

PROJECT TITLE: Irrigated Forage Grasses

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OBJECTIVE: Compare yield potential and stand persistence of different species and varieties of cool-season forage grasses in a northwestern Montana high moisture environment.

METHODS: The experiment was established at the Northwestern Agricultural Research Center, Kalispell, MT. The soil at this site is a Creston silt loam (coarse silty, mixed Pachic Haploxeroll, 37 g/kg organic C, pH 7.9). Thirty-two cultivars from 14 species of perennial grasses were seeded in 5' by 15' plots consisting of 4 rows spaced 12" apart. The plots were fertilized with 13 lbs N/a + 62 lbs P₂O₅/a on 3/30/04. The experimental design was a randomized complete block four replications. Spot spraying with 2,4-D + Banvel on 5/18/05 controlled broadleaf weeds.

Precipitation from March through August totaled 14.7". Average monthly temperatures were 43.9, 51.8, 55.3, 62.6, and 62.8 degrees F from April to August, respectively.

Harvest dates were 6/22 and 9/6/05. Plots were harvested with a sickle-bar research plot swather. Harvest area was 75 ft². After recording the fresh harvest weight, a sub sample of approximately 500 g was taken from 2 plots of each species, weighed, dried at 60°C in a forced air oven for 48 to 72 h, and reweighed to determine DM content.

Analysis of variance was calculated by the ANOVA procedure of XLSTAT, Version 7.0. Critical value for a significant F-test was tested at P=0.05. Forage yield differences were compared by protected LSD when the F test for cultivars was significant.

DISCUSSION: Spring rain was beneficial for the early season production, but late season regrowth was retarded. Only the bluestems produced more second cutting forage than in their first harvest. The trial was terminated after the second harvest

The tall fescues (*Festuca arundinacea*), Festulolium (*Lolium x Festuca pratense*), and 'Intensiv' orchard grass (*Dactylis glomerata* L.) were the most productive in 2005 (>3.0 t/a). Over the past 4 years, these tall fescues, 'Hykor' Festulolium (a perennial rye X meadow fescue hybrid), and 'Mb-1' produced 16.5-18.6 tons of forage/acre. The least productive species were the bluegrasses (*Poa* spp.), Big Bluestem (*Andropogon gerardii* Vitman), and Little Bluestem (*Schizachyrium scoparium*).