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The Texas A&M University System

Microcomputer Selection and Uses in Beef Cattle Management

James M. McGrann*

The microcomputer is an important tool for beef cattle managers. With appropriate software, the microcomputer can be useful for keeping performance records, ranch accounting, ration formulation, inventory control, and economic and financial management. To make profitable use of the microcomputer, you should select software and hardware that meets your needs and get adequate training. Other sources of information are listed at the end of this publication.

Defining Needs

To define your specific needs, use a calendar and list the decisions you make and the information you need throughout the year. Briefly describe these decisions and the information requirements associated with them. After the list is completed, talk to other microcomputer users in similar management environments. They will help you evaluate and expand on your list of information needs.

Potential Applications

The following list provides examples of some potential areas of use for a computer.

A. Production Decision Aids for Nutrition
- Least-cost ration formulation for range cattle
- Supplemental feed evaluation

B. Performance Records and Evaluation
- Individual cow records
- Weaning, yearling weight adjustment, and sorting
- Sire performance records and evaluation
- Record systems to facilitate breeding programs
- Gestation and management calendar
- Health management records

C. Economic Analysis
- Enterprise budgeting, breakeven analysis
- Evaluation of alternative production systems
  - Grazing management combining livestock and forage
- Cow and bull replacement decisions
- Value of a genetically superior bull
- Tax management
  - Income tax management
  - Depreciation schedules
  - Estate planning

D. Marketing
- Evaluation of marketing alternatives
  - Link production and marketing
  - Commodity price charting and analysis
- Carcass quality data records
- Risk management tools
- Price data access from national databases
- Net prices by marketing method

E. Accounting and Finance
- General and enterprise accounting
  - Managerial accounting
- Financial statements and ratio analysis
- Whole ranch cash flow
- Payroll

F. Integrated Production/Financial Analysis Standardized Performance Analysis (SPA)
- Cow-calf
- Stocker/feeder
- Seedstock

G. Range Management
- Brush control and range management systems evaluation

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*Professor and Extension economist-management, The Texas A&M University System.

- Fencing cost estimates
- Range utilization record systems
- Budgeting and cash flow analysis of brush control practices
- Equipment cost estimators
- Grazing system evaluation

H. Range-Livestock Management Information Systems

- Inventory control and production calculations
- Historical production and improvements record
- Supplemental feed use data
- Stocking rate information by pasture
- Health records
- Wildlife management

I. Feedlot

- All accounting
- Production and performance reports
- Ration formulation
- Payroll
- Marketing strategy analysis
- Accessing price databases

J. General

- Pickup and trailer cost analysis
- Word processing
- Mailing lists
- Electronic spreadsheets (for many of the applications listed above)

This list, of course, is not complete. Application of the computer is limited only by your imagination, time, and money to develop or acquire software and your knowledge to effectively use it.

Capabilities

The computer facilitates the generation, storage and processing of data into information meaningful to the manager. With suitable software, the computer can accurately perform numerous complex mathematical computations at a very high speed. Such performance capabilities vastly increase a manager's analytical capabilities.

Use software to test alternatives before taking action. Managers can do a sensitivity analysis to help incorporate production and price uncertainty in decision making. This type of analysis is especially important to the cow-calf producer who wants to build production and marketing flexibility

into his or her operation in order to cope with volatile prices and low rates of return.

If your software is well supported by user manuals that explain the data inputs and interpretation of the output, it can provide management education. The manuals can also help you relearn analytical tools you were exposed to in the classroom or through reading research or Extension Service reports, but never used. The software can explain the procedures correctly and assist in the use of tools such as enterprise budgets.

Microcomputers can be used to access large computer time-share systems. Databases and published information can aid in the timeliness of decisions.

The computer and software are tools to improve the managerial skills of the user. These tools should be evaluated in terms of their improvement over those presently being used.

Limitations

Having a microcomputer adds to the number of tools available to the decision maker. The computer and software are only tools and have no capacity for reasoning and no more intelligence than a pencil. You must devote time and effort to effectively use the computer and software in decision making.

To conclude that running data through a computer adds reliability and accuracy can be erroneous. If inputs are not reliable and accurate, the output cannot be accurate or reliable. This problem is referred to as GIGO, or "garbage in-garbage out," and it can be a serious limitation in effective computer use.

User-programmable software, such as Lotus 1-2-3®[1], helps overcome the user programming problem of microcomputers. This software does not eliminate the need for the proper mathematical procedure (algorithm) and data to solve the problem—a factor sometimes overlooked.

The computer, if properly used, complements your experience, judgment and knowledge. You must know how to use the information and cannot expect the computer to make decisions. The manager or decision maker still must direct the course of action. The computer can only provide the alternative and evaluate progress.

A computer will not reduce the time spent in management activities. In most situations, computer use will increase the demands on managerial time but in much more analytical and productive activities.

Successful use of computers does require organization and discipline. Read and follow instructions, and make back-up copies of programs and data sets to prevent disasters.

[1]Lotus 1-2-3 is a trademark of the Lotus Development Corporation.

A substantial time commitment is required for data entry when the computer is used for record keeping or accounting. If you cannot spare that much time, limit the computer to decision making.

Microcomputer hardware technology changes rapidly and will continue at a high rate for some time. Innovative ranchers are accustomed to high rates of technological changes for many investments that are far more expensive than microcomputer systems. They seem to be quite willing to accept obsolescence and put their tax-deductible computer investment on a short-term depreciation schedule. Profitability of the investment is the key question. Profitability directly depends on relevant software availability and how much user effort goes into making the system a profitable management tool. Although hardware changes, the software can continue to be profitable.

Software Selection

After learning a little about microcomputers and defining needs, software selection should begin. Software selection is an increasingly difficult task because of the growing number of software packages available that accomplish similar tasks. There is no published agriculture software directory that describes software or identifies investors. The Association of Agriculture Computer Companies (AACC) is the most complete source identifying agriculture software vendors.

The surest way to select the right software for you is to spend time actually operating the program. If you know someone who uses the program regularly, try it out on his or her computer or use a demonstration copy. Agriculture software vendors will send demonstration copies of programs to interested users for a minimal cost.

The Texas Agricultural Extension Service distributes a software catalog, as do most land grant institutions.

Software vendor support varies a great deal. This is particularly critical for accounting and performance record and analysis systems. Before purchasing a package, be sure the terms of support and long-term maintenance are clear.

Most ranch computer systems include an electronic spreadsheet. This programmable software is extremely powerful. Many decision aid programs are available for the spreadsheet (called templates), and a relatively small amount of time is required to learn to modify existing templates and create new applications. The most popular spreadsheet in agriculture is the Lotus 1-2-3®[1] program. Spreadsheet software is available from the Texas Agricultural Extension Service.

Attending computer user training programs, reading software reviews, viewing demonstrations of software and discussing software needs with experienced computer users assist in selection of appropriate software.

It takes time to learn how to effectively use software. The old saying "there is no free lunch" certainly pertains to the time required to learn to use different software. Good user manuals can help. The manual's detail and ease of use are an indicator of the software quality.

Over the normal technological life of a microcomputer system (3 to 5 years), the cost of software will normally be greater than the cost of hardware. Over time, hardware has decreased in cost, while agricultural software has increased. This is because agricultural software is very expensive to develop, market and support (an accounting package will cost a minimum of $250,000). The agriculture market is very small compared to general business and consumer markets. Each software acquisition should be put in the same frame as other purchases. The additional revenue generated must be greater than the software cost, including the value of time required to learn how to develop the software and to make it a profitable purchase.

The Doane's *1986 Agricultural Computing Directory* summarized eleven rules in the following order:

1. Identify your needs first.
2. Establish software price parameters second.
3. Look for a sound, reliable software manufacturer.
4. Do not buy a program with an incomplete manual.
5. Check the program for ease of installation.
6. Look for programs that are "menu driven" with help screens.
7. A program should "check" or "trap" for user errors.
8. Look for flexibility in output of information reports.
9. Check for editing and "what if" features.
10. Find out if there is a demonstration available or a money back guarantee.
11. Find out what is offered in user support, extended user support fees and training.

Hardware Selection

A review of the software presently available will probably lead you to choose an IBM® or compatible computer.[2] These computers have dominated the market, and software vendors have followed the hardware trend. These computers

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[2]IBM is a trademark of the International Business Machine Corporation

operate on the MS-DOS operating system. Select a computer that will meet your needs for at least 3 years. Hardware changes quickly, so be current but not a pioneer. Software needs dictate the hardware requirements, and you should see the software operate on the computer system before you buy the system. Incompatibility problems are difficult to deal with.

Farm and ranch computer systems should have a good printer. Most users can meet their needs with a good-quality dot-matrix printer, but for those doing a great deal of word processing, a laser printer may be required.

A desktop computer is fine if you do not need to have your computer in more than one place. However, there are several portable computers with the features described above.

It is a good idea to buy a microcomputer from a local dealer who has a strong business. If any problems arise, support is readily available.

Keep aware of changes in hardware by reading farm computing publications (see list at end of publication) and discussing changes with other computer users, Extension personnel and software developers.

User Training

As microcomputer hardware has improved and software availability has increased, user knowledge and interpretation has become the most limiting factor in profitable computer use.

All software requires time to learn to use its unique capabilities and interpret results. Even with a good user manual, subject matter information (such as nutrition or financial statement evaluation criteria) is often lacking. It is advisable when purchasing software to select those packages that have service support with initial installation training. Money spent on this support is normally a good investment.

Long-term specialized training courses are especially advisable as they reduce start-up time and help increase one's knowledge base so software results are not misinterpreted.

The Texas Agricultural Extension Service offers special 3-day intensive short courses to meet these in-depth training needs. These courses are taught at Weslaco and Halfway computer training centers and with a mobile, notebook-based microcomputer lab. For information, contact your county Extension agent or call (409) 845-8792 and request a

brochure and registration form. The Texas Agricultural Extension Service also has training programs throughout the state organized by Extension agents and specialists.

For meaningful training on specific microcomputers, it's important to have the opportunity to actually operate the software (hands-on use). It's also important to have a specialist available who can provide subject matter information to ensure proper use of software in decision making.

Remember, the computer and accompanying software are tools designed to improve managerial skills. By carefully defining needs, selecting appropriate software and hardware, and taking advantage of user training, your investment in time and technology will pay off.

Information Sources

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