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Guanghua Qiao
Inner Mongolia Agricultural University, China

Zihua Xiao
Inner Mongolia Agricultural University, China

Yanli Tian
Inner Mongolia Agricultural University, China

Haichun Wang
Inner Mongolia Finance and Economics College, China

Kaiguang Huang
Hulunbeer University, China

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Institutional innovations of the grassland household-contract-responsibility system : a study of the household-allied operation system of Xilinguole League , Inner Mongolia

Qiao Guanghua¹ , Xiao Zhihua¹ Tian Yanli¹ , Wang Haichun² , Huang Kaiguang³

¹ *Inner Mongolia Agricultural University , No . 275 , Xin Jian Dongjie , Hohhot , Inner Mongolia , 010019 , P .R .Cc ;*

² *InnerMongolia Finance and Economics College , No . 47 , Hailaer Street , Huhhot , Inner Mongolia , 010050 , P .R .C . ;*

³ *Hulunbeier University , Hailaer , Inner Mongolia , 021000 , P .R .C E-mail : qiao .guanghud@gmail .com*

Key points : In the past 30 years , the HCRS (household-contract responsibility system) has made a great contribution to the development of China . Although it is a successful practice in rural areas , it has its defects , especially in pastoral areas . This system leads to grassland fragmentation and possibly results in degradations of grassland ecosystem . This paper analyses a new practice , which is an institutional innovation of HCRS by herdsmen : household-allied operation system (HAOS) . HAOS encourage herdsmen to cooperate for grassland use and management . Under this system , the productivity is improved , human resources are developed , herdsmen's per capita income is increased , and , more importantly , it results in rotational grazing that protects the ecosystem of grassland .

Key words : institutional innovation , household-contract responsibility system , grassland , household-allied operation system

Introduction

The household-contract responsibility system (HCRS) of rural areas , as a symbol of China's Reforming and Opening-up policy , has not only increased farmers' working enthusiasm and initiative , but also improved agricultural productivity . HCRS solved China's food security problems and made a great contribution to the development of rural areas . HCRS is the fundamental institutional arrangement and provides the institutional foundation of other rural policies . This system was gradually adopted in the pastoral areas in the late 1980s in China . There exist many arguments about this system . This study analyzes five separate cases in Xilinguole League , Inner Mongolia , of the institutional performance and effectiveness of an innovative institution of household-allied operation system (HAOS) . The historical evolution of the grassland household-contract management system is reviewed and the problems are discussed , and five cases are studied to illustrate the effectiveness of HAOS . Finally the conclusion is reached that under the framework of HCRS , the grasslands are possibly overgrazed and degenerated , but adoption of HAOS can help to solve the problem of degradation and protect the ecosystem of pastoral areas .

Historical process of grassland HCRS

Before 1949 , most pastoral areas in China were operated under a feudal system where most of the grasslands were owned by the tribe . Under this condition , few lords had the property rights and tribal members , instead of owning the land , could just use the grassland . Since the 1950s , the commune system has been put into practice where grasslands were owned by the state and operated collectively . Since the beginning of the reform in 1978 , the household-contract responsibility system has successfully spread in China . Nowadays , grassland ownership is based on the HCRS , which means grassland is owned by the community and is contracted to the herdsman households to use . This process evolved over three stages : (1) from the early to the end of the 1980s , only livestock were given to herdsmen by contract ; (2) from the end of the 1980s to the mid 1990s , most of the grasslands were contracted to a group in the village ; (3) from mid 1990s to now , grasslands were contracted to households (Awangjiancuo , 2004) . There are four steps in the dispensing process : the first is surveying to clarify the boundary of the grassland among different villages ; the second is developing household contract scenarios and dispensing the grassland to the households after the plan has been approved by herdsmen's convention ; the third is signing contracts with each household ; the final step is issuing certification to the households .

Different weights are given to the number of livestock owned by households and number of people in the households in allocation of grasslands . There exist two types : 40% weights for livestock number and 60% for number of people , or 30% weights for livestock and 70% for people . The duration of a contract is between 30 and 50 years . Archives of the contract are kept by the grassland supervising organization or the agri-animal husbandry bureau of local governments . So far , total areas of contracted grassland in China are more than 200 million hectares . Inner Mongolia Autonomous Region (IMAR) is one of the most successful provinces regarding this . From 1982 to the end of 2006 , the household contracted grassland reached 53 million hectares , nearly 80% of the grassland usable in Inner Mongolia .

Problems faced by grassland household-contract responsibility system

Grassland HCRS , on one hand , promotes the development of livestock husbandry of pastoral areas . On the other hand , it can lead to heavy grassland degradation . It has been found to negatively affect the grassland ecosystem (Ao Renqi , 2004) . There exist three problems with this system : First , it leads to grassland fragmentation and heavy environmental degradations . After dispensing grasslands to households , grasslands were segmented into small pieces with each household grazing on only a very

small area . Therefore , this system makes it difficult to conduct rotational grazing and accelerates grassland degradation . Second , the function of communities can not be realized . After the reform , herdsmen worked on their own grassland separately and the relationship among them was looser . This negatively affected the communities' supervision function . It is difficult to extend new grazing technologies because of less cooperation among households after the reform . Furthermore , some of the herdsmen rent out their grasslands and it is difficult to restrict the renters' overgrazing behavior . Third , it leads to high production costs and low incomes of herdsmen . The small scale of grassland makes it difficult to allocate the human resources optimally . Roughly 90% of domestic usable natural grasslands have been degraded , including 57% light degraded , 31% medium degraded and 12% heavy degraded (Yang Li , 2006) .

Some researchers think that the reasons for the above problems are the limitations and defects of the grassland household-contract responsibility system , and they provide a solution of " grassland as stock share " management system (Ao Renqi , 1989 , 200) . Bao Yushan claimed to use a collective system (2003) : the village has the rights to make contracts regarding management practices , and resume nomadic grazing at the same time . Yang Li (2006) believes it is important to encourage herdsmen to cooperate in grassland use after the initial allocation of grassland property rights . Experiences from other countries suggest that it is impossible to realize sustainable development of grasslands without development of a comprehensive property rights institution (Fernandez Gimenez , M . E . , 2001 , 2002 , 2004 ; Casimir , M . J . 1992 ; Mearns , R . J . 1996) .

We believe that the current grassland HCRS really has some defects , however , herdsmen have found some solutions in practice . This paper , based on five cases in the Xilinguole League Inner Mongolia Autonomous Region , analyzes the development of a household-allied operation system and its characteristics . This analysis casts new insights on the institutional innovation of HCRS .

Case Studies

Case 1 : Saiyin Baolige Haote , Xianghuang Banner of Xilinguole League , Inner Mongolia

There were originally seven households in the area . Since serious degradation and low possibility of increasing income from livestock husbandry , two households moved to urban areas after renting out grassland to their neighbors . The other five households , 24 people in total , grazing on less than 1000 hectares of grassland chose HAOS for management . There are in total 600 head of livestock in this area . The amount of livestock that each household can raise is determined by the capacity of their grassland and the magnitude of grassland they have contracted . The grassland has been separated into winter grazing area , summer grazing area and collective grass harvesting area , which is used for hay stockpiling for winter time feeding . Now , rotational grazing has been realized in this area . The average income per capita in the village has increased by 1000 Chinese Yuan .

Case 2 : Benhong guole Gacha , Xianghuang Banner of Xilinguole League , Inner Mongolia

There are six households and 900 hectares of grassland in this group . Most of the grasslands are highland and desertification grassland . Since the higher fence input cost and lower grassland area per capita after HCRS , local people made the decision to adopt HAOS after 1995 . Thereafter , they constructed fences for the grassland area of the whole group rather than for each family . The amount of livestock each household can raise is determined by the capacity of grassland and the area of grassland contracted . The grassland was divided into winter grazing areas and summer grazing areas . Now , grass mowing and grazing are operated collectively , and forage production , stud stock purchasing are operated separately by households . Herdsmen purchase production facilities together and use them as common property . Grazing heads of each household are supervised both by official department and by other households in the community . As a result , grassland desertification has been prevented gradually . At the same time , cooperation among households has led to labor saving , surplus labor has moved to urban areas to make money , and per capita income has been greatly increased .

Case 3 : Baiyinxile Haote , Xianghuang Banner of Xilinguole League , Inner Mongolia

There are six households , 23 people , more than 800 head of livestock and 800 hectares grassland in this Haote . From early 2006 , HAOS has been put into use in this area , and it only needs one person to manage the grassland . The other herdsmen moved to the city to find jobs . This increased income by 1500 RMB per capita per year . From the beginning of 2008 , the local people are planning to use rotational grazing to protect grassland .

Case 4 : Zhenbulinyin Gacha , East Wuzhumuqin Banner of Xilinguole League , Inner Mongolia

There are 44 households , 47 ,800 hectares of grassland including 8 ,700 hectares grassland without water resources in this village . In 1984 , grasslands were dispensed to households . From then on , grasslands started to be degraded heavily . From June of 2005 , all of the households agreed to fence and use the 8 ,700 hectares of grasslands without water resources as common mowing grassland . It can be used as the source of hay and it has saved more than 500 RMB for grass cost in the winter time .

The use of the common mowing area is supervised by each family and each household can only raise a certain number of animals that their grassland can support . Households will receive fines if overgrazing of grassland is detected . This style of household cooperation not only decreased the grazing cost but also helped the ecosystem recover in pastoral areas .

Case 5 : Shutu Gacha , West Wuzhumuqin Banner of Xilinguole League , Inner Mongolia

The initiator of the HAOS in this Gacha is Batu . At the beginning , he cooperated with his neighbors for grassland management and grazing because he had only a small amount of labor and grassland . In 2006 , two other households entered into a cooperation group . There are 2 000 head of livestock in this group . In order to save labor cost , they chose two people from their group to supervise the grazing . The HAOS reduced labor and production costs . It also resulted in rotational grazing that prevented the grassland from being overgrazed .

However , this cooperation group was disbanded . The reasons are as follows : firstly , there was no written contract among the households in the cooperation group ; secondly , since it was hard to divide the work clearly for livestock husbandry production , households always argued about their production cost and benefit allocation ; thirdly , it was not easy to find an available distribution system that made each household satisfied .

Main characteristics of Household-allied Operation System

Through the above cases we can conclude that HAOS means at least two households reach agreement , based on HCRS , to use grassland , labor and production facilities cooperatively . The main characteristics for HAOS are as follows :

The core foundation of Household-allied operation system is HCRS Policy .

From 30 years of experience , HCRS has proved to be a successful institution with low exchange fees and clear property rights . Under this system , the benefits of herdsmen can be guaranteed . Grassland , as a natural resource , was believed to be a resource that could be used forever before the reform . However , after HCRS herdsmen received their certificate of grassland usufruct , they started to realize that there is no possibility to augment the area of their grasslands in the following 30 years . Grassland , instead of being a public good , became private property , just like their livestock . After HAOS , in order to protect their contracted grassland , each household has the incentive to restrict their head of livestock . It is easy to make a conclusion that certificate of grassland usufruct (clarified property rights) is the most important institution for grassland protection and benefit allocation .

The main tie of HAOS is geo-relationship and kin-relationship .

In the above five cases , nearly all of the cooperation groups of HAOS were combined with several neighbors or families . Under this circumstance , it is easy for households to communicate and the bargaining cost is lower . Therefore , geo-relationship and kin-relationship are the most important preconditions of HAOS .

The main principle of HAOS is willingness , equality and mutual benefit .

Households can enter the HAOS if they can reach agreement with their members ; no one has the right to force them . Each household in the cooperation group has equal rights and it is an organization mutual benefit .

The key point of sustainable development of HAOS is clear definition of rights , the responsibilities , and the benefits for each cooperator .

In the production of livestock husbandry , some of the production factors are more suitable for using and managing collectively and some are more suitable to be used separately . In case 2 , herdsmen use grassland collectively and raise their livestock separately . Grass reaping and grazing are more efficient if collectively operated , and stud stock purchasing and animal feeding are more efficient individually . On the contrary , the reason of HAOS failure in case 5 is lack of clear responsibilities and benefit allocation systems . It can be concluded that the key point of sustainable development of HAOS is clear definition of rights , responsibilities and the benefit allocation for each cooperator .

The main purpose of HAOS is using the grassland scientifically .

Rotational grazing is a method that reduces desertification and realizes a balance of capacity of grassland and number of livestock . It can not only improve the benign interactions between the livestock and ecosystem , but also make the value of output of one closed system greater than its input . The above cases proved that HAOS can make the fragmental grasslands be used collectively , and realize rotational grazing . Thus , HAOS is a scientific institution for ecosystem improvements in pastoral areas .

Effectiveness of Household-allied Operation System

We can make a conclusion from the above case analysis , that HAOS can not only protect ecosystem by solving the paradox of livestock and grassland , but also save labor resources and provide an opportunity to increase per capita income .

HAOS is the essential method to protect ecosystem and increase income of local people

Firstly , this system protected the ecosystem by using the grassland resources scientifically . HAOS provided a way to improve the environment by realizing rotational grazing on the combined small pieces of grasslands by using them collectively . In addition , an overload of livestock can be controlled by supervision by the herdsmen who enrolled in the HAOS . It solved the paradox between livestock and grassland and held back the tendency , to some extent , of degradation of grassland . Furthermore , the population on grassland can be reduced because HAOS saved labor resources and led more pastoral residents to move to cities .

Secondly , some of the labor can be released from the livestock husbandry to pursue work in other industries to increase their income . The production cost , by using HAOS , was also reduced since the fence and production facilities come into common use and their cost was shared by households in the cooperation group .

Thirdly , the livestock husbandry management transformed from traditional style to specialized and industrialized modules . Grassland is used collectively by the members of HAOS , which is easier for the adoption of new technologies . At the same time , rotational grazing specialized production for forages and industrialized management for livestock husbandry can be realized .

Herdsmen's quality and ability could be improved and social benefit could be increased by adopting HAOS .

In order to help the surplus labor of pastoral areas move out to find work , the government provided training courses for them . Herdsmen's quality and the local residents' income have been improved . Furthermore , HAOS reduced the transaction costs during the management and production processes and increased the social welfare for all .

Conclusions

Although the household-contract responsibility system of grassland cannot guarantee equality in pastoral areas , it will possibly lead to grassland degradation at the same time . The household-allied operation system , as an institutional innovation of HCRS , can solve the problem of grassland degradation with the practice of " number of grazing animal up to capacity of grassland " , but the precondition is HCRS . It is believed the government should adopt the HAOS based on HCRS .

Our first recommendation to the government is to develop detailed models of HAOS based on HCRS for different areas ; secondly , reinforce the development of HAOS institutions in the pastoral areas ; thirdly , reinforce the farmers' vocational training in the pastoral areas and , finally , strengthen the community supervision function of grassland use .

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