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Overseeding whipgrass with cool-season annuals to increase yield and quality in a Hay field in southwest China

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Key words: hemarthria compressa hay production overseeding yield, quality

Introduction Haying Guangyi whipgrass (*Hemarthria compressa*) is commonly used in southwestern China but is limited to summer. Cool-season annual forages seeded into dormant whipgrass in the fall can provide more winter ground cover and earlier spring growth than whipgrass alone and have largely unexplored potential in nutrient management hay cropping systems in the region (Yang, 2004). The goal of the research was to compare forage quality and availability from the different combinations of winter annual forages throughout the whole year of the whipgrass-based hay system.

Materials and methods The study was conducted in a hay field of Sichuan Agricultural University, Ya'an, Sichuan Province, China (38°08' N, 103°14' E). From Oct. 2005 to May 2007, 4 treatments were imposed in a randomized complete block design with 3 replicates. Treatments consisted of overseeding the pastures with either 96 kg/ha of Zhongsi 828 tritical (*Triticale* L.), 48 kg/ha of Dongmu 70 rye (*Secale cereale* L.), or 24 kg/ha Changjiang No. 2 annual ryegrass (*Lolium multiflorum* Lam) and a non-overseeded control. Dry matter (DM) yield and crude protein (CP) and neutral detergent fiber (NDF) were measured in spring and summer hay on sandy-clay-loam soil (22.5% clay, 15.8% silt, 61.7% sand) with pH of 6.2. Fall seeded plots were cut four times for spring hay and three times for summer hay. Data were analyzed using a General ANOVA model.

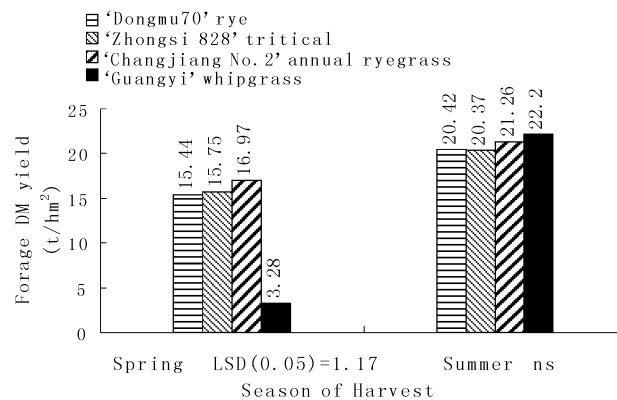


Figure 1 Cumulative forage dry matter (DM) yields from four spring and three summer harvests for whipgrass plots following fall overseeding with winter annuals.

Results Mean cumulative DW yields through seven successive harvests were higher in annual ryegrass (yielded 38.2 t/ha² DM) than in other treatments (35.9, 36.1, 25.5 t/ha² DM for rye, tritical, the control respectively). Spring hay of annual ryegrass, rye, and tritical yielded more DM than the control (Figure 1). Overseeding with Changjiang No. 2 annual ryegrass, Zhongsi 828 tritical, Dongmu70 rye, increased total crude protein 75.3%, 62.8%, 54.3%, respectively. This increased the total neutral detergent fiber 24.8%, 21.3%, 26.6% respectively. Overseeding whip grass with ryegrass or tritical or rye can improve hay yield and crude protein in a whole year.

Conclusions Growth of whipgrass was not adversely affected by overseeding with any of the cool-season annual forages tested. These increased cumulative DM yields were due to spring hay yields. Overseeding whipgrass with cool-season annuals provide opportunities in southwestern China.

Reference

Yang C.H., Li X.L., Zhang X.Q., et al. 2004. Influence of Overseeding on herbage production, quality and botanical composition of *Hemarthria compressa* pastures oversown with annual *Lolium multiflorum* in autumn [J]. *Acta Prataculturae Sinica*, 13(6): 80-86.