Wheat – Plot Production of Parent Seed of Hybrid Wheat

The requirements shown here are specifically for plot production of parent seed of Cytoplasmic Male Sterile (CMS) Hybrid Wheat where the Certified hybrid seed is produced with the parents either blended (comingled) or planted individually in alternating bays. 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. The basic standards for all plots are set out in General Requirements for Plot Production. In addition, the following standards apply to plot production of parent seed of Hybrid Wheat.

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) seed;
- sold to commercial producers and not eligible for certification.

Seed Requirements

1. Plots of Select HCP 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 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.
3. Where the Certified hybrid seed will be produced using blended parent lines, a seed mixture containing male sterile female parent (A-line) seed and restorer (R-line) seed (A+R) must be produced. 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.
4. Both Select HCP and Select TB seed must comply with the general requirements for certification of Select seed which include most requirements of the *Seeds Regulations* for Foundation seed.

Area of Select HCP Plots

1. There is no limit on the number of plots or the total acreage of plots. However, the area of each Select HCP plot is limited to 4 hectares (10 acres) in size.

Land Requirements

Inspected Crop	Must NOT be grown on land which:
Spring & Winter **Select HCP**	In any of the preceding 2 years has been planted with or produced a crop of: • Wheat • Durum

Crop Inspection

1. Plots of Select HCP must be inspected as follows:
   a. Plots containing male sterile (female seed parent) A-lines require two (2) inspections:
      i. First inspection must be completed during anthesis (flowering) to report pollen shedders in A-line plants;
      ii. Second inspection must be completed after heads assume a mature colour to report off-types/other varieties.
   b. Plots of (male maintainer) B-lines or (restorer) R-lines require one (1) inspection:
      i. Inspection must be completed after heads assume a mature colour to report off-types/other varieties.

Crop Standards

Isolation - Plots containing A-line (male sterile) female parent seed

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

1. Varietal Purity	Distance
a. Inspected pedigreed crop of same* parent line/variety	1 meter (3 feet)***
b. Different* varieties of Wheat or non-pedigreed** Wheat	800 meters (2,625 feet)****
2. Mechanical Purity	**Distance**
a. Barley, Durum, Oat, Rye, Triticale	2 meters (6 feet)

Isolation - Plots containing B-line or R-line (male fertile) male parent seed

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

1. Varietal Purity	Distance
a. Inspected pedigreed crop of same* parent line/variety	1 meter (3 feet)***
b. Different* varieties of Wheat or non-pedigreed** Wheat	10 meters (33 feet)*****
2. Mechanical Purity	**Distance**
a. Barley, Durum, Oat, Rye, Triticale	2 meters (6 feet)

Additional Isolation Requirements:

1. The perimeter of Select HCP plots must be clearly defined, and the isolation distance required must be provided prior to crop inspection.

2. Subject to 3 and 4 below, any plants considered a source of contamination found within 10 meters (33 feet) of the Select HCP plot may be reason for declining certification.
3. 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.
4. 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.
5. 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.
**** 800 meters (2,625 feet) is required to a crop planted with a different pollen (male) parent.
****** 10 meters (33 feet) is required or as specified by the variety description.

Border Rows

1. Border rows are recommended for production of A-line plots 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 20,000 plants)
    a. Select HCP – 20
2. Varietal Purity – (pollen shedders on average in 20,000 plants)
    a. Select HCP – 20
3. Mechanical Purity (other crop kinds, the seeds of which are difficult to separate from the seeds of the inspected crop, on average in 20,000 plants; for Wheat that includes Barley, Durum, Oat, Rye and Triticale)
    a. Select HCP – 2

Specific Requirements

1. CSGA requires submission of a seed sample from Select HCP for varietal verification testing.