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 Select Synthetic 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 shall 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 has been planted with or 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 has 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) This first 50 meters of isolation to other crops set out in Table 4.4.2 shall be practically free from plants that may cross pollinate with the inspected seed crop (not more than 1 plant per 100 square meters, on average) and the remaining distance reasonably free from plants that may cross pollinate with the inspected crop (not more than 1 plant per 10 square meters on average).
b) Plants that may cross pollinate with the inspected crop within the required isolation distance, depending on density, stage of maturity, location and distance from the inspected crop, may be cause for declining pedigreed status. The species of plants that may cross pollinate with the inspected crop are identified in Table 4.5.4.
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 –*B. napus*, *B. rapa* (not *B. juncea*)	- Different varieties of *B. napus* or *B. rapa* - Non-pedigreed *B. napus* or *B. rapa* - *B. juncea* or *B. carinata*	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 species that may cross pollinate with the inspected crop.
	- *S. alba* - *R. sativus*	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from species that may cross pollinate with the inspected crop.
Brown or Oriental Mustard and canola-quality *Brassica juncea* - *B. juncea*	- Different varieties of *B. napus*, *B. rapa* or *B. juncea* - Non-pedigreed *B. napus*, *B. rapa* or *B. juncea*	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 species that may cross pollinate with the inspected crop.
	- *S. alba* - *B. carinata* - *R. sativus*	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from species that may cross pollinate with the inspected crop.
White/Yellow Mustard - *S. alba*	- Different varieties of *S. alba* - Non-pedigreed *S. alba*	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 species that may cross pollinate with the inspected crop.
	- *B. napus*, *B. rapa*, *B. juncea*, *B. carinata* or *R. sativus*	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from species that may 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 *-R. sativus*	- Different varieties of *R. sativus* - Non-pedigreed *R. sativus*	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 species that may cross pollinate with the inspected crop.
	- *B. napus*, *B. rapa*, *B. juncea*, *B. carinata* or *S. alba*	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from species that may cross pollinate with the inspected crop.
Ethiopian Mustard *-B. carinata*	- Different varieties of *B. napus*, *B. rapa*, or *B. carinata* - Non-pedigreed *B. napus*, *B. rapa*, or *B. carinata*	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 species that may cross pollinate with the inspected crop.
	- *B. juncea* - *S. alba* - *R. sativus*	3 meters (10 feet), provided the adjacent crop is free for 100 meters (328 feet) from other species that may cross pollinate with the inspected crop.

4.4.3 **Weeds**

a) All crops for pedigree must be free of Prohibited noxious weeds.
b) The presence of Cleavers (*Galium aparine*) is cause for declining pedigreed status.
c) Very weedy crops will be declined pedigreed status.
d) Wild mustard (*Sinapis arvensis*) must not be present at an average of more than 1 plant/10,000 plants.

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) Impurities in pedigreed crops shall be removed prior to crop inspection.
c) 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.
d) Any combination of impurities may be reason for declining pedigreed status.

e) Table 4.4.4 indicates the maximum number of plants of other varieties, off-types or other species 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 of the same species	Plants of species that may cross pollinate (Table 4.5.4)	Plants of species with difficult-to-separate seeds (Table 4.5.4)
Canola, Rapeseed, Mustard and Radish	1.5	1	3

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 that may cross pollinate successfully with other species in this Section and species with difficult to separate seeds, are identified in Table 4.5.4.

Table 4.5.4: Cross Pollinating Species and Species with Difficult-to-Separate Seeds

Species	Canola (*B. napus*)	Canola (*B. rapa*)	Mustard Brown/Oriental (*B. juncea*)	Mustard White/Yellow (*S. alba*)	Mustard Ethiopian (*B. carinata*)	Radish (*R. sativus*)
B. napus	n/a	CP	CP	DTS	CP	DTS
B. rapa	CP	n/a	CP	DTS	CP	DTS
B. juncea	CP	CP	n/a	DTS	CP	DTS
S. alba	DTS	DTS	DTS	n/a	DTS	DTS
B. carinata	CP	CP	CP	DTS	n/a	DTS
R. sativus	DTS	DTS	DTS	DTS	DTS	n/a

*CP = Some risk of cross pollination *DTS = Difficult-to-separate