

SECTION 6

FOUNDATION, REGISTERED AND CERTIFIED PRODUCTION OF GRASSES

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

6.1 SEED CLASSES AND GENERATIONS

- 6.1.1 Varieties will normally be multiplied through Breeder, Foundation and Certified classes with one generation in each class unless otherwise specified by the Breeder and the official seed certification authority in the state or country of origin.
- 6.1.2 A Foundation seed crop is normally grown from planting Breeder seed.
- 6.1.3 A Registered seed crop is grown from planting Breeder or Foundation seed.
- 6.1.4 A Certified seed crop is grown from planting Breeder, Foundation or Registered seed.
- 6.1.5 Tags from seed planted must be retained for the life of the stand and made available to the crop inspector and/or the CSGA on request.

6.2 LAND REQUIREMENTS

- 6.2.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.
- 6.2.2 **Specific Crop Land Requirements**
The following applies except where chemical control measures acceptable to the CSGA have been taken to eradicate growth from a previous crop of the same crop kind.

Table 6.2.2: Specific Crop Land Requirements

Inspected Crop	Must NOT be grown on land which:
Foundation	In the 5 years prior to seeding produced a non-pedigreed crop of the same crop kind or a crop of a different variety of the same crop kind.
	In the 3 years prior to seeding produced a pedigreed crop of the same variety.
Registered	In the 3 years prior to seeding produced a crop of the same crop kind.
Certified	In the 2 years prior to seeding produced a crop of the same crop kind.
Inspected Crop	May be grown on land which:
Annual Ryegrass – Certified	In the 2 years prior to seeding produced a pedigreed crop of the same variety

6.2.3 No manure or other potential sources of contamination should be applied to the land prior to seeding or during the productive life of the stand.

6.2.4 The land should be free of plants of the same crop kind prior to seeding.

6.3 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:

6.3.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.

6.3.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.

6.3.3 The crop must be inspected at a stage of growth 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.

6.3.4 Crop inspection by an authorized inspector is required each year that a pedigreed seed crop is to be harvested.

6.3.5 Crop inspection shall be made when the crop is headed and before harvest.

6.4 AGE OF STAND

6.4.1 The pedigreed class of the seed crop will vary by crop species, the number of classes designated by the Breeder or the authorized agent of the Breeder and the Age of Stand. (Refer to Table 6.4.6.)

6.4.2 Additional limitations on Age of Stand through which a variety may be multiplied outside the region of adaptation may be specified by the Breeder or the authorized agent of the Breeder.

6.4.3 If rejuvenation is used as a management practice, it will count as a year of production in calculating the Age of Stand.

6.4.4 For most perennial crops there is a specified maximum number of years during which pedigreed seed may be harvested from one planting.

6.4.5 Calculating Age of Stand

- a) For calculating Age of Stand, the first seed crop is the first year in which a seed crop could normally be harvested, irrespective of time or method of planting.
- b) Each calendar year thereafter will be considered a seed crop year. For example: Timothy sown without a companion crop in the fall is normally considered capable of producing seed the following year. Timothy seeded with pedigreed seed of Winter Wheat as a companion crop in the fall will be considered for the first year of seed production in the second year after planting.

**Table 6.4.6: Effect of Age of Stand on Pedigreed Class of Major Grass Seed Crops*
(Breeder, Foundation, Certified)**

INSPECTED CROP		When crop is established with Breeder Seed		When crop is established with Foundation Seed	Mode of pollination	
		No. of years for Foundation	No. of years for Certified	No. of years for Certified		
Bentgrass		3	+	2	5	C.P.
Bluegrass	Alpine	4	+	2	6	A.
	Big	4	+	2	6	A.
	Canada	4	+	2	6	A.
	Kentucky	4	+	2	6	A.
	Rough	4	+	2	6	A.
Bromegrass	Meadow	4	+	2	6	C.P.
	Smooth	4	+	4	8	C.P.
Fescue	Chewing's	4	+	2	6	C.P.
	Creeping Red	4	+	2	6	C.P.
	Hard	4	+	2	6	C.P.
	Meadow	3	+	3	6	C.P.
	Sheep	4	+	2	6	C.P.
	Tall	3	+	3	6	C.P.
Foxtail	Creeping	3	+	2	5	C.P.
	Meadow	3	+	2	5	C.P.
Junegrass		2	+	1	3	C.P.
Needlegrass		2	+	2	4	C.P.
Orchardgrass		3	+	3	6	C.P.
Reed Canarygrass		4	+	4	8	C.P.
Red Top		4	+	2	6	C.P.
Ryegrass	Annual	1	+	0	1	C.P.
	Italian	1	+	0	1	C.P.
	Intermediate	1	+	2	3	C.P.
	Perennial	2	+	1	3	C.P.
	Westerwold	1	+	0	1	C.P.
Timothy		3	+	2	5	C.P.
Wheatgrass	Broadglumed	3	+	2	5	C.P.
	Crested	4	+	4	8	C.P.
	Green	4	+	2	6	C.P.
	Intermediate	3	+	3	6	C.P.
	Northern	4	+	2	6	C.P.
	Pubescent	3	+	3	6	C.P.
	Slender	3	+	2	5	S.P.
	Streambank	4	+	2	6	C.P.
	Tall	4	+	2	6	C.P.
	Western	4	+	2	6	C.P.
Wild Rye	Altai	5	+	5	10	C.P.
	Dahurian	3	+	0	3	S.P.
	Russian	5	+	5	10	C.P.

* Information on other grass seed crops is available from CSGA

A. = Apomictic C.P. = Cross Pollinating S.P. = Self Pollinating

6.5 CROP STANDARDS

6.5.1 Isolation

- a) A crop offered for inspection must be isolated from any possible source of contaminating pollen in compliance with the minimum isolation distance requirements in Table 6.5.2 and Table 6.5.3.
- b) The area, density, stage of maturity and location of the contaminating source is an important factor in cross pollination, and therefore must be noted on the *Seed Crop Inspection Report* for consideration in determining pedigreed status. Under optimum conditions, not more than 3 plants per square meter of harmful contaminants should be in the required isolation adjacent to an inspected crop of a Cross Pollinated (C.P.) species.
- c) The required isolation must be provided prior to the time of flowering and crop inspection.
- d) For the following Cross Pollinated (C.P.) species, interpretation of "Same Crop Kind" in Table 6.5.2 and "harmful contamination" in Table 6.5.3 should include the following considerations:
 - i) **Bromegrass:** Hybrid varieties readily cross-pollinate with non-hybrid varieties and are therefore considered the Same Crop Kind as non-hybrid varieties. Although non-hybrid Meadow Bromegrass and Smooth Bromegrass varieties can cross-pollinate, asynchronous flowering can provide adequate temporal isolation and typically exceeds two weeks in the major production regions of western Canada.
 - ii) **Fescue:** Chewings and Creeping Red Fescue varieties can cross pollinate and are considered the Same Crop Kind. Chewings, Creeping Red, Hard, and Sheep Fescue varieties will not cross with Meadow and/or Tall Fescue varieties and are therefore not considered the Same Crop Kind.
 - iii) **Ryegrass:** Annual, Italian, Westerwolds, Intermediate and Perennial varieties (of the same ploidy level) may cross-pollinate and are therefore considered the Same Crop Kind. To maintain equivalence with AOSCA standards, the minimum isolation required between diploid and tetraploid varieties shall be 5 meters.
 - iv) **Wheatgrass:** Crested Wheatgrass: Diploid varieties (e.g. Fairway) and Tetraploid varieties (e.g. Kirk) are not considered the Same Crop Kind. Intermediate and Pubescent Wheatgrasses may cross-pollinate and are therefore considered the Same Crop Kind. None of the other Wheatgrasses in Table 6.4.6 are considered the Same Crop Kind.
 - v) **Wild Rye:** Altai, Dahurian and Russian Wild Rye are not considered the Same Crop Kind.

Table 6.5.2: Minimum Isolation Distances Required Between Inspected Grass Crops and Different Varieties or Non-pedigreed Crops of the Same Crop Kind*

Mode of pollination (Refer to Table 6.4.6)	Field size (if applicable)	Isolation distance required from a crop of a different variety or non-pedigreed crop of the Same Crop Kind* for production of:		
		Foundation	Registered	Certified
Cross-pollinated species (C.P.)	5 acres or less	400 m (1312 ft)	300 m (984 ft)	150 m (492 ft)
	More than 5 acres	300 m (984 ft)	100 m (328 ft)	50 m (164 ft)
Highly self-pollinated species (S.P.)		20 m (65 ft)	10 m (33 ft)	5 m (16 ft)
Apomictic species (A.)		20 m (65 ft)	10 m (33 ft)	5 m (16 ft)

Table 6.5.3: Minimum Isolation Distances Required Between Inspected Grass Crops and Other Crop Kinds and Other Pedigreed Crops Planted with Seed of the Same Variety

Inspected Crop	Other Crop	Isolation Distance Required
Grasses – all classes	<ul style="list-style-type: none"> - Crops of different classes of the same variety - Crop kinds with seeds that are difficult to separate. 	3 meters (10 feet)
Grasses for Certified crop status	<ul style="list-style-type: none"> - Planted with Certified seed of the same variety 	3 meters (10 feet), provided there is no harmful contamination* within 50 meters (164 feet) of the inspected crop

6.5.4 Border Removal in Lieu of Isolation Distances

- a) Border removal is not practical for fields of 5 acres or less.
- b) Border removal is not recommended if the pedigreed seed field is a thin stand.
- c) For crops in excess of 5 acres in area, removal of a border from the inspected crop in lieu of required isolation is permitted if arrangements can be made for a second inspection. Costs for a second inspection must be paid directly by the grower to the CFIA or authorized crop inspection service.
- d) The border must be allowed to shed pollen before being discarded. Evidence of the discarded border must be verified at the second inspection.
- e) The distance between the inspected crop and a crop of a different variety or a non-pedigreed crop of the same crop kind is outlined in Table 6.5.4.

Table 6.5.4: Border Removal in Lieu of Isolation Distances

Inspected Crop	Actual isolation distance from contaminating source	Distance to be removed from the inspected seed crop
Foundation	300 m (984 ft) +	0 m (0 ft)
	200-299 m (656-983 ft)	3 m (10 ft)
	150-199 m (492-655 ft)	5 m (16 ft)
	less than 150 m (492 ft)	5 m (16 ft) + 150 m (492 ft) minus the actual isolation distance
Registered	100 m (328 ft) +	0 m (0 ft)
	75-99 m (246-327 ft)	3 m (16 ft)
	50-74 m (164-245 ft)	5 m (16 ft)
	less than 50 m (164 ft)	5 m (16 ft) + 50 m (164 ft) minus the actual isolation distance
Certified	50 m (164 ft)	0 m (0 ft)
	30-49 m (98-163 ft)	3 m (10 ft)
	25-29 m (82-97 ft)	5 m (16 ft)
	less than 25 m (82 ft)	5 m (16 ft) + 25 m (82 ft) minus the actual isolation distance)

6.5.5 Border Removal in Lieu of Isolation for Certified Crops of Creeping Red Fescue

- a) Isolation requirements for Certified status crops of Creeping Red Fescue, of more than 5 acres, are based on the size of the Certified crop and the percentage of the crop within 50 meters (164 feet) of a Creeping Red Fescue crop of another variety or a Creeping Red Fescue crop planted with non-pedigreed seed.
- b) For a Certified status crop of Creeping Red Fescue, 50 meters (164 feet) is normally required from the edge of the seed crop to the nearest Creeping Red Fescue crop or a Creeping Red Fescue crop planted with non-pedigreed seed.
- c) If the isolation distance provided is less than 50 meters (164 feet), then determine if border removal is required by using the procedures outlined in Chart 6.5.5, 10% Rule – Procedures for Determining if Border Removal is Required for Certified Crops of Creeping Red Fescue.
- d) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source is 10% or less of the total area of the inspected Certified seed crop, then border removal in lieu of isolation is NOT required and only 3 meters (10 feet) of isolation distance is required.
- e) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source is more than 10% of the total area of the inspected Certified crop, then border removal in lieu of isolation IS required as prescribed in Section 6.5.4.
Certified crops of Creeping Red Fescue must still meet any other isolation requirements such as Table 6.5.3.

Chart 6.5.5: 10% RULE – PROCEDURES for DETERMINING IF BORDER REMOVAL IS REQUIRED FOR CERTIFIED CROPS OF CREEPING RED FESCUE

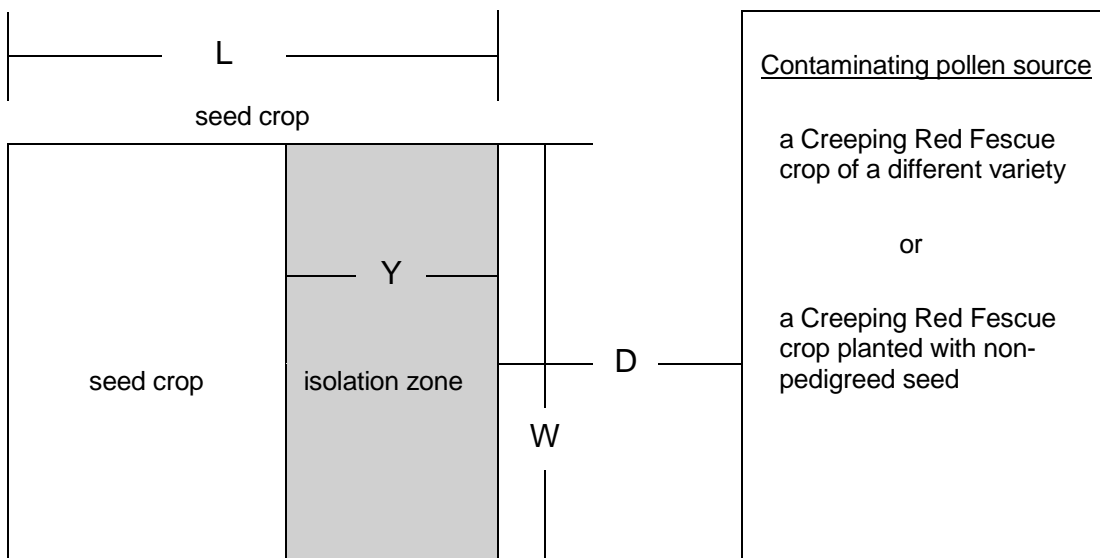
a) To determine if border removal is required, calculate the area of the isolation zone using the following example:

Example:

L	= length of inspected seed crop	W	= width of inspected seed crop
Y	= 50 meters minus D	L x W	= total area of inspected seed crop
D	= isolation distance provided		
W x Y	= area of isolation zone		

If; L = 200 meters; W = 40 meters; D = 30 meters and Y = (50-D) = 20 meters, then calculations for 10% rule procedures to determine if border removal is required are:

1. Isolation zone area: W x Y (40m x 20m) = 800 sq. m
2. Total area of inspected seed crop: W x L (40m x 200m) = 8,000 sq. m.
3. Since the isolation zone area (800 sq. m.) is 10% or less of the total area of inspected seed crop (8,000 sq. m.), therefore border removal is NOT required.



- b) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source (WxY) is more than 10% of the total area of the inspected Certified crop (LxW), then border removal in lieu of isolation is required as prescribed in Section 6.5.4. i.e. (WxY) is greater than 10% of (LxW).
- c) If the isolation zone area within 50 meters (164 feet) of the contaminating pollen source (WxY), is 10% or less of the total area of the inspected Certified crop (LxW), then border removal in lieu of isolation is NOT required and only 3 meters (10 ft.) isolation distance is required. i.e. (WxY) is 10% or less of (LxW).

6.5.6 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) Very weedy crops may be declined pedigreed status.

6.5.7 Maximum Impurity Standards

- a) In a crop offered for Foundation status, the inspector makes 6 counts (100 square meters each) to determine the number of impurities. The resulting average count, of other varieties, types foreign to the variety or other crop kinds (the seeds of which are difficult to separate from the seeds of the inspected crop) must not exceed 0.1 percent of the plant population of the inspected crop (1 plant per 100 square meters). Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.
- b) In a crop offered for Registered or Certified status, the inspector makes 6 counts (10 square meters each) to determine the number of impurities. The resulting average count, of other varieties, types foreign to the variety or other crop kinds (the seeds of which are difficult to separate from the seeds of the inspected crop) must not exceed 1 percent of the plant population of the inspected crop (1 plant per 10 square meters). Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.