Overseeding Whipgrass with Cool-Season Annuals to Increase Pasture Yield and Quality in Southwest China

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Introduction Haying 'Guangyi' whipgrass (*Hemarthria compressa*) is a common farming practice in southwestern China. However, it is currently only feasible in summer. Sowing cool-season annual forages on dormant whipgrass pasture in autumn may provide more ground cover over winter and generate earlier spring growth than whipgrass alone. This would have high potential in increasing the dry matter and feed quality of hay in the region (Yang, 2004). This study aims to explore the effect of sowing different combinations of winter annual forages on dormant whipgrass pasture in autumn on feed quality and availability throughout a year.

Materials and methods The study was conducted on a pasture located at Sichuan Agricultural University, Ya' an, Sichuan province, China(38°08′ N, 103°14′ E). The soil is sandy-clay-loam soil (22.45% clay, 15.83% silt, 61.72% sand) with a pH of 6.2., Four treatments (randomized complete block design with 3 replicates) were conducted from Oct. 2005 to May 2007. Treatments consisted of overseeding the pastures with either 96 kg of 'Zhongsi 828' tritical (*Triticale* L.) per ha, 48 kg of 'Dongmu 70' rye (*Secale cereale* L.) per ha, or 24 kg 'Changjiang No.2' annual ryegrass (*Lolium multiflorum* Lam) per ha and a control. Dry matter (DM) yield and crude protein (CP) and neutral detergent fiber (NDF) were measured in spring and summer. Each plot was cut 4 times and 3 times in the following spring and summer, respectively. Data were analyzed using a general ANOVA model.

Results Mean cumulative DW yield for annual ryegrass (38.23 t/hm^2 DM) through seven successive harvests was significant higher than other treatments (35.86, 36.12, 25.48 t/hm^2 DM for rye, tritical and the control, respectively). Yield in spring for annual ryegrass, rye, and tritical were significantly higher than the control (Figure 1). Comparing to the control, overseeding 'Changjiang No.2' annual ryegrass, 'Zhongsi 828' tritical, 'Dongmu70' rye, increased total crude protein by 75.3%, 62.8%, 54.3%, respectively, and total neutral detergent fiber by 24.8%, 21.3%, 26.6% respectively. Overseeding annual forages with whip grass increased yield and improve crude protein in a whole year.

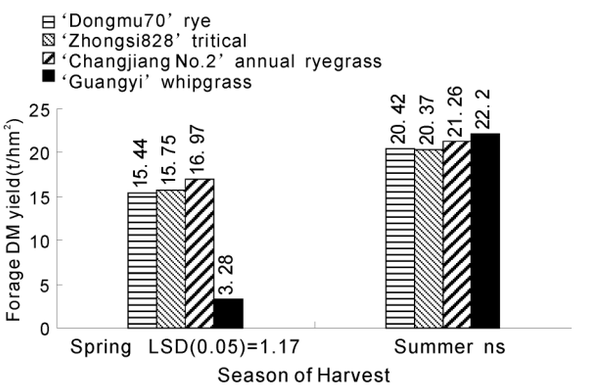

Figure 1 *Cumulative forage dry matter (DM) yields from four spring and three summer harvests for whipgrass plots following fall overseeding with winter annuals.*

Conclusions Conclusions Growth of whipgrass was not adversely affected by overseeding with any of the cool-season annual forages tested. The increase in cumulative DM yields was due to the increased spring growth.

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.