grown in Canada, the crop and the seed meet standards approved by the Association.

The CFIA is the national authority for the seed certification system in Canada. Seed certification is the process of assuring high quality seed for producers and consumers by maintaining varietal identity, varietal purity, quality and traceability throughout the system. This includes high standards of germination, seed health, and mechanical purity as seed is increased through a specific, limited number of generations. The CFIA [variety verification \(VV\) program](#) evaluates the effectiveness of Canada's seed certification system. In Canada, for seed to be certified it must:

- Be of a recognized variety (variety registration required for crops subject to variety registration and form 300 process for crop kinds not subject to variety registration) [covered by the Variety Registration paper];
- Be multiplied and maintained to strict process and product standards;
- Meet crop varietal purity standards and other requirements established by the CSGA, including previous land use, isolation and parent seed eligibility; and
- Meet physical purity, germination, and disease standards set out in the *Seeds Regulations*.

The pedigreed classes of seed and seed crops may be one of the following generations once a variety has been developed: Breeder, Select, Foundation, Registered and Certified. These generations may be limited by crop kind and by the plant breeder to ensure the varietal purity of Certified seed sold to producers and consumers. Breeder and Select seed lots are approved by the CSGA.

The *Seeds Regulations* defines [foundation, registered and certified status](#) for crops grown and not grown in Canada. For seed crops produced outside of Canada, the crop must meet the standards established by an official certifying agency and approved by the CSGA. Prior to sale in Canada, they must meet the seed standards set out in *the Seeds Regulations*. The CFIA is also the National Designated Authority (NDA) for the implementation of the [Organisation for Economic Co-operation and Development \(OECD\) Seed Schemes](#) in Canada which limits the number of generations internationally of pedigreed seed production. [Appendix 2, QSP 152.1](#) provides the OECD eligibility for the equivalent Canadian pedigreed classes produced in Canada. Both CFIA and CSGA are participating members of the Association of Official Seed Certifying Agencies (AOSCA) and the CSGA supports the CFIA at the OECD Seed Schemes.

The following considerations were discussed when determining the options:

- Should there be a seed certification system in Canada?
- Should only certified seed be sold?
- Should seed certification be optional?
 - In the US the seed certification system is optional, variety names are unrestricted and most seed is sold with a producers' declaration of quality with an emphasis on company branding versus seed certification.
- Is it confusing that the process of seed certification is not defined in the *Seeds Regulations* but certified seed status linked to the blue tag is defined?
- Are there any portions of the current seed certification system where CFIA could delegate authority?
- How should accountability and transparency of all parties be improved, revised or addressed?
 - What should be addressed to allow for a more transparent, robust and clear understanding of the value of the seed certification process, including the production of certified seed?
 - How should labelling and availability of information be considered as part of transparency?
 - To what degree should the information from the variety verification program be available?
- How should the seed certification pathway accommodate alternate pathways to seed certification?
 - With advances in technology, including seed processing technology and biochemical and molecular techniques, is there a way to have alternate pathways to seed certification at different points within the process?
- How should oversight be addressed within the seed certification system?
 - Should it be different to allow for alternate pathways for seed certification?
 - Should the variety verification program be modified as it currently oversees the seed certification program?
 - How could oversight be modified or improved in the current seed certification system?
 - How should communication on how the seed certification system works be addressed and who should be responsible?
- How should predictability be incorporated into the system to avoid unintended consequences for seed growers and end users?

Should there be a seed certification system in Canada?

Option #1: Yes, there should be a seed certification system in Canada.

Rationale: Seed certification ensures the varietal identity, varietal purity and quality of pedigreed seed sold, exported and imported in Canada.

Pros/Benefits:

- The current system is rigorous, provides identity and varietal purity assurances at low cost, is internationally recognized, and enables the sale of certified seed into international markets.
- Certification ensures access to quality seed for quality crop production.
- A national, third-party seed certification system enables small and medium sized businesses to participate in the seed market, ensuring a robust and resilient seed production system.
- A trusted seed certification system supports agri-food value chains both domestically and abroad.
- The varietal purity standards for Certified status seed ensures the availability of desirable variety related traits when producing crops from farm saved or commercial common seed.
- A national system in Canada could be leveraged to provide other value added assurances (e.g., phytosanitary requirements for seed) and support transparency and traceability initiatives for agri-food.

Cons/Risks:

- Currently it is difficult for an organic seed grower to meet the requirements for pedigreed status due to CSGA's mechanical purity requirements of the seed crop for some crop kinds.
- Seed companies, larger companies in particular, with higher internal quality standards on seed crop production and seed testing, plus the ability to access different technologies to ensure varietal purity, identity and quality of seed produced by the company may not want to pay for a national third-party seed certification system.

Option #2: No, Canada should not have a seed certification system.

Rationale: The seed industry would be able to brand seed based on internal quality standards and requirements to sell to customers instead of relying on the minimum standards and requirements within a seed certification system.

Pros/Benefits:

- There were no pros/benefits identified.

Cons/Risks:

- This could limit access to AOSCA and OECD markets.
- There would be no third-party verified requirement for the varietal purity of seed produced in Canada.
- Potential increase of other type of impurities (e.g. weed seeds) and other pests (e.g. disease) introduced into the seed and grain systems impacting crop specific export market access.
- This system would be built on branding versus varietal identity and purity which could result in less transparency in the seed market.

DISCUSSION

During the discussion, the Task Team members mentioned that the Canadian seed certification system is recognized globally but there are areas that could be improved upon throughout the system. The topics for improvement which were identified were:

- oversight
- transparency
- traceability
- flexibility to accommodate new technologies (e.g., seed processing equipment, biochemical and molecular techniques (BMTs), information technology, etc.) to potentially provide alternate pathways and provide or capture information in the seed certification system
- sustainability
- requirement for better varieties versus more varieties

The Task Team decided to include the discussion and recommendations on improving the current system in this report with a summary of all the recommendations at the end.

During the discussion, the members mentioned that the roles and responsibilities of the CFIA, CSGA and Seeds Canada should be considered moving forward as each entity has a purpose in the seed certification system.

The Task Team members discussed that a national seed certification system with official oversight is strategic and valuable for Canadian agriculture and agri-food moving forward. There was a concern brought forward that multiple certification systems in Canada could be a “race to the bottom” with respect to quality of pedigreed seed impacting the domestic and global markets. The majority of the Task Team members supported a national seed certification system.

It was acknowledged that there may need to be greater flexibility to incorporate small investment crops ensuring the investments in this sector go as far as possible.

The Task Team mentioned that it would like to see the Canadian seed certification system benchmark standards and requirements to bring forward changes to the OECD and AOSCA. Similarly, the system should be adaptable to accommodate and implement different standards and requirements as they are adopted by the OECD and AOSCA. The importance of improving the current system to remain competitive in the global market was supported by the members. Furthermore, the requirements may have further implications down stream on the domestic and global grain markets which should be accounted for when considering improvements in the seed certification system

The Task Team members supported option #1 for there to be a seed certification system in Canada and did not support moving away from seed certification as per option #2.

RECOMMENDATIONS

- 1. Yes, there should continue to be a seed certification system in Canada.**

Additional recommendations and discussion on improving the current seed certification system in Canada

The Task Team identified the following recommendations and considerations in the discussion, including potential pros/benefits and risks/cons, to improve the current seed certification system in Canada in the future.

Recommendation #2: Flexibility to use alternate pathways or methods for seed certification in Canada.

Rationale: Allowing the flexibility for the certification system to accommodate advances in technology, heterogeneous and alternate-bred varieties, organic certified seed production, etc. to ensure the varietal identity and purity and the quality of the certified seed sold in Canada. This could include a quality system recognized by CSGA and/or CFIA; the use of biochemical and molecular techniques (BMTs) and other potential new technologies (i.e. drones, satellite imagery, etc.) in coordination or potentially in lieu of crop inspection, to support field inspections or to appeal seed crop certification decisions for varietal purity; and advances in processing technology to separate impurities, etc. for a seed crop to be issued a crop certificate and graded with a Canada pedigreed grade name.

Pros/Benefits:

- Builds flexibility into the seed certification system to use BMTs on seed crops certified in Canada to verify varietal impurities to support or appeal seed crop inspection decisions.
- Testing of seed could potentially expedite the pedigreed seed grading process and reduce human error when looking at varietal impurities in a seed lot.
- Flexibility to allow imported seed into the Canadian seed certification system as technology evolves and other countries adopt BMTs.

- Flexibility to remain competitive internationally as technology advances.
- OECD has an advisory group on BMTs to review BMTs for international acceptance in the future placing Canada in a position to align with the OECD standards and requirements.
- Mechanical impurities observed during crop inspection may not cause a field to be declined pedigreed status allowing seed to be cleaned/processed and potentially be graded with a pedigreed grade name.
- Provides Canada the ability to propose standards and requirements to the OECD and AOSCA by benchmarking alternate pathways internationally.
- This could potentially align parameters with hybridity requirements and varietal purity of Certified hybrid crop kinds.
- Improvements in mechanically separating impurities will continue to evolve with some scrutiny which could provide an increase in options to clean out seed crop field impurities.
- As seed processing equipment continues to advance, it may increase the ability to remove other seed varietal differences like hila colour in soybeans in the future similar to wild oats in oats.

Cons/Risks:

- Current technology may not lend itself to replace crop inspection as phenotypic differences may be difficult to verify or quantify using BMTs.
- Currently BMTs may be more of a detection method as it is difficult to quantify varietal purity and to compare results against an established standard with a specified confidence in the testing and sample size compared to field inspections.
- Currently BMTs are not internationally accepted in lieu of crop inspection for certification.
- Potentially increase financial and economic costs or burdens in the seed certification system.
 - Financially it may cost more to use BMTs, invest in processing equipment and other new technologies.
 - If impurities are not identified and removed at the field level due to post harvest BMT testing, use of imaging technology (e.g. drones) or processing to remove the impurities, this may impact the quality by potentially increasing the impurities in seed sold.
 - There is a perception that if a seed field is not uniform, there is potential for lost sales even if technology could clean mechanical impurities out. The “look” of the field is a potential marketing concern amongst seed growers as it may impact sales.
 - It may increase testing requirements internationally adding additional costs and potential barriers when exporting to another country. This may also cause an unintended consequence downstream with grain.

- Potentially increase administrative costs and delays with additional processing to remove impurities or testing ensure standards are being met.
- The cost of a new technology may in field crop assessments, seed testing, and processing may potentially impact the price of certified seed sold.
- It would be difficult to include heterogeneous material which is phenotypically selected into a BMT seed certification system.
- Technology may not be at a point to solely rely on the use of colour sorters to remove field impurities in a seed lot.
- Not everyone is able to afford or have access to new technologies causing inequality in the seed certification system.
- The use of BMTs could potentially increase the number of seed lots demoted after being issued a crop certificate as it would identify varietal contamination that an analyst or grader cannot see during a physical purity assessment.
- There could potentially be a need to create different standards and requirements depending on the pathway or method used to certify seed.
 - BMTs will requires evaluation of multiple factors such as seed lot sizes, sample requirements, sample sizes, testing evaluations, etc. to understand the reliability and repeatability of the results.
 - There may need to be additional information requirements if an alternate pathway or method was used to certify seed.
- Current technology with drones and satellite imagery may not be able to detect impurities traditionally observed by field inspectors identifying seed crop impurities under the canopy during an inspection.

Recommendation #3: Ensure the current and future processes for oversight, traceability, transparency and accountability are adaptable, accessible and balanced in the Canadian seed certification system.

Rationale: The current seed certification system was designed to provide/delegate authority throughout the system. It is essential to determine the appropriate balance of transparency, accessibility, oversight and accountability in the seed certification system to maintain or enhance trust and understanding of producers and consumers when purchasing certified seed. This will ensure the system could be flexible with the ability to continuously improve while maintaining privacy and protection in the seed certification system. This could potentially increase consistency in accessing information, growing, storing, handling, processing, grading, labelling, auditing, inspecting etc. pedigreed seed sold in Canada.

Pros/Benefits:

- Increase the trust and confidence of pedigreed seed sold in Canada.
- Accommodate end users' or consumers' ability to access information about how and where their seed or food was produced.

- Information technology like a “single window” could potentially increase transparency, create efficiencies in oversight and accessing information for all parties involved in seed certification.
- Potentially increases the awareness and communication on how the seed certification system works in Canada.
- Ability to adapt the focus to be on key outcomes within the system versus regulating the ways to achieve outcomes in the system, i.e., focus on the outcome base approach instead of how to achieve the outcome.
- Increase the timeliness of access to information within the seed certification system.
- Potentially increase flexibility and adaptability for different crop kinds like corn, soybeans, canola and forages to accommodate the different degree of oversight and evaluation.
- Maintaining a level of consistency in accountability could potentially decrease inconsistencies and gaps of delegated authorities and the CFIA within the certification system.
- Ensure the needs of small and medium producers will continued to be met.
- Maintain confidence in Canadian certified seed .
- Increase responsiveness and timeliness on requests and the availability of information.

Cons/Risks:

- Concern with oversight is that there may be issues with accessing government resources, training and collaborations as industry takes on more responsibility.
- Potential concern of users’ and clients’ about privacy, data security and use of information on a single window platform
- It may be unclear on who is responsible to release the data, who “owns” the data and who requires access to the information.
- Potentially not balancing the risks and unintentionally increasing costs due to transparency and traceability. Costs may include increase costs for service delivery, accreditation or international market access, etc. if the level of transparency and traceability is not balanced.

Recommendation #4: Regulatory agility to encompass sustainability needs in the future.

Rationale: Considering the future, there is a need to ensure that the system is agile and able to adapt to unanticipated changes and pressures while ensuring varietal purity and quality of a pedigreed seed crop. Sustainability promotes alternate users, soil health, carbon sequestration, wetlands, “green” alternatives to fossil fuels, management of agricultural issues, etc. The integrity of the seed certification must be maintained while encompassing sustainability efforts and measures in the future.

Pros/Benefits:

- Increase access to niche crops or markets for pedigreed seed which may be profitable for farmers and facilitate using crop rotations to disrupt disease cycles.
- Potentially provide access to novel and niche products in the marketplace.
- Varietal blends and mixtures of certified seed could be sold for desired traits for disease pressures, nutrient availability, etc. as a variety could be blended or mixed to promote sustainability with another crop kind or variety.
- In general, this will be better for the environment and the use of land for farming practises.
- Potentially increases incentive for future monetizing sustainability practices.
- Provides more options in terms of crop rotations for seed growers.
- Potential to incorporate different types of sustainability options into the production of pedigreed seed in Canada based on future global market requirements.

Cons/Risks:

- There could be a potential risk to the varietal purity of the seed crop depending on previous land use requirements. Increasing the flexibility on land use requirements could introduce volunteer varietal purities in the seed crop and costs associated with removing these impurities in the field. Currently, there are strict land history requirements on the crops previously planted prior to pedigreed seed production to ensure varietal purity.
- Currently, some sustainability practices, like carbon sequestration, increases costs to producers growing a seed crop. This could potentially deter individuals from implementing these practices and measures at the farm level. Furthermore, compensation to implement these practices or measures are inconsistent between the different levels of government, regionally and companies promoting these practices to help subsidize a seed grower and producer.

DISCUSSION

The Task Team members discussed different elements of an ideal seed certification system in Canada. There was consensus during this discussion that key components should be consistent, accessible and cost effective. During this discussion, some of the elements of an ideal seed certification system included:

- positioning Canada to be internationally a strong, reliable and trusted seed producer;
- providing end-users with the assurance that the pedigreed seed you purchased is what you receive;
- providing a clear path to certification with as few hurdles as possible;
- providing uniform and timely access to delegated inspection services, including access to training and on-going training for new and established accredited graders and analysts, licensed seed crop inspectors for various crop types (e.g. the forage scope for

licensed seed crop inspectors was delayed in the rollout of training), conformity verification body auditors, etc.;

- increasing flexibility and responsiveness by using tools like incorporation by reference for standards and requirements;
- providing quick and easy access to information for the individual purchasing pedigreed seed and throughout the certification system;
- being adaptable to incorporate new technologies versus relying on visual crop inspections
- including assurances of a mechanism for consistent and regular training for anyone involved in the inspection process
- providing a repository of information in a single window platform for user access to support trust and confidence (i.e. provides information about the seed)
- providing a digital single window for the entire seed certification system process;
- serving all players in the seed sector without being burdensome on small and medium sized producers;
- ensuring effective and efficient traceability in the system where all seed can be traced in a single window platform;
- establishing national consistency (East to West) with respect to oversight and service delivery; and
- ensuring equal access to services in remote and rural areas.

The Task Team members agreed that access and consistency were key components in a seed certification system. There was consensus that implementation costs should be considered when implementing changes into the seed certification systems. Some considerations on who will cover the cost(s), how are the cost(s) built into the system (e.g., on the seed sold or through service delivery), what are the cost(s) required to implement changes (e.g., initial and on-going training), etc. should be analyzed prior to implementing improvements into the certification system.

During the discussion on oversight, traceability and transparency it was mentioned that at the end of the day the farmer, customer and value chain need to know what they are buying and how it will perform along with predictable performance measures. Oversight is a prerequisite although level of rigor may be different where common seed is involved. It was also mentioned that the *Seeds Regulations* can only do part of the work, but other sectors need to contribute. The Task Team members recognized the Information (records and labelling) Task Team should continue the discussion on this recommendation.

During on-going discussion on previous topics, the Task Team provided feedback on grader accreditation and using a Canada pedigreed grade on seed sold. Task Team members mentioned the value in the grading system and having an accredited grader interpret the standards in the [Seeds Regulations](#) to apply a Canada pedigreed grade name. There was a concern raised that common seed is not well regulated, which should be explored by the Common Seed Task Team. Another concern with eliminating the grading system is that it would

put the liability on the end-user purchasing the seed to determine if it would meet a minimum standard instead of having a Canada pedigreed grade name. The Task Team would like to recommend that the Information (records and labelling) Task Team to further discuss this as part of a topic on labelling requirements.

The Task Team discussed the flexibility to update the [Weed Seeds Order](#) in a more timely manner. It was recognized that this would be more of a Seeds Standards and Grade Tables discussion.

There was a discussion on producers' stated preference for higher quality varieties versus the availability of more varieties with similar traits. The potential benefits would be to increase the availability of new varieties which could set themselves apart in their ability to resist insect pests, weeds, fungi, bacteria, etc. in different crop types of certified seed sold. Furthermore, the benefit of increasing transparency and reliability of variety information would enable farmers to decide what works for their own operation. The concern with this approach was that it could potentially increase costs when there is less competition for similar varieties by limiting providers of similar traits, it could potentially reduce convenience and inadvertently exclude access to different regions/areas and it may be difficult to determine the balance on what would be considered a benefit for a new variety versus a similar variety. It was recommended that this should be a discussion for the Variety Registration Task Team.

There was consensus on all the recommendations made by the Task Team.

SUMMARY OF RECOMMENDATIONS:

- 1. Yes, there should continue to be a seed certification system in Canada.**
- 2. Flexibility to use alternate pathways or methods for seed certification in Canada.**
- 3. Ensure the current processes for oversight, traceability, transparency and accountability are adaptable, accessible and balanced in the Canadian seed certification system.**
- 4. Regulatory agility to encompass sustainability needs in the future.**
- 5. Flexibility to update the *Weeds Seed Order* should be discussed by the Seed Standards and Grade Tables Task Team.**
- 6. The concept of more varieties versus better varieties be deferred to the Variety Registration Task Team.**
- 7. Information requirements including a single digital platform, oversight, transparency, labelling, traceability and accessibility should be further explored by the Information (records and labelling) Task Team.**

Appendix 2: Task Team and Advisory Group Members

Task Team Members	Sector Affiliation
Chair: Keith Degenhardt	Seed Industry
Co-chair: Erwin Hanley	Commodity/Value Chain Association
Josh Cowan (Alternate: Paul Hoekstra)	Producer Group
Dave Walker	Producer Group
Jake Ayre (Alternate: Jennifer Seward)	Producer Group
Bob Lepischak (Alternate: Brendan Leslie)	Producer Group
Alain Brault	Producer Group
Michael Delaney	Commodity/Value Chain Association
Jean Goulet	Commodity/Value Chain Association
Don Shepert	Commodity/Value Chain Association
Nick Jonk	Commodity/Value Chain Association
Chris White (Alternate: Amelia Hamilton)	Seed Industry
Daniel Sanders (Alternate: Jennifer Seward)	Seed Industry
Christopher Nish	Seed Industry
Nathan Penner	Seed Industry
Michael Scheffel (Alternate: Brianna Chouinard)	Seed Industry
Heather Kerschbaumer	Non-government Organization
Christina Rowan	CFIA (Technical Advisor)
Marie Shank	CFIA (Lead)

Advisory Group Members	Sector Affiliation
Ellen Sparry	Seed Industry
Monica Klaas	Seed Industry
Laurie Hayes	Seed Industry
Erick Lutterotti	Seed Industry
Tom Greaves	Seed Industry
Andrew Wall	Seed Industry
Jodie Atkinson	Seed Industry
Trent Whiting	Seed Industry
Ron Markert	Seed Industry

Appendix 3: Reference Documents

Seed Certification Agendas

April 21, 2021 Agenda	CFIA_ACIA #14954262.v1
April 28, 2021 Agenda	CFIA_ACIA #15015986.v1
May 20, 2021 Agenda	CFIA_ACIA #15083520.v1
May 27, 2021 Agenda	CFIA_ACIA #15127318.v1
June 9, 2021 Agenda	CFIA_ACIA #15187337.v1
June 21, 2021 Agenda	CFIA_ACIA #15235156.v1
July 5, 2021 Agenda	CFIA_ACIA #15287239.v1
July 19, 2021 Agenda	CFIA_ACIA #15342791.v1
August 5, 2021 Agenda	CFIA_ACIA #15414615.v1
August 12, 2021 Agenda	CFIA_ACIA #15426680.v1
October 6, 2021 Agenda	CFIA_ACIA #16128470.v1
October 18, 2021 Agenda	CFIA_ACIA #16131335.v1
November 4, 2021 Agenda	CFIA_ACIA #15759227v.1
November 29, 2021 Agenda	CFIA_ACIA #16125917.v1
December 13, 2021 Agenda	CFIA_ACIA #15830302.v1
January 11, 2022 Agenda	CFIA_ACIA #15869233.v1
January 17, 2022 Agenda	CFIA_ACIA #15945000.v1
January 25, 2022 Agenda	CFIA_ACIA #15962718.v1
January 31, 2022 Agenda	CFIA_ACIA #15992513.v1
February 10, 2022 Agenda	CFIA_ACIA #16026032.v1
February 16, 2022 Agenda	CFIA_ACIA #16065773.v1
March 4, 2022 Agenda	CFIA_ACIA #16112067.v1
March 14, 2022 Agenda	CFIA_ACIA #16146073.v1

Seed Certification Task Team Meeting Minutes

April 21, 2021 Meeting Minutes	CFIA_ACIA # 15009846.1A
April 28, 2021 Meeting Minutes	CFIA_ACIA # 15032095.v2
May 20, 2021 Meeting Minutes	CFIA_ACIA # 15116882.v2
May 25, 2021 Meeting Minutes	CFIA_ACIA # 15151245.v2
June 9, 2021 Meeting Minutes	CFIA_ACIA # 15200681.v2
June 21, 2021 Meeting Minutes	CFIA_ACIA # 15254738. V2
July 5, 2021 Meeting Minutes	CFIA_ACIA # 15294716.v1A
July 19, 2021 Meeting Minutes	CFIA_ACIA # 15351531.v3
August 5, 2021 Meeting Minutes	CFIA_ACIA # 15423773.v1A
August 12, 2021 Meeting Minutes	CFIA_ACIA # 15463396.v3
October 6, 2021 Meeting Minutes	CFIA_ACIA # 15759235.v1
October 18, 2021 Meeting Minutes	CFIA_ACIA # 15759241.v1

November 4, 2021 Meeting Minutes	CFIA_ACIA # 16125905.v1
November 29, 2021 Meeting Minutes	CFIA_ACIA # 15943282.v1
December 13, 2021 Meeting Minutes	CFIA_ACIA # 15943276.v1
January 11, 2022 Meeting Minutes	CFIA_ACIA # 15959287v.1
January 17, 2022 Meeting Minutes	CFIA_ACIA # 16009547.v1
January 25, 2022 Meeting Minutes	CFIA_ACIA # 16009424.v1
January 31, 2022 Meeting Minutes	CFIA_ACIA # 16067369.v1
February 10, 2022 Meeting Minutes	CFIA_ACIA # 16067829.v1
February 16, 2022 Meeting Minutes	CFIA_ACIA # 16084913.v1
March 4, 2022 Meeting Minutes	CFIA_ACIA # 16145843.v1
March 14, 2022 Meeting Minutes	CFIA_ACIA # 16197112.v1
April 22, 2022 Meeting Minutes	CFIA_ACIA # 16527752.v1

Seed Certification Task Team Topic Outlines and Brainstorming Documents

Topic 1 Varietal Purity	CFIA_ACIA # 15092912.v2
Topic 2 Variety Names	CFIA_ACIA # 15110902.v2
Topic 3 Seed Crop Production Rules and Regulations	CFIA_ACIA # 15128426.v1
Topic 4 Pedigreed Seed Crop Inspection	CFIA_ACIA # 15329214.v2
Topic 5 Registered Seed Establishment	CFIA_ACIA # 15416311.v2
Topic 6 Varietal Blends	CFIA_ACIA # 15661359.v1
Topic 7 Mixtures	CFIA_ACIA # 15662569.v2
Topic 8 Seed Certification Big Picture	CFIA_ACIA # 15470991.v2
Seed-RM Seed Certification Brainstorming document_11 January 2022	CFIA_ACIA #16182476.v1
Seed-RM Seed Certification Brainstorming document_17 January 2022	CFIA_ACIA#16182464.v1
Seed-RM Seed Certification Brainstorming document VB_25 January 2022	CFIA_ACIA#16182470.v1
Seed-RM Seed Certification Brainstorming document Mixtures_25 January 2022	CFIA_ACIA#16182469.v1
Seed-RM Seed Certification Brainstorming document_31 January 2022	CFIA_ACIA#16182480.v1
Seed-RM Seed Certification Brainstorming document_10 February 2022	CFIA_ACIA#16182466.v1
Seed-RM Seed Certification Brainstorming document_16 February 2022	CFIA_ACIA#16182478.v1
Seed-RM Seed Certification Brainstorming document_4 March 2022	CFIA_ACIA#16182472.v1
Seed-RM Seed Certification Brainstorming document_14 March 2022	CFIA_ACIA#16182467.v1

Seed Certification Task Team Topic Options and Recommendations Reports

Topic 1 Varietal Purity	CFIA _ACIA # 15092912.v4A
Topic 2 Variety Names	CFIA _ACIA # 15110902.v4
Topic 3 Seed Crop Production Rules and Regulations	CFIA _ACIA # 15128426.v9
Topic 4 Pedigreed Seed Crop Inspection	CFIA _ACIA # 15329214.v4
Topic 5 Registered Seed Establishment	CFIA _ACIA # 15416311.v5
Topic 6 Varietal Blends	CFIA _ACIA # 15661359.v4
Topic 7 Mixtures	CFIA _ACIA # 15662569.v3A
Topic 8 Seed Certification Big Picture	CFIA _ACIA # 15470991.v8

Other Support Documents

Seed Certification Background Paper	CFIA _ACIA # 12802682.v8
Varietal Purity: Field and Seed Standards Background	CFIA _ACIA # 15054813.2A
Canadas Seed Regulatory Framework	CFIA _ACIA # 14651502.v2A
Trends and Forces Impacting the Future of the Seed Industry	CFIA _ACIA # 14651503.v1
Seed Regulatory Modernization Executive Summary	CFIA _ACIA # 14651505.v2A
Seed Regulatory Modernization Task Teams Presentation	CFIA _ACIA # 14969549.v1
Seed Certification Task Team Work Plan	CFIA _ACIA # 15056785.3B
Alternative Service Delivery Primer	CFIA _ACIA # 14569730.v6
Future Trends Primer	CFIA _ACIA # 14587170.v3
International Obligations Primer	CFIA _ACIA # 14573807.v6
Role of Government vs Industry Primer	CFIA _ACIA # 14570778.v5
Linkages and Unintended Consequences Primer	CFIA _ACIA # 14606737.v4
Needs Assessment Survey Results	CFIA _ACIA # 15027083.v1
Seed Certification Task Team Presentation	CFIA _ACIA # 14955936.v2
CSGA Framework for analysis of Canadian pedigreed seed production requirements (Circular 6 Modernization initiative)	Framework doc v.5-Jan.8, 2019
SC-TECH 2.1: Seeds Canada Technical Manual for Approved Conditioners and Bulk Storage Facilities Handling, Sampling, Grading and Labelling of Pedigreed Seed	SC AC/BSF Technical Manual 2.1 Revision 5.0
CSI –TECH 2.1: CSI Technical Manual for Approved Conditioners and Bulk Storage Facilities Handling, Sampling, Grading and Labelling of Pedigreed Seed	CSI AC/BSF Technical Manual 2.1 Revision 4.0

Canadian Food Inspection Agency Act

<https://laws-lois.justice.gc.ca/eng/acts/C-16.5/>

Seeds Act

<https://laws-lois.justice.gc.ca/eng/acts/S-8/>

Seeds Regulations

https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1400/index.html

Weed Seeds Order, 2016

<https://laws-lois.justice.gc.ca/eng/regulations/SOR-2016-93/page-1.html>

Canadian Regulations and Procedures for Pedigreed Seed Crop Production (Circular 6)

<https://seedgrowers.ca/seed-growers/regulations/?nowprocket=1>

OECD Seeds Scheme Rules, Regulations and Guidelines

<https://www.oecd.org/agriculture/seeds/rules-regulations/>

Notice to Seed Graders- Assigning a Pedigreed Grade Name to a Seed lot of a Large-Seeded Crop Kind with Visually Distinguishable Varietal Impurities

<https://inspection.canada.ca/plant-health/seeds/seed-testing-and-grading/notice-to-seed-graders/eng/1369232688456/1369232775099>

Seed inspection procedures- Pedigreed seed crop inspection

<https://inspection.canada.ca/plant-health/seeds/seed-inspection-procedures/eng/1299175084055/1299175155902>

Seed Program Quality System Procedure (QSP 142.2)- Licensing of Authorized Seed Crop Inspection Services and Licensed Seed Crop Inspectors

<https://inspection.canada.ca/plant-health/seeds/seed-inspection-procedures/qsp-142-2/eng/1398688486244/1398688487728>

Seed Program Quality System Procedure (QSP 142.3)- CFIA Oversight of Authorized Seed Crop Inspection

<https://inspection.canada.ca/plant-health/seeds/seed-inspection-procedures/qsp-142-3/eng/1398429938112/1398430776783>

CFIA Oversight of Authorized Seed Crop Inspection Specific Work Instructions (SWI 142.3.1)

<https://inspection.canada.ca/plant-health/seeds/seed-inspection-procedures/swi-142-3-1/eng/1415896167542/1415896168855>

Quality System Procedure 152.1 (QSP 152.1): Implementation of the OECD Seed Schemes and EU Seed Directives

<https://inspection.canada.ca/plant-health/seeds/seed-inspection-procedures/oecd-and-eu/eng/1347237991893/1347240417077>

Variety Verification Program- Questions and Answers

<https://inspection.canada.ca/plant-health/seeds/seed-inspection-procedures/variety-verification/eng/1404848585287/1404907300349>

CFIA IBR Policy

<https://inspection.canada.ca/about-cfia/acts-and-regulations/incorporation-by-reference/cfia-incorporation-by-reference-policy/eng/1450356693608/1450356805085>

CFIA IBR Main Page

<https://inspection.canada.ca/about-cfia/acts-and-regulations/incorporation-by-reference/eng/1455803658710/1455804365767>

CFIA Inventory of IBR

<https://inspection.canada.ca/about-cfia/acts-and-regulations/list-of-acts-and-regulations/documents-incorporated-by-reference/eng/1518625951131/1518625952071>