

FOREWORD

Seed Certification in South Carolina is the result of an Act passed by the General Assembly in 1945. This Act, "An Act to Foster the Production of Improved Seeds and Plants in South Carolina and Provide for the Certification Thereof" empowered Clemson College to inaugurate a program of certification of pure seeds and plants of new and improved varieties. This Statute defined the terms "certification" and "certified" as applied to seeds and plants in the act as guarantee that all necessary precautions have been taken to insure that the seeds and plants conform to commonly recognized standards of quality for such seeds and plants as established by Clemson College.

The Department of Fertilizer Regulatory and Certification Services of Clemson University, hereinafter referred to as Seed Certification Department, is the official seed certifying agency for South Carolina. The Seed Certification Department is a member of the Association of Official Seed Certifying Agencies (AOSCA). All standards in this publication meet or exceed the standards of AOSCA and the seed certification standards and procedures in Federal Seed Act Regulations.

This publication contains in the General Certification Standards those standards which apply generally to all crops offered for certification in South Carolina. Individual commodity standards include any modifications of the General Certification Standards as well as standards which apply only to the specific crop.

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CHAPTER 27

CLEMSON UNIVERSITY REGULATIONS

ARTICLE 14

SEED CERTIFICATION STANDARDS

27-190. GENERAL CERTIFICATION STANDARDS

(Statutory Authority: 1976 Code Section 46-21-625)

In order to qualify as a seed certifying agency for purposes of section 101(a)(24) of the Federal Seed Act (7 U.S.C. 1551) the Fertilizer Regulatory and Certification Services of Clemson University, hereinafter referred to as the Seed Certification Department, enforces standards and procedures, as conditions for its certification of seed, that meet or exceed the standards and procedures specified in sections 201.68-201.78 of Federal Seed Act Regulations.

The following are the minimum standards required for the certification of seed and vegetative propagating material for genetic purity and identity by the Seed Certification Department. This seed certification program shall cover planting stocks of varieties*, hybrids, multi-lines, synthetics, etc. produced, conditioned, sampled, tested and labeled in accordance with the standards of the Seed Certification Department.

Crops Without Published Standards

In the case of crops for which no standards have been published in South Carolina, standards of the Federal Seed Act or the Association of Official Seed Certifying Agencies (AOSCA) shall apply. If no Federal or AOSCA standards have been published for the crop, standards of an AOSCA member agency certifying the crop will be used until South Carolina Standards are published.

I. Classes of Seed Recognized and Definition of Terms

- A. Breeder Seed is seed or vegetative propagating material directly controlled by the originating or sponsoring plant breeding institution, firm, or individual, and is the source for the production of the other classes of certified seed.
- B. Foundation Seed is a class of certified seed which is the progeny of Breeder or Foundation seed or vegetative propagating material produced and handled to maintain genetic purity and identity, as outlined for Foundation seed in the standards of the Seed Certification Department.
- C. Registered Seed is a class of certified seed which is the progeny of Breeder or Foundation or vegetative propagating material produced and handled to maintain genetic purity and identity as outlined for Registered seed in the standards of the Seed Certification Department.

- D. Certified Seed is a class of certified seed which is the progeny of Breeder or Foundation or Registered seed or vegetative propagating material produced and handled to maintain genetic purity and identity as outlined for Certified seed in the standards of the Seed Certification Department.
- E. Variety—The term variety (cultivar) denotes an assemblage of cultivated individuals which are distinguished by any characters (morphological, cytological, chemical or others) significant for the purposes of agriculture, forestry, or horticulture and which, when reproduced (sexually or asexually) or reconstituted, retain their distinguishing features.
- F. Off-type—a plant or seed not part of the variety in that it deviates in one or more characteristics from that which has been described by the breeder as being usual for the strain or variety.
- G. Hybrid—The term “hybrid” applied to kinds or varieties of seed means the first generation seed of a cross produced by controlling the pollination and by combining (1) two or more inbred lines; (2) one inbred or a single cross with an open pollinated variety; or (3) two selected clones, seed lines, varieties, or species. “Controlling the pollination” means to use a method of hybridization which will produce pure seed which is at least 75 percent hybrid seed. Hybrid designations shall be treated as variety names.
- H. Open-pollination—The term “open-pollination” means pollination that occurs naturally as opposed to controlled pollination, such as by detasselling, cytoplasmic male sterility, self-incompatibility or similar processes.
- I. Lot of Seed—a definite quantity of seed identified by a lot number, every portion or bag of which is uniform, within permitted tolerances, for the factors which appear in the labeling.
- J. Purity—the name of the kind, type or variety and the percentage thereof; the percentage of other crop seed; the percentage of weed seeds; the percentage of inert matter; and the names of the noxious weed seeds and the rate of occurrence of each.
- K. Conditioning—the various procedures involved in the mechanical handling of seed after harvesting to prepare the seed for marketing.
- L. Variants—seed of plants which are (a) distinct within the variety but occur naturally within the variety, (b) stable and predictable with a degree of reliability comparable to other varieties of the same kind, within recognized tolerances, when the variety is reproduced or reconstituted and (c) which were a part of the variety as originally released. Variants are not to be considered off types.
- M. Label—the term label as used herein shall be defined as an attachment to or printed area of a seed container which contains product identity and quality information as required by these standards and the SC Seed Law.

II. Eligibility Requirements for Certification of Varieties

A variety shall be eligible for certification in South Carolina only if it has been approved as meriting certification by the Seed Certification Department or one other agency which is a member of AOSCA, or by an appropriate national variety review board. The originator, developer, owner or agent must

provide the following information when eligibility for certification is requested (this information may be submitted on forms provided by the Seed Certification Department or on an application for US Plant Variety Protection):

- A. The name of the variety. This name must be the established name if the variety has previously been marketed.
- B. A statement concerning the variety's origin and the breeding procedure used in its development.
- C. A detailed description of the morphological, physiological, and other characteristics of the plants and seed that distinguish it from other varieties, including variants and the frequency expected within the variety.
- D. Evidence of performance of the variety, such as comparative yield data, insect and disease resistance, or other factors supporting the identity of the variety.
- E. A statement delineating the geographic area or areas of adaptation of the variety.
- F. A statement on the plans and procedures for the maintenance of seed classes, including the number of generations through which the variety may be multiplied.
- G. A description of the manner in which the variety is constituted when a particular cycle of reproduction or multiplication is specified.
- H. Any additional restrictions on the variety, specified by the breeder, with respect to geographic area of seed production, age of stand or other factors affecting genetic purity.
- I. A sample of seed representative of the variety as marketed.

Upon approval of a variety for certification, a detailed description of the identifiable characteristics of the variety shall be supplied the Secretary of AOSCA by the Seed Certification Department. The Secretary of AOSCA shall make this description available to other certifying agencies to enable certification of the variety in their states.

III. Limitations of Generations

The number of generations through which a variety may be multiplied shall be limited to that specified by the originating or sponsoring breeder or owner of the variety and shall not exceed two generations beyond the Foundation seed class with the following exceptions:

- A. Re-certification of the Certified class may be permitted for older varieties where Foundation seed is not being maintained.
- B. The production of an additional generation of the Certified class only may be permitted on a one-year basis, when an emergency is declared by the certifying agency stating that the Foundation and Registered seed supplies are not adequate to plant the needed Certified acreage of the variety. The permission of the originating or sponsoring plant breeder,

institution, firm or owner of the variety, if existent, must be obtained. The additional generation of certified seed to meet the emergency need is ineligible for re-certification.

IV. Application for Certification

A. All persons who desire to have seed certified in S.C. must file applications with the Seed Certification Department. Application blanks are available by contacting the Seed Certification Department or by accessing it online at: Clemson.edu/frcs.

B. Establishing the Source of Seed.

In order to establish the source, class and quantity of seed used to plant each crop to be considered for certification, the applicant must submit with the application an invoice or bill of lading and one label from each lot of seed planted or in the case of turfgrass, a turfgrass certificate must be submitted. In cases where growers plant eligible seed from their own production, lot numbers for the seed stock used must be provided with the application to allow for verification that an acceptable analysis report is on file with the Seed Certification Department. The applicant's signature on the application for certification is affidavit that the information submitted for verification of seed eligibility represents the total amount of seed used.

C. Certification Charges and Dates for Filing Applications.

Completed applications with accompanying seed documentary evidence specified in section B should be filed with the Seed Certification Department by the appropriate dates specified on the application and should be accompanied with applicable fees as indicated on the certification application form.

D. Late Application Fee

If an applicant fails to file application within 15 days of the deadline date for filing an application for certification of a crop, a late application fee will be added to regular certification charges.

E. Canceling Applications

To receive a full refund of all charges related to the application, applicants desiring to cancel applications for certification must inform the Seed Certification Department in sufficient time to notify the field inspector. If the inspector cannot be notified in time to prevent an unnecessary trip to the farm, the farm fee indicated on the application will be assessed.

V. Production of Seed

A. Maintenance of Genetic Purity and Identity

1. The applicant for certification shall be responsible for maintaining genetic purity and identity at all stages of certification including seeding, harvesting, storage, conditioning and labeling of the seed. Failure of the applicant to maintain genetic purity and identity at any stage of certification shall be cause for rejection of the crop for certification.

2. The applicant's signature on the application for certification is affidavit of the following:

- a. That all equipment involved in planting, harvesting or other handling will be adequately cleaned to maintain genetic purity and identity of the seed.
- b. That only the seed verified as the eligible seed source on the application was planted in the field(s) described on the application.
- c. That the identity of the seed will be maintained from harvest to the time it leaves the applicant's possession through the use of an identification system as indicated in this section, F and section VI, B, 2.

B. Unit of Certification

The unit of certification shall be a clearly defined area, which may be divided subject to specific crop standards.

C. Field Inspection

One or more field inspections shall be made each time a seed crop of any certified class is to be harvested and when genetic purity and identity or any other factor affecting seed certification can best be determined. The field shall be in such condition to permit an adequate inspection to determine genetic purity and identity. Weeds present in any field to the extent that genetic purity determination is not possible shall be sufficient cause for rejection of that field.

D. Re-inspection of Rejected Fields

If a grower desires re-inspection of a rejected field, he must notify the Department when deficiencies have been corrected. The cost of re-inspections shall be another farm fee and inspection fee. Another farm fee will not be charged on a re-inspection if a re-inspection can be performed in conjunction with other first-time inspection work on later maturing varieties, etc.

E. Seed-Borne Diseases and Seed Treatment

Every field for which certification is requested shall show evidence that reasonable precaution has been taken to control seed-borne diseases. The field at time of inspection shall not contain injurious seed-borne plant diseases beyond established tolerances specified in the individual crop seed standards. New diseases may create a need for new standards before they can be published. In such situations, the Seed Certification Department shall impose such standards as are deemed to be in the best interest of S. C. Certified seed. When seed of a variety without resistance to a seed-borne disease has been subjected to possible infection by the disease, it is desirable that such seed be treated with a recommended seed treatment.

F. Inspection of Harvested Seed.

Harvested lots of seed from inspected fields may be inspected at any time by representatives of the Seed Certification Department. Evidence that any lot of seed has not been protected

from contamination which affects genetic purity, or is not properly identified, shall be cause for rejection of the seed for certification. Bins and other storage facilities must be labeled or marked to indicate crop, variety and class. Office records on identification of seed in storage must indicate variety, class, grower, approximate quantity and storage locations.

G. Bulk Shipment of Certified Seed for Conditioning.

When any class of certified seed is being transported in bulk for conditioning, the form Shipping, Receiving and Conditioning Report for Bulk Seed must be completed and filed with the Seed Certification Department. This form identifies the certifying agency, the crop and variety, class of seed, lot number, quantity, conditioner, etc. This form is also to be used to record change of ownership of seed.

VI. Conditioning of Seed

A. All seed to be certified in South Carolina must be conditioned at facilities which are inspected and approved for conditioning certified seed. The seed may be conditioned by the grower on his own equipment or by an approved custom or commercial conditioner provided inspections by the Seed Certification Department determine that genetic purity and identity can be maintained during all handling of certified seed at the facility including storage, conditioning and labeling.

B. Conditioners of all classes of certified seed shall meet the following requirements:

1. Facilities must be available that can condition seed without introducing admixtures. The conditioner shall be responsible for proper cleaning of facilities to prevent contamination of certified seed delivered for conditioning.
2. Identity of the seed must be maintained at all times.
 - a. Certified seed being delivered for conditioning must be adequately identified by the grower. All unconditioned certified seed stored in bins or other areas on the premises must be labeled or marked to indicate variety and class.
 - b. At the time of bagging of conditioned certified seed, each bag of seed shall have permanently marked on it the variety and lot number. The use of a stencil or stamp is recommended but any means of permanently marking bags is acceptable. Once marked on the bag, a lot number may not be removed or marked out and another lot number substituted for it.
 - c. Each bin or container of bulk conditioned seed which is ready for sale or which is being transferred to storage for sale must be labeled with the form "S.C. Bulk Registered or Certified Seed Label and Inventory" (available on the seed certification website) which must be obtained from the Seed Certification Department.
3. Records of all operations relating to certification must be complete and adequate to account for all incoming seed and final disposition of seed.
4. Conditioners shall permit inspection by the Seed Certification Department of all records pertaining to certified seed.

5. Conditioners shall designate an individual who shall be responsible for performing the duties required by the Seed Certification Department.

C. Seed Lots of the same variety and seed class may be blended and the seed class retained. If lots of different classes are blended, the lowest class shall be applied to the resultant blend. Such blending can only be done when authorized by the Seed Certification Department.

D. The Seed Certification Department shall have the authority, without prior notice, to inspect facilities used to condition certified seed to determine that the facilities and handling of the seed comply with the requirements of section VI, Conditioning of Seed. Any conditioner who fails to meet these requirements shall forfeit his right to condition certified seed until deficiencies are corrected.

E. If South Carolina certification tags are to be issued on seed which was field-approved in South Carolina but is to be conditioned in another state, must be conditioned in an approved conditioner from the certifying agency of that state.

F. Approved Conditioners

1. Conditioners who desire to condition certified seed for other growers in South Carolina must apply annually for Approved Conditioner classification. Conditioners desiring to apply for Approved Conditioner classification for the first time should request application blanks from the Seed Certification Department.

2. Inspections. Plants applying for Approved classification will be inspected at least once annually with the times of inspections to be at the discretion of the Seed Certification Department and without prior notification to the conditioner. Approved conditioner classification shall remain in effect for one year providing subsequent inspections do not disclose deficiencies which result in loss of the classification. If, during inspection, deficiencies are noted that prevent the facility from being granted the Approved classification, the owner will have 30 days to correct the deficiencies before losing the Approved classification. Consideration will be given to correction of deficiencies that would require more than 30 days because of need for mechanical or engineering changes. If Approved status is lost as the result of deficiencies not corrected, re-instatement must be accomplished by filing a new application and paying another inspection fee. At the end of the year during which a facility has retained its Approved status the Seed Certification Department will notify the conditioner of the need to file an application for renewal of Approved classification.

3. Inspection Fee. The annual fee for Approved conditioner classification shall be payable at the time application is filed. The fee will cover all inspections for one year if, during the course of the year's inspections, the facility retains its Approved classification. If a facility loses its Approved classification as the result of deficiencies noted during inspections and the conditioner desires to correct the deficiencies and request reinstatement to Approved status, he must file a new application and pay the fee again.

4. Listing of Approved Conditioners

The Seed Certification Department shall publish semiannually and mail to seedsmen and growers the list of Approved Certified Seed Conditioners in South Carolina. When a facility loses Approved status, all certified seed growers who are using the facility will be notified of the need to arrange for conditioning elsewhere until the facility regains Approved status.

5. Loss of Approved Conditioner Classification

Loss of Approved conditioner classification may result from:

a. Failure to meet conditioning requirements of this section, VI. Conditioning of Seed. Under these circumstances re-instatement of the Approved classification may be accomplished as indicated under F. 3. Inspection Fee.

b. If, during any year in which a conditioner is classified Approved, more than ten percent (10%) of the samples of his certified seed are found out of tolerance in a percentage of purity, inert matter, weed seed or other crop seed, he will forfeit the Approved classification for no less than one year. This applies to all classes of certified seed on which the conditioner’s name appears as seedsmen on the certification label or Bulk Conditioned Seed Sale Certificate for S.C. Registered or Certified Seed. Analyses of samples of certified seed conditioned for other growers shall be the basis for application of this standard to the conditioner who conditions no certified seed for himself. Determination of samples out of tolerance will be based on analyses of a combination of the samples of certified seed obtained by Seed Certification Department and S. C. Department of Agriculture inspectors as compared to analysis labels on the seed. No conditioner shall have his Approved classification withdrawn on the basis of analyses of less than fifty (50) samples annually unless the number of samples found out of tolerance at the end of the year exceeds five (5), (10% of 50). When less than fifty (50) samples of a conditioner’s certified seed are drawn annually by Seed Certification and S. C. Department of Agriculture inspectors, and the number of samples found out of tolerance during the year has not exceeded five (5), the percentage of samples out of tolerance will be determined when fifty (50) such samples have been drawn and analyzed.

Should loss of Approved Conditioner classification be appealed to the Seed Certification Department and not be resolved amicably, the complainant may appeal to the Clemson University Board of Trustees. In which case, the Chairman of the Board will appoint a committee with Board representation and representative members of the seed industry to study the matter and make recommendations to the Board.

VII. Lot Size, Sampling, Seed Testing

A. The maximum quantity of seed permitted per lot and size of sample required for a purity and germination test is as follows:

	CROP	MAXIMUM LOT SIZE	SAMPLE SIZE
	Peanuts	500 bags or 25,000 lbs.	2 lb.
	Small Grains:		
	Barley	24,000 lbs.	2 lb.
	Oats	32,000 lbs.	2 lb.

	Rye	28,000 lbs.	2 lb.
	Triticale	24,000 lbs.	2 lb.
	Wheat	30,000 lbs.	2 lb.
	Soybeans	30,000 lbs.	2 lb.

Note: Varietal purity determination is not possible on seed which has been treated with some pesticides. If a pesticide is to be used which coats or colors the seed, a sample of the conditioned, untreated seed must be submitted for purity analysis and a sample of the conditioned, treated seed must be submitted for the germination test.

B. Sampling of conditioned seed for certification may be accomplished by any of several approved methods but the primary consideration should be that the sample is as representative of the seed as possible. The signature of the applicant for certification is affidavit that he and the conditioner of his seed are familiar with and will draw samples for certification in accordance with one of the following approved sampling methods:

1. If seed is sampled during conditioning, the most representative sample can be obtained with an automatic sampling device in the flow of conditioned seed or by taking a small portion of seed by hand from the top of each bag before it is closed. When conditioning of a lot is complete (see maximum lot size, item A) the seed taken from each bag should be thoroughly mixed and a sample of the seed required for testing (see size of sample required, item A) taken from this seed.

2. If seed is sampled after conditioning and closing of bags, a probe or trier long enough to reach all areas in the bag shall be used for free flowing seed. When sampling closed bags in quantities of one to six bags, a sample shall be composed of a core from each bag for a total of at least five cores for each sample. For lots of more than six bags, sample five bags plus at least 10% of the number of bags in the lot. Regardless of lot size, it is not necessary to sample more than thirty bags.

3. If seed is sampled after conditioning and is to remain in bulk, it shall be sampled by inserting a long probe into the seed at well distributed points throughout the bulk. Sufficient seed must be obtained from the bulk conditioned seed to provide the same number of samples required from the seed as if it were being bagged. (See VII. A.).

4. Note: Federal Seed Act Regulations require maintenance of a complete record on each lot, including a sample representing each lot transported or delivered for transportation in interstate commerce. Records and sample are to be kept for three (3) years, except that any sample may be discarded one (1) year after the entire lot has been disposed of by the person transporting or delivering the seed for transportation in interstate commerce.

It is advisable to retain a sample regardless of where the seed is sold.

C. The Seed Certification Department and its designated representatives shall have the authority, without prior notice, to sample conditioned certified seed while the seed is on the premises of or remains the responsibility of the seedsman whose name appears on the certification tags or bulk sale certificate.

The producer or conditioner, depending on location of the seed, is expected to stack and store conditioned certified seed to permit reasonable access for random sampling of the lots available in accordance with procedure outlined in B. 2 and 3 of this section of standards. "Reasonable access" as used herein is interpreted as being afforded access to sample at random a representation of the lots of certified seed in a warehouse or other facility without causing undue inconvenience to the conditioner or producer.

D. The South Carolina Department of Agriculture (SCDA) is designated by law as the only official laboratory for testing certified seed samples in South Carolina. Certified seed tags or bulk sale certificates will be issued only on the basis of "Official Sample" tests by the SCDA or other lab approved by the Department, but only in those circumstances with the SCDA is unable to complete the testing in a reasonable period of time and only for those seeds to be sold outside of the state.

1. Each applicant whose fields meet certification standards will be furnished "Official Sample" stickers which must be attached to certified seed samples submitted to the SCDA for testing. The detailed "Official Sample" analysis must be performed on certified seed samples to determine that seed standards of the certification program are met.
2. Analyses performed on more than one sample taken from a given quantity of seed, without some form of reconditioning (re-cleaning, treating, etc.) shall be averaged to determine acceptance or rejection of the seed for certification.
3. Note: It is a violation of the S.C. Seed Law to offer seed for sale or distribution before it has been analyzed in accordance with the provisions of the S. C. Seed Law.

VIII. Grow-Out Tests

As an additional check on the effectiveness of the certification program, the Seed Certification Department will routinely sample conditioned certified seed and plant the seed to determine that seed purity is being maintained and that producers or conditioners are sampling seed properly. In all cases where possible, grow-out plantings of these samples will be planted immediately adjacent to plantings from samples of the same lots which producers or conditioners submitted to the S.C. Department of Agriculture Seed Laboratory for purity and germination tests. Plantings from these two samplings of the same lot of seed will be expected to vary little when planted side by side. Obvious variation will be interpreted as failure of the producer or conditioner to obtain a representative sample of the lot. In such cases the producer or conditioner will be notified of the need to implement measures to insure representative sampling. Failure of a producer or conditioner to implement measures to insure representative sampling of lots will result in loss of the privilege to produce or condition certified seed until necessary corrective measures are taken.

IX. Labeling

A. Bag and Bulk Bin Labels

1. All classes of certified seed offered for sale shall have the official certification tag or bulk bin label properly affixed to each bag or container except for vegetable seeds in containers of 5 pounds or less, for which the labels need not bear the name of the kind and variety, provided the

name of the kind and variety is shown elsewhere on the containers. Even if all standards have been met, seed will not be considered certified unless properly labeled.

All information the grower is required to provide to complete certification must be on file with the Seed Certification Department before certification tags or bulk bin labels will be issued.

2. The certification tag or bulk bin label attached to each bag or container serves as evidence of the genetic purity, identity, mechanical purity and germination of the seed contained therein. The following colors of tags shall be used to designate classes of seed:

- a. White for Foundation class.
- b. Purple for Registered class.
- c. Blue for Certified class.

3. Certification tags or bulk bin labels must be obtained from the Seed Certification Department.

Proper attachment of tags or bulk bin labels shall be the responsibility of the person for whom the seed is being certified. Tags must be attached only to the lot of seed actually sampled and tested and for which the tags or bulk bin labels were specifically issued. The lot number on the tag must be the same as the lot number on the bag. (see VI. B. 2 [b])

If certified seed is sampled in the seed trade by the S.C. Department of Agriculture and a STOP ORDER is issued against the seed, the certification tags must be removed and returned to the Seed Certification Department.

4. The certification tag shall be attached to the container in a manner which prevents easy removal and reattachment.

- a. With fabric bags or open top paper bags it is recommended that the tag be sewn on, or in the top of the bag.
- b. With valve filled paper bags and plastic bags or containers (including metal) it is recommended that the labels be glued to the container with an adhesive which prevents removal without destroying the label.
- c. The label may be printed directly on the container, if control of such containers can be maintained by the certifying agency.
- d. Closing of paper, plastic, and metal containers will vary. The most satisfactory method is that of cementing the closure with an adhesive (glue, pressure-sensitive, thermo-plastic, etc.) which prevents entry to the container without leaving noticeable evidence of such tampering. Cementing the certification label over the enclosure is recommended where practicable.

5. If reconditioning of a lot of certified seed becomes necessary for any reason, certification tags attached to it may not be reused.

B. Bags

1. All classes of Certified seed offered for sale shall be bagged in official certification bags or in bags approved by the Seed Certification Department. It is desirable that bags other than official certification bags bear a brand name or emblem. Only new bags may be used for all classes of certified seed.

2. When seed is bagged in official certified bags but found not meeting certification standards when analyzed, the seed must be re-bagged in non-certified bags, or the bag must be defaced to the extent that all mention of certification, the Seed Certification Department and Clemson University is obliterated.

Official Note: It is a violation of the SC Seed Law to offer for sale or distribution in official certification bags and bearing no official certification label, seed that fails to meet SC Certification Standards.

X. Sale of Conditioned Seed in Bulk

A. Conditioned S. C. Registered and Certified classes of small grain or soybean seed may be sold in bulk by growers who are Approved S.C. certified seed conditioners or growers with their own conditioning equipment.

B. All field and seed standards applying to bagged seed shall apply to bulk Registered and Certified seed.

C. Only one sale of bulk Registered or Certified seed is permitted.

D. Each bin or container of bulk conditioned seed which is ready for sale or which is being transferred to storage for sale must be labeled with a “S.C. Bulk Registered or Certified Seed Label and Inventory” form. This form must be obtained from the Seed Certification Department. One copy is to be attached to the bin or container, one copy is to be maintained by the Conditioner in his files and one copy is to be provided the Seed Certification Department.

E. Whenever a sale is to be made from bulk conditioned seed, a copy of the form “Bulk Conditioned Seed Sale Certificate” (available on the seed certification website) for S. C. Registered or Certified Seed must be obtained from the Seed Certification Department, completed, signed and issued to the purchaser to accompany the seed at the time of purchase. One copy must be retained in the conditioner’s files and one copy must be mailed to the Seed Certification Department.

F. Conditioned seed to be sold in bulk must be sampled in accordance with sampling procedure specified in VII. B. 3.

XI. Seed in Emergencies

It is recognized that in emergency situations caused by such things as adverse weather conditions, certain lots that would be needed to provide an adequate seed supply would be lost if regular certification standards were enforced. Under such circumstances, seed failing to meet certification standards other than those affecting genetic purity, may be certified when approved by the Seed Certification Department, provided there is no injury to the reputation of certified seed. The

certification tag or bulk bin label attached to such seed shall clearly show in what respect the seed does not meet certification standards. Substandard labeling provisions will be invoked only when warranted by the condition of an entire crop, variety of class of seed.

XII. Complying with Federal and State Seed Laws

Responsibility for any obligations arising from the sale or shipment of certified seed rests with the grower or subsequent handler making the sale or shipment. Responsibility for compliance with the seed labeling requirements of the country, state or province into which certified seed is shipped rests with the seller.

XIII. Grower or Vendor Responsibility

A. The grower or vendor whose name appears on the certification tag or bulk sale certificate guarantees to the first buyer that the seed to which the tag is attached or which the bulk sale certificate accompanies is a part of the lot designated on the tag or bulk sale certificate and is a part of the lot(s) of seed represented by samples which have met all requirements for certification.

B. Responsibility for compliance with certification requirements for seed to which a certification label or bulk sale certificate is attached, and responsibility for proper use of certification labels for bulk sale certificates rests, in all cases, with the seedsman whose name appears on the label or bulk sale certificate.

XIV. Producer Records

It is the responsibility of each grower of certified seed to maintain an accurate record of all sales including the name of purchaser and address, lot numbers, amount and date. The Seed Certification Department has the right to call for specific sales records and will periodically conduct random examinations of sales records. Failure to supply such records, when requested, or failure to give satisfactory reasons for being unable to supply such records, shall forfeit a grower's privilege to produce certified seed.

XV. Interagency Certification

A. Interagency certification is the participation of two or more official certifying agencies in performing the services required to certify the same lot or lots of seed. South Carolina Seed Certification Standards or comparable standards of other official seed certifying agencies must be met if the Seed Certification Department is to issue interagency certification tags. This includes the requirement that all certified seed to be tagged by the Seed Certification Department must be analyzed by the S. C. Department of Agriculture Seed Testing Laboratory or other agency under certain circumstances, whereby Clemson and the South Carolina Department of Agriculture mutually agree to the designated agency(ies).

B. Only those varieties declared eligible for certification by the Seed Certification Department or another Official Seed Certifying agency will be eligible for interagency certification in South Carolina.

C. Seed to be recognized for interagency certification must be received in containers carrying official certification labels, or if shipped for conditioning, carry evidence of its eligibility from another official certifying agency, together with the following information:

1. Variety (if certified as to variety) and kind
2. Quantity of seed (pounds or bushels)
3. Class of seed
4. Inspection or lot number traceable to the previous agency's records.

D. Interagency certification tags shall carry the certification identification number and clearly identify the certifying agencies involved, the variety, the kind and class of seed except for vegetable seed in containers of 5 pounds or less for which the labels need not bear the name of the kind and variety and agencies involved provided the name of the kind and variety and agencies involved are shown elsewhere on the containers.

27-196. Vegetatively Propagated Turf-grass Certification Standards.

I. Application of General Certification Standards

A. The General Certification Standards, Clemson University Regulation 27-190, are basic and applicable and together with the following specific standards, constitute the standards for certification of vegetatively propagated turfgrasses.

B. The following specific standards constitute the standards for certification of vegetatively propagated warm season turf-grasses including bermuda, centipede, zoysia, St. Augustine and seashore paspalum.

C. The General Standards are modified as follows:

1. Foundation Turf—shall be the vegetative increase of Breeder or Foundation turf.
2. *Registered Turf—shall be the vegetative increase of Foundation turf.
3. Certified Turf—shall be the vegetative increase of Foundation or Registered turf.
4. Life of Stand: The life of the stand will continue for all classes of vegetatively propagated turf grasses as long as the varietal and mechanical purity for the class is maintained, unless life of stand is more narrowly defined by the originator or sponsoring agency.

*A grower of Registered turf may increase his acreage of Registered turf from his own production provided the increase is adjacent and planted on land under the control of the grower. The size of such increase is not to exceed a total of ten (10) additional acres. The grower can increase acreage by the equivalent number of original acres up to ten acres.

OR

Grower Application - Grower will submit application for certified turfgrass by published dates on the application. Applications can be obtained from the seed certification department or online. Payment will be submitted with the application prior to processing by the department. A late fee will apply after the application deadline. A map designating field identification must be submitted with each application. Fields will not be inspected without proper signage and maps. Those fields are subject to a reinspection fee.

II. Land Requirement.

A. A field to be eligible for the production of Foundation, Registered or Certified turf must be free of all perennial grasses and objectionable/noxious weeds. This requirement may be waived only with the approval of the program manager.

B. A field for production of Foundation or Registered sod shall be fumigated with a recommended soil fumigant.

C. No animal manures or other material potentially containing seeds shall be applied on sod to be entered for certification.

III. Field Standards.

A. General requirements

1. Unit of Certification.

A field or portion of a field may be certified. A sign must be posted in each field bearing the Kind, variety and field number year round.

2. Isolation requirements:

Plantings of vegetatively propagated turf grasses must be isolated from any other variety and other perennial grasses by an artificial barrier and/or strip at least six (6) feet wide to prevent mixing during the growing season and harvesting operation.

B. Specific Requirements (maximum permitted).

Factor	Foundation	Registered	Certified
Off-Types*	1/ 5 acres	1/ 2 acre	1/ acre
Other Living plants**	50/ acre	100/ acre	200/ acre
*Off-types shall consist of all other kinds and other varieties than the variety being produced			
If factor is found in excess of standards and area flagged by inspector, roguing and/or eradication by spot spraying will be permitted to bring turf within standards.			
If field or partial field is rejected three consecutive inspections due to genetic purity, the field will be subject to inspection penalty fees until it is brought into conformity. If partial field is removed from certification, a border strip must be installed promptly, prior to the next inspection.			

**Over-seeding with a non-persistent cool season grass is acceptable and the production field may be sold as certified if the field passed the last inspection.

IV. Turf Standards.

A. No noxious/objectionable weeds are permitted. Objectionable weeds are perennial sedges other than nutsedge (grass) and *Dicronidia* spp.

B. A complete record on the amount of certified turf sales will be maintained and made available to the official certifying agency. The record will include (a) class of certified turf sold (Foundation, Registered, or Certified), (b) Kind and Variety, (c) field number, (d) date of harvest, (e) amount of turf shipped (square feet, cubic feet, bushels, etc.).

V. Turfgrass Certificates.

A. An official certificate or label will accompany each shipment of certified sprigs, sod or plugs, traceable to the map required in III above and the date of digging must be indicated. Certificates can be obtained for a fee from the Seed Certification Department or online using the free provided application.

B. The tag shall show the number of square yards of sod or cubic feet or bushels of sprigs.

C. Certified Turfgrass growers will elect an authorized representative who is responsible for issuing turfgrass certificates. The representative will attend a training once every two years hosted by the Seed Certification Department. Authorized Representative will follow the guidance outlined by the seed certification department to be certain turfgrass certificates are correct and representative of certified turfgrass.

D. When grass is shipped in truck loads, one bag, block, or container of grass representing the lot shall be properly tagged to accompany the shipment.

E. A complete record on the amount of certified turf sales will be maintained and made available to the official certifying agency. The record called the Producers Estimate, will include (a) class of certified turf sold (Foundation, Registered, or Certified), (b) Kind and Variety, (c) field number, (d) date of harvest, (e) amount of turf shipped (square feet, cubic feet, bushels, etc.).

27-1000. Peanut Seed Certification Standards.

I. Application of General Certification Standards

The General Certification Standards, Clemson University Regulation 27-190, are basic and applicable and together with the following specific standards constitute the standards for certification of peanut seed.

II. Land Requirements.

A crop of peanuts will not be eligible for certification if planted on land which grew peanuts either of the previous two years unless the preceding peanut crop was grown from certified seed of the same variety.

III. Field Inspection.

A field inspection shall be made before harvest.

IV. Field Standards.

A. 1. Unit of Certification.

The unit of certification shall be a field or a portion of a field.

2. Isolation

An isolation of a minimum of ten feet is required for all classes of certified seed from other varieties or from peanuts grown from uncertified seed of the same variety shall be required.

3. Certified (all classes) seed production fields may be rejected if weeds and grasses prevent variety determination and purity by the inspector.

B. Specific Requirements

	Maximum Permitted in Each Class		
Factor	Foundation	Registered	Certified
Other varieties*	1:1000	1:500	1:200
*Other varieties shall be considered to include off-type plants that can be differentiated from the variety that is being inspected.			

V. Seed Standards

	Standards for Each Class		
Factor	Foundation	Registered	Certified
Pure seed (min.)	N.S.	97.00%	97.00%
Inert Matter (max.)	N.S.	3.00%	3.00%
**Weed Seeds (max.)	0.01%	0.01%	0.01%
Objectionable or Noxious			
Weed Seeds	None	None	None
Other Crop Seeds	0.11%	.21%	.52%
***Other Kinds (max.)	0.01%	.01%	.02%
Other Varieties (max.)	0.10%	.20%	.50%
Germination & Hard Seed (min.)	N.S.	70.00%	70.00%
**Total weed seeds shall not exceed 5 per lb.			

***Other kinds shall not exceed 2 per lb. for Foundation and Registered, and 3 per lb. for Certified.

VI. Size of Lots

For the purpose of issuing certification tags the standard lot size for peanuts shall be a maximum of 500 bags or 25,000 lbs.

VII. Size of Official Sample

A 2 lb. sample of peanuts is required for official purity and germination tests by the S. C. State Department of Agriculture.

VIII. Certified peanuts cannot be stored in the same building with other peanuts unless they are properly identified.

IX. Conditioning Seed

Certified seed peanuts shall be handled through approved conditioning plants by a certifying state agency. Certified peanut seed should be treated with a recommended fungicide for the control of seedborne organisms. The rate of application and material used for treatment of the sample shall be the same for the lot.

X. Carry Over

Certified Seed peanuts cannot be carried over a year and sold as certified seed.

27-1002. Small Grain Certification Standards (Wheat, Oats, Barley, Rye, and Triticale).

I. Application of General Certification Standards

The General Certification Standards, Clemson University Regulation 27-190, are basic and applicable and together with the following specific standards constitute the standards for certification of small grains.

II. Land Requirements

A small grain crop shall be planted on land on which the last crop grown was of another crop kind other than small grains, or was planted with a class of certified seed of the same variety. A crop will not be eligible for certification if planted on land on which the same crop kind was grown the previous year, unless the previous crop was grown from a class of certified seed of the same variety.

III. Field Inspection

A field inspection shall be made after the crop has fully headed, but before harvest.

IV. Field Standards.

A. General

1. Unit of certification

The unit of certification shall be a field but a portion of a field may be approved provided the discarded portion can be harvested separately and is eliminated from certification.

2. Isolation

a. Wheat, Oats, Barley, Triticale

A field shall be separated by a strip of ground adequate to prevent mechanical mixtures. The strip may be either mowed, uncropped or planted to some crop other than the kind being certified.

b. Wheat for certification must be isolated from a field of rye by a distance of 660 feet.

c. All barley and wheat fields for the production of all classes of certified seed must be isolated by at least 990 feet from other fields which contain smut in excess of the tolerance indicated in the specific field standards.

d. A field producing any class of certified seed must be isolated by at least 660 feet from rye fields of any other variety or fields of the same variety that do not meet the varietal purity requirements of the class of seed inspected and are the same chromosome number. Isolation between diploid and tetraploid rye shall be at least 15 feet.

B. Specific

	Foundation	Registered	Certified
Other varieties (maximum)	1:3000	1:2000	1:1000
*Inseparable other crops (max.)	1:10,000	1:10,000	1:2000
**Objectionable weeds (maximum)	None	None	None
Loose and covered smut	-	1:2000	1:1000
*Inseparable other crops shall include crop plants, the seed of which cannot be thoroughly removed by the usual methods of cleaning. Rye in wheat and barley in oats are well known examples.			
**Objectionable weeds shall include all S.C. Noxious weeds and other as designated by the Seed Certification Department.			

V. Seed Standards

Standards for Each Class			
	Foundation	Registered	Certified
Pure Seed (min.)			
Wheat, Barley, Oats	-	98.00%	98.00%
Rye	-	97.00%	97.00%

	Triticale	-	96.00%	96.00%
Inert Matter (max.)				
	Wheat, Barley, Oats	-	2.00%	2.00%
	Rye	-	3.00%	3.00%
	Triticale	-	4.00%	4.00%
*Common Weed Seeds (max.)				
**Objectionable Weed Seeds (max.)				
***Other Crop Seeds (max.)				
	Other Varieties same crop	1 seed/lb.	2 seeds/lb.	5 seeds/lb.
****Other Small Grains				
Other Kinds of Crops				
Germination (min.)				
	Barley, Oats, Wheat, Triticale	-	85.00%	85.00%
	Rye	-	75.00%	75.00%
Diseases				
*For Common Weed Seeds a maximum of 20 per pound must not be exceeded in any class.				
**Objectionable weeds shall include all S.C. Noxious Weeds and others as designated by the Seed Certification Department.				
***For Other Crop Seeds, no combination of components may exceed 2 per pound in Foundation, 5 per pound in Registered, or 10 per pound in Certified.				
****For rye in Other Small Grains, standards shall be, 0 for Foundation, 1 for Registered and 2 for Certified.				
If chemically controlled seed-borne diseases are noted upon field inspection or laboratory observation, seed treatment may be required.				

VI. Size of Lots

Barley	24,000 lbs. (500 bu.)
Oats	32,000 lbs. (1000 bu.)
Rye	28,000 lbs. (500 bu.)
Triticale	24,000 lbs. (500 bu.)
Wheat	30,000 lbs. (500 bu.)

VII. Size of Official Sample

A 2 lb. sample of small grains is required for official purity and germination tests by the S.C. State Department of Agriculture.

27-1003. Soybean Certification Standards.

I. Application of General Certification Standards

The General Certification Standards, Clemson University Regulation 27-190, as adopted are basic and applicable and together with the following standards constitute the standards for certification of soybean seed.

II. Land Requirements

Soybeans shall be grown on land on which the previous crop was of another kind, or planted with a class of certified seed of the same variety or with a variety of a contrasting pubescence or hilum color.

III. Field Inspections.

A. Time of Inspection.

A field inspection shall be made after leaves have dropped and prior to harvest. For Foundation class, a flower color inspection shall also be made.

B. Handling of Crop Prior to Inspection

Off-type soybean plants or other objectionable plants, such as corn and cowpeas, should be removed from the field.

C. Foundation class should be inspected at flowering for blossom color.

IV. Field Standards

A. General

1. Unit of certification

The unit of certification shall be a field but a portion of a field may be approved provided the discarded portion can be harvested separately and is eliminated from certification.

2. Isolation

Fields of soybeans shall be separated from any other variety or uncertified seed of the same variety by a strip of ground not in soybeans and at least 5 feet wide.

B. Specific

		Maximum Permitted—Ratio of Plants		
		Foundation	Registered	Certified
	Other varieties	1:5000	1:3000	1:2000
	Weeds and other crops with			
	inseparable seeds	All must be removed from field prior to harvest.		

V. Seed Standards

Factor	Standards for each class		
	Foundation	Registered	Certified
Pure Seed (minimum)	N.S.	98.00%	98.00%
Inert Matter (maximum)	N.S.	2.00%	2.00%
*Weed seeds (maximum)	0.03%	0.04%	0.05%
**Objectionable weed seed (maximum)	None	None	None
Total other crop seeds (max.)	2/lb.	4/lb.	8/lb.
***Other varieties (max.)	2/lb.	4/lb.	8/lb.
****Other kinds	1/lb.	1/lb.	2/lb.
Germination and hard seed (minimum)	N.S.	80.00%	80.00%
*Total weed seed shall not exceed 10 per lb.			
**Objectionable weeds shall be S.C. noxious weeds and others designated by the Seed Certification Department.			
***Off-colored beans due to environmental factors shall not be considered other varieties. Other varieties shall be considered to include off-type seeds that can be differentiated from the variety that is being analyzed.			
****Corn, sunflower seed, maximum; Foundation - N.S.; Registered-None; and Certified - 1 per pound; Cowpea Seed, Maximum; Foundation and Registered - None; Certified - 1 per pound. The preceding cowpea standards apply for issuing certification tags. S.C. certified soybeans sampled by the S.C. Department of Agriculture (SCDA) or the Seed Certification Department after having been tagged must have the certification tags removed and all mention of certification eliminated on the bag if found containing any cowpeas in Foundation Seed, more than one cowpea per pound in Registered seed or more than two cowpeas per pound in Certified seed. N.S.-No Standards			
****Germination for edible varieties may be lowered to 70.00%.			

VI. Size of Lots

For the purpose of issuing certification tags or bulk sale certificates the standard maximum lot size for soybeans shall be 30,000 lbs.

VII. Size of Official Sample

A 2 lb. sample of soybeans is required for official purity and germination tests by the S.C. Department of Agriculture. Note: If soybean seed are to be treated with a pesticide that coats or colors the seed, a sample of the untreated, conditioned seed must be submitted for the varietal purity analysis and a sample of the treated, conditioned seed must be submitted for the germination test.

27-1005. Certification Standards for Hemp (*Cannabis Sativa L. Subsp. Sativa*).

I. Application of Genetic Certification Standards

A. The General Certification Standards, Clemson University Regulation 27-190, as adopted are basic and applicable and together with the following specific standards constitute the standards for certification of hemp, as well as any standards approved by the Association of Official Seed Certifying Agencies (AOSCA) Standards Council.

B. The Genetic Standards by AOSCA are modified as follows:

1. All production of hemp crops are subject to license application approval that may be required by regulatory authorities.
2. Only varieties of hemp approved by regulatory authorities are eligible for certification.
3. The allowable area of a hemp research area or production field may be determined by state or local agencies.
4. Growers may be required by regulatory agencies to obtain THC test results according to applicable regulations. Growers may be required to submit these results to the seed certifying agency before a crop certificate is issued.

II. Land Requirements

A. Hemp crops for Foundation and Registered classes must not be grown on land which in any of the preceding 3 years produced a crop of hemp.

B. Hemp crops for Certified classes 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 hemp or a different variety of hemp.

C. Weeds

1. The presence of Broomrape (*Orobanche* spp.) in hemp crops is cause for declining certified status.

III. Field Standards

A. Crop Inspection

1. It is the grower's responsibility to ensure that fields are inspected by an authorized inspector at least once prior to swathing or harvesting, except in the case of Foundation, Registered, and Certified monoecious types and unisexual hybrids and Foundation dioecious types, in which 2 inspections are required.
2. A field that is cut, swathed or harvested prior to crop inspection is not eligible for certification.

3. Fields 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 certified status.
4. First inspection for all classes of monoecious types must be made just before or at early flowering. First inspection for all classes of dioecious types must be made after flowering when male plants are beginning to senesce.
5. Second inspection for all classes of monoecious types, and the Foundation class of dioecious types must be made when seeds are well forming.
6. Isolation areas will be inspected for volunteer hemp plants on each inspection.

B. Isolation

1. The area, density, stage of maturity and location of any contaminating pollen source is an important factor in cross pollination, and therefore must be noted on the Seed Crop Inspection Report for consideration in determining certification status. There shall not be any Cannabis sativa L. plants within 100 m of the crop and not more than 10 plants/ha beyond 100 m within the isolation requirement.
2. The required isolation must be present prior to flowering and crop inspection.

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

Inspected Crop	Other Crops	Isolation Distance Required (feet)
Dioecious type - Foundation	Different varieties of Hemp	15,748
	Non-certified crop of Hemp	
	Lower certified class seed crop of same variety	6460
	Same class of certified seed crop of same variety	10
Dioecious type - Registered	Different varieties of Hemp	15,748
	Non-certified crop of Hemp	
	Seed crop of same variety that meets Certified standards for varietal purity	5249
	Seed crop of same variety that meets Registered standards for varietal purity	3
Dioecious type - Certified	Different varieties of Hemp	2624
	Non-certified Hemp	
	Planted with certified seed of the same variety that meets Certified standards for varietal purity	656
	Seed crop of same variety that meets Certified standards for varietal purity	3
Monoecious type -	Dioecious variety of Hemp	15,748

Foundation		
	Non-certified crop of Hemp	
	Other Monoecious varieties	9690
	Lower certified class seed crop of same variety	
	Same class of certified seed of same variety	16
Monoecious type - Registered	Dioecious variety of Hemp	15,748
	Non-certified crop of Hemp	
	Different varieties of the same type of Hemp (Monoecious or Female Hybrid)	6460
	Seed crop of same variety that meets Certified standards for varietal purity	3230
	Seed crop of same variety that meets Registered standards for varietal purity	3
Monoecious type - Certified	Dioecious variety of Hemp	3230
	Non-certified crop of Hemp	
	Different varieties of the same type of Hemp (Monoecious or Female Hybrid)	656
	Planted with certified seed of the same variety that meets Certified standards for varietal purity	
	Seed crop of same variety that meets Certified standards for varietal purity	3

C. Impurity Standards

Impurities should be removed prior to crop inspection.

Any combination of impurities may be reason for declining certified status.

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 (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 2.

Table 2 — Maximum Impurity Standards

Plot Crop	Maximum Impurity Standards per 10,000 plants in Hemp Seed Crops	
	Maximum Number of Dioecious Male Plants Shedding Pollen	Maximum Number of Off-Types or Other Varieties
Dioecious type - Foundation	-	3
Dioecious type - Registered	-	10
Dioecious type - Certified	-	20

Monoecious type Foundation	- 1	3
Monoecious type Registered	- 2	10
Monoecious type Certified	- 100	20

IV. Seed Standards

A. Hemp Seed Standards

1. Standards for Each Class

Factor	Standards for Each Class		
	Foundation	Registered	Certified
Pure Seed (min.)	98.00%	98.00%	98.00%
Inert Matter (max.)*	2.00%	2.00%	2.00%
Weed Seeds (max.)	0.10%	0.10%	0.10%
Total other crop seeds (max.)	0.01%	0.03%	0.08%
Other Varieties (max)	0.005%	0.01%	0.05%
Other kinds (max.)**	0.01%	0.03%	0.07%
Germination (min.)***	80.00%	80.00%	80.00%
*Inert matter shall not include more than 0.5 per cent 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.			
***Exclusive of dormancy, firm or hard seed, or any other reference to viability.			

B. Guidelines for the Production of Certified Hemp Seed

1. Definitions

a. "Hemp" (Cannabis sativa L. supsp.sativa.) includes varieties of these kinds:

i. Dioecious type: with male and female flowers on separate plants.

ii. Monoecious type: with male and female flowers on the same plant.

iii. (Unisexual Female) Hybrids: with sterile male and fertile female flowers on the same plant.

b. "Approved Cultivar" means any variety designated as eligible for production by federal or local regulatory authorities

c. “THC” means delta-nine ($\Delta 9$) tetrahydrocannabinol, which is the component of Hemp regulated by federal or local regulatory authorities.

Although traditionally a crop with a Dioecious plant type, many Monoecious varieties of hemp (*Cannabis sativa* L. *subsp. sativa*) 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.

d. “Foundation Seed Production” includes any means of processing or conditioning of seed from a Foundation production area which may contaminate the varietal purity of the seed is prohibited.

C. Area of Foundation 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 of a lower status of certified seed. The remainder of the field must meet the requirements for Foundation field production.

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

D. Recommended Production Procedures

Field Planting

1. Fields should be planted to facilitate inspection, roguing and harvesting.
2. 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.
3. 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.
4. The regulations for isolation are minimum standards. It is always to the grower’s advantage to provide more isolation than required. When planting Foundation 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.

E. Roguing

1. The field must be thoroughly and intensively rogued many times throughout the crop season.

Off-type male flowers must be removed before the receptive stage of female flowers in the inspected crop.

2. The numbers and kinds of plants removed should be recorded and described on the appropriate forms.

3. All male flowers rogued from the crop must be removed from the production area and burial is recommended.

4. Regrowth of rogued flowers or plants must be prevented.

F. Harvesting, Cleaning and Storing

1. 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.

2. The seed should be stored, in compliance with federal or local regulations, in a clean, cool, dry area.

3. The seed containers should be labelled for identification.

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

V. Vegetatively Propagated Hemp (*Cannabis Sativa* L. Subsp. *Sativa*) Certification Standards

A. Explanation of General Standards as Applied to Hemp

The General Certification Standards, Clemson University Regulation 27-190, as adopted are basic and applicable and together with the following specific standards constitute the standards for certification of Vegetatively Propagated Hemp standards as well as classes and sources of certified Planting stock.

B. Definitions

“Clones” are asexually propagated progeny genetically identical to the stock plant.

“Structure or Field” is the production area enclosed by natural borders such as ditches, tree lines, buildings, roads, or an enclosed growth facility.

“Micropropagation” is the science of plant multiplication in-vitro.

“Cuttings” are portions of stems containing leaves which are rooted to produce clones.

“Breeder Plant Stock” (Source Seed) is propagation material identified by the breeder, or the breeder’s representative. The breeder must also declare and document the way parent lines are selected and how the Plant Stock is maintained.

“Mother Plant” is a plant produced from a Breeder Plant Stock.

“Certified Plants” are plants produced from Mother Plants.

“Certified Plants” may be used to produce Certified stock in the growth facility or D1 Daughter stock.

C. Certified plants are propagated as follows:

1. Mother Plants may be cut repeatedly to produce D1 Daughter Plants. D1 Daughter Plants are produced by cuttings from Mother Plants.
2. D1 Daughter plants may be cut repeatedly to produce D2 Daughter Plants. D2 Daughter plants are produced by cuttings from D1 Daughter Plants.
3. D2 Daughter plants may be cut repeatedly to produce D3 Daughter plants. D3 Daughter plants are produced by cuttings from D2 Daughter plants.

The grower shall retain documentation of the parent being used to generate clones.

All grower records and grower developed Best Management Practices (BMPs) related to the production of hemp clones shall be available for inspection by the Certifying Agency.

D. Mother Plant Production

1. All Mother plants are to be inspected by Certifying Agency periodically.
2. Inspection of structures and fields will conform to documented and verifiable production standards listed below.

E. Growth Facilities and Field Production

1. Production Requirements for Growth Facility Production

- a. Facility is to be apparently free of diseases, insects, and other pests.
- b. Hemp clones are to be handled in such a manner as to prevent co-mingling of varieties or types.
- c. Facility is to have sufficient physical barriers between growth areas of hemp and other potential contaminating crops prior to flowering and inspection to prevent cross-contamination of type.

2. Production Requirements for Open Field Production

- a. Field Eligibility - Crops should not be grown on land where remnant seed from a previous crop may germinate and produce volunteers that may cause contamination. Crops for Mother Plants must not be grown on land that produced another crop of hemp within the previous five years. Crops for Certified class must not be grown on land that had a hemp crop in the preceding three years.
- b. Field Isolation - Ten feet or an appropriate barrier to alleviate accidental mixing of plants.

F. Inspections

1. Grower Responsibility

- a. Maintain certification standards.

2. Certifying Agency Responsibility

- a. The Agency will inspect growth facilities and fields and to audit compliance with the grower developed BMPs and their effectiveness.
- b. Mother plants are inspected within seven days before first cutting of daughters for certification.
- c. Daughter plants are inspected within seven days after planting.

3. General Requirements - Plant increase standards are described in Section I, C,3.

G. General Inspection Standards of Plants

1. Plants

- a. Apparently free of diseases, insects, and other pests.
- b. True-to-type characteristics.

Reference Hemp Transplant Certification Standards

VI. Hemp Transplants (Cannabis Sativa L. Subsp. Sativa) Certification Standards

A. Application and Amplification of General Certification Standards

1. The General Certification Standards, Clemson University Regulation 27-190, as adopted are basic and applicable and together with the following specific standards constitute the standards for certification of hemp transplants; a.k.a seedlings, plugs.
2. Section V. of the General Standards is amplified as follows to apply specifically to hemp seedling certification.
3. All Certified transplants must be grown from a class of certified seed or certified clones. Proof of seed/clone eligibility shall be established by providing either a certified tag/label with invoice showing the lot number and pounds received or documentation of clone propagation under clone standards found in the Seed Certification Handbook.
4. Seed coated or pelleted by non-approved conditioners will not be eligible for certification
5. All containers must be labeled in a manner that maintains the source, identity and certification eligibility of the transplants. All containers offered for sale must be identified by the official seed certification tag/label. The tag/label must be affixed (stapled, for example) to trays so tags/labels are not misplaced.

B. Definitions

1. Transplants: hemp plants that originate from either seed or clones that are kept in a vegetative state (before flowering) that will be moved to another production site.

2. Clones: are asexually propagated progeny genetically identical to the stock plant.
3. Seedlings: plants grown from seeds.
4. Plugs: young plants raised in small, individual cells, intended for transplanting at another production site.

C. Growth Facility, Field and Transplant Standards

1. Traditional outdoor plant beds (fields) will be inspected at least two times for phenotypic purity, isolation, general physical condition, and appearance of plants.
2. Growth facility produced plants shall be inspected at least two times for varietal labeling, phenotypic purity, isolation, general physical condition, and appearance of plants.
3. Maximum off-type or other variety shall not exceed 0.2%, or 20 in 10,000. Non-conforming plants must be removed and destroyed.
4. At the time of the final inspection, the number of transplants produced must be verified by agency personnel.
5. Transplants may be rejected for non-compliance with these standards.
6. Inspectors may also reject transplants due to unsatisfactory appearance such as any plants that are diseased, insect infestation, or otherwise stressed or any condition which prevents thorough inspection.

Unlabeled or inadequately labeled transplants will be ineligible for certification.

7. At the final inspection, transplants may be collected for post-control grow outs or other identification verification tests if required by agency.
8. Certifying agency personnel may conduct additional inspections as necessary to ensure certification standards are met.

D. Growth Facility, Plant Bed Soil Mix Requirements

1. Hemp transplants must not be grown on traditional outdoor plant beds (fields) which:
 - a. In either of the preceding two years produced a non-certified crop of hemp or a different variety of hemp.
 - b. In the preceding year produced a certified crop of a different variety
2. Hemp transplant growers using growth facilities must use a SOP (Standard Operating Procedure) and document that the facility is free of any plant material from a previous crop.
3. For growth facility production of transplants, the soil mix must be new, soil-less media, or sanitized soil mixes.

4. The presence of Broomrape (*Orobancha* spp.) in hemp crops is cause for declining Certified status.

E. Growth Facility Isolation Standards

When two or more varieties are being grown in the same greenhouse or traditional outdoor plant bed (field), there must be an 18” unplanted area between the varieties. The production area, flats and/or containers for each variety must be clearly labeled in a manner that prevents mixing or misidentification. Growers must handle transplants throughout the growing, harvesting, and transplant sales in a manner that prevents the accidental or mechanical mixture of containers of different varieties.

F. Labeling Standards

All certified transplants offered for sale must be labeled with official certification tags or labels. Each container of transplants must have an agency certification label firmly attached to be sold as certified transplants. Failure to properly label transplants at the time of sale, will revoke the certification status and will result in not being eligible for sale as certified transplants.

VII. Feminized Hemp Seed (FHS) (*Cannabis Sativa* L. Subsp. *Sativa*) Certification Standards

A. Application of Genetic Certification Standards.

The General Certification Standards, Clemson University Regulation 27-190, as adopted are basic and applicable and together with the following specific standards constitute the standards for certification of Feminized Hemp Seed and are further modified as follows:

1. To be eligible for seed certification under this standard, hemp varieties must have received favorable action by one or more of the following processes recognized by AOSCA, including:
 - a. AOSCA Variety Review Board; or
 - b. Plant Variety Protection office or Breeder Rights statements; or
 - c. Any individual AOSCA vested member agency; or
 - d. Acceptance for certification under the OECD seed schemes.
2. Designation of Classes of Seed. Only the Certified class is recognized in the production of feminized hemp seed. The Foundation class is allowed for the purpose of variety maintenance.
3. A feminized seed 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 may be required to submit THC test results to the seed certifying agency before the seed can be certified.

B. Definitions

1. 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 or as otherwise defined by federal law.
2. Dioecious type: with male and female flowers on separate plants.
3. Monoecious type: with male and female flowers on the same plant.
4. Reversed female: female plants that are induced to produce pollen in replacement of true male plants.
5. Hermaphroditic plants: plants exhibiting male and female flowers, not true females.
6. Feminized Hemp Seed (FHS): the progeny of a dioecious female plant that has been pollinated with pollen derived from the same or another dioecious female plant that has been induced to produce pollen. It is a true female plant with XX chromosomes.
7. Pollen parent: a reversed female plant from the female line or another reversed female line to create a hybrid.
8. Seed parent: female plants used to produce feminized hemp seed.
9. Sporting male: is a female plant that produces sterile male flowers.
10. 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.
11. Volunteer plant: a hemp plant that was not intentionally planted and is the result from a previous crop.
12. Approved Cultivar: any variety designated as eligible for production by federal or local regulatory authorities.
13. THC: delta-nine (Δ 9) tetrahydrocannabinol, which is the component of hemp regulated by federal or local regulatory authorities.

C. Growth Facility and Land Requirements

1. Growth facility must only contain certified hemp production. Multiple FHS varieties may be present but no other hemp plants are allowed except for pollen parent plants that are the pollen source.

2. Growth facility must be free of all plants for 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. If sanitation is used to reduce the hemp free period, a sanitation plan must be submitted to 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.

3. Certified feminized hemp seed crops must not be grown on land which:

a. In either of the preceding two years produced a non-certified crop of hemp or a different variety of hemp.

b. In the preceding year produced a certified crop of a different variety.

4. Weeds

a. The presence of Broomrape (*Orobanche* spp.) in hemp crops is cause for rejection.

b. Excessive weeds obscuring field inspection shall be grounds for rejection.

D. Growth Facility and Field Standards

1. Crop Inspection

a. It is the grower's responsibility to ensure that growth facility and field inspections are conducted by the authorized inspector at least twice prior to swathing or harvesting.

b. A growth facility or field that is cut, swathed or harvested prior to crop inspection is not eligible for certification.

c. Inspections of pollen parent plants and seed parent plants must be 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 minimum of two inspections are required.

d. First inspection for pollen parent and seed parent plants must be made just before or at early flowering. The pollen parent must be inspected prior to pollen collection or dispersal.

e. Second inspection for pollen parent and seed parent types must be completed after pollen shed and seed fill.

f. Isolation areas will be inspected for any volunteer hemp plants on each inspection.

2. Specific

a. For the production of FHS varieties via pollen shedding by the chemically reversed female plants.

i. Detailed records shall be created and maintained on the pollen parent, such as the chemical application dates, concentration, and the pollen collection date.

- ii. Pollen storage containers (if used) must be marked with lot number and source.
- iii. Chemically reversed female plants (pollen parent) must be removed and destroyed after pollen collection is complete.
- iv. Male, sporting male, and hermaphroditic plants must be removed from the growth facility or field and a record of roguing activities must be maintained.

3. Isolation

- a. 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.
- b. Greenhouse production of Certified feminized seed is allowed if mechanical isolation of pollen sources is provided. Additional greenhouse requirements include:
 - i. Method of pollen exclusion must be documented and submitted to the certifying agency.
 - ii. Each greenhouse facility is limited to one variety or multiple varieties when one pollen parent is utilized for all varieties.
 - iii. Each variety must be clearly labeled and easily identifiable from one another.
- c. Off season greenhouse production when outside pollen sources are not alive may reduce the isolation requirement.

Table 1

Minimum Isolation Distances Required Between Inspected Hemp and Other Crops

Inspected Crop	Other Hemp Crops	Isolation Distance Required (feet)
Feminized Hemp Seed	- Variety of hemp, or other contaminating pollen source that has pollen shedders present, this includes other greenhouse complexes	15,748
	- Non-certified crop of hemp	
	- 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	
	- Certified seed crop of the same variety that meets Certified standards for varietal purity	3

E. 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 of a total of at least 10,000 plants to determine the number of impurities. The resulting average of these counts must not exceed the maximum impurity standards in Table 2.

Table 2

Inspected Crop	Maximum Impurity Standards per 10,000 plants in Hemp Seed Crops	
	Maximum Number of Plants Shedding Pollen	Maximum Number of Off-Types or Other Varieties
Feminized Hemp Seed	0	20

F. Seed Standards

1. Feminized Hemp Seed Standards

Factor	Feminized Hemp Seed Standards for each class	
	Foundation	Certified
Pure Seed (min.)	98.00%	98.00%
Inert matter (max.)*	2.00%	2.00%
Weed seeds (max.)	0.10%	0.10%
Total other crop seeds (max.)	0.01%	0.08%
Other varieties (max.)	.005%	0.05%
Other kinds (max.)**	0.01%	0.07%
Germination (min.)	80.00%	80.00%
Feminized Seed***	99.00%	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; 10 for Certified.		
***Determined by Variety Verification Trial or approved molecular testing		

G. Guidelines to Produce Certified Hemp Seed

1. Certified Seed Production

Although traditionally a crop with a Dioecious plant type, many Monoecious varieties of hemp (*Cannabis sativa* L. subsp. *sativa*) 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.

a. 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:

i. Varietal eligibility requirements

ii. Seedstock eligibility

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

2. Area of Fields

a. 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 for certified field production.

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

3. Recommended Production Procedures

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.

4. 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 numbers 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. The male flowers should be bagged during removal to prevent unwanted pollen transfer during removal.

e. Regrowth of rogued flowers or plants must be prevented.

5. 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 labelled 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.

HISTORY: Added by SCSR 46-4 Doc. No. 5032, eff April 22, 2022.