Comparison of Non-toxic Endophyte-Infected Tall Fescue Cultivars under Grazing In North and South Missouri

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Abstract: Tall fescue [*Schedonorus phoenix* (Scop.) Holub] forms a mutualistic symbiosis with the fungus *Neotyphodium coenophialum* [(Morgan-Jones & Gams) Glenn, Bacon & Hanlin]. The common strain of *N. coenophialum* produces ergot alkaloids, which cause severe animal disorders when ingested. One management option is to reduce or eliminate ergot alkaloids from the diet by replacing existing toxic, endophyte-infected tall fescue stands with *N. coenophialum* strains that produce little or no ergot alkaloids. These new cultivars are more persistent than the endophyte-free cultivars of the past. The objectives were to evaluate grazing preference by cattle (*Bos taurus* L.) and stand longevity of six tall fescues-endophyte associations. An additional objective was to evaluate the performance of these cultivars in a northern climate, as these tall fescue-endophyte associations have been selected for adaptation to severe summer climates of the southern U.S. The experimental design was a split-plot design with two locations and four replications of eight cultivars. Dry cattle grazed the vegetative to boot-stage pastures in May, June, July, and August of 2013. Pre- and post-graze forage height was measured using a rising-plate meter to determine yield and dry matter consumption. Forage quality samples were also collected pre-grazing. Stand density was measured once yearly in the spring. After grazing, all plots were clipped to 3 inches. There were very little differences in dry matter yield among the eight tall fescue cultivars; this can be explained by the plots being clipped after each grazing to a uniform height. It appears that the cattle preferred to graze some cultivars compared to others as indicated by differences in dry matter consumption. These trends may change after collecting data from multiple years.