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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

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Analysis and countermeasure of unbalanced ecology system of Chinese temperate grassland

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Key words : temperature grassland, grassland resources, ecology system

Introduction Temperature grassland in China is mainly widespread in the steppe of Inner Mongolia plateau, arid desert of Gansu, Xinjiang and Ningxia province, mountains steppe and loess plateau, which is the most important integrant of Eurasia pampas. Chinese temperature grassland have the primary productivity from 0.5t/hm² per year to 20t/hm² per year (Li bo, 1993) and is an important source land for animal and plant resources and production base of grassland animal husbandry. But for being in arid and half-arid area, the ecology system of temperature grassland is vulnerable and unsteady.

Features of unbalanced grassland ecology system ① Obvious law of distribution: due to the influence of moisture and temperature, Chinese temperature grassland have distinct zone and differ greatly among regions. Accompanied by gradual heat increasing from east to west, while humidity reducing from east to west, grassland types transit from temperature grassland to temperature desert. Drought and a cold climate are unfit for the development of Agriculture and Forestry, but fit to develop grassland animal husbandry. ② Seasonal unbalanced grassland resources: temperature grassland grows better in three months, July, August and September. During the warm season, the growth quantity of grazing grassland can meet the demand of domestic animals; however, withered grass in both winter and spring lasts as long as 6-7 months, and nutrient substance in withered grass period reduces 50%-80%. The fact that grassland production is out-of-balance leads to imbalance of livestock number on grassland. This situation is common in temperate zone and Alpine grassland of northern part, especially in Xinjiang and the west of Inner Mongolia. ③ Shortage of water resources aggravates grassland drought. It is estimated total annual average amount of water resources in North temperature grassland is about 235 billion m³; the quantity of average 70 thousand m³ per km² is far inferior to the whole country mean (0.36 million m³/km²), among which insufficient earth's surface water is only 8% of the whole country. Groundwater is about 113.5 billion m³, making up 14.2% of whole country groundwater resources. ④ Grassland ecosystem being fluctuable, vulnerable, weak to resist external disturbance, little probability for adjustment, once over grazed, grassland will deteriorate and be difficult to recover. Furthermore, the increase and decrease in kinds and number of livestock, as well as improper management will all lead to contradiction and imbalance between grassland and livestock.

Main strategies ① Learn experience from developed country and reform the management system, then make experiments in different countryside level. ② Establish artificial high-yield grassland to reduce the pressure of winter and spring grazing, so as to solve the shortage of forage grass and then form a balanced mechanism between grass and livestock. ③ Popularize protective measures for nature grassland, strengthen capital construction, perfect protection and monitoring system. ④ Adopt ecology relocated project to transfer livestock and herdsman in some district. ⑤ Pay more attention to improved animals and cut down the number of inferior animals. ⑥ Take family as basic unit to perform the comprehensive improved project.

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Supported by MOST : 2006BAD26B0403, 2004 DEA71190