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NEW HORIZONS IN AGRICULTURAL INFORMATION MANAGEMENT

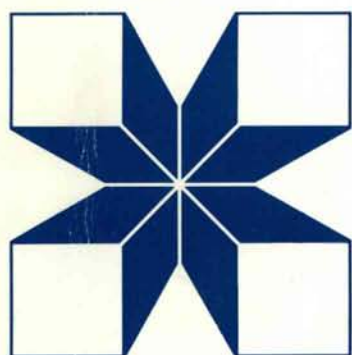
PROCEEDINGS

OF AN INTERNATIONAL SYMPOSIUM

MARCH 13-16, 1991

BEIJING, CHINA

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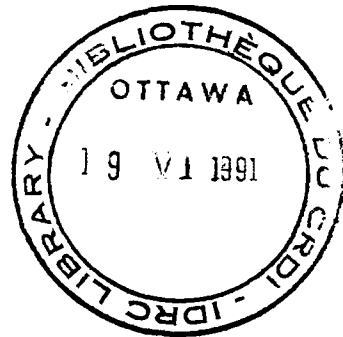
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Results and Benefits from an IDRC-supported Project: Tea Information Services (China)

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Abstract

An information service project, Tea Information Services is being carried out by the Tea Research Institute (TRI), Chinese Academy of Agricultural Sciences (CAAS) with the aid of a grant from the International Development Research Centre (IDRC). In addition to supporting the Sparks Program of the Chinese Government by disseminating technology and information to tea farmers and tea entrepreneurs in China, the project also seeks to share China's experience and achievements in tea research, production and utilization with other developing countries. The results and benefits are obtained as follows: 1) Economic and social benefits are remarkable at the tea demonstration sites, 2) Information services are effectively offered. Apart from day-to-day advisory services to tea farmers by eight scientists at four demonstration sites, three tea farmers' training courses with 160 participants have been held, and 333,500 publications including periodicals, Tea Farmer's Pocketbooks, Tea Technology Leaflets, etc., have been published and distributed. 3) The capabilities of the information services of TRI itself are obviously improved.

Introduction

Tea originated in China and has been cultivated, processed and used as a beverage by the Chinese for about 3,000 years. Many countries' tea plants were received directly or indirectly from China. In China, tea is not only the favorite beverage but also a traditional export commodity, taking an important position in the national economy. In 1989, tea export was up to 204,500 tons with foreign exchange of USD 480 million.

Since the reform of the economic system in China in 1979, individual tea producers contribute the main tea yields of China. It is estimated that there are one million tea farmers and they contribute 70% of the total tea yield. However, the productivity level of these smallholders is very low due to a lack of new technology. For example, the unit products of many smallholders' tea fields is less than 50 kg/mu (i.e., 750 kg/ha). If the technology developed in research institutions is transmitted to the smallholders and transformed into productivity, the unit area yield is easily improved to 150 kg/mu (i.e., 2250 kg/ha). Undoubtedly, it can enhance the capacity of tea farmers to earn their own living. Because of some barriers, including an information barrier, the above-mentioned distribution and transformation is not effective in China. In order to upgrade the Tea Research Institute's (TRI) capacity to organize its information activities and to package materials in formats which will assist in the direct transfer of technology

from the tea scientist to the tea farmer, an information service project "Tea Information Services," is being carried out by TRI. The project is supported by the International Development Research Centre (IDRC) from June 1988 to May 1991. In addition to supporting the Sparks Program of the Chinese Government by disseminating technology and information to tea farmers and tea entrepreneurs in China, the project also seeks to share China's experience and achievements in tea research, production, and utilization with other developing countries.

Activities of the Project

- To publish journals, technological leaflets, teaching materials for the Tea Farmer Training Course, etc. The journals include an academic journal, *Journal of Tea Science*, a popular technical journal, *China Tea* and *Tea Abstracts*. The teaching materials include six *Tea Farmers' Pocketbooks*, three video tapes and six sets of slide shows. *Tea Microthesaurus*, in 2 versions (Chinese/English and English/Chinese), will also be published.
- To build up a machine-readable bibliographic database containing about 30,000 items.
- To organize tea farmer training courses on tea processing, pest control of tea plants, installation and repair of tea machines, improvement of tea quality, regeneration of low-yield soil, and utilization of tea by-products.
- To provide extension activities at tea demonstration sites, TRI has established four technological demonstration sites in rural areas supporting the principle of the Sparks Program. Eight TRI scientists have been posted to provide extension activities at these sites, each for six months per year. All the information products and services of the project are utilized at these sites, to effect the transfer of technology to the tea farmers. The outputs are disseminated by TRI's demonstration site scientists and by the agricultural extension personnel of the county level governments.
- To provide day-to-day tea information services both inside and outside China. These services include advisory services to tea farmers, reference services, document delivery, translation and literature searching.

Results and Benefits from the Project

1. Notable Economic and Social Benefits at Tea Demonstration Sites

a. Demonstration site for multi-processing of tea in Fuyang County

The demonstration site (including four demonstration bases) was set up in 1985 in Fuyang County and selected as a project of the Sparks Program of Zhejiang Province in 1986. With the aim of producing different kinds of tea according to the availability of fresh leaves, the main task for the site was to overcome the weak points of rural tea factories in which only a single kind of tea could be processed. Through three years of technical advice and training, various kinds of tea now can be produced in the factories

such as Broken Black Tea, Congo Black Tea, Jasmine Tea, Meicha (Eyebrow Tea), Longjing Tea and Qiqiang Tea (Spear Tea). In the years 1986 to 1988, 1,560 tons of tea were produced from the four demonstration sites with RMB 13,160,000 yuan of total output value, 2,769,000 yuan of profit and tax, and USD 104,400 of foreign exchange. It was also noted that 120 technicians from the factories were trained in the techniques of tea processing. For further extension of the experience achieved, the sites were visited by many people from the rural tea factories in other parts of China. The project was awarded the 2nd Class Prize and the 1st Class Prize of the Sparks Program by the governments of Zhejiang Province and Hangzhou City respectively.

b. Demonstration site of black tea processing in Zhenhai County.

The site was set up in 1985 based on a village tea factory, to aim at improving primary and refinery processing of black tea in rural tea factories and scientists have been posted to provide advisory services all year around. Before the site was set up, the productivity of the factory was only 110 tons of primary made tea, with RMB 330,000 yuan of output value per year. The net profit was less than 3,000 yuan. Since the establishment of the site, the productivity has been significantly improved. In 1988, the factory produced 280 tons of made tea with RMB 2,000,000 yuan of output value. The tax turned over to the government amounted to 525,000 yuan and the net profit was 150,000 yuan. The investment on fixed assets increased from 120,000 yuan in 1984 to 600,000 yuan in 1988. Apart from increasing their personal income, the farmers in the village were favored with the following improvements brought about by the accumulated surplus of the factory: 1) All the households (916) were installed with running water which improved the sanitary conditions of the drinking water, 2) A concrete road through the village, 5,000 km in length and 15 m in width was built up, 3) A closed-circuit TV system was installed for 95% of the village households.

There are four such tea factories with about 100 trained technicians in the county now, which is a solid foundation for further development of the tea industry in the county.

c. Demonstration site for propagation of good tea varieties in Fuyang County.

It was set up jointly by five individual tea smallholders in 1988. At the site, TRI scientists offered not only technical advice but also provided cuttings of good tea varieties which were bred at TRI. In 1988, about 600,000 tea plants of the best varieties, such as Longjing 43, Biyun and Longjing-changye were propagated and distributed to tea areas in Hunan, Anhui, Jiangsu, Jiangxi and Zhejiang Provinces. The gross income of the smallholders was up to RMB 36,000 yuan. It is estimated that 1,200,000 tea plantlets were produced from the site in 1989. This will play an important role in the popularization of good tea varieties developed at research institutions.

d. Demonstration site for producing a special compound fertilizer for tea in Shangyu County.

Based on a fertilizer formula developed through years of experiment by TRI, the Shangyu Fertilizer Factory began to produce a special compound fertilizer for tea in 1987. The fertilizer products were distributed by TRI to tea areas according to the different soil conditions. In 1988, the factory produced 25,000 tons of compound fertilizer, which were applied to about 24,000 hectares of tea fields in Zhejiang, Jiangsu and Fujian provinces, and resulted in an increase of 250 tons of made tea in total.

2. Effective Information Services

Publication is one of the main methods of information services in China. Since implementing the project, 289,500 copies of four periodicals, i.e., *Journal of Tea Science*, *China Tea*, *Tea Abstracts* and *Tea News* have been published and a vast amount of information has been therefore distributed to clients at different levels throughout the country.

Twelve issues of *Tea Technology Leaflet*, designed to introduce practical techniques and successful experiences to tea farmers, have been published so far. Much positive feedback from tea farmers has been received. For example, a technical article, titled "Efficiencies and Application Methods of Special Compound Fertilizer for Tea" was published in the issue of February 15, 1989. We received many letters from tea farmers, in which we were told that it was very helpful for them because they learned from it why and how to use the compound fertilizer. To meet the demands of tea farmers from various provinces of China, each issue was increased to 1,500 copies from the 1,000 copies of the first six issues, which was planned in the project proposal. Totally 24,000 copies of the *Leaflets* have been published. Furthermore, three *Tea Farmers' Pocket-books* covering black and green tea processing, pests and disease control and regeneration of low-yield tea fields have been published and distributed totalling 15,000 copies. These pocketbooks are written in simple language and are easy to understand. So they are used for not only the materials in the tea farmer training courses but also as useful tools in actual production. In order to improve the tea farmer training courses, two sets of video tapes and three sets of slide shows have also been produced.

Face to face advisory services are very important to disseminating information and technology to tea farmers. Therefore, eight TRI scientists have been posted to tea demonstration sites offering day-to-day advisory services. All the information products have been disseminated to the sites by the scientists. In addition, three tea farmer training courses have been held with 160 participants. These participants, mainly technicians of technical extension units at the county level from ten tea-producing provinces, play an important role in tea production.

In addition to the face-to-face services at fixed sites, we also keep in communication with more than 1,000 agricultural extension technicians and tea farmers throughout China by mailing our information products to them regularly. Among more than 400 feedback letters, 70% said that they were remarkably benefitted from our services. Furthermore, we have replied to more than 2,000 letters from tea farmers to answer various technical questions on tea production.

On overseas academic exchanges, TRI has established relationships on document delivery, and exchange of publications with forty organizations and institutions in Kenya, Indonesia, Malaysia, Sri Lanka, India, Japan, USSR, England, USA, France, Federal Republic of Germany, etc. The exchanged documents are mainly *Journal of Tea Science*, *China Tea* and *Tea Abstracts*. The project leader and manager who visited Indonesia and Malaysia in March, 1989 have established relations with scientists and information personnel of those two countries and the academic exchanges will be further developed in the future.

3. Improvement on capabilities of information services

At present, there is a shortage of funds for development of an information industry in China. However, helped by IDRC, the Information Department of TRI purchased some library equipment and furniture, two IBM PS/2 microcomputers, one laser printer and one photocopier, so that the working conditions are obviously improved. Two librarians were sent to be trained in generating machine-readable databases with Micro CDS/ISIS software in the Sciencetech Documentation and Information Centre, Chinese Academy of Agricultural Sciences in Beijing. Two information specialists were also assigned to attend a training course on New Information Technology and Computerized Library Services at the Asian Institute of Technology, Bangkok, Thailand. All these are beneficial to improve the capabilities of information services offered by the Department. For example, the microcomputers are now used in daily work, especially in the work of establishing a bibliographic database on tea production and marketing.

On the other side, information work and services of the Information Department have also been promoted to a higher level. For instance, lots of work and services, mainly services to tea farmers and international documents exchange, have been developed since carrying out the project. In addition, the Information Department has won the information achievement prize issued by the Commission of Science and Technology of Zhejiang Province and the excellent journal prize issued by the Agricultural Society of China.

Conclusions

Offering information services is an important way to transform technology into productivity. Concerning the actual production and offering of information services, there are some successful case studies for comprehensive information institutes, but not for a small information department in a special research institute, such as the Information Department of TRI. One important conclusion has been realized by carrying out the project. In addition to offering information services by itself to the target audience, it is more important for the department to participate in a team of multi-disciplinary scientists, which is organized by the institute leader for doing extension work. In the team, the information department takes the role of information support by providing suitable information products, making the scientists' extension work more effective.

Another conclusion is that some representative clients should be selected and communicated with frequently. For instance TRI pays more attention to the extension work at demonstration sites and the its communications with more than 400 tea smallholders. As a result, the achievements from the sites and the smallholders are more attractive to the general clients. On the other hand, some technical problems can be discovered from the sites and the smallholders, which makes our extension work and information services more directed toward actual production.