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Evaluating Computers for Farm Use

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Key Points

- Understand personal computer terms and concepts before buying a system.
- Familiarize yourself with the capabilities of word processing, spreadsheets, and other types of software programs.
- Know what to look for when shopping for software.
- Evaluate hardware before buying it.

Introduction

Computers—from the number-crunching giants at financial, educational, and government institutions to the small systems that regulate the operation of our automobiles—have had a tremendous impact on our daily lives. Some have called the impact revolutionary. But, to the average person, these computers and their impact are invisible. We still pay our taxes and drive our cars more or less the way we always have.

For many people, the real revolution became possible with the development of personal computers, small, affordable systems that can be used to simplify the tasks of letter writing, calculation, and record keeping. In fact, personal computers have become a virtual necessity for many small businesses.

What about the business of farming? Here, too, personal computers have made their impact felt as more and more farmers have come to recognize their benefits and have joined the "computer revolution."

It is important to remember that it is not buying a personal computer that can revolutionize the operation of your farm business. It is buying the right one and then using it to help make your farm operation more profitable that will make a difference.

If you, as a farm manager, do not feel ready to take the time and make the effort necessary to acquire the right computer for your farm business and to learn how to use it, then the personal computer is not for you. If you are ready, however, you will find that the time, energy, and money you invest will be amply repaid.
Like the acquisition of many other business assets, it is critical to carefully evaluate your business needs, identify how you plan to use the computer in your farm business, understand the terminology and the options available, and then start shopping for your hardware and software. If you are not willing to "do your homework," your first purchase decision may well lead to frustration and disappointment.

Case in Point

Martha had long wanted a personal computer for the farm operation. One day a neighbor mentioned he was selling his computer system in order to replace it with a new one. Much to Martha's delight, her husband agreed to buy the neighbor's system.

After spending several weeks trying to teach herself how to use the new computer, Martha went to a local dealer to ask some questions about its operation. Although the dealer did answer some of her questions, Martha also learned some facts about the system that she didn't want to hear.

She discovered that most of the software packages available to assist farm operations were not compatible with the system she had purchased. She also learned there were no service representatives within a five-hundred-mile radius who could offer her support. Martha did not look forward to sharing the news with her husband!

Martha and her husband had acted too quickly when agreeing to buy their neighbor's computer. They knew that a computer could be a useful tool on the farm, but they hadn't taken the time to evaluate specifically what they wanted the computer to do before acquiring one. Had they taken more time, they would have been able to identify the software and hardware that best fit their needs and their budget.

Understand personal computer terms and concepts before buying a system.

Once you have decided that you want a computer system for your home, the next step is to become familiar with some computer terms and concepts.

Computers can be classified into three major categories. The mainframe computer is a computer capable of handling large amounts of information. Many users simultaneously access one mainframe computer. They are very expensive and are usually owned by universities or large businesses. In some cases individuals can access a mainframe computer through telephone lines by using a modem. A modem is a device which enables telephone lines to be used to transmit information from one computer to another.

The minicomputer is similar to the mainframe computer because it serves many users, but it has less memory storage. Memory, in computer language, refers to the information that is stored in a computer. A minicomputer, although much more expensive than a personal computer, might be useful in a large farm operation.

The personal computer (PC) is relatively inexpensive and becoming more user friendly every day. User friendly simply means the computer is easy for users to learn to operate. The PC is accessed by one user at a time. It is capable of handling enough information to meet the needs of most individual farm operations.

The typical personal computer consists of a central processing unit (CPU), including memory; a keyboard; a monitor (screen); internal hard drive for storage, and auxiliary storage such as a disk drive. Optional equipment includes a printer, a modem, and a mouse (a small device, separate from the keyboard, that can facilitate the entering of specific commands to your computer).

The central processing unit is the part of the computer that does the work. It has the ability to "remember" information and "process" this information. The CPU makes all calculations and comparisons.

The memory consists of the read only memory (ROM) and the random access memory (RAM). ROM is memory containing the instructions for the computer to operate. It is fairly similar in all personal computers. For a personal computer, RAM is memory with the ability to remember the information that is entered into the computer. It is temporary memory that can be changed.

A program is a set of instructions to make the computer perform a specific task, such as calculating the interest on a loan. Systems programs, such as the disk operating system (DOS), control the operation of the computer system. Application programs allow the user to perform specific, useful tasks such as word processing or the creation of spreadsheets.
Information—financial records, for instance—entered into the computer is stored in RAM. The memory in RAM is measured in kilobytes. A kilobyte (K) is 1,024 bytes. A byte represents one letter or character. A megabyte is equal to 1,024,000 bytes, or 1,000 kilobytes (1000K). As computer programs (software) become more sophisticated yet increasingly user friendly, the amount of memory required to run these programs has increased. Accordingly, so has the amount of RAM available in newer model PCs.

The keyboard transmits information from the user to the processing unit. Although similar to a typewriter keyboard, it has some additional keys. These include an escape key, a control key, and special function keys.

The monitor is a screen for input/output and is very similar to a television screen.

The disk drive is a unit that stores data in the same manner that the internal hard drive stores data. The user can write and read information from a disk.

Another output device is the printer. Printers produce a hard copy (i.e., printed on paper) of the output (information from the computer). There are a wide variety of printers available. Before purchasing a printer, it is important to know what it will be used for and the quality of printed output you desire.

The CPU, keyboard, monitor, disk drive, and printer are all referred to as computer hardware. Computer programs are called software.

Familiarize yourself with the capabilities of word processing, spreadsheets, database management, farm and financial record keeping, and telecommunication software.

Before you can begin to evaluate what kind of software best fits your computer needs, it will be helpful to explore the kinds of software capabilities commonly useful in farm operations. Once you have an idea of your own computer needs, you can evaluate the software you need to perform these tasks, and you will then be better able to select the hardware necessary to run the software.

Five categories of commonly used application-type computer programs are those that are capable of word processing, electronic spreadsheets, database management, farm production and record keeping, and telecommunication.

Word Processing

Word processing software allows the computer to act like an electronic typewriter with the ability to edit text. This software allows the user to make changes in a text without retyping the entire page. The user can print the text or save it on a disk for editing or printing at a later time.

Another advantage is that a letter composed on a word processor can be sent to several different individuals. You can print several copies of the same letter, addressed, for example, to "Dear Extension Committee," or you can keep the body of the letter the same and simply enter different names and addresses for each recipient.

Many word processors have options to check spelling, use a thesaurus so you can select synonyms, hyphenate words, select different type faces (like boldface and italic), and manipulate tabs and margins. Generally, as the number of options you choose increases, so does the price and complexity of the software.

Electronic Spreadsheet

An electronic spreadsheet is a large worksheet made up of rows and columns. The space where a row and column intersect is called a cell. For example, in the spreadsheet illustrated in the next "Case in Point," cell "C5" is located in column C, row 5. Word or number entries can be made in cells. Formulas can be entered in cells to make calculations using numbers from other cells. When one number is changed, all other numbers calculated from that number will change automatically.

A spreadsheet allows the user to organize, calculate, and present financial, statistical, and other business data for managerial decision making, such as cash flow budgets and financial statements. Spreadsheets are particularly useful in answering "what if" questions due to their ability to quickly recalculate formulas.
Case in Point

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>FROM FARM ACCOUNT</td>
<td>@SUM (C3..F3)</td>
<td>4,500</td>
<td>3,700</td>
<td>3,018</td>
<td>3,000</td>
</tr>
<tr>
<td>04</td>
<td>OFF-FARM INCOME</td>
<td>@SUM (C4..F4)</td>
<td></td>
<td></td>
<td>4,772</td>
<td>4,772</td>
</tr>
<tr>
<td>05</td>
<td>INTEREST</td>
<td>@SUM (C5..F5)</td>
<td></td>
<td></td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>06</td>
<td>OTHER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>II. TOTAL INFLOW</td>
<td>@SUM (B3..B6)</td>
<td>@SUM (C3..C6)</td>
<td>3,700</td>
<td>7,790</td>
<td>7,972</td>
</tr>
</tbody>
</table>

This spreadsheet describes the revenue stream for a farm. Column B, the "TOTAL" column, shows the formulas for totaling the revenue from each quarter. On the actual spreadsheet, these would not be seen, but each cell would contain the total of that row. For example, "B3" would show the sum of cells "C3," "D3," "E3," and "F3," which would be $14,218.00.

The following example illustrates the utility of an electronic spreadsheet. Say a mistake was found in the calculation of farm account revenue in the period of APR/JUN. The incorrect number can be edited in the appropriate cell, "D3," and the spreadsheet would recalculate the total inflow for APR/JUN in cell "D7," the total farm account income in cell "B3," and the total inflow in cell "B7"! This avoids time-consuming manual recalculation and eliminates errors in mathematical calculations once the formulas are correctly entered.

Most spreadsheets can handle very complex formulas. Many will compute averages, select minimums and maximums, or compare values. These formulas determine the "what if" capabilities of the spreadsheet. You can change the values of entries, and the formulas dependent on the changed entry will then be automatically recalculated by the spreadsheet program. Questions such as "What if the price of corn were to increase by 10 cents a bushel?" can easily be answered using a spreadsheet program.

Spreadsheets promote consistency in decision making by creating a common layout for numerical analyses. If the spreadsheet is created and used repeatedly, the results will be comparable.

Database Management

Database management programs use the computer as an electronic filing cabinet. Information such as names, addresses, codes, and inventories can be entered into records in the database. These records can later be sorted, calculated, and stored.

Accounting packages are database management programs. For example, from your balance sheet statement, you could select the current asset and current liability information and calculate your current ratio, or you could sort the data from your income statement by listing all the expenses in order of value. You could make a simple calculation, such as adding all the assets and subtracting the liabilities to determine net worth. The data can be stored on the disk, and the information can be retrieved later by changing values or by adding or deleting records.

Consider the ways databases could be used for farm and family management. For example, records of breeding livestock could be kept on a database. Household assets and values could be kept as a record for insurance purposes. Names and addresses of acquaintances could be kept on a database. A newsletter for a farm and family management class could be sent to hog farmers by selecting them from a database.

Farm and Financial Record Keeping

Farm business managers will also want to consider farm production and financial record keeping software packages. These are programs written specifically to enable farmers to keep records on the computer. They are intended to help streamline record keeping procedures for the farm business. There are a number of reliable record keeping software packages available. They differ in style, complexity, and price.

Farm financial and record keeping programs help farm business managers know where they are financially at any given time. There are various software systems which not only measure farm financial progress, but also measure farm profit when data from specific dates are compared. Balance sheets, cash flow, income statements, enterprise accounts, and other record keeping techniques are all available in software designed specifically for the farm business.

Different software packages use different methods of organizing the information. The concept, however, is the same for all of them. In each case, you, the farm manager, enter your farm's data, and the computer organizes it. The information is then available to be used in the decision making process so critical to successful farming.
Telecommunications

Telecommunications software enables your computer to communicate with other computers via telephone lines. These programs are used in combination with a modem. Modems convert the audio signals that travel over the telephone line into electronic signals understandable by your computer and vice versa.

Telecommunications programs give you access to up-to-the-minute futures of stock market prices, news, weather reports for your area or any area of the world, daily cash grain and livestock reports, and an endless assortment of information such as movie reviews and airline schedules.

Electronic mail is another function of computer-to-computer communication. You can receive messages from other producers, others interested in computers, friends, or business contacts, and you can send them, too. You can even communicate long distance with computer support staff who can help you solve software problems.

Know what to look for when shopping for software.

Software or program selection is one of the most important considerations in purchasing a computer. You should consider the capabilities and compatibility of the program. Does the program have the features to accomplish what you want? Can the software handle the information for the farm business? Is it compatible with your computer system or with the system you are considering for purchase?

If similar programs are available, you should compare their cost, efficiency, and capabilities. For example, there are several word processing programs available with varying capabilities and in different price ranges.

Be certain the documentation provided with the software contains lots of examples and clear illustrations. This point simply cannot be overstated. It is essential that you be able to understand the documentation. Understandable documentation will save you hours of needless frustration spent in trying to make sense of instructions that are poorly written or just not clear.

Are two or more programs integrated, allowing information to be transferred among them? Another way to phrase this question is to ask if two or more programs are "compatible." For example, can a single item in a spreadsheet be transferred to a database or word processing program?

The amount of memory required to run a program is very important. Your computer should have enough random access memory to run the programs you are considering.

Check out the reliability of any software before buying it. Talk to friends or others with computer experience before assuming a particular program or software package is reliable. Reliability can be tested by running a set of data with known answers through the program to determine if the answers given are correct.

Ask others about the user-friendliness of software before buying it. Not only should the documentation be easy to read and understand, but the program should, ideally, provide help commands on the screen. Another helpful feature would be a tutorial or sample exercise included in the software.

A very important point to consider is the warranty included with the software and the type of support and service you will receive from the dealer. Is it a reputable business? Does the staff have computer training, and will they be able to answer your questions? Find out whether the warranty includes a provision for updates to the program.

Evaluate hardware before buying it.

After you have chosen the software, finding the correct hardware to run it is the next step. Remember, hardware selection must be based on your own individual needs.

As you shop for your computer system, do not be in a hurry to make a decision. Give yourself time to adequately assess your current computer needs and to plan for future needs. As with the software, check the reliability of the hardware, the dealer support, and the warranty. Is the hardware documentation clear and easy to understand? Does the price make sense given your farm budget?

The quality of the screen display for both text and graphics is important. You may select either a single color monitor (monochrome) or multi-color. Standard resolution is adequate for general use. Or you may choose to select a monitor with high resolution, which is often best when using graphic or word processing software. You should also be comfortable with the physical size of the screen you purchase.

Some programs may use sound for directions or to indicate incorrect entries.

Internal memory needs vary depending on the software used. Because memory requirements are rising steadily, it is a good idea to overestimate memory needs. At a minimum, you should consider purchasing hardware with the capability to have additional memory installed.

All data and programs are located in storage. This may be in the internal hard drive on a hard disk, in external storage on a floppy disk, on a CD-ROM, or on some other, similar device. Keep in mind that your storage needs will increase as you expand the use of your computer.

The choice of a printer is important to the overall functionality of your system. Compare quality and price,
and select the printer that best fits your needs. Usually, the quality of the print appearance is directly related to the cost.

Check the hardware system's expandability. As your needs change, you can then expand your system rather than replace it.

**Conclusion**

Software and hardware evaluation can be thought of as a three-step process.
1. Assess your needs.
2. Select software to meet those needs.
3. Select hardware that can run the software.

In addition to keeping this three-step process in mind, a checklist of questions to consider when evaluating and purchasing a computer system is another good idea. Such a list will help you remember all of the features you have decided you need. A list will also help remove the confusion when comparison shopping and will make the experience more enjoyable and less frustrating.

**Key Reminders**

These key reminders are a checklist of questions to help you select software and hardware to meet your needs. Remember to customize it for a perfect fit between you and your new system.

**Software**

- Is the software effective? (Will it do what you want it to?)
- Is it user friendly?
- Is it a tested and reliable program?
- Will there be support available when you need it?
- Is there someone you can call with a question?
- Is it a local call, an 800 number, or long distance?
- Do you have to pay for the service?
- Are updates and revisions for the program available at a reduced cost?
- Is there a demonstration program available for you to rent for a couple of months while you try the program?

**Hardware**

- What is the type of processor and speed?
- Is there a hard disk drive?
- Is there a floppy drive capacity?
- What is the installed memory (ROM)?
- Will the monitor fit your needs? (What is the resolution, color, speed?)
- Are the printer ports (parallel) included?
- Are communication ports (serial) included?
- Is the system compatible with a standard system?
- What is the expandability capability of the memory?

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