

Volume 1

Number 1

June 1988

Academic Librarian

Journal of the
Kerala Academic Librarians Association

Focus on agricultural Information transfer

Ernest J. Mann

DRAMATIC developments have taken place in information transfer during the last 15-20 years, with the introduction of computer technology-developments that are undergoing almost daily change and that will have an ultimate impact on our time-honoured ways of generating and accessing scientific information that is, as yet, difficult to assess.

A distinguished American professor predicted confidently just over 12 years ago, that the scientific journal as we know it would not exist in 10 years time. He was confident that all the information contained in scientific journals would be available only in machine-readable form and accessible only via computers.

Although experiments in that direction have taken place and are still taking place, the fact is that new scientific journals appear almost daily and that the number of such journals is almost certainly greater today than it was 10 years ago.

The human race does not quickly adapt itself to changes in well-tried habits, regardless of technology. Nonetheless, the conversion of static printed titles and abstracts into mobile 'information units' in machine-readable form, and the increasingly easy access to these 'information units' via electronic media, has already revolutionized our information seeking habits and will continue to do so.

New technology

For the producers of secondary information service, technologically related changes will mean a gradual shift in the usage pattern of their databases, from the printed version to the machine-readable version, and those database producers whose livelihoods depend on the income from the sale of information products will have to monitor the changes carefully, and adjust their pricing policies accordingly.

Already, some major scientific databases are deriving over one-third of their total income from the sale of information in

machine-readable form. This proportion is likely to increase although it is difficult to predict at what rate.

The advent of the compact disk, enabling end-users to store and have direct access to large databases in their own offices via personal computers, without having to use on-line vendors, will add another new dimension to scientific information transfer, the impact of which is likely to be very considerable.

The gigadisk, which is a sort of giant compact disk with vastly increased storage capacity, could eventually be used as a back-up information store of original articles abstracted by secondary information services, in order to provide document delivery services. The operational costs involved, however appear at the present time to be too high to be practical for smaller individual information services.

Information services

There are other changes taking place in scientific information transfer that could ultimately have a profound effect on database producers, especially abstracting services. There has been a growing awareness among scientific editors of primary journals of the importance of the abstract as an information transfer medium.

The pioneering work of editors association, such as that of the European Life Science Editors (ELSE), has contributed toward an improvement in these abstracts.

Those of us in the information transfer business have always taken the view that we are effectively providing a service to primary publishers by disseminating abstracts of their publications throughout the world, especially in so far as the non-mainstream literature is concerned.

However, there have been indications of late, that the dividing line between primary information publishers and secondary information services is likely to disappear. Primary publishers, especially those of mainstream scientific journals, are beginning to realize that abstracts are a saleable commodity in themselves, and they may well be tempted to go into the secondary information transfer business rather than to allow others to benefit from their efforts.

With the increasing introduction of advanced computer technology into printing, abstracts can be made available readily in machine-readable form well before they are published in the primary journals.

The fact that some primary journal publishers are using copyright law to make it more difficult for secondary information services to simply 'lift' abstracts for inclusion into their databases is another possible pointer in that direction. Agricultural information services need not be too worried about such possible trends, because such a high proportion of the literature they monitor is not of the mainstream type, relating instead to the thousands of small agricultural and agriculture-related journals and publications.

Nonetheless the impact could still be significant—according to classical information analyses, some 50 per cent of the mainstream literature in any given discipline is published in 100 to 200 core journals.

These 'core' or mainstream scientific journals, published by the major publishing house, might not be as readily available for processing by secondary information services in the future as they have been in the past. This is not a threat, but a challenge. Secondary information services must either get into primary publishing themselves or come to satisfactory arrangements with the major publishing houses.

Another challenge that faces scientific abstracting services both now and in the future, is the fact that scientists are showing an increasing tendency to omit abstracts in their information searches, and to rely on current title alerting service plus full texts, which are readily available via improved document delivery services. The main advantages of abstracting services in countering this trend are quality, speed, and good back-up services.

Current status

The history of agricultural information transfer can be put in a nutshell by stating that, in line with the development of scientific and technical information transfer, there has been a primary literature explosion, followed by a secondary literature explosion.

According to the much-quoted Boyle & Buntrock (1973) survey of world agricultural documentation services published in 1973, there were more than 350 documentation and information services in agriculture, none covering the entire field, and many overlapping and duplicating each other. It would be no exaggeration to say that the introduction of computer technology into information processing and dissemination arrived just in time to save us from an information disaster.

Recent advances in computer technology will be one of the major factors influencing the future shape and operation of agricultural information services as well as the degree of co-operation between them.

Without belittling in any way the admirable efforts of many smaller agricultural information services and databases that serve specialized user groups, it is probably true to say that most agricultural information users inevitably think of the big three main suppliers of agricultural information: The International System for the Agricultural Sciences and Technology (AGRIS), the Commonwealth Agricultural Bureaux, (CAB), and the National Agricultural Library (NAL) in the United States of America.

It is an unfortunate fact that agricultural information users today are often confused and inconvenienced by the continuing existence of three major agricultural databases that overlap. While each database contains much unique information, about one-third of each is duplicated in the other two. Even so, the three still fail to completely cover the world's agricultural literature, among them.

It has not escaped the notice of regular agricultural information users that, during the 10 years when the three major services have operated side, by side all three have shown signs of stresses and strains manifested in various forms such as loss of support, late appearance of journals, incomplete coverage, loss of quality, late up-dating of on-line databases, etc.

The major underlying cause of these stresses and strains has, undoubtedly, been financial constraint, which, in turn, may have been imposed by impatient governments showing an

increasing unwillingness to support several international agricultural information services with overlapping and unco-ordinated activities.

A future of co-operation

In June 1984, AGRIS celebrated its 10th anniversary at the Food and Agriculture Organization of the United Nations (FAO), in Rome.

The prime objective of the founding fathers of AGRIS was to merge the large agricultural databases of the CAB and NAL with those of several other databases to form an improved world agricultural information system.

If proof is required for this statement, it can be found in the recommendation of a group of experts, which met at FAO in Rome on 24 October 1969, to the Director General of the FAO that "FAO should sponsor the development of an international information system for agricultural sciences. "Another group of experts was also appointed to evaluate existing agricultural information services and propose possible frameworks for an improved world-wide agricultural information system.

Rightly or wrongly, what emerged out of the numerous meetings and discussions that followed was a third major force in agricultural information services, namely AGRIS, in addition to the existing services of the NAL and the CAB.

We should see the 10th anniversary of AGRIS in a broad, forward looking context, as a spring-board for a programme of co-operation between the three largest agricultural databases, as well as associated databases such as International Food Information Sciences (IFIS), Aquatic Science and Fisheries Information System (ASFA) and others. This could ultimately lead to the creation of a single, co-ordinated, world system for agricultural and food information.

The omens for such an extension of international co-operation are now very good. In many ways: the certain of AGRIS, with its unique world-wide network of over 130 National and Regional Input Centres is providing the necessary framework

and impetus for it. These Centres could and should play a vital part in the collection and dissemination of agricultural information in a more broadly based world system.

A major underlying factor favouring co-operation, rather than competition, is that agriculture has been, and is likely to remain, a subsidized activity, especially in the developing countries. It follows that agricultural research and development, and the information services required to support them, should be regarded as service-type rather than commercial-type activities. Indeed, the information services of AGRIS and the NAL appear to have been conceived with this philosophy in mind.

The CAB was founded with similar objectives and its recent efforts to obtain full international status must be a good omen for international co-operation.

Conviction is growing daily that the future of agricultural information lie in the establishment of one single, co-ordinated, world food and agricultural information service. Drawing its input from national, regional and international sources on an allocated basis, this service should process and index the information by a single system, using a common indexing language and produce a single on-line database.

It should also produce a multitude of different products, including title services, abstract journals, digests of information and Selective Dissemination of Information (SDI) services tailored to the ever-changing requirements of the information user.

The recent advent of compact disks and gigadisks in standardized format, a technology independent of public telephone systems and telecommunications networks, represents a dramatic development with exciting implications both for developed and developing countries.

This technology strengthens considerably the case for agricultural information services investing increasing amounts of their limited financial resources in these and other new techniques, rather than wasting them on duplication or triplification of effort at the data input and processing end.

An increasing number of influential people in the agricultural information world appear to share these views, but others are sceptical about the practicality of this concept. A possible, practical scenario for operating such a service outlined below, is only one of several possible alternatives.

Data Input. Given that the objective for data input is the monitoring and selection of world agricultural literature by a single monitoring abstracting operation, this could be achieved by a sensible division of the world literature among the three existing services. A possible model would be for:

- * the NAL to be responsible for the monitoring of all the US agricultural literature (both conventional and non-conventional) and for feeding the titles (with or without abstracts) into the central database;

- * AGRIS would be responsible, through its network of National and Regional Centres, for the monitoring of all non-conventional, and some conventional literature produced in individual countries or regions, and for feeding the titles, with or without abstracts, into the central database;

- * the CAB would be responsible for monitoring the bulk of the world's conventional agricultural literature (excluding the US literature, and some of the national and regional literature covered by AGRIS centres) and would feed the titles (mostly with abstracts) into the central database.

Indexing: All titles and abstracts from all three sources would be indexed according to identical rules and using a common indexing language based on a unified thesaurus.

Selection of material for abstracting: On the assumption that only a portion of the titles would be selected for abstracting, an Advisory Panel consisting of representatives of the CAB, AGRIS, and the NAL, as well as major user groups should be set up to decide on criteria for selection for abstracting and to provide guidelines for the staff doing the monitoring. The same panel could also provide advice on where the abstracting could best be carried out.

Co-ordinating and data processing centres: Such a service would require a co-ordinating centre. This could be one of the existing centres, a joint venture centre between the existing services, or co-ordination and processing could be contracted out to a commercial organization, if this proved economically, technically, and politically feasible.

Organization and management: Although this would be one of the most difficult areas to solve, it should not be beyond the wit of intelligent men and women to devise a satisfactory organization and management structure for the merging of the activities of two international intergovernmental organizations and one national governmental organization.

All three are united by their common interest in providing an efficient agricultural information service to their customers throughout the world.

The way toward the future

* If there appears to be a yawning gap between where we now stand and the future objectives outlined here, we can be encouraged by a number of events of facts that appear to point the way toward a cooperative future.

* Active co-operation is already taking place between the CAB, the NAL, and AGRIS toward the establishment of a common thesaurus.

* The NAL is thinking actively about limiting its database to the US literature only.

* Some years ago the CAB and AGRIS came close to an agreement on providing a joint forestry information service.

* The CAB was incorporated as an international organization in the United Kingdom of Great Britain and Northern Ireland in 1982, making it easier for the organization to enter into co-operative agreements with other international bodies.

What is needed now is the establishment of a joint consultative panel between representatives of AGRIS, the

NAL, and the CAB to evaluate the possibilities of co-operation in greater depth. Once a comprehensive framework and structure for co-operation and integration has been established, related services such as IFIS, ASFIS, TROPAG (Abstracts on Tropical Agriculture), and others should be invited for consultations on their possible integration into a world service. Indeed, it could well be that the models of international co-operation set by IFIS and ASFIS could provide a suitable basis for co-operation among agricultural information services on a larger scale.

Progress toward co-operation on the lines indicated could be speeded up considerably if the CAB and the NAL were prepared to appoint liaison officers to the FAO in Rome for a limited period of at least two years, initially. Major international projects of this nature can only be realized through a continuing dialogue between all parties concerned.

Conclusion

The existence of several secondary information services in agriculture, far from being a users' panacea, has become a users' nightmare. While the advent of the computer in secondary information processing and retrieval has added dramatic new dimensions in the storage of, and access to, items of information in different databases, it has also served to highlight the problems created by the duplication of effort between different databases, and the quick access by computer often serves as an irritant to the end user, who may find himself paying two to three times for the same item of information.

In a world of plenty, such duplication of effort may have been acceptable, but in the increasingly cost-conscious society in which we live today, there is increasingly less justification for it.

Unless international co-operation can be more effective than at present and unless there is greater rationalization among database producers, especially as regards duplication of effort and output, economic realities and the forces of the market place will see to it that there is a great shakeout is not necessarily what the user requires.