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## SECTION 11

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### PROBATION AND FOUNDATION PLOT PRODUCTION OF INDUSTRIAL HEMP

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In this Section:

- Industrial Hemp (*Cannabis sativa* L.) varieties of these kinds:
  - Dioecious type: with male and female flowers on separate plants.
  - Monoecious type: with male and female flowers on the same plant.
  - (Unisexual Female) Hybrids: with sterile male and fertile female flowers on the same plant.
- “Approved Cultivars” means any variety designated in Health Canada’s *List of Approved Cultivars*.
- “THC” means delta-nine ( $\Delta^9$ ) tetrahydrocannabinol, which is the component of industrial hemp regulated by Health Canada.
- Although traditionally a crop with a Dioecious plant type similar to open pollinated corn, many Monoecious varieties of hemp (*Cannabis sativa* L.) have been developed. Hemp is sexually polymorphic and often produces many different ratios of intersexual plant types that can increase roguing requirements. Variety descriptions normally define these ratios.
- All production of Industrial Hemp crops in Canada is subject to license application approval by Health Canada.

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

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#### **11.1 SEED CLASSES AND GENERATIONS**

- 11.1.1 Breeder or Pre-Basic seed: determined by the Breeder.
- 11.1.2 Foundation seed: one generation, grown by accredited Foundation plot growers.
- 11.1.3 Registered seed: one generation (refer to Section 10).
- 11.1.4 Certified seed: one generation (refer to Section 10).
- 11.1.5 Only varieties of Industrial Hemp approved by Health Canada are eligible for certification.
- 11.1.6 For growers not accredited by CSGA to grow Foundation plots and who plant crops with Breeder or Pre-Basic seed, the CSGA reserves the right to determine the status of the inspected crop and may issue a Registered or Certified crop certificate.

## **11.2 PROBATION PLOT PRODUCTION**

- 11.2.1 An individual grower wishing to produce a Foundation plot must receive permission from the CSGA before commencing Probation plot production.
- 11.2.2 An *Application to Commence Probation Plot Production* (CSGA Form 154, Appendix A.6), must be submitted to the CSGA.
- 11.2.3 The grower may be required to have grown Certified seed crops of the crop kind in which the grower is commencing Probation.
- 11.2.4 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Foundation plot grower status.
- This status is granted to an individual seed grower only.
  - This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Foundation plot growers.
- 11.2.5 Breeder or Pre-Basic seed of varieties approved by Health Canada must be sown each year.
- 11.2.6 The status granted to plots grown during the Probation period is as follows:
- First Year: provided all requirements are met, the First Year plot will be granted Foundation status. Breeder or Pre-Basic seed must be obtained for the Second Year plot.
  - Second Year: provided all requirements are met, the Second Year plot will be granted Foundation status. Breeder or Pre-Basic seed must be obtained for the Third Year plot.
  - Third Year: provided all requirements are met, the Third Year plot will be granted Foundation status. The grower is then granted Foundation plot grower status and is then eligible to grow Foundation plots of Industrial Hemp.
- 11.2.7 Any means of processing or conditioning of seed from a Probation plot which may contaminate the varietal purity of the seed is prohibited.
- 11.2.8 A *Report of Plot Production* (Form 50) for each Probation plot will be sent to the grower and must be completed and submitted to the CSGA.
- 11.2.9 A sample of clean seed from each Probation plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.
- 11.2.10 Area of Probation Plot**
- The area of the Foundation plot during the 3-year Probation period must not be less than 0.4 hectare (1.0 acre) nor exceed 0.5 hectare (1.25 acres). Health Canada regulations require a minimum plot size of 0.4 hectare (1.0 acre).
  - When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of pedigreed crop. The remainder must meet the requirements for Probation plot production. Health Canada regulations require a minimum plot size of 0.4 hectare (1.0 acre).

- c) The total area of a Probation plot includes the “walkways” provided within the plot to facilitate effective roguing.
- d) In each year of Probation, a Probation grower may only produce one (1) Probation plot.

### **11.3 FOUNDATION PLOT PRODUCTION**

11.3.1 An individual seed grower must complete 3 successful years of Probation plot production in order to be granted Foundation plot grower status.

- a) This status is granted to an individual seed grower only.
- b) This status cannot be acquired through an affiliation with another seed grower or transferred to or from other Foundation plot growers.

11.3.2 Plots for Foundation status must be planted with Breeder or Pre-Basic seed of Approved Cultivars approved by the CSGA.

11.3.3 Any means of processing or conditioning of seed from a Foundation plot which may contaminate the varietal purity of the seed is prohibited.

11.3.4 A *Report of Plot Production* (Form 50) for each Foundation plot will be sent to the grower and must be completed and submitted to the CSGA.

11.3.5 A sample of clean seed from each Foundation plot must be submitted for variety verification. The sample must be representative of the seed harvested from the plot.

#### **11.3.6 Area of Foundation Plots**

- a) The area of a Foundation plot of one variety must not be less than 0.4 hectare (1.0 acre) nor exceed 1 hectare (2.5 acres).
- b) When unforeseen circumstances do not permit proper maintenance of the entire plot, it is recommended that the area be reduced by destroying part of the plot or by isolating a part to meet the requirements of a lower status of Pedigreed seed. The remainder of the plot must meet the requirements for Foundation plot production. Health Canada regulations require a minimum plot size of 0.4 hectare (1.0 acre).
- c) The area of a Foundation plot includes the “walkways” provided within the plot to facilitate effective roguing.

### **11.4 LAND REQUIREMENTS**

11.4.1 Crops should not be planted on land where volunteer growth from a previous crop may cause contamination.

11.4.2 Plots for Foundation status of Industrial Hemp must not be planted on land which in the previous 5 years grew a crop of Industrial Hemp or Tobacco.

## **11.5 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:

- 11.5.1 It is the grower's responsibility to ensure that plots are inspected by an authorized inspector at least twice prior to swathing or harvesting.
- 11.5.2 A plot that is cut, swathed or harvested prior to crop inspection is not eligible for pedigree.
- 11.5.3 The plot 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.
- 11.5.4 First inspection must be made before female (pistillate) flowers of the inspected crop are receptive and after the formation of male (staminate) flowers, preferably before pollen is shed.
- 11.5.5 Second inspection must be made during the receptive stage of the female plants in the inspected plot, normally within 3 weeks of first inspection.
- 11.5.6 Third inspections must be made when off-type female flowers can be identified.
- 11.5.7 Isolation areas will be inspected for volunteer Industrial Hemp plants and harmful contaminants on each inspection visit.

## **11.6 CROP STANDARDS**

### **11.6.1 Isolation**

- a) Isolation areas must be kept free of Industrial Hemp plants. Under optimum conditions, not more than 3 plants per square meter of harmful contaminants (species that can cross pollinate with the inspected crop) are permitted within the required isolation distance(s) adjacent to the inspected crop. The conditions of each crop are assessed by the CSGA which may alter this standard, usually by reducing the number of contaminant plants permitted per square meter, according to the contamination risks involved.
- b) The required isolation must be provided prior to the time of flowering and crop inspection.

**Table 11.6.2: Minimum Isolation Distances Required Between Inspected Industrial Hemp Plots and Other Crops**

<b>Plot Crop</b>	<b>Other Crops</b>	<b>Isolation Distance Required</b>
<b>Dioecious type</b>	- Different varieties of Industrial Hemp - Non-pedigreed crop of same kind	5000 meters (16,150 feet)
	- Lower pedigreed class seed crop of same variety	2000 meters (6460 feet)
	- Breeder or Pre-Basic plot of same variety	5 meters (16 feet)
<b>Monoecious type or Hybrid</b>	- Dioecious variety of Industrial Hemp - Non-pedigreed crop of same kind	5000 meters (16,150 feet)
	- Other Monoecious varieties - Lower pedigreed class seed crop of same variety	3000 meters (9690 feet)
	- Breeder or Pre-Basic plot of same variety	5 meters (16 feet)

**11.6.3 Weeds**

- a) All pedigreed seed crops should be free of Prohibited and Primary noxious weeds.
- b) The presence of Broomrape (*Orobancha spp.*) in an Industrial Hemp plot may be cause for declining pedigreed status.
- c) Very weedy plots may be declined pedigreed status.

**11.6.4 Maximum Impurity Standards**

- a) Impurities should be removed prior to crop inspection.
- b) Any combination of impurities may be reason for declining pedigreed status.
- c) An Industrial Hemp plot for Foundation status, unless otherwise specified by the Breeder, must be practically free from harmful contaminants (species that can cross pollinate with the inspected crop), plants of other varieties or distinct types foreign to the variety being inspected, weeds or other crops with seeds that are difficult to separate from Industrial Hemp seed (e.g. Hemp Nettle).
- d) Table 11.6.4 indicates the maximum number of impurities permitted by the CSGA in approximately 10,000 plants of the inspected crop. The inspector makes at least 6 counts (10,000 plants each) or the equivalent to determine the number of impurities. The resulting average of these counts must not exceed the maximum impurity standards in Table 11.6.4.

**Table 11.6.4: Maximum Impurity Standards**

Plot Crop	Maximum Impurity Standards per 10,000 plants in Foundation Industrial Hemp Seed Plots		
	Maximum Number of "Too Male" Monoecious Plants	Maximum Number of Dioecious Male Plants Shedding Pollen	Maximum Number of Other Impurities
Dioecious type	–	–	3
Monoecious type	500	1	3

## 11.7 RECOMMENDED PRODUCTION PROCEDURES FOR PLOTS

### 11.7.1 **Planting of Plots**

- a) Plots should be planted to facilitate inspection, roguing and harvesting.
- b) Plots should be planted in areas easily accessible for frequent maintenance and to provide the maximum protection from outside sources of contamination, such as roadways and building sites.
- c) Regulations for land requirements are minimum standards and caution is necessary in choosing land, as volunteer growth from previous crops may vary according to local conditions.
- d) The regulations for isolation are minimum standards. It is always to the grower's advantage to provide more isolation than required. When planting Probation and Foundation plots, specific requirements may influence the location and size of the plot. It is a safeguard if adjacent crops are the same variety as the plot and are inspected for pedigreed status.

### 11.7.2 **Roguing of Probation and Foundation Plots**

- a) The plot must be thoroughly and intensively rogued many times throughout the crop season.
- b) Off-type male flowers must be removed before the receptive stage of female flowers in the inspected crop.
- c) The numbers and kinds of plants removed should be recorded and described on the *Report of Plot Production* (CSGA Form 50).
- d) All male flowers rogued from the crop must be removed from the plot area and burial is recommended.
- e) Regrowth of rogued flowers or plants must be prevented.

### 11.7.3 **Harvesting, Cleaning and Storing of Probation and Foundation Plot Seed**

- a) A Probation or Foundation plot grower should have access to the necessary equipment for harvesting and cleaning the seed from the plot in such a manner as to ensure that the varietal purity of the seed is maintained.
- b) The seed should be stored, in compliance with Health Canada regulations, in a clean, cool, dry area.
- c) The seed containers should be labelled for identification.

**11.7.4 Probation and Foundation Plot Grower Courses**

- a) Probation and Foundation plot growers are encouraged to attend courses on plot production organized by the CSGA.

**11.8 SPECIFIC REQUIREMENTS**

11.8.1 It is recommended that not more than one variety of Industrial Hemp be grown under the management of one grower.

11.8.2 Growers are required by Health Canada to obtain THC test results, from a recognized laboratory, verifying that the THC content of their Industrial Hemp crop complies with Health Canada regulations. Growers may be required to submit these results to the CSGA before a crop certificate is issued.

**Table 11.9: Summary of Seed Crop Inspection Standards for Industrial Hemp (*Cannabis sativa L.*) in Canada**

<b>All Types</b>			
	<b>Foundation</b>	<b>Registered</b>	<b>Certified</b>
Minimum Size of Field (acres) (Health Canada requirement)	1.0	1.0	1.0
Maximum Size of Field (acres)	2.5	---	---
Previous Land Use: minimum number of years without hemp or tobacco production	5	5	3
<b>Maximum Impurity Standards:</b>			
• Maximum number of Monoecious “too male” off-type plants shedding pollen during inspection (#/10,000 plants)	500 (5.0 %)	1000 (10.0%)	---
• Maximum number of Dioecious male plants** shedding pollen during inspection (#/10,000 plants)	1 (0.01 %)	2 (0.02 %)	100 (1.0 %)
• Maximum other impurity tolerances (#/10,000 plants)	3 (0.03 %)	10 (0.1 %)	10 (0.1 %)
<b>Dioecious Type</b>			
Number of Inspections	At least 3	2	2
<b>Minimum Isolation Distance (meters):</b>			
• from Other Varieties and non-pedigreed hemp crops	5000	5000	1000
• from other pedigreed classes, same variety	2000	2000	200
• from same pedigreed class, same variety	25	1	1
<b>Monoecious Type and (Unisexual Female) Hybrids</b>			
Number of Inspections	At least 3	3	2
<b>Minimum Isolation Distance (meters):</b>			
• from Dioecious varieties and non-pedigreed Hemp crops	5000	5000	1000
• from other Monoecious varieties	3000	2000	200
• from lower pedigreed classes, same variety	3000	1000	200
• from same pedigreed class, same variety	25	1	1

\*\* If Dioecious male plants start flowering before removal from field, all plants around them should be destroyed for a radius of 3 meters for Foundation and 2 meters for Registered seed crops.