



# Specific work instructions (SWI 142.1.1): Pedigreed seed crop inspection

The Canadian Food Inspection Agency (CFIA) certifies CFIA inspectors and licenses private seed crop inspectors to conduct field inspections of pedigreed seed crops and issue Seed Crop Inspection Reports that support the issuance of a crop certificate by the Canadian Seed Growers' Association (CSGA).

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## 1.0 Scope

This SWI describes in detail the measures to be taken when inspecting a pedigreed seed crop by any CFIA inspector or Licensed Seed Crop Inspector (LSCI) (both herein after referred to as the seed crop inspector), based on the procedures outlined in [Quality systems procedure \(QSP\) 142.1 Pedigreed seed crop inspection](#).

## 2.0 Definitions, acronyms and references

The definitions, acronyms and references provided in [Seed Program Regulatory Authority Standard \(SPRA\) 101 - Definitions, acronyms and references for the seed program](#) apply.

## 3.0 General requirements

All LSCI must be licensed according to [QSP 142.2 Licensing of Authorized Seed Crop Inspection Services and Licensed Seed Crop Inspectors](#). All CFIA seed crop inspectors are certified according to [QSP 142.4 Official Crop Inspector Certification Procedures](#) (accessible only on the Government of Canada network – RDIMS 11409373).

## 4.0 Preparing for the seed crop inspection

### 4.1 Required documents and materials

The seed crop inspector should have the following documents and materials available before starting the seed crop inspection:

- CSGA's [Canadian Regulations and Procedures for Pedigreed Seed Crop Production](#) (Circular 6), as well as other CSGA seed crop inspection technical bulletins such as the [Rogues and Roguing Manual for Pedigreed Seed Crops](#)
- CFIA specific work instructions for the crop kind to be inspected
  - [SWI 142.1.2-1 – Corn](#)
  - [SWI 142.1.2-2 – Cereals and small grains](#)
  - [SWI 142.1.2-3 – Pulse crops](#)
  - [SWI 142.1.2-4 – Cruciferous crops](#)
  - [SWI 142.1.2-5 – Forages and grasses](#)
  - [SWI 142.1.2-6 – Soybean](#)
  - [SWI 142.1.2-7 – Special crops and new crops](#)
- access to [SeedCert](#)
- the Description of Variety (DoV) for the variety to be inspected
- weed identification references
- [Weed Seeds Order, 2016](#)
- detailed map of the assigned area
- measuring devices such as hand counter, metre wheel, ruler, or GPS
- cloth, paper and plastic bags for saving deviant and normal plants as well as weeds for identification and variety verification purposes
- hand lens and/or magnifying glass
- copy of the CSGA's "Notice to Growers – Isolation Corrections May Be Required" notice

### 4.2 Description of variety

The description of the variety (DoV) identifies the morphological characteristics of the plant, known variants within the variety, and the maximum acceptable population level of any known variants as defined by the plant breeder. Ideally, crop inspection should not take place unless the seed crop inspector has a DoV for the variety being inspected. If there is no DoV, the seed crop inspector should advise the grower that the crop could be declined pedigreed status. The seed crop inspector may perform the inspection based on the uniformity of the crop, providing that it is noted on the Seed Crop Inspection Report that no DoV was available.

Seed crop inspectors can access descriptions of varieties in CSGA SeedCert under the "Varieties" tab.

The DoV may also contain additional certification standards and inspection requirements (for example, increased isolation distances established by the variety developer). It is the seed crop inspector's responsibility to ensure that these additional requirements have been addressed during the inspection.

If an LSCI suspects that a DoV does not accurately reflect what they are seeing in the inspected variety, they must make a comment on the Seed Crop Inspection Report. They should also notify their lead inspector. The lead inspector should validate the finding and then notify the local office regarding their concerns with the variety description. When required, the CFIA will request that the Authorized Seed Crop Inspection Service (ASCIS)/lead inspector fill out a "Possible Error with Variety Description Form" in SeedCert. Similarly, if a CFIA official inspector notes an issue with a variety while conducting a check or direct inspection, they must make a comment on the Seed Crop Inspection Report. Their lead inspector should validate the finding and then fill out the "Possible Error with Variety Description Form" in SeedCert. In most cases, samples should be submitted to verify the observations; refer to [Appendix VIII Recommended procedures for sampling plants](#).

### **4.3 Pre-inspection activities**

The seed crop inspector should carefully review the application for seed crop inspection in SeedCert for the field that is to be inspected.

If there are any errors in the "read-only" sections of the report, note the discrepancies in the comments section.

The seed crop inspector should be aware of any unusual conditions for the inspection, such as whether the crop is intended for certification pursuant to the [Organisation for Economic Co-operation and Development \(OECD\) Schemes for the Varietal Certification of Seed Moving in International Trade](#) (OECD Seed Schemes).

The application may contain message codes which indicate additional inspection requirements for the field. The seed crop inspector can find a listing of message codes and abbreviations used by the CSGA in SeedCert.

In performing this review, the seed crop inspector will determine the pedigreed status of the crop to be inspected, estimate the approximate growth stage of the crop based on the planting date, and identify the pollination mechanism of the crop. [Appendix I](#) provides a list of CSGA pedigree class codes to assist the seed crop inspector in determining the pedigreed status of the seed planted.

In the rare occasion the application indicates that the crop was planted with Certified status seed, the seed crop inspector should refer to [section 9 of QSP 142.1](#).

In the situation where a seed grower has not made an Application for Seed Crop Certification, and therefore the seed crop inspector has no record for the field, the grower must complete an application on the CSGA website. With supervisor approval, the seed crop inspector may complete the inspection in rough notes and submit the Seed Crop Inspection Report when the application has been accepted.

If the seed crop inspector determines that the applicant whose name appears on the Seed Crop Inspection Report is not responsible for the direct management of the crop, the CSGA is to be

advised in the comments section of the Seed Crop Inspection Report. Provide the name and address of the individual who is responsible for the crop.

Field maps are uploaded to CSGA SeedCert and filed by sequence number. The seed crop inspector should review the field map prior to seed crop inspection.

The seed crop inspector should contact and/or meet with the grower prior to the inspection to verify the crop certificates or the seed tags of the planted parent seed and to assess the growth stage of the crop. This will help the seed crop inspector determine the best time to assess the varietal purity of the crop. It is the seed crop inspector's responsibility to schedule crop inspections during the crop's appropriate growth stage. Seed crop inspectors may delay an inspection when the crop has not reached the appropriate growth stage or when a pesticide has just been applied (or application is imminent) and it is not safe to enter the crop.

The seed crop inspector should review the DoV and the crop-specific SWI prior to performing the inspection.

#### **4.4 Determination of pedigreed status – verifying tags and documents**

Growers may upload a copy of the seed tag with their application. If this tag is present in SeedCert, the inspector must verify that the application provides the crop certificate number(s) printed on the tag(s), the lot number(s) on the tag, and the pedigreed status on the tag, and report as 1 tag checked.

If the tag is not present in SeedCert, the inspector must request it from the grower, either electronically or by viewing it in person. It is not necessary to count the number of tags; report as 1 tag checked.

If the grower has used their own seed to plant the inspected crop, the seed crop inspector should review the crop certificate of the planted seed and verify the crop certificate number on the application. This must be reported as 1 tag checked, and state in the comments section what documentation type was verified.

If the tags or crop certificate are not available, the inspector marks "0" in the "Number of Tags Checked" section and comments why they were not checked. Invoices or bulk pedigreed seed tags may be consulted when the standard pedigreed seed tags are not available.

If the application includes the TAG message code, the inspector must take a picture of the grower's tag and upload it to SeedCert with the report.

Where the information on the Seed Crop Inspection Report is not accurate, the seed crop inspector must provide the correct information. It is the grower's responsibility to ensure that tags are available for verification.

When checking official tags attached to seed of foreign origin, verification should be performed as above, however, the foreign pedigree reference number is provided instead of the Canadian

crop certificate number. For unregistered or foreign varieties, a picture of the tag should be uploaded into SeedCert. If the application indicates that the crop was planted with imported seed, every effort should be made to verify the tag, regardless of whether tag verification is requested.

If the planted seed was purchased in bags without tags or with tags with an inappropriate lot number or which appear to not conform to the requirements of the [Seeds Regulations](#), the seed crop inspector must report this to their lead inspector or supervisor and the local CFIA office so that appropriate compliance and enforcement action may be taken.

## **4.5 Previous land use**

The seed crop inspector must verify and record the previous land use for the required number of years on the Seed Crop Inspection Report.

The seed crop inspector should indicate the pedigreed status and crop certificate numbers of previous crops when possible. It is acceptable to use the information provided in SeedCert.

The seed crop inspector should refer to Circular 6 to determine the required number of years of previous land use history as the requirements vary with the crop kind and pedigreed status. For perennial crops, this section is required to be completed only in the first year of inspection.

Through examination of previous crop stubble, the seed crop inspector may determine that the previous crop differs from what it is indicated on the application for seed crop inspection. This should be noted in the comments section of the Seed Crop Inspection Report. If the previous crop appears to be the same species as what is currently being inspected, this should also be noted in the comments section of the Seed Crop Inspection Report.

## **5.0 Conducting the inspection**

Seed crop inspection involves:

- identification of seed crops
- seed crop impurity counts
- checking isolation distances
- checking whether pedigreed seed production procedures have been followed

The seed crop inspector records impurities/contaminants when found:

- in 6 randomized counts within the inspected seed crop
- dispersed throughout the field, but never found in the 6 randomized counts
- in localized patches within the inspected seed crop but not within the 6 randomized counts
- within the isolation distance

During the crop inspection, the inspector must observe and record the following:

- overall general condition of the crop including
  - uniformity, general appearance, general weed condition, presence of reportable weeds, and yield
- impurities found within 6 randomized counts and recorded in 'counts' including
  - off-types/variants
  - other crop kinds that are reported by count
  - weeds that are reported by count
- impurities dispersed throughout the field, but coincidentally never found in the 6 randomized counts, including
  - off-types/variants
  - other crop kinds that are reported by count
  - weeds that are reported by count
  - prohibited noxious weeds
- localized contaminants found in bunches or patches, including
  - off-types/variants
  - other crop kinds that are reported by count
  - weeds that are reported by count
  - prohibited noxious weed species
- impurities/contaminants found in the isolation distance, including
  - off-types/variants
  - other crop kinds that are reported by count
  - weeds that are reported by count
  - prohibited noxious weed species
- abnormal conditions present in the seed crop (such as lodging, flooding or thin stand)
- reportable disease (smut)
- the width and description of the strip which exists between the seed crop and the adjacent crop kind
- the condition of the required isolation as stated for the crop kind in Circular 6 (this may or may not be a prepared isolation)

The following are a few examples of requests a seed crop inspector may make of the grower. The seed crop inspector may request the grower to:

- be available or have a responsible person on hand to assist the inspector on the day of crop inspection
- provide field maps with all fields and buildings clearly identified and all required information identified completely and accurately
- make available to the seed crop inspector the seed tags and/or previous crop certificates for the planted seed sorted by field then by lot prior to presentation to the seed crop inspector

- drive the seed crop inspector to the crop by tractor, jeep, or other vehicle when difficult conditions exist
- open gates and move other obstructions
- assist in measuring Select and/or Foundation plots
- provide relevant information on recent pesticide application or imminent aerial pesticide application and other known hazards (such as bears, hawks, vicious dogs or hunters nearby)

If the inspector is unable to locate the seed crop with the directions provided, they should contact the grower for clarification of the seed crop location. If the field location information on the application is incomplete or incorrect, the inspector must add the correct information to the crop location comments section. GPS coordinates are optional.

The LSCI may contact the lead inspector of the ASCIS to which they report to ask for assistance, advice, or information in order to complete the seed crop inspection.

Where a seed crop inspector notes conditions that may not conform to requirements in Circular 6 for the crop in question, the seed crop inspector should encourage the grower to contact the CSGA. Seed crop inspectors must not anticipate CSGA decisions based on the Seed Crop Inspection Report.

## **5.1 Crop survey**

When approaching the seed crop for inspection, the inspector should perform a cursory verification of the seed crop. This will allow the inspector to estimate the field size, shape, and topography so that the travel pattern can be determined. Potential problem areas should be noted, including water runs, field grain bins, roadways, rock piles, manure pits, and planter commencement areas.

The seed crop inspector should make a quick sketch of the field, noting the travel pattern to be walked and areas where counts will be made. While the use of rough notes is not mandatory, they can be valuable and are highly recommended. When rough notes are developed, they should have a clear link to the final report, such as the field location information and CSGA sequence number.

The seed crop inspector should examine the seed crop as a whole to verify that it is consistent with the characteristics of the variety as provided in the DoV to verify that the inspector is in the correct location.

The seed crop inspector must complete the inspection during the appropriate growth stage of the crop when impurities and distinguishing characteristics will be visible.

The seed crop inspector should also note if the seed crop to be inspected is planted with a companion crop (sometimes called intercropping). If so, the seed crop inspector must note the type of companion crop and its stage of development and report this in the comments section of



the report. If the companion crop impedes the inspection and does not permit the inspector to complete 6 counts, the seed crop inspector must report the field as very weedy as per section [6.3 Reporting weeds](#). In some circumstances, CSGA grants permission to growers for 2 different pedigreed seed crops to be grown together and inspectors may receive 2 applications for the same field.

### **5.1.1 Lodged crops**

A rough assessment of varietal purity can be made in lodged seed crops by lifting small portions of the crop and examining the heads very closely. For crops that are almost or completely lodged, inspection may not be refused. The seed crop should be assessed and a Seed Crop Inspection Report completed. Some deviations from the DoV may result from environmental conditions and management practices for some traits, such as plant height. If greater than 20% of the crop is lodged, the location and percentage of affected crops must be indicated on the Seed Crop Inspection Report.

### **5.1.2 Crops that have been partially or completely swathed**

A Seed Crop Inspection Report must still be completed for crops which have been partially or completely swathed. The report must include the area or location(s) that have been swathed, isolation distances, land use, tag verification, percentage of the crop that was swathed, information on the general weed condition (if possible), and any other additional information that can be provided.

If the crop has been partially swathed, the seed crop inspector should approximate the acreage of the crop that has not been swathed and follow the procedures in section 5.2 Field and plot sizes for reporting changes in area. The seed crop inspector completes the inspection on the remaining part of the seed crop that has not been swathed. The area that was swathed and not inspected must be reported in the comments section.

## **5.2 Field and plot sizes**

The acreage figure on the Seed Crop Inspection Report may be inaccurate. The seed crop inspector must note the actual acreage in the comments section of the Seed Crop Inspection Report. When the seed crop inspector changes the acreage, the seed grower signature is not required.

The area of a plot is reported using length and width in metres. If the plot is not exactly square or rectangular, or if it is a shape such as a triangle, the seed crop inspector should exercise caution to make a fair and accurate measurement of the area. If the plot is an irregular shape, report 0 for length and width and state the dimensions in the comments section. Seed crop inspectors are encouraged to utilize GPS acreage calculation tools, if available. A map or sketch should also be included with the Seed Crop Inspection Report. If the area exceeds the prescribed maximum plot size, record this in the comments section and indicate whether the grower was notified.

If the seed crop inspector notes that the area of land put forward for inspection contains large physical barriers or is composed of pieces of land that are not adjacent or contiguous, the seed crop inspector should advise the grower that the land may not meet the definition for a field as described in the [CSGA Field Definition Support Document](#). If the grower agrees to split the field, the seed crop inspector uses the "Combine, Cancel, Split or Report a Duplicate Application" form to submit the change to CSGA in SeedCert. If the seed grower does not agree to split the sequence number into fields which meet the CSGA field definition, the seed crop inspector should report this in the comments.

### **5.3 Estimated yield**

The seed crop inspector estimates yield as being average, above average, or below average for crops that are inspected near or at the time of maturity. The seed crop inspector uses the seed crop conditions for that crop kind in the district as being the benchmark average.

### **5.4 Travel patterns for seed crop inspection**

The seed crop inspector determines the travel pattern based on the inspected crop, the type of inspection, and the field size. Each inspection must consist of a minimum of 6 representative counts in the crop therefore the seed crop inspector should divide the field into 6 approximately equal areas and randomly take a count in each area.

When selecting a travel pattern, the seed crop inspector should balance the need for the highest degree of accuracy with the most efficient use of the seed crop inspector's time. A travel pattern that will allow the greatest degree of coverage for the least amount of distance traveled will increase accuracy and conserve time. [Appendix III](#) provides commonly used travel patterns and a brief discussion of their use.

### **5.5 Identifying and counting impurities**

During crop inspection, the seed crop inspector may observe plants with morphological or physical characteristics that differ from the rest of the crop. It is important to be aware of ways in which the environment may affect the crop (for example, temperature, moisture, wind, insects, diseases, animals or chemical damage) and to consider these when determining the identity of a suspected deviant plant.

Weather and light conditions may influence the appearance and presentation of the crop. Wind makes inspection difficult because it is hard to see the plant's flowers and heads in their natural presentation. When possible, crops should be inspected with the seed crop inspector's back to the sun. This is important when inspecting flowering crops such as flax, as the flowers turn to face the sun. This will allow for easier observation of the flower traits.

Variations between plants may be identified by close observation of the characteristics of plant parts in the flowering body (for example, colour, shape, type, glume characteristics, presentation, seed body), plant architecture, or growth habit (for example, attitude, environmental responses, life cycle, maturity). In some cases, the suspected deviant plant is considered part of the variety

and is listed in the DoV as a known and expected variant. The inspector should describe the suspected deviant plants. The DoV may aid the inspector in describing suspected deviant plants.

### **5.5.1 Identifying and counting impurities within counts**

The inspector must always take 6 counts for each impurity (off-type/variant, other crop kind as required in [appendix VI](#), and weeds that are reported by count as required in [appendix VII](#)) noted in the field count areas.

For example, for a crop containing 3 different off-types/variants and 1 other crop kind, 24 counts should be taken (6 counts multiplied by 4 impurities). However, the same 6 count areas can be used for the 4 different count objectives.

The count population or area must be identified in the Seed Crop Inspection Report and must be based on the maximum impurity standard for the crop and pedigreed status as given in Circular 6. Where the plant population density is low and/or difficult to identify (for example, due to lodging or extreme contamination), counts may be done by area. For example, 6 counts of 10,000 plants would not be practical if there are only 10 plants per square metre. For crops other than forages, when area is used, an estimate of the population in that area is needed for calculation of the impurity level. For forage crops, an estimate of the population in that area is required only when the stand is above or below average for the species. If the number of counts is less than 6, the inspector must select the number of counts performed on the report and fill in only those count boxes. Add a comment explaining why fewer than 6 counts were done.

Reduced plant counts may be used under exceptional circumstances when 6 counts of 10,000 plants each cannot be conducted due to:

- the nature or number of the variants and/or off-types that are found (based on experience with the variety or on 3 initial counts of 1,000 plants)
- instances where the DoV indicates a single variant with maximum allowable levels in excess of 2% (200 per 10,000 plants)

Reduced plant counts are applicable to Foundation, Registered and Certified crops where normal counts for maximum impurity standards are 10,000 plants. [Appendix V](#) describes procedures for reduced plant counts. Reduced plant counts are not applicable for plots of any kind or crops where counts are done on an area basis. Hemp, sorghum and millet all have specific reduced plant count procedures outlined in [SWI 142.1.2-7 Special Crops and New Crop Inspection Procedures](#), so the procedures in appendix V should not be used for those crops.

In those exceptional circumstances where reduced counts are used, an explanation of why the reduced count procedure was used must be provided in the comments section of the Seed Crop Inspection Report.

### 5.5.2 Identifying and counting crop impurities outside of counts

In addition to impurities found in the 6 randomized counts, seed crop inspectors also report impurities found dispersed throughout the field or in localized patches, but not found in the 6 randomized counts. Any impurities observed outside of the count area should be noted and must be recorded in the comments section of the report. However, seed crop inspectors need not include comments about impurities already noted in counts.

The seed crop inspector may encounter localized patches of contamination within the seed field. These are areas within the seed field that contain a concentration of contaminants (for example, reported in counts, other crop kinds, other varieties, off-types, Prohibited Noxious weeds) that may affect the pedigreed status of the crop. These localized areas of contaminants are not reflected in the counts therefore they must be reported in the comments section of the Seed Crop Inspection Report. The seed crop inspector must describe in detail the contaminant found, the number of localized areas, number of contaminants in the localized area, and the location and the size of the localized area(s). It may be necessary to attach a map and or photographs to the report.

Examples include:

- patches of wild mustard in *B. juncea* crops
- contamination introduced by the seed planter

These localized contaminants are recorded in comments; for example "6 patches (averaging 20 square metres) of wild mustard - too numerous to count - found outside of counts in south east corner of the field."

Areas of potential sources of contamination such as water runs, field grain bins, roadways, rock piles, manure pits, planter commencement areas, should be examined closely.

### 5.5.3 Count area calculation

The seed crop inspector must make an accurate estimate of the number of plants per metre of row in order to have confidence that each count meets the requirements of Circular 6. [Appendix IV](#) provides useful estimates of the number of plants per square metre depending on the distance between the rows and the number of plants per metre of row for a count of 10,000 plants.

Seed crop inspection must be conducted following procedures to achieve the highest pedigree possible. In rare instances a seed grower may make a request to CSGA via SeedCert in their application or using the "Intention to Harvest a Specific Class" Form 115 to have the field inspected to a lower pedigreed status. If the request is not documented in SeedCert, the inspector must record the change in inspection status in the comment section of the Seed Crop Inspection Report. For example, a field of alfalfa seeded with Breeder seed, in year 4 of production, is still eligible for Foundation status. However, a grower could request approval to have it inspected to Certified status, which would reduce the area required for each count.

## **5.6 Verification of isolation**

The seed crop inspector must verify isolation of the seed crop from adjacent crops as described in the crop-specific SWIs and Circular 6. Circular 6 specifies the required isolation distances, which are specific to the crop and pedigree level being inspected. Required isolation distances for open pollinated crops can be over a kilometre.

When the seed crop inspector rates an isolation as "Poor", the seed crop inspector notifies the grower as soon as possible. This can be done by email, by text, or by giving the grower a copy of the form titled "Notice to Growers - Isolation Corrections May Be Required" (electronic form is available in SeedCert). The seed crop inspector records that the grower was informed by selecting this checkbox on the report.

If the isolation distances do not meet the standards for the crop kind and pedigreed status of the crop, the CSGA may withhold the crop certificate until a seed crop inspector has verified that the isolation has been corrected. Inspectors must not anticipate CSGA decisions based on the Seed Crop Inspection Report.

It is the responsibility of the grower to correct the isolation distance and request a re-inspection prior to harvest. The inspector conducting the re-inspection selects "Re-inspection" as the type of inspection. It is not necessary to repeat the full crop inspection, but only to verify the isolation distance in question. To report the re-inspection the seed crop inspector records the same sequence number as the original, the date the re-inspection was conducted, the seed crop inspector name and number, and the results of the verification of the isolation.

## **6.0 Completing the Seed Crop Inspection Report**

The Seed Crop Inspection Report is the record of an objective assessment of the condition of the field at the time of the inspection. It is the information upon which subsequent certification decisions are based.

The seed crop inspector should complete all required fields of the Seed Crop Inspection Report and include any additional information in the comments section of the report. LSCI may be required to provide additional information to CSGA when requested by CSGA. Rough field notes taken during the inspection and used to complete the Seed Crop Inspection Report are considered relevant and useful documents and should be retained by the seed crop inspector and the ASCIS for a minimum of 7 years after the inspection.

### **6.1 Reporting isolation**

The reporting of isolations requires national consistency across regions and crop types. The terms "strip" and "isolation" cannot be considered synonyms. Seed growers often do not prepare a strip for isolation which is equal to the required isolation distance (in self-pollinated crops this distance can be 1, 2 or 3 metres).

The seed crop inspector determines (measures) the distance from the seed crop to the adjacent crop and surveys the required isolation distance for contaminants. The findings are reported as described below.

### **6.1.1 Definitions of isolation-related terms**

#### **Isolation**

the minimum required isolation as defined in CSGA Circular 6. May or may not be a prepared isolation

#### **Strip**

the space between the inspected seed crop and the adjacent crop (includes harvested crops, does not include standing crop)

#### **Crop kind (adjacent crop description)**

crops that can be harvested (includes pasture and hay). A harvested crop is not reported as a crop kind when describing the adjacent crop.

#### **Contaminants**

off-types/variants, other crop kinds reported by count (difficult to separate), other varieties of the same crop kind, weeds reported by count, or prohibited noxious weeds

#### **Crop of concern**

other seed or grain crop which might offer a source of varietal or mechanical contamination through cross-pollination or harvesting mistakes

#### **Mechanical isolation**

isolation distance required to ensure mechanical purity between the inspected crop kind and other crop kinds/reportable weeds that could cause contamination during harvest

#### **Varietal isolation**

isolation distance required between the inspected crop and different varieties of the same crop kind, plants that can cross pollinate or non-pedigreed fields of the same crop kind

#### **Non-pedigreed crop**

a crop for which a crop certificate has not been issued or recognized by the CSGA

### 6.1.2 Completing the isolation table on the Seed Crop Inspection Report

<b>Strip width</b>	Distance in metres to the adjacent crop kind
<b>Strip description</b>	Whatever exists within the strip width
<b>Isolation condition</b>	Good or Poor Good: no contaminants or potential crops of concern are found. Poor: contaminants or potential crops of concern are found. If harmful contaminants are found in either the mechanical or varietal isolation distance, the overall condition must be rated as "Poor"
<b>Adjacent crop description</b>	Name of crop kind
<b>Isolation comments / Open-pollinated crop isolation section</b>	Provide comments when the isolation is rated "Poor." For open-pollinated crops, describe any of the same species or species that can cross-pollinate found in the isolation, or if none found, state "None found within X m."

Note: the isolation must be rated as "Poor" if prohibited noxious weeds are found within 3 metres of the crop.

For isolation condition, if either the mechanical or the varietal isolation is poor, the overall isolation condition must be rated poor. When the isolation condition is rated as "Poor", the seed crop inspector must state the reason for this rating in the comments section. If more than 1 isolation condition is found along a field edge, report each condition. The strip width, strip description and isolation condition must be reported with care as crops may be declined pedigreed status when reports indicate less isolation than the minimum required in Circular 6.

For cereals, canary seed, and flax crops, a definite physical barrier is permitted instead of the required isolation for mechanical purity. A physical barrier can be a natural or artificial obstacle between 2 adjacent crops that prevents adjacent field access and accidental harvest, such as a fence. Growers may use stakes in lieu of a 1 metre isolation strip between inspected pedigreed crops of the same variety for cereals and small grains (section 2 crops) and pulses and soybeans (section 3 crops). Additional staking requirements should be reviewed in Circular 6.

Complete information on adjacent crops should be given, such as kind, variety and pedigreed status, when possible. Where applicable, the crop certificate number for adjacent crops should also be recorded. An example of this is where canola sown with Foundation status seed is adjacent to a crop planted with Certified seed of the same variety. When it is established that the neighboring crop was planted with Certified seed of the same variety and the crop certificate number is provided for the seed used, an isolation distance of only 3 metres is required.

In situations where isolations are complex or appear not to meet Circular 6 standards, a map is a useful reporting tool to describe the situation. The map should include enough detail for CSGA to determine the nature of the isolation situation and/or the source of any isolation problems. Include distances, contaminant information (type, density, maturity in relation to the crop),

highlighting the problem areas on the map. Attach this map directly to the report using the "Upload tool" (via SeedCert).

When reporting isolations, refer to the [Guidelines for Isolation Reporting \(accessible only on the Government of Canada network – RDIMS 6035078\)](#) or 1 of the following scenarios can be used:

**1. No isolation strip exists between the seed crop and the adjacent crop:**

<b>Strip width</b>	0
<b>Strip description</b>	N/A = Not applicable or Staked
<b>Isolation condition</b>	Good or Poor
<b>Adjacent crop description</b>	Name of crop kind
<b>Isolation comments / Open-pollinated crop isolation section</b>	If the isolation condition is poor, indicate: [side], [contaminant name] and [number found or number found per m <sup>2</sup> ]

The strip width is reported as "0" when the adjacent crop butts up to the inspected seed crop.

**2. The "strip width" is more than or equal to the required isolation (the examples below are for when the required isolation distance is 3 m):**

a. If inspector can easily see and can therefore identify the adjacent crop kind

<b>Strip width</b>	(equal to) 3 m or (greater than) > 3 m
<b>Strip description</b>	List of whatever exists until you reach a crop kind
<b>Isolation condition</b>	Good or Poor
<b>Adjacent crop description</b>	Name of crop kind
<b>Isolation comments / Open-pollinated crop isolation section</b>	If the isolation condition is poor, indicate: [side], [contaminant name] and [number found or number found per m <sup>2</sup> ]

b. If inspector cannot easily see and therefore cannot identify the adjacent crop kind:

<b>Strip width</b>	(greater than) > 3 m
<b>Strip description</b>	Description of the strip, but never a crop kind
<b>Isolation condition</b>	Good or Poor
<b>Adjacent crop description</b>	N/A = Not applicable
<b>Isolation comments / Open-pollinated crop isolation section</b>	If the isolation condition is poor, indicate: [side], [contaminant name] and [number found or number found per m <sup>2</sup> ]



**3. The "strip width" is less than required (3 m):**

<b>Strip width</b>	Measured distance (which will be less than 3 m)
<b>Strip description</b>	Whatever is in the strip: physical barrier (such as a fence), fallow, mowed sod, etc., but never a crop type
<b>Isolation condition</b>	Good or Poor
<b>Adjacent crop description</b>	Crop kind immediately after the distance of the "strip width" recorded above.
<b>Isolation comments / Open-pollinated crop isolation section</b>	If the isolation condition is poor, indicate: [side], [contaminant name] and [number found or number found per m <sup>2</sup> ]

When rating the isolation condition, if either the mechanical or the varietal isolation is poor, the overall isolation condition must be rated poor. This includes any additional isolation distances required for varietal isolations and open-pollinated crops.

**6.1.3 Additional requirements for open-pollinated crops**

In the case of open-pollinated crops, if harmful contaminants that may cross pollinate are found within the varietal isolation distance, the seed crop inspector must state the following in the "Isolation comments / Open-pollinated crop isolation section": the average number of contaminating plants found per inspected area, the distance these are from the crop, the size of the contamination (for example, patch or strip), the maturity of the contaminating plants in relation to the maturity of the crop being inspected and the manner in which the isolation has been prepared such as mowed, etc. For example, "common timothy, 100 plants/m<sup>2</sup>, 25 metres to north, length of the inspected field, mowed for hay, late June, no blossom." If no harmful contaminants that may cross pollinate are present in the varietal isolation, the seed crop inspector records "None within XX metres" (XX meaning the required isolation distance) in the open-pollinated crop section of the report.

The seed crop inspector should refer to Circular 6 and the crop specific SWIs for details on border removal in lieu of isolation distance and the 10% rule for some crop kinds, including forages.

**6.1.4 Reporting isolation of staked plots**

The information below is provided as additional instruction to LSCI Group 6 licensees for the reporting of isolations for staked plots of Circular 6 section 12 crop types - Select plots. When plots are staked, the varietal isolation must still be verified in the same manner as fields and recorded on the crop inspection report.

For a staked plot isolation to be rated as "Good" it must meet all of the following criteria:

- field in which it is staked is planted with the same seed and has the same previous land use as the plot
- field in which it is staked is a pedigreed seed crop (inspected) and has impurity levels that at least meet the Circular 6 standards for a Certified field
- there are no contaminants (off-types/variants/other crop kinds/prohibited noxious weeds) in the 1 metre outside the stakes
- all other varietal and mechanical isolation requirements specific to the crop are met

In some cases, there may be 2 different inspectors for the plot and the field. If the inspector for the plot does not have complete information about the adjacent field in which it is staked, such as whether or not the same seed was used, state in the comments section that information about the adjacent field is unknown.

**1. Staked plots exist entirely within the surrounding adjacent seed crop (no strip exists between the staked plot and the surrounding adjacent seed crop):**

<b>Strip width</b>	0
<b>Strip description</b>	Staked
<b>Isolation condition</b>	Good or Poor
<b>Adjacent crop description</b>	Variety and field number or sequence number of the crop surrounding the stakes
<b>Isolation comments / Open-pollinated crop isolation section</b>	If the isolation condition is poor, indicate: [side], [contaminant name] and [number found or number found per m <sup>2</sup> ]

**2. Plot is staked, but not on all sides (for example, the staked plot is on the corner or the side of the field planted with equivalent pedigreed status seed):**

Staked side(s):

<b>Strip width</b>	0
<b>Strip description</b>	Staked
<b>Isolation condition</b>	Good or Poor
<b>Adjacent crop description</b>	Variety and field number or sequence number of the crop surrounding the stakes
<b>Isolation comments / Open-pollinated crop isolation section</b>	If the isolation condition is poor, indicate: [side], [contaminant name] and [number found or number found per m <sup>2</sup> ]

Unstaked side(s) - report as per normal plot isolations:

<b>Strip width</b>	0, measured distance or >10 metres as applicable
<b>Strip description</b>	Description of the strip, but never a crop kind
<b>Isolation condition</b>	Good or Poor
<b>Adjacent crop description</b>	Name of crop kind or N/A if not identifiable from the field edge
<b>Isolation comments / Open-pollinated crop isolation section</b>	If the isolation condition is poor, indicate: [side], [contaminant name] and [number found or number found per m <sup>2</sup> ]

## 6.2 Reporting off-types and variants

The number, nature and specific differing morphological characteristics of the off-types and variants identified in the inspection must be noted on the Seed Crop Inspection Report. If the number of variants reported exceeds the maximum acceptable number in the DoV the excess plants are considered off-types and the number of the plants in excess of the maximum acceptable number is added to the number of off-types observed. A field may be declined or demoted by the CSGA if the total number of off-types exceeds the maximum impurity standards in Circular 6.

Inspectors must report 2 characteristics when describing the following:

- off-types/variants in a soybean, turf grass or forage crop
- "tall" off-types/variants in any crop

Inspectors must report a second characteristic to help describe the deviant plant, or note "otherwise conforms" as the second characteristic. "Tall and immature" is not acceptable for the 2 characteristic requirement. If "tall and immature" is used, a second characteristic will need to be provided.

If no off-types or variants are found in any of the 6 counts, choose "None Found" from the "Type" drop down menu. Record "0" in each of the 6 count boxes. For the description of the impurity, write "N/A" or "none."

When the inspector is not sure whether a plant is a variant, off-type or normal plant, the inspector may take a sample of the plant(s). See [appendix VIII](#) for procedures for collecting and submitting samples to the CFIA for identification.

The Seed Crop Inspection Report must indicate that a sample has been submitted for testing and clearly indicate whether the results of the testing would impact the number of impurities reported. The test results are forwarded from the CFIA laboratory to the CSGA, Seed Section and the submitting local CFIA office. The local CFIA office is responsible for communicating the test results to the grower and to the ASCIS supervising the LSCI who submitted the sample.

The CSGA is responsible for connecting the sample test results to the relevant Seed Crop Inspection Report and including the results in its certification decision for that seed crop.

### 6.3 Reporting weeds

The specific weeds that must be reported for each crop kind are listed in [appendix VII](#). These weeds are either reported by count or by frequency. When reporting wild oats, plants are to be included whether or not there are any seeds on the plant.

Weeds classified as Class 1 Prohibited Noxious under the [Weed Seeds Order, 2016](#) must be reported on the Seed Crop Inspection Report by frequency rating (for example, trace, numerous). Prohibited noxious weeds must be reported when found in the field or the 3 metre isolation regardless of plant growth stage or crop kind. The location the weed is found must be recorded in the comments section of the report and the finding must also **be reported to the CFIA within 2 business days** using the form provided in CSGA SeedCert.

When describing the "General Weed Condition" and prohibited noxious weeds, 1 of the following frequency terms must be used:

- "clean" means free from weeds
- "trace" (T) (<20 weeds/100 m<sup>2</sup>) is used when weeds are hardly present in the crop
- "few" (F) (20 to 100 weeds/100 m<sup>2</sup>) is used when weeds are found throughout the crop
- "numerous" (N) (>100 weeds/100 m<sup>2</sup>) is used when weeds are found throughout the crop and the weed condition may be interfering with crop inspection and/or it is reasonable to assume the weeds will present difficulty in processing
- "very weedy" (VW) is used when weeds or other crops cover the crop
  - use this rating for fields when the inspector cannot complete the required 6 counts, and in plots when the inspector cannot complete any counts
  - **crops with a general weed condition reported as very weedy will be declined pedigreed status by CSGA**
  - explain the reason for the rating in the comments section
  - do not report any counts when the general weed condition is rated "very weedy"

If a portion of the crop was not visible due to weeds, but there was still enough crop visible in other areas for 6 counts to be taken, report the general weed condition as trace, few or numerous as applicable. Provide information about localized weed contamination in comments.

For plots only, if a portion of the crop was not visible due to weeds, but there was still enough crop visible to conduct some counts (but fewer than 6), do as many counts as possible. Report the general weed condition as trace, few or numerous as applicable. Provide information about localized weed contamination in comments. Use the instructions in section 10.0 regarding reporting of counts when there are fewer than 120,000 plants.

When inspecting a pedigreed seed crop planted with imported seed, the seed crop inspector should be alert for weeds that are not normally found in the region. If the inspector or the lead inspector is unable to identify the weed, a sample should be sent for identification to local CFIA

office which will forward the sample to the Genotyping/Botany Unit of the Ottawa Plant Laboratory Fallowfield (see [appendix VIII](#)).

## 6.4 Reporting plant disease

Visual symptoms of smut in barley must be described. Seed crop inspectors must describe the location of the disease in the field and the frequency (trace, few, numerous) of diseased plants in the field.

## 6.5 Reporting comments

Inspectors must include the following information in the appropriate comments section of the report if applicable. References in brackets are sections in the SWI that provide more information:

- an explanatory statement if the condition of the isolation is rated as "Poor" (6.1.2)
- an explanatory statement if the general weed condition is rated "very weedy" (6.3)
- an explanatory statement if reduced counts were used (5.5.1)
- an explanatory statement if a change is made to the acreage of a field (4.3)
- if the number of counts conducted is less than 6, explain why this was done and include an estimate of plant population (5.5.1 and 10.0)
- if greater than 20% the crop is lodged, the location and percentage of affected crops must be indicated, for example, "completely lodged," "50% lodged north side," etc. (5.1.1)
- a description of the layout of the land put forward for inspection if it does not meet the CSGA definition for a field (5.2)
- if the plot size exceeds the maximum allowed, indicate the size and whether the grower was notified (5.2)
- if the inspector for the plot does not have complete information about the adjacent field in which it is staked, indicate that information about the adjacent field is unknown (6.1.4)
- description of any impurities found outside counts but not found within the counts (5.5.2)
- description and location of any localized patches of impurities (5.5.2)
- where a portion of the crop was not inspected because it was swathed, this must be clearly identified, as well as the % swathed or acreage swathed (5.1.2)
- information on hail, insect, pesticide or other damage when its occurrence interferes with crop inspection along with an estimate of the proportion of the crop that is affected
- if the inspected crop is seeded with a companion crop, the companion crop and its stage of development (5.1)
- when a grower accompanies a seed crop inspector during the inspection and commences any roguing activities during the crop inspection, the following procedures must be used for reporting
  - where the roguing activities are random during the crop inspection, the presence of the rogued impurities must be noted in the comments section but not included in the counts
  - where the roguing activities occur only in the specific areas being used by the seed crop inspector for counts, the rogued impurities must be reported in counts
- dimensions of irregularly shaped plots (5.2)

- if smut is reported in barley, the location in the field (6.4)
- if the seed crop inspector determines that the applicant whose name appears on the Report of Seed Crop Inspection is not responsible for the direct management of the crop, inform CSGA by providing the name and address of the responsible individual (4.3)
- if any pre-filled information on the Seed Crop Inspection Report is not accurate, the inspector must provide the correct information (4.4)
- an explanatory comment if tags were not checked or if another documentation type was verified instead (4.4)
- if a very early or late inspection was requested by the grower (12.3)
- if the inspection was done without a description of variety (4.3)
- the previous land use history for the required number of years, if not already provided on the report (4.5)
- if the grower wants a forage crop inspected to a lower status and form 115 is not used, the inspector must report the change in inspection status (5.5.3)
- additional isolation comments required for open-pollinated crops (6.1.3 and crop-specific SWIs)
- the location of any prohibited noxious weeds found in the field (6.3)
- if the description of variety does not match the characteristics observed in the inspected variety (4.2)
- any corrections or additions to the land location information supplied by the grower (5.0)
- any required comments specified in the crop-specific SWIs
- any issue not noted elsewhere within the Seed Crop Inspection Report that may affect the pedigree status of the crop

The seed crop inspector may include additional information in the comments section, as long as it is truthful and not misleading. For example, a grower may request that sclerotinia be reported if found in soybeans, or the inspector may want to provide additional information to explain a crop condition rating.

## **6.6 Reporting changes in acres inspected**

To cancel an inspection, the seed crop inspector utilizes the "Combine, Cancel, Split or Report a Duplicate Application" form in CSGA SeedCert. An email/letter or grower signature is required to cancel an application. Pedigreed seed crops that are swathed or harvested prior to inspection but not previously cancelled are to be reported as indicated in [section 5.1.2](#).

If the actual crop area differs from the area indicated on the Seed Crop Inspection Report, the seed crop inspector must record the correct acreage in the comments section.

## 6.7 Report options in CSGA SeedCert

In SeedCert, when the inspector selects "Seed Crop Inspection Report" there are 5 inspection type options:

**Seed Crop Inspection Report:** initial inspection report supplied for each CSGA sequence number.

**Re-Inspection:** to record a re-inspection due to CSGA or grower request; allows the inspector to populate the current form by recalling data from a previously-submitted report.

Example: CSGA has sent an email to a seed grower requesting 3 metres to be removed from the north isolation. The grower has made this correction and requests that the inspector come back to do a re-inspection. The inspector would select "Re-Inspection" as the inspection type.

**Report Modification:** to modify a previously submitted report; allows the inspector to populate the current form by recalling data from a previously-submitted report. Report modification should only be used if the original report has either been approved or rejected by the ASCIS.

Example: An LSCI submits a report to their lead inspector for review. The lead inspector rejects the report due to an issue reporting weeds. The LSCI can use report modification to recall the information previously submitted.

Report modification must not be used to modify a previously submitted re-inspection report; use "Re-Inspection" in that case.

**Internal Inspection:** for internal use by ASCIS and LSCI for internal training or testing or other reporting needs prior to inspection. This inspection type is not part of the CFIA seed program.

**Land Use Inspection:** used when a land use inspection has been requested by the seed grower.

For all inspections of industrial and feminized hemp, the inspector uses the "**Seed Crop Inspection Report for Fields and Plots of Industrial Hemp.**"

"**CFIA Check Inspection Report**" is used by CFIA official inspectors for oversight purposes.

## 7.0 After the inspection

At the end of each day, the LSCI must report the sequence numbers of the fields inspected that day using the "Notification of Daily Inspections Completed" form in SeedCert or by submitting a

complete Seed Crop Inspection Report on the same day as the inspection. This populates the "actual inspection date" column in SeedCert.

The Seed Crop Inspection Report must be signed and dated by the seed crop inspector, reviewed by the ASCIS lead inspector and submitted electronically to the CSGA within 2 business days of the inspection having been completed.

For inspections conducted directly by CFIA, the CFIA inspector must submit their report in SeedCert within 2 business days of the inspection.

The seed crop inspector is responsible for responding to any follow up requests from the CSGA, the CFIA, the seed grower or their assignee, related to the crop inspection or the report.

It is recommended that the seed crop inspector keep a copy of any rough notes for their own files and that these notes are also kept on file at the ASCIS for at least 7 years after the inspection.

## 8.0 Health and safety considerations

ASCIS are required to have health and safety programs in place commensurate with the regulations within the jurisdictions in which they operate.

The following is a partial list of health and safety considerations:

1. Any unsafe condition or activity should be reported to the lead inspector or quality manager of the ASCIS. The seed crop inspector may resume work only after the situation has been properly assessed and corrected as required.
2. Seed crop inspectors should dress appropriately for the weather. Waterproof boots, pants, and coat are helpful in rain or irrigation. Proper dress includes proper footwear; the seed crop inspector should never walk barefoot or in sandals when crop inspecting. If lightning is near, the inspector shall remain in or return to their vehicle. Insect repellent or netting are also usual necessities.
3. The seed crop inspector should be aware of any crop protection products that have been applied to the crop. Direct communication with the grower is recommended to determine the applied product and the safe re-entry time. **Consult product labels or the [Pest Management Regulatory Agency website](#). Do not enter fields recently sprayed with pest control products unless you are confident the re-entry period has passed.**
4. The seed crop inspector should also ask the grower if there are any other hazards that may be encountered in the crop and proceed accordingly. The seed crop inspector should be alert for aggressive animals and hidden dangers when driving and walking. The seed crop inspector should never drive a grower's farm equipment. Other hazards may be encountered.
5. The seed crop inspector should be aware of any hunting activities potentially occurring nearby and wear reflective clothing if necessary.



## **9.0 Biosecurity considerations**

Seed crop inspectors should be aware of and comply with biosecurity programs in effect on the farms and in the areas in which they are performing seed crop inspection. Always remove soil and organic matter from boots and vehicles between fields.

## **10.0 Inspection of Probation, Foundation and Select plots**

The seed crop inspector must measure the plot dimension in metres then indicate the plot area and dimensions on the Seed Crop Inspection Report. A single plot must not exceed 2.5 acres or 1 Ha. If the plot size exceeds 2.5 acres or 1 Ha, the seed crop inspector should indicate "plot exceeds 2.5 acres (or 1 Ha)" in the comments section of the Seed Crop Inspection Report and indicate whether the grower was notified. The measurements are to be taken using a measuring wheel, GPS unit, or other reliable device.

The seed crop inspector shall examine the entire plot for the crop condition, including uniformity of stand, general appearance, general weed condition and estimated yield. A minimum of 6 impurity counts (20,000 plants each) are based on the Circular 6 standard for the crop inspected for most crops. For industrial hemp plots 6 counts of 10,000 are to be made. However, reduced plant counts may be required (as per SWI 142.1.2-7). For sunflower plots, 6 counts of 200 plants are to be performed. The seed crop inspector may refer to the guide in appendix IV for estimating count areas. Emphasis should be given to the accuracy of impurity identification and quantification within the count areas rather than the occurrence of impurities outside the count areas.

Where the entire plot contains less than 120,000 plants or if there are fewer than 120,000 plants visible due to very weedy sections, the seed crop inspector should conduct as many full counts of 20,000 plants as possible. For the remaining plants, the seed crop inspector will estimate and report the number of plants, and perform the count on this smaller area. If the total number of counts (full and partial) is less than 6, the inspector must select the number of counts performed on the report. For example, if there are 90,000 plants in the plot, conduct 4 counts of 20,000 plants and 1 count of 10,000 plants. Select 5 for number of counts performed and report "10,000 plants in count 5" in the comment section.

If the entire plot size provides less than 20,000 plants in total, the seed crop inspector must estimate and report the total number of plants in the plot and treat the area as 1 plant count area. This situation occurs rarely but may be encountered in Breeder Plots when there is a small amount of high value seed available or in other plots when damage has occurred but the grower still wishes to certify the crop.

### **10.1 Staking of plots**

Some plots can be marked by staking the plot in lieu of the standard isolation requirement. It is the grower's responsibility to ensure that the stakes are present prior to crop inspection and that they are visible above the crop canopy.

The staked plot must be inspected and reported on, even if the seed crop inspector has reason to believe that the crop within which the plot is staked may not meet CSGA's pedigreed seed crop standards. When plots are staked, the isolation must still be verified for harmful contaminants and other varieties, in the same manner as fields and recorded in the comments of the report. Procedures should be followed as per section 6.1.3 if harmful contaminants are present or absent in the isolation.

## **11.0 Land use inspection**

Previous land use inspections are required in order to determine the suitability of the land for a pedigreed seed crop in the following year. They may be conducted in standing crops or fallow fields and do not assess the pedigreed status of the crop. They are generally conducted later in the season when volunteers are fully emerged and easily identified but before the standing crop is harvested. It is the seed crop inspector's responsibility to report any contamination which may pose a varietal purity problem in the pedigreed seed crop to be planted in the field in the following year.

The following information is required for a land use inspection:

- variety planted and/or crop kind inspected
- crop certificate number if pedigreed seed is used
- acreage
- land location
- land use in year before seeding
- prohibited noxious weeds if present
- other crop kinds observed in 6 counts of 10,000 plants
- the planting intentions for the next year are to be indicated by answering the question in the crop inspection report

## **12.0 Other issues**

### **12.1 Industrial hemp**

Crops grown for Certified and Registered require 1 inspection for dioecious crops and 2 inspections for monoecious crops. Breeder, Foundation and Probation plots require 2 inspections. When LSCI are conducting multiple inspections for a seed crop of hemp, they must schedule all inspections in SeedCert.

### **12.2 CFIA seed crop inspectors - industrial hemp inspection for Health Canada**

CFIA official seed crop inspectors no longer perform inspections of industrial hemp on behalf of Health Canada.

### **12.2.1 CFIA seed crop inspectors - suspicious cannabis crops**

If, during the course of pedigreed seed crop inspection of industrial hemp, or any other crop, the CFIA seed crop inspector encounters a crop or plants that he/she suspects are not included on the List of Approved Cultivars of industrial hemp for the current growing season, Seed Section or the Industrial Hemp Section of Health Canada's Office of Controlled Substances must be notified. Similarly, the same notification must be made if the inspector encounters an industrial hemp crop that they suspect has not been licensed for cultivation. Inspectors are not responsible for enforcing the *Industrial Hemp Regulations*, nor should any recommendations be made to the grower.

### **12.3 Requests for very early or late inspection**

A grower may request a very early or late crop inspection. Similar to cancellation requests, requests for very early or late inspections require a record of authorization by the grower. The grower's intent to have the inspection carried out on a particular date must be clearly indicated in the comments with a reference to a phone record or by attaching a signed declaration from the grower.

At the time of the request for early or late inspection, the grower should be reminded that Circular 6 states, "Crops not inspected at the proper stage of growth for determining varietal purity may be cause for declining pedigreed status."

### **12.4 Additional inspection and reporting requirements**

There may be contractual agreements between the grower/assignee and the ASCIS for the reporting of crop information in addition to what is required to be reported as per this SWI. For example, ASCIS may report specific weeds or diseases found in the seed crop.

### **12.5 Additional applications**

If, upon arriving at a location at which a crop inspection is to be conducted, the seed crop inspector is presented with additional applications for seed crop inspection by the grower, or with a situation that requires the inspection of additional seed crops, the following procedures must be followed.

- The seed crop inspector will have no record for the field therefore the grower must complete an [Application for Seed Crop Certification e-form on the CSGA website](#)
- The seed crop inspector should determine the type and priority of the inspection and the appropriate time of inspection
- If the application pertains to a high priority inspection (for example, pedigreed seed crop inspection as opposed to land use) and the crop is at the correct stage for inspection and the seed crop inspector can reasonably accommodate the inspection without jeopardizing the timely performance of other high priority inspections, the inspection may be performed at that time

The inspector can submit the report after the application is accepted in SeedCert.

- If the inspection cannot be reasonably performed at that time, the seed crop inspector should consult with their lead inspector as soon as it is practical to schedule the inspection

## Appendix I CSGA pedigreed class codes

The following table lists the CSGA pedigreed class code and its corresponding class name.

Class code	Class name
0	Pre-variety Germplasm
1	Foundation
2	Registered
3	Synthetic Select
4	Certified
5	Breeder
6	Select
7	Certified OECD
8	Recertified
9	Certified 2nd Generation under OECD Seed Schemes
G0	Generation 0, Pre-Variety Germplasm
G1	Generation 1, Pre-Variety Germplasm
G2	Generation 2, Pre-Variety Germplasm
G3	Generation 3, Pre-Variety Germplasm

## Appendix II Message codes used by CSGA on applications and Seed Crop Inspection Reports

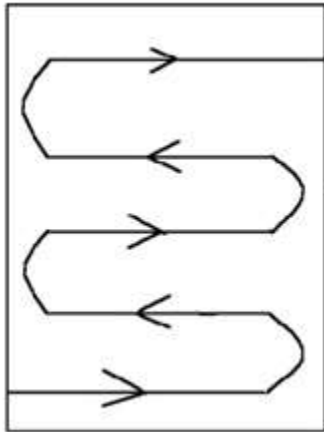
The seed crop inspector can view the message codes used by CSGA in SeedCert.





This pattern satisfactorily covers the inspection of the crop but not the isolation. The central area of the crop is covered twice while the outer edges of the middle are not approached. Using this pattern, the seed crop inspector should divert from the travel pattern to check the isolation and possibly to take counts as well.

### Pattern D

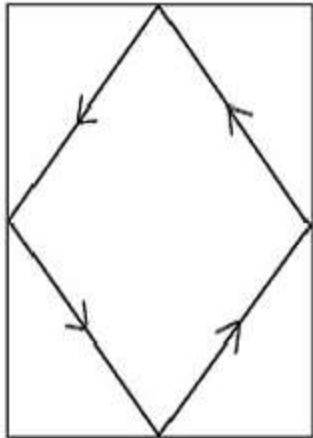


Description of image of Pattern D

In Pattern D the seed crop inspector begins near 1 corner of the field, travelling across the field parallel to the short edge. When the seed crop inspector comes close to the side of the field, the seed crop inspector executes a rounded turn along the length of the field and travels a short distance along the length of the field before turning again to cross over to the other side of the field. This is repeated until the full length of the field has been covered.

This pattern adequately covers all areas of the crop including the isolation. However, this pattern is more time consuming. It may be useful for small fields, plots and crops requiring close scrutiny due to previously identified problems with the variety. If the seed crop inspector needs to exit the crop on the side of entry, the pattern can be modified by the addition or deletion of 1 pass.

### Pattern E

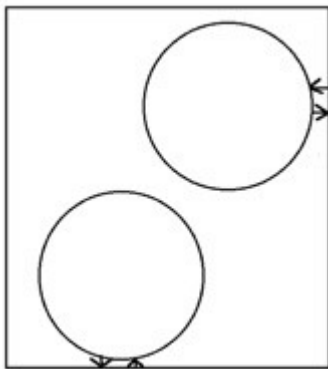


Description of image of Pattern E

In Pattern E, the seed crop inspector starts in the middle of 1 edge of the field and travels across the corner of the field in a straight, diagonal line to the center of the adjoining edge, repeating this until they return to their starting point. This creates a diamond shaped pattern.

The diamond pattern is commonly used. It allows for verification of the isolation as well as inspection of the crop. The seed crop inspector may need to divert from the pattern in order to examine the central part of the crop if it appears doubtful from a distance.

### Pattern F



Description of image of Pattern F

Pattern F is 2 identical ovals inside a rectangular field, each taking up approximately 1 quarter of the rectangle. The seed crop inspector enters the field at 1 corner and travels a roughly circular pattern covering approximately 1 quarter of the whole field in 1 circle and returning to their starting point. The seed crop inspector then repeats this pattern starting in the corner diagonally opposite to the previous circle.

This pattern may be used when 2 seed crop inspectors are available for simultaneous inspections or when the crop condition limits mobility in 1 corner of the crop.



## Appendix IV: Approximate area required for 10,000 plants as determined by plant population and row spacing

The table below should be used to establish a count area for the detailed inspection. The seed crop inspector must conduct the counts according to the standards required for the crop kind inspected. The tables show the area that will contain approximately 10,000 plants when the number of plants per metre of row and the spacing between rows are known.

### Square metres of crop area required for 10,000 plants at varying stand densities

Average number of plants per metre of row	Distance between rows = 6" (15 cm)	Distance between rows = 7" (18 cm)	Average number of plants per metre of row	Distance between rows = 6" (15 cm)	Distance between rows = 7" (18 cm)
	m <sup>2</sup>	m <sup>2</sup>		m <sup>2</sup>	m <sup>2</sup>
16.5	93	108	52.5	29	34
18	84	98	55.5	27	32
19.5	77	90	59	26	30
21.5	72	83	62.5	24	29
23	66	78	65.5	23	27
24.5	62	72	69	22	26
26	58	68	72	21	25
28	55	64	75.5	20	24
29.5	52	60	78.5	19	23
31	49	57	82	19	22
33	46	54	83.5	18	21
34.5	44	52	88.5	17	20
36	42	49	92	17	19
37.5	40	47	95	16	19
39.5	39	45	98.5	16	18
41	37	43	101.5	15	17
42.5	36	42	105	14	17
44	34	40	108	14	16
46	33	39	111.5	14	16
47.5	32	37	115	13	16
49	31	36	118	13	15

## Appendix V: Procedures for reduced plant counts

As per the conditions in section 5.5.1, reduced plant counts are conducted for eligible crops as described below:

1. Complete the first set of reduced plant counts:

Foundation crops:	15 counts x 1000 plants
Registered crops:	15 counts x 1000 plants
Certified crops:	10 counts x 1000 plants

2. Determine if more counts are needed through 2 tests:

- a. **First test:** if 1 or fewer total variants or off-types are found, discontinue counts and the second test is not required

- b. **Second test (if needed):** compare the number of off-types found with an adjusted standard

The adjusted standard is the Circular 6 standard times a multiplier factor (MF) [Foundation=1.5, Registered=1.5, Certified=1]. If the number found is less than half of the adjusted standard, then discontinue counts. If the number found is equal to or greater than half of the adjusted standard, complete an additional set of counts

**The formulas for the second test look like this:**

Initial counts  $< 0.5 \times (\text{Circular 6 standard} \times \text{MF}) = \text{discontinue counts}$

Initial counts  $\geq 0.5 \times (\text{Circular 6 standard} \times \text{MF}) = \text{continue counts}$

3. Complete second set of counts if necessary

Foundation crops:	15 counts x 1000 plants
Registered crops:	15 counts x 1000 plants
Certified crops:	10 counts x 1000 plants

4. Once all counts are completed, they can be reported in SeedCert

Report 0 in the regular 6 count boxes. All reduced plant counts should be reported in the comment section of the report.

The following examples demonstrate the tests required to determine if a second set of counts required:

Example count data representing first set of counts

Example crop and status		First set of reduced plant counts															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
1	Registered oats	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
2	Foundation peas	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	3
3	Certified soybeans	2	5	1	2	0	3	0	5	4	1						23

Example 1 – Registered oats

- First test: 2 found > 1; second test required
- Second test:  $0.5 \times (3 \times 1.5) = 2.25$  adjusted standard; 2 found < 2.25; discontinue counts

Example 2 – Foundation peas

- First test: 3 found > 1; second test required
- Second test:  $0.5 \times (1 \times 1.5) = 0.75$  adjusted standard; 3 found > 0.75; continue counts

Example 3 – Certified soybeans

- First test: 23 found > 1; second test required
- Second test:  $0.5 \times (30 \times 1) = 15$  adjusted standard; 23 found > 15; continue counts

## Appendix VI Other crop kinds to report in counts

### Cereals

<b>Inspected crop</b>	<b>Other crop kinds to be reported in counts</b>
barley	all cereals
oats	all cereals
rye	all cereals
triticale	all cereals
wheat	all cereals
durum	all cereals

### Small grains

<b>Inspected crop</b>	<b>Other crop kinds to be reported in counts - fields</b>	<b>Other crop kinds to be reported in counts - plots</b>
buckwheat	none	none
canary seed	none	flax
flax	none	canary seed

### Forage and turf grasses

<b>Inspected crop</b>	<b>Other crop kinds to be reported in counts</b>
bentgrass	redtop, bluegrass, orchardgrass, other bentgrass
bluegrass	other bluegrass, bentgrass, orchardgrass, redtop
bromegrass	meadow fescue, other bromegrass, wheatgrass, wild rye
fescue	bromegrass, other fescue, ryegrass, wheatgrass, wild rye
foxtail	none
junegrass	bentgrass, bluegrass, orchardgrass, redtop
needlegrass	bromegrass, fescue, ryegrass, wheatgrass, wild rye
orchardgrass	bentgrass, bluegrass, redtop
redtop	bentgrass, bluegrass, orchardgrass
reed canarygrass	none
ryegrass	fescue, other ryegrass, wheatgrass
timothy	none
wheatgrass	bromegrass, fescue, ryegrass, other wheatgrass, wild rye
wild rye	fescue, wheatgrass, other wild rye

### Forage 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
vetch (cicer milkvetch, crownvetch)	canola, other vetch species
phacelia	none
red clover	alfalfa, sweet clover
sainfoin	barley, oats, wheat
sweet clover	alfalfa, red clover
white clover	alsike clover, birdsfoot trefoil, black medick

### Cruciferous crops

Inspected crop	Other crop kinds to be reported in counts
canola/rapeseed ( <i>B. napus</i> , <i>B. rapa</i> )	carinata, mustard ( <i>B. juncea</i> , <i>S. alba</i> ), radish
carinata ( <i>B. carinata</i> )	canola/rapeseed ( <i>B. napus</i> , <i>B. rapa</i> ), mustard ( <i>B. juncea</i> , <i>S. alba</i> ), radish
mustard ( <i>B. juncea</i> )	canola/rapeseed ( <i>B. napus</i> , <i>B. rapa</i> ), carinata, mustard ( <i>S. alba</i> ), radish
mustard ( <i>S. alba</i> )	canola/rapeseed ( <i>B. napus</i> , <i>B. rapa</i> ), carinata, mustard ( <i>B. juncea</i> ), radish
radish ( <i>R. sativa</i> )	canola/rapeseed ( <i>B. napus</i> , <i>B. rapa</i> ), carinata, mustard ( <i>B. juncea</i> , <i>S. alba</i> )

### Pulses and soybeans

Inspected crop	Other crop kinds to be reported in counts - fields	Other crop kinds to be reported in counts - plots
bean	none	chickpea, fababean, pea, soybean
chickpea	none	bean, fababean, pea, soybean
fababean	none	chickpea, bean, pea, soybean
lentil	none	none
lupin	none	none
pea	none	bean, chickpea, fababean, soybean
soybean	none	bean, chickpea, lupin, pea

## Special crops

<b>Inspected crop</b>	<b>Other crop kinds to be reported in counts - fields</b>	<b>Other crop kinds to be reported in counts - plots</b>
asparagus	none	none
camelina	none	none
coriander	none	none
fenugreek	none	canary seed, flax
hemp	none	none
millet	none	none
niger	none	none
quinoa	none	none
safflower	none	none
sorghum	none	none
sugar beet	fodder beet, mangel, red beet, swiss chard	fodder beet, mangel, red beet, swiss chard
sunflower	none	none
tobacco	none	none

## Appendix VII Weeds to be reported when observed in the inspected crop

For all crop kinds, weed species classified in the *Weed Seeds Order, 2016* as Class 1 Prohibited Noxious weeds are reported by frequency.

Inspected crop kind	Weeds to report in counts	Weeds to report by frequency
bromegrass	none	couchgrass downy brome
buckwheat	none	Tartarian buckwheat
canola/rapeseed carinata mustard radish	cleavers (bedstraw) wild mustard	none
fescue needlegrass ryegrass wheatgrass (other than green wheatgrass) wild rye	none	couchgrass
industrial hemp	broomrape ( <i>Orobanche spp.</i> )	none
oats	none	wild oats
timothy	none	ox-eye daisy

## **Appendix VIII: Recommended procedures for sampling plants or plant parts for laboratory variety identification**

While counting, describing and recording the presence of suspected deviant plants during seed crop inspection, there may be a need to confirm if they are off-types or variants. Only submit samples when laboratory confirmation is required.

The ASCIS may provide samples collected by an LSCI to their local CFIA office for submission to the Seed Science Unit of the Ottawa Plant Laboratory (OPL) - Fallowfield.

Entire plants should be sampled, including the roots. At the very least, heads or panicles including the culm and upper node of cereal crops should be sampled. When collecting and packaging plants care should be taken to cause as little damage to the plants as possible. Avoid folding the plants and send the plants in tall/long boxes so that plants will not need to be folded or bent. In order to maintain the integrity of the sample, each type of suspicious plant should be packaged separately from the sample of the norm of the variety; each package should be accurately labelled.

Soybean and bean plants should be individually wrapped in paper or plastic bags (if the plants are dry enough). In the case of corn, 1 main ear from the suspected deviant plant may be harvested.

Photographs of normal and deviant forage/grasses plants may be used as a complement with the submitted plants to help indicate differences. Where possible, the roots of deviant grass/legume plants should be dug up with the entire plant for submission; the roots should be wrapped in a plastic bag.

If there is more than 1 type of deviant plant that requires laboratory verification, the inspector should submit samples of each, providing that they are kept separate.

The seed crop inspector should collect 5 or 6 suspected deviant plants of each type as well as 5 or 6 plants from the normal bulk of the variety. Package each group of deviant plants and the normal bulk plants in a separate envelope or paper bag. The normal bulk plants are to be labelled as NB (normal bulk). There must be a clear link from the sample to the suspect plant off-type description on the crop inspection report. For example, off-type A and off-type B are noted on the report and the bags are labelled with A and B to correspond. The inspector can attach a statement to explain if needed.

LSCI should provide the samples to their lead inspector who will deliver or mail them to the local CFIA office for submission to the OPL. If the local CFIA office determines that the plants do not need to be sent to the OPL, the CFIA inspector will submit a notification to inform CSGA via Seedcert.

CFIA seed crop inspectors may submit samples directly to the OPL and must include a Laboratory Sample Tracking System (LSTS) form and a copy of the crop inspection report



giving a brief description of the characteristics of the off-types. The sample code to be used is VV-IDS and the analysis type is marked as "purity of variety" (POV). The CFIA seed crop inspector's name and number must be included in the request. In addition, the sequence number should be noted under the lot number as "sequence XXXXX". A normal bulk plant sample must be accompanied by a separate LSTS submission sheet with a unique CFIA sample number. If more than 1 group of deviant plants is submitted, each group must be submitted under a separate unique sample number and a separate LSTS submission form included with the plants. Again, there must be a clear link from the off-type descriptions on the crop inspection report to the sample bags to the LSTS forms.

For samples taken because the characteristics observed in the field appeared different than those listed in the variety description as described in section 4.2, submit only 1 group of 5 or 6 plants. The sample code to be used is VV-IDS and the analysis type is marked as "variety description verification" (VDV). Explain the reason for sampling and include comments to indicate what characteristics were observed to be different. If a CFIA office has received multiple samples from different fields with the same issue, contact [cfia.seeds-science-science@inspection.gc.ca](mailto:cfia.seeds-science@inspection.gc.ca) before submitting. Duplicate submissions of the same variety may not be analyzed.

The inspector must indicate that samples have been taken by answering the question "Was a sample taken of this production for analysis?" on the Seed Crop Inspection Report.

The samples are shipped by the CFIA via Canada Post or courier, to:

**Seed Science Unit  
Ottawa Plant Laboratory (Fallowfield)  
3851 Fallowfield Rd.  
Building No. 210, Nepean, Ontario K2J 4S1**

When submitting samples of varieties not registered in Canada for variety verification testing, the seed crop inspector is asked to include a copy of the variety description with the sample.

Include the fax number or email address to which the results should be sent.

Some off-types may be confirmed on the basis of morphological characteristics while others may require other laboratory tests which could delay the lab's response. The test results are forwarded from the CFIA laboratory to the CSGA, Seed Section and the submitting local CFIA office. The local CFIA office is responsible for communicating the test results to the grower and to the ASCIS supervising the LSCI who submitted the sample. The template letter (accessible only on the Government of Canada network – RDIMS 15782531) is recommended.

For varietal identification issues involving industrial hemp, plant samples must not be taken. Instead, digital pictures can be submitted to the OPL via email to [cfia.seeds-science-science@inspection.gc.ca](mailto:cfia.seeds-science@inspection.gc.ca). The digital pictures submitted must show plants which conform to the norm of the variety along with pictures of the suspected off-types. A light coloured background is ideal and it is better to avoid taking the picture in the sunlight if it creates

a shadow. Seed crop inspectors should submit pictures of whole plants or the upper half of the plants, a close-up of the stalk (stem), leaves and flowers. Each picture has to be identified with the variety name. The seed crop inspector should provide detailed plant morphological observations of the norm of the variety and the suspected off-types and the frequency of off-types. If there is anything notable about the environment it should also be indicated (for example, water accumulation in some parts of the fields, frost, possible border effect, etc.).