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La présente série est réservée aux documents issus de colloques, aux rapports internes et aux documents techniques susceptibles d'être publiés plus tard dans une série de publications plus soignées. D'un tirage restreint, le rapport manuscrit est destiné à un public très spécialisé.

Esta serie incluye ponencias de reuniones, informes internos y documentos técnicos que pueden posteriormente conformar la base de una publicación formal. El informe recibe distribución limitada entre una audiencia altamente especializada.
New Horizons in Agricultural Information Management

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Resources of Chinese Agricultural Documents and Their International Exchange

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Abstract
About 1 million agricultural documents were produced and over 28,000 agricultural books were published in China during the past forty years. In 1988, there were 900 periodicals on agriculture and biology. In addition, a large quantity of grey documents are produced every year. Since the 1980s, guided by the policy of reform and opening up to the outside world, the Chinese agricultural documents have joined the ranks of the major international agricultural information sources and have played their proper role in the development of agriculture in the world by cooperating with the three largest agricultural databases in the world, CABI, AGRIS and AGRICOLA; by establishing relationships to exchange books and periodicals; by cooperative publishing and circulation of books with foreign publishers; and by publishing books translated into foreign languages.

China’s development is based on agriculture. In its long history of development, the Chinese of various nationalities have accumulated rich experiences in agricultural production and animal husbandry. There have been many ancient great scientists such as Fan Shengzhi, Jia Sixie, Wang Zhen, Xu Guangqi, etc.; and at the same time, rich agricultural documents were left for us, such as the book Chi Min Yao Shu (Essential Ways for Living of the Common People) which is an agricultural encyclopedia of the 6th century, and the book Nong Zheng Quan Shu (Comprehensive Treatise on Agricultural Administration), etc. These agricultural documents not only belong to the Chinese people; they are also part of the precious cultural heritage of all peoples in the whole world.

Before the founding of the People’s Republic, China’s agriculture had stagnated and her rural areas were destitute. After the founding of new China, agriculture was rehabilitated and has been developing rapidly. During the past forty years, China has made great strides forward in all agricultural production, scientific research and education; and consequently, a large quantity of agricultural documents have been produced, totaling nearly 1 million papers as revealed by a recent survey. Beginning in the 1980s, the quantity of agricultural documents has rapidly increased, with an annual increment of 50,000 papers before 1985 and 70,000-80,000 papers after 1985. Of these, one-third are popular papers and about 10,000 are valuable academic papers. They appear mainly in books, journals, periodicals, newspapers and grey documents.
following is the situation of publishing and production of agricultural books, journals, periodicals, newspapers and grey documents, and their international exchanges.

I. Publishing of Agricultural Books

China has published a large number of books on agriculture and biology during the past forty years. According to the National Bibliography and the National New Books, over 28,000 titles of books on agriculture and biology were published from 1949-1987, with their contents involving all fields of agriculture and biology.

1. A large quantity of materials on experiences in obtaining a bumper harvest by the farmers and on popular agricultural sciences are published by publishers at the central level and local publishing houses in various parts of the country, and receive a wide circulation. They are well accepted by the farmers due to their rich contents which are easy to understand and referred to by the farmers as "teachers without opening their mouth."

2. About 160 titles of works on agricultural history were published, among them, Fan Sheng Chih Shu (an agricultural book of China written by Fan Sheng Chih in the 1st century, B.C.) and Chi Min Yao Shu were also published in English editions which are welcome by foreign friends.

3. A complete set of agricultural teaching materials was published. In the early 1950s, China's agricultural universities, colleges and middle schools mainly copied the teaching materials of the Soviet Union which are distinct from practices of agricultural production in China. Therefore, over 200 titles of teaching materials were published one after another starting from the late 1950s. These teaching materials have been continuously revised, enriched and recomposed; and teaching materials on new disciplines are published in order to make the teaching materials reflect the current development of science and technology.

4. A number of monographs on agriculture and biology with a high academic level were published. Many important monographs were written by Chinese agricultural scientists based on the results of their scientific research and on summing up the experiences of farmers in agricultural production. In the 1960s, monographs on the cultivation of a dozen crops, and monographs such as Infectious Diseases of Domestic Animals in China, Chinese Veterinary Acupuncture and Moxibustion, Fresh Water Fish Culture in China, etc., were published. Since the 1980s, monographs on the cultivation of another 22 crops have been written or recomposed, such as Rice Cultivation in China, Hybrid Rice Breeding and Cultivation, Maize Cultivation in China and Pomiculture in China, etc.; and over 100 good monographs have been published on significant achievements in scientific research of agriculture and biology such as Vegetation of China, Wheat Cultivars and their Pedigree in China, Illustrations on the Distribution of Droughts and Floods in the Recent 500 Years in China, Technology of Bio-gas in China, Principles of Tea Biochemistry and Techniques for Afforestation of Major Tree Species in China, etc. At
the same time, a number of famous works on agriculture in the world translated from English, French, Japanese, Russian and Hungarian, etc., were published.

5. A large number of books on the resources of agriculture and biology in China have been published. China has rich resources of agriculture and biology. During the past forty years, large scale surveys and investigations have been conducted on natural and agricultural resources in China, and based on their results, the following books have been published: *Flora Republicae Popularis Sinicae, Fauna Sinica, Fauna of Economic Insects, Flora of Trees in China, Flora Yunnanica, Flora in Hubei*, as well as many other books on varieties of livestock, poultry, crops and fish, etc. Many books were also published in various provinces, autonomous regions or cities on the local animals, plants, crops, precious trees, livestock, poultry, fish, soils, climates, etc. All those publications provide us with basic data on agricultural and biological resources and are significant for their rational development and utilization.

6. Many dictionaries and reference books on agriculture and biology have been compiled and published. During the past forty years, many dictionaries, wordbooks for names of plants, animals and insects in Chinese-English, Chinese-Japanese, Chinese-Russian, Chinese-German, Chinese-French and Chinese-Latin in various disciplines in agriculture and biology have been compiled and published by compiling and translating committees affiliated with the Chinese Academy of Sciences and various publishing houses, e.g., *English-Chinese Dictionary of Agricultural Science and Technology, English-Chinese Veterinary Dictionary, Japanese-Chinese Agricultural Dictionary, Russian-Chinese Agricultural Dictionary, German-Chinese Dictionary of Agricultural Machinery, French-Chinese Dictionary of Forestry, and Dictionary of Seed-plants Names* (Latin-Chinese-English), etc. Beginning in the 1980s, some large volume reference books like *China Agricultural Yearbook* and *China Forestry Yearbook* have also been published. Meanwhile, the volumes on *Water Conservancy* (1st and 2nd parts), *Forestry* (1st and 2nd parts), *Sericulture, Tea, and Agricultural Meteorology* of the *Agricultural Encyclopedia of China* have been published, and the other volumes are to be published one after another in the near future. The *Agricultural Encyclopedia of China* consists of 25 volumes in 31 parts, which highlight knowledge on agricultural sciences in both ancient and modern times, at home and abroad.

**II. Agricultural Periodicals and Newspapers**

Agricultural periodicals, newspapers and biological journals closely related to agriculture are important parts of the resources of Chinese agricultural documents. They are the main forms for reporting scientific research results, exchanging information about agricultural science and technology, and popularizing agricultural knowledge. According to statistics, there have been 900 titles of periodicals and newspapers on agriculture and biology published at prefectural or higher levels since the 1980s. Among them, there are more than 70 newspapers on agriculture, farmers, agricultural science and technology and information for getting rich, and so on; 516 journals on agriculture and biology are registered at the provincial (or municipal) level, of which 130 titles are
approved for international exchange and 300 titles are internal journals for exchange at home.

Those periodicals can be classified as follows based on their compiling organization, target readers and the contents of papers.

1. Academic Journals

The academic journals are mainly compiled and published by institutions of scientific research on agriculture and biology, universities and colleges, and associations or societies at provincial or higher levels, with their main contents of reporting scientific research results, and academic activities and papers, such as *Acta Botanica Sinica, Acta Genetica Sinica, Acta Microbiologica Sinica* and *Acta Pedologica Sinica* by the Chinese Academy of Sciences; *Scientia Agricultura Sinica* and *Acta Sericologica Sinica* by the Chinese Academy of Agricultural Sciences; *Scientia Silvae Sinicae* by the Chinese Academy of Forestry Sciences; and *Acta Agronomica Sinica, Acta Veterinaria et Zootechnica Sinica* and *Acta Horticulturae Sinica* by the Chinese Agricultural Association; journals published by agricultural universities or colleges such as *Acta Agriculture Universitatis Pekinensis* and *Journal of Nanjing Agricultural University*; and journals published by provincial academies of agricultural sciences, such as *Soybean Science, Bulletin of Botanical Research, Entomotaxonornia* and *Bamboos Research*, etc. Those academic journals highlight the levels and trends in research in agriculture and biology in China. They are the core journals of various disciplines in agriculture and have the highest density of agricultural information. Most of them can be used for international exchange.

2. Technical Journals

The technical journals are of intermediate level compiled and published by agricultural research institutions at provincial or higher levels, carrying mainly technical papers, with some papers reporting results of some scientific research, and few theoretical papers, among these are *Shanghai Agricultural Science and Technology, Sichuan Agricultural Science and Technology, Yunnan Agricultural Science and Technology, Journal of Agricultural Engineering* and *Chinese Journal of Animal Science*, etc. They make up one-third of the total number of agricultural journals and are important channels for technical exchanges at home. Some of them can be used for international exchange.

3. Semi-technical Journals

The semi-technical journals are mainly compiled and published by agricultural departments in the central and local government, such as *Land Reclamation in China, Chinese Forestry* and *Heilongjiang Agriculture*, etc., through which the governmental departments give guidance to agricultural production and popularize agricultural techniques and experiences.
4. Popular Journals

The popular journals which have farmers as the target readers are at the primary level mainly for introducing practical techniques, operational procedures and experiences in agricultural production, such as *Digest for Farmers* (Beijing), *Knowledge on Agriculture* (Shandong), *Rural Scientific Experiment* (Jilin), *Advice to Rural Families* and *Popular Flowers*. These kinds of journals are published in every province or autonomous region, have large circulations and are well accepted by the farmers, for example, the first three mentioned above had an annual circulation of 2,030,183; 450,825; and 258,000 copies respectively in 1987, and the others all have an annual circulation of over 10,000 copies.

5. Journals of Translated Articles

There are about forty journals of translated articles compiled and published by various agricultural research and education institutions and publishing houses for reporting new theories, techniques and methods relating to agriculture in foreign countries. They report timely proceedings of important conferences and symposia, and results and technical data of scientific research in every discipline of agriculture in the world, thus removing language barriers for Chinese scientists to gain access to the agricultural situation in foreign countries. Therefore, they are highly welcome by scientists.

6. Journals for Retrieval

There are 39 journals for retrieval published in 1989 including agricultural abstracts and bibliographies, which report on an annual 90,000 titles, to be used to establish a retrieval system for Chinese agricultural documents, which will be further developed into an integrated system with the three functions of data accumulation, reporting and retrieval.

III. Grey Documents

Grey documents are materials which are exchanged between organizations of agricultural scientific research, education and production, and are usually not for sale. They are mainly papers of specialized seminars, meetings on work and symposia, annual reports, research reports, proceedings, results of research, reports of surveys and investigations on the agricultural situation at home and abroad, treatises and patents, etc., and documentation on agricultural machines and products produced by various agricultural organizations. They are the primary documents which contain new and wide ranging contents, thus, drawing much attention from agricultural scientists and technicians. These materials are in large quantity with some of them later on published in journals or in books after being processed and many of them are listed as references (making up about 11% of the total references) in papers published in journals and books.
The agricultural books, periodicals, newspapers and grey documents are an unexhausted substantial treasure which provides us with rich experiences in agricultural production, records numerous agricultural and biological resources, and reports many new theories, techniques and methods, thus reflecting agricultural development and technical progress, and providing us with essential data for the future development of agriculture in China.

IV. International Exchange of Chinese Agricultural Documents

As stated above, China has rich resources of agricultural documents reflecting agricultural theories, experiences in production and results of scientific research which are significant to the development of agriculture in the world. China has a long history of exchanging agricultural documents with various countries the world over. However, implementation of the policy of reform and opening up has ushered in a new stage for the international exchange of agricultural documents in the 1980s. Now, along with rapid development, changes are taking place in science and technology with each passing day. The development of technology in communication and transportation is making the earth become smaller and the distance between countries become shorter, so that peoples of all countries are living in a world where they make contributions to each other and depend on each other for their existence. There is no state boundary for science and the resources of documents are the common wealth belonging to the peoples of the world. Today, no libraries or information centers in any one country can collect all documents in the world and promptly deliver them to their users. Therefore, international cooperation and sharing of information resources have become important developing trends.

China has been actively promoting international cooperation in the exchange of agricultural documents since the early 1980s. We started an effective program of cooperation with CABI and by the end of 1989, we had provided CABI with 6,310 English abstracts of Chinese agricultural documents which will enrich the CABI database, enhance the authority of CABI abstract journals, and introduce to the world the results of agricultural science and technology research in China. At the same time, China uses the CABI tapes for retrieval of documents which is also beneficial to the research of agricultural science and technology in China. In 1985, supported by IDRC, the AGRIS tapes were introduced into China. Meanwhile, the bibliographies of Chinese agricultural documents began to be input systematically into the AGRIS database. By the end of 1989, the input totalled 11,500 records and in 1990 the annual input will be 6,000 records. This makes a further step for Chinese agricultural documents to join the ranks of internationally circulating agricultural information and to be used by more and more agricultural specialists and scholars in various countries. We often receive letters from foreign countries seeking to acquire photocopies of original papers. In 1987, we established a cooperative exchange arrangement with the U.S. National Agricultural Library, and the AGRICOLA tapes and CD-ROM were introduced to China. So far, CABI, AGRIS and AGRICOLA, the three largest agricultural databases have been introduced to China, thus, providing the prerequisites for Chinese
agricultural scientists, technicians and teachers to search and use agricultural documents of the world.

During the past ten years, China has actively established relationships to exchange books and periodicals with international agricultural organizations, agricultural scientific research and education institutions, libraries, information centers, and governmental departments in various countries of the world in order to have a wide range of exchanges in agricultural science and technology. Now, the Chinese agricultural libraries and information centers use nearly 100 different agricultural journals and important books to exchange with more than 200 organizations in over fifty countries, thus, gradually introducing the Chinese agricultural documents to the world.

Every year China publishes about 1,300 titles of agricultural books, but very few of them are sold abroad due to language barriers and blockage of circulating channels. Since the 1980s, the Chinese publishers have made efforts to strengthen cooperation with foreign publishers in publishing, selling and circulating books so that Chinese agricultural books are now beginning to be introduced to the international book markets. Now, publishing houses have noticed that the language barrier is a major reason for difficulties in selling Chinese agricultural books and periodicals. Therefore, some foreign language editions of books have been published such as *China Agriculture Yearbook, Chinese Farmland and Water Conservancy, Advances in Current Research of Soils in China, The Rhododendrons in China, Proceedings of the Symposium on Tea-Quality-Human Health,* and *The Taigu Nuclear Male Sterile Wheat in English; Rice Cultivation in French; Hybrid Rice in Chinese and English; and Experiences on Fish Raising* by Fan Li (a classic) in multiple languages, etc. These publications have attracted attention from foreign publishers and agricultural circles. I am confident that the Chinese agricultural documents will surely make their own contributions to the world through international exchange of agricultural science and technology by introducing more and more Chinese agricultural documents to the international agricultural databases and publishing more books in foreign language editions.

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