# NEW MEXICO PRE-VARIETY GERMPLASM CERTIFICATION STANDARDS

(Effective January 2021)

I. APPLICATION OF GENERAL CERTIFICATION STANDARDS

A. The general requirements for seed certification found in Sections I through XI of the New Mexico State University Seed Certification & Noxious Weed Free Program's (SCNWFP) General Seed Certification Standards apply to (are basic to) all crops, and together with the following specific standards, constitute the certified Pre-Variety Germplasm standards.

B. The General Seed Certification Standards are modified as follows:

1. Section IV. Eligibility Requirements for Certification of Varieties
   a. Eligible species include indigenous or non-indigenous trees, shrubs (including vines), or herbaceous plants (forbs and grasses).
   b. These standards address seed and seedlings, and other propagating materials of native and naturalized species that have not been released as a variety.
      1) Source Identified Germplasm
      Source Identified propagating materials are seed, seedlings, or other propagating materials that are an unrestricted representation of a plant population on a given site, and for which no selection or testing of the parent population or its progeny has been made, produced so as to ensure genetic purity and identity from either:
         (a) Rigidly defined natural stands or seed production areas, or
         (b) Seed fields or orchards
      2) Selected Germplasm
      Selected propagating materials shall be the progeny of phenotypically selected plants of untested parentage that have promise but not proof of genetic superiority or distinctive traits, produced so as to ensure genetic purity and identity from either:
         (a) Rigidly defined natural stands or seed production areas, or
         (b) Seed fields or orchards. This definition is equivalent to the OECD "Untested Seed Orchard" category and may be labeled as such by special tag if required (see item 5.b)
      3) Tested Germplasm
      Tested propagating materials shall be the progeny of plants whose parentage has been tested and has proven genetic superiority or possesses distinctive traits for which the heritability is stable, as defined by the certifying agency, but for which a variety has not been named or released. These materials must be produced so as to ensure genetic purity and identity from either:
         (a) Rigidly controlled and isolated natural stands or individual plants, or
         (b) Seed fields or orchards.

      Methods used and monitoring of selection and testing of parent material to qualify for different germplasm types shall be determined by the certifying agency for each species or group of species

2. Section III. Definitions of Terms Associated with Seed Certification
   The terms Breeder, Foundation, Registered, and Certified designate and define classes of named and released varieties and are not applicable to pre-variety germplasms. Source Identified, Selected, and Tested germplasm types use numbers to designate generations.

   The generation <u>is not defined</u> for indigenous or naturalized parent plants in an unrestricted wildland plant population. Seeds harvested from such populations in a non-selective manner are designated Generation Zero (abbreviated G0) since they are a natural, unrestricted representation of the parent plants. The germinant plants from this seed are also designated G0, from which G1 seeds are harvested. G1 seeds produce G1 plants from which G2 seeds are harvested, and so on.

   The generation <u>is defined</u> as Generation 0 for parent plants preferentially selected from a cultivated or wildland population; this definition follows the convention for cultivated crop development. The seeds harvested from such G0 parent plants are designated G1. The germinant plants from this seed are also

designated G1, from which G2 seeds are harvested. G2 seeds produce G2 plants from which G3 seeds are harvested, and so on.

3. Section VI. Limited Generations
    a. Limitation of generations for pre-variety germplasm is not required, but may be specified by the original applicant/developer of a designated germplasm. This limitation may be amended by the originator/developer. Such amendment shall be communicated in writing by the originator/developer to the owner of the specified seed lot, and to the SCNWFP. Such amendment must indicate whether it pertains to a specific seed lot, or is a permanent change for the germplasm. The SCNWFP will forward the communication to the AOSCA office for circulation to all seed certifying agencies (SCAs).
    b. The appropriate seed generation number for a designated germplasm must be tracked by the SCNWFP.
    c. No limitation of generations is defined for germplasm types collected from natural stands; such seed or other propagating materials is designated Generation 0 (G0).

4. Section VIII. Production of All Classes of Certified Seed
    a. An individual plant, clone, or stand of plants (or field or orchard) may be certified in producing Source Identified, Selected, or Tested seed. Seed production zones, seed transfer zones, and/or breeding zones may be defined as a unit of certification for Source Identified and Selected seed.
    b. For Source Identified seed collected from natural stands, verification of the collection site is required. Compliance with regard to correct identification of species, location of natural stand, and seed yield must be verified by whatever means is deemed efficient and enforceable by the SCNWFP.
    c. For Selected or Tested seed collected from natural stands, at least one field inspection shall be made prior to pollination. At this time, compliance with regard to rouging and isolation as covered by the applicable standards will be checked. For Selected and Tested seed, an inspection will be made just prior to seed maturity or during harvest.
    d. All germplasm types grown in seed fields or orchards shall follow established certification requirements and standards for similar crop varieties if applicable, or those developed by a certification agency for a specific species.
    e. Producers of seedling or otherwise propagated nursery or container stock shall be supervised sufficiently so that the SCNWFP knows that the stock was produced from the germplasm type claimed.

5. Section X. Labeling of Certified Seed
    a. The following tag or label colors shall apply:
    Source Identified Germplasm – Yellow
    Selected Germplasm – Green (Note exception in 5b. below)
    Tested Germplasm – Blue
    b. Format of face side of label: The respective seed germplasm type (TESTED, SELECTED, or SOURCE IDENTIFIED) must be printed on the top line across the tag or label. Exception: To satisfy requirements of the OECD Scheme, seed from Selected Germplasm seed orchards may be tagged with a pink tag having UNTESTED SEED ORCHARD printed on the top line across the tag or label.
    c. Content
        1) The generation of the seed may be indicated in the center of the tag along with such information as species, selection number, lot number, location, elevation, site index, seed zone and/or breeding zone, etc.
        2) Wildland collected seed documented solely by a SITE IDENTIFICATION LOG PART 1 (or equivalent information; see AOSCA Guidelines for Permitting & Certification of Wildland Collected Seed), shall be labeled as G0/G0 and is eligible for direct out-planting but not for seed increase
        3) If documentation includes both the SITE IDENTIFICATION LOG PARTS 1 and 2, (or equivalent information), then the seed may be eligible for increase. If a limitation of generations has not been specified, then the generation shall be listed on the tag as G0/GX, G1/GX, etc., where X = “unspecified” or “unlimited”. If a limitation of generations has been specified, then the generation of the tagged material and the number of increase generations permitted shall be stated on the certification tag, e.g. G0/G3, G1/G3, etc. (read “generation zero, or generation one of three generations” permitted).
        4) Accelerated downgrading of generation(s) can be specified on the tag to limit further increases, e.g., from G1/G3 to G2/G3 or G3/G3.

d. Selected or Tested Germplasm may not be labeled as Source Identified Germplasm (see p. 16, AOSCA Nomenclature and Labeling for Plant Germplasm Types, Footnote 6.A.B.6).

C. The Recommendations and Guidelines for Seed Certification are modified as follows:

Section IX. Seed Sampling

For seed of species not covered by the rules for testing seeds of the Association of Official Seed Analysts, the analyses and testing shall be in accordance the rules of the International Seed Testing Association or appropriate state or federal laboratories as determined by the SCNWFP.

II. LAND REQUIREMENTS

A. For natural stands of the Tested germplasm type, the exact geographic source of the parent plants and the stand history must be known. Location (designated by section or comparable land survey unit) and elevation (nearest 500 feet) of the site of seed production must be shown on the tag.

B. Location where Selected or Source-Identified seed was collected from natural stands shall be defined by means of administrative, geographic, latitudinal, or other appropriate boundaries or descriptions submitted by the applicant/developer of the germplasm, and reviewed and accepted by the state certifying agency. State, county (or parish, seed production area, or geographic zone), and elevation (nearest 500 feet) is the minimum required to be shown on the tag.

C. For all germplasm types where seed or other propagating materials are produced in artificially established fields or orchards, the specific geographic origin of the parent material must be known and listed on the tag. The location printed on the tag shall be the location (specific site or county/parish or seed production area/zone) of the field or orchard.

D. G1 through G5 shall be planted on land which no plants of the same genus were grown or planted for the specified number of years according to the chart which is a part of these PVG standards.

III. FIELD STANDARDS

A. Isolation

1. For rigidly controlled natural stands of Tested, Selected, or Source Identified germplasm types, an adequate isolation zone shall be maintained free of off-type plants and other cross pollinating species. The isolation distance shall be set for each species by the SCNWFP (available in New Mexico PVG Species Standards).
2. There shall be no isolation requirements for Selected or Source Identified seed collected from natural seed zones and/or breeding zones.
3. Isolation for all germplasm types when grown in seed fields or orchards shall follow isolation requirements for similar crop varieties if applicable, or those developed by SCNWFP for a specific species.

B. Specific

1. For all germplasm types grown in a seed field or orchard, off-type plants (and plants of inseparable other species or hybridizing species) are to be defined and appropriate tolerance set by the certifying agency.
2. Design and methods for establishing seed fields and orchards and the selecting and testing of plant material shall be in accordance with the requirements of the certifying agency for each species or group of species.

Pre-Variety Germplasm (Source Identified, Selected, Tested)

Recommended Minimum Genetic Requirements and Standards*

| **Species[1]** | | **G1** | | | | **G2** | | | | **G3** | | | | **G4, etc[2]** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Repro.** | **Habit** | **L[3]** | **I[4]** | **F[5]** | **S[6]** | **L** | **I** | **F** | **S** | **L** | **I** | **F** | **S** | **L** | **I** | **F** | **S** |
| X Poll. | Ann. | 3 | 900-600 | 1000 | 0.25 | 2 | 450-300 | 500 | 0.5 | 1 | 330-165 | 250 | 0.75 | 1 | 165-165 | 250 | 0.75 |
| X. Poll | Per.[7] | 3 | 900-600 | 1000 | 0.25 | 2 | 450-300 | 500 | 0.5 | 1 | 330-165 | 250 | 0.75 | 1 | 165-165 | 250 | 0.75 |
| Self Poll. | Ann. | 3 | 0[8] | 1000 | 0.25 | 2 | 0 | 500 | 0.5 | 1 | 0 | 250 | 0.75 | 1 | 0 | 250 | 0.75 |
| Self Poll. | Per.[7] | 3 | 0 | 1000 | 0.25 | 2 | 0 | 500 | 0.5 | 1 | 0 | 250 | 0.75 | 1 | 0 | 250 | 0.75 |

*Where applicable, a pre-variety germplasm entity may be subject to AOSCA or SCNWFP genetic requirements and standards for released varieties of comparable individual species or crop groupings (e.g. Alfalfa, Grass or Woody Plants and Forbs). Seeds

Harvested from wildland plant populations should utilize the G1 seed standards (footnote 6), but other requirements and standards are not applicable. These recommended requirements and standards do not apply to vegetative reproduction.

[1] Species mode of sexual reproduction (cross or self pollinated) and habit (annual or perennial).

[2] The number of generations may be limited if specified by the applicant/developer (refer to Pre- Variety Germplasm Certification Standards, Sec. I.B.3.a,c,d.; 5.c.). When over 50% of the seed producing plants in a cultivated stand are volunteers (progeny or plants from the original seeding), then the generation shall be downgraded.

[3] Land history: number of crop years that must elapse between removal of a species and replanting a different germplasm entity of the same species on the same land, unless cropping practices serve to diminish the seed reservoir more quickly.

[4] Isolation in feet from any contaminating sources of pollen.
(a) The first number is for fields less than 5 acres; the second number is for fields of 5 acres or more.
(b) Isolation is required between all seed fields of the same species, except all types of Natural Track germplasms when from the same specified source.
(c) Isolation is not required between fields of different generations of the same germplasm entity (e.g., same Germplasm ID)
(d) Border removal applies to grass seed fields of 5 acres or more (for reference see AOSCA Seed Certification Handbook, Appendix II, footnote 20)
(e) A Source Identified seed field located within the same geographic source area as was identified for the germplasm entity before being increased, does not require isolation from naturally occurring plants of the same species adjacent to the seed field.
(f) Isolation is required between different species known to readily cross-pollinate. A species, for which its breeding system is unknown, will be treated as a cross-pollinating species for the purposes of these standards.

[5] Field standards: minimum number of plants or heads in which one plant or head of an off-type or other germplasm entities of the same species is permitted.

[6] Seed standards: maximum percentage of seed of off-types or other germplasm entities of the same species

[7] The life of a cultivated stand may be limited as specified by the germplasm originator, otherwise it is unlimited as long as 75% of the plants present in the stand are those that were planted originally. If less than 75% remain, then the SCNWFP, in consultation with the germplasm originator, may require overseeding with eligible seed stock, or re-categorization to the "manipulated germplasm" track as indicated in the chart of AOSCA Nomenclature and Labeling for Plant Germplasm Types

[8] Distance adequate to prevent mechanical mixture is necessary.

## IV. SEED STANDARDS

Seed quality standards (beyond those listed in the above III.B.2 table, column S) are set by the SCNWFP and available in the New Mexico PVG Species Standards reference document. Additionally, the seed producer should consult state and federal laws regarding seed analysis labeling.