

GROWING GRASS AND FORB SEED (Report from 2008 Seed School)

Loren St. John, Manager of the Aberdeen, ID, NRCS Plant Materials Center explained that their purpose is to develop plant materials and planting technology, and transfer the results for improvement of public and private landscapes. Some of the plant materials released by the PMC are Sodar streambank wheatgrass, Magnar basin wildrye, Bannock thickspike wheatgrass, Goldar bluebunch wheatgrass, Nezpar Indian ricegrass, two penstemons, and shrubs such as winterfat and fourwing saltbrush. The PMC also produces stock seed for other agencies' plant releases such as Maple Grove Germplasm Lewis flax and Anatone Germplasm bluebunch wheatgrass.

The most important factor in successfully establishing new seed fields is to prepare a firm seedbed where a footprint depression is only about $\frac{1}{2}$ " deep. That makes it easier to plant seed at a proper depth and maintain moisture around the seed. A planting time of about mid-May speeds emergence and allows prior control of the first flush of weeds. In cooler climates like Aberdeen, planting in late summer hoping to get a seed crop the following year, doesn't work well.

Some species with dormant seed such as Indian ricegrass require planting in late fall or early spring in order to break some of the dormancy with the fluctuating cold soil temperatures. Seeding depth should be $\frac{1}{4}$ " to $\frac{1}{2}$ " for most species; Indian ricegrass does best at 2-3" with one to two year old seed and about 1" with older (less dormant) seed. Species with more than 500,000 seeds per lb (timothy or meadow foxtail) should be planted at a rate of about 50 pure live seeds per linear foot, while species with less seeds per lb (such as the wheatgrasses and wildryes) can be planted at 25-30 per foot. A modified Planet Jr. vegetable seeder is used at the PMC, which has mechanical agitators in the seedbox and double disk openers for consistent (and not too deep) seed depth placement.

Soil phosphorus and potassium levels should be tested and amended if necessary, but nitrogen is not necessary for new plantings. In many soils, irrigation for an hour or so every day or two is necessary to prevent soil crusting and excessive drying. For most dryland grasses, about 16" of moisture per year (natural plus supplemental irrigation) is necessary for optimal seed crops. Typically, there should be one irrigation before boot stage, one just before flowering, one after flowering, and one to fill the soil profile and germinate shattered seed after harvest to minimize volunteers. A

rolling Lilliston cultivator is used several times a year to take care of most of the weed problems between rows.

Brent Cornforth, Farm Manager, continued the narrative and said that they use Bronate to control weeds in new grass seedlings (1-3 leaf stage), then 2,4-D at the 4-5 leaf stage. Surflan is used later on seedling stands and in established fields, and Paramount helps control morning glory. Insecticides are sometimes necessary to control rare infestations of black grass bugs and, more commonly, aphids on young plants. Diseases are usually not a problem, except for head smut on the brome grasses. Harvest can be done by windrowing at the mid to late dough stage (allowing the plants to dry in the field and hope there is not excessive wind or rain), or by combining directly when the seed is mature (and hoping a wind doesn't shatter the seed onto the ground before harvest). Direct combined seed needs to be dried to 10-12% moisture before being stored. The plant residue needs to be removed from the field, and burning is not often an option. A balanced fertilizer is applied to the clean fields (shanked into the side of the row for good root contact) and irrigated in to produce some good plant regrowth before winter sets in.

For forb production at the PMC, landscape cloth is used for weed control without the need for herbicides. Holes are burned at pre-determined spacing in the cloth and seeds are planted in those spots in the late fall so the winter moisture and temperatures break seed dormancy. A cultivator controls weeds between the beds, and the seed heads can be cut and dried or harvested directly.

The PMC seed cleaning facility is set up with a box dump, pneumatic seed transfer to the scalper, variable speed debearder, air-screen cleaner, and indent cylinder if necessary. Dust suction fans at each stage minimize dust for the operators. A novel and quick way to test for seed viability is to put a seed sample on a plate heated with a propane torch, and if the seed is good it will pop like popcorn and give a good preview of germination percentage (while waiting for the results to come back from the seed lab).

Clean seed is stored in a room with temperature and humidity control; if the temperature (°F) and relative humidity added together stay below 100, it means good storage conditions for seed longevity. Brent closed with a thought from Will Rogers: "It's a good thing we aren't getting all of the government we are paying for!"