

October 2022

Proposed Changes to Circular 6 – Mechanical Purity Standards

Introduction

CSGA is requesting feedback on changes to the [Canadian Regulations and Procedures for Pedigreed Seed Crop Production](#) (Circular 6) proposed by the Regulatory Services Committee (RSC) before a final recommendation is presented to the Board this fall. Some of the changes could potentially come into effect for the 2023 crop season.

The RSC has recommended changes to the isolation requirements and standards for the mechanical purity of pulse, soybean, forage, and turf seed crops producing Foundation, Registered and Certified status seed. The proposed changes relate to the proximity of seed crops to adjacent crops of other kinds, and the presence of plants of other crop kinds within the inspected crop as reported during seed crop inspection.

The proposed changes address concerns that these crop kinds do not require isolation from other crop kinds, especially when the other kind is permitted within the crop. Also, seeds from plants of other crop kinds found during inspection can be removed during seed processing with modern seed cleaning equipment. In addition, the export markets for forage and turf species often do not have the same strict standards for the presence of other crop kinds in seed as we have in Canada. Many argue that the “regulatory burden” of the current mechanical purity standards discourages production and sale of pedigreed seed.

Overview

CSGA’s mandate is varietal purity. However, like many other seed certification systems, CSGA’s pedigreed seed crop production requirements for several crop kinds and classes also include a maximum impurity standard for the presence of plants of other crop kinds where the seeds of the other kind are considered “difficult-to-separate” from the seeds of the inspected crop. This includes Select plot production of flax, pulses and soybeans and all classes of cereal, forage, turf, canola, and mustard species.

The Association of Official Seed Certifying Agencies (AOSCA) expresses it in terms of “inseparable other crops” and each AOSCA agency, including CSGA, can make their own determination what they consider to be “inseparable.” The Organization for Economic Cooperation and Development (OECD) Seed Schemes addresses other kinds in terms of those kinds that are “difficult to distinguish in a laboratory test.”

For crops like cereals, CSGA’s maximum impurity standard is expressed as the average number of plants permitted in the seed crop per 10,000 plants (20,000 for plots). For forage and turf seed crops, the maximum impurity standard is expressed as the average number of plants per 10 square metres (100 m² for Foundation).

Where there are maximum impurity standards for mechanical purity (because the seeds from plants of the two kinds are considered difficult-to-separate from one another), isolation is usually required between the two kinds as well. Normally two (2) or three (3) meters is required to prevent accidental harvest of the adjacent crop.

Federal regulations require CSGA certification of the “crop” for the “seed” from that crop to be eligible for final certification by the Canadian Food Inspection Agency (CFIA). Grading the seed based on the presence of seeds of other kinds is an additional, separate step for which CSGA is not responsible. In situations where the seed crop did not meet CSGA’s in-crop standard, but the seed conditioner was able to clean the seed to meet grade, the seed still can not be certified because a crop certificate was not issued, resulting in the loss of high-quality seed that met all varietal purity standards.

Pulse and Soybean – Isolation Requirements and Plant Counts for Mechanical Purity

Issue: Regulatory Burden for Seed Growers - It is an unnecessary regulatory burden to require an isolation strip between Section 3 crop kinds (pulses and soybeans) when there is no maximum impurity standard for plants of other crop kinds in the inspected seed crop.

Issue: Regulatory Burden for Inspectors – It is an unnecessary regulatory burden to require inspectors to do counts for plants of crop kinds when there is no maximum impurity standard for plants of other crop kinds in the inspected seed crop.

Background:

The CFIA maintains “Seed Program Specific Work Instructions (SWI 142.1.1) – Pedigreed Seed Crop Inspection” which are, as the name suggests, instructions to Licensed Seed Crop Inspectors (LSCI) on how to conduct seed crop inspections. Appendix VI of that document is a list of “Other crop kinds to be reported in counts” (some refer to it as the difficult-to-separate list). The current list for Section 3 crop kinds (pulses and soybeans) is as follows:

Inspected crop	Other crop kinds to be reported in counts
Bean, fababean	Chickpeas, other bean types, peas, soybeans
Lentil, lupin	None
Pea	Beans, chickpeas, fababeans, soybeans
Chickpea	Beans, fababeans, peas, soybeans
Soybean	Beans, chickpeas, lupins, peas

Where the other kind is considered “difficult-to-separate” from the inspected crop kind, CSGA requires a two (2) meter isolation strip for Foundation, Registered and Certified production for all pulses and soybeans.

However, the lower classes in Section 3, do not have a maximum impurity standard for the in-crop presence of plants of other kinds. So, for example, you are required to have a 2 m isolation between a pedigreed pea field and a soybean field but there is no standard for soybeans in a pedigreed pea seed crop so any soybeans found in the field itself would not be an issue, so long as the inspector is able to conduct their inspection. The LSCI are, however, required to count the number of soybean plants present in a pea field in each of six (6) counts of 10,000 plants to determine the average number of soybean plants per 10,000 pea plants. If a significant number of soybean plants are found, CSGA will add a “warning of other crop kinds” to the crop certificate so the grader is aware that there may be soybean seeds in the sample.

Considerations:

A field of peas may contain an unlimited number of soybean plants (or vice versa) because there is no standard i.e., no roguing or correction would be required. However, if that same pea field were directly adjacent to a soybean field, an isolation correction would be required to remove the first 2 meters of soybeans adjacent to the pea field i.e., soybeans are not permitted around the peas, but they are permitted within the peas.

Two (2) meter isolation strips are difficult to maintain, especially with the large-scale equipment being used on most seed farms. They are often a source of weeds and reduce productivity and efficiency which is increasingly important as the sector strives for sustainability and to be part of the solution for global food security.

CFIA has been looking for ways to make better use of inspection resources by only requiring inspection reporting where there is an actual standard or requirement for the crop. Even though there is no maximum impurity standard for other kinds present in the field, the cleaned seed sample is subject to mechanical purity standards, summarized in the [Grade Tables](#), during analysis when the seed is graded.

Recommendations for the 2023 Crop Season:

1. Remove the mechanical purity isolation requirement for Foundation, Registered and Certified production of pulses and soybeans.
2. No longer require plant counts for mechanical purity for Foundation, Registered and Certified production of pulses and soybeans where there is no maximum impurity standard.

Forage and Turf – Isolation Requirements and Maximum Impurity Standards for Mechanical Purity

Issue: Isolation for Mechanical Purity - Plants in ditches, fence lines, hay and pasture fields, and treed areas surrounding pedigreed seed crops of forage and turf species pose a risk to the purity of seed harvested. Seed growers are often asked to make isolation corrections and have re-inspections for isolation issues related to mechanical purity. This results in extra costs and the loss of valuable pedigreed seed.

Background and Considerations (Note: this is more of an issue in Section 6 for grasses so the examples below are for grasses, but the issues are also applicable to Section 7, forage legumes)

Except for timothy and reed canarygrass, forage and turf grasses are considered “difficult-to-separate” from some other grasses. For example, fescues are considered “difficult-to-separate” from ryegrasses and vice versa. Whenever other kinds are considered “difficult-to-separate” they are included in the counts for mechanical purity purposes (see Appendix A below). They also require isolation from one another, so they are not accidentally harvested with the seed crop.

The isolation requirement to fields of other kinds considered “difficult-to-separate” is currently 3 m for forage and turf species but was recently reduced to 2 m for Section 2 (cereal, small grain) and Section 3 (pulse and soybean) crops. The purpose of the isolation is to ensure that the other kind is not accidentally harvested when the pedigreed seed field is harvested. However, in many cases, the contaminating plants are in a ditch or fence row, or along a treed area rather than a complete field and the density of the plants can vary from very few plants to numerous.

There is a standard for “difficult-to-separate” other kinds within the inspected crop. Currently the standard is 3 plants/100 m² for Foundation and 1 plant/10 m² for Registered and Certified. Common sense would dictate that a correction should not be required when there are fewer in the ditch than would be allowed within the crop. However, some people argue that even if the density in the ditch was high and a significant part of the ditch was harvested (which is unlikely with modern equipment) with the seed field, the level of contamination would still be well within the Canada Certified No. 1 standard for the seed ([Table XI in the Grade Tables](#)). Some also argue that even if the plants are present adjacent to or even within the field, they may be able to remove the seed of the contaminating crop kind from the seed during seed cleaning and conditioning. However, if the CROP is not certified, the SEED is not eligible for certification even if the cleaned seed meets the seed standard.

Issue: Maximum Impurity Standards for Mechanical Purity – With continuous improvement in modern seed cleaning equipment and related technologies, the need for CSGA’s in-crop mechanical purity standards for the presence of other kinds (one species in another) continues to be a topic of debate. For final certification, the seed must meet the mechanical purity standards in [Schedule I of the Seeds Regulations](#), which opponents of the in-crop standards argue can be achieved through seed conditioning even if plants were found in the field during crop inspection.

Background

The production of all classes of most forage and turf species includes a maximum impurity standard for other crop kinds where the seed of the different kinds are considered “difficult-to-separate” from one another. The CFIA maintains “Seed Program Specific Work Instructions (SWI 142.1.1) – Pedigreed Seed Crop Inspection” which are, as the name suggests, instructions

to Licensed Seed Crop Inspectors (LSCI) on how to conduct seed crop inspections. Appendix VI of that document is a list of “Other crop kinds to be reported in counts” (some refer to it as the difficult-to-separate list). The current list for forage and turf species is attached in Appendix A, below.

CSGA’s in-crop maximum impurity standards relate to the number of plants which may be present in the field as observed during crop inspection. CSGA’s current mechanical purity standards for forage and turf species are three (3) plants/100 m² for Foundation status seed and one (1) plant/10 m² for Registered and Certified status seed.

The *Seeds Regulations* require CSGA certification of the “crop” for the “seed” from that crop to be eligible for final certification by CFIA. A seed crop certificate from CSGA confers “pedigreed status” to the seed harvested from a specific field (or fields) and is the first step in the certification of a seed lot. Grading the seed based on the presence of seeds of other kinds is an additional, separate step for which CSGA is not responsible.

Canada’s seed standards, summarized in the [Grade Tables](#), relate to the number (or in some cases the percentage by weight) of seeds present in the cleaned sample observed during analysis when the seed is graded. In some cases, CSGA’s in-crop standards reflect CFIA standards for the seed but in other cases they do not.

Considerations

CSGA’s mandate is varietal purity and the “regulatory burden” of the current mechanical purity standards may discourage production and sale of pedigreed seed. Many seed conditioners in Canada are now using modern, sophisticated, and effective seed cleaning equipment and technologies that may make it easier to remove one kind from another. Forage and turf seed crops containing other kinds may be declined pedigreed status, or in some cases, may be demoted to a lower class even though the varietal purity standards have been met and the seed could have been cleaned to meet grade.

Many seed certification systems have in-crop standards for “difficult-to-separate” other crop kinds, especially for plants with seeds that are “difficult to distinguish in a laboratory test” (OECD) or “inseparable other crops” and “shall include crop plants, the seed of which cannot be thoroughly removed by the usual methods of conditioning” (AOSCA). It is left up to each AOSCA agency to determine what they consider to be “inseparable”.

In many cases, forage and turf seed that is produced in Canada is intended for export where the importing country may not have a standard, or a standard that is not as strict as the Canadian standard. However, CSGA’s in-crop standard must be met to obtain a crop certificate.

Recommendations:

1. Remove the mechanical purity isolation requirement for forage and turf species.
2. With respect to the maximum impurity standards within seed crops of forage and turf species, the RSC is seeking your feedback on the options below:
 - a. Have inspectors report other kinds by frequency (e.g., numerous, few, trace like they do for weeds), but do not make it part of the certification decision i.e., when inspectors report other kinds, CSGA would put 'warnings' on crop certificates for the grader to be aware that the other kind was present in the field, but CSGA would not demote or decline the field on the basis of the presence of other crop kinds.
 - b. No longer report other crop kinds in forage and turf species i.e., no longer have maximum impurity standards for other crop kinds e.g., a wheatgrass field would not be demoted or declined due to the presence of ryegrass.
Note: Some exceptions may be necessary where the two kinds can not be distinguished in a laboratory test e.g., annual ryegrass in perennial ryegrass.

As is current practice, if the other kind/s was present at 'very weedy' levels, meaning the other crop/s cover the seed crop preventing the inspector from doing their counts for varietal purity, the field would be declined in either option.

Your input on proposed Circular 6 changes helps maintain an agile and up-to-date seed crop certification system. Your feedback is greatly appreciated. Should you have any feedback or questions regarding the proposed changes, please email [Gail Harris](#), Standards Manager or call 613-236-0497, ext. 227.

Appendix A – Other crop kinds to be reported in counts

Grasses

Inspected crop	Other crop kinds to be reported in counts
Bentgrasses	Redtop, bluegrasses, orchardgrass, other bentgrasses
Bluegrasses	Other bluegrasses, bentgrasses, orchardgrass, redtop
Bromegrasses	Meadow fescue, other bromegrasses, wheatgrasses, wild ryes
Fescues	Bromegrasses, other fescues, ryegrasses, wheatgrasses, wild ryes
Junegrass	Bentgrasses, bluegrasses, orchardgrass, redtop
Needlegrass	Bromegrasses, fescues, ryegrasses, wheatgrasses, wildryes
Orchardgrass	Bentgrasses, bluegrasses, redtop
Redtop	Bentgrasses, bluegrasses, orchardgrass
Reed canarygrass	None
Ryegrasses	Fescues, other ryegrasses, wheatgrasses
Timothy	None
Wheatgrasses	Bromegrasses, fescues, ryegrasses, other wheatgrasses, wild ryes
Wild Rye	Fescues, wheatgrasses, other wild ryes

Legumes

Inspected crop	Other crop kinds to be reported in counts
Alfalfa	Sweet clover, red clover
Alsike clover	Birdsfoot trefoil, white clover, black medick
Birdsfoot trefoil	Alsike clover, black medick, white clover
Black medick	Alsike clover, birdsfoot trefoil, white clover
Chickling vetch	Chickpea, lentil, pea
Cicer milkvetch, crownvetch	Canola, other vetch species
Red clover	Alfalfa, sweet clover
Sainfoin	Barley, oats, wheat
Sweet clover	Alfalfa, red clover
White clover	Alsike clover, birdsfoot trefoil, black medick