



# Computers on the Farm<sup>1</sup>

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The expanding world of computer electronics has introduced the small computer as a new tool to farm management. Reductions in computer size and cost have enabled managers of small businesses, including farm businesses, to directly utilize computer technology. This bulletin discusses how a computer can help the manager of a farm business and gives details on where to get more information.

## Some Example Applications

The small computer is known by a variety of names, including: small business computer, desktop computer, home computer, or personal computer. In general, a computer is an electronic device for manipulating words and numbers. These words and numbers are organized in a defined manner and stored for later use. This group of information can be thought of as a file, similar to the file of papers you might have in your filing cabinet containing records on milk production or crop production. A filing cabinet is certainly better organized than the information kept by many home-owners in a shoebox. In either case, the user of the information decides what data to collect, how to store it, and how and when to update, modify or retrieve the stored information.

The computer has some advantages over these more traditional forms of information storage. It can compress a large amount of information into a relatively small volume. For example, a grain producer might want to keep track of a certain set of information for each field. This set of information could include the following:

- Field number
- Year
- Soil Test Results
- Fertilizer Applied
- Variety Planted
- Insecticide - type and gallons
- Herbicide - type and gallons
- Harvest Date
- Yield - bu/acre
- Harvest Moisture Content

When this data is kept on scraps of paper or in a notebook for many fields over several years, the information may become difficult to use effectively. The computer allows the user to easily sort and summarize the stored information. If a cost can be associated with each item in the previous example, the cost of production for each field can be quickly compared against the dollar return for the grain produced. These computations can be done for a series of years to determine how effectively you are managing your resources.

Since the computer can work with words as well as numbers, it can attach a description to each number. It can also help the computer user prepare forms,

letters, or reports. One Lansing area farmer uses a computer to generate a mailer that announces the availability of fresh produce to potential customers. The computer types and addresses each mailer, including a personalized message if desired.

Many computers can communicate with other computers. This would allow you to retrieve information from other computers which may be useful to your farm computer. This information might include commodity market information, reference sources or news information.

## The Computer and Farm Management

Computer uses for several agricultural applications are being developed. Such applications include: farm accounting and financial record keeping, labor planning and payroll, commodity market activities, crop management and production activities, beef feedlot management, swine farrowing and sow management, and dairy herd operation including milk production records and herd health.

In all cases, the computer is being used as a tool for improving overall farm management. The goal of good management is to maximize profit, while maintaining long term business health. In this sense, management is the allocation of

<sup>1</sup>Credits-Bill Brown, Allan Rahn, Sherrill Nott and Clyde Anderson, Consultation; Susan Conway, Typing.

scarce resources in a world characterized by risk and uncertainty. The manager controls land, labor, capital, and equipment used in the production process. The farm manager is being asked to keep his market prices constant in the face of higher production costs. To do this requires optimization of the farm operations to reduce costs and preserve the profit margin. How can a computer help? The computer can help answer four questions every manager asks:

**Question 1: What is...?** In small operations, keeping track of the current financial state of the business is not always difficult. As operations increase, the question becomes more difficult. Computer programs for farms help farmers to do financial analysis, payroll, or inventory records. The manager gets information on what is the current financial condition of the enterprise.

**Question 2: What can be improved?** This is the diagnostic approach. Why are crop yields lower this year? Does the dairy herd's average milk yield justify the feed stock consumption? Why am I over my projected budget? These types of "What can be improved?" questions can be addressed if the proper "What is...?" records have been kept. Care must be taken to supply complete and adequate information for the analysis when using the computer in this diagnostic approach.

**Question 3: What if...?** What if I buy the 40 acres across the road for \$xxxx? Can I maintain adequate cash flow? What if corn prices rise to \$2.76/bu? Can I cover my cost of production? For many "what ifs", electronic spread-sheet programs allow manipulation of data which is entered in ledger sheet format. A good alternative for many capital investment "What if...?" questions can be found in the TELPLAN system. All TELPLAN programs can be accessed either by a standard

computer terminal or by a computer equipped for communicating with other computers.

**Question 4: What should I do?** These are prescriptive types of questions, usually dealing with a specific operational management problem. Ration formulation or fertilizer recommendations are examples of using a computer to generate a prescriptive answer.

The willingness of the manager to learn to use the computer is one important factor in the success of computerized management. The computer can free you from repetitive chores, it can store and retrieve data rapidly, and it has the flexibility and power to complete tasks that were previously unthinkable. The computer can expand your mental capacity by using other mental constructs (or computer programs) in new combinations to arrive at a desired result. The most powerful asset in a computerized operation is a thoughtful and knowledgeable user; second is the program or system of programs at the disposal of the user.

### Reflections of a Beginner

After being bombarded with volumes of computer information and innumerable new terms you may be confused. A good next step is to visit your local library, bookstores, computer stores, and university libraries. Find several general books about computers or small computers and business. Stay away from books that talk about computer programming or microprocessors. Plan to read at least three books.

Read the first book fully, do not skip pages. Do not try to learn all the material or terms, just read. The second book will read much faster, the terms and comments will make more sense and your computer consciousness will grow.

You will feel it grow as you gain confidence with your new vocabulary. You will probably skim through the third book. That is okay, but do go through it. Each book will build your vocabulary and your knowledge, as well as expose you to the author's own ideas on how to effectively use computers.

SIG (Special Interest Group) and UG (User Group) organizations have been established for computer users of a specific machine and often with a specific application (such as agriculture). Ask your local dealer for SIG's and UG's in your area. If there aren't any, consider starting one. Sharing information and experiences with other users is an excellent way of learning and improving computer skills.

### Educational Options

Your local community college is a good place to start looking for educational courses dealing with computers and computer programming. Also ask your local dealers for self-instructional materials. These packages generally include a cassette tape and written information designed to introduce you to computer function and use. They may be produced for a specific piece of hardware, but are usually general enough to be useful as introductory information.

Whatever you do, don't rush into a decision to buy a particular brand of computer. Your decision will be with you a long time. Know first what computers can do, decide how to best use a computer in your operation, and then shop for a complete system to accomplish those tasks.

### Books to Consider Reading Computers For Everybody.

Willis, Jerry and Midler, Merl, 1981  
Dilithium Press, Beaverton, Oregon.

This book is a good beginning. It deals only with small computers, what they are, software, hardware and purchase considerations. Additionally, it has one chapter devoted to sources of information, such as other books, magazines, etc.

**Computer Consciousness.**  
Covvey, H. Dominic and McAlister, Neil Harding, 1980.  
Addison-Wesley Publishing Co., Inc. Reading, MA.

This book was written by two doctors for the purpose of portraying the computer as a machine in a system of machines and people. The book presents an easy to read analysis of computer software and hardware, as well as offering many figures and graphics and a glossary.

**An Introduction To Microcomputers Volume I. The Beginner's Book, 1977.**  
Adam Osborne and Associates, Inc. Berkeley, CA.

This book gives a basic definition of computer hardware and software. A good second book, the material is not totally up-to-date.

**Small Computers For The Small Businessman.** Rosa, Nicholas and Rosa, Sharon, 1980. Dilithium Press, Portland, OR.

This book deals with software and hardware purchase considerations. It is a good second or third book. The authors are noticeably biased at times and admit it. Contains a complete glossary.

**So You Are Thinking About A Small Business Computer.** Canning, Richard G., 1980. Canning Publications, Inc., Vista, CA.

As the title suggests this is a book about buying computer power. A good third book. Contains a glossary and computer hardware references.

**Understanding Computers - What Managers Need To Know.** Walsh, Myles E., 1981. John Wiley and Sons.

This book provides an excellent explanation of the workings of a computer any size. It is easy to read and would make a good first or second book. Contains a glossary and excellent graphics.

**Guidebook To Small Computers.** Barden, William Jr., 1980. Howard W. Sams & Co., Inc. Indianapolis, IN.

This book is an effort to supply encapsulated information on hardware of current popular computers. It is buyer's guide supplying names and addresses of major manufacturer's.

This list is not complete. Other excellent books are available through your local bookstores and libraries.

### **Magazines of Potential Interest**

**Byte** - A popular magazine among users. The articles tend to be oriented toward hardware construction and modification.

**Creative Computing** - A magazine aimed primarily toward software development and programming. Contains good ideas for those writing their own program.

**Microcomputing** - Deals primarily with software and application programs. Covers several popular machines. A good magazine for the intermediate to advanced user.

**Infoworld** - A weekly tabloid providing hardware and software reviews, as well as news in the industry. A good choice for the intermediate to advanced user.

**Interface Age** - Deals primarily with software and application programs. Has a good emphasis on small business uses, and provides periodic review of both hardware and software.

**Personal Computing** - Covers application of small (personal) computers in many different areas. Provides reviews of software packages for specific applications.

### **Newsletters for Agriculture**

Currently, at least two newsletters are published and distributed monthly for agricultural users of computers. Subscription to one of these would be worthwhile for the beginning user:

**Agricultural Computing** - published by Doane-Western, St. Louis, MO.

**Farm Computer News** - published by the publishers of Successful Farming.

### **Other Extension Publications**

Computers on the Farm -  
What are They?  
Extension Bulletin E-1665

Computers on the Farm -  
Software Selection  
Extension Bulletin E-1666

Computers on the Farm -  
Purchasing a System  
Extension Bulletin E-1667

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