THE WORLD'S LARGEST EXTENSION SYSTEM

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Abstract

China has an ancient tradition of agricultural research and extension dating back as far as the first century A.D. Today, the Chinese Extension system is the largest in the world with nearly two-thirds of the extension employees worldwide. Providing initial and in-service education for a vast workforce spread over a large country is difficult. The Extension methods used in a centrally controlled government vary greatly from western countries. In spite of many challenges in communicating new agricultural developments to 200 million farm households, extension plays a critical role in providing food, fiber and fuel for the world's largest populated country.

China has the largest extension system in the world but it is organized and managed very differently from the extension system in the United States. China has 300,000 employees working from the national through the township level in the crops division. Another 500,000, mostly part-time farmer technicians, are employed at the village level. Add to this, the employees of the livestock division and China has more than two-thirds of the extension employees worldwide. Extension programs are focused nearly exclusively on agriculture, although extension does get involved on the local level in social issues such as family planning.

Providing food, fuel and fiber for the country with the world's largest population is a daunting task. Chinese farmers who have only 7% of the world's arable land, feed 22% of the world's population. The extension system in China is charged with spreading new agricultural technologies to 850 million rural inhabitants. Heavy rains in the mountains are responsible for frequent floods causing widespread crop damage. Droughts are also a frequent occurrence in the fertile but dry northern China plain. Eighty percent of the Chinese population of 1.1 billion people live in the countryside, farming soils which have been tilled for over 4000 years. In 1991, the number of people in China increased by the same amount as the total population of Australia (15 million) in spite of continued progress with the one child policy. Hunger and famine are well remembered by everyone over the age of 20. China's recent agricultural progress and accomplishment has been nothing short of incredible.

To really begin to understand extension in China today, one must have an understanding of the history of the Chinese Extension system. Historians find evidence of experimental work on intensive cultivation in China as early the Han Dynasty (A.D. 25-200). The experimental results were disseminated to experienced farmers only after official approval was given. Later in the Song Dynasty (A.D. 960-1278), increasing population pressured officials to support agricultural research and technological innovation. During this time rice was promoted as a new crop for the arid north while wheat was introduced to the humid south. The term still used for "Extension" (tuiguang) was first used in this time (Delman, 1991).

During the Nationalist government era (1911-1949) a few private educational and missionary institutions undertook extension activities in the surrounding rural areas. Guangdong University set up an extension department modeled on the American experience, but the Nationalist government, in an effort to keep tight control on developments, organized the official extension service in the Ministry of Agriculture (MOA) rather than the universities, where it would have
had more independence. World War II, which started in China in 1937 with the Japanese invasion, slowed the meager accomplishments of forming a nationwide extension system (Delman, 1991).

After the revolution, the first agro-technological extension stations were established on an experimental basis in remote Northeast China in 1951. During the Great Leap Forward (1958-1961), an anti-bureaucratic mode swept the country including the extension system, with employees being sent out to the countryside to establish farm communes. All farmer managed land was removed from individual management and organized into large communal farms that would cover a township and have an average of 2000 workers. During this period, one-third of the local extension stations were closed. The extension system that emerged from this period was shattered and rather inefficient (Delman, 1991). During the Cultural Revolution (1966-1978), extension was essentially disbanded. Most of the extension stations were closed, extension employees were criticized, persecuted and many of them were forced to work as peasants in the countryside as a means of re-education. Other extension employees changed their professions and took work in other disciplines (Zou, 1992). The extension system, as well as much of the research and university system, essentially ceased to exist during this period.

Agricultural reform was brought about in 1978 with the return of control of the land to individual households. Extension faced the task of organizing a system that could provide agricultural information to 200 million households scattered across a vast and remote country. In 1982, the MOA undertook a review of the 150 County Agro-Technology Extension Centers (CATEC) and found that their experiences were positive. At this time, the government realized the need for national coordination of the Extension system and established the National Agro-Technology Extension Center (NATEC) in the MOA (Foo, 1992). The goal was established to form extension organizations in every province, prefecture, county, township and village.

Today extension organizations are present at all levels of government. Figure 1, on the field crop division of Extension, gives some idea of the number of levels of government along with some of the branches. This represents six levels of government with extension bureaucracies at each level. The Extension organization has been described as an upside down pyramid, meaning that it is very top heavy. Only 38.9% of the extension employees are at the township level where they can have direct contact and carry out programs with the farmers (Yang, 1992). To date, 1300 CATEC have been established in the 2300 counties nationwide (Foo, 1992). Catec serves a role that would be comparable to district or area extension centers in the United States. Because of the difficulty in communication and transportation, extension programming is focused on the township and village level. Currently, 38,000 Township Agro-Technology Extension Centers (TATEC) have been organized and 480,000 villages have extension staff. This accounts for extension coverage in 81% of the townships and 66% of the villages (Huang, 1992). On average, each township technician is responsible for providing educational information to 3000 farm households (Yang, 1992). Limited communication and transportation systems in rural areas creates many difficulties for extension staff in contacting large numbers of farmers.

The Animal Husbandry division of extension is another entirely separate organization from the crop division. They operate as though the other divisions do not exist. This adds to the
Figure 1. Agricultural Extension Agencies under MOA Involved in Field Crop Related Extension (Delman, 1991)

* Legend: NATEC = National Agro-Technology Extension Centre  
CATEC = County Agro-Technology Extension Centre  
TATES = Township Agro-Technology Extension Station  
S&T = Science and Technology  
Prefecture: A political subdivision between provinces and counties
inefficiency of the extension organization in China. The Animal Husbandry division maintains bureaucracies from the national level down to the village technician. There are other extension organizations in China as well. Each of 1120 national, provincial and prefectural agricultural research institutes will typically have a group of people whose role it is to disseminate research findings of that institute (FAO,1991). Some large state farms still exist, especially in northern China, and have their own separate extension personnel. The Communist Youth League, which is open to membership of youth 14-28 years of age, actively conducts training activities for members and non-members alike. The training focuses on appropriate technologies for sideline agricultural enterprises. The All-China Women's Federation (ACWF) likewise offers training to women on topics such as livestock raising (Delman.1991). This description of the Chinese Extension System helps clarify why many consider the extension organization in China to be very complex and difficult to understand.

The education levels of extension staff often limit their effectiveness. Only 7.5% of the Extension employees have college degrees with an additional 17.5% holding two-year technical degrees. Fifty three percent have degrees at agricultural high schools and 22% have nine years of schooling. At the village level, where farmer interaction is most frequent, extension is usually represented by village leaders (i.e., party officials) and part-time farmer technicians. Most farmer technicians have 6-8 years of schooling but many are working on certificates issued by the Agriculture Broadcasting School (FAO,1991). The Agriculture Broadcasting School offers educational programs via broadcast radio. Certificates are then granted to participants who pass a qualifying exam. Courses in agricultural extension subject matter have only been introduced at agricultural colleges since 1989 (Zhang, 1992).

Ties between extension, research and educational institutions are weak to non-existent. Universities are linked to the Ministry of Education while extension and research are separate organizations within the MOA. The national research centers, which are part of the Chinese Academy of Sciences, as well as provincial and university research centers have little contact with extension personnel. Many CATEC conduct their own applied research projects. Communication is mostly vertical within each organization and then only with the levels immediately above and below. It is not uncommon to have several special applied research projects being conducted by different agencies within a county with little if any coordination between the research institutions or the local CATEC (FAO,1991).

Each level of government is responsible for funding the organizations at their own level. This results in considerable autonomy for each level of government. Bargaining is necessary between each of the levels to agree on the goals that will be accomplished at that level in the annual agreements signed between parties. The agreements are very important because with tasks from above come resources to accomplish those goals. Much of the time of a bureaucrat, is spent on the bargaining that goes into the signing of an agreement between the levels of government immediately above and below his/her level.

Extension methods and subject matter in China has been centrally controlled. In the commune era, government leaders would decide on the agricultural technologies to be extended which would then be passed down to the commune and finally to the peasant farm worker for implementation. Since the household responsibility system was reintroduced, extension methods are less directive but still centrally controlled. Farmers do have the option to turn down new extension technologies; but, to obtain high quality seeds, fertilizer and other inputs at favorable prices, the farmers must sign a contract agreeing to use the recommended extension technology package. These extension contracts are considered highly successful and involve a written contract between the farmer and the extension organization. Extension agrees to provide certain inputs and services which may include plant protection, soil testing,
fertilizer application and mechanized farm operations for a fee. A yield goal is agreed upon and extension will reimburse the farmer if the yield falls a certain percentage below the goal. If the yield exceeds the goal by a certain percentage, then extension receives 20% of the excess as a bonus (FAO, 1991). Extension has strong incentives to provide the best supplies and services to their clients. The Chinese government is nearly frantic for continued progress to increase yields and meet the needs of an ever growing population.

Demonstration households are widely discussed and held up as an extension method. Some 4.5 million demonstration households are utilized to demonstrate new technologies to village farmers (Delman, 1991). Most CATEC and TATEC publish newsletters for farmers. Each village has a public broadcast system that Extension may use to announce meetings, pest outbreaks and other timely extension information. The village blackboard is another significant way used by farm technicians to inform their neighbors of important extension information. Radios are widely available in farm households and numbers of televisions are increasing in more prosperous farming areas and are being used increasingly to create farmer awareness of new technology (FAO, 1991). Other Extension methods include "big character posters," exhibitions, extension printed materials, newspapers, cultural media such as songs and dance and finally "slogans" which have long been used to convey complex issues in short easy to remember phrases (Foo, 1992).

Although Extension in China is very different from the United States system and it seems to have numerous inefficiencies, it is working. The national leaders of the Chinese Extension system are actively searching the world for ideas to speed reform of extension in China. The success of the Chinese Extension system and several good growing seasons, have given the agricultural leaders a new challenge; where to store the surplus of grain rather than rationing the traditional shortages.

References


