



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII
International Rangeland Congress

The Effect of Trimming and Fertilizing on the Rejuvenation of *Setaria sphacielata* cv. Narok

Jufen Deng

Pasture and Feed Station of Yunnan Province, China

Bizhi Huang

Beef Cattle and Pasture Research Center of Yunnan Province, China

Jun Yin

Pasture and Feed Station of Yunnan Province, China

Hao Tang

Pasture and Feed Station of Yunnan Province, China

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/21/13-1/32>

The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

The effect of trimming and fertilizing on the rejuvenation of *Setaria sphacelata* cv Narok

Deng Jufen¹, Huang Bizhi², Yin Jun¹, Tang Hao¹

¹ Pasture and Feed Station of Yunnan Province, Kunming, Yunnan 650225 P.R. of China; ² Yunnan Beef Cattle and Pasture Research Center, Kunming, Yunnan 650212 P.R. of China. ¹ E-mail: dengjufen@126.com

Key words: *Setaria sphacelata* cv Narok, fertilizing, trimming, rejuvenation

Introduction *Setaria sphacelata* cv Narok was firstly introduced to Yunnan from Australia in 1983. The plantation of Narok has so far been extended nearly 6700hm² in Yunnan (Kui Jiayang, Zhong Sheng 2001). However, the species was seriously degraded in Yunnan. Fertilizer application and trimming are the important measurements for pasture improvement. It was decided to use the relevant planting technology of fertilizer application and trimming to improve the growth environment of degraded Narok for the purpose of rejuvenating the performance of the species.

Materials and methods The material of Narok for the experiment was offered by the Model Beef Farm of Yunnan Beef Cattle and Pasture Research Center, which was transferred to the experiment site at Songming County with clone method and plant interval of 0.5m×0.5m. The method used was a randomized factorial design of each treatment with four replications including control one on the trail plot of 4m×5m in size with plant interval of 0.5m. Three different fertilizer rates were adopted as 225 kg/hm², 450 kg/hm² and 675 kg/hm² with the special fertilizer only for grassland of total N, P and K nutrient content ≥ 29.55% (5—15—9.5). Autumn fertilizer top dressing was done in October, 2004 and spring fertilizing, in March, 2005. Three trimmings were carried out in October, December and March with 15-20cm of stable remaining height. The measurements were conducted with the materials sampled three plants per plot in July, 2005 on plant height, head length, tillerings, procreative shootings, forage yield, heading yield and seed yield.

Results Fertilizer top dressing at different rate and trimming treatment had an effective function in improving the plant height, tillerings, seed headings, seed head length, forage yield and seed yield with a quite significant difference in all treatments ($P < 0.01$). There was a little response to lower fertilizing or not fertilizing, trimming in winter season or no trimming on the growth of *Setaria* cv Narok. It showed not much difference in the fertilizer treatment of 450kg/hm² and 675kg/hm². There was a high response to spring and autumn trimming treatment on the seed yield. Compared the fertilizing and trimming with twice group mixed selection for rejuvenating (Den Jufen 2006) as illustrated in table 1, trimming in spring and autumn plus fertilizing at rate of 450kg/hm² performed better in rejuvenating the growth degraded *Setaria* cv Narok.

Table 1 The effect of rejuvenation of *Setaria* cv Narok with different rate of fertilizer and trimming.

Items	Treatment	Mix selection	control	Fertilizer rate(kg/hm ²)			Trimming time		
				225	450	675	Autumn	Winter	Spring
plant height(m)		1.73	1.57aA	1.67bAB	1.76cB	1.63abA	1.75bB	1.65aA	1.71bAB
tillerings		90.4	117.5aA	134.5cAB	159.8bC	139.5bBC	121.2cC	98.4bB	118.3cC
Seed head length(m)		0.21	0.15a	0.18ab	0.21b	0.20b	0.20bB	0.16aA	0.19bB
headings		22.2	8.0aA	11.3aA	20.0bB	20.3bB	21.5cC	17.5bAB	18.7bBC
forage yield(t/hm ²)		50.0	45.2aA	51.9bB	65.3cC	64.3cC	64.9cC	56.3bB	65.4cC
heading yield(kg/hm ²)		476	420.0aA	497.0bAB	598.0cC	532.0bBC	674.0cC	470.0bB	629.0cC
seed yield(kg/hm ²)		124	93.0aA	124.0bAB	142.0bB	135.0bB	268.0bB	187.0aA	261.0bB

^{a-c} Means in a column having a capital letter are not different ($P > 0.05$) and small letter ($P < 0.01$)

Conclusions It achieved the best result in improving the plant height, tillerings, forage yield and seed yield with fertilizer rate of 450kg/hm². Trimming treatment in autumn and spring seasons would help the plant in storing more nutrient for the growth in the following years with optimum growth of the species facilitated. (rewording/rephrasing needed)

References

- Kui Jiayang, Zhong Sheng. 2001. The Report on Introduction Experiment of *Setaria sphacelata* cv Narok [J]. *China Grassland*, 23(3): 22-25.
- Den Jufen, Ma Xinyao, Yin Yun, Bi Yufen. 2006. The Experiment of Mixed Selection for Rejuvenating the Growth of *Setaria sphacelata* cv Narok [J]. *Thesis Collection of Forum on the Development of China Grassland*, 475-479.