



Specific work instructions (SWI 142.1.2-1): Corn seed crop inspection procedures

The purpose of pedigreed seed crop inspection is to provide an unbiased inspection and complete a Seed Corn Crop Inspection Report for the Canadian Seed Growers' Association (CSGA) on the isolation, condition and purity of the crop. It is the seed crop inspector's responsibility to describe the crop as observed at the time of inspection.

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1.0 Scope

This SWI outlines the procedures that a seed crop inspector will follow in inspecting corn seed crops for pedigreed seed status. The seed crop inspection program provides confidence that seed crops grown for pedigreed status meet the requirements for varietal purity and crop standards as specified by the CSGA's [Canadian Regulations and Procedures for Pedigreed Seed Crop Production](#) (Circular 6).

2.0 References

The publications referred to in the development of this SWI are those identified in [Seed Program Regulatory Authority \(SPRA\) 101 – Definitions, acronyms and references for the seed program](#).

3.0 Definitions, abbreviations and acronyms

For the purposes of this SWI the definitions, abbreviations and acronyms given in SPRA 101 and the following apply:

Affected area

The area of the seed field that is affected by contaminating pollen.

Border rows

Rows of plants surrounding the seed field; the rows are planted with seed of the male parental line and used to provide protection to the plants of the female parental line from possible adjacent contaminating sources. The border rows are usually removed prior to harvest.

Contaminating corn

Shedding corn within the isolation distance that is a contaminating pollen source to the inspected field. Includes shedding planted corn crops, shedding volunteer corn in adjacent fields, shedding females in seed corn fields, and shedding males of different varieties in seed corn fields.

Detailed inspection

An inspection conducted during the pollination period where counts are performed.

De-tasseling

The removal of the tassel or pollen producing organ at the top of a corn plant before pollen is shed.

Female parental line

Inbred line whose flowers are fertilized by the male parental line during the production of hybrid corn and the seed harvested, conditioned and sold as hybrid seed; either does not produce viable pollen or the anthers are removed before pollen shed.

Hybrid corn seed

Seed that is the result of intentionally crossing 2 genetically different inbred parental lines of corn plants (hybridization) to produce a variety. The 2 genetically different inbred parental lines consist of a male parental line and a female parental line.

Inbred corn seed

Seed that is produced by the self-pollination of a corn plant. Inbred corn seed is used to produce hybrid corn seed.

Isolation Distance

The distance required, according to Circular 6, between the inspected seed corn crop and a contaminating pollen source (contaminating corn).

Male-female planting pattern

Blocks of plants of the male and female parental lines may be produced in separate fields, separate blocks in the same field, or alternated according to a defined pattern in the same field.

Male parental line

The inbred line used as a pollen source for the fertilization of the female parental line during the production of hybrid corn; the plants of the male parental line are usually removed prior to harvest.

Orientation visit

Conducted by the seed crop inspector to locate his/her fields; match the information from the application form and field map with the field site; verify isolation distances to planted corn crops and other seed corn fields; and assess maturity of the seed field for planning the detailed inspections.

Planted corn crops

Any sweet corn or commercial corn planted within the required isolation distance of the field. Includes sweet corn patches in residential gardens. Does not include volunteer corn or seed corn fields.

Planting error

Errors such as misuse of seed stocks, a mixture of seed stocks and plants of the female parental line in border rows or headland rows of plants of the male parental line.

Pollination

When pollen is transported from an anther to a stigma (from the tassel to the silks, in the case of corn).

Pollination period

Period of time when at least 5% of the plants of the corn female parental line have receptive silks present.

Pollination uniformity

The uniform dispersal of pollen over the desired area of a field; depends on factors such as uniform soil topography, soil type, drainage, moisture, temperature, planting dates and seedling vigour.

Shedding tassel

Includes tassels on sucker plants and/or portions of tassels on the main plants when 5 cm (2 in) or more of the central stem and/or side branches of the tassel have anthers extended from the glumes and are shedding pollen.

Silk

The long, slender part of the pistil of the female flower; the pollen received at the stigma (the terminal end of the pistil) is conducted down the silk to the ovary which develops into the seed.

Tassel

The male, pollen producing flowers of corn, growing from the top of the corn plant.

Volunteer corn plants

Corn plants that appear in the current year that are produced from seed from a previous year's planting, or an earlier planting of corn in the current year in the corn seed crop being inspected.

Volunteer corn on corn inspection

When corn is planted following a corn crop in the same field in the previous year or replanted in the same field in the current year, an inspection to observe volunteer corn plants in the seed crop intended for certification.

4.0 Inspection procedures

General inspection procedures applicable to all pedigreed seed crops are described in [SWI 142.1.1 – Pedigreed Seed Crop Inspection](#). Inspection procedures specific to corn inspection are provided in the following sections.

4.1 Inspection requirements for seed crops of hybrid and inbred corn

4.1.1 Seed source verification

Growers of hybrid crops are required to identify and verify to CSGA, at the time of application for seed crop inspection, the pedigreed status of the parent seed planted (usually with copies of Foundation tags or with Foundation crop certificates). Therefore, for hybrid corn seed crops, seed crop inspectors do **not** need to check parent seed tags unless directed to do so by the CSGA.

4.1.2 Assessment of application

In addition to the standard application information, the application for inspection of a hybrid or inbred corn seed crop should include:

- a company name as a contract grower's name
- information for each parental line (for example, variety name, acres planted, date sown, row spacing, planting ratios and pattern, plant population and direction of planting)
- whether the female parental line is sterile or fertile
- acreage of corn re-planted in the current year (if applicable)
- whether the seed is destined for the Organisation for Economic Cooperation and Development (OECD) sealing or not
- a field map that indicates:
 - the area planted in corn the previous year or replanted to corn in the current year
 - the description (sweet corn, popcorn, seed corn) of other corn crops within the required isolation distance of the seed field
 - the distance in feet or metres to any planted corn crops and any other seed corn fields
 - the designated entrance of seed field
 - number and location of border rows if present

The seed crop inspector must check the application for previous land use and the potential for volunteer corn plants. If any part of the field was planted in corn in the previous year or re-planted in the current year a volunteer corn inspection is required by the crop inspector.

4.1.3 Description of the variety

The descriptions of variety (DoVs) for the parental lines should be referenced prior to conducting the inspections and can be obtained from CSGA or directly from the company growing the seed.

4.1.4 Field orientation

Whenever practical, the seed crop inspector should conduct an orientation visit to the field before 5% of the female plants have receptive silks, that is, before the first detailed inspection. If the application for seed crop inspection indicates that the seed being produced is intended for export certification pursuant to the OECD Seed Schemes, then the orientation visit **must** be conducted before 5% of the silks are receptive. During this visit, the seed crop inspector should:

- confirm the information from the application form and field map, such as planting pattern, number of border rows (if present), distances to planted corn crops and other seed corn fields, and posted pesticide application information at the designated entrance
- note the presence of any volunteer corn within the required isolation distance
- assess the maturity of the field in order to estimate when the first detailed inspection will need to take place

Where this is not practical, the orientation must be conducted at the time of the first detailed inspection.

Isolation distances are measured from the contamination source to the closest seed producing plant in the seed field. Where insufficient isolation is present, the field must be closely monitored to capture any contamination issues that may occur.

All field map corrections (for example, identification of and distances to planted corn crops) must be made and an updated map uploaded into SeedCert.

4.1.5 Volunteer corn on corn inspection

The volunteer corn on corn inspection is a separate inspection that occurs early in the season when the plants are well emerged (for example, more than 50 cm tall). It must be conducted on fields (or sections of fields) that were planted in corn last season or re-planted in the current season. Its purpose is to verify the seed corn crop's freedom from volunteer corn plants. The seed crop inspector must note any volunteer corn plants growing between the rows. The volunteer plant standard is based on the number of plants present immediately prior to detasselling or the commencement of the pollination period. If volunteer plants are present and the inspector deems them to be at or close to the allowable standard, official counts must be conducted. 10 counts of 200 plants (male or female parental line plants can be used for the base plant count) must be conducted and the number of volunteer corn plants found reported. If the volunteer plants are found to be over the standard a Non-Conformance Report must be completed. If volunteer plants

are present but not over the standard the inspector must note the number and location of the plants and monitor them closely during the pollination period (if still present) to capture any contamination issues that may occur. If this inspection cannot be completed prior, it must be completed during the first detailed inspection.

4.1.6 Conducting the inspection

Detailed inspections are carried out to collect information on the seed field during the pollination period to show that the plants that will be harvested for seed were not contaminated by unwanted pollen and that there were no off-types present.

A minimum of 3 detailed inspections must be conducted during the pollination period for both inbred and hybrid seed corn. Additional inspections may be required for volunteer corn, verification of correction of isolation, or other purposes. There must be greater than 5% receptive silks present on the seed producing plants for the field to be considered within the pollination period. The actual length of time when the silks are receptive (pollination period) in any one crop is variable; it may be less than 1 week or it may be spread over a 3 week period.

Detailed inspections should be conducted at least 48 hours apart. There are some situations where a shorter interval is necessary, for example, if the percentage of receptive silks jumps significantly due to hot weather or if there is a concern about contamination that needs to be closely monitored. The inspector must include a comment on the report to indicate why a shorter interval was used.

Any field visit where counts are taken should be recorded as a detailed inspection. If counts are not taken, observations from the visit should be recorded in the comments of the next detailed inspection.

Special consideration must be made at the onset of the pollination period where the majority of the field may not have 5% receptive silks, but specific areas of the field do. These are known as "hot spots" and may appear in areas where the corn plants experience higher amounts of heat and humidity (for example, around bush areas, tree lines, buildings and rivers). These hot spots may be affected by contaminating pollen even before the rest of the field is in the pollination period. If this occurs a Non-Conformance Report must be completed (see 4.1.7).

All planted corn crops (commercial corn and sweet corn) within the isolation distance, whether this corn is shedding or not, must be monitored and reported on throughout the pollination period. Seed corn and volunteer corn in adjacent fields must be monitored, but only needs to be included on the report if shedding contaminating pollen. The location of the contaminating corn and distance to the closest female plant in the inspected seed field must be shown on the field map.

Determining when to stop monitoring a field is very situational. If there is potential for contamination the inspector must conduct additional inspection visits until the contamination threat is no longer present. If additional visits are required for the inspector to be confident of this, comments should be made in the "Comments" section of the last detailed inspection

indicating the date and findings of the inspection. This is different than if additional inspections are required where counts are taken; this would be reported as an additional detailed inspection.

4.1.6.1 Travel patterns

The inspector selects a travel pattern to ensure the best inspection of the crop. Deviations from the selected travel pattern may be required to verify the isolation distances to contaminating corn, number and condition of border rows, detasselling of female parent plants, and possible problem areas (for example, areas of stunted growth).

It is expected that the receptive silks reported by an inspector will follow a specific progression over the detailed inspection visits; greater than 5% receptive silks at first inspection, approximately 25 to 60% at second inspection and approximately 60 to 75% at third inspection. If the receptive silks do not follow this progression and the inspector determines that this observation is a result of different travel patterns between detailed inspections, then the inspector should indicate this in the comments section on the report.

4.1.6.2 Conducting counts

Each detailed inspection consists of the seed crop inspector taking a minimum of 12 counts of 100 plants per count to measure the percentages of total silks, receptive silks, shedding tassels, off-types and shedding volunteer corn plants, as follows:

- 6 counts, of 100 plants each, of the female parental line for:
 - total number of plants with silks
 - total number of plants with receptive silks
 - total number of plants with tassels shedding pollen
 - total number of off-types (final inspection only)

and

- 6 counts, of 100 plants each, of the male parental line for:
 - total number of plants with tassels shedding pollen
 - total number of off-types with tassels shedding pollen

In determining the total number of plants with total silks and receptive silks, usually only the silk on the primary ear is counted. Second and subsequent ear shoots seldom produce an ear of desirable quality and usually only when the primary ear shoot has been removed or injured. Silks are considered to be receptive when they first emerge and as long as they are fresh or green and waxy. When fertilization has occurred the silk becomes dry, brown and lifeless. Fertilization occurs within 8-12 hours after the pollen falls on a receptive silk. Silks may remain receptive for a prolonged period awaiting the arrival of pollen.

Hybrid seed corn fields are usually planted with at least 2 different planting dates for the male parental line. This prolongs the availability of pollen and increases the likelihood of successful pollination of the female parental line. This must be taken into consideration when doing counts

in the male parental line and count locations must be chosen so that both plantings are represented in the counts.

Tassels on suckers and tassels or portions of tassels on the main stems are counted as shedding pollen when 5 cm (2 in) or more of the central stem and/or the side branches of the tassels have their anthers extended from their glumes and are shedding pollen. Tassel development is most rapid in periods of rainy weather and high temperatures. Tassel growth is more rapid at night and in the early morning when most of the pollen is produced. Pollen shedding tassels are more easily detected in the early morning as the anther filaments are not very sturdy and are quickly removed by daytime breezes.

A greater number of counts are preferred to overcome a lack of uniformity or a discrepancy between locations of counts. The seed crop inspector may vary the way that the counts are taken, but must in all cases conduct the minimum number of counts of at least the minimum total number of plants required.

When planted corn crops or contaminating corn are present within the required isolation distance, the inspector must report on the percentage of plants shedding pollen in the planted corn crops or contaminating corn and the percentage of border rows shedding pollen that are protecting the seed field from the contamination. When contaminating corn is present and the border rows are shedding at less than 10%, a Non-Conformance Report must be completed.

When counts show that the seed field is contaminated by shedding female tassels (over the standard) or adjacent contamination sources, a Non-Conformance Report must be completed (see 4.1.7).

4.1.6.3 Counts for off-types/variants and volunteer corn

Seed corn fields are intensely managed throughout the growing season but off-types/variants and volunteer corn plants can still appear.

Off-types may have 1 or more traits differing from the normal characteristics of the variety. Traits showing differences include, but are not limited to:

- brace root colour and development
- intensity of colour of various plant parts
- plant height
- presence and size of ear wings
- shape and attitude of the ears
- shape, width and overall structure of the leaf
- silk colour
- sucker plant development
- tassel structure and colour

Variants are plants that do not conform to the norm of the variety, but are considered part of the variety and described in the DoV.

Off-type/variant and volunteer corn plants are a source of contamination if they appear during the pollination period and are shedding pollen. The exception to this rule is off-types found in the female parent rows that are not shedding pollen and are present at the time of the last inspection. This is due to the fact that these plants will contaminate the seed once harvested. If off-types or volunteer corn plants are observed in the seed field but are not shedding pollen their location must be noted and the inspector must closely monitor them throughout the pollination period.

If any shedding off-types or volunteer corn plants are reported during the inspector's 6 counts for shedding male tassels, an additional 4 counts of 100 consecutive plants for shedding off-types/volunteer corn is required. This is due to the standard for shedding off-types being based on a 1000 plant count. Shedding volunteer corn plants found during the pollination period are considered off-types.

If non-shedding off-types are reported in the female rows during the last detailed inspection while the inspector is doing his/her six counts for silks and shedding female tassels, an additional four counts of 100 consecutive plants for off-types is required. This is due to the standard for off-types being based on a 1000 plant count.

When counts show that the seed field is over the standard for off-types/volunteer corn, a Non-Conformance Report must be completed.

4.1.6.4 Identifying and counting crop contaminants (shedding female tassels or off-types) outside of counts

In addition to contaminants found in the randomized counts, seed crop inspectors also report contaminants found:

- dispersed throughout the field, but coincidentally never found in the randomized counts. Any shedding female tassels or off-types 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 contaminants already noted in counts
- in localized patches within the inspected seed crop but not within the randomized counts

4.1.7 Non-Conformance Report

Non-Conformance Reports are used to record information about possible issues that could impact the pedigree of the seed field and report additional detailed counts. These issues include contaminating corn within the isolation distance, off-type counts above the standard, shedding female tassels above the standard, and any other contamination issues. The seed crop inspector must submit the Non-Conformance Report in SeedCert within 24 hours of the inspection in which the issue was found.

The Non-Conformance Report is available in SeedCert. If a different form is used to report a non-conformance, it should include all the same information requirements.

The seed crop inspector should determine the affected area and take detailed counts as follows:

- in the area of the seed field affected by the contamination:
 - 6 counts of 100 plants each to identify the number of total silks and receptive silks in the female parental line
 - 6 counts of 100 plants each to identify the number of male plants shedding pollen in the male parental line
- in the area causing the contamination:
 - 6 counts of 100 plants each to identify the extent of the contamination
- in the border rows (if contamination from adjacent sources):
 - 6 counts of 100 plants each to determine the effectiveness of the border rows

The seed crop inspector must conduct the additional detailed counts at a time when at least 5% of the female parent plants in the affected area have receptive silks. If fewer than 5% of the plants have receptive silks, the inspector should return to the field at a later date, when the minimum 5% level of receptive silks is achieved, and verify if the contaminating source is still shedding pollen and contaminating the seed field.

Where it is not possible to do the full 6 counts in the border rows, the inspector should do as many counts as practical to determine the effectiveness of the border rows.

4.1.8 Completion of the Seed Corn Crop Inspection Report

When 3 detailed inspections have been completed and detasselling is completed, the seed crop inspection can be finalized by completing the Seed Corn Crop Inspection Report (as long as there are no problems such as delayed tassel emergence in male and female rows, delayed silk emergence in female rows, correction after a detasselling problem, adjacent contaminating sources, etc.). It is not necessary to wait until the majority of female silks are starting to turn brown.

The Seed Corn Crop Inspection Report should be completed by the seed crop inspector as soon as possible after the 3 detailed inspections have been completed. Appendix II provides details on the completion of the Seed Corn Crop Inspection Report.

When completing the Seed Corn Crop Inspection Report for inbred corn inspections the "Pollen (Male) Parent" section is not completed. All the required information is captured under the "Seed (Female) Parent" section. Questions 3, 5 and 7 under the "Additional Information" are also not completed. A comment must be made in the first "Comments" box indicating this report is for an inspection of inbred corn.

The Seed Corn Crop Inspection Report must include information on:

- the date and time of each detailed inspection visit
- corrections to any inaccuracies on the field map (by attaching an updated map)
- the date and acres of the volunteer corn on corn inspection, if applicable
- report on the border rows for % tassels shedding pollen and damage (if applicable)
- distances to any planted corn crops in the isolation distance, whether shedding or not
- details regarding contaminating corn in the isolation distance
- counts for:
 - total silks
 - receptive silks
 - shedding pollen
 - tassels shedding pollen on female parental line (hybrid corn inspection)
 - contaminating corn plants with tassels shedding pollen
 - off-type and volunteer corn plants and their descriptions (male and female)

The seed crop inspector must report on factors that may affect pollination of the field in the "Comments" sections of the form (for example, uniformity of stand of the plants, uneven maturity and disease pressure).

The Seed Corn Crop Inspection Report requires the inspector to report the direction and field shed (%) of the sources of contamination. When reporting this information for smaller areas of contamination, such as shedding volunteer corn or a sweet corn garden patch, the inspector must also provide comments to clarify the number of plants that were shedding. For example, the inspector finds 10 volunteer corn plants within the required isolation distance north of the seed field. 8 are shedding and 2 are not shedding. The report is completed as follows:

Sources of Contamination

Direction	Field Shed (%)
North	80

Comments: 80% field shed of volunteer corn north of seed field is based on 8 shedding volunteer corn plants out of a total of 10 volunteer corn plants found.

If corrections/additions are required on the individual field map or application, a new updated map/application must be attached to the Seed Corn Crop Inspection Report using the "Upload Modified Maps/Applications" button.

The completed Seed Corn Crop Inspection Report is available to all parties involved through the CSGA's SeedCert System.

Appendix II details how to complete the Seed Corn Crop Inspection Report.

Table 1: Summary of reporting requirements for corn within the required isolation distance

Corn within the required isolation distance	Report section: Is there any commercial corn or sweet corn crops planted within the required isolation distance?	Report section: Distance to planted corn crop(s)	Report section: % shed of any commercial corn, sweet corn, volunteer corn (in adjacent fields) or adjacent seed corn fields (Detailed Inspection Visits)	Map
Planted commercial corn and/or sweet corn fields (including garden patches)	Always report	Always report	Always report	Always show location and distance to closest female in the inspected seed field
Seed corn fields	Don't report	Don't report	Only report if females are shedding and/or males are a different variety and are shedding	Always show location and distance to closest female in the inspected seed field
Volunteer corn outside the inspected field	Don't report	Don't report	Only report if shedding	Only include if shedding

4.2 Specific inspection requirements for open-pollinated corn seed crops

Open-pollinated corn requires only 1 inspection during the growing season. This is done at the time when the silks are receptive to determine whether isolation has been provided in accordance with the CSGA standards and whether there are any detectable off-type plants. The minimum number of counts to be taken is 6. The count area is 2000 plants.

Isolation distances may be modified by designating certain rows of the same variety (known as border rows) for pollen shedding purposes only. Refer to the minimum isolation and border row requirements in the open-pollinated corn section of Circular 6. Rows that function to provide isolation shall not be harvested for seed purposes.

Additional inspections may be required to determine the freedom of the seed crop from volunteer corn and to monitor contamination situations. If required, inspections for volunteer corn are to be conducted early in the season, before the detailed inspection and when the crop is well emerged (more than 50 cm tall).

4.2.1 Reporting inspection of open-pollinated corn

When inspecting open-pollinated corn, the seed crop inspector must complete the standard Seed Crop Inspection Report available from CSGA through SeedCert. Non-Conformance Reports are not used.

Appendices

Appendix I: Seed Corn Crop Inspection Report

CSGA provides each ASCIS with a unique link to the Seed Corn Crop Inspection Report in SeedCert.

Appendix II: Completing the Seed Corn Crop Inspection Report

Enter "Account Number" and "Sequence Number" for the inspected field and click "Search". The "Field ID", "Acres", "Variety" and "Kind" will auto populate.

Isolation verification

Complete the section "Is there any commercial corn or sweet corn crops planted within the required isolation distance?" by choosing Yes or No from the drop down for each direction.

Complete the section "Distance to planted corn crop(s)" by reporting the number of border rows and the distance in metres for each of the 4 directions. For example, if the answer was Yes for the North isolation, report the distance in metres to the planted corn crop(s) for the North isolation.

The number of border rows must always be reported. If there are no planted corn crop(s) within the isolation distance, leave the "Distance" box blank. If directions such as NE, NW, SE and SW must be reported click the "Add" button, choose the appropriate direction and report the necessary information.

Comments

Provide further details on any planted corn crops that have been reported in the previous sections of the report. For example, "Garden patch of approximately 25 plants of sweet corn in West isolation." Comments can also be added related to border rows. For example, "A gap of 30 m with no border rows exists in the East isolation."

1st Inspection

Complete the "Inspection Date" by clicking on the calendar and choosing the appropriate date that the inspection was completed.

Complete the "Time In" and "Time Out" by choosing the appropriate time from the drop-down list.

Complete "# of Counts". This auto populates the "Total Plants" and some of the other cells below. The "Plant Count" cell cannot be changed.

Seed (Female) Parent

Complete "# of Silks", "# of Receptive Silks" and "# of Shedding Tassels". The % for each is auto-populated.

Pollen (Male) Parent

Complete "# of Shedding Tassels" and "# of Shedding Off-types". The % for each is auto-populated. The "% Shedding Off-types" is based on 1,000 total plants.

Border Rows

If there are planted corn crops or contaminating corn present in the required isolation distance complete the "Direction" and "Border Row Shed (%)" for each applicable direction. Additional directions can be added by clicking "Add" and choosing the applicable direction.

% Shed of any commercial corn, sweet corn, volunteer corn (in adjacent fields) and/or adjacent seed corn fields

If there are planted corn crops or contaminating corn present in the required isolation distance complete the "Direction" and "Field Shed (%)" for the applicable direction. Additional directions can be added by clicking "Add" and choosing the applicable direction. If there are no sources of contamination present in the required isolation distance; choose N/A from the drop down menu in the "Direction" cell.

Comments

Comments can be added to further explain the findings of the first inspection. Examples of comments include: "Volunteer corn plants in north isolation removed." "Tassels removed from sweet corn patch in west isolation."

2nd Inspection

The "2nd Inspection" section is accessed by clicking on the down arrow on the right side of the report. The procedure for completing this section of the report is the same that was used for completing the "1st Inspection" section of the report.

3rd Inspection

The "3rd Inspection" section is accessed by clicking on the down arrow on the right side of the report. The procedure for completing this section of the report is the same as the first and second inspections except that in the "Seed (Female) Parent" section, the "# of Off-Types" is also reported.

4th Inspection

If necessary a "4th Inspection" section can be completed by clicking on the down arrow on the right side of the report.

Additional Information

Answer the questions in the "Additional Information" section of the report. The answers to some of the questions may prompt an additional question requesting more information.

Respond to the checkbox stating "I have confirmed that there is no remaining contamination threat present for this field and no further inspections are required."

1) "Are there inaccuracies with the map and/or the information on the application?"

If Yes is answered for this question, another question appears asking "Have corrections been noted on map and/or application?" Choose Yes or No.

2) "Is a Volunteer Corn on Corn Inspection required?"

If Yes is answered for this question the "Acres Involved" and the "Date Inspected" must be completed. Answer Yes or No to the question "Were plants removed prior to pollination?" If No is answered for this question, the "Date" and the "Percentage" of volunteer corn plants must be reported.

3) "Were all off-types and/or rogues removed from pollen (male) parent rows?"

If No is answered for this question, details must be provided with the description of the off-type and % found.

4) "Were all off-types and/or rogues removed from seed (female) parent rows?"

If No is answered for this question, details must be provided with the description of the off-type and % found.

5a) "Did pollen parent rows shed pollen when the seed parent rows were receptive?"

If No is answered for this question, details must be provided describing the situation. For example, "Pollen parent rows were done shedding prior to seed parent rows having receptive silk."

5b) "Did border rows shed pollen simultaneously with silk emergence of the seed (female) parent rows?"

There are 3 options for answers to this question: Yes, No and N/A. N/A is used when there are no border rows present or when the border rows present weren't necessary because the field met

CSGA standards. If No is answered details must be provided describing the situation. For example, "Seed parent rows were no longer receptive when border rows started shedding."

6) "Is the field affected by contaminating pollen from adjacent fields?"

If Yes is answered, details must be provided describing the situation. If a Non-Conformance Report was created, enter "Refer to Non-Conformance Report for this field".

7) "Was the field affected by detasseling irregularities?"

If Yes is answered, details must be provided describing the situation. If a Non-Conformance Report was created, enter "Refer to Non-Conformance Report for this field".

8) "Has a non-conformance report been completed for this field?"

If Yes is answered, respond to the next question: "Has another inspection or field visit been conducted within 48 hours?" If Yes, details must be provided describing any field cleanup activities or other corrective actions. If No, explain why there was no inspection or field visit conducted within 48 hours.

Additional Support Documentation

If modifications were required to the original application and map they can be uploaded to CSGA by clicking the upload button under "Upload Modified Maps/Applications".

Inspector information

Type your inspector number in the "Inspector Number" cell. Press tab and the "Inspector Name" and "Inspection Service" are auto populated.

Complete the "Date Completed" cell by clicking on the calendar and choosing the date the report was completed. The report can then be submitted to CSGA or saved as a draft. The "Save as Draft" option prompts you to provide an email address and password. The report is emailed to you for completion and submission at a later date.

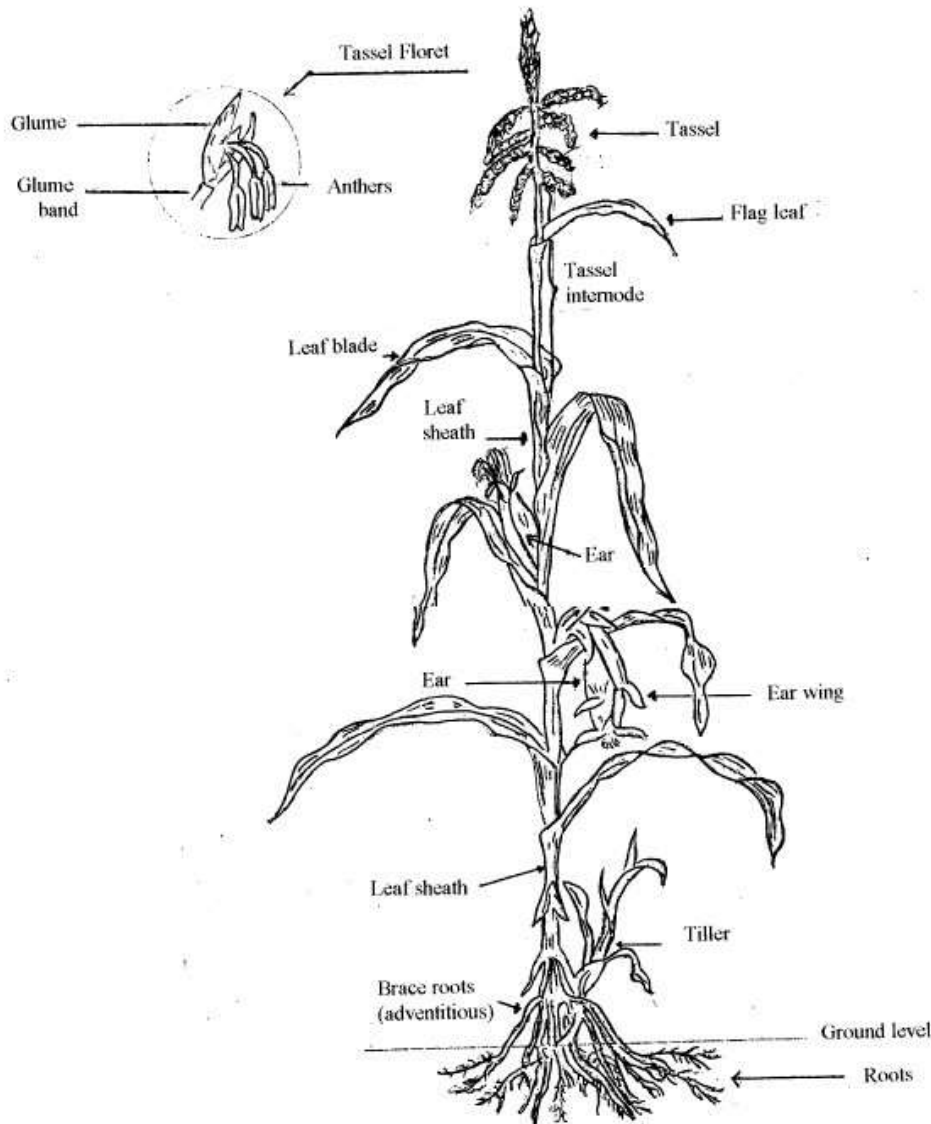
Appendix III: Corn Non-Conformance Report

Inspectors can access the Corn Non-Conformance Report in SeedCert.

Appendix IV: Corn traits

Unlike most other crop kinds, the reproductive structures in corn are housed on different parts of the same plant. The male organ, the tassel, which produces pollen, is located at the top of the plant. The female organs, the ears, are located in the leaf axils and produce the kernels which are the seed. If the silks are in a receptive condition, they accept the pollen and direct it to the ovaries where the embryo kernels are produced. Corn is wind pollinated. Both cross- and self-fertilization may be possible when both organs are present and functional on the plant.

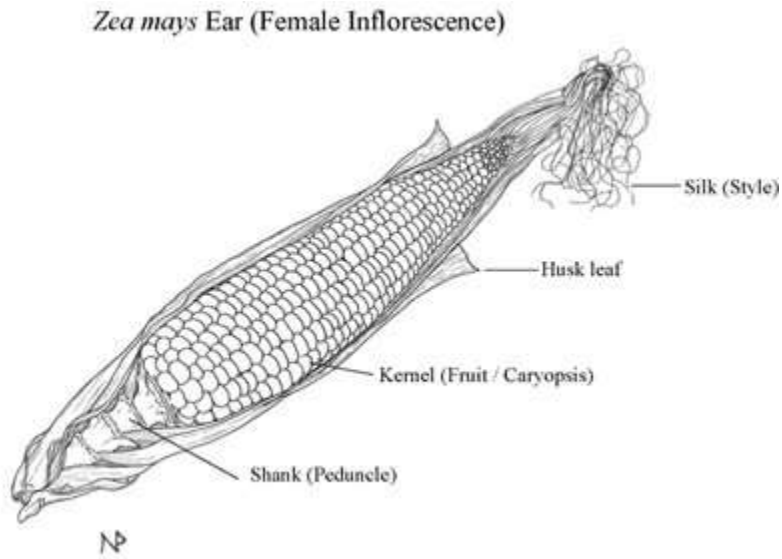
Corn plant with tassel floret diagram



Description of diagram of corn plant with tassel floret diagram insert:

A full corn plant is depicted including the roots at ground level, the brace roots (adventitious), tiller, leaf sheath, ear, ear wing, leaf blade, tassel internode, flag leaf, and tassel. An inset diagram details the tassel floret including the glume, glume band and the anthers.

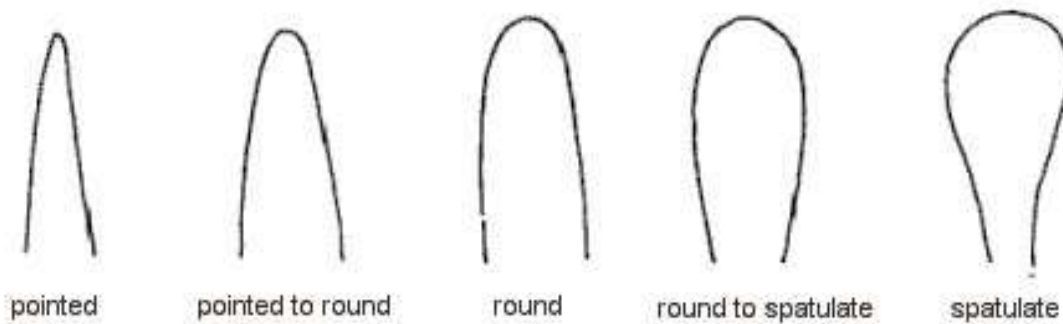
Corn ear detail



Description of diagram of Corn ear:

The whole, mature *zea mays* ear (female inflorescence) is depicted showing the shank (peduncle), kernels (fruit/caryopsis), husk leaf and the silk (style).

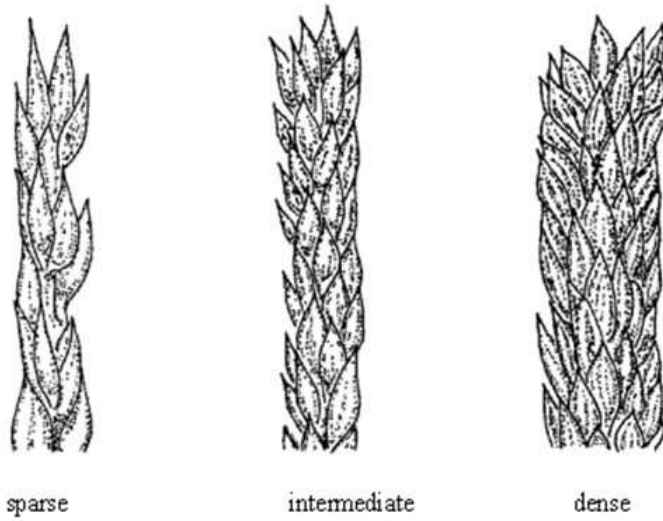
First leaf: shape of tips



Description of diagram of first leaf: shape of tips:

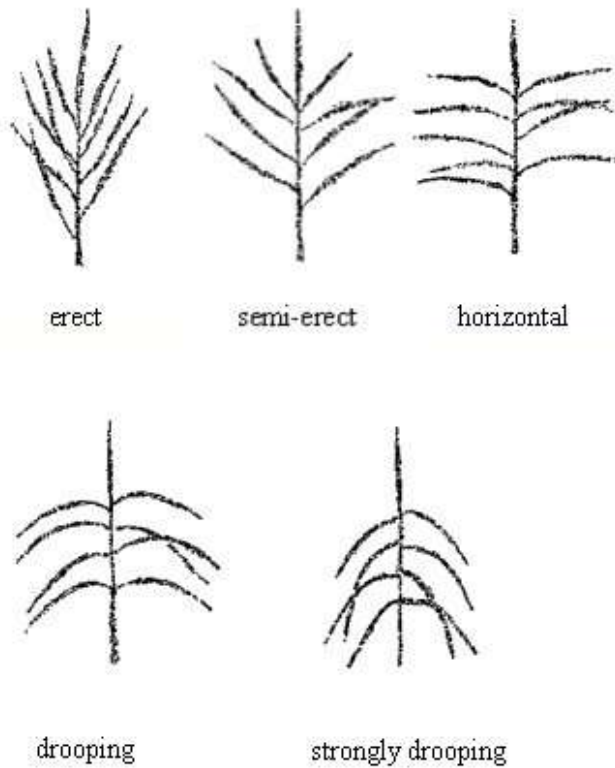
5 leaf tips are depicted: pointed, pointed to round, round, round to spatulate and spatulate.

Corn tassel: density of main axis



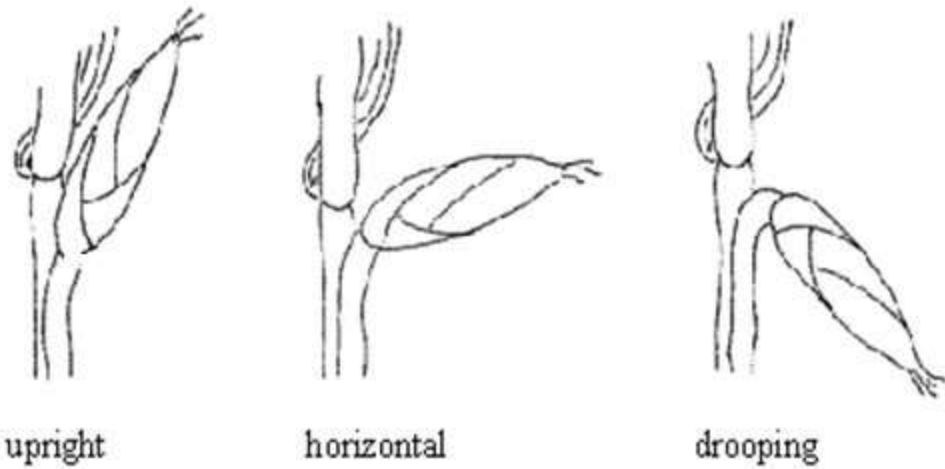
Description of diagram of Corn tassel: density of main axis:
3 tassels are depicted: sparse, intermediate and dense.

Corn tassel: attitude of lateral tassel branches



Description of diagram of tassel: attitude of lateral tassel branches:
5 tassel branches are depicted: erect, semi-erect, horizontal, drooping and strongly drooping.

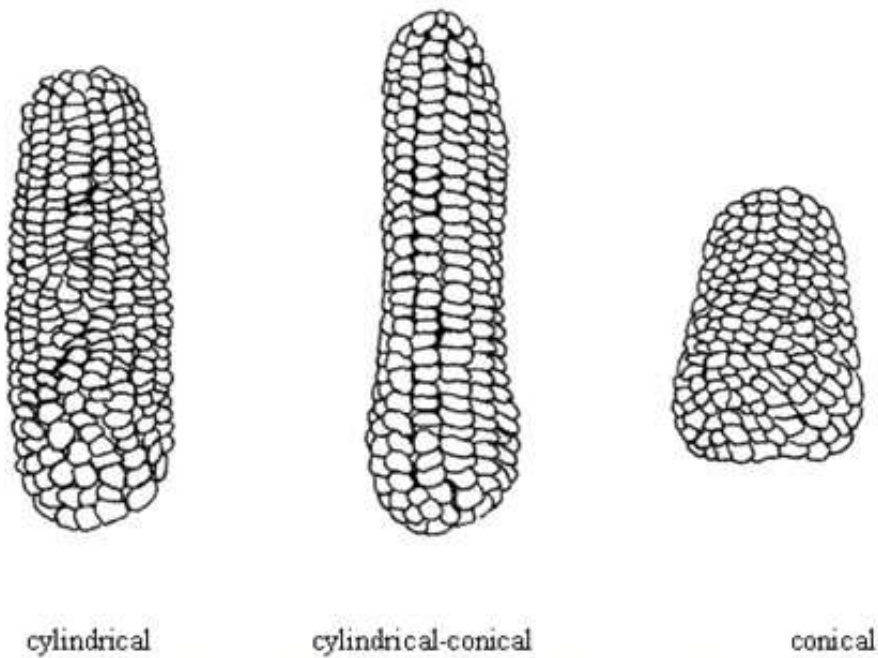
Corn ear attitude



Description of diagram of corn ear attitude:

3 stems are depicted with ears attached in different attitudes - upright, horizontal and drooping.

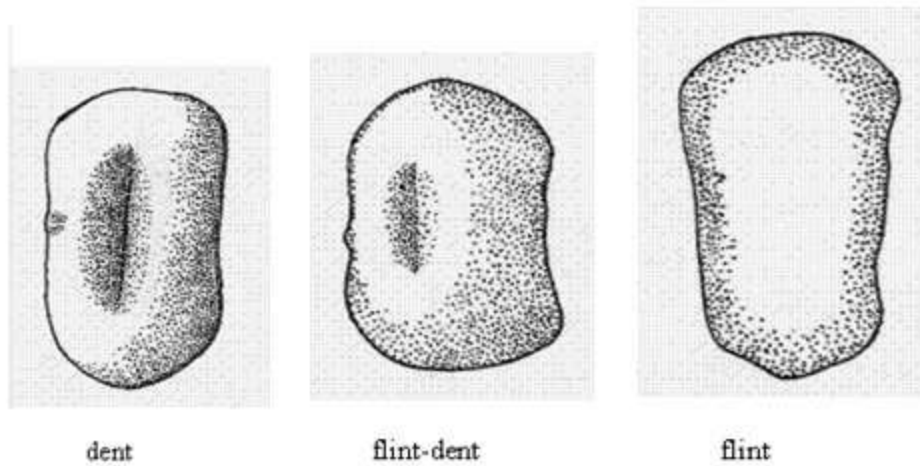
Corn ear shape



Description of diagram of corn ear shape:

3 ears are depicted - cylindrical, cylindrical-conical and conical.

Corn kernel shape



Description of diagram of corn kernel shape:
3 kernels are depicted: dent, flint-dent, and flint.

Appendix V: Description of seed corn production

Hybrid corn seed is the result of crossing 2 genetically different inbred parental lines. Pollination by the same plant (self) or by other plants of the female line (sibling, sib) must be prevented. Pollination by other than the male parent is prevented by the use of isolation distances and/or border rows and the removal of volunteers and off-types. Male and female plants are interplanted in rows or bays (blocks). The proportion of male to female plants is designed to result in the maximum pollination of the line used as the female parent.

Commonly, the plants of the female lines are completely de-tasseled to prevent self or sibling pollination leaving only the male plants to shed pollen. The male plants are removed following pollination. Cytoplasmic male sterility in the female line results in plants that do not produce viable pollen. Some forms of cytoplasmic male sterility will break down and fail to function completely under some environmental conditions. In these cases, incompletely sterile tassels will need to be removed from the female plants.

In contrast to hybrid corn seed production, inbred corn seed production is dependent on complete self-fertilization. In large scale production of inbred lines, the crop must contain only plants of the specific inbred. Off-types must be accurately identified in a timely manner and removed. Breeder or Foundation status seed is produced from self-pollinated seed after the eighth or ninth generation of self-pollination (inbreeding). Inbred lines are often stunted and less vigorous.

Appendix VI: Additional responsibilities of the ASCIS

Hybrid and inbred seed corn inspection procedures are significantly different than inspection procedures of other crop kinds. Due to this, monitoring of Licensed Seed Crop Inspectors (LSCIs) by CFIA is significantly different as well and as such there are additional responsibilities placed on the ASCIS. These additional responsibilities are as follows:

- The ASCIS must provide a list of which seed corn fields have been assigned to which LSCI to their local CFIA office on or before June 30 of the year the inspections are to occur
- The ASCIS must ensure that overlay maps showing the location of each of the seed corn fields they are responsible for inspecting are submitted in SeedCert before June 30 of the year the inspections are to occur
- The ASCIS must ensure that individual field maps for each of the seed corn fields they are responsible for inspecting are submitted in SeedCert on or before June 30 of the year the inspections are to occur. These field maps must contain the required information set out in section 4.1.2

If any of the above deadlines cannot be met, the ASCIS must contact the CFIA lead to inform them of the reason for the delay.

The ASCIS should recommend to the grower that the map shows a designated entrance to the seed field which has posted pesticide application information.