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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.
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Present Situation and Strategy of Development in Information for Agricultural Science and Technology in the East China Administrative Area

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Abstract
This paper deals with the favorable conditions and the advance of information work in agricultural science and technology in the East China Administrative Area. Establishment of a regional network for agricultural information is proposed. Modernization of agricultural information and further exploitation and utilization of agricultural information resources in East China is discussed. Opinions of fundamental approaches and specific measures for reforming and bringing out new ideas to work in agricultural information is explained.

The East China Administrative Area, which includes Zhejiang Province, Jiangsu Province, Jiangxi Province, Anhui Province and Shanghai Municipality, is a region with well developed economy and culture in China. It has favorable natural conditions, and abundant resources both of organizations and manpower. Its agriculture is relatively advanced, with many agricultural schools, research institutes and a great number of personnel engaged in agricultural science and technology. The requirement for agricultural information is therefore very urgent and thus heavily promoted as well. In this region, resources of agricultural information are plentiful and well managed. Since the Third Plenary Session of the Eleventh Central Committee of the Communist Party of China, a strategy for economic development in the sea coastal region and an open policy have been formulated which provide favorable conditions for further developments in agricultural information.

Favorable conditions for further advances in information for agricultural science and technology

In the East China Administrative Area the level of culture and education is rather advanced, personnel of science and technology are numerous and people in the rural areas are more educated than in other places in China. A new generation of educated farmers is growing up, and large numbers of family farms specializing in animal husbandry, aquaculture and crop production are emerging. They are the greatest consumers of agricultural information.

There are six agricultural colleges or universities in the East China region, with large numbers of well-qualified teachers. In addition there are more than twenty professional
schools and training schools of agriculture. Resources of agricultural technicians are plentiful.

In this region there are many higher level agricultural research organizations, for example the well known China National Rice Research Institute, the Institute of Sericulture and the Institute of Tea, as well as provincial and municipal academies of agricultural science, entrusted with major research programs of the country. They carry out frequent exchange with foreign countries and collect large amounts of information from abroad. They are both producers and consumers of agricultural information who act as the main force in producing, transmitting and using the agricultural information.

This region has a population accounting for 29.2% of the total population of the country, while its area of farmland is only 22.5% of the total farmland of the whole country. With scanty farmland per capita, the fundamental way out for agriculture lies in the development of science and technology. Therefore input of scientific research in this region is considerably large and many more research programs are undertaken. As a result, agricultural information is more sought after. This region is rich in cotton, tea, silk and other cash crops that are suitable for foreign trade, so its information work has local applications.

Many cities and towns are concentrated in this region. Industrial development in cities has been bringing along the progress of industrial and agricultural production and supporting economic development in rural areas and small towns, offering a wider market for agricultural information. Many farmers come to seek advice from information institutes in agricultural academies and purchase technological documents, others enroll themselves in training schools of various subjects in order to make themselves wealthy through applying technical methods. Agricultural information specialists are being confronted with new charges.

**Present situation of information for agricultural science and technology**

Institutes of information for agricultural science and technology have been established in succession in municipal and provincial agricultural academies in East China since 1987, and libraries have been incorporated in these institutes so that agricultural information and libraries are more closely linked together. The staff of provincial or municipal institutes of information, usually consisting of about forty people, undertakes mainly the editing and publication of periodicals and pamphlets in agricultural sciences and technology, review of information, retrieval service, technological advisory service and document delivery service. The department of information and documentation in libraries of colleges and universities is responsible for collecting, processing and reporting information as well as the retrieval service and selective dissemination of information (SDI) for education or scientific research. In agricultural institutes at the prefecture level, an information station is established to carry out information services to grass-roots units of agricultural production and scientific research. A system linking the provincial, municipal and grass-roots levels of information service has been estab-
lished, making agricultural information easily accessible and promoting the transformation of scientific and technological information into productive forces.

The capacity for publication of agricultural books and documents in East China is quite high. More than fifty periodicals are being published and one to two hundred books are issued annually. Library collections in agricultural colleges and universities are plentiful. In the Jiangsu Provincial Academy of Agricultural Sciences, about 140,000 volumes of books and periodical have been collected. Decades of its periodicals are internationally known and subscriptions to them began from the initiation of their publication. There are also some books from abroad and periodicals and documents in Chinese and foreign languages published before liberation. In institutes of information in the Zhejiang Provincial Academy of Agricultural Sciences and the Shanghai Municipal Academy of Agricultural Sciences the library collections are abundant, too. Many of their valuable information resources are awaiting further exploitation and utilization.

Management of agricultural information has begun to be carried out with computers. In order to improve the utilization ratio of documents, the establishment of a document database of specialized subjects has been analyzed and put into practice. In the Institute of Information of the Shanghai Municipal Academy of Agricultural Sciences, a document database specializing in edible fungi has been established, and, in cooperation with the Shanghai Institute of Plant Physiology, online retrieval on a database of biological engineering is carried out. The Institute of Information of the Jiangxi Provincial Academy of Agricultural Sciences has set up its own "agro-biological technology information database" and "library collection database," in addition to its responsibility as the AGRIS Sub-centre in East China to share in setting up the AGRIS (the International Information System for the Agricultural Sciences and Technology) database.

The establishment of document databases on specialized subjects and selected dissemination of information services is being carried out. Up to now, however, service in covering and manually retrieving documents has been stressed. From now on service in patent information, market information, and sound and images, etc., will be carried out.

Plan for development of information work for agricultural science and technology in East China

East China is not only rich in information resources and technical force, but also full of users of information. As a base of agricultural information production, it has a duty to take the lead in exploiting agricultural information resources and applying modern information techniques. It is of great importance to establish an information industry with regional features of East China.
1. Joint exploitation and utilization of information resources through a network in the East China Administrative Area for agricultural information in science and technology.

Ours is a developing country with a large population and wide territory but limited financial capacity. Dispersed information resources and technical force should be concentrated through setting up a specialized information network linking together institutes of information in provincial and municipal agricultural academies and libraries in agricultural universities to make full use of their agricultural information resources. In order to share information resources, it is suggested that the information network take charge of coordinating library collection development and information processing in the region, exploiting new techniques, creating databases, training the working personnel, setting up joint directories and sharing the establishment of library collections databases.

On the basis of the information network of East China and incorporating information stations of the region, prefecture or county level a linked system of information service can be formed which will accelerate the transformation of scientific and technological information into productive force through joint exploitation and utilization of information resources, technical exchange and popularization of scientific and technological achievements.

2. Establishment of an area-wide search network of agricultural information among administrative areas will realize sharing of information resources.

In developing documental information and modernizing information work, it is necessary to establish a network which ensures close cooperation and sharing of resources among information units. The establishment of China’s comprehensive bibliographic database of agricultural information and its computer retrieval network is a large system engineering effort that needs a large investment and can only be realized step by step. At first, it is suggested that we set up an online retrieval service center among administrative areas through the linkage between the AGRIS Sub-centre in East China and the China AGRIS Centre. Then, in two or three years, a network of microcomputer retrieval and a facsimile system within the administrative area will be set up by linking up information departments in provincial and municipal agricultural academies and libraries in agricultural universities. In the second stage, we should strive to establish a secondary network of information retrieval within the administrative area by the 8th Five-year-plan using the institute of information of the provincial academy of agricultural sciences as the node, and connecting information stations of the agricultural institutes at the county level. In the third stage, we should consolidate and refine the construction of the network. The AGRIS Sub-centre in East China should be further equipped with super-microcomputers to produce various sub-databases of agricultural literature to offer direct online retrieval services. It is expected that the computer network for agricultural information retrieval will cover the whole administrative area of East China by the end of this century.
3. Promoting the study and production of databases to form an information industry.

If the database is to be the foundation of the network of information retrieval, it should meet practical needs in education, scientific research and production. In order to avoid duplication in document collection and database construction, it is desirable to organize a combined body and formulate common criteria for division of labor. According to characteristics of agricultural production and scientific research, various kinds of bibliographic databases, transaction databases and numerical databases should be set up, e.g., germplasm resources database, ecological agriculture database, agrobiotechnology information database, appropriate rural technology database, agricultural products market information database, agricultural scientific research achievements database, agrotechnological personnel database, etc. By joint study and exploitation, a series of information products can be developed and offered to the whole society through the network system.

4. Carry out more intensive study on the science of information and extend the realm of information service.

It is desirable to launch a study to determine major or key projects and important policies for the development of agriculture on a national level. Specialized and coordinated research groups should be organized to provide valuable strategic and tactical information through a wide-range of collection, processing, sorting out and analysis of documents. We will strive to make information work pioneer in scientific research.

In order to meet the needs in the development of modern agriculture, information services should no longer be limited to abstracting or document service, and not be directed only at scientific research, but also offer economic information to agriculture for foreign trade. It should also serve the small town industry with market information and appropriate techniques and offer technical advice to various specialized producers in rural areas.

The prospect of information for agricultural science and technology in the East China Administrative Area

As the reformation of the economic system goes forward, information for agricultural science and technology will be shifted from unitary document service to multifunctional and comprehensive service systems. The printed document will not be the only carrier in the transmission of information, electronic high-density storage techniques will be widely used. Various kinds of information will exist in the form of databases which will become the main products of the information industry. Besides the traditional manual examination, documents can be consulted and information can be obtained from the database through various retrieval systems. People will no longer worry about the "information explosion."

Just before the 1990s, the information for agricultural science and technology in the East China Administrative Area will step into a new period of development. Its main aim is to establish a network system for agricultural information retrieval. After the
establishment of China’s comprehensive bibliographic database of agricultural information, online services in East China can be launched to realize the sharing of database resources, while the AGRIS Sub-centre in East China plays the role of a bridge in database establishment and information service. East China will take the lead in setting up a regional microcomputer retrieval network and a facsimile network and will command a system of agricultural information using modern technology.