

Research on the Current Situation and Countermeasures of Agricultural Information Services under the Background of Big Data——Based on the investigation and analysis of W region

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Abstract: Through research and analysis of the current situation of information services for agricultural loans in W region, it is found that the mass media function is weakened in the dissemination of agricultural information, the level of information infrastructure construction in W region is average, and there is a phenomenon of information loss in the dissemination of agricultural loan information. Overall, the current loan information dissemination cannot fully meet the needs of farmers for loan information, and the satisfaction level of farmers with information services is relatively low. Propose effective solutions to the existing problems: (1) Strengthen information technology construction; (2) Building a mechanism for the coexistence of diverse and diverse communication media; (3) Strengthening the construction of a talent team for agricultural information; The research in this article has certain reference significance for the dissemination of local agricultural information, and the proposed solutions are relatively scientific and feasible.

Keywords: Beneficent agriculture credit; Information service

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1. Research background and purpose

Rural informatization work has important strategic significance in China's economic and social development. The issue of agriculture, rural areas, and farmers has always been a highly valued issue by the Party and the government, and it is also an important issue that China's rural development must face. China is a large agricultural country, and the development of agricultural economy has played a significant role in the development of our country's economy. The agricultural issue is one of the concerns of the People's Republic of China and the CPC. The party and the state have issued a series of policies to promote the continuous development of the agricultural economy, such as the preferential agricultural policy, HP financial policy, etc^[1]. After decades of development, the policy of benefiting farmers has not been implemented. Related studies have shown that the policy of benefiting farmers needs to be implemented and must be implemented layer by layer. It is necessary to provide convenient services for farmers to obtain loans, improve the effectiveness of information dissemination, solve the problem of information asymmetry, help farmers obtain

information related to the policy, and improve the overall satisfaction of rural areas with the policy.

With the modernization and large-scale development of agriculture, simple agricultural production technology guidance can no longer meet the needs of new professional farmers for good management; The information asymmetry in economic management is an important obstacle to the long-term development of new enterprises, among which the demand for financial information is the core. The promotion of inclusive finance provides a continuous source of financial power for rural revitalization, and the effective dissemination of service information that benefits farmers plays a crucial role^[2].

The promotion of rural financial information services by financial institutions is mainly reflected in two aspects. Firstly, the operation of the agricultural market must be based on the effective dissemination of information; The smooth flow of rural information services can drive the effective flow of capital markets; Only through circulation can the flow efficiency of the agricultural market be accelerated, thereby improving the efficiency of the entire market. Meanwhile, the effective dissemination of agricultural market information can reduce information asymmetry, avoid market monopolies, and maintain overall market stability. Secondly, effective dissemination of agricultural loan information can help rural residents establish correct financial awareness. The expansion of agricultural production is largely driven by financial leverage. With the increase of information on agricultural loans, more accurate production decisions can be made by providing financial assistance to agricultural producers, reducing transaction costs, and effectively promoting sustained and rapid rural economic growth^[3].

In order to promote the development of agricultural loan business in rural areas and improve the quality of agricultural information services, this article takes W region as the research object to conduct a survey on agricultural information services, deeply analyzes the problems in agricultural information services in W region, and proposes effective improvement suggestions to improve the financial loan service model, promote the development of agriculture, rural areas, and farmers, and promote the development of agricultural loan information services in China.

2. Research methods and investigation situation

2.1. Questionnaire design

This study is based on a questionnaire survey of 80 villages in 6 districts of W region. The survey was completed in December 2022, and three students were invited to form a team to conduct random questionnaire distribution in different areas of W region. A total of 115 rural cooperatives, farmers, rural cadres, etc. were randomly selected from multiple townships in W region as the survey subjects. In order to ensure the authenticity and reliability of the data, offline direct distribution of questionnaires was used to collect data, and a total of 100 valid questionnaires were collected, with an effective rate of 86.96%.

The main content of the survey questionnaire is as follows:

The first part is the basic information and familiarity with agricultural credit information, including gender, age, education level, income information, and issues related to agricultural credit information.

The second part is about the popularity of relevant policies, mainly including the establishment of local financial institutions, the level of awareness of agricultural loan information in W region, and the content of agricultural loan information transmission policies.

The third part is the degree of satisfaction and evaluation of farmers towards the information dissemination service of agricultural loans, mainly including the frequency of agricultural loan information, the degree of smooth dissemination, the level of informatization, and the construction of dissemination facilities.

The questionnaire survey design mainly adopts multiple-choice questions, face-to-face interviews, and recording modes, and the collected data is objective, truthful, and reliable.

2.2. Sample statistics

Conduct statistical analysis on the basic situation of the survey sample, including gender, age of the head of household, educational background of the head of household, as well as the number of households and their average annual income. In terms of age, farmers in W region generally tend to age, with 73% being over 50 years old and only 6.00% being under 40 years old; In terms of education, the educational level of household heads is generally low, with 75% having a junior high school education or below, and only 3% having a bachelor's degree or above. The older and lower the education level, the weaker their ability to accept new things; From the perspective of family size, the county generally has a larger family population, with more than half (59%) having more than 5 family members; From the perspective of household income, the average annual income of households is concentrated between 50000 and 70000 yuan, accounting for 52%. However, there are still households with an income of less than 30000 yuan, accounting for 7%. Although the proportion is not high, it reflects the differences in income among farmers; Overall, the level of agricultural development is not high, and the income of farmers is not high.

Table 1. Analysis of Basic Situation of Farmers

statistic	classificationindicators	Samplesize	ratio
gender	male	57	57%
	female	43	43%
Age of head of household	Under 40 years old	6	6.00%
	40-49years old	21	21%
	50-59years old	45	45%
	Over60years old	28	28%
Head of household education	junior middle school	75	75%
	high school	17	17%
	Bachel or degree or above	8	3%
household size	≤2 people	7	21%
	3 people	49	14%
	4 people	27	24%
	≥5 people	15	59%
Family Year Average income	Below30000 yuan	7	7%
	30000 to 50000 yuan	19	19%
	50000 to 70000 yuan	52	52%
	Over70000 yuan	22	22%

In order to further understand the service situation of agricultural information in W region, 10 farmers and 3 bank staff were randomly selected for interviews. The information of 10 farmers and 3 bank staff is shown in **Table 2** and **Table 3**.

Table 2. The basic information of the interviewed farmers

Name	Age	Education	Household income	Administrative village	Access to information
Zhang XX	45	High School	56,000	A Street	Information bar
Wang XX	47	Junior high	62,000	B Town	Cell phone, TV
Li XX	49	Junior high	48,000	A Street	Mobile TV
Wang X	42	Junior high	79,000	C Town	Cell phone, radio
H XX	61	Elementary school	68,000	B Town	Radio, children
High X	56	Junior high	39,000	Town D	Info bar
Liu XX	58	Elementary school	51,000	C Town	Info bar
Chiang X	58	Elementary school	49,000	E Town	Info bar
Xue XX	60	Elementary school	53,000	C Town	Information bar, children
Zhang X	52	Junior high	53,000	B Town	Cell phone, TV

Table 3. Banking personnel information

Name	Work organization	Job content
Chapter xx	Agricultural Bank of China, XX branch	Customer Manager, responsible for Huinong credit business handling, consulting and other services
Wang xx	XX Rural Credit Cooperative	Account manager, responsible for agricultural loan publicity, related consultation, handling business
Liu XX	Bank of China, XX branch	Account Manager, responsible for agricultural loan publicity, related consultation and business handling

3. Analysis of the Current Situation and Satisfaction of Agricultural Information Services in W Region

3.1. Current situation of agricultural information services

3.1.1. Level of communication and information infrastructure

The economic development level of W region is at a moderate level, and the household income level of farmers in the region is between 50000 and 70000 yuan, indicating a low level of agricultural development. As of the end of 2021, all administrative villages in the W area have achieved telephone coverage, with an overall coverage rate of 100%; The comprehensive coverage rate of telephone in natural villages is 96%. The annual revenue from postal and telecommunications services reached 56.96 million yuan, a year-on-year increase of 7.1%. At the end of the year, there were 31001 fixed telephone users, a year-on-year increase of 2.9%, including 30172 residential telephone users, a year-on-year increase of 3.7%. At the end of the year, there were 273642 mobile phone users, a year-on-year increase of 9.6%. There were 41424 internet broadband access users, a year-on-year increase of 23.8%.

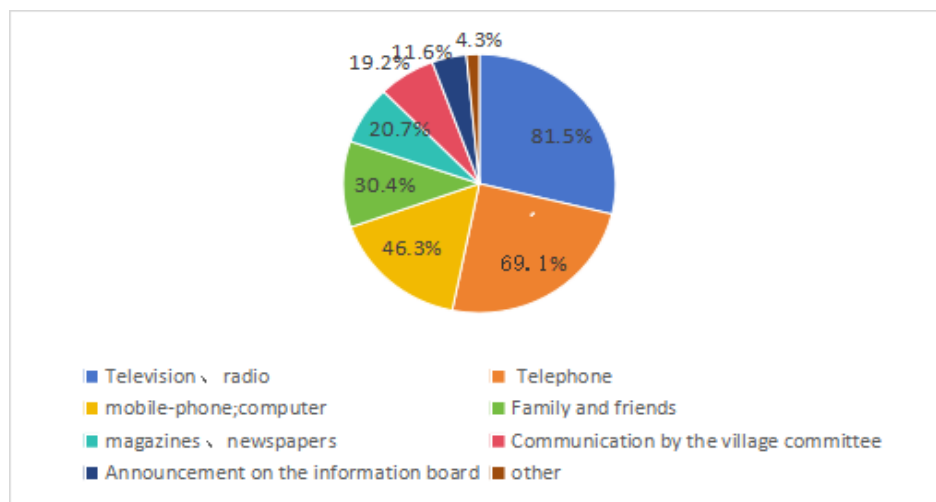
Table 4. Basic communication statistics in W region

Statistical Items	2019	2020	2021
Number of fixed telephone users	29449	30127	31001
Number of mobile phone users	222922	249673	273642
Number of Internet users	27833	33460	41424
Radio and television coverage	92.5%	93.2%	94.7%
Digital TV users (ten thousand)	3.47	3.67	3.89
Cable TV household penetration rate	57.9%	58.9%	69.5%
Cable broadcasting and television optical cable trunk (Km)	419.7	435.78	478.52

Data source: Compiled by the author

3.1.2. Channels for obtaining information on agricultural loans

81.5% of farmers in the W region choose television broadcasting as the channel for obtaining information on agricultural loans, while 69.1% of farmers choose the telephone and mobile phones. The third place is through online computers. Nearly 70% of rural residents believe that mobile phones and the internet have unparalleled advantages in obtaining news information and providing entertainment.

**Figure 1.** The channels for farmers in W region to obtain information

3.1.3. Talents in Agricultural Loan Services

The survey results of information service talents in W region are shown in Table 5. The overall quality and cultural level of information service personnel in Huinong are average, but they can also meet the most basic needs. In addition, Huinong information service personnel have relatively insufficient experience and poor learning ability, and the overall quality of information service personnel is uneven, unable to meet the needs of information services. In addition, personnel engaged in agricultural loan services in the W region mostly hold multiple positions, while also working on information dissemination services for agricultural loans. As a result, their business is broad but not precise, and the construction of agricultural information technology talent teams cannot keep up with the demand for talents in agricultural informatization. Therefore, the W region also needs to build a stable information technology construction talent team.

Table 5. Composition of Information Technology Service Talent Team in W Region

Gender			Age			Educational background			Years of work		
	Number of people	Specific gravity		Number of people	Specific gravity		Number Of people	Specific gravity		Number of people	Specific gravity
Male	38	38%	20-30years old	40	40%	College and below	51	51%	0-2years	63	63%
Women	64	64%	30-40years old	24	24%	Undergrad	24	24%	3-5years	17	17%
		Over 40	36	36%	Other	25	25%	>5years	20	20%	

Data source: Self organized based on interviews

In addition, the difficulty in executing agricultural loans after encountering risks; Due to their own development characteristics, agricultural enterprises face natural risks such as long investment periods, large investments, and low returns. Moreover, agricultural enterprises have less real estate investment and no effective assets to dispose of after generating risks, resulting in high risks.

3.2. Analysis of Satisfaction with Agricultural Information Services

A statistical analysis was conducted on the satisfaction of Huinong Information, as shown in the table below:

Table 4. Farmers' satisfaction with the current information dissemination

item	Government Communications	Information media
Very satisfied	38%	37%
Satisfied	16%	29%
Average	30%	23%
Unsatisfied	10%	8%
Very dissatisfied	6%	3%

Table 6 shows the satisfaction level of current information dissemination, and the statistical results show that 37% of farmers are “very satisfied” with information dissemination, 29% are “satisfied”, while 10% are “dissatisfied” and 3% are “very dissatisfied”. Overall, the satisfaction level is average, which objectively reflects that the level of information service for farmers is not high and cannot meet their needs for information.

Firstly, the construction of rural information infrastructure has an impact on the satisfaction of agricultural preferential policies. Scholars Guo Jinyong and Zhang Yalei have pointed out that the level of improvement and convenience in rural infrastructure construction (mainly covering rural power grids and communication facilities) affects the psychological satisfaction of farmers with agricultural preferential policies.

Secondly, the smoothness of information transmission has an impact on the satisfaction of agricultural preferential policies. Zhang Dongping found through research that the smoothness of information transmission in agricultural preferential policies affects the width and breadth of information reception, and also leads to a deviation in the satisfaction evaluation of farmers towards the policies themselves.

Thirdly, the development and improvement of information services during the information transmission process also have a significant impact on the overall satisfaction evaluation of policies. According to Wu Hanbang's research,

China should improve the supervision mechanism of agricultural preferential policies and enhance the behavioral norms of local governments. Improve the mechanism for cultivating professional talents and strengthen the implementation of policies conducive to agriculture. Improve information transmission and feedback mechanisms, and promote the continuous improvement of policies beneficial to farmers.

4. Measures to improve rural information services in W area

4.1. Strengthen the construction of information service infrastructure

The W region takes technology to benefit farmers and enrich the people as its foothold, and enhances the people's sense of technological achievement. Layout and construct a number of provincial-level agricultural high-tech zones, accelerate the research and demonstration of agricultural high-tech, rely on scientific and technological innovation to effectively solve prominent problems that constrain the development of agriculture in the province, and form replicable and promotable beneficial experiences.

In recent years, with the development of the Internet, rural areas have been continuously constructing information infrastructure. The basic level of information services in W area has been improved, and the overall coverage of various information facilities in administrative villages has increased, especially the network has basically achieved 100% coverage. In order to prevent villagers from missing out on agricultural loan information, the government has increased the dissemination channels for agricultural information, combined with new media dissemination methods, such as accelerating the dissemination of information through WeChat push and other channels^[4].

4.2. Building a mechanism for the coexistence of diverse and diverse communication media

The dissemination of media is becoming diversified, with multiple media outlets serving together to disseminate agricultural related information. It is mainly divided into government communication carriers and administrative village committee communication carriers, as shown in **Table 7**.

Table 7. Media of Communication in W Region

Governmentcarrier	Media
Administrative Village Committee	Informationbulletinboard
	televisionbroadcasting
	Newspapers and books
	projector
	Telephone broadcasting
	Computers, etc

In order to implement the central government's task deployment of "accelerating rural financial innovation", banks in various regions actively carry out the application of Internet technology. Taking Bank A in W region as an example, the head office proposes to accelerate the promotion of agricultural services through Internet technology platforms, implement the concept of "agriculture, rural areas, and farmers", focus on building a service platform system of "diversified and multiple media coexistence", and innovate a new model of agricultural loans, "Agricultural E-Loan". At the same time, Alipay, WeChat applet, bank website platform and other tools are fully used to expand the scope of influence, as shown in the following figure. However, due to the relatively high requirements for mobile phone operation in this mode, it has not been widely disseminated to older farmers and has not maximized its benefits.

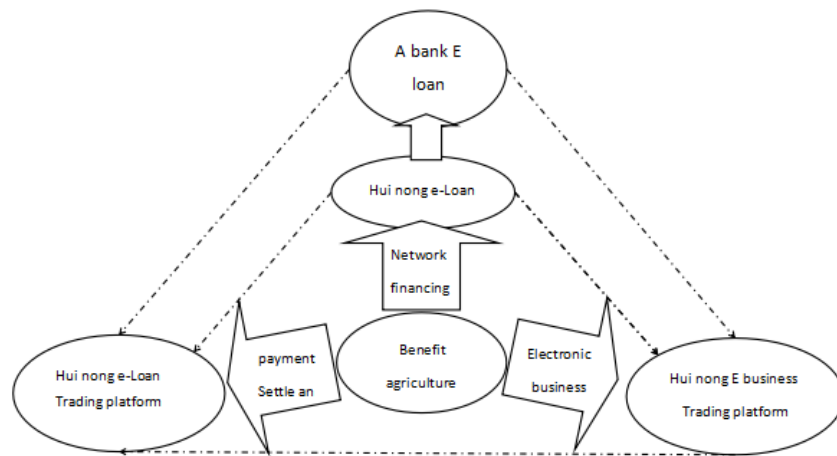


Figure 2. The platform of A Bank's Hui nong loan in W region

4.3. Strengthen the construction of informatization talent team

On the one hand, the quality and ability of Huinong loan talent team directly affects the dissemination efficiency of Huinong loan information in rural areas. In order to train more highly capable and high-quality Huinong loan professional service personnel, governments in various regions of our country actively introduce various policies to introduce and retain talents. For example, the government organizes professional training for public officials to improve their working ability, establishes cooperative relations with colleges and universities, builds online training platforms, builds relevant training MOOCs, and conducts regular assessment and evaluation of public officials. At the same time, colleges and universities are actively cultivating and exporting relevant talents to society.

On the other hand, a scientific and perfect personnel training mechanism can improve the technical level of employees, improve work efficiency, and reserve technical personnel. Firstly, the training of peasant groups should be included in the personnel training mechanism. This is because farmers are the main service subjects of information benefiting farmers. Improving farmers' informatization ability can fundamentally solve the problem of poor information. The training for farmers includes agricultural informatization training and information-based training for benefiting farmers. Secondly, innovate training methods and mechanisms. In the past, training was mainly carried out in the form of conference, the scene was chaotic, there was no professional organization, and the training effect was mediocre. Under the background of informatization, local governments can make full use of the network to carry out online training, and at the same time complement each other with on-site education to train farmers' mobile Internet skills and information technology application skills. At the same time, create a window for farmers to solve problems, such as building a group chat, which is equipped with one or two professionals to solve the problems encountered by farmers. Finally, we can build an Internet agricultural service platform to carry out agricultural informatization, which is called promoting the marketization of agricultural and rural informatization services, which can accelerate the formation of comprehensive large-scale courses and promote the socialization, institutionalization and standardization of rural information services.

Disclosure statement

The author declares no conflict of interest.

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