

Competing in an Information Society

Finding and Using Problem-Solving Technology and Information in Livestock Production

by Dixon D. Hubbard

Although many continue to think we live in an industrial society, we have in fact changed to an information society. Today's information technology—from computers to cable television—did not bring about this new information society. It was underway by the late 1950s. Today's sophisticated technology only serves to hasten the development of the information society. The problem is that our thinking, attitudes and, consequently, our decision making have not caught up with reality.

In 1950, only about 17 percent of the people in this country worked in information jobs. Now more than 60 percent work in information. It is the number one occupation in the United States. We now mass-produce knowledge, and this knowledge is the driving force of our economy. We are getting out of the work-hard-and-you-will-succeed complex and into the thinking business. Change is occurring rapidly and the future success of agriculture will be governed by our ability to adapt to this change.

The pace of change will accelerate even more as communications technology "collapses information float." Communication requires a sender, a receiver and a communication channel. Sophisticated information technology has revolutionized this process by vastly reducing the amount of time information spends in the communication channel. If I mail a letter to someone, it takes three or four days for them to receive it. If I send them a letter electronically, it takes a couple of seconds. That is "collapsing the information float." If they respond to my electronic letter in an hour, we have communicated in an hour rather than in a week.

Change is occurring much faster because of reduced information float. The speed with which information can presently be transmitted is awesome. However, we probably have not seen anything yet.

We are literally being inundated with various types of information. It is all around us—coming at us from every direction in ever-increasing quantities. The problem is sorting out information applicable to the decisions we are having to make on a daily, hourly or minute-by-minute basis. We are having to spend less time working and more time thinking. We are having a life and death struggle with our worship of the activity trap—equating activity with results—and reorienting our lives to planning and management by objective. We no longer have the luxury of postponing decisions and basing them predominantly on what we

learned from our past. We are now having to learn from the present how to anticipate the future. Ultimately, we are probably going to need to be able to learn from the future the way we formerly learned from the past and make decisions accordingly.

Using the information available

This nation's land-grant system, in cooperation with USDA, provides livestock producers with the best resource in the world for finding and utilizing problem-solving information and technology (Refer to sidebar for a history of the land-grant system and extension service.). However, finding information and technology is like laying a water line. Nobody likes digging the ditch, but it is the only way to get the water line laid. Since we cannot survive without water, we either dig the ditch or haul water.

Many livestock producers do not fully benefit from all the information and technology available to them through the land-grant system. The reasons vary: Some people have a strong enough economic base that they do not have to improve efficiency, whereas others feel that they do not have adequate cash flow to implement new information and technology. I recall making recommendations to both types.

We are getting out of the work-hard-and-you-will-succeed complex and into the thinking business.

Producers who are comfortable with the way they are doing things feel no need to change and will only accept new information and technology if it does not alter their management system significantly. This is fine as long as they can afford to be this independent, and some I have known can afford it a long time. On the other hand, I have known some that have gone down the tube before they ever knew they were in trouble.

It is not wise to ignore information and technological developments. Livestock producers who do not take advantage of the information and technology available through the land-grant system are wasting their tax dollars. They are helping to pay for information and technology they are not using. Granted, there are some weak spots in this system, but it is still the best in the world.

If it is not responsive to your needs, make it responsive. When you contact your local county agent and you do not get what you need, then keep going up the ladder until you reach the state extension director, if necessary. But make it work—it is in your best interest as well as those who will come after you.

In addition to the USDA and the land-grant system, numerous other delivery systems have developed through which livestock producers can receive information and technology. These include commodity organizations, general farm organizations, agribusiness, financial institutions, private foundations and others. Also, there is some networking between and among these systems. Therefore, we frequently receive the same information from a multiplicity of sources.

Information and technology delivered through these systems comes in the form of personal contact, telephone, letters, newsletters, bulletins, magazines, newspapers, books, meetings, seminars, symposia, workshops, radio, teletype, television, movies, cassette tapes, slide sets, computers and various combinations of these methods. Thus, livestock producers, like everyone else in this country, are exposed to a constant flow of information and technology in verbal, written and visual form. In fact, we are exposed to so much information and technology that many of us are becoming insensitive or overloaded to the degree that we are probably letting some good things go by. Also, the quantity of information and technology is still increasing along with improved methodology for delivering this information and technology.

This is why planning is so important. We must set goals and establish objectives that will accomplish those goals; then we can search out the information and technology that will help us accomplish our objectives. If the information and technology are not available for us to accomplish our goals and objectives, we have reason to be active in getting research initiated that will provide us with what we need.

Networking

There are livestock producers who basically follow most recommendations I have made regarding such planning. They have a well structured plan for their operation, set goals, establish objectives to reach these goals, manage by objective, and measure results. They are using basically all the information and technology available to them

that is applicable to their operations. They are also actively involved in helping set the research priorities for their industries.

I have noted these people do a lot of networking. Simply stated, networks are people talking to each other-sharing ideas, information and resources. They are structured to transmit information in a way that is quicker, more high-tech, and more energy-efficient than any other process we know. They are a very appropriate form of communication and interaction that is suitable for the energy-scarce, information-rich future of the 1980s and beyond.

The type of networking I have seen among livestock producers is done by phone calls, conferences, grapevines, mutual friends, coalitions, tapes, newsletters, photocopying, parties, etc. There are probably millions of networks of a similar nature, to one or more of which most of us belong-informal networks among friends, colleagues, community organizations-that never grow into the organizational stage.

One of networking's great attractions is that it is an easy way to get information-much easier, for example, than going to a library, university or government. Experienced networkers claim they can reach anyone in the world with only six interactions. It has been my experience that I can reach nearly anyone I want in the United States with two or three exchanges.

If the land-grant system is not responsive to your needs, make it responsive.

Although sharing information and contacts is their main purpose, networks can go beyond the mere transfer of data to the creation and exchange of knowledge. **As each person in a network takes in new information, he or she synthesizes it and comes up with other new ideas. Networks share these newly forged thoughts and ideas.**

I would encourage any serious livestock producer who is not part of a good informal network to give it serious consideration. Sharing ideas, information and resources in this way can be very fruitful and save a lot of time and money.

Holistic thinking

I also have noted livestock producers who take their businesses seriously think holistically. They are always concerned about how altering one component of their management scheme might affect another. For example, the research data on performance testing of livestock are solid. Therefore, any serious livestock producer should be utilizing this technology. However, if you, as a cattle producer, add a performance-tested bull with a high growth rate to your herd, **there are several other things you should consider in your management** scheme. If you plan to stock at the same rate, then in-

creased feed will have to be produced. Management of replacement heifers will need to be improved or they may not breed back as wet 2-year-olds. Growth rate is highly correlated with birth weight, so there may be an increased calving difficulty if your cow herd can not accommodate larger birth weight. In other words, the use of performance-testing technology is good management; but good management must know the limits to the use of this or any other technology.

I would encourage any serious livestock producer who is not part of a good informal network to give it serious consideration.

When I was an extension specialist in Texas, there were over 100 recommendations with a sound research base that could be made relative to some aspect of the production of cotton. The quickest way for any cotton producer in the state of Texas to go broke was to try and implement all these unsystemized recommendations simultaneously.

The point is that all information and technology (independent of how well-founded it is) must be tailored to fit the operation and management scheme of a producer. Some of it will not fit at all and, therefore, should not be applied. Good information and technology improperly applied can be an economic disaster. Sorting out the information and technology that will provide the highest economic returns and applying it effectively are what management is all about. This is why it is said that there is no substitute for good management.

Future considerations

The vast quantity of information and technology available for producing livestock in this country is even beginning to stymie the best managers. Thus, there is a concerted effort on the part of the major livestock commodity organizations in this country to get the USDA and the land-grant system to be more responsive to this problem. They are insisting on the integration of disciplines and the functions of research and extension (in concert with industry) in both the identification and solving of problems. They are saying they cannot handle all the information and technology they receive in component parts anymore. It appears that Congress will ultimately pass legislation to ensure that the USDA and the land-grant system become more responsive in this area. In the meantime, both the USDA and several land-grant universities are making adjustments to accommodate this need.

I have not gone into detail on the specific methods of finding and utilizing information and technology. Basically, I have said there is a lot of it around. All that determines the amount that livestock producers receive is

Background of the Land-Grant System

From whence did we come in agriculture information and technology? Land-grant colleges were created by the passage of the Morrill Act in 1862. This granted land to each state for establishing and supporting an institution to teach agriculture in addition to other areas of higher learning. These institutions, presently known as land-grant universities, were established especially for working people and were originally known as "the people's universities."

At the time land-grant universities were established, the United States was predominantly rural, and agriculture was the principal occupation. Farmers only had knowledge derived from experience and observation, or handed down from one generation to another. Traditional ways and empirical knowledge were valuable, but they were inadequate to meet the needs of a developing agricultural industry and of a developing nation.

Soon after the establishment of the early agricultural colleges, it was realized they lacked a body of scientific knowledge and relevant subject matter to teach. Consequently, the Hatch Act, which created agricultural experiment stations, was passed by the U.S. Congress in 1887. Scientific research conducted by these experiment stations, which were established as an integral part of land-grant universities and the U.S. Department of Agriculture (USDA), provided purposeful, effective and dependable information for teaching agriculture. However, this information was available only to the few people who attended the colleges. Thus, the Smith-Lever Act, which created the agricultural extension service, was passed by Congress on May 8, 1914.

The passage of the Smith-Lever Act provided for cooperative extension work in agriculture, home economics and related subjects between the land-grant college of states and the USDA. The cooperating states were required to furnish supporting funds at least equal in

amount to those appropriated by Congress.

Congressman Lever, chairman of the House agricultural committee, introduced the Smith-Lever Act and said the purpose of cooperative extension was to set up a system of general demonstration teaching throughout the country. The agent in the field, representing the college and the department, was to be the mouthpiece through which this information reached the people.

The major responsibility of the agricultural extension service, as stated in the Smith-Lever Act, is "to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same." It further states in the act that cooperative agricultural extension work "shall consist of giving instruction and practical demonstrations in agriculture and home economics and subjects related thereto to persons not attending or resident in said colleges (land-grant universities) in the communities, and imparting information on said subjects through demonstrations, publications and otherwise." Little did the congressman realize the magnitude of all the subjects that would ultimately be related to agriculture and all the methods that would ultimately be available for imparting information on this subject. If he had, cooperative agricultural extension might have never gotten off the ground.

Seventy years after its birth, extension's mission is essentially the same. Today the cooperative extension service interprets, disseminates and encourages practical use of knowledge. It transmits information from researchers to the people and the people's problems to the researchers. But it also is an agency of change. It functions as a dynamic educational system oriented to the development of educational programs designed to meet the changing need of diverse publics. A major strength of extension is

the involvement of people in the program-development process indeterming, planning and operating programs that meet their needs.

The Morrill Act which established land-grant universities, the Hatch Act which created experiment stations, and the Smith-Lever Act which created the cooperative agricultural extension service were (and still are) key factors in the development and delivery of information and technology for livestock producers and agriculture in general. The land-grant system in cooperation with the USDA still produces and extends a major portion of the information and technology available to agriculture producers in this country and many other countries. It also develops most of the agriculture scientists and educators for government, universities and industry who continue to perpetuate the flow of information and technology to producers.

The wisdom, and possibly luck, of the leaders of this nation who fostered the land-grant university system boggles the mind. This system tied to free enterprise is the backbone of the most dynamic and efficient food-producing machine in the world-American agriculture. Directly or indirectly, this accomplishment is responsible for most of the factors that contribute to the United States having the highest quality of life of any nation in the world.

I have talked with a tot of people who have visited and compared American agriculture with agriculture in other countries. I have yet to find one who has not developed a deeper appreciation for the land-grant system and free enterprise. They all will tell you this makes American agriculture great. We not only have a system for generating needed information and technology, but we also have a system for getting it to the people and the people have economic incentive to utilize it.

AJ

the degree to which they wire themselves into the various sources available. However, the primary source is still the land-grant university system.

Being inundated with information and technology, on the other hand, will not solve many problems. The name of the game is to have the ability to sort out the information and technology that will result in the greatest economic returns on a particular operation and to apply it. This requires good management that sets goals and manages by objective. This also requires getting good advice. Select some people in whom you have confidence and who can give you a

knowledgeable and unbiased answer to your questions. This may be the least expensive and most effective source of help a producer can obtain in evaluating information and technology. Set up an informal network if you can. Share information and ideas, solicit help, listen to what knowledgeable and unbiased people tell you, show your appreciation for their assistance, and then make your own decisions.

The livestock commodity organizations, the USDA, and the land-grant universities are aware of the need to improve information and technology by reducing the number of component parts a producer must in-

tegrate into the decision-making process. Seemingly there is help on the way in this area.

In the meantime, remember: No decision is any better than the information on which it is based. There is ample information and technology available to livestock producers in this country to make good decisions.

AJ

"Finding and Using Problem-Solving Technology and information in Livestock Production" was presented at the 1984 International Stockmen's School in San Antonio, Texas.