## Part 542.1 Terms Commonly Used in Plant Materials Work (Glossary)

The following list of terms, although not complete, defines some terms commonly used by plant scientists.

**9 million numbers** - NRCS numbers used to identify plant accessions; i.e., 9056783

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**Accession** - Plant material (plant, seed, or vegetative part) collected and assigned a number to maintain its identity during evaluation, increase, and storage.

**Acid Equivalent** - The theoretical yield of parent acid from an active ingredient.

**Active Ingredient** - The chemical compound in a product that is responsible for the herbicidal (or other chemical) affect.

**Advanced Evaluation** - The more intensive testing of plants that have been selected as being superior in one or more attributes to the initial evaluation.

**Aggressiveness** - Seedling vigor related to ease of establishment. Also capacity of well-established plants to compete with or outcompete associated grasses, legumes, or woodies.

**Alien Species** - A species introduced and occurring in locations beyond its known historical range. This includes introductions from other continents, bioregions, and also those not native to the local geographic region. Executive Order (E.O.), Invasive Species, February 3, 1999, more narrowly defines an alien species and ties the definition to an occurrence outside a native.

**Allele** - One member of a pair or series of genes occupying a specific position (locus) in a specific chromosome; one of the alternative forms of a gene. Normally an individual has only two alleles for any trait one gene derived from its male parent, the other from its female parent.

**Allopolyploid** - A polyploid containing genetically different sets of chromosomes; for example, sets from two or more species.

**Amphidiploid** - A polyploid whose chromosome compliment is made up of the entire somatic complements of two species.

**Aneuploid** - An organism whose somatic number is not an even multiple of the haploid number.

**Annual** - A plant that completes its life cycle from seed in a single year or growing season.

**Apomixis** - Reproduction in which sexual organs or related structures take part but fertilization does not occur, so that the resulting seed is vegetatively reproduced. Only a single parent contributes genes to the offspring.

**Apparent Trend** - An interpretation of trend based on a single observation. Apparent trend is described in the same terms as measured trend except that when no trend is apparent it shall be described as "not apparent". See “Trend”.

**Assembly** - A systematic collection of plants (seed or vegetative material) of one or more species to be evaluated for a planned purpose.

**Autopolyploid** - A polyploid arising through multiplication of the complete haploid set of one species.

**Backcross** - The crossing of a hybrid with either of its parents. In genetics, the crossing of a heterozygote with a homozygous recessive.

**Band Applications** - An application to a continuous restricted area such as in or along a crop row, rather than over the entire field area.

**Bare-root** - A plant harvested from a field without any soil on its roots.

**Basal Treatment** - Herbicide applied to the stems of woody plants at or just above the ground.

**Biennial** - A plant that completes its life cycle in 2 years. The first year it produces leaves and stores food. The second year it produces fruits and seed.

**Biodiversity** - The total variability within and among species of living organisms and the ecological complexes that they inhabit. Biodiversity has three levels - ecosystem, species, and genetic diversity - reflected in the number of different species, the different combination of species, and the different combinations of genes within each species.

**Biotype** - A group of individuals within a population occurring in nature, all with essentially the same genetic constitution. A species usually consists of many biotypes. See also “ecotype”.

**Blend** - A mixture of seed of known proportions of two or more lots or variation of the same species.

**Blind Cultivation** - Cultivating before a seeded or planted crop emerges.

**Botanical Variety** - The botanical nomenclature division consisting of more or less recognizable entities within species that are not genetically isolated from each other, below the level of subspecies, and is indicated by the abbreviation “var.” in the scientific name; Usage: the abbreviation in roman type; the name in italics; no capitals. See also “variety”.

**Breeder Seed** - Seed or vegetative propagating material which is directly controlled by the originating or, in some cases, the sponsoring plant breeder, institution, or firm, and which supplies the source for initial and recurring increase of foundation seed. See also ”seed certification classes”.

**Breeder's Rights** - The assurance that the owner of a crop variety has exclusive control over the increase, distribution, and merchandising of a variety. The protection may be afforded by legislation and regulatory control by agreement among individuals concerned, or by biological factors inherent in the variety. The breeder is assured that his/her authorization must be obtained before the variety can be reproduced or sold by anyone else. See “Plant Variety Protection Act."

**Breeding System** - A system of use to select or modify a plant to yield new progeny with desired characteristics.

**Business Plan -** A document to indicate how the PMC resources are to be used and action items to be completed. It should be brief, flexible, realistic, and open-ended. It should be consistent with NRCS guidelines.

**C-3 Plants** - Species having a photosynthetic pathway which results in 3-carbon compounds as initial products of photosynthesis. Includes most legumes, forbs and cool season grasses, as well as most trees and shrubs. Usually significantly less efficient users of soil and water nitrogen than are C-4 plants. Optimum temperature for photosynthesis and growth is 18 to 25 Celsius (64 to 77 Fahrenheit). See also “photosynthesis”.

**C-4 Plants** - Species having a photosynthetic pathway which results in 4-carbon compounds as initial products of photosynthesis. Includes most warm season grasses, tropical grasses, a few forbs, and at least one shrub. Usually significantly more efficient users of soil nitrogen and water than are C-3 plants. Total biomass production is generally substantially greater than plants with other photosynthetic pathways. Optimum temperature for photosynthesis and growth is in the range of 27 to 35 Celsius (84 to 100 Fahrenheit). See also “photosynthesis”.

**CAM Plants** - Abbr. for “Crassulacean Acid Metabolism”. Species whose photosynthetic pathway primarily involves fixation of carbon dioxide during the dark period. Includes desert succulent plants such as cactus. Under good moisture and temperature conditions, carbon fixation may occur in the light via either C-3 or C-4 pathways. Generally the least productive of the three photosynthetic pathways. See also “photosynthesis”.

**Carrier** - A liquid or solid material added to a chemical compound or seed to facilitate its application in the field.

**Center of Diversity** - The geographic region in which the greatest variability of a species occurs. A primary center of diversity is the region of true origin and secondary centers of diversity are regions of subsequent spread of a species.

**Center of Origin** - The geographic region containing a concentration of genetic diversity of one or more species; also called a gene center.

**Certified Seed** - The progeny of breeder, foundation, or registered seed that is so handled as to maintain satisfactory genetic identity and purity and that has been approved and certified by the certifying agency. Certified tree seed is defined as seed from trees of proven genetic superiority, as defined by the certifying agency, produced so as to assure genetic identity. See also “seed certification classes”.

**Chasmogamous** – Plant type in which the perianth of flowers opens for pollination to occur. See also “cleistogamous”.

**Cleistogamous** – plant type in which flowers self-pollinate inside the closed buds.

**Climax** – (1) The final or stable biotic community in a successional series that is selfperpetuating and in dynamic equilibrium with the physical habitat; (2) the assumed end in succession. See also “historic climax plant community”.

**Cline** – a gradual morphological or physiological change in a group of related organisms across their range, usually associated with environmental or geographic transition.

**Clone** - A group of genetically identical plants produced by vegetatively propagating a single plant over one or more vegetative generations.

**Combining Ability** – In general, the average performance of a strain in a series of crosses. More specifically, deviation from performance predicted on the basis of general combining ability.

**Commercial Seed** - Seed produced by commercial industry; may or mat not be recognized improved varieties of seed.

**Common Seed** - Non-certified seed. Such seed may be a named variety but are not grown under the certification program. Also a term applied to seed that cannot be identified as to variety; sometimes used to denote local strains resulting from natural selection.

**Community** - An assemblage of one or more populations of plants and/or animals in a common spatial arrangement.

**Community (Plant Community)** - An assemblage of plants occurring together at any point in time, while denoting no particular ecological status. A unit of vegetation.

**Community Type** - An aggregation of all plant communities distinguished by floristic and structural similarities in both overstory and undergrowth layers. A unit of vegetation within a classification.

**Companion Crop** - A crop sown along with another crop; used particularly for small grain with which a forage crop is sown. Companion crop is preferred to the term “nurse crop.”

**Compatible** - Compounds or formulations that can be mixed and applied together without undesirably altering their separate effects. This term can be applied also to species mixtures.

**Composite** - The combining of genetic material from several sources. This is one of the alternatives of the mass selection technique and should not be confused with a polycross. See also “mass selection” and “polycross”.

**Concentration** - The amount of active ingredient or acid equivalent in a given volume of liquid or in a given weight of dry material.

**Conservation Field Trial** - Is identified in the NRCS General Manual 450-403 as a tool for evaluating new technology, species, or plant releases that address local soil and water resource problems; type of study used by many disciplines; in the PM program may be used to develop new technology, evaluate releases, and promote PM products; typically coordinated by the PMS; qualitative or quantitative data may be collected.

**Contact Herbicide** - A herbicide that kills a plant primarily by contact with plant tissue rather than by translocation.

**Containerized Stock** - Plant materials grown in containers.

**Cool-season Plant** - A plant that makes its major growth during the cool part of the year, mainly in spring but in some localities in the fall or winter.

**Cooperative Agreement** - A written document evidencing the intent of two or more parties to cooperate in an undertaking that will result in mutual benefit to the parties concerned. The parties work jointly in the undertaking -- not each working within its own sphere of work and authority as under a memorandum of understanding relationship. The cooperative agreement is a fiscal document, and the period of time covered must not exceed the period for which funds are available for obligation.

**Cover Crop –** Close-growing crop grown primarily for the purpose of protecting and improving soil between periods of regular crop production.

**Cover Type** - The existing vegetation of an area.

**Cross Pollination** - The transfer of pollen from one flower (artificially or naturally) to the stigma of another; may occur on the same plants or on different plants, depending on the species and other conditions.

**Crossing-Over** - The exchange of corresponding segments between chromatids of homologous chromosomes during meiotic prophase. The genetic consequence is the recombination of linked genes.

**Cultivar** - The international term cultivar denotes an assemblage of cultivated plants that is clearly distinguished by any characters (morphological, physiological, cytological, chemical, or others) and when reproduced (sexually or asexually), retains its distinguishing characters. The term is derived from “cultivated variety”, or their etymological equivalents in other languages. For cultivated plants**,** the term cultivar is the equivalent of a botanical variety, in accordance with the International Code of Nomenclature of Cultivated Plants 1980. Usage: cultivar names are not italicized, and are indicated by single quotes at first use, or the word cultivar (but not both). The abbreviation cv. is properly used only with a binomial name: Genus species cv. cultivar name. Omit the abbreviation if single quotes are used: Genus species ‘cultivar name’.

**Cultural Evaluation** - Studies designed to obtain information regarding establishment, management and production of plant materials. They may be conducted on or off the center at any stage of the evaluation process.

**Defoliant** - A compound that causes the leaves or foliage to drop from a plant.

**Demonstration Plantings** - A planting used primarily to promote use and acceptance of new technology or releases; no evaluations are done and no data is collected.

**Desiccant** - A compound that promotes dehydration or removal of moisture from plant tissue.

**Desired Plant Community** - A plant community which produces the kind, proportion, and amount of vegetation necessary for meeting or exceeding the minimum quality criteria for the soil, water, air, plant and animal resources, and the land use plan/activity plan objectives established for an ecological site(s). The desired plant community must be consistent with the site's capability to produce the desired vegetation through management, land treatment, or a combination of the two.

**Diluent** - Any liquid or solid material serving to dilute an active ingredient in the preparation of a formulation.

**Dioecious** - Having staminate and pistillate flowers occurring on different plants, that is, having distinct male and female plants (e.g. buffalograss).

**Diploid** - Having two chromosomes of each kind. Having the basic chromosome number doubled.

**Direct Application** - Method of applying chemicals or fertilizers directly to a restricted area, such as a row or a bed at base of plants.

**Diversity** - The distribution and abundance of different plants and animal communities within an area. Also a measure of the number of species and their relative abundance within a given association of organisms. Areas of high diversity are characterized by a great variety of species; usually relatively few individuals represent any one species. Areas with low diversity are characterized by a few species; often relatively large numbers of individuals represent each species.

**Dormancy** - An internal condition of the chemistry or stage of development of a viable seed that prevents its germination, although temperature and moisture are adequate for growth.

**Dormant Seeding** - Planting seed during late fall or early winter after temperatures become too low so that seed germination occurs the following spring.

**Ecesis** - Establishment and development of a plant in the plant community.

**Ecocline** - Series of biotypes within a species that shows a genetic gradient correlated with a gradual environmental gradient.

**Ecological Niche** - Role of an organism in an ecological system. Includes the physical space in a habitat occupied by an organism; its functional role in the community (e.g., its trophic position); and its position in environmental gradients of temperature, moisture, pH, soil, and other conditions of existence.

**Ecological Optimum** - The most favorable conditions in the environment for the growth and reproduction of an organism.

**Ecological Race** - Group of local populations within a species in which individuals have similar environmental tolerances. Wide-ranging species may consist of many ecological races.

**Ecological Response Unit** - A unit of land that is homogeneous in character such that similar units will respond in the same way to disturbance or manipulation. Syn. ecological site, ecological type.

**Ecological Site** - A kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in ability to produce vegetation and to respond to management. Syn. Ecological type, ecological response unit.

**Ecological Status** - (1) The present state of vegetation and soil protection of an ecological site in relation to the potential natural community for the site. Vegetation status is the expression of the relative degree of which the kinds, proportions, and amounts of plants ina community resemble that of the potential natural community. If classes or ratings are used, they should be described in ecological rather than utilization terms. For example, some agencies are utilizing four classes of ecological status ratings (early seral, midseral, late-seral, potential natural community) of vegetation corresponding to 025%, 2650%, 5175%, and 76-100% of the potential natural community standard. Soil status is a measure of present vegetation and litter cover relative to the amount of cover needed on the site to prevent accelerated erosion. This term is not used by all agencies. (2) The present state of vegetation and soil protection of an ecological site in relation to the historic climax plant community for the site. Vegetation status is the expression of the relative degree of which the kinds, proportions, and amounts of plants in a community resemble that of the historic climax plant community. If classes or ratings are used, they should be described in ecological rather than utilization terms.

**Ecological System** - See “ecosystem”.

**Ecological Type** - A land classification category which is more specific than a phase of a habitat type. Ecological types are commonly used to differentiate habitat phases into categories of land which differ in their ability to produce vegetation or their response to management. Syn. ecological response unit, ecological site.

**Ecophene** - Plants differing in appearance, especially in the size of vegetative parts, numbers of stems, erectness, and reproductive vigor but belonging to essentially homogeneous genetic stock. Their distinctness is due entirely to environmental influences, for when different ecophenes are transplanted into the same habitat these differences disappear.

**Ecosystem** - Energy-driven complex of one or more organisms and their environment. Organisms together with their abiotic environment, forming an interacting system, inhabiting an identifiable space. The whole system, in the sense of physics, including not only the organism complex, but also the whole complex of physical factors forming what we call the environment. The complex of living and nonliving components in a specified location that comprise a stable system in which the exchange of material follows a circular path such as a biome. A community of organisms and the environment in which they live. A system of ecological relationships in a local environment, including relationships between organisms, and between the organisms and the environment itself. Syn.: ecological system.

**Ecotone** - Transitional zone between two vegetational types or vegetational regions. A transition area of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of its own. Varies width depending on site and climatic factors. A transition line or strip of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of own.

**Ecotype** - (1) A population of plants that has become genetically differentiated in response to the conditions of a particular habitat. The plants may vary in growth habit, maturity, and other characteristics such as pubescence and flower color. Sometimes referred to as a geographical race. (2) A transition area of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of its own. Width varies depending on site and climatic factors. Transition zone between two vegetation types or vegetation-type regions. (3) A transition line or strip of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of own. (4) A locally adapted population within a species which has certain genetically determined characteristics; interbreeding between ecotypes in not restricted. (5) A variety or strain within a given species that maintains its distinct identity by adaptation to a specific environment. (6) A locally adapted population of a species which has a distinctive limit of tolerance to environmental factors. (7) A variant type within an ecospecies.

**Ecovar**

to the public. To seed again, usually soon after an initial seeding has failed to achieve satisfactory turf establishment.

**Restoration** - The process of restoring site conditions as they were before land disturbance.

**Revegetation** - Establishing or re-establishing desirable plants in areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation) or by seeding or transplanting (artificial revegetation). A general term for renewing the vegetation on a project site, which include restoration and rehabilitation. Refers to the vegetation construction phase of reclamation.

**Riparian Community Type** - A recurring, classified, defined and recognizable assemblage of riparian plant species. A repeating, classified, defined and recognizable assemblage of riparian plant species.

**Riparian Ecosystems** - (1) Those assemblages of plants, animals, and aquatic communities whose presence can be either directly or indirectly attributed to factors that are waterinfluenced or related. (2) Interacting system between aquatic and terrestrial situations, identified by soil characteristics, and distinctive vegetation that requires or tolerates free or unbound water.

**Riparian Species** - Plant species occurring within the riparian zone. Obligate species require the environmental conditions within the riparian zone; facultative species tolerate the environmental conditions, therefore may also occur away from the riparian zone.

**Seed Certification** - A system whereby seed of plant cultivars (and pre-varietal releases) is produced, harvested and marketed under authorized regulation to insure seed of high quality and genetic purity.

**Seed Certification Classes -** Classes of seed produced by a grower to ensure the purity of the genetic material. Seed which undergoes the certification process is typically inspected during the growing season or at harvest and the seed is tested. Certification classes include: Breeder, Foundation, Registered, Certified, and Common. See also “breeder seed”, foundation seed”, “registered seed”, “certified seed”, and “common seed”.

**Seed Certifying Agency** - General term for the state or other agency responsible for the release and certification of crop varieties and for inspecting and approving seed produced under one of the seed certification classes. Most seed certification agencies are members of the Association of Official Seed Certifying Agencies (AOSCA).

**Seed Lot** - A definite quantity of seed identified by a lot number, every portion or bag of which is uniform, within permitted tolerances, for the factors that appear on the labeling.

**Selected Class Release** - (1) Seed that is the progeny of rigidly selected seed or stands of untested parentage that have promise but not proof of genetic superiority, and for whichgeographic source and elevation shall be stated on the certification label. (2) One of the classes of pre-varietal releases recognized by AOSCA.

**Selection** - Selecting an accession or accessions from an assembly, or individuals from within an accession, to obtain the plants having the best characteristics for a particular conservation use.

**Selective Herbicide** - A chemical that is more toxic to some plant species than to others.

**Self Pollination -** The transfer of pollen from the anther of a flower to the stigma of the same flower, or different flowers on the same plant.

**Seral** - Refers to species or communities that are eventually replaced by other species or communities within a sere.

**Seral Community** - One of a series of biotic communities that follow one another in time on any given area. Syn. successional community.

**Seral Stages** - The developmental stages of an ecological succession.

**Sere** - All temporary communities in a successional sequence. The complete series of ecological communities occupying a given area over hundreds or thousands of years from the initial to the final or climax stage.

**Sod Seeding** - Direct drilling of seed into sod of existing vegetation with no mechanical seedbed preparation.

**Soil Application** - Chemical applied mainly to the soil surface rather than to vegetation.

**Soil Incorporation** - Mechanical mixing of a chemical with the soil.

**Soil Injection** - Mechanical placement of a chemical beneath the soil surface with a minimum of mixing or stirring.

**Soil Sterilant** - A biocide that prevents the growth of plants and kills all living organisms when present in the soil. Soil sterilization effects may be temporary or permanent.

**Source-Identified Seed -** (1) Source identified propagating materials are seed, seedlings, or other propagating materials collected from natural stands, seed production areas, seed fields, or orchards where no selection or testing of the parent population has been made. (2) One of the classes of pre-varietal releases recognized by AOSCA.

**Stand** - (1) A population of plants. (2) Density of population or number of individuals per unit area.

**Standard Plant** - (1) A commonly used species or, if available, variety for the use of which an evaluation is being made. (2) A plant which serves as the standard for comparison.

**Strain** - (1) A group of organisms of common origin having one or more definite morphological or physiological characteristics that are heritable. (2) A term to include breed differences within a species, or as a group of plants differing little, if any, in morphology yet physiologically distinct in some additional quality such as yield or vigor: i.e., the northern and southern strains of smooth brome. Strain also means variety, ecotype, biotype, type, or a group of these.

**Study** - An activity at a PMC that develops a product to address a conservation need identified in the PMC LRP. A PMC study must be outlined in a study plan and be identified in the PMC Business Plan and Workload Analysis. Refer to Part 540.52 of the NPMM for more information on PMC studies.

**Study Plan** - A comprehensive document that outlines the details of a PMC study. Refer to Part 540.52 of the NPMM for more information on PMC study plans.

**Subspecies -** A grouping within a species used to describe geographically isolated variants, a category above “variety”, and is indicated by the abbreviation “ssp.” in the scientific name.

**Succession** - (1) The progressive replacement of plant communities on a site which leads to the potential natural plant community, i.e., attaining stability. Primary succession entails simultaneous successions of soil from parent material and vegetation. Secondary succession occurs following disturbances on sites that previously supported vegetation, and entails plant succession on a more mature soil. (2) The progressive development of vegetation toward its highest ecological expression, the climax replacement of one plant community by another.

**Surfactant** - A material that facilitates and accentuates the emulsifying, dispersing, spreading, wetting, and other surface-modifying properties of herbicide formulation.

**Suspension** - A system consisting of very finely divided solid particles dispersed in a solid, liquid, or gas.

**Synergism** - Cooperative action of different chemicals or organisms such that the total effect is greater than the sum of the independent effects.

**Synthetic Variety** - Advanced generation progenies of a number of clones or lines (or of hybrids among them) obtained by open-pollination.

**Testcross** - A cross of a double or multiple heterozygote to the corresponding multiple recessive to test for homozygosity or linkage.

**Tested Seed -** (1) Seeds or plants which have been through additional testing on more than one generation which will include testing on multiple sites with replicated plots to verify performance and heritability of desirable traits. The material has proven genetic superiority or possesses distinctive traits for which heritability is stable as defined by the certifying agency. (2) One of the classes of pre-varietal releases recognized by AOSCA.

**Tetraploid** - An organism having four basic sets of chromosomes.

**Topcross Progeny** - Progeny from outcrossed seed of selections, clones or lines crossed with a single variety or line that serves as a common pollen parent.

**Translocated Herbicide** - An herbicide that is distributed throughout the plant from the point of entry. Syn. Systemic herbicide.

**Trend** - The direction of change in ecological status or resource value rating observed over time. Trend in ecological status should be described as toward, or away from the potential natural community, or as not apparent. Trend in a resource value rating for a specific use should be described as up, down or not apparent. Trends in resource value ratings for several uses on the same site at a given time may be in different directions, and there is no necessary correlation between trends in resource value ratings and trend in ecological status. Some agencies use trend only in the context of ecological status. Syn. range condition trend. See and “apparent trend”.

**Type** - A group of varieties so nearly similar that the individual varieties cannot be clearly differentiated except under special conditions. For further information, refer to the Federal Seed Act Rules and Regulations.

**Use Groups** - The artificial grouping for the comparative testing of plant materials having similar uses.

**Variety** - (1a) The botanical nomenclature division consisting of more or less recognizable entities within species that are not genetically isolated from each other, below the level of subspecies, and is indicated by the abbreviation “var.” in the scientific name (see “botanical variety”); (1b) The rank of taxa below subspecies but above forma; a plant which retains most of the characteristics of the species, but differs in some way such as flower or leaf color, size of mature plant, etc. A variety is added to the specific binomial and preceded by "var.", such as *saxatilis* in the epithet *Juniperus communis* var. *saxatilis*. (2) Term used in some national and international legislation to denominate one clearly distinguishable taxon from another; equivalent to “cultivar”. (Note: the Plant Materials Program does not recognize the terms “variety” and “cultivar” as equivalent.)

**Vegetation Type** - A kind of existing plant community with distinguishable characteristics described in terms of the present vegetation that dominates the aspect or physiognomy of the area. Syn. Type.

**Warm-Season Plant** - A plant that completes most of its growth during the warm part of the year, generally late in spring and in summer. Commonly a C-4 plant photosynthetic pathway.

**Wetland Communities** - Plant communities that occur on sites with soils typically saturated with or covered with water most of the growing season.