PLANT MATERIALS TODAY

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This is a quarterly field office newsletter to transfer plant materials technology, services, and needs. The plant materials personnel will be featuring short articles on project results, new cultivar releases and establishment techniques, seed collection, and field planting needs, etc. All offices are encouraged to submit articles about plant material-related activities relative to plant performance, adaptation, cultural and management techniques, etc.

Distribution of Foundation Seed

There has been a big demand for foundation seed of forage and conservation plants in 1998. So far this year the Bridger PMC has sent out 5,137 pounds of Foundation seed of eight different species to growers in Montana, Wyoming, Washington, Utah, Oregon and Nebraska. The most popular cultivars have been 'Critana' thickspike wheatgrass, 'Rosana' western wheatgrass, and 'Trailhead' basin wildrye, respectively. This seed was distributed through the Foundation Seed Programs at Montana State University-Bozeman and the University of Wyoming. The seed was valued at $47,234. The PMC, of coarse, does not directly reap the profits of these sales. The money goes into an account at the two universities to fund research mutually agreed upon by the State Conservationists of each state and the Head of the Plant and Soil Science Department. Presently the Foundation Seed Fund is funding the MSU graduate work of Curt Blunt (Forage Quality of 28 grasses at different phenology stages) and Neil Foster (improving germination and seedling vigor of beardless wildrye and Altai wildrye).

Mark Majerus

Silverberry Project

An effort to release three ecotypes of silverberry *Elaeagnus commutata* was initiated in late 1997 by Joe Carleton of the Montana Riparian Team. Silverberry, a kissing cousin of Russian olive *Elaeagnus angustifolia*, is a multi-stemmed, thornless native shrub with a sprouting habit found primarily in riparian bottoms and floodplains. It is shorter and much less weedy than its Russian counterpart. But don't let its preference for moist sites fool you, it is doing very well at Bridger in a 10 inch annual precipitation zone and can even be used as a shrub component on dryland sites, given frequent mechanical cultivation.

Joe observed this species performing streambank stabilization functions on several riparian sites in Montana and Wyoming. After discovering that this species was only of limited availability in the commercial trade, Joe contacted the PMC to see if we could work together to get this plant into the market. He identified two well-performing sources in north central Montana, and the Center contributed one additional source that had been under evaluation at Bridger for several years.

In 1998, the Center conducted seed and cutting propagation studies and determined that all three ecotypes propagate readily by both means. In fact, silverberry seed has the somewhat unique ability to germinate with no cold chilling, a relatively rare phenomena for northern latitude woody plants. Keep this plant in mind for your riparian stabilization recommendations.

Joe Scianna

All about cultivars of forage grasses

When people visit the Plant Materials Center's (PMC) Forage Quality Study plots, they are often interested in learning about the cultivars we have planted. The questions most commonly asked include "where did a particular cultivar come from originally, what makes it better than the type that is already on the market, or what can it be used for"? This article tells you something about the cultivars commonly used for forage as well as introduces you to some new cultivars that are available.

The study contains 28 cultivars of native and introduced grass species. Native species include bluebunch wheatgrass, western wheatgrass, thickspike wheatgrass, green needlegrass, slender wheatgrass, and basin wildrye. Introduced species include crested

wheatgrass, pubescent wheatgrass, intermediate wheatgrass, Russian wildrye, Altai wildrye, and Siberian wheatgrass.

There is one cultivar of desert wheatgrass, two cultivars of crested wheatgrass, and one cultivar of crested wheatgrass hybrid: 'Nordan', 'Douglas', and 'Hycrest', respectively. Nordan was released in 1953 by the Plant Science Research Division of the Agricultural Research Service (ARS) in North Dakota. The collection originated from Dickinson, North Dakota. Its primary use is early spring pasture. Hycrest is a cross between 'Fairway' crested wheatgrass, which is rhizomatous, and Nordan, which is a bunchgrass. It was released in 1984 by the ARS in Utah. This hybrid is larger and more robust than either of the parents, has greater production, and establishes better than either of the parents. It is excellent for early spring grazing. Douglas is a newer cultivar released in 1994 by ARS in Logan, Utah. Douglas was equal to Hycrest in seedling vigor, yet better than Nordan, Fairway, or 'Ephriam'. It also remains greener longer into the growing season, has higher digestibility, and is mainly used for hay and early spring pasture. This cultivar is *Plant Variety Protected (PVP)* and can only be sold as certified seed.

Three cultivars of pubescent wheatgrass were planted in the study: 'Greenleaf', 'Manska', and 'Luna'. Luna was released by the PMC at Los Lunas, NM in 1963. The original collections came from Turkey and the former USSR. Luna was selected for its ease of establishment, excellent seedling vigor and forage production. Greenleaf pubescent wheatgrass was released by the Agriculture Canada Research Station in 1966. The original collections came from commercial seedlots from Washington and North Dakota. It is superior to 'Topar' in seed and forage production, winter hardiness, and seedling vigor. It is similar to 'Mandan 759', with the exception of improved seedling vigor. It is intended for use as pasture and hay. Manska is a new cultivar selected at the ARS Northern Great Plains Research Laboratory at Mandan, ND. It was released in 1992. Manska is essentially a descendent of the cultivar Mandan 759. It has better forage quality and higher yields than other pubescent or intermediate wheatgrasses.

Three cultivars of intermediate wheatgrass were also established in the study: 'Oahe', 'Reliant', and 'Rush'. Oahe is one of the older cultivars and is a 1961 release from the South Dakota Agricultural Experiment Station. The original collection was brought over from the former USSR. Oahe was selected for its drought tolerance, winter-hardiness, and good seed production. Reliant intermediate wheatgrass was released in 1991 by the ARS in Mandan, ND. It is the result of intermating 24 cultivars and experimental strains from the intermediate wheatgrass complex. It was selected for its disease resistance, high forage yields and seed production. Rush is the newest cultivar of intermediate wheatgrass. It was released by the PMC at Aberdeen, Idaho in 1994. The original collection came from a botanical garden in Berlin, Germany. It was selected for its good seedling vigor, ease of establishment, and high forage quality and production. Rush can be used for soil erosion control and stabilization, mine spoils, and forage for livestock and wildlife. This cultivar is *Plant Variety Protected* and can only be sold as certified seed.

Two cultivars of bluebunch wheatgrass were planted in the study: 'Secar' and 'Goldar'. Secar Snake River wheatgrass was released in 1980 by the PMC at Pullman, WA. The original collection came from the Snake River Gorge near Lewiston, Idaho. It is a low elevation dryland ecotype which is more drought tolerant and persistent under adverse conditions than other bluebunches. It is, however, slower to establish and less productive than larger types tested. The main use for Secar is range reseedings. Goldar bluebunch wheatgrass was released in 1989 by the PMC at Aberdeen, Idaho;. The original collection came from Umatilla National Forest, WA. Goldar has characteristics typical of bluebunch wheatgrass. It has several uses: rangeland re-seeding, restoration of native plant communities, critical area stabilization, vegetative firebreak, and mineland reclamation.

The study contains three cultivars of Russian wildrye: 'Bozoisky-Select', 'Mankota', and 'Swift'. Bozoisky-Selected was released in 1984 by the ARS in Utah. It originated from a collection made in the former USSR. Bozoisky-Select was selected for ease of establishment, seed size, seedling vigor, and drought tolerance. This cultivar is intended for pasture plantings. Swift was released in 1978 by Agriculture Canada. Swift is a descendent of the cultivar Sawki and Mandan 1546. It was selected for its seedling vigor and good emergence. Mankota was released in 1991 by the ARS in North Dakota. Mankota was selected for high forage production and good seedling vigor.

Three cultivars of Altai wildrye were used in the study: 'Prairieland', 'Pearle', and 'Eejay'. All of these cultivars originated from collections made in the former USSR. Prairieland was released in 1976 by Agriculture Canada. It was selected for its good curing qualities and salt tolerance. It grows well on clay to clay loam soils. Because it maintains higher protein levels after it's dormant, Prairieland makes excellent fall and winter pasture. Pearle was released in 1989 by Agriculture Canada. In trials it had greater seed production (23%) than Prairieland, but less forage production (6%). Eejay was also released in 1989 by Agriculture Canada. It is similar to Prairieland in that it has good curing qualities, and is excellent for fall and winter grazing. It also is salt tolerant and adapted to clay to clay loam soils with high water table. Eejay has greater seed and forage production than Prairieland, 15% and 8% respectively.

Two cultivars of basin wildrye were planted for the study: 'Magnar' and 'Trailhead'. Magnar was released by the PMC at Aberdeen, Idaho in 1979. The original collection was made in Saskatchewan, Canada. It was selected for its good seed production, seedling vigor, and adaptation to saline soils. Magnar basin wildrye can be used as forage and thermal protection by livestock and wildlife, and as wind barriers. Trailhead basin wildrye was released in 1991 by the PMC at Bridger, Montana. The original collection was made near Roundup, Montana at the trailhead of the 1989 Centennial Cattle Drive. It is more drought tolerant than other cultivars of basin wildrye. Trailhead can be used for seeding spring pasture. It offers excellent protection to young calves. It can also be used as a grass row barrier for wind erosion or for reclaiming disturbed area.

The study also contains two cultivars of slender wheatgrass: 'Revenue' and 'Pryor'. Revenue was released by the Canada Department of Agriculture in 1970. The original collection was made near Revenue, Saskatchewan. It was selected for its saline tolerance, good forage quality and production, and quick establishment. Revenue is used to seed pasture. Pryor slender wheatgrass was released in 1988 by the PMC in Bridger, Montana. The original collection was made from a saline-upland range site south of Bridger near the Pryor Mountains. It was selected for its drought tolerance, saline tolerance, and seedling vigor. Pryor is used in mixes for re-seeding rangeland, for reclamation, and for seeding saline-alkaline affected areas.

Two cultivars of Siberian wheatgrass were used in the study: 'P-27' and 'Vavilov'. P-27 was released in 1953 cooperatively by the PMC in Aberdeen, Idaho, and Pullman, Washington. It originated from the south central part of the former USSR. It was selected for its drought tolerance, seedling vigor, and seed production. Its intended use is for tame pasture seedings. Vavilov is a new cultivar of Siberian wheatgrass. It was released in 1994 by the ARS at Logan, Utah. It was selected for its improved forage production over P-27 and its superior drought resistance. This cultivar is *Plant Variety Protected* and can only be sold as certified seed.

The study contains three cultivars of thickspike wheatgrass: 'Critana', 'Schwendimar,' and 'Bannock'. Critana was released in 1971 by the PMC at Bridger, Montana. The original collection was made near Havre, Montana. Critana is used for reseeding disturbed areas such as roadsides and construction sites, as well as mineland reclamation. It was selected for its ability to establish in areas with less than 10 inches of precipitation. Schwendimar was released in 1994 by the PMC at Pullman, WA. Schwendimar was selected for increased forage production and regrowth after harvest. Bannock is the newest cultivar of thickspike wheatgrass. It was released by the PMC in Aberdeen, Idaho in 1995. This cultivar is a composite of 3 collections from Idaho, Oregon, and Washington made prior to 1948. Bannock was selected for seedling vigor, forage production, palatability, and regrowth. Its uses include range and dryland pasture seeding on coarse textured soils; wildlife food, cover, and nesting; erosion control, especially sandy sites. This cultivar is *Plant Variety Protected* and can only be sold as certified seed.

The study contains one cultivar of western wheatgrass, 'Rosana', and one cultivar of green needlegrass, 'Lodorm'. These are both older cultivars which were commercially available by the early 1970s. Rosana was released in 1972 by the PMC at Bridger, Montana. The original collection was made northwest of Forsyth, Montana. It was selected for its seedling vigor, and ease of establishment. Rosana can be used for irrigated hay or pasture in overflow sites, or areas where water supply is short, in range reseedings, or in native mixes for reclamation of drastically disturbed sites.

Lodorm was released in 1970. It originated from an area north of Bismarck, North Dakota. It is superior to other cultivars or strains of green needlegrass in that it has low seed dormancy. Otherwise there is no differences. Lodorm is used in mixes for reseeding rangeland.

All cultivars are currently available to commercial markets. The PMC's, ARS, and the state experiment stations and universities continue to work together to provide land managers with a selection of improved grasses that can be used for tame pasture, hay, rangeland seedings or reclamation. Cultivars have been evaluated for such attributes as ease of establishment, seed and forage production, drought hardiness and disease resistance. Now, because of field trials such as the Forage Quality Study, information about crude protein and total digestible nutrients will be available.

Connie Reynolds