What Influences Farmers' Computer Use?

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Computers have hit agriculture. A 1987 Successful Farming survey found that 21% of the farmers either owned, leased, or shared a computer. Another 24% planned to buy a computer within the next three years.1 If only half of those who said they planned to buy a computer actually followed through, then about a third of all farmers would now have access to a computer. We can imagine beautifully organized databases filled with data on cattle and crops. We can envision spreadsheets distilling mountains of figures into easily usable information. Long-range plans, market reports, and electronic mail march across the farm video displays in our minds.

But do the dreams in our heads match reality? You may have already guessed the answer. A hog farmer admits, "I bought a computer about four years ago. Now the kids just use it for their homework." "We bought ours about a year ago," says a grain farmer, "but I'm afraid I haven't really got the hang of it yet." The manger of a large, diversified farm admits unabashedly, "I still don't trust the thing." And so he keeps books manually.

What determines how much a farmer will actually use his/her computer after purchase? In an ongoing study supported by a Hatch grant at the University of Wisconsin-Madison, we've been trying to find out. To date, our research has been preliminary and exploratory. During the past several months, we have interviewed and spent time with 18 farmers in southcentral Wisconsin and northeast Kansas. Of the farmers contacted, 11 owned computers and seven didn't.

Factors Influencing Computer Use

In this introductory study, we looked broadly at the farmers' background, environment, and personality. We set out to discover what forces in farm life enhance or diminish a

farmer's computer use. Although the findings have yet to be thoroughly tested, a number of factors seemed relevant to the question.

Complexity of Farm

Two aspects of this factor oppose one another. On the one hand, the more complicated the farm, the more necessary it would seem for a data storage and retrieval system. As one large dairy farmer in Wisconsin put it, "It used to be when I had 40 or 50 cows I could keep a lot more information in my mind. [Now]...I've got to depend on the computer as a memory source." But the other side may be even more significant for many. The larger the farm, the more time required for data entry and the more complex the database and spreadsheet design becomes. The demands are often perceived as more costly than the benefits.

Degree of External Support

Feed companies figure rations. The Dairy Herd Improvement Association keeps dairy records. Kansas State University offers computerized accounting printouts through a farm management service. Many banks also offer financial record keeping. Agronomists may keep crop records, veterinarians record herd information, and accountants store tax records. Many farmers subscribe to terminals that display up-to-the-minute market news and advice. With all these services, several farmers with whom we talked wondered just how much they really needed to use a computer.

Age

"You can't teach an old dog new tricks." Many farmers actually believe this old saw. Over and over, we heard statements about age from those who ran into difficulty learning to use the computer. "I'm too old to learn." "I'll leave it to my son. He's got computers in school." "It's up to the younger generation." Though we met older farmers who were using computers, this excuse appeared even among men in their 30s.

Views on Management

Through talking with and observing farmers, we noticed what might be an inconsistency. When asked, most of those interviewed affirmed the need for better farm management to increase farm profitability. Actions often belie this conviction, however. The implicit view was "the more you work, the bigger the farm, the more you make." Management activities were often given low priority. Indeed, fear was expressed more than once that management activities involving the computer take too much time from important outdoor activities, and thus are perceived as reducing profits. These sentiments seem exacerbated by a distaste for management activities.

Time

Of course, some of the problems with management activities involve legitimate time concerns. Cows must be milked, the fields cultivated, rations mixed, and hay put up. Data entry and software learning, on the other hand, can be put off. The single biggest hurdle in computer use is learning and configuring software. The time required for this is substantial. And repeatedly, we heard there just wasn't the block of time on the farm to sit down for an extended period to learn. As one farmer put it, "There just weren't any bad days last winter."

Experience

The successes and difficulties encountered by each individual farmer in using his/her computer determine to some extent how often the equipment is turned on. If a farmer's first software package didn't do what it claimed to, or if the documentation was bad, he/she may dismiss computing altogether. The farmer invests considerable money in software and is unhappy if it doesn't meet often-inflated expectations. Many computers seem to be sitting unused for this very reason, especially those purchased five or more years ago.

Network

Each farm is unique. Each farmer perceives different needs. Those in this study found general classes on computers of little help because they didn't relate specifically to their needs. Ultimately, the farmer must resort to an individualized approach to learning about computer use. One farmer said, "You have to slug it out on your own."

One factor determining who wins the fight is the number of contacts and sources of information readily available to the individual. Those who know a number of others using computers in similar ways were much more likely to use their computers extensively. Software companies offering support helped tremendously. There's nothing like being able to pick up the phone and talk with a friendly voice when you hit a snag.

Availability of Information

Drought in the Midwest not only refers to lack of rain. Lack of information on computers and agricultural software also fits the description. Few kind words were reserved for computer dealers who wanted to sell hardware to farmers, but knew nothing about agricultural software. Brochures come in the mail about this software package or that. Costs, however, are high and expert reviews are rarely found. The drugstore sells many computer magazines, but do you think they mention agriculture? Several farmers asked about information we had on software and what we thought of this piece or that.

Personality and Approach to Learning

As one might expect, several individuals were enthusiastic about their computers. They'd carefully researched their purchases. They'd taken the initiative to dig out information from anybody they could find who would talk with them. They'd sought out obscure farm

computing magazines. They'd gravitated toward others who used computers both in agriculture and otherwise. They sought new ways to put their computer to work. These people seemed to have unique learning skills and personalities that allowed them to maximize those skills. Just what characterizes such learners will be the focus of the next phase of this research project.

Some Implications

None of the factors listed above are new to most of us. The majority we know intuitively. The important thing about the list isn't the novel information, but what we do with it.

Several implications are suggested by these preliminary findings that might facilitate the use of computers in agriculture. First, we must do everything possible to support independent learning of computers. Formal classes, while of some help, don't appear to be significant. Rather, farmers need good sources of information and a wide network of other computer users. User groups composed of farmers,[2] electronic bulletin board systems, newsletters, expert farm software reviews, and files of up-to-date information at libraries and Extension offices could all help. Some Extension agents have been holding miniconferences and day-long workshops to help bring computer users and software vendors together. The farmers in this study who'd attended such meetings were pleased with the outcome, finding them helpful.

Secondly, we must continue the call to farm "smarter." Before farm computer use increases, more farmers must become convinced that quality management is an important determinant of profitability. Access to information must become a priority. But we must be wary that we don't find ourselves pushing for adoption of computers as the way to solve management problems when help might be sought from other sources. We must be willing to admit that in some circumstances, a computer may not be the most cost effective way of solving information management problems.

Finally, we must be particularly careful to nurture the novice computer user. The hurdle of initial computer learning seems to be the most significant determinant of later computer use. Here a network of computer users could play a role again. Perhaps a volunteer system could be set up where veteran computer using farmers could be put on a list. These people could then be paired with those who are just beginning. The help and support of just having someone to call is invaluable.

We don't claim that the findings of our research are definitive-the study was preliminary. We're impressed, however, with the significance of what has been uncovered to date and feel it's worth further exploration. While we'll continue to seek more understanding of the character and practices of the farm computer user, we invite others to join us in this endeavor.

Footnotes

1. Successful Farming, LXXXVI (February 1988), 50B.

2. The need for farm user groups is discussed more thoroughly in Thomas L.Thorburn, "A Study of Actual and Preferred Learning Activities and Microcomputer Usage in a Selected Group of Michigan Farmers" (Ph.D. dissertation, Michigan State University, East Lansing, 1987).