

PLANT SELECTION FOR SPECIFIC ENVIRONMENTAL CONDITIONS. Susan R. Winslow, Joseph D. Scianna, USDA-NRCS Plant Materials Center, Bridger, MT 59014.

The USDA/NRCS Plant Materials program is charged with selecting and using plant materials to solve natural resource concerns on disturbed lands, cropland with highly erodible soils, saline-affected areas, impaired rangeland, critical wildlife habitat, and other environmental concerns. The process involves identifying: the resource need, environmental conditions where the need exists, plant characteristics needed to solve the natural resource problem, potential plant collection sites, plants with desirable attributes found growing on the selected collection sites, appropriate testing sites for collected plant material, and plants with superior performance under test conditions. The geographic area of application and intended conservation use define the location of collection and testing sites. Site selection criteria includes: annual precipitation; average minimum winter temperature; range and frequency of rapid temperature fluctuations; length of growing season; soil conditions including texture, pH, and chemistry and; elevation, latitude, and longitude. Plant evaluation and selection criteria depends on the life form of the plant and its intended conservation use. Grasses, forb, shrub, and tree selection factors typically include survival, rate of growth, production, and vigor. Final selection may be based on statistical significance or mean performance data. Superior selections are ultimately released to commercial growers for the purpose of seed and plant production. The selection process for 'Pryor' slender wheatgrass [*Elymus trachycaulus* ssp. *trachycaulus* (Link) Gould ex Shinners] and Rocky Mountain juniper (*Juniperus scopulorum* Sarg.) are presented.