

CHEMICALLY ASSISTED HEMP (CANNABIS SATIVA L. SUBSP. SATIVA)
CERTIFICATION STANDARDS

I. Application of Genetic Certification Standards

- A. The general requirements for seed certification found in Section I through IV of the Genetic and Crop Standards apply (and are basic) to all crops, and together with the following specific standards, constitute the certified Chemically Assisted Hemp standards.
- B. The Genetic Standards are modified as follows:
 - 1. All production of hemp crops are subject to license application approval that are required by regulatory authorities in compliance of U.S. Domestic Hemp Production Program.
 - 2. Only varieties and strains of hemp approved by official seed certifying agencies, AOSCA and OECD members, are eligible for certification. Non-approved varieties or strains may apply for Quality Assurance (QA) certification. The standards for QA are the same as Certified without eligibility and the seed stock requirement.
 - 3. Designation of Classes of Seed:
 - a. Only the class Certified is recognized in the production of chemically assisted hemp seed.
 - b. A chemically assisted variety to be certified must be produced from seed or clonal stocks approved by the official certifying agency. These seed and clonal stocks shall consist of female lines and chemically assisted pollen shedding female lines of any class of certified seed or clones.
 - 4. Growers may be required by regulatory agencies to obtain THC test results according to applicable regulations. Growers are required to submit THC test results to the seed certifying agency before a crop certificate is issued.

II. Greenhouse and Land Requirements

- A. Greenhouses must only contain certified hemp production, no other plants are allowed except for reversed female plants that are the pollen source.

- B. Greenhouses must be free of all plants a minimum of six weeks prior to receiving plants at the beginning of the crop year or production season unless the previous crop was the same variety. Sanitation to remove residual soil, pathogens, plant material and pollen may be considered as an alternative to the six week plant-free period. If sanitation is used to reduce the hemp free period, a sanitation plan must be submitted to and approved by the certifying agency. Pollen sanitation is not required if the entire greenhouse facility produces only one pollen source and other female lines are continually rogued to prevent contaminating pollen sources.
- C. Certified feminized hemp crops must not be grown on land which:
 - 1. In the preceding year produced a certified crop of the same variety.
 - 2. In either of the preceding 2 years produced a non-certified crop of industrial hemp or a different variety of industrial hemp.
- D. Weeds:
 - 1. The presence of Broomrape (*Orobanche* spp.) in industrial hemp crops is cause for rejection.
 - 2. Excessive weeds obscuring field inspection shall be grounds for rejection.

III. Greenhouse and Field Standards

- A. Crop Inspection
 - 1. It is the grower's responsibility to ensure that greenhouse and field inspections are conducted by the certifying agency at least twice prior to swathing or harvesting.
 - 2. A greenhouse or field that is cut, swathed or harvested prior to crop inspection is not eligible for certification.
 - 3. Crop inspection of pollen donor and pollen receptors 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 rejection.
 - a. First inspection for pollen donor and pollen receptor types must be made just before or at early flowering.
 - b. Second inspection for pollen donor and pollen receptor types must be at mid-bloom when they are shedding pollen.

- c. Third inspection for all classes of pollen receptors must be made during seed fill.
- d. Isolation areas will be inspected for volunteer hemp plants on each inspection.

B. Specific

1. For the production of commercial hybrids, via pollen shedding by the chemically reversed female plants (ie. with Silver Nitrate, Silver Thiosulphate or other chemicals that halt ethylene production and cause the formation of male flowers).
 - a. Detailed records shall be recorded on the pollen source, such as the chemical application date and concentration, the pollen collection date.
 - b. Pollen storage containers (if used) must be marked with Lot number and source.
 - c. Chemically reversed female plants must be removed and destroyed after pollen collection is complete.
 - d. Male, porting male, and hermaphroditic plants must be removed from the field or greenhouse, and a roguing log must be maintained.

C. Isolation

1. Certified feminized hemp seed fields must be isolated from all other contaminating pollen sources by the distances provided in Table 1. Roguing to eliminate all possible contaminating pollen must be accomplished prior to visible flower formation.
2. Greenhouse production of Certified feminized seed is allowed provided mechanical isolation of pollen sources is provided. Additional greenhouse requirements include:
 - a. Method of pollen exclusion must be documented and submitted to the certifying agency.
 - b. Each greenhouse facility is limited to one variety or multiple varieties when one pollen source is utilized for all varieties.
 - c. Each variety must be clearly labeled and easily identifiable from one another.

3. Winter production when pollen sources are not alive may reduce the isolation requirement.

Table 1
Minimum Isolation Distances Required Between Inspected Industrial Hemp and Other Crops

Inspected Crop	Other Hemp Crops	Isolation Distance Required Feet
Chemically assisted Hemp	<ul style="list-style-type: none"> - Variety of hemp, or other contaminating pollen source, that has pollen shedders present, this includes other greenhouse complexes <li style="padding-left: 20px;">- Non-certified crop of hemp 	15,748
	<ul style="list-style-type: none"> - Different varieties of the same type of hemp with no male shedders present in field that is not for seed production. - Planted with certified seed of the same variety that meets Certified standards for varietal purity and no male shedders present in field 	15,748
	<ul style="list-style-type: none"> - Certified seed crop of the same variety that meets Certified standards for varietal purity 	3

D. Impurity Standards

1. Impurities should be removed prior to crop inspection.
2. Any combination of impurities may be reason for declining certified status.
3. Table 2 indicates the maximum number of impurities permitted by AOSCA in approximately 10,000 plants of the inspected crop. The inspector makes at least 6 counts (1,000 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 2.

Table 2
Maximum Impurity Standards per 10,000 plants in Hemp Seed Crops

Inspected Crop	Maximum Number of Male Plants Shedding Pollen	Maximum Number of Off-Types or Other Varieties
Chemically assisted Hemp	0	20

IV. Seed Standards

Industrial Hemp Seed Standards for Each Class Factor

	Foundation	Registered	Certified
Pure seed (minimum)	98.00%	98.00%	98.00%
Inert matter (maximum)*	2.00%	2.00%	2.00%
Weed seeds (maximum)	0.10%	0.10%	0.10%
Total other crop seeds (maximum)	0.01%	0.03%	0.08%
Other varieties (maximum)	0.005%	0.010%	0.050%
Other kinds (maximum)**	0.01%	0.03%	0.07%
Germination (minimum)	80.00%	80.00%	80.00%
Feminized Seed***			99.00%

- * Inert matter shall not include more than 0.5 percent of material other than seed fragments of the variety under consideration.
- ** Other kinds shall not exceed 2 per lb. (454 grams) for Foundation; 6 for Registered; 10 for Certified.
- *** Determined by Variety Verification Trial or approved molecular testing.

Guidelines for the Production of Certified Industrial Hemp Seed

Definitions:

Hemp:

“Hemp” is defined by the U.S. Domestic Hemp Production Program as “the plant species *Cannabis sativa* L. and any part of that plant, including the seeds thereof and all derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis.” Hemp includes 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.

Reversed female:

Female plants that are induced to produce pollen in replacement of true male plants.

Hermaphroditic plants:

Monoecious plants exhibiting male and female flowers, not true females.

Feminized Hemp:

A population of hemp that contains true females with the XX chromosomes.

Pollen donor:

A reversed female plant from the female line or another reversed female line to create a hybrid.

Pollen receptors:

Female plants used to produce feminized hemp seed.

Variety:

A subdivision of a kind that is distinct, uniform, and stable; "distinct" in the sense that the variety can be differentiated by one or more identifiable morphological, physiological, or other characteristics from all other varieties of public knowledge; "uniform" in the sense that variations in essential and distinctive characteristics are describable; and "stable" in the sense that the variety will remain unchanged in its essential and distinctive characteristics and its uniformity when reproduced or reconstituted as required by the different categories of varieties.

Volunteer plant:

An industrial hemp plant that was not intentionally planted and is the result from a previous crop.

Approved Cultivar:

Any variety designated as eligible for production by federal or local regulatory authorities.

THC:

Means delta-nine ($\Delta 9$) tetrahydrocannabinol, which is the component of Industrial Hemp regulated by federal or local regulatory authorities.

Although traditionally a crop with a Dioecious plant type, many Monoecious varieties of industrial hemp, (*Cannabissativa L. supsp.sativa*), have been developed. Industrial 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.

Quality Assurance (QA) Program standards will be equal to or exceed the AOSCA Standards for certification for varietal purity of the "Certified" class of seed, with the following exceptions:

1. Varietal eligibility requirements
2. Seed stock eligibility

Certified Seed Production:

Any means of processing or conditioning of seed from a production area which may contaminate the varietal purity of the seed is prohibited.

Area of Fields:

When unforeseen circumstances do not permit proper maintenance of the entire field, it is recommended that the area be reduced by destroying part of the field or by isolating a part to meet the requirements. The remainder of the field must meet the requirements of field production.

The area of a field includes the “walkways” provided within the field to facilitate effective roguing and inspecting.

Recommended Production Procedures:

1. Field Planting:

- a. Fields should be planted to facilitate inspection, roguing and harvesting.
- b. Fields 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 fields, specific requirements may influence the location and size of the field. It is a safeguard if adjacent crops are the same variety as the field and are inspected for certified status.

2. Roguing:

- a. The field 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 number and kinds of plants removed should be recorded and described on the appropriate forms.
- d. All male flowers rogued from the crop must be removed from the production area and burial is recommended.
- e. Regrowth of rogued flowers or plants must be prevented.

Harvesting, Cleaning and Storing:

- a. A seed grower should have access to the necessary equipment for harvesting and cleaning the seed from the field 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 federal or local regulations, in a clean, cool, dry area.
- c. The seed containers should be labeled for identification.

It is recommended that not more than one variety of Hemp be grown under the management of one grower or one distinct facility.