Wheat – Certified Production of Hybrid Wheat with Blended Parent Lines

The requirements shown here are specifically for Certified production of Cytoplasmic Male Sterile (CMS) Hybrid Wheat with Blended Parent Lines where the Certified hybrid is produced from a mixture of the two parents. Certified production with Individual Parent Lines where the Certified hybrid is produced from parents that are planted individually in alternating male and female bays can be found under its own heading. References to Wheat shown here includes Spring and Winter Wheat, Einkorn, Emmer and Spelt (unless otherwise specified).

Durum and **Wheat** are not included and can be found under their own heading.

General Requirements for All Pedigreed Seed Crops

The basic standards for all crops are set out in General Requirements for All Pedigreed Seed Crops. In addition, the following standards apply to Hybrid Wheat with Blended Parent Lines.

Classes and Generations

The following classes and generations are utilized in the certification of CMS Hybrid Wheat and parent lines:

Breeder:

- used, as well as Select HCP class, to produce plots of A-lines (A x B), B-lines, and R-lines;
- produced by or under supervision of a CSGA recognized plant Breeder;
- no generation limit unless prescribed by the Breeder responsible for the variety.

Select Hybrid Cereal Parent (HCP) class seed:

- used, as well as Breeder class, to produce plots of A-lines (A x B), B-lines, and R-lines;
- produced by or under supervision of a CSGA recognized plant breeder or accredited plot growers;
- generation limits are prescribed by the variety description.

Certified class hybrid seed:

- produced from Breeder or Select Hybrid Cereal Parent (HCP);
- sold to commercial producers and not eligible for certification.

Seed Requirements

1. Certified hybrid seed must be produced from Breeder class or Select HCP class seed: or if imported from AOSCA Breeder or Foundation class or from OECD Pre-Basic or Basic class parent seed.
2. Certified hybrid seed produced using blended parent lines, requires a seed mixture containing male sterile female parent (A-line) seed and restorer (R-line) seed (A+R). This mixture of Breeder or Select HCP seed is considered a Select Technical Blend (TB) and requires a new Select TB crop certificate number from the CSGA. As this Select TB is used to produce the Certified hybrid seed it is limited to one generation and cannot be used to produce subsequent generations of Select TB seed. Select TB seed must meet the following minimum requirements:
   a. Produced with mixing equipment, procedures, designated personnel, and records that verify homogeneous, uniform finished mixtures; and
   b. Packaged and labelled with tags issued by the CSGA that identify the Select TB class, the variety name, and the Select TB crop certificate number.

Land Requirements

Inspected Crop	Must NOT be grown on land which:
Spring & Winter **Certified**	In the preceding year has been planted with or produced a crop of: • Wheat • Durum

Crop Inspection

Crops for Certified production of CMS Hybrid Wheat with Blended Parent Lines must be inspected at least once by an authorized inspector after plants assume mature colour to report off-types or other varieties. Variety descriptions may include additional requirements.

Crop Standards

Isolation

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

	Distance
1. Varietal Purity	
a. Inspected pedigreed CMS Hybrid Wheat of same* variety	1 meter (3 feet)***
b. Different* varieties of Wheat or non-pedigreed** Wheat	100 meters (330 feet)****
2. Mechanical Purity	Distance
a. Barley, Durum, Oat, Rye, Triticale	2 meters (6 feet)

Additional Isolation Requirements:

1. The required isolation must be provided prior to flowering and crop inspection.
2. Subject to 5 and 6 below, any considered plants a source of contamination found within 3 meters (10 feet) of the inspected crop may be reason for declining certification.
3. The entire crop must be inspected, but a portion or all of a crop may be approved for certification provided corrections for improper isolations, verified as required by CSGA, are made by:
   a. discarding contaminating Wheat plants before their pollen is shed; or
   b. discarding, before harvest, the female parent plants improperly isolated from contaminating Wheat.
4. The first 50 meters of isolation must be practically free from plants that can cross pollinate with the inspected crop (not more than 1 plant per 100 square meters, on average) and the remaining distance must be reasonably free from plant that can cross pollinate with the inspected crop (not more than 1 plant per 10 square meters, on average). Contaminants within the required isolation distance, depending on density, stage of maturity, location, and distance from the inspected crop, may be cause for declining certification.
5. The required isolation of 2 meters (6 feet) for mechanical purity is not required if there is a definite physical barrier, defined as a natural or artificial obstacle between two adjacent crops that prevents access and accidental harvest.

6. Staking of a field is permitted in lieu of the 1 meter (3 feet) isolation strip required between inspected pedigreed crops of the same* variety provided it meets the following requirements:
   a. Stake locations must be clearly identified on map(s) provided to crop inspectors.
   b. Stakes must be placed no more than 100 meters apart.
   c. Staking must be clearly visible and clearly define the border of the field at the time of inspection.

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* In hybrid crops and crops of pest tolerant varietal blends, "different" variety means a crop planted with a different pollen (male) parent seed.
** "Non-pedigreed crop" means a crop that did not meet the requirements of Circular 6.
***1 meter (3 feet) is sufficient to a crop planted with the same pollen bearing (male) parent seed, provided the pedigree of the parent seed planted is verified.
**** 100 meters (330 feet) is required to a crop planted with a different pollen (male) parent.

Border Rows

1. Border rows are recommended but not required. Border rows must be planted with the same seed as the pollen (male) parent rows. Border rows do not have to meet the isolation requirements of the inspected crop if they will not be harvested for pedigreed seed.
2. Border rows should be planted such that synchronous flowering occurs with receptive female parent plants of the inspected crop.

Maximum Impurity Standards

1. Varietal Purity (off-types/other varieties on average in 10,000 plants)
   a. Certified – 10
2. Mechanical Purity (other crop kinds, the seeds of which are difficult to separate from the seeds of the inspected crop, on average in 10,000 plants; for Wheat that includes Barley, Durum, Oat, Rye and Triticale)
   a. Certified – 5
3. Hybridity
   a. Percent hybrid seed shall not be less than 75% and shall be determined by a method approved by the CFIA. The balance of the seed is generally parent lines or their derivatives and is subject to the CSGA varietal purity seed standard for visually distinguishable impurities of not more than 0.2% of other varieties. Varietal impurities other than the parent lines or their derivatives shall not exceed 2%.
   b. A declaration (CSGA Form 180) stating the actual percent hybrid seed of a representative sample of the Hybrid Wheat crop, and the method of determining the percent hybrid seed, must be submitted to the CSGA prior to a crop certificate being issued. Unless otherwise specified in the variety description, the declaration of percent hybrid seed shall also provide the following information: CSGA Crop Sequence number, the test method name or number, the number of seeds tested and the confidence level of the test.

Specific Requirements

1. CSGA may require submission of a seed sample for varietal verification testing.