



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

21st International Grassland Congress / 8th
International Rangeland Congress

Study on Ecological Restoration to Degenerated *Leymus Chinensis* Rasture

Zhijian Yan
Chinese Academy of Agricultural Sciences, China

Li Gao
Chinese Academy of Agricultural Sciences, 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/21/6-2/21>

The 21st International Grassland Congress / 8th 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.

Study on ecological restoration to degenerated *Leymus Chinensis* pasture

YAN Zhi-jian, Gao Li

The Grassland Research Institute of CAAS, Hohhot 010010, China. E-mail: Yanzj1962@sina.com

Key words: Degenerated *Leymus Chinensis* pasture, Improvement, Ecological recovery, Community succession, Biomass

Introduction *Leymus Chinensis* pasture spreads in north China widely and Productivity is higher than other type of pasture. Recent years its ecological environment gets worse and productivity decreases obviously due to human disturbing and comprehensive effect of natural factors. The techniques for rejuvenating degenerated *Leymus Chinensis* pasture in Dongwu Country were studied. A useful kind of method for ecological recovery and norm of community succession was found.

Results 1. The soil available nutrient of improving field was higher than the CK, but content of organic matter was lower than the CK. That due to the increase of soil microorganism activity and made the accumulated organic matter decomposed rapidly. 2. The natural height of leaf layer of *Leymus chinensis* on improving field was average increased 9 cm, raised 30%; The growth strength dry matter was average increased 810 g/hm², raised 5.3 times. The density and coverage got a great improvement there were 262 strains of *Leymus chinensis* per square meter and it was 193 strains more than the CK, therefore, the density and coverage raised 2.8 and 2.4 times respectively. 3. The total production of improving field was 127.15% higher than the CK, and the biomass of *Leymus chinensis* was 511.36% more than the CK, so the effect of boosting production was significant. Through the significance test, the difference of total production was not significant, but no significant difference was observed in *Leymus chinensis* at the second year of improvement. The other years the difference of both *Leymus chinensis* and total production was extremely significant. 4. Grassland improvement loosed the soil, improved the extension strength of underground rhizome of *Leymus chinensis*, increased the biomass of underground root system, and enhanced the ability of nutrient uptake and vegetative propagation. 5. The content of crude protein in *Leymus chinensis* on improving field raised 1.1%, the quantity of various nutritional components in unit area was increased 3.5~4.8 times. As far as the nutritional value was considered, 1 hm² was equal to 14.6 hm² control grassland.

Conclusions 1. The improvement showed complex active effect on ecological environment improving: Improve soil fertility and structure. 2. It could take 10 years as one cycle to rejuvenate the plants, improve grassland production, and make the forage stable, high quality and yield. 3. It could not keep high production forever through just one time improvement, and there would be degradation succession few years later, so it needs incessant renewal. 4. The appropriate period of improvement should be limited during mid-July and mid-August. If too early, the annual or biennial weeds would appear in the grassland and affect the development of rhizome of high-quality forages; if too late, the weeds seed mature and made the plant community complex to affect the quality of grassland. 5. The grassland which was being rejuvenation for 2 or 3 years, only could do cutting grassland but not pasture in order to guarantee normal development and propagation of rhizomatous forages.

References

- Mclean, A. 1993. Range management and beef production on a commune Inner Mongolia. Rangelands 5:4-6.
Wu Z. Y. The vegetation of China. pp 519-536.