

# Analysis of the Poverty-Stricken Rural Areas' Demand for Rapid Dissemination of Agricultural Information - Taking Wanquan County in Hebei Province as an Example

Xiaoxia Shi, Yongchang Wu

► **To cite this version:**

Xiaoxia Shi, Yongchang Wu. Analysis of the Poverty-Stricken Rural Areas' Demand for Rapid Dissemination of Agricultural Information - Taking Wanquan County in Hebei Province as an Example. Daoliang Li; Yande Liu; Yingyi Chen. 4th Conference on Computer and Computing Technologies in Agriculture (CCTA), Oct 2010, Nanchang, China. Springer, IFIP Advances in Information and Communication Technology, AICT-345 (Part II), pp.264-273, 2011, Computer and Computing Technologies in Agriculture IV. <10.1007/978-3-642-18336-2\_32>. <hal-01562752>

**HAL Id: hal-01562752**

**<https://hal.inria.fr/hal-01562752>**

Submitted on 17 Jul 2017

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



# **Analysis of the Poverty-Stricken Rural Areas' Demand for Rapid Dissemination of Agricultural Information —Taking Wanquan County in Hebei Province as an Example**

Xiaoxia Shi <sup>1, 2</sup>, Yongchang Wu <sup>1</sup>,

<sup>1</sup> Chinese Academy of Agricultural Sciences  
Institute of Agricultural Resources and Regional  
Planning, Beijing 100081, China, <sup>2</sup>Graduate School of  
Chinese Academy of Agricultural Sciences Beijing  
100081, China,

1. [sxx200888@126.com](mailto:sxx200888@126.com)

2. [wuyc@mail.caas.net.cn](mailto:wuyc@mail.caas.net.cn)

## **Abstract.**

The majority of rural population in China has limited access to agricultural information at present. Wanquan County was chosen as the studied area, in where the research used questionnaire to survey the current situation of peasants' demands for agricultural information, as well as the information delivery approaches. A questionnaire was developed and data were collected from 200 peasant households. The major content is focused on the demands for the information service of peasant households, as well as the supply mode of agricultural information acquisition. The survey shows the information dissemination is irregular and the channels of information acquisition are serious in poverty-stricken rural areas. Although there are different types of peasants' demands for agricultural information, the utilization rate is low. Bridging the digital divide between urban and rural areas will be a major challenge for government in Wanquan

County. On the basis of analysis, the research designs a local characteristic industry platform for the characteristic agriculture.

**Keywords:** Questionnaire to survey, Agricultural information resources, Information demand, Information delivery approach, Development and utilization

## 1. Introduction

*During the rapid development of information technology, the information is not just a kind of instrumentality but a kind of resource. At present, information technology (IT) has become the most advanced and the most active element of production [1]. The quick development of IT, especially the wide use of communications media has made agricultural normalization to be the most important field of IT. Information and communication technologies play a major role in improving the quality of life in rural areas, imagining a world where information is the medium of exchange. The significant progress in information construction of China agriculture has been made, but there still exists problems-- the literacy level of rural village is still low, which is the block of the information development in rural areas.*

*In different rural areas of China, peasants in poor areas have more dire need for agricultural information, but the lack of information resources have caused the gap between that of developing areas, and led to the efficiency of information service in developing rural areas much lower than developed rural areas [2].*

*Wanquan County in Hebei Province as the typical poverty-stricken county in China., in where the majority of the peasants live in the lower stand of living and have little or no access to agricultural information.*

*The author had in-depth studied about the peasant households in Wanquan County through questionnaire, intensive investigation, and site visits [3]. Data were collected both at village and peasant households levels.*

## **2. Basic research**

*To achieve the objectives of this study, statistical analysis was employed. The questionnaire was pre-tested and revised, including both open-ended and fixed choice questions, and the open-ended questions were used to gather information to encourage peasants to provide feedback.*

*This text was from analyzing the peasant households' information demands, including the characteristics of demands on information service, affordability and willingness to pay, on the basis of analyzing information demands of peasant households and the level of information construction of Wanquan County, as well as the peasants themselves, such as the social status, education level, family status and so on.*

*This research aimed at putting forward the supply-demand equilibrium mechanism of information service oriented by demand and the construction of multiple service system, such as the way through which the communication of information can be conveyed to them promptly and effectively [4].*

### **2.1. Basic condition of survey area**

*Situated at northeast of Hebei Province, Wanquan County, is located northeast by North China plain, the east is near Zhangjiakou city, the west and north is next to the Great Wall. By a series of mountain range, the county covers an area of approximately 1161 square kilometers. It governs 172 administrative villages and has a population of 220,000 plus, which is a typical poverty-stricken county in Hebei.*

*The peasants in Wanquan County are still practising an extensive traditional corn-based agricultural system dominated by non-shifting cultivation, which requires large investment of labour but provides little return. Wanquan stands for the general situation of poverty and features in rural areas, which will be exploited as backward area.*

### 3. The status of survey subjects

#### 3.1. Personal characteristics of peasants

Statistical analysis method was used to analyze the data of the basic status of the peasants themselves. Under investigation, table 1 shows the ages range from 14 years to 79 years, and the average age was 49.56 years, but the rate of females (6.0%) was lower than that of males (94.0%). The educational level of the peasants was collected through a household survey, and was calculated by adding total number of years of schooling completed by each survey subject, getting the mainly levels were junior middle school or below. Its scope of business covered fields such as agricultural production (69.5%) and others (30.9%).

**Table1:** Personal characteristics of peasants

Sex	males (94.0%)	females (6%)
Age (years)	Average age=49.56	
Education level	junior middle school (73%)	
Field of work	agriculture (69.5%)	others (30.9%)

#### 3.2. The status of peasant households

Results showed that as a family generally, it had an average of five members. To view the situation as the number of communications media, as one of the most popular and effectual propagation medium at present, the television played an important role, as well as the mobile phone. And almost every family had a TV set, mobile phone averaged out at 1 per head. However, this survey found a small proportion owned computer, followed by telephone and radio.

Judging from the number of means of transport, bicycles and battery cars took the largest proportion, followed by motorcycles and mopeds, with the smallest proportion of cars, as well as some cattle carts. Used for the transport in agricultural production, mostly cattle carts and motorcycles were popular.

*Looking at from the family financial circumstances, most farmers, including the poorest, were in the outside business not only to feed and clothe themselves and their families, but also to make money or at least barter their food. Except the essential payment amount over each individual year, each family remained 10,000 Yuan average.*

*Peasant households' information needs depended largely on their activities in production and livelihood levels, by which there were some differences among subsistence peasants, livestock peasants and part-time peasants. Those part-time peasants concentrated on information of non-farming opportunities. Peasant households in the survey were not engaged in the textile and transportation business.*

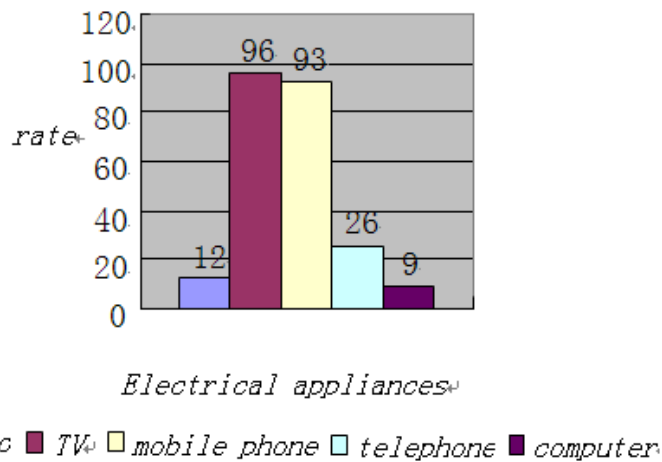
#### **4. Investigation of peasants' information demands**

##### **4.1. The way of acquiring information**

*The questionnaire defined information channels as all technologies that are electrical appliances, including telephone, video, radio, mobile phone and computer. The major channels to gain information for peasants were the popular media such as television and mobile phone. Broadcasting was no longer the main channel of information communication in people's lives.*

*Illustration1 shows that television and mobile phone had become the important channels for users to acquire knowledge and information, which were the most basic household electrical appliances. Mobile phone as the most frequently communications satellite, was essential to users. The mobile phone had high percentage in the effective dissemination of information, but was not as good as the television. Since it can be seen clearly, television played the important role in information dissemination. Among other communications media, TV possesses the following features: low price, popular quality and good ratings. According to the data, the rate of peasants who subscribed to the newspapers and magazines was 0%. There was only a small part of the villagers used to borrow the newspapers from the village committee.*

From our data, the computer's rate at the city level is an astounding 76.56 percent, compared with only 9 percent at the bottom end of Wanquan County. Most of the peasants did not even come into contacting with the internet, and had little or no knowledge of the internet. The effect of computer in rural area's science and technology information communication is limited. Computer mostly was used for entertainment by the peasants who owned a user-friendly computer model, while acquiring information from computer was not quite universal.

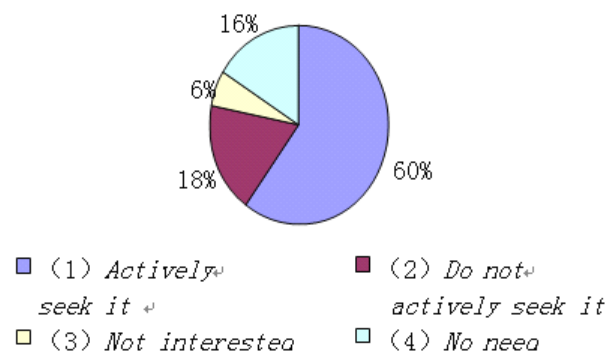


**Illustration1:** The rate of information media

#### 4.2. The information for public awareness

The growth in income and the marketization in the Chinese economy create new demands on information service. According to the survey on information demands, in our questionnaire, four options were put out for the information for public awareness, including (1) Actively seek it, (2) Do not actively seek it, (3) Not interested, and (4) No need. This paper briefly found the existence structures and discernment of potential information demands in the information services, and the strong will of peasants. The descriptive statistics of these variables are presented in Illustration2. They tend to seek life and production information, however, little information was being made available. Because of the influence on ability in the schooling, knowledge

structure, search and receive message, but no matter peasant households were regarded as the purchasers or the suppliers of agricultural products, the information occupied was often insufficient, often suffered losses because of inferior position of the market information. In view of the increasing concern about agricultural information and awareness of peasants, the peasants hoped to accept practical information by any way.



**Illustration2:** The Information for public awareness.

### 4.3. The characteristic of the information demands of peasants

Demands difference for information service was gradually obvious. Generally, peasants demanded for many kinds of information in their production and live, however, they paid more attention to science, technology information and market information related to improving agricultural production and raising their income.

The three top information types most needed in this research were: agricultural production service, the price of agricultural products and weather forecast. The information of social welfare, healthcare and education were also being regularly used by most of people who were in the pursuit of better quality livelihoods, which were the New Peasants' initial performance.

A kind of required information about off-farm income opportunities are scarce and agricultural products,



mainly summer maize and potato, are the major sources of income.

Each of these components plays a role in agricultural information acquisition, a role that depends on the strengths of the types of information resources and element of the agricultural economy that it serves <sup>[5]</sup>.

Peasants' diversified demands for information were increasing. As a multiple choice testing in the questionnaire, the question was described as "which kind of information means provided will you choose?", and the four options were (1) Completely free, (2) Exchange with other people, (3) Cost price, (4) Market-pricing. Compared with the three options, most peasants (94.0%) hoped to get information resources completely free (table2 shows). Ability-to-pay was inconsistent with the willing to pay to a certain degree. However, peasants still could not get a lot of cheap agricultural information, but did not know where and how to have the liberty to free information resource access. Peasant households were lack of the effective mechanism to appeal to information service demand.

Table2: Acceptable of information supply  
(Multiple choice test)

Acceptable categories	completely free	Exchange with others	Cost price	Market-pricing
Rate (%)	94.0	25.5	16.0	2.50

#### 4.4. The state of technical training

The number of technological knowledge training to peasants was just 3 last year, which was only aimed at the training of Plastic Green House. While the results were not optimistic, and the rate of training peasants was only 5%, since only a minority of peasant households were growing greenhouse. However, through visiting these households, greenhouse cultivation was performed without the guidance of professional, so the peasants could only use their own production experiences to manage the greenhouses, leaving the disastrous consequences.

*The peasants were interested in the opportunities of traditional training and lectures on agriculture subjects. In response to such needs, several notable trainings of agricultural information should be emerged in recently. Insufficient efficiency of the agricultural information service is the reason that, up to now, only simple training model can be implemented.*

#### **4.5. The economic structure is single**

*The economic structure of this county is single, and it is hard to dig out new economic growth points. Summer maize had been the main grain crops for many years, which made crop diversity poor. Corn stalk was burned in the local traditional incineration method, but the maize straw was not employed. With the short of the new production equipment and technological processes under the pressure of low information consciousness and restriction on local people's access to information age, so improving information technological equipment in many places has become a social and economical problem .*

*Facilitative change in the economic structure asks for strengthening information service consciousness and upgrading service levels.*

### **5. The causes and analysis**

#### **5.1. The information literacy is low**

*Because of the lower levels of literacy and information literacy awareness of opportunities and benefits that information service can provide, the effective rate of utilization of information was low. In poverty-stricken area, it is lack of culture living and peasant's culture diathesis should be improved.*

#### **5.2. Financial resources are inadequate**

*Getting the essential knowledge to those who need the agricultural information most remains difficult and expensive, but much optimism has been generated as a result of the increased growth of new electronic*

*information services, such as digital television and mobile phone.*

*At present, computer based is used effectively in developing areas, although peasant households have preliminarily possessed ability-to-pay information service, but the whole level is quite weak. Demands for the information service of peasants were influenced by several economy factors, and ability-to-pay was inconsistent with the willing to pay to a certain degree, which led to the deficiency of demands for the information service of peasant households on the whole.*

*Based on the phenomenon of above, although facing the unprecedented changes of knowledge economy and information society, experiencing no benefits, peasants hardly ever got the vast quantities of information.*

### **5.3. Lack of high-quality IT talents**

*This survey showed the lack of information technology resources was extreme in this county. So it urgently needs to train and promote large numbers of IT professionals for the country's information acquisition development. The government should speed up the agricultural extension and technological achievements in agriculture into productive forces and spread the use of agricultural information <sup>[6]</sup> <sup>[7]</sup>. It gets that a lack of reliable information at all stages along the supply chain is a severe limitation on the development of agriculture, in spite of the existence of modern information service <sup>[8]</sup>.*

*Survey results showed that, this county will need further strengthening rural village concept of technical training, which cannot be just accomplished by simple input-output all kinds of information that obscure the key consciousness in the public on the ultimate development goal. Convincing arguments are needed that address public academic quality concerns <sup>[9]</sup>. The ability of organizations and individuals to introduce new methods and processes of agricultural information that are socially or economically relevant, particularly with respect to smallholder peasants who represent the majority of agricultural producers in the county.*

#### **5.4. The development of agricultural market and industrialization is backward**

*In the context of small scale farming and without building an agricultural industrialization system, leading the backward development of the agricultural market.*

*On further examination, it found that the production model-the scattered peasant organize production, which hindered the rapid dissemination of information.*

#### **5.5. Legislative, policy and regulatory hurdles**

*The policies that provide affordable access to information need was not perfect, which needs to be carefully indentified and examined by government.*

*According to the statistical result of the data provided by the 200 questionnaires, the fraction of referring to agricultural information common principles is as high as 93%. It is now clear that people's desire for information policy is strong.*

### **6. Conclusion and suggestion**

#### **6.1. Bring up the high-quality peasants**

*Peasants are the direct beneficiaries of the agricultural information, as well as the subjects of advanced new agricultural information. However, the overall qualities and information literacy were low in the rural areas. As the backward rural economy and culture of China, the low educational level directly limits the ability to learn information technology and the capacity to use the information analysis <sup>[10]</sup>. The state of consciousness was enclosing, as a trial or as a means of entering the information age. New things on the network, such as unconfirmed message and effective information, the peasants were unable to recognize the significant role of information and were lack of enthusiasm for using information effectively. At the same time, information literacy should be greatly improved, so that the peasants will be able to collect, use, feedback and identify the information. In order to help peasants in this poor area*

*improve their scientific and cultural level, the effective methods can be used in the process of transmitting information, the methods can play a complementary role and the role of high-level development of information technology. Different levels of peasants left behind different educational approaches, especially with respect to agricultural information education and research. Evidence shows that even small efforts to put rural dissemination of information policy on the national agenda can have significant results.*

## **6.2. Using effective measures to disseminate agricultural information**

*Effective measures should be taken to expedite the construction of agricultural information. For one thing, the shortage of managerial and technical specialists was the major constraint. To set up and improve the system of agricultural information specialists, so there is a need to balance channels of supply and demand for the information service of peasants. Many countries as successful cases linked their research programs in agriculture to information research and extension organizations, a structure reflecting the influence of the agricultural information.*

*Based on the above phenomenon, the current investigation discovered that the countryside information extended to the households by network lays was completely not realistic <sup>[11]</sup>. Compared with internet, using some mature ways, such as the broadcast television, telephone, technology books as well as kinds of training can provide affordable cost information, which can disseminate the agricultural information knowledge for the county. 100% peasant households had the television, and mobile phone's rate achieved 90%, therefore using these good communications media is reality.*

## **6.3. Calls for the government's reform and new responses**

*The government is still the most important organization institution. Transfer the role of government and to encourage peasants to actively take part in information service construction.*

*It is thus not surprising that there is a constant call for government reforms in sub-Wanquan County—reforms that*

are meant to improve government's contribution to the creation of more innovative, agricultural information across the county. In response to such calls, several methods of reform should be set up by government. The challenge for agricultural information policymakers and planners, particularly in the context of this poverty rural, is how to enable people to adopt more attractive agricultural information that do not have adverse impacts. Furthermore, in line with the basic principles of dissemination of information, agricultural information policy measures further promotes the use of agricultural information and help to preserve the development of the rural economy <sup>[12]</sup>. There is a real need to provide rural people with the best information in a timely fashion so they could develop sustainable communities, and reverse urbanization.

The information consciousness of cadres and masses should be strengthened constantly, leaving peasant household's information demand strengthened constantly.

And ultimately, recognition is needed of the fact that information service designed to strengthen the speed of dissemination of agricultural information is a long-term undertaking—only through a long-term change can information service contributes to the development that peasants in a wider system of information service.

#### **6.4. Build up a local characteristic industry platform**

Building up a characteristic of industry platform must be carried on promoting the demonstration and expanding the influence. The agricultural production holds an important position in Wanquan, summer maize is the main grain crop. Agricultural restructure will be further strengthened, with the stable growth of production in this county, in order to accelerate the economic development of the county. Exert great efforts in developing New Waxy Corn Variety, and the mass result will be with the form of "company +base +peasants", and "market +information +peasants", developing Fresh-food Maize's planting base and industrialization processing. County and township governments need to control through planning, guidance and resources of industry consolidation, and make the "baby corn" into a large industry, "small workshop" into Industrial Park. The industrial restructuring and resource integration of this county must be accelerated by government, which needs to exploit its advantages in

*geography and resources and create points of economic growth.*

*In order to change cereal-based subsistence agriculture to fully market oriented commercial agriculture, with intensive use of putting platform. Eventually, the project can drive a rapid rural economic development in the region*

*Furthermore, in line with the basic principles of good agricultural information, agricultural policy measures further promote the use of this local characteristic industry platform and help to improve the life of the rural village.*

## **References**

- [1] Seyed Jamal F.Hosseini, Mehrda Niknami, Gholamreza H. Hosseini Nejad. :Policies Affent the Application of Information and Communication Technologies by Agricultural Extension Service. J. American Journal of Applied Scinences. 6(8), 1-2(2009)
- [2] Yunpeng Cui, Ping Qian, Sufen Sun, Junfeng Zhang, Changshou Luo, Studies on Agricultural Scientific and Technical Information Core Metadata Register System. Agricultural Scinences in China. J. 7(2), 249(2008)
- [3] Xiaoying Jian, Haiying Feng, Analysis on the Features of Information Needs from Different Farmers in the Poor Chinese Rural Community. Review of China Agricultural Science and Technology.9(2), 113(2007)
- [4] Lingyun Gai, Fei Tao, Analysison Agricultural Information Research. J. Agriculture Network Information.2,(2007)
- [5] Jiapei Wu, Kang Xie, Jinghua Xiao, Information Economics.China(2009)
- [6] Jinai Liu, Development Status, Problems and Countermeasures of Agricultural Information in China. J. Modern Information.22(1), 62-63(2009)
- [7] Suisheng Hu, Agricultural Information Resources Development and Utilization for Needy Mountainous Area. J.Agricultural Information.10,46-48(2007)
- [8] Norbert Niederhauser, Thomas Oberthu, Sibylle Kattnig, James Cock.: Information and its Management for Differentiation of Agricultural Products: The example of Specialty Coffee. J. Computers and electronics in agriculture. 61,242-245(2008 )
- [9] Eiard, Impact Assessment and Evaluation in Agricultural Research for Development. J. Agricultural Systems. 78, 332-333(2003)
- [10] Jinchuan Zhang, Yifeng Zhu, Xinli Min, Hongdi Xin, Jie Zhuang, Thinking on the Integration of Information Resources in

Agricultural Information. J. Hebei Agricultural Science. 13(6),  
141-142 (2009)

[11] Qingming Xia, Thoughts on Informationalized Reporting System  
of Depressed Areas. J. Rural Economic. 7, 93-94 (2005)

[12] Zhiying Liu, Research on Internet Communication of  
Agricultural Information in China. J. Agriculture Network  
Information. 5, 10-11 (2008)

---