Effect of Plant Density on Forage Yield of Big and Sand Bluestem. (C06-springer115015-Poster)

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Abstract:

Plant density can affect the yield and growth of native, warm-season grasses. This experiment was conducted to determine the effects of plant density on forage yield, leafiness, and crown growth of big bluestem and sand bluestem. Seedlings of each species were transplanted into greenhouse pots in February 2000 and subsequently into field plots in April 2000. The experimental design was a randomized complete block arranged in a split plot with plant density (1.2, 1.8, 2.7, 3.6, 5.4 and 10.8 plants m-2) as the main plot factor and bluestem species as the subplot factor. First year data, collected in June 2001, showed significant effects of plant density for most dependent variables. There were no species by density interactions for any variable. Forage yields increased from 3150 to 8180 kg ha-1 and number of leaves culm-1 declined from 8.2 to 6.4 leaves as density increased from 1.2 to 10.8 plants m-2. Leaf area was not affected by stand density and averaged 21.3 cm2 for big bluestem and 19.5 cm2 for sand bluestem. Crown diameter declined from 17.4 to 11.9 cm and number of culm m-2 increased from 62 to 370 as density increased from 1.2 to 10.8 plants m-2. Number of culms m-2 was positively correlated with forage yield and appears to have a greater influence on forage yield than did other variables.

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