Computers on the Farm – Software Selection
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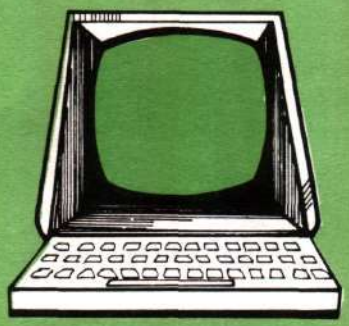

Computers On The Farm - Software Selection[1]

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The selection of software (otherwise known as programs) is one of the most important tasks when purchasing a computer system for the farm. Software is the set of instructions necessary to make the hardware perform the desired calculations and functions.

The following discussion outlines the types of software you should consider as a part of your farm system. It will conclude with some pointers to use when evaluating a software package.

Operating System Software

Storing programs, retrieving programs and data, etc., is the job of one important set of software called the operating system. The **function of the operating system** is to do the work of communicating between all devices of the computer system. If the computer wants information not residing in the internal memory, the operating system will be asked to go to the peripheral memory and get the information. The operating system also assists in the execution of any desired set of application software.

There are several operating systems used in small computers. The operating system is microprocessor dependent. However, different versions of the same operating system can be written for small computers using different microprocessors. The choice of an operating system is very often dictated by the hardware being considered. For each software package being evaluated it is important to know the operating system for which the software package is designed.

The Computer and Farm Management

Application software should be selected which will help improve overall farm management. The manager controls land, labor, capital, and equipment used in the production process. The goal of good management is to maximize profit while maintaining long term business health. The computer can be a tool to help answer four questions every manager asks:

Question 1: What is...? In small operations keeping track of the current state of the business is not always difficult. As operations grow in size the question becomes more difficult.

Question 2: What can be improved...? This is the diagnostic approach. Why are my crop yields lower this year? Does my dairy herd average milk yield justify the feed stock consumption?

Question 3: What if...? What if the price of corn rises to $2.76/bu? Can I cover my production costs? For "what ifs", electronic spreadsheet programs allow manipulation of data which is entered in ledger sheet form.

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

Software Types

Software currently available that you should consider can be classified into a few broad categories: (1) Financial Analysis; (2) Data Base Management; (3) Word Processing; (4) Telecommunications; (5) Specific Application Software.

Financial Analysis Software

Most business have similar needs in the financial area and farm businesses are no exception. A general financial software package is a group of programs and subprograms that have great flexibility. General ledger, accounts receivable/accounts payable and payroll are examples of these types of programs. In all cases, these programs should leave an audit trail in the same fashion as any good accounting system. These software packages generally help answer the "What is...?" question.

A payroll package may be a good starting package for a farm computer system if you have a number of employees for whom you must write regular paychecks. However, a general ledger or accounts receivable/accounts

[1]**Credits**-Bill Brown, Allan Rahn, Sherrill Nott and Clyde Anderson, Consultation; Susan Conway, Typing.

payable package may not be the best starting point for a computer novice. For these packages, you should feel comfortable with operating the computer so that the accounting package can be adequately tailored to your operation.

Another set of useful programs for financial analysis are the electronic spread sheet (ESS) packages. These help answer general "what if" questions.

Cash flow budgeting is one of the best applications for ESS packages. Setting up the ledgersheet, with income and expense categories down the left margin and monthly itemizations across the page, will give you a quick idea of when to plan borrowings, purchases, and product sales.

Livestock budgets are a natural for ESS packages, since slight changes in feed, cattle or interest rates can change your game plan. A model of feeding costs can be set up and monitored as input costs change. You can more quickly deal with uncertainty by knowing your options.

Crop production budgets and breakevens are one area most producers dread each spring. Entering these budgets into an ESS package, you can perform some quick "what ifs" to determine the best crop mix. An ESS package is a good software package for your first farm computer system.

DataBase Management Software

A Database Management System (DBMS) is a set of programs designed to help you manage and analyze information. The information is generally organized by records. Each record is a set of items relating to a place and time. For example, a crop producer can keep records for each field and each year. A record, for example, could include the following items:

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.

The records can then be sorted and analyzed to determine average crop yield for one year or a number of years, pesticide requirements based on the previous year(s), etc. The user determines what data to collect, how to store it, and how and when to update, modify or retrieve the stored information. A DBMS package provides the user with programs that can move, tabulate, copy, merge or otherwise manipulate data or information. Again, through user interaction with the program or system of programs, the output is shaped to the purpose. The user is not writing the program, but is manipulating the existing system of programs to achieve the desired output. However, the user must take the necessary time to learn to control the features of the available programs.

Herd books, field records, or other records are also a possibility for ESS packages, especially since such packages can function as limited database programs. Just input the data as you might on a normal columnar pad. You'll still have the number manipulation capability, which means you can perform limited analysis of your records. For example, you may have field records with yields down one column. You can quickly compute your average yield by field or over the entire farm. You can also compare each year's yield as a percentage of normal.

The capability of sorting and analyzing records is a good starting point for a farm computer system. A DBMS or an ESS package is good initial software package.

Word Processing

The use of a computer to manipulate alphabetic characters in groups is called word processing. Word processing capability can help the user prepare letters or reports. One Lansing area producer uses a computer to generate a mailer to announce the availability of fresh produce to potential customers. The computer types and addresses each mailer individually. Approximately 2500 mailers are produced in six hours. Other features available with word processors include the ability to produce multiple copies, easy correction of typing mistakes and reformating of text. Some word processors alter the word spacing within a line to produce justified margins on both sides of a page. If your farm computer is to have a printer, word processing software is a useful software package. It not only helps to prepare letters and reports for the farm business, it may be useful to other members of the family.

TeleCommunications

Telecommunications software allows your computer to "talk" to or communicate with other computers, and displays that information on your video display device. This information may include commodity prices, enterprise analysis or ration balancing using TELPLAN or similar large computer systems. More sophisticated software will also allow your computer to store that information for later use. Telecommunications software (which requires a modem as part of your farm computer system) can greatly enhance the power and information supplying capabilities of your farm computer system.

Specific Application Software

Application software is designed for specific uses and is often written for the individual user. These programs can help answer

any of the four basic questions posed earlier, but it is in this category where you are likely to find assistance in answering the "what should I do" questions. Currently we know about programs for hog farrowing, beef feedlot and dairy operations, which include herd health and milk production records. When considering software for specific applications, you want the software to fit into your management strategy. Can you write down on paper a description of each management function which you complete on a regular basis? A first start might be a list of management decisions;

1) Ration formulation
2) Crop fertilizer purchase
3) Herbicide selection
4) Grain sale versus storage
5) Livestock breeding.

Application software is very specific and often written for the individual user. As such, application software can be expensive and relatively inflexible.

Software Purchasing

If you are seriously considering adding a computer to your business, consider the software first, if at all possible. This may sound like putting the cart before the horse, and if this is your first acquaintance with computer software you might think that the task impossible and ridiculous. However, remember that when software packages are written, a specific machine is often targeted for the software.

Also, before you consider software, it is important to determine the role of the computer and the software with respect to the farm business. The most promising role of the small business computer on the farm is as a management tool.

Collecting the proper information regarding the job to be done is important. Generally less information is available than is needed and some assumptions must be made by you, the manager. Analysis of your management skills and needs will help define the requirements of the software you will want to buy. The details of cash flow decisions will help the manager evaluate cash flow software and choose an appropriate program.

Software Documentation

Documentation is the set of user instructions for the software package being evaluated. Is the documentation clearly written, using good quality paper and printing? Is it photocopied or otherwise unprofessionally constructed?

Writing the documentation is generally more difficult than writing the software. If the documentation is poor or carelessly constructed there is a good chance that the program is poorly constructed. A good piece of software is useless unless you can figure out how to use it. The documentation should describe how to get started using that software package. Is there a specific set of instructions for correction of incorrect input entries? Does the manual tell you the methodology used to arrive at the output (especially for specific application programs)? Generally, the documentation can be purchased separately from the program and at reduced cost. This charge can later be applied to the cost of the software if you decide to purchase it.

Warranty

Are extra backup copies available? Will you be notified if errors in the program are found? Are updates free after the initial purchase?

Software Evaluation

Next, evaluate the program when it is running. If you are using general database management or financial analysis programs, chances are your local computer store will have sample programs for demonstration. Generally a retail store will charge more for the same program than a discount house, but the retail store will also allow you to try the program and may provide user assistance after purchase. Use some of your own data, supply it to the program and compare the output to your calcualated figures.

When testing software, look at:

1) FUNCTIONALITY-The measure of how well the software performs the function for which you want to use it.

2) USEABILITY-Entering your own data will help you to evaluate the usability of the software. Make some deliberate errors to see how the program reacts. Error correction ability is one measure of usability. Does the software tell the user when an error in the input has been made, such as entering a letter when a number should have been used? If an error is detected, can the program recover, or must you start at the beginning again?

3) FLEXIBILITY-Once the input data have been entered, the ease of changing the output can be evaluated. How many possible output formats are available? Can you customize the output to fit your needs? Is this software a system of programs? Do the programs have provisions for sharing or updating data?

4) PERFORMANCE-The best example of performance occurs in terms of speed. It was stated earlier that a small computer can do anything a large machine can do, only slower. A software package may complete the job desired, but the time consumed may be prohibitive.

5) RELIABILITY-Are the answers given by the output correct? Do they agree with your data? What happens if you change the input data, does the output information change in the expected manner? Repeat the program several times with the same input data. Do you get the same output information?

6) SERVICEABILITY-How long will you be able to use this program before it is outdated? Does the supplier have provisions for updating the program?

Other Extension Publications

Computers on the Farm
Extension Bulletin E-1638

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

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

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