

Study on the Current Situation of Information Needs and Countermeasures of Farmers in Western Guangdong Province

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ABSTRACT

The purpose of this paper is to explore the characteristics of farmers' needs and their influencing factors in the context of the information. With the rapid development of social economy and the popularization of information technology, the production and life style of farmers have undergone profound changes, and the demand for information has increasingly become an important factor affecting the economic development of farmers. Farmers still face many obstacles in the process of information acquisition, including the lack of information channels, the lack of information literacy and the imperfection of information service system. An in-depth study of farmers' information needs not only helps to understand their role in modern agricultural production, but also provides effective policy recommendations for the government and society. This study collected a large amount of data on the information needs of frontline farmers through questionnaires and interviews, and analyzed the differences in information needs among farmers of different ages, genders, education levels, and economic situations. The study also explored the main factors affecting farmers' information needs, including the reliability of information sources, the convenience of information access, and the practicality of information content. Farmers' needs for market information, technical information and policy information are the most urgent, while the diversity of information access channels and the specialization of information services directly affect farmers' information satisfaction. Through the in-depth analysis of farmers' information needs, this paper hopes to provide theoretical basis and practical guidance for the construction of a more perfect farmers' information service system, to promote the process of agricultural modernization, and to enhance farmers' quality of life and economic income.

KEYWORDS

Farmers' information needs; Information age; Information access; Information service system; Agricultural modernization

1. INTRODUCTION

In recent years, along with the continuous deepening of the reform process, China's agriculture has bid farewell to the old policy paradigm, and instead actively embraced the modernization of information technology, striving to resonate with the fast-paced development of the times. In Guangdong, as the regional economy steadily expands, the voice and autonomy of local farmers in the decision-making process has become more prominent, and the pace of business model iteration has accelerated. This shift makes it necessary for farmers to keep a close eye on market dynamics, accurately capture all kinds of information, and then realize a steady increase in income.

However, at this stage, the information system that Chinese farmers rely on still has many shortcomings, and it is difficult to meet the needs of farmers in all aspects of planting practice. At the same time, research on farmers' information needs is still weak in both academia and industry. Not only is the quantity of results limited, but the quality of research also needs to be improved. In view

of this, it is imperative to vigorously promote the research on farmers' information needs in China, to explore the differences between different regions and groups, to accurately grasp the actual needs of farmers, and to build a solid foundation for the modernization of agriculture.

Western Guangdong region is uniquely situated in the key area of the gradual change from the northern edge of the tropics to the southern subtropics, with long summers during the four seasons and almost no sign of cold winters, and rich light and heat resources complemented by abundant precipitation, creating a unique climatic environment for the growth of various types of crops to take root. This land is known as the mainstay of the national tropical fruit production and processing areas, sitting in China's largest lychee, pineapple production areas, take Zhanjiang, it has been China's famous sugar cane, fruits, vegetables, and eucalyptus, sisal and other tropical crops in the core of the production of the place, and Maoming is also not to be outdone, as an important cradle of fruits, lychee, longan, bananas, and other colorful fruits hanging on the branches of the cherry tomatoes, colorful fruits such as lychee, longan and banana, cherry tomatoes, colorful potatoes and other special agricultural products are even more distinctive. In addition, western Guangdong Province is also the main force of commercial grain in Guangdong Province, rice cultivation area is vast, in some suitable conditions of the region, rice can even welcome two or even three seasons of harvest in a year.

In this day and age, agricultural informatization has become an imperative for coordinating the coordinated development of urban and rural areas and bridging the "digital divide" between urban and rural areas. As an indispensable part of the rural public service system, the construction of information in agriculture and rural areas carries the important task of bridging the gap between urban and rural areas. At present, there is a significant gap between rural and urban residents in terms of information access and utilization. If we can further expand the popularity of agricultural information in the rural areas of the breadth and depth of the information network to build a bridge between farmers and citizens, rural and urban, agriculture and industry, will be able to more accurately and comprehensively to meet the information needs of growers, and to promote urban and rural information resources services towards equalization of the road. In the final analysis, the prosperity of the agricultural economy, not only can not be separated from the solid input of traditional agricultural resources, but also to a great extent depends on the breadth of information technology penetration and the skillful degree of information utilization.

A significant body of research highlights the specific types of information that farmers frequently seek, which include crop production technologies, animal husbandry practices, and agricultural inputs [1, 2]. In particular, the hydroclimatic information needs of smallholder farmers have been a focal point of recent studies. Research indicates that periurban delta farmers require tailored hydroclimatic data to make informed decisions regarding their agricultural practices [3, 4]. This need for localized information is echoed in studies examining the information behavior of farmers, which suggest that the context in which farmers operate significantly influences their information-seeking behavior, especially concerning pest management [5, 6]. Moreover, the impact of information access on agricultural outcomes has been documented, with evidence showing that farmers' access to diverse information sources correlates positively with cotton output and overall value [7-9]. The demand for specific types of information, such as soil fertility, has also been explored. A study focusing on smallholder farmers in Murang'a and Tharaka-Nithi counties found that there is a high demand for soil fertility information, which is crucial for optimizing crop yields [10-13]. Additionally, the agricultural cycle influences the information needs of farmers, with studies indicating that weather forecasts, plant protection strategies, seed information, and market prices are prioritized throughout different stages of farming [14, 15].

2. RESEARCH METHODOLOGY AND SAMPLE SELECTION

The study used a combination of interview and questionnaire survey methods, and field visits to survey lychee farmers located in Liangyangxiang Town and Jishui Town in Lianjiang City, western

Guangdong Province, as well as dragon fruit farmers in Yangqing Town, Suixi County. The survey sample was selected from more than 300 local farmers. Three hundred questionnaires were distributed, 213 questionnaires recovered, 180 questionnaires were valid, and the rate of recovered valid questionnaires was 60%. The content of the questionnaire was designed to be divided into four parts: basic information of the investigator, access to information channels, information awareness, information organization and information literacy. At the same time, the results of the survey were statistically analyzed to find out the current situation of the information needs of farmers in western Guangdong and put forward relevant countermeasures and suggestions.

3. PROBLEM ANALYSIS

3.1. Single Channel of Information Acquisition

Nowadays, the ways in which farmers can search for information are becoming more and more diverse, and the range of information sources is becoming wider and wider. Against the backdrop of the Internet boom, farmers have a variety of ways to obtain information, including television, telephone, cell phones, computers and other electronic devices, radio, farmers' markets, agricultural books, rural bulletin boards and other traditional media, as well as the guidance of agricultural technicians, agricultural science and technology departments of the professional help, training seminars on the dissemination of knowledge and the dissemination of information within the village meetings, and even the daily communication between neighbors has become an important part of the information exchange. The daily communication between neighbors has also become an important part of information sharing.

However, in the new information ecosystem created by multi-network convergence, farmers' acceptance of new information access channels and practical skills are slightly weak, instead showing a preference for and reliance on traditional information sources. This tendency is mapped on several levels: first, they are more accustomed to guarding the traditional information access path, lack of understanding of emerging channels, and rarely take the initiative to utilize them; second, they are unable to make full use of the information bridges built by enterprises to pry economic growth and boost production efficiency, and the unobstructed information exchange mechanism between enterprises and farmers is still to be perfected; third, the perception of rural middle-aged and old-aged groups of new information channels is relatively slow, and the overall situation is not satisfactory; third, rural middle-aged and old-aged groups of new information channels are relatively slow to perceive new information channels, and the overall situation is not satisfactory. Thirdly, the rural middle-aged and old-aged groups are relatively slow to perceive the new information channels, and on the whole, they lack the enthusiasm to actively obtain information and the willingness to improve their information processing ability.

To further explore the reasons, farmers' slow acceptance of cutting-edge information technology tools is largely due to the fact that traditional information dissemination carriers are already able to satisfy their daily basic information needs, which makes them lack the internal motivation to study and utilize more advanced information tools. At the same time, the high technical threshold for the introduction of new tools, which is closely related to the low literacy level of farmers in general, coupled with the lack of motivation to learn, constitutes a major obstacle to the promotion of new media in rural areas.

From the data, it can be seen that: once the older people break through the psychological barrier to accept the new tool, the subsequent tend to show a higher frequency of use and proficiency; in contrast, young people, by virtue of their own advantages, the acceptance of the emerging channel speed and utilization of the efficiency of the general to be one step higher.

3.2. Farmers Cannot Identify Pseudo-Information

With the rapid development of Internet technology, network information, while providing convenience for social development and people's lives, has also increased the risks faced by information users in the process of information acquisition and utilization. In western Guangdong, the advancement of agricultural modernization has made the role of network information in agricultural production and management increasingly prominent, but the authenticity and quality of network information has become an important obstacle to the effective use of information by farmers. Due to the lack of professional information screening ability, farmers' concern about false information has gradually increased, which not only affects their motivation to obtain and utilize information, but also may cause potential economic losses to rural economic development.

In recent years, the rural economy in western Guangdong has developed rapidly, farmers' incomes have continued to grow, the information infrastructure has been gradually improved, and the cost of obtaining information has gradually weakened the constraints on the development of rural informatization. However, farmers' concern about the possible losses caused by false information has become a new obstacle. In this context, strengthening the construction of information service system for farmers in western Guangdong and enhancing the authenticity and usefulness of information have become an important direction to promote the development of rural informatization. Future research should focus on the differences in farmers' information needs and optimize the information service model to meet the actual needs in the process of agricultural modernization in western Guangdong.

3.3. Limitations of Information Service Content

In western Guangdong, the promotion of agricultural informatization is of great significance to agricultural production and rural development. However, information services still have many problems in meeting the needs of farmers.

First, the timeliness, accuracy and dynamism of the content of information services are crucial. Agricultural production in western Guangdong is characterized by strong seasonality and strong influence by natural conditions, so information services need to be able to reflect market dynamics and production technology updates in a timely manner in order to guide farmers in making scientific decisions. However, due to the influence of human factors, market competition and infrastructure construction, the problem of distortion and lag in the content of information services still exists, which limits the effectiveness of information services to a certain extent.

In addition, the homogeneity of the content of information services is also a problem that needs to be solved. Most of the current information services are mainly focused on agricultural production, with relatively little attention paid to the improvement of farmers' quality of life and spiritual and cultural needs. With the rapid development of rural economy and the gradual narrowing of the gap between urban and rural areas in western Guangdong, the information needs of farmers are increasingly diversified. Information services should not only focus on material production, but also take into account the construction of spiritual civilization, in order to satisfy farmers' pursuit of a better life.

Finally, the lack of relevance of information services is also a prominent problem. The content of information services often lacks the necessary simplification and processing for farmers with lower literacy levels, weaker comprehension skills and less experience in agricultural production. For example, some specialized terms (e.g., chemical terms) are confusing and difficult to understand for middle-aged and elderly farmers and some young farmers. This suggests that information services need to pay more attention to audience differentiation in content design in order to improve the acceptability and usefulness of information.

3.4. Weak Information Awareness Among Farmers

Information awareness, as the basis of people's information behavior, is equally important to the information behavior of farmers in western Guangdong. The strength of information awareness directly affects farmers' ability to collect, organize, understand, absorb and use information. However, due to the constraints of many factors such as social development, farmers in western Guangdong generally receive a low level of education and have a low cultural quality, which to a certain extent restricts their awareness of the importance of information and their sensitivity to information.

Modern information technology services require users to have a certain degree of autonomy and comprehensive quality, while farmers in western Guangdong lack interest in and desire for new things due to their long-term exposure to an environment with a low degree of information utilization, which further reduces their awareness of actively acquiring information. In addition, farmers in western Guangdong, under the environment of self-sufficient small farm economy, are more conservative in their thinking and lack the sense of innovation, which makes them less sensitive to information and relatively lack of information awareness.

4. COUNTERMEASURES AND RECOMMENDATIONS FOR IMPROVEMENT

4.1. Improvement of Farmers' Own Information Quality

First of all, agricultural departments, especially informatization offices, in the western part of Guangdong should conduct regular visits and surveys to farmers to gain a deeper understanding of their production and living needs and informatization needs. Through the establishment of "one household, one file" information demand files, and regular updating and reporting, they can more accurately grasp the changes in the needs of farmers, and provide a basis for decision-making by higher-level departments. At the same time, it actively applies for the implementation of the relevant needs and strives to form a set of long-term assessment mechanisms to ensure the continuity and effectiveness of information services.

Secondly, the demonstration-led role of new agricultural management bodies, such as farmers' professional cooperatives, leading agricultural enterprises and farmers' professional associations, should be given full play. Through the establishment of advanced models and the organization of experience exchange meetings, farmers are guided to improve their information needs and information literacy. For example, cooperatives and dragon-head enterprise-type Huinong Information Societies can organize educational training and experience sharing between farmers who are experienced in planting and those who are inexperienced, and encourage farmers who are skilled in cell phone use to drive those who have a low level of information technology use to jointly try out and understand information tools such as agro-related APPs, WeChat public numbers, and relevant websites. In addition, activities such as prize quiz games, cell phone application skills competitions, and online fertilizer and pesticide use competitions can be organized to create a good information technology atmosphere, inspire farmers to participate, and promote the efficient operation of the information service model.

In terms of information content, emphasis should be placed on the relevance and practicality of the information. For farmers with lower cultural levels, weaker comprehension abilities and less experience in agricultural production, the main body of information should fully simplify and process the information content, avoiding the use of overly specialized terminology and ensuring that the information is easy to understand and accept. Especially for middle-aged and elderly farmers and some young farmers with little experience, more intuitive and easy-to-understand information services should be provided to help them make better use of information resources.

4.2. Broadening of Information Services

The advancement of the process of agricultural modernization covers a multidisciplinary cross-cutting field. Agricultural development in western Guangdong is constrained by objective conditions such as geographic location, resource endowment, level of economic and social development, and growth characteristics of biological populations, and at the same time, it is affected by subjective factors such as the demographic structure of the service recipients, their education level, family capital accumulation, and occupational differentiation. Based on this, the construction of a regional adaptive rural information service system needs to be oriented to the actual needs of farmers, accurately matching the information dissemination channels, and exploring a composite information service model that meets the characteristics of the local agricultural economy.

In terms of the choice of technical paths, the advantages of modern information dissemination technology should be fully utilized, and the spatial and temporal distribution characteristics of agriculture in western Guangdong should be combined to build a dual-track synergistic mechanism of online platforms and offline service stations, so as to realize the complementarity of resources between the Internet media and traditional communication channels. In view of the current state of rural digital infrastructure in western Guangdong, priority should be given to the selection of network terminal equipment with high adaptability, convenient maintenance and wide coverage, so as to ensure the sustainability of information services.

In terms of information infrastructure construction, communication operators need to strengthen the 4G/5G network coverage in rural areas in western Guangdong, break through the "digital divide" caused by geographic isolation, and ensure that the "last kilometer" of agricultural information services is smooth. The government should strengthen the supervision of the sales market of smart terminals in townships, establish a traceability system for electronic product quality, promote the popularization of smart terminals that meet quality standards through policy guidance, provide hardware support for the access of smart agricultural platforms, and build an ecological system of information inclusion with characteristics of western Guangdong.

4.3. Strengthening the Guiding Role of Government in Farmers' Information Needs

From the perspective of information flow, government departments in western Guangdong transmit a large amount of information to farmers, but farmers generate relatively little feedback in the course of information services. In the process of providing information services, different levels of government and government departments with different functions have different focuses, making it difficult to integrate and share the information platforms built and the content of the information services provided. This situation not only creates duplication, overlap and gaps in the construction of information resources, but also prevents farmers' information users from transmitting feedback to information service providers in a timely manner. Given the current situation of China's agricultural, rural and peasant issues and the urban-rural structural system, rural information services in western Guangdong need to be reasonably guided and regulated by the government in order to establish an integrated, coordinated and unified public rural information service network, and to realize the integration of agriculture-related information, improve the information literacy of peasant information users, and improve the information feedback mechanism. Compared with the agricultural information services provided by the government, rural organizations and production associations are in closer contact with farmers, and the information services they provide have a higher degree of fit, and have obvious cost advantages. The promotion of market information services can effectively improve the efficiency of information services, introduce more subjects to stimulate the vitality of the rural information service market, and thus increase farmers' recognition of non-public information service organizations.

4.4. Enhancing the Intensity of Farmers' Information Needs

In the process of agricultural informatization, the cultivation of farmers' information awareness constitutes a key prerequisite for the enhancement of information dissemination efficiency. The construction of information service system has systematic characteristics. In the practice of building a new socialist countryside in western Guangdong, farmers, as the main body of agricultural production and the builder of living space, have the triple identities of participants, maintainers and direct beneficiaries of the information dissemination network. The initiative of farmers' information use behavior is directly related to the effectiveness of information infrastructure construction and the degree of service function realization, so it is necessary to strengthen the intensity of farmers' information demand through systematic guidance.

In the context of western Guangdong, the government should build a multi-dimensional information dissemination matrix, integrate traditional and emerging media resources, and systematically explain the economic value and practical functions of agricultural information resources through dissemination channels such as village-to-village broadcasting systems, local television channels, agricultural science periodicals, policy brochures and stratified training lectures. Special attention should be paid to the phenomenon of information gap in rural areas of western Guangdong, and differentiated communication strategies should be designed for the differences in information acceptance ability of different villages, so that farmers can effectively perceive the promotion effect of information resources on the enhancement of agricultural production efficiency, the optimization of market circulation, and the growth of family income, thus stimulating their intrinsic motivation to actively acquire and utilize information, avoiding the phenomenon of idle and wasteful information resources, and forming a benign interactive mechanism between the supply side of and the demand side of information services. The positive interaction mechanism between the supply side and the demand side of information service is formed.

At the same time, the government needs to establish a continuous education and training system, relying on platforms such as township agricultural extension stations, village information service stations and farmers' night schools in western Guangdong to carry out stratified and categorized information literacy training. In light of the characteristics of the rural population in western Guangdong, design information skills training courses suitable for farmers of different age groups and educational backgrounds, covering practical skills such as the application of agricultural big data, the operation of agricultural products' e-commerce platforms, and the use of smart agriculture terminals, so as to strengthen farmers' ability to identify, analyze, and apply information resources. Through the construction of a closed-loop mechanism of "training-practice-feedback", it strengthens farmers' confidence in information utilization, promotes the transformation of information resources into factors of production and economic benefits, and ultimately realizes the synergistic advancement of the construction of agricultural informatization and rural social governance.

5. CONCLUSION

In the process of promoting agricultural informatization in western Guangdong, the optimization of farmers' information search paths has become a key link. The core problem that needs to be solved is how to realize the effective connection between farmers' information search path and agricultural information service path. Agricultural informatization in western Guangdong is still in the development stage, and in-depth investigation of farmers' information behavior is of great significance in promoting regional agricultural informatization and modernization. It not only helps to enhance farmers' information awareness, but also needs to transform the theoretical research results into practical actions, which are reflected in all aspects of agricultural production. The government should give full play to its guiding role, through policy support, resource integration and technology promotion, to stimulate farmers' awareness of actively acquiring and using information, to promote

the efficient application of information resources in agricultural production, circulation, processing and other links, to realize the deep integration of information services and agricultural production, and to provide strong support for the modernization of agriculture in the western part of the Guangdong Province.

ACKNOWLEDGMENTS

This work was supported by the Provincial Philosophy and Social Sciences Planning Discipline Co construction Project (No.GD23XGL107)

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