

**BREAKING THE INFORMATION BARRIER :  
A COMPUTERIZED RESEARCH JOURNAL PRODUCED BY AND  
FOR DEVELOPING COUNTRIES**

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**ABSTRACT**

A computerised research journal was launched in Colombia in late 1989, with the specific aim of promoting communication among scientists and decision makers concerned with the role of livestock technologies in rural development in the Third World. Three numbers have been published and the fourth is ready for distribution. Of the forty papers published or in press, 52.5% are in English, 37.5% in Spanish, 7.5% in French and 2.5% in Portuguese. Papers have been received from 14 countries 11 of which are "developing". There are correspondents in 49 countries and four international agencies participating in the distribution network. From replies received so far, support for the concepts and philosophy of the journal is almost universal. Concern has been expressed about the potential risk from virus-infected diskettes. However, no specific cases have been reported. Some readers have expressed a wish for all papers to be translated into English. It is too soon to draw firm conclusions but it is clear that some of the objectives have certainly been met. The journal is being received enthusiastically by the target audience -- professionals in developing countries. The authors and all the papers have their origins in developing countries. The logistics of preparing and distributing the journal have proved to be simple, effective and inexpensive. The time lag between receipt of a paper and its publication is less than two months. The project has a high degree of self-reliance. The journal was launched and is being sustained without external financial assistance.

**RESUME**

*A la fin de l'année 1989, un journal de recherche sur support informatique a été lancé en Colombie dans le but exclusif de promouvoir la communication entre les scientifiques et les personnes chargées de prendre des décisions touchant à l'impact des technologies d'élevage sur le développement rural du tiers-monde. Trois numéros ont déjà été publiés et le quatrième est prêt pour la distribution. Parmi les 40 articles publiés ou en passe de l'être, 52,5% sont écrits en anglais, 37,5% en espagnol, 7,5% en français et 2,5% en portugais. Ces articles proviennent de 14 pays dont 11 sont des pays en développement. Le réseau de distribution est constitué par des correspondants situés dans 49 pays et par 4 agences internationales. Les réponses reçues à ce jour permettent de dire que les concepts et la philosophie du journal rencontrent un adhésion quasi unanime. Certains*

*se sont inquiétés du risque potentiel que présenteraient des disquettes infectées par des virus, cependant à ce jour, aucun cas d'infection n'a été rapporté. Quelques lecteurs ont exprimé leur souhait d'une traduction systématique des articles en anglais. L'expérience est trop récente pour tirer des conclusions définitives, cependant, il est clair que certains des objectifs recherchés ont déjà été atteints. Le journal est reçu avec enthousiasme par le public ciblé: les professionnels des pays en développement. Les auteurs de tous les articles sont originaires de pays en développement. La logistique pour la préparation et la distribution du journal s'avère être simple, efficace et peu coûteuse. Le délai entre la réception d'un article et sa publication n'excède pas deux mois. Le projet présente un bon niveau d'indépendance, le journal a été lancé et est maintenu en activité sans soutien financier extérieur.*

## BACKGROUND

Communication among scientists working in developing countries has always been difficult. There are many reasons for this. International scientific journals are without exception published in the industrialised countries. Their editorial policies reflect the interests of these countries; not those of developing countries. Many of them levy page charges (in hard currency!). They are also highly expensive and beyond the reach of most individual scientists. In libraries and other educational and research institutions in the developing world, budgets are invariably restricted thus it is difficult to subscribe to all, or even a reasonable proportion of, the current journals and research periodicals.

The information published in the scientific journals of developed countries increasingly becomes less relevant to readers in developing countries. This is due to the current agricultural situation in industrial countries where surpluses of agricultural products and concern for human health jointly have had the effect of discouraging applied agricultural research and promoting work on human nutrition.

Scientists from developing countries find it difficult to have their papers published internationally, due often to the impossibility of paying the page charges; or satisfying the editorial requirements.

Finally, there is the delay between finishing a piece of research and having the paper available in print. At least a year on average, and often more, is the lag time. Much of this delay is incurred by time spent in editing and reviewing but in the developing countries, this is compounded by the unreliable postal services.

Fortunately, developments in information technology are rapidly revolutionising the way written material is processed and transmitted. Not only in developed, but also in developing countries, micro-computers and their accessories are becoming commonplace.

CIPAV (Convenio Inter-institucional para la Produccion Agropecuaria en el Valle del Cauca), a Nongovernmental Organization established in 1986 by private sector initiative in the Cauca Valley, Colombia, has as its mandate the

development, transfer, training in and diffusion of, sustainable livestock-based technologies for tropical rural development. A major feature of CIPAV's activities has been to acquire and disseminate appropriate information at all levels. It soon became apparent that conventional procedures for doing this were woefully inadequate and likely to be exorbitantly expensive. The idea of using computer technology to overcome these limitations is not only eminently feasible but is specially suited to the needs of developing countries where information, rather than publications, is (or should) be the first criterion determining the nature of the transmitting medium.

The computerized journal "LIVESTOCK RESEARCH FOR RURAL DEVELOPMENT", the medium for which is the floppy diskette, was conceived and launched in late 1989.

## OBJECTIVES

The long term aims of the journal are:

- To promote the development of livestock production and associated technologies which are appropriate and sustainable, and contribute to self-reliant ecologically balanced rural development.
- To take advantage of developments in computer technology in order to promote faster, easier and less costly communication among scientists active in rural development.

The specific aims are:

- To establish an international forum for reporting the results of livestock research as this relates to rural development, the medium for which will be the magnetic disk that can be written and read by a micro-computer.
- To promote the rapid exchange of research and development-orientated data at minimum cost to scientists and institutions in the developing countries.
- To maintain an editorial policy of promoting those technologies which are likely to lead to increased self-reliance and ecologically balanced rural development.

LIVESTOCK RESEARCH FOR RURAL DEVELOPMENT achieves these objectives because:

- It operates and can be read on the most basic IBM compatible microcomputers and printers.
- It does not require any specialised software or word processing packages.
- It publishes papers as fast as possible, with the minimum of centralised editorial input.
- It is distributed throughout the world, through a network of interested and sympathetic colleagues.

## THE POLICY

The title of the journal is **LIVESTOCK RESEARCH FOR RURAL DEVELOPMENT**. The principal language is English but papers are accepted and published also in French, Spanish and Portuguese. Each paper has a summary and key words in English and in the language in which the paper is written. One volume is published each year, consisting of three or more numbers, each number consisting, on average, of 10 papers together with lists of contents and indices.

## THE NECESSARY EQUIPMENT

**LIVESTOCK RESEARCH FOR RURAL DEVELOPMENT** can be read on any IBM compatible microcomputer with a minimum memory size of 256 Kbytes and one floppy disk drive, either 5.25 or 3.5 inch size. It operates under MS-DOS 2.1 or more. It requires no modification to the CONFIG or AUTOEXEC files, no drivers to be installed and no specialised computer training. It can be viewed on monochrome, non-graphics screens and can be printed out on any printer that can reproduce the standard (USA) ASCII character set. The basic equipment (computer and printer) can be purchased for as little as US\$500, before local taxes and duties. The same equipment will run a word processor and spreadsheet/database which are the essential tools of the research worker.

## THE SOFTWARE AND TEXT FILES

The journal consists of the articles, written in ASCII format (they can be **TYPED** or **PRINTED** from MS-DOS), and a simple software package that allows the user to view the articles and print them out on any printer. The programme **JOURNAL.COM** was written in **TURBO PASCAL** and compiled for efficient operation. It is controlled by the cursor keys, the return key and 6 function keys, with no need for typed commands, except for the initial 'JOURNAL'. A small text file stores the volume details and contents.

Articles can be written using most popular wordprocessors. **CIPAV** specialises in **WORDPERFECT 5** and this can convert files from **WORDSTAR**, **WP 4.2**, **DISPLAY WRITE** and **PROFESSIONAL WRITE**. The only limitations are to avoid tabulations and indents, which must be replaced with spaces, and font changes and other specialist commands which cannot be reproduced in ASCII. Data are presented in tabular form at present, because of the limitations of some computers, printers and VDUs in handling graphics.

## ADMINISTRATION AND EDITING:

The journal is administered through a coordinating editorial centre (CIPAV, Colombia), in close collaboration with the Department of Plant Sciences, Oxford University, UK. There are sub-editorial groups representing each of the four languages and the major continental groupings. The journal is distributed free to sub-editors, to country correspondents and to International Agencies who agree to copy the diskettes to interested participants in their area of influence.

## SUBMISSION OF PAPERS

Papers are submitted on disk (either 3.5 or 5.25 inch), to the regional language sub-editor. Authors are required to have their papers refereed, before submission, by at least two scientists who have both post graduate qualifications and proven experience. A signed statement by the referees should accompany the submission. When authors have difficulty in locating appropriate referees, they should contact the nearest sub-editor who will provide names of suitable candidates. The papers can be written with the aid of any of the major word processing programmes (eg: Word Perfect, Word Star, Word, Display Write, Professional Write). If other word processing packages are used (eg: FRAMEWORK) the paper should be saved in ASCII. The paper can be in any of the official languages: Spanish, Portuguese, French and English, but the preferred format should be followed (see notes for contributors).

For example, a paper originating from an African researcher and written in French should be submitted to the nearest sub-editor (French), in this case Dr C Kayouli, of the Institut National Agronomique, Tunis, Tunisia. The sub-editor will have the final responsibility for acceptance (or otherwise) of the paper and will then send the disk direct to the coordinating centre in Colombia. Similar procedures will be followed by researchers working in other languages and geographical regions.

In order to ensure that the journal can be printed with the minimum of hardware and software, data presentation is restricted initially to tables. These should be written bearing in mind that the final paper will be prepared in ASCII format, thus the text should be written for standard size paper (65 characters x 54 lines, allowing for margins) and tables should not exceed 23 lines in length, so they can be accommodated on a standard monitor and printer. Graphs and similar illustrations will not be accepted in view of the special requirements these impose on printers.

To save time and money, papers (disks) are not normally returned to authors (unless they so wish and are prepared to pay the costs). Papers that are accepted are published as received with only minor editing.

The disks containing the edited papers are received by the coordinating unit in Colombia. Editing is minimal, mainly to ensure uniformity in style of

presentation. As soon as 10 papers are available the particular number of the journal is closed and the table of contents and indices prepared. The journal is copied on both 3.5 and 5.25 inch disks and sent to sub-editors and to institutions and individuals who copy and distribute the disks for individual subscribers.

## **SUBSCRIBERS TO THE JOURNAL:**

Subscriptions to the journal are paid for in the form of one floppy disk (or equivalent) for each number. To receive the journal the potential subscriber simply sends TWO blank disks (3.5 or 5.25 inch) with a return stamped and addressed envelope, to the nearest collaborator. The journal will be copied onto one of the disks which will be returned to the subscriber. The second disk will be retained as payment. Alternatively, payment can be made by cheque or international money order to OXFORD COMPUTER JOURNALS Ltd, 31 Northmoor Road, Oxford OX2 6UR, UK). The yearly subscription is US\$20.00.

## **FURTHER POSSIBILITIES**

LIVESTOCK RESEARCH FOR RURAL DEVELOPMENT is not only a cheap medium for publication; it affords new potential for the transmission of scientific data.

Despite the simple form of the original disks, the journal may be printed on high quality laser printers for retention on bookshelves and in libraries.

Tabulated data in ASCII format can be further processed by the reader by statistical analysis or graphic presentation. The limitations of machine compatibility prevent the inclusion of graphs and diagrams in the journal but the subscriber is recommended to obtain a suitable graphics package such as LOTUS 1-2-3 or HARVARD GRAPHICS, to import the data, and to produce his or her own graphical material from the original data.

Future developments in technology, such as compact discs and other new storage media, will permit further development of the concept and increased capacity for publication.

## **EDITORIAL POLICY**

Present day systems of livestock production in both industrialized and Third World countries are subjected to political, economic and environmental pressures, that infer the need to introduce new production technologies which are more sustainable.

Foreign exchange shortages present an opportunity for developing new production systems using local resources which are less dependent on fossil fuel derived inputs. Environmental pressures will force a decreasing role for fossil fuel and an increasing reliance on renewable biomass. Concern for animal welfare and natural food quality is leading to de-intensification of production systems and incentives for organic agriculture.

Tropical regions are in a strong position to take advantage of these changes, being richly endowed with natural resources in the form of solar energy, soil and water, and biological diversity. Correctly harnessed, these resources can form the basis of production systems which will confer a real competitive advantage to livestock production in these regions.

The last five years have witnessed a marked change in the economic and political pressures to which livestock production is subjected in both industrialized and Third World countries. The conduct of livestock production and the role of food products of animal origin have been influenced profoundly by these changes. As a consequence livestock production strategies are changing and will continue to change in response to these pressures.

Scientists in developing countries should be encouraged to embark on research topics which are responsive to the above issues, and which can be summarized in a single sentence.: *The project should contribute to the development of a sustainable livestock production system.*

In the present context, sustainable means that: natural ecosystems are enhanced rather than threatened; rural-based social structures are strengthened rather than fragmented; local resources are preferred and there is minimal dependence on inputs not produced directly on the farm; production techniques are increasingly directed to the reduction of stress at both animal and human level.

Research against this background may appear far removed from what is currently being published in the scientific journals in the industrialized countries, although already there are signs of impending change. What should be recognized is that research into sustainable systems is a unique opportunity for scientists in developing countries to establish their own priorities, to study new and different resources, and in so doing to set the groundwork for a future competitive advantage rather than the present dependency.

The editorial board seeks to promote the above changes and will encourage the publication of research that relates to the above issues.

## THE IMPACT SO FAR

Three numbers have been published and the fourth is ready for distribution. Of the forty papers, the language breakdown is english 52.5%, spanish 37.5, french 7.5 and portuguese 2.5. The senior authors of the papers are from 14 countries, 11 of which are "developing".

The exact number of diskettes that are in circulation is not known. There are correspondents in 49 countries and four international agencies participating in the distribution network. With the financial support of CTA (Technical Centre for Agricultural and Rural Cooperation, Wageningen, The Netherlands) 1,500 diskettes of Volume 1 No 1 were distributed throughout ACP countries. With support from IFS (International Foundation for Science, Stockholm) a further 160 copies were sent to IFS grantees in Animal Production. From replies received so far, support for the concepts and philosophy of the journal is almost universal and has prompted both CTA and IFS to repeat the mailings for subsequent issues. Concern has been expressed about the potential risk from virus-infected diskettes. However, no specific cases have been reported. Some readers have expressed a wish for all papers to be translated into English.

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