

## New cultivars for high quality, persistent legume-grass pastures in the southern USA

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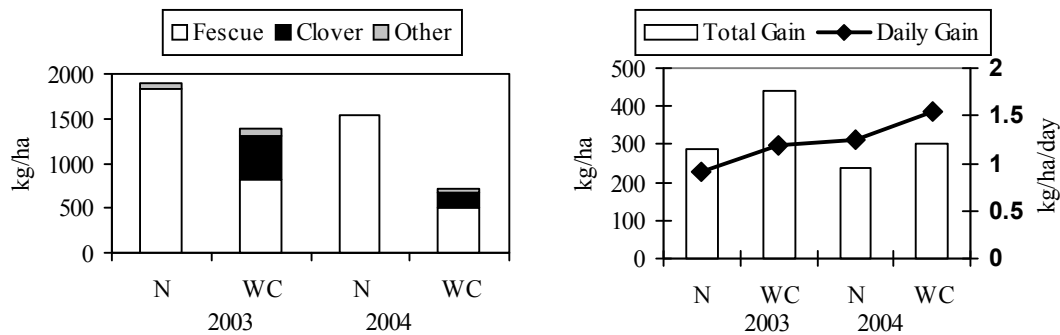
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**Introduction** In the southern USA one cannot depend on perennial legume-grass pasture systems to have persistently high nutritive quality. ‘Jesup’ tall fescue, a cultivar with better persistence in the region than ‘Kentucky 31’, was re-infected with a non-ergot alkaloid producing strain of the *Neotyphodium coenophialum* fungal endophyte (MaxQ™) and found to give persistence equal to Jesup with its endemic strain (E+), but without animal toxins (Bouton *et al.*, 2002). ‘Durana’ white clover (Bouton *et al.*, 2004) was developed from regional ecotypes of *Trifolium repens f. hollandicum* germplasm and found to improve animal performance in both E+ and endophyte-free (E-) versions of Jesup. This experiment aimed to assess the ability of Jesup MaxQ when inter-planted with Durana white clover to provide persistent, high quality pasture in the southern USA.

**Materials and methods** Treatments were Jesup MaxQ paddocks (0.91ha) either inter-planted with Durana white clover (WC), or fertilised with 120kg N/ha annually (N), with 2 replicates/treatment. Forage available yield was determined initially and every 4 wk during the spring-summer grazing season by sampling ten, 0.09 m<sup>2</sup> quadrat random samples throughout each paddock. Botanical composition was determined by hand separation of these samples into their components (e.g., tall fescue, clover, other). A put and take system was used to adjust stocking rate of grazing animals (beef steers; initial weight circa 223kg). Two steers were designated initially as testers and the others as grazers. The testers stayed on the paddock all the time. Animals were weighed every 28 days for two seasons (2003, 2004).

**Results** Moister conditions in 2003 allowed a longer grazing period (126 days) than in 2004 (77 days). Due to these conditions, available forage supply and total animal gain in 2003 were higher than in 2004 (Figure 1). Higher forage yields were found for the grass alone treatment with N-fertiliser than when the grass was grown with white clover. However, in each year, the addition of Durana white clover increased both daily and total animal gains over the N-fertilised treatment. Durana also composed 29% of the available forage supply when averaged for both years (35% in 2003 and 23% in 2004).



**Figure 1** Available forage supply (left panel) and animal performance (right panel) of Jesup MaxQ tall fescue paddocks inter-planted with Durana white clover (WC) or grown alone with nitrogen fertiliser (N)

**Conclusions** In both years, both cultivars performed well when inter-planted. Additions of Durana white clover to the available forage supply increased animal performance even when grown with a high quality grass like Jesup MaxQ. These paddocks will be monitored in future years to assess whether the 2 cultivars will continue to provide a high quality, persistent legume-grass pasture for the region.

### References

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