PROCEEDINGS

COMPUTERS AND THE PRIMARY PRODUCER
FIELD MEETING, MILES CIVIC CENTRE AND DISTRICT
OCTOBER 29 & 30, 1982

A joint meeting with the Queensland Branch, Australian Society of Animal Production was held at Miles. On the first day various aspects of the use of computers in primary production were explained and various items of equipment demonstrated. On the second day Devoncourt Hereford Stud at Drillham was visited and the use of computers in stud record-keeping and feeding programmes demonstrated. Pasture and feeding facilities were also inspected.

WHAT THE COMPUTER CAN DO FOR THE PRIMARY PRODUCER

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Computers were first applied to agricultural problems in the mid 1950s. Initially they widened the scope of scientific and economic research. This was followed by application to agricultural census work, animal performance recording, market price and other reporting services. The 1960s saw increasing attention being given to the development of "mail-in" farm record-keeping services, while programs of a problem solving nature appeared in the 1970s.

Queensland farmers have indirectly had access to computers, (large main frames) since 1964, through the Queensland Department of Primary Industries' services, such as the farm management accounting service. They have also indirectly had the benefit of computers used to assist research.

More recently, with the major developments in electronic technology, minaturization and mass production, the cost and size of computers has been cut dramatically. The development of the silicon chip and the micro-computer has brought computer systems within the reach of small businesses including farming.

A computer is basically a dumb machine which can, given the correct set of instructions, undertake numerous mathematical calculations at great speed with unerring accuracy. A computer does exactly what it is instructed to do the first time and every time thereafter. Almost all mistakes a computer makes are the direct result of the programmer's errors.

A survey, earlier this year, of 123 agricultural institutions in Australia and New Zealand revealed 230 programmes being used predominantly in the area of farm management. There were also programmes listed for research, statistics and teaching. Not all these programmes were field operational. Some were poorly documented, not error free and not field tested.

These programmes can be divided into five subject areas with the following examples of programmes in each category:

Animal science

Least-cost rations for pigs, poultry, beef and dairy.
Livestock selection programmes for beef, sheep, dairy, etc.
A programme to evaluate the financial implications of participating in the BTB eradication scheme.

Plant science

Programme to calculate the optimum fertilizer application for a crop.
Programme to calculate the monthly feed supply for up to 10 classes of stock on five pasture types.

Farm machinery and engineering

Financing farm machinery—calculates the after tax cost of finance for farm machinery acquisition. Compares the cost of ownership versus a contractor; and different sizes of machines or machinery combinations.

Irrigation channel design—determines the parameters of irrigation channels.

Farm records—financial

Programmes which prepares cash flow reports, budget comparisons, enterprise reports, annual summaries of profit and loss.

Livestock records for breeding herds (including studs). This assists in selecting the best replacements.

Financial farm management

Beef production strategies—evaluates alternative farm strategies for beef production.

Budget—estimates on-farm costs of production for a range of crop prices and yields.

Presently only 5 to 8% of primary producers can justify on-farm computer facilities. The remainder will have no use for a computer in the immediate future.

Computer Services

Farmers have a choice of two types of computer services—the bureau type and the on-farm system.

The bureau service is centred around a large main frame computer, costing thousands of dollars, which is capable of processing data from many clients. Clients have access to the system through a mail-in-service or interactive terminals linked via the telephone. A mail-in-service does not always provide a timely turn-around of information while a telephone link is technically not possible or the cost is prohibitive in certain parts of Queensland. Bureau programmes have to be general to appeal to a broad range of farmers. This inflexibility can be a disadvantage. The programmes are, however, error free and clients are assured of a good back-up service and maintenance of their systems. A bureau can also provide industry averages with which farmers can compare their own business performance.

On-farm computer systems are much smaller in processing capacity and cost considerably less. The micro-computer allows farmers to use programmes modified for their farm and will give them instant turn-around for data analysis. The full potential of micro-computers has not been realised as few programmes have been written, documented and validated for use. Often those that are available are machine specific. That is, the programmes would require major and costly modifications to change to other machines. A micro-computer suitable for on-farm use will cost about $3 500 to $5 000. Software is extra and needs to be carefully selected for a particular situation. The price of software varies but a complete system—hardware and software—will cost around $3 500–$8 000. For this the producer will have an accounting system, various physical recording systems for both livestock and crops, a data base system and a word processor.

Conclusion

When considering computer facilities for a farm the following points should be remembered.

Examine the requirements and problems of the farm and the weaknesses of the present management or recording system.

Examine the alternatives for solving the problems such as secretarial services, accountants, farm consultants or buying a computer.

If the computer option is chosen it is important that a good set of manual records, both financial and physical, is operating. If there isn't there is not much for a computer to do. A computer will no more fix up the office work than a new tool box will tidy up the workshop.

Select the software (programmes) suitable to your farm.

Select the appropriate hardware (machinery) to run the software.

COMPUTER REGISTRATION OF LIVESTOCK BRANDS

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From May 1, 1872 to 1975 livestock brands in Queensland were recorded by pen and ink in large bound registers. By 1978 when it was decided to computerise the records there were approximately 125 000 horse and cattle brands registered. As well, there were the sheep, pig and goat brands.

The system being developed involves a large main frame computer to which, by STD telephone, a number of micro-computers can be connected. The work of accessing the records is being decentralized out to country officers by the micros.

The system is operated by untrained clerks and typists. They take only 3–4 days to become proficient in the system whilst it takes only five minutes to teach a country officer how to access the system.

The micros are also used for word processing and accounting in connection with the registrations and they can handle symbol brands and ear marks as well as normal alphanumeric brands. The system is coming on line progressively and should be fully operational by January 1985.

COMPUTERS IN THE COMMERCIAL FIELD

F. P. MANNERS

Lockyer Computer Services, 61 Railway St., Gatton

There is much science fiction surrounding computers but they are here to stay. It is not so much a matter of "whether" you buy one but "when". The type of machine being discussed is a micro-computer made up of Central processing unit ($1 500), Disc drive ($1 500), Video monitor ($500) and Printer ($1 000). For this to work, programmes up to a value of $2 500 are needed.

The computer is uniquely capable of manipulating figures and numbers and is as reliable as a transistor radio in its working life.

The farmer using his own or a bureau computer can keep financial records including cash flow analysis, farm physical records including inventories of chemicals and work programmes. He can use it for decision making, for breeding records, for word processing, filing and as a data base.

The need for it should be identified before it is purchased and it is no substitute for the farmers accountant, taxation adviser or other technical advisers. It will however provide a source of information on the farm about the farm which can be used. This information is timely and up to date. It also imposes discipline on the management system in use.

There are three problems: hardware selection, software availability and jargon. Alternatives to ownership are to use DPI services or bureau services. The "off farm" services have access to a wealth of industry information from data collected and analysed across the country. This body is growing. The "on farm" machine on the other hand is a closed system with no connection to the wider information services available. The future however will probably see the integration of information from all sorts of sources.

The future of computers in our every day life is inevitable. They will probably have a greater impact on our social structure than did the motor car. Similarly a network of sales and service centres will develop and the "on farm" micro-computer is assured of a prominent role in the primary industry sector.

JUST PRESS THE BUTTON

I. JONES

C.E.F.N. Stud, Clifton, Qld.

I disagree that people don't need to know anything about computers. The more the users know of them the better, but the best idea is still to get an independent assessment of what is required for your particular situation. The computer is most useful where very large volumes of data are already being kept. Up to a certain level it is better to continue with the manual techniques but because of the individualistic approaches of farmers each enterprise needs its own set up to operate it best.

In our case we run a series of very large piggeries with very complex operations and so we need a lot of information on which to base our management decisions. Presently we use a mini and a micro-computer. The farms are set up on the computers and every animal has to be identified at birth or purchase and removed at sale or death. Every bit of information must also be validated and all errors trapped before they get into the main data base. This requires real programming skills.

All matings, births, deaths, sales, etc. must be recorded so that animals don't accumulate unnecessarily in the records and the data entries must fit the programme. Everything therefore must be planned before the scheme starts to operate. Those who computerise without previous conventional record keeping experience will probably fail.

The detailed operating of the system in use was explained. The data is simple but of enormous volume so a large storage base is essential. This information then has to be digested before it is retrieved and used in the various reports that will permit management decisions to be made. It is also used to identify weaknesses in the operations. To do this reasonable targets for performance are set and only those things which do not reach their targets are printed out for attention by the management.

Before you buy a computer you need to know exactly what information you want it to keep and how you are going to use it. The system must be able to grow with your needs and software and maintenance must be available at a reasonable price in your location.

TRADING ON THE FUTURES MARKET

J. HOOTEN

Nichols Commodities Pty. Ltd., Brisbane

The futures market is just one of the new methods of marketing cattle. It can be very much a speculative venture but used properly as a hedge to the open market it is an excellent means of assuring profitable livestock marketing.

The brokers who operate in the futures market are gatherers of information from all over. They get their information from USA, Europe, UK and Asia on livestock populations and prices and use computers to digest this information and project forward the likely movements in stock prices for one to two years ahead. Their success and the success of their clients depend on the accuracy with which they can forecast likely movements in price.

COMPUTER SELLING OF CATTLE

J. L. P. GRIFFITH

Agricultural Business Research Institute, University of New England, Armidale

The ABRI is the biggest agricultural data processing bureau in Australia with 13 000 clients across the country. It produces pedigree records for 20 breed societies, operates the National Beef Recording Scheme and similar schemes for sheep and goats, operates farm accounting schemes and Complan, a detailed analysis of economic options. It has also become involved in the development of a scheme for computer selling of cattle.

The development of this scheme was financed by AMRC. It is now in a commercial trial stage. The research (development) and commercial (testing) sides are kept separate from an accounting point of view.

The commercial operation is operated by New England Livestock Computer Marketing Pty. Ltd. Cattle for sale are assessed on the owners property by competent independent assessors and described in specific terms, namely liveweight (as measured over light protable NELCM owned scales), breed, age, location, fat measurements, state of horns, etc. Each animal is tail tagged for identification at assessment. Prices paid at the farm gate with the purchaser providing the freight. Bids can be made on a per head basis or on a dressed weight basis. If bidding is on a dress weight basis the potential purchaser must nominate the shrink % and trim relating to his bid prior to the start of the auction.

Communication with buyers is by telex. They receive a catalogue describing all lots on offer the day before each Friday mornings sale. They can then enter a bid basis plus a starting bid if they wish to bid during the action ('on-line') or put in an 'off line' bid if they wish the computer to bid on their behalf. Vendors can put a reserve price on their stock up to one hour before the start of the sale.

All cattle are offered for sale at once and buyers who do not currently hold the top bid on a lot of interest can increase their bids in rounds of bidding until a final top price situation results. Cattle are then declared sold or passed in. Those passed in can be offered again next week, once, at no extra cost. For cattle sold the computer prints out a sales contract note, a copy of which goes to the purchaser, vendor, and agent. Payment must be within seven days of slaughter. Delivery must be taken so that slaughter occurs within seven days of the sale and from delivery, slaughter must take place within 48 hours. Agents can and do participate, chasing up buyers, backing financial aspects, supervising slaughter etc.

The vendor pays NELCM a listing fee and an auction fee depending on the numbers of stock involved ($4–$6 per head). The first sale was held in February 25, 1982 and one has been held every week since. Some 120 vendors have actually sold and 80% of the 9,000 cattle offered have cleared as at 1.10.82.

(P.S. The project has continued to prosper. At the 1/4/1983 sales had exceeded $3.5 million with over 50 buyers enrolled in the scheme).

FUTURE DEVELOPMENTS OF COMPUTERS AROUND THE HOUSE

W. J. CAELLI

Era Computer Corp. Pty. Ltd., Southport, Qld.

Computers are now being used in invisible forms. A new steam and dry iron has a small computer type sensor for its temperature control mechanism and many other household appliances are using small programmed chips to control their operation. Robots will in time be common place around the house and on the farm. They will do the cleaning, drive the tractor, shear sheep, or mind the flock.

There will also be important uses in education and information supply but there

are already signs of problems. Constant watching of TV screens could lead to eye problems. Computers will be more and more involved with leisure time, focusing and controlling TV reception in the home direct from satellites for example.

Already steps are being taken to develop the so called fifth generation computers. Computers that can think and talk. By the 1990s they will be able to recognise features, speak and make decisions like a human being. The implications are that many jobs will go but this is presently not being the case in total. Many go in one area but a greater number are created in other areas, particularly in the creation of such high technology products. Australia however is missing out on those jobs generated as it is importing almost all its computer technology.

BOOK REVIEW

More Beef From Spear Grass Country. Pasture Research at Rodd's Bay Central Queensland, 1945–1977. J. B. Hacker, N. H. Shaw and L. 't Mannetje. C.S.I.R.O. Division of Tropical Crops and Pastures Research Report No. 2 1982.

The authors have achieved their objective of presenting, in a single publication the research work conducted mainly by Mr N. H. Shaw of CSIRO at Rodd's Bay in central coastal Queensland over 32 years. The reasons for selecting this region are given and the programme and results are presented in chronological and logical sequence as each set of results influenced the direction of the next research. The authors point out that most of the work has already been published in Australian scientific literature. This publication provides a condensed version of the work and provides opportunity, through the 24 references, to obtain further detail where required. The use of reference 9 in relation to the wide use of Rhodes grass is incorrect, however. The text covers 39 pages and makes strategic use of tables and figures. Nine excellent quality colour plates (including the front cover) enhance the booklet.

The introduction sets the scene on how and why the particular location was decided upon. Mention is made of the 'state of the art' in the early 30's and the dearth of pasture scientists in Queensland in CSIRO and the Department of Primary Industries in the early 1940s. This is an area that must be treated accurately particularly where names are mentioned. I think it an omission on the authors' part not to link J. L. Schofield with tropical legume research at South Johnstone in the 30s and early 40s followed by T. G. Graham. Mention should also have been made of N. A. R. Pollock's involvement with Townsville stylo in far north Queensland during the 1920s. Also S. L. Everist of Mitchell grass and mulga fame at Blackall from 1937 to 1942 (whilst Roe was at Cunnamulla).

The introduction is followed by a description of the spear grass region and an outline of early studies on the native pastures. The Rodd's Bay programme covered soil nutritional studies, soil characteristics and pasture species evaluation including evaluation under grazed conditions. Emphasis is placed on pasture improvement using Townsville stylo and the second half of the report is devoted to establishment techniques, fertilizer requirements of this legume and animal production from Townsville stylo/spear pastures.

The authors have drawn a number of conclusions based strictly on the Rodd's Bay work and of course this is quite legitimate. However, because this publication is dated 1982 I consider that they could have added an epilogue, based on hindsight. In other words mention should have been made of pasture developments that occurred in the central spear grass region between 1977 and 1982. To complete the story brief comment needs to be made on:- lack of wide adoption of Townsville stylo in spear grass pastures; anthracnose incidence; the role of other stylos such as fine stem stylo, Verano, and the shrubby stylos (the report does foreshadow a possible role of the last two); the beef slump and its effect on maintenance of existing pastures and new plantings; the very limited adoption of leucaena, and the reasons for this, as an alternative protein source; the decline of Siratro due to lack of maintenance fertilizer and over-grazing.

G. R. LEE