



by Dan Kirkpatrick

# Behind Every Good Cattle Operation You'll Find— A Computer?

## *Buying a micro-computer is a decision you may soon face—don't take it lightly.*

**T**he revolution is here. It is not a political or social revolution, but the computer revolution of the 1980s may have just as great an effect on cattle producers as any governmental upheaval.

When computers first came on the market there were predictions that soon all personal record keeping would be computerized. Unfortunately, due to their initial size, complexity and high prices, most people in agriculture gave them little consideration. All that has changed with the development of technology that makes micro-computers more powerful, faster and perhaps most importantly, more affordable.

The amount of agricultural software has also mushroomed within the last couple years, allowing people with practically no experience in computer operations to become quite proficient in their use. As recently as two or three years ago, any farmer or rancher buying a computer had to have some programming experience to effectively use a micro-computer. However, programming skills are no longer a necessity when buying a micro, due to several land-grant universities and private firms across the country that are producing and marketing software packages.

"There are all kinds of accounting and word processing programs around, and now more software packages designed for purebred producers are starting to come on the market," says Bill Borrer, owner of Tehama Angus Ranch, Gerber, Calif. Borrer, who was the first Angus breeder to submit computerized records to AHIR, also sells a cow-calf program he designed with purebred producers in mind.

Harlan Hughes, AGNET coordinator, and extension computer application specialist at the University of Wyoming, agrees with Borrer.

"My gut feeling is there's a lot of good software out there. There is a heck of a lot more than people think. They just have to look around for it."

### **Choose Software First**

It is essential to know what software exists, because the first and most important step in buying a micro-computer is deciding what you want to do with it, and then selecting software that will help you attain your goals.

Donald Gill, extension beef cattle specialist at Oklahoma State, says professionals in

the computer industry have always suggested people buy software for their systems before purchasing any hardware. However, most farmers and ranchers owning computers today had to buy hardware first and then develop their own programs, or hire someone to do it, because there was so little agricultural software available.

"Now due to the increased availability of agricultural software, it is easier to buy software before the hardware, just as the professionals recommend," he adds.

Although more agricultural software is put on the market each day, the number of packages designed specifically for a purebred producer's cow-calf operation is still relatively small.

### **Alternative to Cow-Calf Programs**

For some producers an alternative to cow-calf software packages might be data base management systems (DBMS). A DBMS is a general purpose program, that although it is not written specifically for agriculture, works very well for on-farm record keeping. It is designed in such a way that it allows you to develop a program to collect only that information you want retained in your record keeping system.

Hughes says a DBMS is "very, very flexible. You as a user, select only that information which you want to maintain records on. Each rancher seems to have his own unique selection and management factor that he wants to keep records on. Cow-calf software packages are more structured and sometimes aren't programmed in a manner that allows you to keep records for this unique factor. The DBMS, however, has greater flexibility, and allows you to retain any information you want."

Ken Hopkins of Star, Idaho, maintains a small herd of 22 registered Angus cows, in addition to selling a cow-calf program he developed. He agrees with Hughes in part.

"There are some advantages in the DBMS if you're knowledgeable in programming, because you can set up the kind of program you want."

He goes on to say the advantage of using a prepared software package over a DBMS is "The operator does not have to be a computer person. If you use a DBMS, you have to have quite a bit of knowledge in the area of programming to set up the record keeping system you want. This entire process takes quite a bit of time."

Borrer agrees that keeping records with

a DBMS is not for everybody, and most people would be better off finding prepared software packages to fill their needs.

"Using a DBMS takes experience in programming and a lot of time and pain to set it up the way you want it for your record keeping system." He estimates it cost him approximately \$20,000 to \$25,000 worth of his time to program his DBMS the way he wanted it to maintain records on his 250-head cow herd.

### Buying Hardware

After sorting through all the different software packages on the market today, and deciding what you need for your operation,

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you will be ready to look at the different kinds of computer hardware available.

There is no exact dollar figure on how much you should spend on a micro-computer. Talking to five different people knowledgeable on the subject will probably result in five different answers. However, a good rule of thumb to start with is a figure of \$3,000 to \$4,000 for a system consisting of a machine with a dual disk drive and memory storage of at least 64K, a good printer and a phone coupler.

Hughes says, "Buying a computer is a little like buying a tractor. You want to buy one with enough horsepower to do the job for you." He also tells farmers and ranchers to plan on spending around \$5,000 for a system that will fill their needs. However, he says if you shop around you can probably buy your hardware and software for less.

"What I'm trying to relate to farmers and ranchers is that one of those \$300 to \$400 computers advertised on TV just isn't going to do the job for them. It just can't handle all the records that need to be kept in today's farming operations," he adds.

John McNeill, extension beef cattle specialist for the Texas Extension Service, has three recommendations for buying hardware:

1. Buy hardware that executes the software packages you have selected for your operation.
2. Buy hardware with a good reputation in terms of overall performance, and has service facilities in your home area.
3. Buy a machine that not only has enough memory for your present needs, but will also have enough capacity for future needs.

McNeill also strongly suggests seeking out those farmers and ranchers in your area

that already have micro-computers, to talk to them about what they like and dislike about their systems.

### Who Needs a Computer?

Because of the expense of micro-computer hardware and software some people do not have large enough operations to justify buying micros.

How big does your operation have to be to justify buying a computer? It is impossible to designate a certain dollar amount as a point at which you should consider adding a micro to your operation.

However, Art Barnaby, agricultural economist for the Kansas Cooperative Extension Service, thinks owning a computer is more personality related than money related.

He says, "A guy ought to be at least a commercial-sized farmer (an annual gross of at least \$150,000) before considering buying a computer. But this figure can be scaled down if, 1) he has a real interest in computers; or 2) if he has a background in computer science."

### Be Open-Minded

Hughes agrees size of the farm should not be the sole consideration when buying a computer. He says, "How big do you have to be to make right management decisions? My gut feeling is the smaller operator might need a micro more because he doesn't have the accessibility to consultants and advisors that the big operators have. Rather than size or money, owning a computer is more a factor of open-mindedness: A farmer or rancher that says, 'No darn computer is going to tell me what to do,' is not going to be helped by a micro."

Barnaby says, "I don't think the price of the system, or how much money a farmer makes each year are the reasons people don't buy computers. The major limiting

factors seem to be the learning skills required of the operators, such as: 1) Not knowing how to type—entering data can be a slow, tedious process; 2) If you want to hook up to a marketing information system, bad rural phone lines can be a problem; 3) When first starting work on a computer, the whole system is foreign; 4) It requires a commitment of time—the guys who have been

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very effective with their systems are those with some spare time; 5) Finally, it is a personality thing—if you don't like doing office work, having a computer might help for a while because it is something different. But after a while you'll probably get to the point where you won't like it either. If you're that kind of person you might be better off hiring a part time employee from an accounting firm to do the work for you.

### Working With Micro Takes Time

Henry Gardiner, owner of Gardiner-Angus Ranch, Ashland, Kan., agrees with Barnaby that in some cases it is more practical to hire someone to do the computer work for you, especially if you don't have the time or desire to work on a micro.

"I've thought about buying a computer, but haven't as of yet. I decided that for the time being, if I need some work done on a computer, I can hire someone to do it. I think computers are a lot like cows. They

# Glossary of Computer Terminology

**Abort:** Process of stopping a running program in an orderly fashion.

**Acoustical Coupler:** A device for connecting a telephone receiver to the computer input port.

**Add-On:** Hardware that can be added to an existing system to improve its overall performance.

**Algorithm:** A step-by-step procedure that makes the computer perform a desired task.

**Alphanumeric:** The set of all alphabetic, numeric and punctuation characters.

**ANSI:** American National Standards Institute. This organization sets standards for many aspects of computer technology.

**APL:** (A Programming Language) A high level language for special applications.

**Applications Software:** A program that performs a specific function, such as processing herd records or accounting data.

**Back-Up Copy:** A copy of a program or data base, preserved in case the original is lost or accidentally made unusable.

**Bank:** A group of memory chips that operates as a single unit of memory, such as a 64K memory.

**BASIC:** (Beginner's All-purpose Symbolic Instruction Code) A simplified programming language widely used by novices on micro-computers.

**Benchmark Program:** A sample program for comparing and evaluating the performance of a computer.

**Bit:** The smallest unit of information the computer recognizes. A bit is a binary function represented by the presence or absence of an electronic signal (0 or 1).

**Boot Strap:** A program used for starting the computer.

**Bug:** A flaw in the way a computer runs.

**Burn In:** A procedure in testing new computer components to screen out infant mortality.

**Byte:** A byte represents a character. A byte is the amount of computer space used to store one type-written character. One byte is usually eight to 32 bits long.

**Carriage Return:** or just "return." A key on a terminal keyboard that ends a line of input in the same way a typewriter carriage return starts the next line.

**Character:** A character is any letter, number or symbol presented by the computer.

**Chip:** The entire key to the computer revolution. A chip is a thin silicon wafer on which electronic components are deposited in an integrated circuit, for the purpose of storing information.

**COBOL:** (Common Business-Oriented Language) A high level programming language designed for business applications.

**Compatibility:** A characteristic of some computers which allows a program developed for one machine to be run on another.

**Console:** The hardware typewriter keyboard that is used to communicate with the system.

**CPU:** (Central Processing Unit) The part of the computer that controls the interpretation and execution of the program instructions. It is made up of many chips.

**Crash:** A situation where the system hardware or software malfunctions.

**CRT:** (Cathode Ray Tube) The television used to display pictures or characters, sometimes called a VDT (Video Display Terminal).

**Custom Software:** A program that is designed to fit an individual's specific needs.

**DBMS:** (Data Base Management System) Software that manages relationships between data in the data base and programs that use the data.

**Debugging:** The process of eliminating flaws in a system, i.e. trouble-shooting.

**Directory:** Table of contents describing what files are recorded on a disc.

**Diskette:** A floppy disc for magnetically recording programs or data. It looks like a 45 rpm record in a paper jacket.

**Drive:** The mechanical device that reads and writes information on the disc.

**File:** A collection of related records such as herd records, or an application program, such as an accounting program ready to run on a computer.

**FORTRAN:** (FORmula TRANslator) A high level programming language used in scientific and engineering applications.

**Hard Copy:** A computer printout on paper.

**Hard Disk:** A flat circular object resembling a record, that stores data (memory) that is readable by the computer.

**Hardware:** The actual machines or equipment you handle and operate.

**Input:** Information coming into the computer.

**Interface:** The hardware or software required to interconnect one portion of the computer to another.

**K:** Computer shorthand for the quantity of memory stored. One K represents around 1,000 bytes.

**Memory:** The section of the computer (CPU) where instructions and data are stored for immediate manipulation.

**Memory Capacity:** The maximum number of storage positions in a CPU memory. A memory storage of at least 64K is recommended for a computer used for agricultural purposes.

**Menu:** A list of what is available on a given program. For example, a ranch computer might display the following menu: "Do you want to look at: 1. weaning weights; 2. yearling weights; 3. present weights?"

**Micro-computer:** A small computer in which the CPU is an integrated circuit of silicon chips.

**Modem:** A device that transforms a computer's electrical pulses into audible tones for transmission over a telephone line to another computer or terminal.

**Output:** Information coming out of the computer via printout, CRT, etc.

**Peripheral:** Any interface device connected to the computer.

**Portable Software:** Describes standard, off the shelf applications software. Generally, it cannot be easily modified to fit a cattleman's particular needs.

**Program:** A set of coded instructions directing the computer to perform a particular function.

**Prompt:** A request for action by the operator that is displayed on the video screen. It is the method of instructing the operator what to do next.

**Software:** Program instructions that make the hardware function.

**System software:** Special programs that coordinate the operation of the various elements of the computer system so it can run the applications program.

**Terminal:** A typewriter keyboard through which information is entered to the computer. It also may be a printer in which the computer prints out information.

**User Friendly:** Software designed to be easily understood by the user.

**Utility software:** Utility programs performing functions such as sorting files, and deleting obsolete data.

**Word Processor:** A text editor system for writing, editing, formatting and storing letters and reports prior to printing. A word processor program can be a very effective marketing tool for some purebred breeders.

*Reference: Six Steps To Take In Making A Decision To Buy A Computer, Harlan Hughes, University of Wyoming.*

have to be fed all the time or they won't do the job for you."

Earl Fuller, farm management specialist at the University of Minnesota also believes a great deal of time must be spent on the computer for it to be used effectively.

"The main cost of buying a computer is not the hardware or software," he says. "The main cost is the amount of time that has to be spent putting information in the system."

#### Micros Help Good Record Keepers

If you are interested in a micro-computer, the thing to remember is it's not magic. It is not going to miraculously transform a poor record keeper into a good one. But it will make the good record keeper even better.

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Hughes says, "For a good record keeper, a micro is going to make his record keeping operation more flexible, and much less time consuming. The good manager will do more in less time."

"The micro is not going to help the poor manager keep good records just because his record keeping operation is computerized. However, it can help him think about what his record keeping operation should be like," he adds.

Gill says, "For the Angus breeder that has always kept good records and wants to keep doing so, the micro-computer will really help. For the person that has never kept good records, or any records at all, the micro will not change anything."

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***Whether or not you bring your herd into the computer age may be one of the biggest management decisions you'll ever make.***

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"I think people will probably spend the same amount of time keeping records with a micro-computer, but in this time they will do things they have never done before."

#### Don't Rush Into Anything

Before spending any money for a micro-computer, talk to as many people as you can, who are knowledgeable on the subject. Buy a few of the many computer publications on the newsstands today. Talk to farmers and ranchers in your area who own computers. Visit any hardware and software vendors who might be in your area. Most importantly, visit your local extension center and write your state's land-grant university for any information they have on micro-computers. Talk is cheap, computers aren't.

The revolution has only just begun. Whether or not you bring your herd into the computer age may be one of the biggest management decisions you'll ever make. It is a decision that should not be taken lightly, or made hastily.

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