The Influence of Industrial Diversification in Transforming Production Mode on the Synthetic Efficiency for Herder : Taking the Yili River Valley as an Example

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Abstracts

The purpose of this study is exploring how to enhance the synthetic efficiency after herders transform their production mode, solving the contradiction between livelihood and environment. This study uses some of methods, including literature research , field visit, quantitative analysis method to make research and verification. There are several procedure in the research: Firstly, the historical evolution process and the discussion on transformation of production mode for herdsmen, as well as the research progress on efficency, relevant research methods are summarized. Secondly, we supposed the diversification of related industry can improve the comprehensive benefits of transforming production mode for herdsmen. Thirdly, field visits and telephone interviews were conducted to obtain several production modes which was analyzed and quantified by the formula devised with the degree of using grassland resources to achieved industrial diversification. Fourthly, the comprehensive benefit evaluation system should be established to evaluate the comprehensive benefit of several production modes by AHP-Fuzzy Comprehensive Evaluation Method. Fifthly, these production modes quantified by the hypothesis of research, were corresponded with their value of comprehensive benefit to test the influence of the diversification on the comprehensive benefit by the second-order least square analysis which is used to verify the influence of the diversification on the comprehensive benefit.

Through the above analysis and research. The result is shown that the production mode with the industrial diversification of grassland resources can boost comprehensive efficiency of herders.

Keywords: The Influence of Industrial Diversification; The Synthetic Efficiency of Herders; Transforming Production Mode; The Yili River Valley

Introduction

Yili is located in the northwest border area of China. The Yili Valley not only has the richest precipitation resources in Xinjiang, but also boasts amazing natural resources such as wild fruit forests, extensive and dense virgin forests, and gene pool of wild animal and plant resources, which are rare in the world. However, there have been some ecological and economic problems in this area, such as grassland degradation, invasive growth of poisonous herb, and continuous decrease of income of breeding in recent years. An even severer consequence was that the ecological system completely destroyed as improper production mode in the current situation that there are some behindhand production modes such as

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Grazing breeding consuming largely insufficient nature resources as well as growing population at the same time. It is an inevitable trend for local herdsmen to solve their livelihood to implement the transformation of production modes which are sustainable . This paper proposes that the trend of industrial diversification in the utilization of grassland resources will be conducive to the improvement of comprehensive benefits for herdsmen. (Nari G.L, 2019 : 128)

Research Objestves

The Comprehensive Benefits Can Be Boosted For Herdsmen By The Diversification Of Utilization For Grassland Resources

This paper for solving the difficult problems of grassland ecological environment deterioration, herdsmen livelihood, in the current under the situation of production technology by leaps and bounds, the use of information technology, the emergence of the concept of industrial structure, development progress and breakthrough for herdsmen put forward the sustainable utilization of grassland resources of the new mode of production, and in combination with specific examples of argumentation and quantitative validation of new mode of production mode of comprehensive benefits.

The Herdsmen's Competitiveness Is Expected To Improve In Converting Production Mode

According to the commercial ecology theory, it is proposed to realize the diversification of grassland resources development industry in the new production mode and to promote the improvement of comprehensive benefits for herdsmen converting production mode. We will see the continuous evolution of the commercial system from the perspective of commercial ecology. The transformation of the production mode for herdsmen is the process of their own development. How to improve the production capacity under the current environment of resource reduction and fierce commercial competition is the key to solve the problem in the research.

Research Methodology

This study through questionnaires, field visits and telephone access for nomads and research area about the form of the actual situation of production and data, including 600 questionnaire distributed, herding families understand the study area and the production of basic situation, in the form of field visits and telephone for typical production instance, scope of production instance is mainly around the development and utilization of grassland resources of different industries such as animal husbandry, planting plants (especially characteristic), travel, etc.;Different forms of organization, such as retail, cooperatives, large households, companies, etc.;Different production modes, such as combination of planting and breeding, planting and breeding + processing, planting and sightseeing, planting and processing, etc.30 cases were interviewed. Program for Research in Social Sciences were used for data processing.

Research Conceptual Framework

The variables in this study is the industrial diversification of the development and utilization of grassland resources in the new mode of production as the explanatory variable, which was analyzed and quantified by the formula devised with the degree of using grassland resources to achieved industrial diversification according the data from field visits and telephone interviews.

The explained variable is the comprehensive benefit of the herdsmen's transformation of production mode, whose value come from the comprehensive benefit evaluation system assessed by AHP-Fuzzy Comprehensive Evaluation Method. (You Q.W. , 2013 : 208)

The Development And Utilization Of Grassland Resources Are Diversified

The diversity of value of grassland resources has been reflected since ancient times. Since the origin of agricultural civilization in ancient times, grassland resources have provided everything for people living on the grassland, such as food, clothing, tents, transportation tools, medicine, etc., as well as grassland production technology and knowledge, grassland culture and so on.In order to adapt to the changes of The Times with population growth, limited resources and rapid development of productivity, the diversity of grassland resource value should be reflected in different forms, which can not only meet the survival needs of people on the grassland, but also be another way for people to live in harmony with nature and realize the endless life.Therefore, to realize the diversified development of grassland resource industry is the need of grassland people and grassland nature living in this era. Industrial diversification of grassland resource utilization can bring more income sources to local herdsmen, and coupling the protection of grassland ecological diversity with industrial diversification.The conditions for the development and utilization of grassland resources to achieve industrial diversification are the expansion of scientific research field and the improvement of ability, the deepening of industrial development and the refinement of social division of labor.

In a specific example, the number of industrial chains and the number of fields involved are used to determine the value of industrial diversification.If the retail farming mode is single and only involves farming, the diversification value is 2; Cooperative breeding mode involves multiple values of breeding and sales 4;The multivariate value of characteristic plant planting is 4, that of raspberry and other edible plants is 9, and that of cooperative planting, breeding, combination and processing is 8.

The development and utilization of grassland resources are diversified = Number of industrial chains + Number of Fields covered (Jiang D.M, 2012 : 196)

The Comprehensive Benefit Of Herdsmen's Production

This study involved herdsmen's production comprehensive benefits mainly refers to the economic and environmental benefits, herders' current evaluate the comprehensive benefit of different production mode, there are mainly traditional retail breeding, planting and raising combination of cooperative breeding, cooperative, characteristics medicinal plants, edible plants, planting and raising + processing, planting, processing and tourism, etc. The comprehensive benefit is evaluated by AHP-fuzzy synthesis method.

Table 1 Variable definition table

Variable types	variable	Variable calculation
Explained variable	The comprehensive benefits of changing the mode of production，EF	AHP-fuzzy comprehensive analysis method（See Section 7.2 for details.）
Explanatory variables	The development and utilization of grassland resources are diversified，ID	Number of industrial chains + Number of Fields covered

Research Results

Determination Of Comprehensive Benefits Of Herdsmen's Production

The transformation of production mode mainly introduces the scale breeding mode suitable for the local area. The new breeding mode described in this paper is the animal husbandry production carried out by the combination of enterprises + cooperatives + herders to carry out grassland agriculture and grazing breeding and other breeding methods, which is convenient for predicting the benefits. We take cattle raising as an example.The exploitation and utilization of wild edible plant is taken as an example of cultivated plant, and the cultivation of wild medicinal plant is taken as an example of ligustilide.New tourism refers to the export of local cultural products, special foods and handicrafts in the form of basic tourism, which takes various forms. The comprehensive benefits of grassland tourism can be calculated according to the benefits obtained from the latest forms of tourism.

According to the production situation of the examples and the suggestions of experts, the quantitative values of production indicators for different production modes utilizing grassland resources development were obtained in the study, as shown in Table 2。

Table 2 Value table of benefit indexes of different production modes of combination of agriculture and animal husbandry in the study area

	Index layer	EF1	EF2	EF3	EF4	EF5	EF6	EF7	EF8
	Y11	4	5	5	6.2	7.2	7.2	7.2	7.2
	Y12	1	2	3	3	6	10	11	6
	Y13	3	4	4	4	8	9	9	8
X1	Y14(-)	8	4	5	5	3	2	3	3
	Y21	2	5	9	9	5	5	9	9
	Y22	3	7	7	7	7	7	7	7
X2	Y23	5	7	9	9	7	7	9	9

	Y24	4	9	9	9	8	8	9	9
	Y25 （-）	6	4	4	2	0	0	2	4
	Y26	8	9	7	8	9	9	8	8

Examples Of The Determination Of Comprehensive Benefits

According to the examples, this paper evaluates the comprehensive benefits of retail farming mode, cooperative farming mode, ligustilian farming, raspberry farming, cooperative farming + planting, cooperative farming + planting + processing, raspberry farming + processing + sightseeing tourism.According to the above methods, the comprehensive benefit values are 0.1844, 0.3131, 0.3456, 0.3342, 0.3505, 0.4057 and 0.4726 respectively.

Table 3 Comparison table of diversification value and comprehensive benefit of different production modes

	Production mode	Diversified values	Comprehensive benefit value
The traditional model	Retail breeding model, EF1	2	0.1844
organized culture mode	Cooperative breeding mode, EF2	4	0.3131
	the Chaff planting, EF3	4	0.3456
	Tree blackberry planting, EF4	4	0.3342
	Cooperative farming + planting, EF5	6	0.3505
	Cooperative breeding + planting + processing, EF6	8	0.4057
	Raspberry planting + processing + sightseeing tour, EF7	9	0.4726

Correlation Verification

The second-order least square analysis showed that the P value of the impact of industrial diversification on the comprehensive benefits of grassland resource development and utilization was 0.009, which indicated that the explanatory variable of grassland resource had a very significant impact on the comprehensive benefits ($P<0.01$) (see Tables 4 and 5).

Table 4 Second-order least square analysis of variance (ANOVA)

		Sum of squares	df	mean square	F	Sig.
equation	regression	.036	1	.036	16.799	.009
	residual	.011	5	.002		
	total	.047	6			

Table 5 Verification coefficient table of second-order least square analysis of variance

		Unnormalized coefficient		Beta	t	Sig.
		B	Standard error			
equation	（constant）	.228	.033		6.880	.001
	The development and utilization of grassland resources are diversified	.031	.008	.878	4.099	.009

Discussion

In the follow-up research, it is necessary to make precise valuation or measurement of the quantification of industrial diversification value of explanatory variables, and the comprehensive benefit index needs to be optimized, so as to reduce the influence of subjective factors on practical research and propose more reasonable research methods as supplements and supports for research theory and practice.

Recommendation

According to the overall results of this study, the quantitative research of comprehensive benefits with industry diversification could be used to show that the establishment of the research hypothesis in herdsmen transformation of the production mode is feasible for industry diversification trend, which help community with herder to survive in the business system, and is conducive to the sustainability of ecological environment protection and development.

On the basis of the development of local natural resources there is a preliminary plan to increase its added value and trend in research area as well as the prototype of the industry diversification, and grassland resources function is to provide animal forage, energy output biomass, medicinal plants, the gene pool of resources in the light of the generalization of ecosystem assessment organization. Furthermore, the value of its resources are far from is untapped. We believe that diversification industry of utilization with grassland resources will help local herdsmen to improve comprehensive benefit in transforming of production mode

and achieve highly returns, through effective application of scientific production technology and The depth of technical research in the future .

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