

Switchgrass Genetics Compared

Plant geneticist Michael Casler sampled the DNA from more than 75 naturally occurring switchgrass plants collected throughout the Midwest and compared them with samples from the cultivars Blackwell, Cave-in-Rock, Pathfinder and Shawnee. Casler is with the USDA-ARS at Madison, Wisconsin. No one had ever before examined the genetic similarity between native switchgrass plants with the more commonly planted cultivars. He found that plants from each individual population were as variable as those from geographically distant populations, and the remnant populations were very similar to the cultivars. The good news is that so



Switchgrass cultivars differ in size and maturity.

called "improved" switchgrass cultivars are, genetically speaking, very similar to populations of plants being used for native restoration. Casler stated that "Our findings show that switchgrass that's grown for biofuel can also be grown for conservation and other uses without fear of possible genetic contamination. We need to pay attention to the origin of switchgrass seed populations, but we've learned that seeds can be transferred widely within the hardiness zone in which they originated." Switchgrass is a popular conservation plant that has seen increased interest in recent years as a renewable biofuel resource. *(This information was taken from an article written by Erin Peabody in the September, 2007 issue of Agricultural Research.)*

Broadcast Seeding Tips

The PMC located at Bridger, Montana, demonstrated various broadcast seeding techniques as part of a training workshop for National Park Service employees. Seedings within the Parks are often at remote locations in rough terrain and necessitate the use of hand equipment. Also, more natural-looking distribution of plants (not drill rows) is desirable. The demonstration plots were hand seeded at a rate of 50 Pure Live Seeds (PLS) per acre of slender wheatgrass. Half of each plot was loose from roto-tilling and the other half was packed. The plots were sprinkle irrigated for establishment.

The sampling information does a good job of showing that a looser seedbed is often better than a firm seedbed on broadcast seedings. We have found that on broadcast seedings, packing after seeding improves establishment success. Also

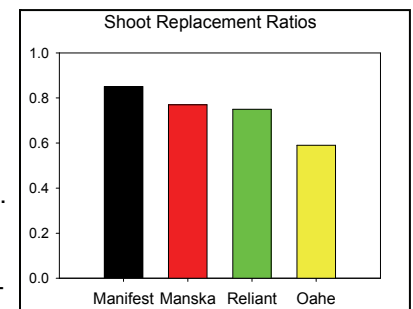
Three random frames/plot were used to sample seedling density/ft ² .		
Broadcast Treatment	Packed	Loose
Broadcast only	2.9	7.0
Barley nurse crop	6.3	7.5
Raked	10.0	10.4
Pitted logs	7.1	12.8
Excelsior mat	39.5	27.9
Hay mulch	31.3	36.3
Bark mulch	34.1	45.0

noted in this demonstration was that the use of some kind of mulch more than tripled seedling density, although if mulch was used, the difference between a packed and loose seedbed was less critical. *(This information was taken from an article written by Mark Majerus in the Bridger PMC newsletter Plant Materials Today – Vol. 13, No. 3, July 2006.)*

'Manifest' Released

'Manifest' intermediate wheatgrass was cooperatively released in 2007 by the USDA-ARS, Northern Great Plains Research Laboratory and the USDA-NRCS Bismarck Plant Materials Center. Manifest has demonstrated high hay yields over a wide geographic area and improved persistence under grazing when compared with other varieties.

When grazed, Manifest has higher shoot replacement ratios than other varieties which results in increased stand longevity. Forage quality has been slightly less compared to current varieties. We recommend Manifest to be grown in mixtures with alfalfa for hay and pasture.



A foundation field of Manifest was seeded in the spring of 2006 at the PMC. Our first seed crop was harvested in July 2007. Seed will be available to commercial growers for seed increase in the spring of 2008. We anticipate seed to be available from vendors by 2010 for conservation plantings in your counties.

Wayne Duckwitz, Plant Materials Center Manager