

ELIGIBILITY GUIDELINES FOR PRE-VARIETY GERMPLASM TYPES

Table 160

AOSCA Germplasm Table: Development, Evaluation, and Assignment Recommendations

Germplasm Types 1	Source Id	Selected	Tested
Germplasm 2 Identification Term	Optional	Recommended	Recommended
Geographic Source	Required	3A	3B
Germplasm Identity	Source Required Recommended 4	Required 3B Recommended 4	Required 3B Recommended 4
Breeding/Devel. History 5	Not Applicable	Required	Required
Morphological & Performance Traits	Not Applicable	Document basis for selection	Prove heritability across (1) gen.6
Locations/Years for Trait Comparison or Heritability	Not Applicable	1 loc./(1) year (common garden)	(1) loc./(1) year 6 (inter-generational trial)
Germplasm Isolation	See Recommended Guidelines	See Recommended Guidelines	See Recommended Guidelines
Data Statistical Significance	Not Applicable	Optional	10% level

1. Source Identified Germplasm (SI) is unevaluated and identified only to species and geographic location of the wild growing parents. Selected Germplasm (S) is progeny of selected parent plants that show promise but not proof of desirable traits. Tested Germplasm (T) has undergone progeny testing to prove that desirable traits are heritable.
2. An official release notice or other acceptable document from the originator/developer is required to formally connect an identification term with a specific SI, S, or T germplasm
3.
 - A. For Natural-track (N-T) germplasm of any AOSCA germplasm type, this is known (see Nomenclature and Labeling for Plant Germplasm Types). It may also be known for a germplasm which has undergone selection (Manipulated-track, M-T) utilizing a population of known geographic origin. It may not be known for a species for which germplasm has been hybridized or selected (M-T) over many years and locations removed from original geographic sources.
 - B. In this case the source is more aptly described as Germplasm Identity and should be described as the last formalized version of the germplasm known (variety or germplasm release, breeding line, or other identified population from a formal germplasm development program; these are also referenced as "origin" in the context of traditional plant breeding).
4. The identity of germplasm existing on a given wildland site should be evaluated and noted on pre-variety germplasm certification tags as indigenous, non-indigenous, or unknown. This is an issue where previous vegetative reclamation has occurred and seed of a native species may have been planted hundreds of miles from its original geographic source. However, naturalized non-indigenous or unknown plant material may be developed or used as breeding material, with the SI site serving as a basis to formalize Generation 0 (GO) germplasm source and identity.
5. Details of the development (N-T) or breeding history (M-T) and source and/or identity (origin) of all component genetic material(s) must be filed with the certifying agency and/or contained in a release notice
6. If development from Selected to Tested or Variety germplasm types is considered, an intergenerational comparison (GO to G1 or G1 to G2) should be initiated as soon as possible to prove desirable trait(s) are indeed heritable.
7. This requirement refers to a common garden comparison of specified N-T or M-T germplasms of the same species. However, both M-T and N-T germplasms may be selected for certain traits from within (M-T) or among (N-T) wildland populations, and thus establish eligibility (with numerical documentation of selection criteria) solely on that basis.
8. Isolation is normally not practical within test plots and is not applicable to wildland sites. However, isolation must be practiced for stock seed plots of the same species so that inadvertent outcrossing is prevented. Consult AOSCA Genetic and Crop Standards for variety isolation requirements; isolation recommendations for SI, S, and T are listed in the Pre- Variety Germplasm Standards.
9. Pre-Varietal Germplasm Types are eligible to become a variety once sufficient data is collected. (See AOSCA Genetic Seed Certification Standards, Eligibility Requirements For Varieties)

INSTRUCTIONS FOR COMPLETING APPLICATION FOR PRE-VARIETY GERMPLASM

Guide for compiling information for release documents utilizing AOSCA pre-variety germplasm development types and tracks.

The following instructions are based on the requirements for PVG eligibility (AOSCA Genetic and Crop Standards), the AOSCA Tree, Shrub, and Native Plant PVG Advisory Committee and other published AOSCA documents relating to certification of varieties and pre-variety germplasm. Source Identified (SI), Selected (S), and Tested (T) germplasm types are described in AOSCA Pre-Variety Germplasm Standards; also Nomenclature and Labeling for Plant Germplasm Types.

1. Germplasm Identification and Genetic Track

A. State the Pre-Variety Germplasm type (SI, S, or T) for which this germplasm is to be considered.

B. State the germplasm identification term (optional for SI), e.g. accession number or notation of origin or specific trait, followed by the word "Germplasm". Examples of proper terminology for a release notice (or for reference in articles, bid offerings, or sales literature) would be: ARS 2936 Germplasm scarlet globemallow (*Sphaeralcea coccinea*), or Snake River Plains Germplasm fourwing saltbush (*Atriplex canescens*).

A germplasm ID is not recognized as having the same status or protection as a variety name under the Federal Seed Act, Plant Variety Protection Act, or Plant Patent Act. Though not a function of certification, some measure of proprietary protection for a pre-variety germplasm entity may be available through trademarking or branding of a germplasm ID.

C. Indigeneity (nateness) of a germplasm to its source location should be evaluated (see AOSCA Germplasm/Variety Table, Footnote 4) and stated in a release notice and/or on certification documents.

D. Genetic Track: State whether the germplasm is to be considered as natural-track, N-T (germplasm which is an unrestricted representation of the intact wildland plant population on the original site) or manipulated-track, M-T (germplasm which has undergone manipulation such as selection on the collection site; or hybridization, mutation, or other plant breeding technique).

2. Origin and Breeding History

A. Use terminology as defined in any basic university-level plant breeding textbook.

B. List and identify all sources of germplasm and their origin used in the development of the pre-variety germplasm. Include cultivars used, public germplasm releases, germplasm received from cooperators, and/or specific dates and locations (state, county, and elevation plus GPS if available) where germplasm was collected. See AOSCA Germplasm/Variety Table for details on geographic source and germplasm identity.

C. For M-T germplasms, describe the breeding method (recurrent selection, hybridization, etc.). State the propagule type (seed, sprig, etc.) and population size and the percent rogued in each breeding cycle. When describing mass selection from a wild population, state the approximate frequency of occurrence of traits of interest in the original population and describe the selection criteria, methods and circumstances of selection, and intended results (Selected Germplasm) or proven results (Tested Germplasm).

D. For N-T germplasms, describe efforts to maintain an unrestricted representation of the intact population from the original wildland site as such accessions are increased in field or nursery production, compared with other accessions on common sites, and/or tested for trait heritability and adaptability.

E. Germplasm accessions acquired within established protocols of recognized public or private agencies are normally eligible to enter the certification process as planting stock.

F. State the year Stock seed was declared and produced (or collected).

3. Description of Germplasm

A. Botanical (Morphological) Description of Germplasm: State morphological, physiological, or environmental reactions that may be utilized by certifying agencies to differentiate and identify the mature plant germplasm in the field. This is not meant to be an exhaustive description of the species as a whole, but a summary on how the proposed germplasm may be differentiated (not applicable to SI Germplasm) from other representative germplasms of the species. This may include (depending on the species) plant size or shape, bloom or heading date, bloom characteristics, leaf, stem, or root characteristics, biotic or abiotic environmental reactions, and physiological fingerprinting such as DNA or biochemical analysis.

B. Objective (Performance) Description of Germplasm:

- i. State primary use(s) or purpose for the germplasm (e.g. turf, forage, food, fiber, restoration/ revegetation, erosion control, ornamental, etc.).

Summarize performance characters relative to the primary use in comparison with other germplasms of the same species (not applicable to SI Germplasm); for M-T first generation selections from a wildland population, this comparison would be with non-selected plants from the same wildland population (see AOSCA Germplasm/Variety Table, footnote 7).revegetation, erosion control, ornamental, etc.).
- ii.

4. Evidence Supporting Morphological and Performance (and Heritability) Claims

- A. Evidence shall include numerical comparative data for claims made that the Selected or Tested Germplasm is different or identifiable by morphological (see C. (1) above) or performance (see C. (2) above) traits from other germplasms of the same species. See AOSCA Variety/Germplasm Table for the number of locations and statistical significance required for each germplasm type.
- B. Data for Selected Germplasm need not be replicated or statistically analyzed since only indication, not proof, of desirable (and distinguishable) traits need be shown. However, comparative data with other accessions (common garden) for the character(s) considered must have a numerical basis, or the mass selection procedure on a wildland site (see B.3 above) must be clearly stated.
- C. For Tested Germplasm, the test design must include randomization and replication, and be conducted to test for intergenerational heritability of one or more specific distinguishable traits. See AOSCA Variety/Germplasm Table for statistical significance required. The tests must demonstrate that the expression of a character is heritable (but not necessarily uniform or stable in its intergenerational expression), not just environmentally induced.
 - i. For each tabular data set (or if appropriate, combined compatible data sets over years and/or locations), include some measure of variance and statistical separation of means.
 - ii. Where morphological or performance character claims are made (e.g. greater, lesser than, or similar to) in relation to check variety(s) or germplasm(s), the character claim must be statistically supportable for the locations/years as indicated in the AOSCA Variety/Germplasm Table.
- D. A short descriptive synopsis of each common garden or heritability test location must be included (design, natural aspects, and pertinent agronomic culture details).

5. Area of Adaptation

- A. A statement describing region (or ecoregion, however defined) of probable adaptation for the germplasm (including such parameters as precipitation, soil type, elevation, and latitude).
- B. This statement should include states or regions where the developer of the germplasm has evaluated it (or collected it) and anticipates recommending and/or merchandising it. Claims regarding adaptation and performance in geographic areas or ecoregions where it has not been evaluated (or collected) should not be made.

6. Procedure for Maintaining Stock Seed

- A. State the procedures and the location where stock seed is to be produced, maintained, and stored. Plan to maintain seed stocks adequate to meet seedstock demand for the life of the germplasm. Possibilities are cooperation with AOSCA Foundation Seed Organizations (utilizing buy-back agreements with private growers), NRCS Plant Materials Centers, or direct contracts with private seed companies.
- B. Repeated collection of stock seed from the original collection site is problematic, but if procedures are followed to obtain an unrestricted representation of the population (or to replicate the initial selection criteria at the original collection site), then maintenance of the described genetic component would be expected.

7. Generations, Age of Stand or Geographic Limitations

- A. State the number of generations allowed (optional; this may be determined in consultation with a seed certifying agency).
- B. State any restrictions for number of years a perennial stand may remain in production.
- C. State whether seed production is limited to a geographic area related to the area of adaptation.

AOSCA APPLICATION FOR PRE-VARIETY GERMPLASM

Form may be modified to meet individual agency needs.

Figure 13

ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES APPLICATION FOR PRE-VARIETY GERMPLASM*

Applicant_____

Address_____

Telephone_____ Fax_____ E-mail_____

- A. Germplasm Originator _____ Germplasm Developer _____
Germplasm ID: _____ Indigeneity _____
Germplasm Type (SI, S, or T) _____ Genetic Track (circle) Natural or
Species: Common Name _____ Manipulated _____ Latin Name _____
Primary Use _____

B. Origin and Development History

(1) Botanical (morphological characters) description

(2) Objective (performance claims) description

- C. Evidence (numerical data, graphs, charts, etc.) supporting the morphological characters and performance claims of the germplasm.

Area of adaptation

- D. Source location information. Include State, County, and elevation or other geographic designation for Natural Track G0 or Manipulated-Track G1

- E. Procedure for maintenance of stock seed

Generations, age of stand, or geographic limitations

- F. Sample of seed (if required by certifying agency)

Signature of Applicant

Date

CERTIFICATION OF WILDLAND COLLECTED SEED

The Association of Official Seed Certifying Agencies (AOSCA) has published "Pre-Variety Germplasm Certification Standards" for the certification of germplasms which have not reached varietal status, and "Woody Plants and Forbs Certification Standards" and "Grass Certification Standards" for certification of seed of germplasms which have been released as a variety. Field standards do not apply to wildland collected seed. Seed standards apply to both field grown, and wildland collected seed. Field standards apply to field produced PVG seed and offer a reliable way for the seed industry to offer seed of races or ecotypes to the buyer with genetic identity maintained along with accurate collection site information.

1. Seed Certifying Agency responsibilities for wildland collected seed

A. Develop and publish application forms and other seed conditioning and seed collection records to maintain the eligibility and integrity of seed similar to certified seed processes. Examples of the following forms are available later in this section.

- i. Pre Collection Application
- ii. Site ID Log part 1
- iii. Site ID log part 2

B. These forms will serve as a way to organize information such as

- i. Collectors name, address, and telephone number
- ii. Permit number, contract number, private land designation, etc.
- iii. Species and common name.
- iv. Location (State, County and elevation). It is strongly recommended additional information such as soil type, aspect, and associated species be given as this information would be extremely useful to the end user.
- v. Date(s) collected.
- vi. Amount collected.
- vii. Lot designation (must be indicated on bag or container also)
- viii. Signature of collector that the information is correct.
- ix. Signature of seed broker that to his knowledge information is correct.

2. The Pre-Collection Application (PCA) begins the process of wildland collected seed. It also serves a dual purpose for recording information from the site inspection. When doing site inspections note the associated species and other descriptive characteristics that influence a plant community. This information will be helpful for approving other PCA's submitted in the same area.

3. Evaluate completed log sheets, seed broker's records, and related documents in determining certification eligibility of seed lot. Conduct thorough investigations on at least 5% of eligible seed lots, including verification of paperwork and prior and/or retroactive field inspection of collection sites to verify that stands are capable of producing the amount of seed indicated. Evidence of falsified logs or documents may result in loss of certification privileges.

4. Attach an official Source Identified, Selected, Tested, or variety tag with appropriate site and germplasm information to individual bags of eligible seed lots.

PRE-COLLECTION APPLICATION

Use the Pre-Collection Application form to begin the process of wildland collected seed. It also serves a dual purpose for recording information from the site inspection. When doing site inspections note the associated species and other descriptive characteristics that influence a plant community. This information will be helpful for approving other PCA's submitted in the same area.

Figure 14

SEED CERTIFICATION AGENCY (SCA)	Certified Seed PRE-COLLECTION APPLICATION for Wildland Collected Seed
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Application/Certification # _____ Application Fee⁵ _____ Assigned by SCA _____

Applicant¹ _____ Phone _____ Fax _____

Address _____ Cell _____ E-mail _____

Species Name _____ Common Name _____

Site Ownership: Public _____
Agency name and office to issue permit/contract/permission

Private _____
Landowner or agent name(s)

Site Location² State _____ County _____ Elevation _____

Latitude _____ GPS³ _____

Site Size/Description⁴ _____

Material to be Collected⁵ _____ Collection Dates⁶ Start _____ End _____

Collection Personnel⁷

Name of Crew Leader	Address	Phone/Cell

¹ Applicant may be the collector, seed broker/conditioner, or other party. Membership in SCA may be included with this application. Information on this form is confidential and is for SCA use only.

² In general, complete a separate application for each specific species (or recognized subspecies) site location. For species that occur in harvestable stands over broad non-contiguous areas, an application must be filed for at least each species/county area.

³ GPS coordinates preferred if exact site of stand known before harvest.

⁴ List approximate number of acres or square miles if stand is mostly contiguous, or describe (or outline on topographic map) geographic area within county to be collected from (e.g., stream drainage, specific valley, mountain range, etc.). List MLRA zone, or other defined ecological area as applicable.

⁵ For example, seed, seed stalks or heads, cuttings or other vegetative part, cones, fruit, etc.

⁶ Application must be completed and FAXed to SCA Representative (xxx-xxx-xxxx) and then immediately mailed with application fee to SCA address preferably one month or more but at least one day before harvest (exceptions on a case-by-case basis and with time and mileage fees assessed). This initiates the wildland collected seed certification process and contact with collector groups. The SCA will then verify collection site harvest by spot checks before, during, or post-harvest utilizing detailed maps, GPS coordinates, and/or accompaniment with collector(s) to the site.

⁷ List known collector groups that will be harvesting for you on this site (list additional groups and information on back of white copy and include in FAX). Maps, GPS readings, and other exact site location information relative to an individual collector are regarded as confidential.

I hereby apply for certification of wildland collected plant material from the above-described site. I agree to abide by all of the rules and regulations governing certification according to the above-named certification agency under the auspices of AOSCA, the Association of Official Seed Certifying Agencies.

Applicant _____ Date _____

SITE ID LOG PART 1

This form is to be completed by the applicant, collector, conditioner, vendor, or agency) who requests certification tags for this seed lot. It is initiated after the site is inspected by SCA in response to a Pre-Collection Application (PCA) The PCA applicant may or may not be the applicant requesting tags

Figure 15

Applicant ¹ _____	Cert. # _____ From PCA/Site Insp. Report
Address: _____	Tagging Fee ² _____
Phone/Cell _____	Permit/Contract/Permission ³ Public ____ Private ____

SEED CERTIFICATION AGENCY (SCA)	Certified Seed SITE IDENTIFICATION LOG, PART 1 For Wildland Collected Material Intended For Direct Sale and Revegetation Outplanting
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Species Name _____	Common Name: _____
Total Amount Collected _____ (Deadline date for lbs. collected – 60 days after collection)	Germplasm ID ⁴ _____ Materials Collected _____ seed, cuttings, etc.
Species as Collected Indigenous to: ____ Site ____ County ____ State ____ Nonindigenous ____ Unknown	
Germplasm Category ____ Source Identified ____ Selected ____ Tested ____ Variety	
Dates Collected _____ State _____ County _____ Elevation _____	
Site Name (As Listed on PCA/Site Insp. Report) _____	
Provisional Seed Zone/Ecoregion Information _____	
Uncleaned Sample Taken by ⁶ _____ Plant Specimen Provided by ⁷ _____	
Conditioner Lot # _____ (Lot number must be unique to collection site, species, and year collected)	Date(s) Conditioned _____ Clean Seed lb _____ Defined amount

I attest to the best of my knowledge, all above information is correct and collection documents³ are on file.

Date: _____

Signature of Applicant

# Tags This Order _____	#lb/Bag _____	#/lb. _____	Approved ⁸ _____ Date, Initials of SCA Rep
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¹ This form is to be completed by the applicant (collector/condition/vendor/agency) who requests certification tags for this seed lot. It is initiated after the site is inspected by SCA in response to a Pre-Collection Application (the PCA applicant may or may not be the applicant requesting tags).

² Tagging fee is charged per pound of clean seed represented by this tag order.

³ Maintain file of permits, contracts or permission forms or letters for potential review by law enforcement and/or legal entities to verify seed ownership for this seed lot. Seed collected on public or private lands not covered by applicable documents may not be eligible for tagging by the SCA.

⁴ Variety name or germplasm ID (specific term, site name, or number) if one is given by the collector or public or private germplasm developer (e.g., Gold Strike variety or Nugget Gulch germplasm bluebunch wheatgrass). Leave blank if none given.

⁵ List provisional, empirical, or other geographic seed zone collection area notation as required by seed user to be on the tag.

⁶ If requested by SCA, an uncleaned sample of seed collected must be filed with this log to represent each field lot.

⁷ If requested by SCA, a pressed, dried plant specimen must be filed with this log to aid in identification, and/or provide herbarium displays for critical species.

⁸ Certification tags for wildland collected Source Identified, Selected, or Tested seed lots are issued on the basis of geographic source and species identity only; varieties additionally must meet minimum seed standards (contact the SCA). Purity and viability analysis and labeling for seed law compliance is the sole responsibility of the vendor. Specific requests or contracts by seed users may require sampling or additional mechanical standards oversight by the SCA.

Original to Certification Agency

Additional Copies for Seed Collector/Vendor/Conditioner Records

SITE ID LOG PART 2

Complete this form in addition to Site Identification Log, Part 1, for wildland collected seed or other propagating material that is to be utilized for a) establishing Generation 1 production fields or orchards or b) strictly controlled ecosystem restoration projects. The purpose of this form is to provide further information regarding distribution of species, selectiveness in collection, and physical characteristics of site and associated species.

Figure 16

SEED CERTIFICATION AGENCY (SCA)	Certified Seed SITE IDENTIFICATION LOG, PART 2 for Wildland Collected Material Utilized for G₀ Stock Seed¹
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Germplasm ID _____ Inspection Fee² _____ Appl/Cert # _____

Applicant³ _____ Field Lot # _____

Address _____ Phone/Cell _____

Species Name _____ Common Name _____

Plant Specimen(s) Provided By⁴ _____

Collector, Applicant, or Cert. Agency Rep.

Site Photographs Provided By⁵ _____

Collector, Applicant, or Cert. Agency Rep.

Species Distribution on Site⁶ _____ Soil Texture/Type⁷ _____

Percent of Species Population Collected From _____% Were Specific Plants Intentionally Selected to Collect From? _____ If Yes, Describe the Plant Characteristics Selected for _____

Site Physical Characteristics⁸ _____

Associated Plant Species _____

List natives and exotics

Generations Permitted Beyond G₀ ⁹ _____ Length of Stand⁹ _____

¹ Complete this form in addition to Site Identification Log, Part 1, for wildland collected seed or other propagating material that is to be utilized for a) establishing Generation 1 production fields or orchards or b) strictly controlled ecosystem restoration projects. The purpose of this form is to provide further information regarding distribution of species, selectiveness in collection, and physical characteristics of site and associated species.

² If all information is provided at the time of original collection site inspection, then the minimum fee applies. Otherwise, time/mileage fees will be assessed (or minimum) if additional visit to site by SCA is required.

³ Applicant is person desiring to utilize this wildland collected accession as stock seed (or other propagative material) for field increase and is not necessarily the same person listed as the collector and/or seed broker/conditioner listed on the Site ID Log, Part 1.

⁴ All species must have a pressed, dried plant specimen (more than one if species population is heterogeneous) submitted when material is to be used for stock seed and/or for user specified restoration purposes. A fee surcharge may apply if specimen(s) is provided by SCA Rep.

⁵ Photo documentation must include a close-up shot(s) where individual plants of species are clearly defined, as well as a more distant shot(s) that shows details of the plant community and site geography. Attach photos or contact Certification Agency to arrange transmittal of digitized images. A fee surcharge may apply if photo is provided by SCA Rep.

⁶ Indicate how species collected is distributed on the site (e.g. patchy, uniform, abundant, sparse, etc.).

⁷ Indicate the soil texture/type the species on the site is growing on; describe in terms (or combination of terms) of coarse (sand, gravel), medium (loam), fine (clay), or organic (decayed plant material).

⁸ Indicate whether site appears natural, or describe any recent disturbance (e.g., fire, overgrazing, road cut, clear cut, chaining, etc.); describe local landscape features (e.g., rocky outcropping, pond, road or fenceline, slope, aspect, etc.) and ecosystem vegetation type (e.g., wetland, upland meadow, salt desert, coniferous forest, sub-alpine, etc.).

⁹ This is normally a decision made jointly by the applicant, certification authority, and plant scientists familiar with the species ontogeny and reproductive type. For marketing purposes, the generation listed on the tag may be downgraded such that the seed would not be eligible for stock seed purposes. The tag may list both the generation of the tagged material and the number of generations permitted, e.g. G2/G4.

I attest that all the above information is correct and hereby apply to utilize this G₀ wildland collected seed for certified field production.

PVG GENERATION EXTENSION REQUEST

This form is used to allow additional generations of seed to be eligible for PVG certification when earlier generation stock seed is not available. Similar to a Cert to Cert request.

Figure 17

Pre-Variety Germplasm Generation Extension Request

Developer Information:

Name: _____

Address: _____

Phone: _____ Email: _____

Date: _____

Species Name: _____ Germplasm Name: _____

Tagging info (Provide original release document including what information should be printed on the tag. i.e. State/County or other jurisdictions (e.g., province, parish) and elevation; seed zone or ecoregion):

Original generation limitation: G0 through G? _____ (for Natural Track germplasm releases)

Original generation limitation: G1 through G? _____ (for Manipulated Track germplasm releases)

Proposed generation limitation G? _____ through G? _____

Is this extension request limited to a specific seed lot? Yes No

If yes, what is the seed lot number? _____

Is this extension request limited to a specific seed producer? Yes No

If yes, what is the name of this seed producer and address?

Attach an explanation and justification that addresses why it is limited to a specific seed producer.

Does this extension request expire after a certain date or life of stand? Yes No _____
(date)

Is this extension request allowed for all seed production after this date? Yes No _____
(date)

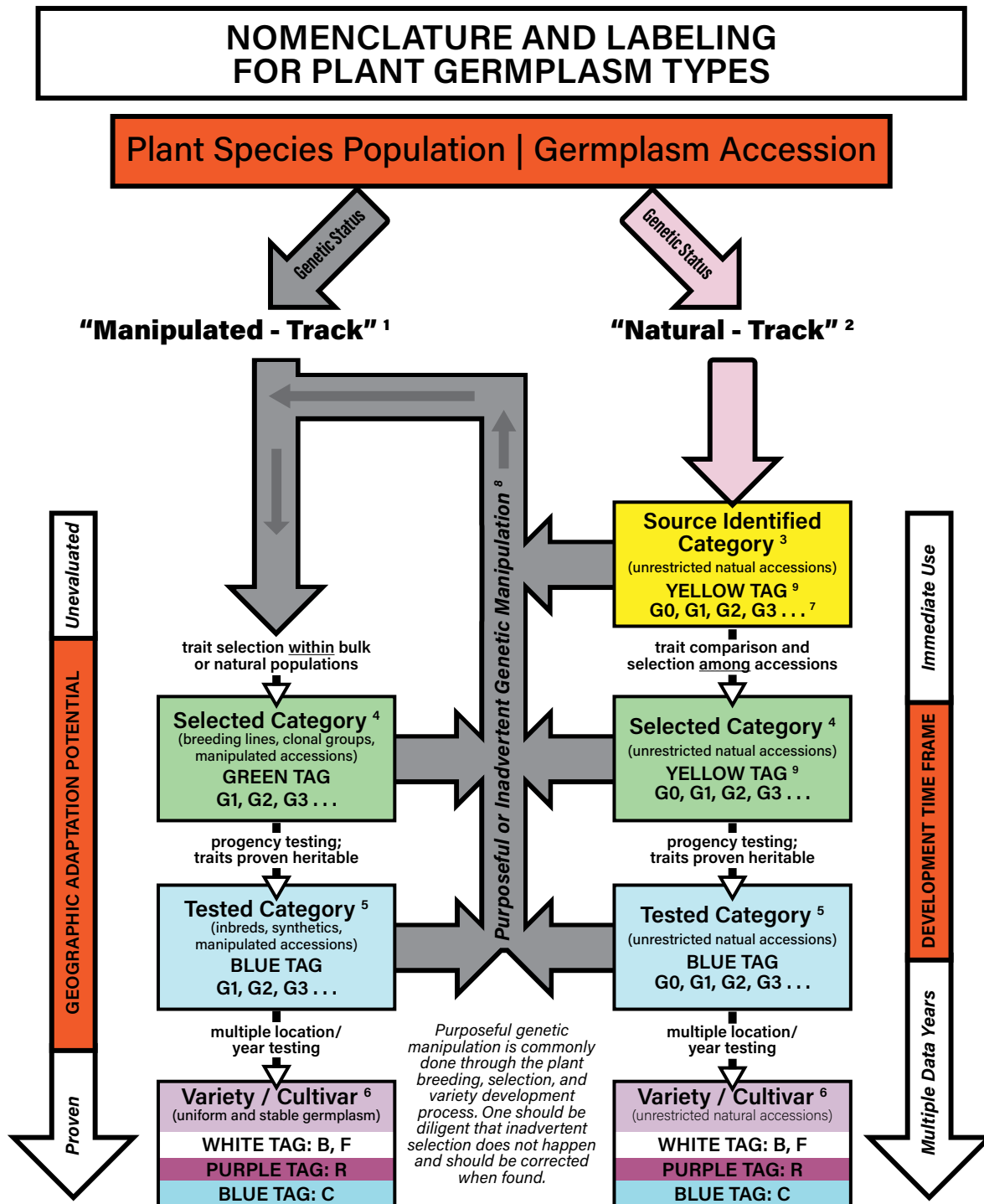
Please explain why this generation extension is necessary and if any actions are being taken to remedy future extension requests beyond this one for this specific germplasm.

Please add other comments or information pertinent to this extension request. If there are none, please indicate.

Signature of Developer/Collector _____ (date) _____

NOMENCLATURE AND LABELING FOR PLANT GERMPLASM TYPES

Figure 18



NOMENCLATURE AND LABELING FOR PLANT GERMPLASM TYPES

1. A Manipulated-Track germplasm may consist of any one or a combination of manipulated accessions from the plant species' population. Manipulation involves purposeful selection, such as trait selection in natural or bulk populations, recurrent selection during field increase, and crosses within species.
2. A Natural-Track germplasm may consist of any one or a combination of intact accessions from the plant species' unrestricted native or naturalized population. Involuntary selection should be avoided during wildland harvest and field increase of propagating materials. The "Natural-Track" designation may be printed on certification tags (see Footnote 9) to indicate the "natural" genetic integrity of the germplasm.
3. A Source Identified Germplasm may be native or naturalized germplasm; wild collected, or field or orchard produced. Tag must list geographic location of seed collection or production. Comparisons with other germplasm collections, accessions, or ecotypes of the same species not known.
4. A Selected Germplasm shows promise of superior and/or identifiable traits as contrasted with other germplasm accessions, breeding lines, or variety/cultivars of the species. Selection criteria and supporting comparative data are required. Seed of breeding lines at this stage would rarely be tagged; however, tagging and marketing wild collected, or field or orchard produced seed of Selected Germplasm may be commonly applicable in the reclamation seed industry.
5. A Tested Germplasm requires progeny testing to prove that traits of interest are heritable in succeeding generations. Testing procedures (number of sites, generations required, etc.) may be outlined for each species by individual seed certifying agencies. Tagging of Tested Germplasm advanced generation breeding lines may be accommodated but is normally pre-empted by cultivar release or discarding of the line. Tested (Natural-Track) Germplasm, both wild collected, or field or orchard produced, may be tagged (as is customary for individual forest trees). Named variety release should also be a consideration if the germplasm has been tested in several locations and appears to have wide adaptation and usage demand.
6. Naming and recognition of a cultivar/variety must comply with Federal and State Seed Law definitions.
 - A. Source Identified, Selected, and Tested Germplasm (SI, S, and T), when identified with a germplasm identification term (i.e., number or source designation), must include the fixed term "Germplasm" to avoid being construed as a variety name in commerce. Examples are ARS2936 Germplasm scarlet globemallow and Maybelle Germplasm antelope bitterbrush.
 - i. A designated germplasm identification term (Germplasm ID) may not be changed for tagging purposes after the Germplasm ID has been used in final certification on a Pre-Variety Germplasm label or has been published by AOSCA in the annual "Pre-Variety Germplasm Applied for Certification Report", unless the germplasm has a new Germplasm ID assigned through an official germplasm release process and/or trademark protection.
 - ii. If a Germplasm ID includes a geographic place name, it must be applicable to the actual germplasm geographic source. Though available for use in a Germplasm ID by multiple originators/developers, a geographic place name should be paired with additional identification (e.g., initials of a person or organizations, such as UDWR Intermountain Tetra Germplasm basin wildrye) to make the use of the resultant Germplasm ID specific to that originator.
 - iii. 'Subsequent accessions from the same defined geographic source by the same originator may use the same Germplasm ID unless changes in collection or handling methods result in a germplasm with a different genetic identity.
 - iv. The seed certifying agency receiving the initial request for certification of a PVG germplasm has the responsibility to ensure that a Germplasm ID assigned by the originator/developer meets the requirements of these standards.
 - v. A germplasm originator/developer proposing that a germplasm be advanced from one germplasm type to another (Source Identified-Selected-Tested-Variety) must provide evidence to the seed certifying agency that the germplasm has retained the same genetic identity, to continue use of the same Germplasm ID. (See Footnote 8. Also see Pre-Variety Germplasm Certification Standards I.B.2,3 and III.A,B; Eligibility Guidelines for Pre-Variety Germplasm Types; and How AOSCA Tracks Wildland Sourced Seed

- vi.** A germplasm must be labeled as the germplasm type currently specified by the originator/developer and accepted by a SCA (see 6. A. v. above), with existing stands evaluated as to eligibility for generations or variety classes as appropriate to the specified germplasm type.
- vii.** Designation of generations through which germplasm types may be multiplied. Source Identified, Selected and Tested germplasm types use a numeric generational succession: G0, G1, G2, etc. (refer to Pre-Variety Germplasm Certification Standards, Sec. I. B. 2.; 3.). Classes of named and released varieties/cultivars are: B= Breeder, F=Foundation, R=Registered, C=Certified (refer to Genetic Seed Certification Standards, III, IV; and to DEFINITIONS OF TERMS USED FOR PUPOSES OF AOSCA CERTIFICATION PROGRAMS).
- viii.** When germplasm at any stage can be shown to have been significantly altered from the original collection or accession, it loses its Natural-Track status and is routed to the Bulk Populations of the non- Manipulated-Track.

PLANT GERMPLASM / PRE-VARIETY GERMPLASM LABELS

1. Guidelines

- A. Tags are issued by individual seed certifying agencies and clearly state the class of seed, or germplasm category, in block letters across the top of the tag.
- B. The term class should only be used for Breeder, Foundation, Registered, Certified classes for released varieties.
- C. PVG types are designated as categories. i.e. Source ID Category, Selected Category and Tested Category, Tags do not need to display the word “category” in the block letters on the top of the tag.
- D. All tags also normally display agency insignia or logo along with other information that identifies and/or describes the variety or germplasm (refer to Pre-Variety Germplasm Certification Standards, and to Operational Procedures, Labels and Labeling).

2. Examples of PVG Tags

- A. *Figure 19 Wild Collected Source ID seed used for direct out planting (reclamation) without a Germplasm ID*

SOURCE IDENTIFIED SEED	
	Species Name: <i>Sphaeralcea grossularifolia</i> Common Name: Gooseberryleaf globemallow Germplasm ID, Gen.: G0/G0 G0 State, County, Elev.: UT, Kane, 6060 ft. G0 Indigenous? Yes G0 Natural? Yes Cert. # WC-0048 Lot # 4855
The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CATEGORY of certified seed. No warranty is expressed or implied as to the fitness for particular purpose or performance of the seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws. •UTAH CROP IMPROVEMENT ASSOCIATION• •Utah State University, 4855 Old Main Hill, Logan, Utah 84322-4855 (435)797-2082 • www.utahcrop.org MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES	

- B. *Figure 20 Wild Collected seed with seed zone information*

SOURCE IDENTIFIED SEED	
	Species Name: <i>Artemisia tridentata wyomingensis</i> Common Name: Wyoming Big Sagebrush Germplasm ID, Gen.: N/A, G0/G0 G0 State, County, Elev.: NV, Elko, 5340 ft. Prov. Seed Zone (WTM): 10-15 *F MWT / 6-12 AI G0 Indigenous? Yes G0 Natural Track? Yes Cert. # WC-0003 Lot # TAG EXAMPLE
The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CATEGORY of certified seed. No warranty is expressed or implied as to the fitness for particular purpose or performance of the seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws. •UTAH CROP IMPROVEMENT ASSOCIATION• •Utah State University, 4855 Old Main Hill, Logan, Utah 84322-4855 (435)797-2082 • www.utahcrop.org MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES	

- C. *Figure 21 Field Produced Source ID tag Generation 3 of 4 generations allowed*

SOURCE IDENTIFIED SEED	
	Species Name: <i>Penstemon cyaneus</i> Common Name: Blue Penstemon Germplasm ID, Gen.: PECY B6-02 Germplasm G3/G4 G3 State, County, Elev.: CO, Montezuma, 6200 ft. G0 State, County, Elev.: ID, Lincoln, 4500 ft. G0 Indigenous? Yes G0 Natural? Yes Cert. # I/A Colorado Lot # 2009-0570, GBRI 50
The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CATEGORY of certified seed. No warranty is expressed or implied as to the fitness for particular purpose or performance of the seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws. •UTAH CROP IMPROVEMENT ASSOCIATION• •Utah State University, 4855 Old Main Hill, Logan, Utah 84322-4855 (435)797-2082 • www.utahcrop.org MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES	

- D. Figure 22 Selected seed eligible for use as stock seed. Generation 3 of 4 generations allowed.



- E. Figure 23 Selected seed eligible for use as stock seed. Generation 3 of unlimited generations allowed.



- F. Figure 24 Selected seed downgraded to prevent use as stock seed.



- G. Figure 25 Tested seed. Generation 2 of 5 generations allowed.



UNIFORM SYSTEM FOR BRINGING PRE-VARIETY GERMPLASMS INTO CERTIFICATION IN THE UNITED STATES

Determining Eligibility of Pre-Variety Germplasms (PVG's) for Certification

1. The AOSCA Eligibility Requirements for Germplasms, as defined in AOSCA General Requirements for Seed Certification Standards, shall be observed in determining the eligibility of a germplasm for certification by a vested member agency.
The right of each vested member agency and/or governmental unit to establish its own eligibility requirements inclusive of the AOSCA Eligibility Guidelines for Pre-Variety Germplasm Types is acknowledged.
2. The process recognized by AOSCA in which germplasms may be entered into seed certification via favorable action by individual vested member agencies which have considered the required germplasm information, as referenced above in "AOSCA Eligibility Guidelines for Pre-Variety Germplasm Types and associated AOSCA documents: Pre-Variety Germplasm Requirements and Standards, Site ID Logs 1 and 2, and Application for Pre-Variety Germplasm. Species accessions (germplasms) may be collected on native or naturalized sites by public agencies, NGO's, and private companies for the purpose of direct revegetation planting or for cultivated seed production as manipulated or natural (non-manipulated) germplasms. Wild collected or field produced Pre-Variety Germplasms are eligible for entry into seed certification. The AOSCA Tree, Shrub, and Native Plant Committee PVG Advisory Committee may be consulted for aid in the process of determining eligibility for Pre-Variety Germplasms applied for certification.

Individual AOSCA vested member agencies are responsible for determining the final status of these applications.

GUIDELINES FOR PERMITTING & CERTIFICATION OF WILDLAND SEED

Large-scale disturbance of ecosystems, whether human-caused or the result of natural events (e.g., fire, floods, etc.), frequently requires mitigation to restore, revegetate, improve, or stabilize natural communities. Demand for the resources needed to complete corrective and improvement activities increases with increase in human activity on these communities. Seeds needed to accomplish these corrective measures are a basic resource often limited in quantity and quality. To meet present and future demands, sufficient quantities of seed from numerous species must be available at reasonable cost. Though many species may be suited for field cultivation, seeds of a majority of species will continue to be collected from wildland populations.

Much of these wildlands are public and permits are required for harvesting. Considerable inconsistency exists among and within each Land Management Agency (LMA) on how and when permits are issued. This is due, in part, to incomplete knowledge by LMA personnel of the market dynamics peculiar to this industry resulting in difficulty in assessing appropriate fees. Ultimately, inconsistency creates frustration, resulting in low levels of compliance, a phenomenon experienced with other specialty products collected from public lands.

One mission of LMA's is to promote development of rural economies, as long as this can be done without jeopardizing resources. Responsible seed collecting is compatible with other uses (e.g., livestock grazing, recreation, etc.) and has little or no long-term effect on stand health. Requirements placed on collectors and brokers should not be burdensome. Clearly, by collecting and marketing seeds from hundreds of species, this industry provides a resource that cannot be obtained by any other reasonable means.

Many species are represented by numerous genetically distinct races or ecotypes. They reflect differential adaptation to variation in soils, climates, disturbance regimes, etc. across the species range of distribution. Success in using a particular species is often dependent on the use of seed from an adapted race. Although races of a few species have had considerable testing, huge gaps remain in our understanding of race adaptability for most species. Consequently, decisions about which race to seed on a particular site should generally be based on an evaluation of the physical and biological environment of the collection and seeding sites. Unfortunately, seed users have found accurate collection site information to be largely unavailable.

In response to these concerns the Utah Interagency Plant Materials Committee organized and sponsored a workshop in March 1993. Representatives from LMA's, the State Seed Certifying Agency (SCA), State seed testing laboratory, private industry, and research community were invited to spend 2 days identifying problems and developing solutions.

Recommendations have been modified after additional review by various parties connected to the industry. The following guidelines are the product of this process. Implementation of these guidelines by LMA's, collectors, dealers, and SCA's would do much to correct the problems associated with the collection and use of seed from wildland populations.

1. Permits for Seed Harvest On Public Lands

Seed collectors are most likely to comply with permit requirements when consideration is given to their concerns.

A. Because collectors often travel long distances for seed (and permits), they need flexibility in purchasing permits. Circumstances sometimes allow and/or require a long lead time for permit purchase, while other times this is not possible. In either case, permits must be available during all office hours and on a daily basis. Permits should preferably be valid on large geographic areas, such as BLM or Forest Service districts. However, smaller resource management areas may be specified. Consistency within LMA's is critical. These guidelines address the needs of both LMA's and collectors concerning requirements for seed collection permits.

B. LMA responsibilities

- i.** Complete and have on file all required Environmental Assessments (EA) required by law prior to the harvest season. Many species can be covered in resource management plans and do not require a specific EA.