
SECTION 4

CERTIFIED PRODUCTION OF CANOLA, MUSTARD, RADISH, AND RAPESEED

In this Section:

- **Canola** and **Rapeseed** includes spring and winter varieties of *Brassica napus*, *Brassica rapa*, and canola-quality *Brassica juncea*.
- **Mustard** includes varieties of Brown or Oriental types (*Brassica juncea*), White/Yellow types (*Sinapis alba*) and Ethiopian types (*Brassica carinata*).
- **Radish** includes varieties of *Raphanus sativus*.
- Composite varieties have descriptions that confirm they are not hybrids and that at least 70% of progeny result from crossing of the parent lines.

Section 1, *Regulations for All Pedigreed Seed Crops*, together with the following, constitute the production regulations.

4.1 SEED CLASSES AND GENERATIONS

- 4.1.1 Breeder: controlled by Breeder. No generation limit.
- 4.1.2 Select Synthetic: a physical blend of specific proportions of seed harvested from Breeder or Foundation plots used in the production of Certified seed crops of composite varieties. Crops sown with Synthetic Select Canola/Rapeseed are for Certified status only.
- 4.1.3 Foundation: one generation, grown by accredited Foundation plot growers. Refer to Section 13.
- 4.1.4 Certified: one generation.
- 4.1.5 For Certified Hybrid Canola and Certified Hybrid Rapeseed crops, refer to Section 5.
- 4.1.6 For growers not accredited to grow Foundation plots and who plant crops with Breeder seed, the CSGA reserves the right to determine the status of the inspected crop and may issue a Certified crop certificate.
- 4.1.7 The direction of the cross of a composite variety must remain unchanged throughout certification unless adequate data, which verifies that parentage reversal does not change distinguishing characteristics or performance, are provided to the authority responsible for certification eligibility recognition.

4.2 LAND REQUIREMENTS

- 4.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

4.2.2 Status granted to crops determined by previous crop

- a) Crops for Certified status must not be grown on land which in the preceding 3 years produced a crop of Canola, Mustard, Radish, or Rapeseed.
- b) Crops for Certified status may be grown on land which in the preceding 3 years produced a plot of the same variety that was granted Foundation status.

4.3 CROP INSPECTION

The basic standards for all crops are set out in Section 1.7. In addition, the following apply to crops in this section.

- 4.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.
- 4.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.
- 4.3.3 Inspection must be made when the crop is in the early flowering stage as this is the stage when varietal purity is best determined. Crops not inspected at the proper stage for best determining varietal purity may be cause for declining pedigreed status.

4.4 CROP STANDARDS**4.4.1 Isolation for All Crops in this Section**

- a) Under optimum conditions, not more than 3 plants per square meter of harmful contaminants (such as species in Section 4.5.4 that can cross-pollinate with the inspected crop) are permitted within the required isolation distance(s) adjacent to the inspected crops. The conditions of each crop are assessed by the CSGA which may alter this standard, usually by reducing the number of contaminant plants permitted per square meter, according to the contamination risks involved.
- b) Harmful contamination within the required isolation distance, depending on density, location and distance from the inspected crop, may be cause for declining pedigreed status. Harmful contaminants for crop certification include the species in Section 4.5.4. More information on other potential harmful contaminants, that are not crop certification requirements, is available from the CFIA's Biology reference documents at: www.inspection.gc.ca.
- c) The required isolation must be provided prior to the time of flowering and crop inspection.

Table 4.4.2: Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Canola or Rapeseed –except canola-quality <i>Brassica juncea</i>	-Different varieties of Canola or Rapeseed -Non-pedigreed Canola or Rapeseed -Brown or Oriental or Ethiopian Mustard	100 meters (328 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
	-White/Yellow Mustard - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
Brown or Oriental Mustard and canola-quality <i>Brassica juncea</i>	-Different varieties of Brassica crop species -Non-pedigreed Brassica crop species	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination, i.e. other species which can cross pollinate with the inspected crop.
	-White/Yellow or Ethiopian Mustard - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
White/Yellow Mustard	-Different varieties of White/Yellow Mustard -Non-pedigreed White/Yellow Mustard	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species which can cross pollinate with the inspected crop).
	-Canola, Brown or Oriental or Ethiopian Mustard -Rapeseed - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).

Table 4.4.2 (continued):
Minimum Isolation Distances Required from an Inspected Crop to Other Crops

Inspected Crop	Other Crops	Isolation Distance Required
Radish	-Different varieties of Radish -Non-pedigreed Radish	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species which can cross pollinate with the inspected crop)
	-Canola, Brown or Oriental, or White/Yellow or Ethiopian Mustard -Rapeseed -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).
Ethiopian Mustard	Different varieties of Brassica crop species -Non-pedigreed Brassica crop species	200 meters (656 feet)
	-Planted with Certified seed of the same variety	3 meters (10 feet), provided the pedigree of the Certified seed used can be established and that the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species which can cross pollinate with the inspected crop)
	-White/Yellow Mustard - Radish -Camelina	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from harmful contamination (i.e. other species that can cross pollinate with the inspected crop).

4.4.3 Weeds

- a) All crops for pedigree must be free of Prohibited noxious weeds.
- b) All crops for pedigree should be free of Primary noxious weeds.
- c) The presence of either Cleavers Bedstraw or Wild Mustard is cause for declining pedigreed status.
- d) Very weedy crops may be declined pedigreed status.

4.4.4 Maximum Impurity Standards

- a) Crops for pedigreed status must be practically free from plants of:
 - other varieties or distinct off-types foreign to the variety being grown;
 - other crop kinds, the seeds of which are difficult to separate from the crop presented for pedigreed status, e.g., Mustard in Canola.
- b) In Radish seed crops, impurity standards apply for plants of other *Brassica* crop species and Wild Mustard, but not for White Mustard (*Sinapis alba*).
- c) Impurities in pedigreed crops should be removed prior to crop inspection.
- d) The impurities outlined in Table 4.4.4 are the maximum levels for impurities. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

- e) Any combination of impurities may be reason for declining pedigreed status.
- f) Table 4.4.4 indicates the maximum number of plants of other varieties, off-types or other crop kinds permitted in approximately 10,000 plants of the inspected crop. The inspector makes 6 counts (10,000 plants each) in the field to determine the number of impurities. The resulting average of the 6 counts must not exceed the maximum standards in Table 4.4.4.

Table 4.4.4: Maximum Impurity Standards

Inspected Crop	Off-types/Other Varieties	Plants of harmful contaminant species (Section 4.5.4)
Canola, Rapeseed, Mustard and Radish	1.5	1

4.5 SPECIFIC REQUIREMENTS

- 4.5.1 It is recommended that not more than one variety or crop kind of Canola, Mustard, Radish, or Rapeseed be grown under the management of one grower.
- 4.5.2 The CSGA may require seed test results from a recognized laboratory, indicating a satisfactory erucic acid and/or glucosinolate content, before a crop certificate is issued.
- 4.5.3 Composite varieties are subject to hybridity seed testing requirements of Section 5.5.5 prior to a crop certificate being issued.
- 4.5.4 Species considered harmful contaminants for crop certification, that may cross pollinate successfully with inspected crops of species in this Section, include the following:
- *B. juncea*: Brown or Oriental Mustard;
 - *B. rapa*: Polish Canola;
 - *R. raphanistrum*: Wild Radish;
 - *B. napus*: Argentine Canola;
 - *S. alba*: White or Yellow Mustard;
 - *R. sativus*: Radish.

