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MANAGEMENT ASPECTS OF THE RESEARCH OF THE RELATIONSHIP OF SCALE AND EFFICIENCY OF FAMILY FARMS IN HENAN PROVINCE

УПРАВЛІНСЬКІ АСПЕКТИ ДОСЛІДЖЕННЯ ВЗАЄМОЗВ'ЯЗКУ МАСШТАБУ ТА ЕФЕКТИВНОСТІ ДІЯЛЬНОСТІ СІМЕЙНИХ ФЕРМ В ПРОВІНЦІЇ ХЕНАНЬ

УПРАВЛЕНЧЕСКИЕ АСПЕКТЫ ИССЛЕДОВАНИЯ ВЗАИМОСВЯЗИ МАСШТАБА И ЭФФЕКТИВНОСТИ ДЕЯТЕЛЬНОСТИ СЕМЕЙНЫХ ФЕРМ В ПРОВИНЦИИ ХЕНАНЬ

Summary. *In the process of rapid economic development, an innovative mechanism for agricultural management, support for the functioning of family farms will contribute to the efficiency, large-scale, intensive agricultural production and economic benefits of China.*

The purpose of the article is to combine theoretical analysis with practical, in terms of management, scale and efficiency of family farms, to find the optimal ratio for Henan Province.

Effective organization and management is an important factor to promote the development of any enterprise or subject. As a new agricultural management subject, family farms play a very important role in China's agricultural development. Appropriately sized family farms can effectively realize the optimal allocation of resource elements, which is in line with the current needs and

policy objectives of China's modern agricultural development. As the main body of new agricultural management, family farm is an effective organizational form to promote agricultural intensive, professional, large-scale and modern management.

After many years of research, Chinese and foreign scholars have indeed confirmed the importance of the contribution of family farms to the agricultural sector of the economy and believe that they are typical representatives and, of course, an indispensable component in promoting agriculture.

On the basis of theoretical and in combination with empirical analysis, this study proved that under modern conditions of production organization, not all family farms have high efficiency. When family farms exceed their business capacity, they also lack production efficiency. At the same time, it should be noted that the most productive subjects of agriculture today are family farms of the appropriate scale.

According to the results of the study, it was determined that a family farm with a land area of 60-110 Mu, is the most productive agricultural entity in this segment. In order to further implement, proposals and methods for improving the efficiency of family farms in Henan Province have been proposed.

Key words: *family farm, productivity, operating efficiency, appropriate scale*

Анотація. *У процесі швидкого розвитку економіки, інноваційний механізм управління сільським господарством, підтримка функціонування сімейних ферм сприятимуть ефективності, здійсненню широкомасштабного, інтенсивного сільськогосподарського виробництва та економічним вигодам Китаю.*

Мета статті полягає в тому, щоб поєднавши теоретичний аналіз із практичним дослідженням, з точки зору управління, масштабу та ефективності функціонування різних за площею землекористування

сімейних ферм, знайти оптимальне їх співвідношення для провінції Хенань.

Ефективна організація управління виступає важливим чинником сприяння розвитку будь-якого сучасного господарюючого суб'єкта. В якості сучасного предмету управління, сімейні ферми відіграють дуже важливу роль у розвитку сільського господарства Китаю. Оптимізація їхнього розміру, допоможе ефективно реалізувати розподіл окремих складових наявних ресурсів, що відповідає поточним потребам і цілям політики сучасного розвитку сільського господарства Китаю. Сімейна ферма виступає ефективною організаційною формою сприяння агроорієнтованому, інтенсивному, професійному, широкомасштабному та сучасному менеджменту в сфері сільського господарства.

Після проведених впродовж багатьох років досліджень, китайські та закордонні вчені, дійсно підтвердили вагомість внеску сімейних ферм в сільськогосподарську сферу економіки країни і вважають, що вони виступають типовими представниками та, безумовно, незамінною компонентою для сприяння розвитку галузі сільського господарства.

На підставі теоретичного та в поєднанні з емпіричним аналізом, у даному дослідженні доведено, що за сучасних умов організації виробництва, не всі сімейні ферми мають високу ефективність ведення діяльності. У випадку, коли сімейні ферми перевищують можливості власного бізнесу, їм також не вистачає ефективності виробництва. При цьому, слід зауважити, що найпродуктивнішими суб'єктами ведення сільського господарства на сьогодні виступають сімейні ферми відповідного масштабу.

За підсумками проведеного дослідження, визначено, що сімейна ферма з площею землекористування 60-110 Му, являється найпродуктивнішим суб'єктом ведення сільського господарства даного сегменту. З метою подальшої імплементації, запропоновано пропозиції та методи підвищення ефективності функціонування сімейних ферм у

провінції Хенань.

Ключові слова: *сімейна ферма, продуктивність, ефективність експлуатації, відповідний масштаб*

Аннотация. *В процессе стремительного развития экономики, инновационный механизм управления сельским хозяйством, поддержка функционирования семейных ферм будут способствовать эффективности, широкомасштабному, интенсивному сельскохозяйственному производству и экономическим выгодам Китая.*

Цель статьи состоит в том, чтобы, соединив теоретический анализ с практическим исследованием, с точки зрения управления, масштаба и эффективности функционирования разных по площади землепользования семейных ферм, найти оптимальное их соотношение для провинции Хэнань.

Эффективная организация управления выступает важным фактором содействия развитию любого современного хозяйствующего субъекта. В качестве современного предмета управления семейные фермы играют очень важную роль в развитии сельского хозяйства Китая. Оптимизация их размера поможет эффективно реализовать распределение отдельных составляющих имеющихся ресурсов, что соответствует текущим потребностям и целям политики современного развития сельского хозяйства Китая. Семейная ферма выступает эффективной организационной формой содействия агроориентированному, интенсивному, профессиональному, широкомасштабному и современному менеджменту в сфере сельского хозяйства.

После проведенных на протяжении многих лет исследований, китайские и зарубежные ученые действительно подтвердили весомость вклада семейных ферм в сельскохозяйственную сферу экономики страны и считают, что они выступают типичными представителями и,

безусловно, незаменимой компонентой для содействия развитию отрасли сельского хозяйства.

На основании теоретического и в сочетании с эмпирическим анализом, в данном исследовании доказано, что в современных условиях организации производства не все семейные фермы обладают высокой эффективностью ведения деятельности. Если семейные фермы превышают возможности собственного бизнеса, им также не хватает эффективности производства. При этом следует отметить, что наиболее продуктивными субъектами ведения сельского хозяйства на сегодняшний день выступают семейные фермы соответствующего масштаба.

По итогам проведенного исследования определено, что семейная ферма с площадью землепользования 60-110 Му является наиболее продуктивным субъектом ведения сельского хозяйства данного сегмента. С целью дальнейшей имплементации виделены предложения и методы повышения эффективности функционирования семейных ферм в провинции Хэнань.

Ключевые слова: *семейная ферма, производительность, эффективность эксплуатации, соответствующий масштаб*

Formulation of the problem. In the process of the rapid development of modern agriculture, innovating agricultural management mechanism and cultivating family farms not only promote China's agricultural production efficiency and economic benefits, but also promote the implementation of large-scale and intensive agricultural management in China. The emergence of family farm has changed the traditional production and management mode, provided an alternative guiding direction for China's agricultural development, and has become one of the new agricultural management subjects. However, from the current survey, family farms have exposed many problems in the process of

rapid development, and can not be properly developed, with low level of development, uneven quality and low efficiency. Small farms cannot adopt advanced equipment to realize large-scale production. Large farms that exceed their own operating capacity often cause a waste of resources, can not realize the optimal allocation of resources, and affect the production and operating efficiency.

Highlight the unsolved part of common problems: experts and scholars at home and abroad have made a lot of valuable ideological and theoretical viewpoints in the research of family farm. However, from the perspective of family farm scale, the research is still in its infancy, and there is no consensus on the research of scale and performance. Therefore, based on the previous research results, this paper will construct the basic theoretical analysis framework of family farm by using the relevant economic theories such as scale economy theory, professional division of labor theory and contract theory, and make an in-depth empirical study on the above problems by using the questionnaire survey data.

The purpose of the article is to combine theoretical analysis with practical, in terms of management, scale and efficiency of family farms, to find the optimal ratio for Henan Province.

Analysis of recent research and publications. Family farm is an agricultural management subject with high production efficiency. Family farm has the traditional advantages of family management. The great dependence of agricultural production on natural conditions is the most basic and far-reaching departmental exclusive feature of agricultural organizations [1]. The lower management cost of family farm effectively adapts to the characteristics of agricultural production [2]. As a special interest community, family has a series of social capital ties beyond economy, including blood, emotion and marriage ethics, and has flexible information feedback and decision-making mechanism, which is easier to form common goals and behavior consistency, In the process

of agricultural production, there is no need for accurate labor measurement and supervision, so that workers have great initiative, enthusiasm and flexibility, and give full play to their initiative to the greatest extent. Sun Xinhua pointed out: "only by allowing workers to have all the residual claims can the problem of labor supervision in agricultural production be completely solved, and the form of business organization that meets this condition is the family [3].

Family farms can operate with the enterprise concept. Family farms are market-oriented, professional farmers as the main body of production, for the purpose of pursuing profit maximization, and engage in agricultural production with the enterprise management concept. Under the incentive of profit maximization motivation, family farms have more market awareness, modern operation and management awareness and risk prevention awareness, and are more sensitive to new technologies and new products of agricultural production The demand for modern production factors such as species, new equipment and new management methods is stronger [4]. Family farms should not only improve the land output rate as much as possible, but also take into account the balanced improvement of labor output rate, and realize the best benefits through the optimal allocation and renewal of production factors such as labor, land, capital and technology. In order to maximize profits, many family farms We should actively change the mode of agricultural production, pay more attention to the ecological benefits of agricultural products, and be more willing to provide consumers with high-quality and ecologically safe agricultural products [5]. Family farms are essentially micro enterprise organizations, which are also faced with the problem of optimal performance scale. Guo Qinghai believes that the optimal performance farm scale of farmers should ensure the following two points: from the perspective of efficiency, it should be realized At present, to maximize the income of farmers, from the perspective of income, farmers should be able to obtain an income level roughly equivalent to that of urban residents or migrant farmers [6]. Zhang Hongyu puts forward three criteria for

determining the optimal performance of farmers: one is to adapt to the labor production ability and management ability of family members, and the other is to achieve high land output rate and labor productivity And resource utilization rate. The third is to ensure that operators can obtain an income level roughly equivalent to that of local urban residents [7]. In conclusion, Zhang Hongyu puts forward the standard of farmers' optimal performance farm scale from both theoretical and practical perspectives, which is more in line with the reality of China's agricultural Development [8].

Family farm is an agricultural management entity with a strong sense of cooperation. There are many Chinese people and less land, with 7 mu of cultivated land per capita. The land management area of family farm is large, which requires the transfer of cultivated land. The small increase of income per unit land area or the small decrease of cost will cause obvious changes to its total income or total cost. Moreover, in the long run, family farm will gradually increase Gradually become the main body of the market, be able to share the benefits of the whole agricultural industrial chain and reduce the transaction costs of participating in the market. From the above economic incentive mechanism, in theory, family farms should have a strong willingness to cooperate. Generally speaking, most family farms have strong overall economic strength and have sufficient economic capacity to bear the expenses required for cooperation with the strong support of governments at all levels Cost, and most farmers have high human capital and social capital, and can widely use various social resources to form cohesion and centripetal force with family farm as the core.

Family farm is an agricultural management subject that pays more attention to the extension of industrial chain. Smiling curve theory It is considered that the industrial value chain is mainly composed of three links: product R & D and design in the upstream, production and assembly manufacturing in the midstream and logistics brand marketing and after-sales

service in the downstream. For family farms, a considerable part of them come from agricultural materials dealers, agricultural products processors, large agricultural machinery service households, etc. they are originally in the industrial chain related to agricultural production In this regard, after engaging in agricultural scale operation, they will pay more attention to the extension of the agricultural industrial chain and actively move towards the "smile curve" with higher agricultural added value Extension at both ends. For example, some family farms provide agricultural machinery services, agricultural means of production supply, agricultural pest control and other productive services to surrounding farmers, and their characteristics of service supply are also obvious in agricultural large-scale operation. They have the dual main status of agricultural producers and service suppliers, realizing the advantages of agricultural productive services.

Main results of research. With a theoretical basis, this problem needs to be further studied from an empirical perspective. Because the grain in Henan Province is mainly wheat, this paper takes wheat planting family farm as an example to compare and analyze the scale and management performance of family farm. This part of the data comes from the questionnaire issued from September 2019 to October 2020. A total of 268 questionnaires were distributed and 266 questionnaires were recovered, with a recovery rate of 99.3%, including 252 valid questionnaires, with an effective rate of 94.7%. The questionnaire has a wide coverage, high recovery rate and effectiveness, and scientific sampling. In this paper, family farms are divided into six groups, which are 0-20 mu (excluding 20 mu, and so on), 20-40 mu, 40-60 mu, 60-110 mu, 110-200 Mu and more than 200 mu. Among them, 0-60 mu can be generally recognized as small farmers, and more than 60 mu can be recognized as family farms. The proportion of business area of 0-20 Mu is 23.0%, that of 20-40 Mu is 18.3%, that of 40-60 Mu is 13.1%, that of 60-110 Mu is 29.7%, that of 110-200 Mu is 11.1%, and that of more than 200 mu is 4.8%.

According to the theory, the empirical analysis of the optimal performance farm scale needs to be considered. First, the optimal performance farm scale of farmers should achieve high land output rate, labor productivity and resource utilization rate. To realize the effective allocation of agricultural production factors such as labor, land, capital and technology is the basic requirement for farmers' optimal performance and farm scale. It can be seen from table 1 that the average cost of wheat per mu of farmers of different sizes is 1347.8 yuan, 1382.9 yuan, 1346.8 yuan, 1329.8 yuan, 1345.5 yuan and 1384.2 yuan respectively, the average output per mu is 1101.2 kg, 1086.3 kg, 1068.2 kg, 1088.3 kg, 1052.4 kg and 1043.2 kg respectively, and the average net income per mu is 762.6 yuan, 712.5 yuan, 695.2 yuan and 740.3 yuan respectively. 642.8 yuan and 621.5 yuan. From the above data, it can be seen that family farms with more than 200 mu have "large input and small output", which is obviously inefficient; 60-110 Mu family farm "small input and large output", with high efficiency; Small farmers of 0-20 Mu have "large input and large output", and family farms of 110-200 Mu have "small input and small output". The production characteristics of 20-40 Mu and 40-60 Mu small farmers are not obvious, so it is impossible to accurately judge whether they are efficient. It can be seen from table 2 that the comprehensive technical efficiency of wheat production of farmers of different sizes is 0.563, 0.699, 0.666, 0.711, 0.500 and 0.566 respectively. The production efficiency of family farms of 60-110 Mu is the highest, and the production efficiency of small farmers of 20-40 Mu is roughly the same as that of family farms of 60-110 mu. To sum up, from the perspective of production efficiency, family farms of 60-110 Mu have high production efficiency.

Table 1

Average input and output of wheat per mu of farmers of different sizes, (Unit: yuan)

Indicator	Farmers' business scale*					
	[0-20)	[20-40)	[40-60)	[60-110)	[110-200)	Over 200
Material input	445.1	432.2	422.0	421.2	450.6	456.8
Agricultural machinery use fee	278.2	240.3	235.4	210.6	198.3	205.2
Employment cost	4.5	58.2	46.2	62.5	70.8	42.2
Land rent	620.0	652.2	643.2	635.5	625.8	680.0
Average cost per mu	1347.8	1382.9	1346.8	1329.8	1345.5	1384.2
Average yield per mu	1101.2	1086.3	1068.2	1088.3	1052.4	1043.2
Total income per mu	2110.4	2095.4	2042.0	2070.1	1988.3	2005.7
Net income per mu	762.6	712.5	695.2	740.3	642.8	621.5
Average net profit rate per mu	56.6%	51.5%	51.6%	55.7%	47.8%	44.9%

Data from：Investigation. *Unit: mu. Mu is the traditional unit of land area in China. In international conversion, 1 mu equals 1 / 15 hectare, which is about 666.667 square meters

Table 2 Data Description: the agricultural production efficiency of wheat planting of farmers of different sizes is calculated as follows: Taking the total income of farmers' wheat planting as the output variable of agricultural production efficiency measurement, taking the farmers' material labor input, agricultural machinery use cost and land rent as the input variables of agricultural production efficiency measurement, the data envelopment analysis model DEA is used to calculate farmers of different business sizes Agricultural production efficiency.

Table 2

Comparative analysis of production efficiency of family farms of different sizes

Farmers' business scale(unit：mu)	Comprehensive technical efficiency	Pure technical efficiency	Scale efficiency
[0-20)	0.563	0.611	0.922
[20-40)	0.699	0.706	0.953
[40-60)	0.666	0.699	0.911
[60-110)	0.711	0.788	0.890

[110-200)	0.500	0.560	0.852
Over 200	0.566	0.688	0.790

Data from: Investigation and calculation

The second is the optimal performance of farmers. The farm scale should ensure that farmers can obtain an income level roughly equivalent to that of local migrant farmers or urban households. This standard mainly discusses the optimal performance of farmers and farm scale from the perspective of opportunity cost. According to the opportunity cost theory, if farmers specialize in agricultural production and management, they will lose the possible income from non-agricultural employment in the short term and the possible non-agricultural income for urban residents in the long term. Therefore, from the perspective of opportunity cost, the optimal performance farm scale of farmers in the short term should ensure that agricultural employees can obtain an income level roughly equivalent to that of rural migrant workers, and in the long term, it should ensure that farmers' families can obtain an income level roughly equivalent to that of local urban households.

It can be seen from table 3 that the average net income of farmers with different business scales is 27536 yuan, 39092 yuan, 35241 yuan, 65210 yuan, 8240 yuan and 125097 yuan respectively. In 2020, the annual income of rural migrant workers in Henan Province was 52126 yuan. According to the survey results, small farmers with 0-20 mu, 20-40 Mu and 40-60 Mu were compared with small farmers with 60-110 mu, 110-200 mu The ratio of the income gap between family farms with more than 200 mu and rural migrant workers in Henan Province is 0.53 ： 1, 0.75 ： 1, 0.68 ： 1, 1.25 ： 1, 1.58 ： 1 and 2.40 ： 1 respectively. The average labor income of small farmers of 0-20 mu, 20-40 Mu and 40-60 Mu is lower than that of rural migrant workers. The average labor income of family farms of 60-110 Mu and 110-200 Mu is roughly the same as that of rural migrant workers. The average labor income of family farms of more than 200 mu is much higher than that of rural migrant workers. Therefore, in the

short term, family farms of 60-110 Mu and 110-200 Mu belong to the scope of relatively efficient business scale.

Table 3

Comparative analysis of income of farmers of different sizes

Indicator	Farmers' business scale (unit:mu)					
	[0-20)	[20-40)	[40-60)	[60-110)	[110-200)	Over 200
Average net proceeds	52365	89524	88950	122538	145805	289069
Per-capita net income	11680	19079	18481	28996	33513	63251
Average net income from farming	13452	25026	30012	100986	121103	238145
Average net income of labor	27536	39092	35241	65210	82402	12509
Proportion of net income from farming in net income of farmers	25.7%	28.0%	33.7%	82.4%	83.1%	82.3%

Data from: Investigation

From the survey samples, the per capita net income of farmers of different sizes is 11680 yuan, 19079 yuan, 18481 yuan, 28996 yuan, 33513 yuan and 63251 yuan respectively. In 2020, the per capita disposable income of urban residents in Henan Province is 34750 yuan, and small farmers of 0-20 mu, 20-40 Mu and 40-60 Mu are different from those of 60-110 mu, 110-200 mu The ratio of the gap between the per capita net income of family farms with an area of more than 200 mu and the income of urban residents is 0.34:1, 0.55:1, 0.53:1, 0.83:1, 0.96:1 and 1.82:1 respectively. The per capita net income of family farms of 0-20 mu, 20-40 mu, 40-60 Mu and 60-110 Mu is lower than the per capita disposable income of urban residents. The per capita net income of family farms of 110-200 Mu is roughly equivalent to the per capita disposable income of urban residents.

The third is the optimal performance of farmers the farm scale should be able to adapt to the labor ability and management ability of family members.

This standard has two meanings. First, the operation scale of farmers can not be too small, their family members can not achieve full employment in agriculture, can not give full play to their labor production capacity and management capacity, and can only be transferred to non-agricultural industries to engage in part-time operation. From the survey samples, the specialization rates of farmers of different sizes in 2020 are 25.7%, 28.0%, 33.7%, 82.4%, 83.1% and 82.3% respectively. The specialization rate of small farmers of 0-20 mu, 20-40 Mu and 40-60 Mu is obviously low, and family members can not achieve full employment in agriculture, so they do not reach the optimal performance farm scale of farmers. Second, the operation scale of farmers can not be too large, which exceeds the labor production capacity and operation and management capacity of their family members. If the farmer's operation scale is too large, he will face the following two choices: only relying on the extensive operation of his own family members, it will not be able to realize the effective allocation of production factors and improve the efficiency of agricultural production; Employing agricultural workers and family members to operate together. If the number of employees is small and their production activities can be effectively supervised, appropriate employment management can promote the improvement of agricultural production efficiency. However, if the number of employees is large and their production activities can not be effectively supervised, employees are prone to opportunistic behavior and agricultural production efficiency will be reduced. Therefore, on the whole, the optimal performance of farmers, the farm scale should match the labor ability and management ability of family members. A small number of employees is a useful supplement, but a large number of employees are not beneficial.

Research conclusion. From the perspective of cost input and output and net income per mu, the average net income per mu of family farms of different sizes (0-20 mu, 20-40 mu, 40-60 mu, 60-110 mu, 110-200 Mu and 200 mu) is 762.6 yuan, 712.5 yuan, 695.2 yuan, 740.3 yuan, 642.8 yuan and 621.5 yuan

respectively. The net income of family farms of 60-110 Mu is 740.3 yuan, which is higher than that of family farms of other sizes, only lower than that of family farms of 0-20 mu with a net income of 762.6 yuan. However, family farms of 0-20 Mu have the characteristics of high investment and extensive development.

From the perspective of comprehensive technical efficiency of production, the comprehensive technical efficiency of family farms of different sizes (0-20 mu, 20-40 mu, 40-60 mu, 60-110 mu, 110-200 Mu and 200 mu) is 0.563, 0.699, 0.666, 0.711, 0.500 and 0.566 respectively. The production efficiency of family farms of 60-110 Mu is the highest, and the production efficiency of small farmers of 20-40 Mu is roughly the same as that of family farms of 60-110 mu.

From the perspective of average labor income, the average net labor income of family farms with different business scales (0-20 mu, 20-40 mu, 40-60 mu, 60-110 mu, 110-200 Mu and 200 mu) is 27536 yuan, 39092 yuan, 35241 yuan, 65210 yuan, 8240 yuan and 125097 yuan respectively. In 2020, the annual income of rural migrant workers in Henan Province is 52126 yuan. The average labor income of small farmers of 0-20 mu, 20-40 Mu and 40-60 Mu is lower than that of rural migrant workers. The average labor income of family farms of 60-110 Mu and 110-200 Mu is roughly the same as that of rural migrant workers. The average labor income of family farms of more than 200 mu is much higher than that of rural migrant workers. Therefore, in the short term, family farms of 60-110 Mu and 110-200 Mu belong to the scope of relatively efficient business scale.

On the whole, From the perspective of input and output, 60-110 Mu family farms are more desirable for farmers' optimal performance farm scale and production efficiency, 20-40 Mu and 60-110 Mu family farms are more desirable for farmers' optimal performance farm scale. From the perspective of income, 60-110 Mu and 110-200 Mu family farms are more efficient for farmers' optimal performance farm scale in the short term, From the perspective of the production and management capacity of family members, family farms of 60-110 mu, 110-

200 Mu and more than 200 mu may be the optimal performance farm scale of farmers. However, due to the large population and less land in Henan and the limited operation scale, large farms need more investment, greater operation risk and weak comprehensive selectivity. Comprehensively considered, the family farm of 60-110 Mu is the most productive agricultural management subject and the best performance farm scale of grain planting farm in Henan Province.

References

1. North (2008). *Institutional change and economic performance,* translated by Hang Xing, Shanghai.
2. Hu Xinyan (2009). *Economic mechanism of transaction costs arising from contract agriculture.* Research on finance and trade. No. 6. P. 82-86.
3. Sun Xinhua (2013). *Agricultural business entities: type comparison and Path Selection -- focusing on overall production efficiency*. Economic and management research, No. 12. P. 32-30.
4. Xu Yong and Deng Dacai (2006). *Recognizing farmers again" and the construction of socialized small farmers*. Journal of central China Normal University. No. 12. P. 77-85.
5. Du Zhixiong (2018). *The development of family farms and the construction of China's agricultural production and management system*. China development observation. No. 2. P. 65-68.
6. Guo Qinghai (2018). *Functional orientation of new agricultural business entities and institutional supply for growth*. China's rural economy. No. 4. P. 128-131.
7. Information Office of the Ministry of Agriculture: *Develop family farms to solve difficulties "who will farm"*. February 28, 2016.
8. Lin Wanlong (2017). *Agricultural land management scale: international experience and China's realistic choice*, agricultural economic issues. No. 7. P. 225-230.