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## SECTION 8

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### FOUNDATION AND CERTIFIED PRODUCTION OF HYBRID FIELD CORN

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

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#### **8.1 SEED CLASSES, TYPES, AND GENERATIONS**

8.1.1 **Classes:** Breeder, Foundation, and Certified.

#### 8.1.2 **Types**

- a) Inbred Line: a relatively true breeding strain resulting from at least five successive generations of controlled self fertilization or of back crossing to an inbred recurrent parent with selection or its equivalent.
- b) Single-Cross Hybrid: the first generation of a cross between 2 specified inbred lines.
- c) Foundation Single Cross: a single cross used in the production of a double-cross, a three-way cross or a top cross.
- d) Double-Cross Hybrid: the first generation of a cross between 2 single-cross hybrids.
- e) Three-Way Cross Hybrid: the first generation of a cross between an inbred line and a single-cross hybrid.
- f) Top-Cross Hybrid: the first generation of a cross between an inbred line and an open pollinated variety.
- g) Varietal-Cross Hybrid: the first generation of a cross between recognized stocks of 2 open pollinated varieties.
- h) Open Pollinated: seed produced as a result of natural pollination as opposed to hybrid seed produced as a result of controlled pollination.

#### 8.1.3 **Generations**

- a) Inbred: no generation limit for Breeder or Foundation classes.
- b) Hybrid: the crop produced as described in Sections 8.1.2. b), d), e), f) and g), and granted Certified class.

#### **8.2 SEED REQUIREMENTS**

8.2.1 Breeder or Foundation seed must be planted to produce Certified crops.

8.2.2 The direction of the cross of Corn hybrids must remain unchanged throughout the life of the hybrid variety.

### **8.3 LAND REQUIREMENTS**

- 8.3.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.
- 8.3.2 There are no requirements as to previous land use, except the "Corn after Corn" inspection requirements in Section 8.4.

### **8.4 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:

- 8.4.1 It is the grower's responsibility to ensure that crops are inspected by an authorized inspector prior to swathing or harvesting.
- 8.4.2 A crop that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.
- 8.4.3 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.
- 8.4.4 All fields must be inspected 3 times by an authorized inspector when the silks of the seed (female) parent are receptive.
- 8.4.5 The entire field must be inspected, but a portion or all of a field may be approved for certification provided corrections for improper isolations are made by either:
- a) discarding or detasselling the necessary amount of contaminating Corn before its pollen is shed; or
  - b) discarding before harvest the female parent plants which are improperly isolated from contaminating Corn, and having the discard verified by inspection prior to harvesting the portion of the crop eligible for pedigree.
- 8.4.6 When Corn is planted on land that produced a Corn crop in the previous or current year, an inspection must be made to determine freedom of the seed crop from plants which have volunteered from the previous crop.
- 8.4.7 The removal of interplanted male rows should be done within a reasonable time after pollination to allow for inspection prior to harvest.

### **8.5 CROP STANDARDS**

#### **8.5.1 Minimum Isolation Distances Required**

- a) Table 8.5.1 indicates the relationship of the size of field, distance from contaminating pollen source and the required number of border rows in order to provide isolation for the hybrid seed crop's (female) parent plants.

**Table 8.5.1: Minimum Isolation Distances Required for Pedigreed Hybrid Corn**

Distance separating seed crop (female) parent row from contaminating corn	Number of pollen (male parent) Border Rows to be provided is:	
	Total acres of field unit for seed crop inspection	
	Less than 20 acres	20 acres or more
Less than 90 ft (27.5 m)	24 <sup>1</sup>	16 <sup>2</sup>
<sup>3</sup> ≥ 90 ft (27.5 m)	18	14
≥ 150 ft (45.7 m)	16	12
≥ 210 ft (64.0 m)	14	10
≥ 270 ft (82.3 m)	12	8
≥ 330 ft (100.6 m)	10	6
≥ 410 ft (125.0 m)	8	4
≥ 490 ft (149.4 m)	6	2
≥ 570 ft (173.7 m)	4	1
≥ 660 ft (201.2 m)	0	0
<sup>1</sup> Minimum of 60 ft (18.3 m) including border rows.		
<sup>2</sup> Minimum of 40 ft (12.2 m) including border rows.		
<sup>3</sup> ≥ means greater than or equal to		

- b) The concept of adjacent fields is considered to be more satisfactory than small separated fields, even with full isolation. Adjacent seed fields using the same pollen (male) parent may be considered as one crop for isolation purposes and the combined area of adjacent seed fields may be used to determine the required border rows.
- c) A farm lane, or similar gap, must exceed 10 meters (33 feet) to be considered as dividing a field for isolation purposes.
- d) To accommodate a public road, railroad, etc., a vacant strip not more than 20 meters (66 feet) wide is acceptable between the required border rows, provided there are at least 4 border rows within the seed field and the remaining border rows are outside the vacant strip.
- e) A vacant turning strip not more than 10 meters (33 feet) wide across the end of the rows between the seed (female) parent and the required border rows in the same field is acceptable.
- f) Different pollination dates are permitted for modifying isolation distances provided there are no receptive silks in the seed (female) parent at the same time pollen is being shed by the contaminating corn.
- g) In the production of Foundation Inbred Lines or Foundation Single-Crosses, an isolation of 200 meters (656 feet) is required from other contaminating corn that is shedding pollen at the same time as the inspected pedigreed seed crop.

**8.5.2 Border Rows**

- a) Border rows must be planted with the same seed as the pollen (male) parent rows.
- b) Border rows must be planted on land managed by the producer.
- c) Border rows must shed pollen simultaneously with the pollen (male) parent and silk emergence of the seed (female) parent.
- d) Spacing between border rows shall not be less than 40 cm (15 inches) in width and be consistent with the row spacing used throughout the field.
- e) Plant density of border rows on a per acre basis shall not be less than 80% of that of the pollen (male) parent in the seed field.
- f) Border rows are not required when the seed (female) parent is more than 200 meters (656 feet) from the contaminating corn.

**8.5.3 Maximum Impurity Standards**

- a) Volunteer plants must not exceed 1 plant in 2,000 plants in the seed crop immediately prior to detasselling or the commencement of the pollination period.
- b) A crop may not be eligible for pedigreed status if more than 1 plant in 1,000 (0.1%) obvious off-type plants in the pollen (male) parent have shed pollen. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.
- c) A crop may not be eligible for pedigreed status if more than 1 plant in 1,000 (0.1%) obvious off-type plants are found in the seed (female) parent at the time of last inspection. Variants may be specified by the responsible Breeder and are not considered impurities unless reported in excess of the acceptable level specified.

**8.5.4 Detasselling**

- a) When 5% or more seed (female) parent plants have receptive silks, a crop may not be eligible for pedigreed status if on any one inspection more than 1% of the seed (female) parent plants possess tassels which have shed or are shedding pollen, or if the total for three inspections on different dates exceeds 2%.
- b) When 5% or more seed (female) parent plants have receptive silks, sucker tassels and/or portions of tassels on the main plants will be counted as shedding pollen when 5 cm (2 inches) or more of the central stem and/or the side branches have their anthers extended from their glumes and are shedding pollen.

**8.5.5 Male Sterile (Female) Parent**

- a) A male sterile seed (female) parent can be used to produce Certified hybrid corn seed by either of two methods:
  - (i) by blending seed produced by the sterile seed (female) parent with seed produced by the fertile seed (female) parent, where the ratio of male sterile (female) parent seed shall not exceed 2 to 1; or
  - (ii) by using a pollen (male) parent which contains a specific restorer line or lines so that not fewer than one-third of the plants grown from the resulting hybrid will produce pollen which appears normal in all respects.