

# CALIFORNIA CROP IMPROVEMENT ASSOCIATION

## SEED SAMPLER CERTIFICATION PROGRAM

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Second Draft



## Program Management Document



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## INTRODUCTION

California Crop Improvement Association (CCIA) is the official agronomic and vegetable seed certifying agency in California as recognized by the California Seed Law. The purpose of the CCIA is to provide seed certification service, a voluntary quality assurance program for the maintenance and increase of agronomic and vegetable crop seed. Each variety that is entered into this program has been evaluated for its distinctness, stability and unique characteristics such as pest resistance, adaptation, uniformity, quality, and economic yield. Seed production is closely monitored by the CCIA to prevent out-crossing, weed, other crop and disease contamination that may negatively affect seed quality. California certified seed is produced under strict standards established by the CCIA Board of Directors, the Association of Official Seed Certifying Agencies (AOSCA) and the Organization for Economic Cooperation and Development (OECD).

The CCIA works closely with seed growers as partners in the seed industry to assist in the production of high quality certified seed. The mission of the CCIA is to engage in activities that promote the production, distribution and use of superior quality seed. Crop varieties today have tremendously complex genotypes and advancements in genetics are occurring at rates unimagined before. Use of superior quality certified seed assures that the full genetic potential of a variety is uncompromised and is available for the production of the highest quality crop yields. The assurance of genetic purity and quality contributes great value to seed leading to greater profits for both the grower and conditioner.

Seed certification standards have been established by the CCIA for all crops that are certified in California. The CCIA ensures that its standards meet or exceed those of AOSCA and OECD. Seed testing is the basis of the determination of seed quality that should meet or exceed these quality standards. Quality characteristics of seed include trueness to variety; genetic purity, i.e. lack of other crop seeds, weed seeds, inert matter, insect damage and seed borne diseases; and germination, i.e. capability of seed to produce a normal plant under favorable conditions. Seed laboratories provide quality seed testing services which form the basis for seed certification. However, in the final analysis, no matter how high the quality of seed tests are, more accurate estimations of seed lot quality are only possible if the samples tested are representative of the seed lots. The *purpose* of the Seed Sampler Certification Program at the CCIA is to ensure that representative samples are collected according to established procedures from all lots that are submitted for certification by various conditioners. Such a sampling procedure would ensure that the results from the various laboratories are accurate and would ensure that the CCIA meets customer needs as well as State and Federal statutory and regulatory requirements more effectively and efficiently.

**REFERENCE DOCUMENTS:**

1. Association of American Seed Control Officials (AASCO): *Handbook on Seed Sampling*. [www.seedcontrol.org/seed\\_sampling\\_handbook.html](http://www.seedcontrol.org/seed_sampling_handbook.html)
2. Association of Official Seed Analysts (AOSA): *Rules for Testing Seeds*. [www.aosaseed.com](http://www.aosaseed.com)
3. Association of Official Seed Certifying Agencies (AOSCA): *Operational Procedures*. [www.aosca.org/about.html](http://www.aosca.org/about.html)
4. California Crop Improvement Association (CCIA) [www.ccia.ucdavis.edu/index.htm](http://www.ccia.ucdavis.edu/index.htm)
5. California Department of Food and Agriculture (CDFA): *California Seed Law* <http://www.cdfa.ca.gov/phpps/pe/nursery/pdfs/SeedLaw2010.pdf>
6. Canadian Food Inspection Agency (CFIA): *Canadian Methods and Procedures for Testing Seed*. 2007. [www.aosaseed.com/docs/Canadian\\_M&P\\_2011.pdf](http://www.aosaseed.com/docs/Canadian_M&P_2011.pdf)
7. Canadian Food Inspection Agency (CFIA): *Quality System Procedure: Official Seed Sampler Certification*. <http://www.inspection.gc.ca/plants/seeds/inspection-procedures/seed-sampler/eng/1347777009194/1347777446885>
8. International Seed Testing Association (ISTA): *ISTA International Rules for Seed Testing*. 2004. [www.seedtest.org/en/home.html](http://www.seedtest.org/en/home.html)
9. OECD *Seed Scheme* Appendix 8. [www.oecd.org/tad/seed](http://www.oecd.org/tad/seed)
10. US OECD *Procedures Guide*. [www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3024595](http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3024595)
11. USDA *Federal Seed Act*. [www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRD3317283](http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRD3317283)
12. USDA Seed Analysis Certificate (SAC) *Seed Sampling Guidelines for the Seed Regulatory and Testing Branch (SRTB)*. 2006. Revised January 2011.

**DEFINITIONS:**

**AASCO** – Association of American Seed Control Officials, accredits seed sampler trainers and publishes the *Handbook on Seed Sampling*;

**AOSA** – Association of Official Seed Analysts, publishes *AOSA Rules for Testing Seeds*;

**Certified seed sampler** – a sampler that has been trained, evaluated and certified by the CCIA/AASCO Seed Sampler Certification Program to collect samples for AOSA laboratories as required by the USDA and CDFA.

**Candidate** - an individual seeking to become an AASCO/CCIA Certified Seed Sampler;

**Competency** – a cluster of related skills, knowledge and aptitudes required by a seed sampler to properly take samples according to established procedures. It applies to on-the-job performance and can be measured against well-accepted standards;

**CFIA** – Canadian Food Inspection Agency, publishes *CFIA Canadian Methods and Procedures for Testing Seed*;

**Critical Non-conformance** – a deviation from the documented sampling procedures such that compliance is absent and will have a consequential effect on the quality estimation of a seed lot;

**Major Non-conformance** – a significant deviation from the documented sampling procedures such that the program integrity or compliance is absent. This non-conformance may result in the seed test not meeting the requirements;

**Minor Non-compliance** – a failure in the implementation of the documented sampling procedures resulting in a decrease in confidence that the seed sampler meets the requirements of the activity;

**Non-conformance** – the failure to comply with a required procedure identified during an audit;

**Sample** - A small part or quantity that is representative of the seed lot;

**SSCP** – Seed Sampler Certification Program;

**Seed sampler trainer** – a seed sampler accredited by the AASCO Seed Sampler Trainer Accreditation Program to conduct and co-ordinate seed sampler training;

**Supervisor** – employer or person that represents the sampler's employer.

## **SEED SAMPLER CERTIFICATION PROGRAM (SSCP)**

The CCIA has an elaborate Field Inspection Program and an elaborate Seed Certification Program that is backpacked with the Seed Laboratory Recognition Program. But seed sampling is done either by staff at the Agricultural Commissioner or at the CCIA's Accredited Seed Conditioners. There is a need to have these samplers accredited to be in compliance with USDA/OECD requirements. Despite USDA's efforts to provide accreditation for seed samplers through their Accredited Seed Sampling Program (ASSP) under the Process Verified Program (PVP) within the Agricultural Marketing Service, there remains to be a general lack of accredited samplers nationwide in general and in California in particular. The Association of American Seed Control Officials (AASCO) has developed a Seed Sampler Trainer Accreditation Program to accredit seed sampler trainers. The AASCO Seed Sampler Trainer Program's training is based on its *Handbook on Seed Sampling* which presents sampling methods that are in accord with the Association of Official Seed Analysts' *Rules for Testing Seeds*. The methods may also be recognized by the Canadian Food Inspection Agency (CFIA). With an accredited sampler trainer the CCIA has established a Seed Sampler Certification Program (SSCP) under AASCO's oversight to train and certify seed samplers in California to pull seed samples.

Sampling seed lots for testing is the responsibility of a sampler. The accuracy of the sampling performed and the information submitted by the sampler are vital to the integrity of any seed tests and eventual labeling of any seed lot. It is important that a random sample be taken in accordance with approved procedures to ensure that it is representative of the seed lot. Proper sampling procedures in obtaining the sample are the basis for the result to accurately reflect the quality of the seed lot. It is essential that the sample be collected with care and in accordance with established procedures of proper seed sampling. Likewise, in reducing the composite sample, every effort must be made to obtain a representative submitted sample.

### **Objective of Seed Sampler Certification Program (SSCP):**

The Federal Seed Act and State Seed Laws regulate the seed market by ensuring that seed vendors offer seed that is in compliance with standards for sale. Compliance with these laws is determined via truth-in-labeling with information from a Laboratory Report of Analysis (LROA) that is submitted by the laboratory after it completes a seed test done under AOSA's oversight. But this is a result of a seed test done on a sample of seed that represents a large seed lot. Obtaining a representative seed sample of a size suitable for the appropriate tests connects the seed sample test in the laboratory with the seed lot for reliable labeling. The *objective* of the SSCP is to promote the use of acceptable sampling procedures to improve seed lot quality estimation and to enhance uniformity and consistency of seed sampling.

**REQUIREMENTS AND RESPONSIBILITIES:**

*The following are basic qualifications for seed samplers:*

1. Completion of high school or its equivalent;
2. Preferred level is a college graduate with a major in plant sciences or four (4) years' experience including farming (crop or seed production) or various levels of experience in the seed industry;
3. Physically able to perform the duties of a seed sampler;
4. No conflict of interest; and
5. Pass a written and/or practical examination.

*To be certified as AASCO/CCIA Seed Samplers candidates must:*

1. Attend appropriate training;
2. Successfully complete and pass the content and practical examination;
3. Demonstrate the knowledge, skills and abilities of seed sampling as provided on page 9 of this document.
4. Successfully demonstrate seed sampling skills;
5. Follow the seed sampling procedures described in AASCO's *Handbook on Seed Sampling*;

*Expected Responsibilities of AASCO include:*

1. Provide direction and interpretation of the AASCO Seed Sampler Program requirements to CCIA and seed laboratories;
2. Develop, update and amend the AASCO Seed Sampler Accreditation Program in response to substantive changes to program policies and standards and/or to the AASCO *Handbook on Seed Sampling*;
3. Communicate with CCIA and seed laboratories about the changes in 2 above;
4. Maintain accreditation of the sampler trainer to make this program viable;
5. Participate, as may be deemed necessary, in seed sampler training and evaluation;
6. Develop, maintain and update seed sampler written and practical evaluations as required in consultation with the seed sampler trainer;
7. Certify seed samplers, issue Certified Seed Sampler certificates, and maintain a list of certified seed samplers in consultation with the seed sampler trainer;
8. Co-ordinate and participate in assessments of the AASCO/CCIA Certified Seed Sampler Program in consultation with the seed sampler trainer;
9. Classify unlisted non-conformances as they are identified.

***Expected Responsibilities of the AASCO/CCIA Accredited Seed Sampler Trainer:***

1. Implement and administer the AASCO/CCIA Seed Sampler Accredited Program as described in this Program Management Document;
2. Provide candidates for sampler accreditation with the required training using approved training materials;
3. Provide accredited seed samplers with the AASCO *Handbook on Seed Sampling* and other related documents;
4. Communicate to certified samplers any changes in sampling procedures as determined by AASCO and the seed laboratories;
5. Ensure that only the certified seed samplers are assigned responsibility for taking seed samples in California;
6. Ensure that inquiries about the Seed Sampler Certification Program are addressed on a timely basis;
7. Participate in the evaluation of the Seed Sampler Certification Program; and
8. Ensure that non-conformances are addressed within specified response times.

***Expected Responsibilities for seed laboratories:***

1. Accept samples for testing only if they are from certified seed samplers;
2. Identify deficiencies in sample submissions from accredited seed samplers and issue requests for follow-ups by the SSCP;
3. Maintain a record of seed sample submissions that are not in compliance with the AOSA procedures and monitor the implementation of corrective actions;
4. Issue warning letters as appropriate; and
5. Participate in assessments of the SSCP.

***Expected Responsibilities of the certified seed samplers:***

1. Maintain sampling proficiency and competency;
2. Follow the seed sampling procedures described in the AASCO *Handbook on Seed Sampling*;
3. Review AASCO *Handbook on Seed Sampling* in detail prior to resumption of sampling after an extended period of inactivity; and
4. Implement requests for corrective action as required.

**CERTIFICATION REQUIREMENTS:**

The training and evaluation activities of the SSCP will be coordinated by the AASCO Seed Sampler Trainer based at the CCIA. As a prerequisite for training and certification, all candidates will have to familiarize themselves with the AASCO's *Handbook on Seed Sampling* and the CCIA's *Handbook of Seed Sampling Procedures*. They will also need to have completed at least two (2) sampling activities in a seed establishment under the supervision of a certified seed sampler. The candidates will be provided training and training materials by the AASCO Accredited Seed Sampler Trainer. The training will ensure that candidates achieve technical competency in the following:



1. Knowledge in defining and identifying seed lots;
2. Knowledge of the seed industry;
3. Knowledge of principles of seed sampling;
4. Knowledge to ensure representative sampling;
5. Knowledge of seed lot uniformity;
6. Knowledge of sampling equipment and use;
7. Knowledge of sampling procedures;
8. Knowledge to constitute composite samples and reduce them;
9. Knowledge of minimum submitted sample size;
10. Knowledge to handle moisture samples; and
11. Knowledge of sample containers and sample identification and shipping.

Theory training will provide the candidates with the principles, methods and procedures for seed sampling and will familiarize candidates with the *AASCO Handbook on Seed Sampling*, the *CCIA Handbook of Seed Sampling Procedures* and *AOSA Rules for Testing Seeds*. Practical training will consist of demonstrations of the seed sampling process conducted by the AASCO Seed Sampler Trainer. The candidate shall practice the sampling procedure under the supervision of the trainer. This practical training can be done during formal training sessions or as part of the on the job mentoring.

When a candidate and the supervisor determine that a sufficient level of knowledge and skill has been attained, they may then request that the written and practical evaluations be administered. Both evaluations need not be administered together. However, the written portion will normally be completed first. During the first three (3) years of the SSCP the content examination will be delivered at the completion of the theory training. These evaluations will measure working knowledge and practical ability in sampling seed lots. The evaluations will be based on the established performance objectives provided above. The AASCO Accredited Seed Sampler Trainer has developed sample questions to be used in the content examination. The content examination will be comprised of three sections. The first section will test the candidate's familiarization with affiliated organizations in the seed industry. The second section will test the candidate's grasp of the Federal Seed Act and the California Seed Law. And the third section will test the candidate's grasp of the prescribed seed sampling procedures by AOSA's *Rules for Testing Seeds* as stated by the AASCO's *Handbook on Seed Sampling*. During the written evaluation, the candidate will be permitted to consult only those documents that would normally be available to a seed sampler in the performance of their duties. These will be:

1. Federal Seed Act;
2. California Seed Law;
3. *AASCO Handbook on Seed Sampling*; and
4. *CCIA Handbook of Seed Sampling Procedures*.

A minimum standard of 80% on both the written and practical evaluations is required to pass. No feedback will be provided on an evaluation where the final mark is 95% or higher. Where the final mark is 80-94%, the candidate may make a written request for information on areas of weakness. Where the final mark is less than 80%, feedback on areas of weakness will be automatic. No remarking of evaluations will be applied to evaluations in which the final mark was 85% or higher. A request for remarking may result in a higher or lower mark being assessed. A candidate that attains less than 80% will have to retake the examination. A candidate will be allowed to take the examination three (3) times within one (1) year of the first attempt. If the candidate is unable to pass after the three attempts he/she will have to retake the theory and practical training again. An individual will be designated as an AASCO Accredited Seed Sampler after the following criteria are met:

1. Achievement of a minimum score of 80% on both the written and practical evaluations; and
2. Receipt of the AASCO Seed Sampler Certificate signed by the AASCO Seed Sampler Trainer. The date of certification shall be the date on the certificate.

The period of certification shall be 3 years following the initial training. The AASCO Accredited Seed Sampler will need to retake the exam after completion of the next 3 years to maintain accreditation. Thereafter, the candidate will have to retake the training in person after a further 3 years to remain accredited.

#### **PROGRAM MAINTENANCE:**

The seed laboratories will assess each submitted sample and accompanying documentation to verify that samples were taken and submitted in a manner consistent with the *AASCO Handbook on Seed Sampling*, *CCIA Handbook of Seed Sampling Procedures* and *AOSA Rules for Testing Seeds*. When non-conformances are identified, the seed laboratories will notify the Accredited Seed Sampler and the AASCO Seed Sampler Trainer. The seed laboratories will not analyze any sample where a critical non-compliance exists. The AASCO Accredited Seed Sampler and their supervisor must undertake follow-up actions within time frames to ensure that performance standards are met. They must then notify the seed laboratory and the AASCO Seed Sampler Trainer when appropriate actions have been implemented. The maximum allowable response time and maximum time for closure that shall be set for any specific action request is provided in table below:

<b>Non-Conformance type</b>	<b>Maximum Response Time (working days)</b>	<b>Maximum Time for Closure (working days)</b>
Critical	2	10
Major	4	15
Minor	10	30

**Classification of Non-conformances in seed sampling and documentation**

The following is a list of non-conformances that may be encountered in seed sampling or its documentation. Other non-conformances may be found. When an unlisted non-conformance is seen, the seed laboratory or AASCO will submit a description and make a recommendation to the Accredited Seed Sampler Trainer for inclusion.

**Critical Non-Conformance:** Any procedure that would require re-sampling the lot.

1. Use of hand sampling other than non-free flowing chaffy grasses;
2. Use of unapproved trier;
3. Use of unapproved sample reduction method;
4. Use of trier too small for crop kind sampled;
5. Submission of seed sample obtained without meeting required sampling intensity;
6. Size of submitted sample not meeting minimum sample size requirement.

**Major Non-conformance:** Any procedure that would result in a delay in testing a sample.

1. Failure to completely label a submitted sample;
2. Failure to submit all required documentation with sample;
3. Failure to label treated seed sample as treated;
4. Failure to use appropriate protective equipment for sampling treated seed;
5. Failure to ensure cleanliness of sampling equipment;
6. Failure to use correct procedure when using a sample divider;
7. Sampling a lot whose records show it is not homogeneous;
8. Failure to include, or accurately include, in the submitted documentation any of the following:
  - a. Trier information;
  - b. Number of primary samples;
  - c. Date of sampling;
  - d. Lot number;
  - e. Lot size;
  - f. Number of containers in each lot; and
  - g. Size of each container
9. Failure to check each primary sample for uniformity of seed size, color and amount of chaffy material;
10. Sample taken from a seed lot where a portion of the lot is inaccessible;
11. Use of an inappropriate sample container for submitting sample.

**Minor Non-conformance:** Clarification of information submitted, testing may be initiated.

1. Failure to use sample form;
2. Failure to provide information regarding seed treatment of a sample labeled as treated seed;
3. Submission of conflicting information pertaining to the sample.