

Compatibility of a Mixture of Canada, Virginia and Riverbank Wildrye Seeded with Seven Individual Species of Native and Introduced Cool Season Grasses

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There is interest in the utilization of native cool season grasses for conservation plantings for erosion control, riparian buffers and wildlife habitat. Native cool season grasses typically are easier and quicker to establish than native warm season grasses and may be able to compete with the prevalent introduced cool season grasses and weeds in the Northeast. This study was set up to evaluate a 1:1:1 mixture of Canada wildrye (*Elymus canadensis*), Virginia wildrye (*Elymus virginicus*) and riparian wildrye (*Elymus riparius*) in combination with native grasses: fringed brome grass (*Bromus ciliatus*), fowl bluegrass (*Poa Palustris*), rough bentgrass (*Agrostis scabra*), upland bentgrass (*Agrostis perennans*) and introduced conservation grasses: red fescue (*Festuca rubra*), tall fescue (*Festuca arundinaceae*), and red top (*Agrostis gigantea*). The companion species were seeded with the wildrye mix at three different seeding rates per species. The seeding rates chosen reflected the seed size and weight of the species.

On 8/17/04 the wildrye mixture was seeded at the rate of 20 lbs/ac into a conventionally prepared cultipacked seed bed. The companion species were hand seeded individually over the wildrye in 20 x 10 ft plots in a completely randomized block design with four replications. The fringed brome grass, tall fescue and red fescue were seeded at the rates of 3, 6 and 9 lbs/ac; the rough bentgrass, upland bentgrass and red top were seeded at the rates of 1/4, 1/2 and 1 lb/ac and the fowl bluegrass was seeded at 1/2, 1 and 2 lbs/ac. The field was cultipacked again after planting. The seedlings established and overwintered well.

On 8/17/05 and 6/15/06 two 2 x 2 ft biomass samples were cut from each plot, the wildrye mixture and the companion species were separated and dry matter was determined for each. Visual ratings were made on each of the plots for density of: weeds, wildrye mixture and companion species.

Based on 2005 data and visual evaluations made in 2006 the fringed brome grass was the least competitive of the species on the wildrye at even the 9 lbs/ac rate. The control, consisting of the wildrye mix alone, and the fringed brome grass/wildrye mix at all of the 3 fringed brome grass seeding rates had significantly higher wildrye biomass than the other mixtures. The fowl bluegrass mixture had the next highest wildrye biomass content at the 1/2 lb/ac rate. In 2005 the wildrye dry matter biomass for the control, fringed brome grass and fowl bluegrass were 41.3, 30.3, and 15.0 g/ft² respectively. There were no statistical differences between wildrye biomass due to the effects of the seeding rates within any of the companion species treatments. All of the *Agrostis* species treatments were not compatible with the wildrye even at the 1/4 lb/ac rate having statistically lower wildrye biomass levels (4.5 g/ft²) compared to the control. The *Agrostis* species were also effective at reducing weed encroachment. The tall fescue and red fescue were competitive on the wildrye even at the 3 lb/ac rate with the tall fescue being slightly more competitive. The tall fescue had fewer weeds than the red fescue. The average wildrye biomass for both fescue mixtures averaged over all of the seeding rates was 5.0 g/ft².

Key words: Native plants, Wildrye, Cool season, Mixtures, Establishment

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