

Information and the Farm Business

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The amount of new knowledge produced by each generation is said to equal the sum of all knowledge produced by all preceding generations. Of course, knowledge produces many good things for our society. But it also presents difficulties. One of the most perplexing problems is how to effectively transmit and use new information.

For the farmer and farm community, selecting from and handling such a profusion of information is an enormous problem. Technological changes related to farm operations have advanced faster than they can be absorbed into practice. Even staying aware of new changes is a difficult task for the average farmer.

The farmer who has successfully identified his particular information needs still faces the task of choosing from a deluge of information sources. The farmer who has not identified his needs faces an even greater problem. And trends in the development of relevant new technologies suggest that the situation will worsen.

The effective management of land, labor, and capital resources is becoming increasingly dependent on obtaining and using the best information available. To assist the farmer in more explicitly identifying and fulfilling his information needs, this article concerns the role information plays in the farm business, factors that affect the nature of information selection and use, and what the farmer can do to improve information management in his farm business.

FARM MANAGEMENT AND INFORMATION USE

The farmer's primary function is to manage a business enterprise. Based on his knowledge and other information, he puts together certain resources to produce some output. The success of his endeavor depends as much on the quality of his information and how well he puts it together as on the productivity of his resources.

Information enters into every facet of farm management. Consider the four management functions:

- Planning the activities required to run a farm.
- Executing these activities.
- Evaluating the results.
- Maintaining an awareness of factors that could affect the farm business.

As shown in figure 1, the four processes are not entirely unrelated, and different kinds of information are applicable to each step.

In any operation, results are of primary interest. However, attention must be given to how to achieve these results. In other words, what is needed is detailed information on how to execute each activity.

The execution of any activity cannot come about spontaneously. In planning the activity, the farmer is only generally interested in how the activity is to be executed. He is mostly interested in the relationship between the execution of the activity and the rest of the farm business.

For planning to be effective, evaluation of the results should follow. Evaluation is comparing the results with the plan. How well were the intended ob-

jectives achieved? Was the process executed as planned? Such evaluation should result in future planning changes when the activity is to be repeated.

A particularly important task for the farmer is keeping up to date with business and technical factors that could affect his farm business. He should keep up with reports and analyses of the importance, potential, and likely effects of new technologies, changes in market conditions, government programs, etc. He can gain such information from such sources as farm journals and other periodical reports, at meetings, and from talks with salesmen and extension agents.

INFORMATION NEEDS

The kinds of activities for which a farmer plans define the types of information he requires. Generally, he needs information about:

1. Acquiring resources: what kind and what quantities does he need; where, when, and in what manner should he get them; and what is the cost of resources purchased.

2. Using resources: what are the combinations or organization of the various resources; what kinds, quantities, and methods (technologies) should be used; and when should they be used and who is involved.

3. Disposing of resources (including commodities produced): what kind does he have and in what quantity; where, when, and in what manner should he dispose of them; and what is the price or cost of the disposed resources (commodities).

4. Accountability and control: recorded information about the preceding.

These information needs apply both to long-run and day-to-day operational decisions. The principal difference is that information for the long-run is more analyzed and interpretive and is

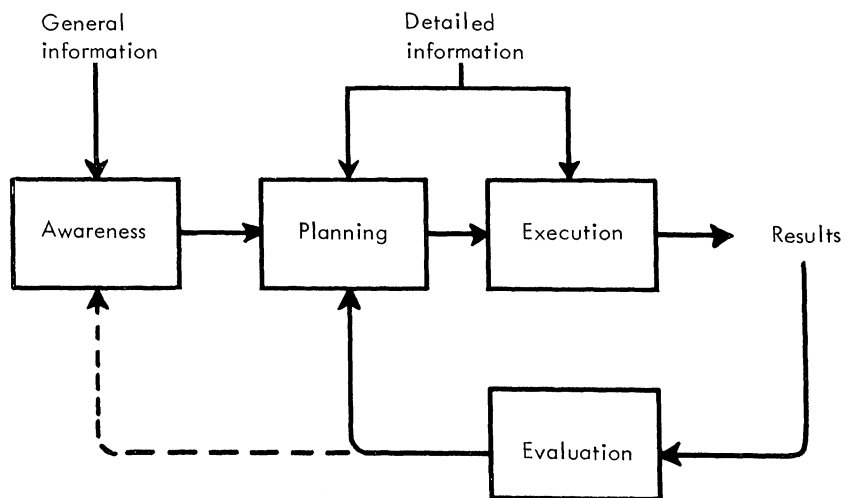


Figure 1. The four areas of management for which information is required.

Prices: Information on prices received for farm products and prices paid for items used in farm production—this includes past, present, and future prices. Examples:			
Current market prices	Corn-hog ratio	Feed and supply prices	Wage rates
Market outlook	Dairy-feed ratio	Machinery prices	Interest rates
Production Factors: Information on the effects of all accepted farm practices and items used in production on rates of crop and livestock production—also information on how soils, disease, and weather affect yields. Examples:			
Fertilizers	Crop varieties	Storage methods	Tillage practices
Sprays and insects	Feeding rates	Work methods	Building layout
New Developments: Information on new developments or changes in farm practices and items used in production. Examples:			
Supplemental irrigation	Antibiotics	Anhydrous ammonia	Meat-type hogs
Chemical weed killers	Krillium	New feed supplements	Self-feeding silos
Human Factors: Information about individuals you may have to deal with or consider in making decisions about a farm. Examples:			
Family members	Neighbors or friends	Dealers and buyers	County agents
Relatives	Other people	Salesmen	Hired workers
Political, Social, Religious Factors: Information on local, national, and international governments and formal and informal groups whose actions affect a farm. Examples:			
Acreage controls	Tax rates	Church practices	Drainage districts
School districts	Draft	Conservation programs	Co-op policies

Figure 2. Information categories and examples required in managing the farm business. Source: Johnson, Glenn L., and Cecil B. Haver, *Agricultural Information As An Aspect of Decision Making*, Tech. Bull. 273, Agr. Exp. Sta., Univ. of Mich., East Lansing, 1960, p. 28.

applicable to farmers generally. Such information concerns long-run demand and supply positions of commodities, future directions in production input markets and prices, technological changes, and governmental activities that can affect farm organization and operation.

Information relevant to intermediate and short-run situations also may be interpretive, but characteristically it will be more specifically related to particular decisions made by the farmer.

Examples of information that might be considered are given in figure 2.

DECISIONMAKING AND INFORMATION

In managing his farm business, the average farmer must contend with enumerable decisionmaking situations. He probably makes most decisions without even being aware of a process. But some decisions require long and agonizing contemplation and effort.

Decisionmaking is the process of converting information into action (including the alternative of no action at all). The value of information depends on the value of the decision to which it contributes. So any discussion of information must include consideration of the decisionmaking process.

HOW DECISIONS ARE MADE

Decisions can be made (or not made)

in a number of ways. A farmer's approach to resolving situations varies both with the nature of the situation and his own ability or willingness to cope with complexity. Too often, his choice is not to get into a situation that requires making a decision. Or he makes no decision on the premise that the situation will correct itself or certainly can't get worse.

But in cases where his approach is positive, response may occur at one of four levels:

Habit. Humans necessarily have a natural tendency to convert as many repetitive activities as possible into a standard pattern of action (or reaction). On the farm, feeding and milking chores certainly fall into this category.

Skill. In a sense, skills are also habits. However, although skills result in a standard approach to resolving a situation, the resulting action may vary according to the type or degree of skill.

Formula. Some decisions can be made with standardized formulas. Formulas can be based on such things as (1) *folklore*, e.g., "plant when the moon is full" (obviously a prime candidate for added information); (2) *reliance on previously successful solutions* to the same or similar situations; or (3) *pseudo-scientific approaches* utilizing management tools such as budgeting, linear programming, or various research techniques.

Judgment. Most important decisions eventually involve a great deal of judgment. The decisionmaker will accumulate as much information as he considers necessary or feasible. Then, based on this information and his education, experiences, and biases, he will make a decision. Judgment usually is required, even with pseudo-scientific approaches, because it is very impractical and perhaps impossible to incorporate all relevant factors in a scientific decisionmaking technique.

As shown in figure 3, each of these decisionmaking methods varies in relative importance as the complexity of the situation increases. The mark of the successful farm manager is knowing

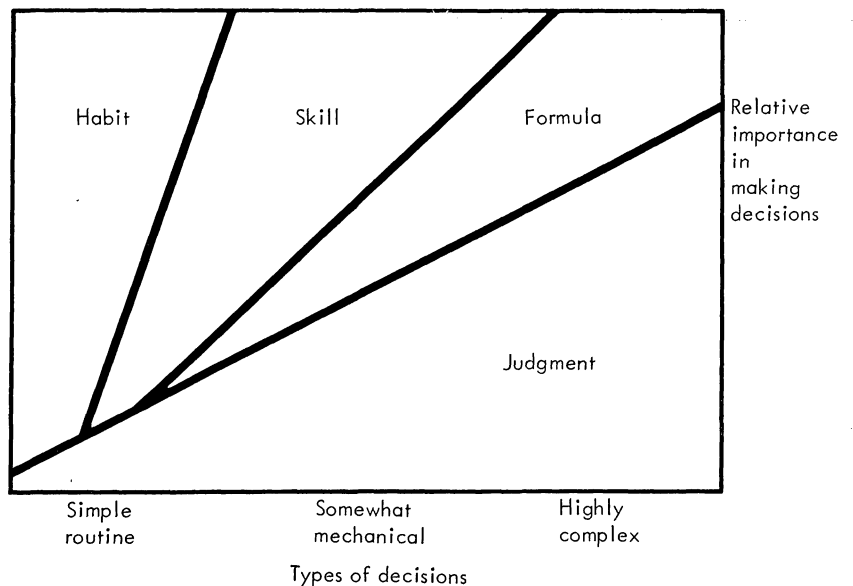


Figure 3. The relative importance of various decisionmaking techniques in making decisions.

which decisionmaking methods to apply to which situations.

INFORMATION QUALITY REQUIREMENTS

The nature of the decision certainly has an effect on the amount and quality of information required. For example, consider the relative importance of: (1) Length of the decision's effect, (2) Economic implications of the decision, (3) Frequency with which the decision must be made, and (4) Frequency with which the action resulting from the decision occurs.

Decisions with long-run effects or large economic implications obviously must be based on accurate and adequate information. On the other hand, frequently-made decisions (such as those involving feed purchases) usually are made the same way each time. In some cases, the required information may be less complete than might be justified. A single decision resulting in a repetitive action, such as determining feed rations, usually receives a great deal of attention when the decision is being made. However, such decisions often are not reevaluated at regular intervals as they should be.

EDUCATION AND INFORMATION

The amount and kind of information a farmer must seek depend in part on his knowledge—the sum of all the information he has retained. Soundly-developed, updated knowledge can aid him in decisionmaking in three ways:

1. A sufficient amount of information will enable a farmer to make some decisions relatively quickly.

2. A farmer will make more intelligent decisions in areas requiring a great deal of judgment.

3. A farmer will more consciously recognize the effects of individual biases and prejudices on decisions.

An often neglected and important information need is that which expands a farmer's knowledge and skill. His own experiences probably are the farmer's best guides to the type of information he should try to retain. They also may be his best source of some information. Of course, experiences have to be assimilated into his knowledge, and such assimilation requires more than black and white reactions. Instead, he must consider how experiences mesh with what he already knows, what additional questions his experiences raise, and what else he needs to know about the subject.

INFORMATION MANAGEMENT

To improve the quality and increase the quantity of information he uses in

managing his farm business, a farmer should:

Know the Farm Business Thoroughly

There is no substitute for knowing how the individual pieces of the farm business operate, how they fit together into a functional organization, and what factors affect their proper performance. Like a mechanic, the farm manager must thoroughly acquaint himself with the workings of his machine in order to know when it is and isn't functioning properly.

Establish a Definite Plan for Satisfying Information Needs

The farmer should identify, at least generally, the information needs of his farm business and the alternative sources for satisfying them. He should regularly set aside time to keep himself abreast of both technical and economic trends and changes relevant to his farm operation. As they are brought to his attention, the farmer should keep a record of potential information sources for specific decisionmaking situations.

Maintain Adequate Records on Operations to Provide Complete Managing Information

Management of a farm business cannot be completely effective when evaluation of farm operations is based on incomplete knowledge. Adequate records should include both cost and performance data on the smallest functional unit affected by a decision. The burden of recordkeeping as well as the task of analyzing data may be transferred to one of the numerous organizations that have established computerized farm recordkeeping services. The benefits of this service usually are well worth the cost.

Utilize Management Consultants and Farm Management Services to Aid in Evaluating Complex Plans and Decisions

There are increasingly more planning and decision situations for which the farmer does not have the capabilities to make evaluations with acceptable effectiveness. The degree of technical and economic information and the analytical techniques required to produce good results are two reasons for such situations.

Particularly where long-run implications and/or substantial economic impact is involved, a farmer can benefit from expert consultation. Such outside assistance may prove beneficial even for relatively minor decisions when they involve much technical information.

With the advent of electronic data processors, the use of many new ana-

lytical tools has become feasible. Their use can provide managers with refined information and enable them to make more accurate decisions. The sophistication of these techniques and the necessary supporting equipment require greater resources than most farmers can provide. Nevertheless, farmers must make use of these tools to remain competitive in agricultural production.

Utilize "Packaged" Inputs in Cases Where a High Degree of Technical Knowledge is Required

By using this common and easily accessible means, a farmer can transfer his need for technical knowledge and skill to someone else. Pesticides, commercial feeds, and fertilizers are examples of common packaged inputs—inputs that include services and information as well as basic materials. In some cases, it may pay the farmer to turn over an entire enterprise, such as a feedlot, to professional operators if a more effective operation will result (i.e., if the gains in returns exceed the costs of the service).

SUMMARY

The good farm manager is one who can (1) identify decision areas that need attention and identify what is involved in making the decisions, (2) is constantly aware of his farm's possibilities, and (3) knows how or where to obtain detailed information about such possibilities. He gets as much information as necessary to make good decisions, or he sees that decisions are based upon the best available information.

Every farmer should have a plan, however informal, for periodic review of relevant information. He also should have knowledge of how to obtain necessary information for specific decisions. Equally important, he should know the limits of his own ability to completely evaluate and make decisions concerning the complex situations he encounters. Knowing when to seek outside help is as important as knowing where to seek information. ■

New Publications

Farm Management of Agri-Business Firms, Frank J. Smith, Jr., and Ken Cooper, Spc. Rpt. 26. (\$2.50, plus tax.)

Economies of Size in Storing and Packing Potatoes, J. C. Chai, J. K. Hanes, and F. J. Smith, Jr., Dept. of Agr. Econ. Rpt. 531.

For copies, write: Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul, Minnesota 55101.

Outlook Corner

Outlook for Business and Agriculture, 1968

P. R. Hasbargen and V. W. Ruttan

Despite a dampening of economic activity during the first half of 1967, the American economy is experiencing its 7th year of uninterrupted expansion. Expansion is expected to continue in the year ahead. But, because of the uncertain pace of economic growth during the first half of this year plus unresolved federal expenditure and tax policy questions, it is difficult to estimate the magnitude of the growth rate during the next 12 months.

The slowdown in economic activity during the first half of this year was to a significant extent the result of the vigorous use of monetary policy (such as higher interest rates) and fiscal policy (such as removal of the investment tax credit to curb the inflationary pressures that had been building up during 1965-66).

While a resurgence of economic activity is now underway, the extent to which increases in productivity and output will be accompanied by an inflationary rise in wholesale and retail prices is not clear. Much depends on whether taxes and interest rates are increased. If taxes are not increased to help drain off some of the excess demand rising from consumer expenditures and if interest rates are not increased to dampen investment, retail prices probably will rise by 3-5 percent during the next year. This rise might be significantly less if taxes and/or interest rates are increased.

Farmers have a special stake in efforts to restrain inflationary pressures during the next year. With crop pro-

duction up substantially this year compared to last, lower crop prices can be expected in 1968. At the same time, inflationary pressures probably will continue to raise the prices farmers pay for production inputs.

A capsule outlook for important Minnesota farm commodities and total farm income in the coming year follows.

Crops

Present stocks of feed grain are at their lowest level since 1955. But since this year's crop will be larger than necessary to meet 1968 utilization needs, crop carryover is expected to increase, especially for corn. New corn prices will move to lower levels, carrying oats, barley, and sorghum prices downward as well.

U.S. soybean production is expected to reach 1 billion bushels this year—an 11-percent increase over last year's crop. This large supply, combined with a record 100-million bushel carryover, will place strong downward pressure on farm soybean prices despite continued growth in domestic and foreign demand for beans, meal, and oil. The \$2.50 per bushel support rate probably will dominate the soybean price picture throughout the 1967-68 crop year.

Livestock

Feeder cattle prices will be about like last fall. However, feed costs will be lower and slaughter prices will be higher in 1968. Consequently, profits from cattle feeding should be considerably better in the year ahead than they were the past year.

Favorable price and profit levels are expected for hog production through the fall months of 1967 and the first half of 1968. However, farrowings are expected to increase next spring, resulting in increased supplies and lower hog prices in late 1968.

Price and profit conditions for lamb feeding should improve considerably in 1967-68 compared to the rather poor conditions in 1966-67. Major contributing factors for this improvement will be lower feed costs and a more favorable feeder-to-slaughter price margin.

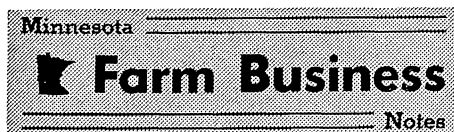
Milk production in the year ahead probably will increase moderately, but continued declines in per capita consumption are likely. Government purchases will continue to be an important factor in supporting milk prices.

Net Income

Realized net income for U.S. agriculture for the first half of 1967 is estimated at an adjusted annual rate of about \$14.8 billion, down from the near record high of \$16.4 billion for 1966. During the second half of 1967, increases in crop output over the previous year are expected to slightly more than offset somewhat lower crop prices. Livestock income will be increased due to improved prices in the last half of the year. So, realized net farm income for 1967 should total near \$15 billion.

Average earnings per farm were at a record high in 1966. Some decrease will be sustained in 1967, since farm numbers probably have not dropped enough to offset the drop in total net income.

For 1968, total net farm income probably will increase, resulting in significant gains in per farm income over 1967. However, the extent to which these gains will be realized in real income will depend in part upon the amount of inflation we experience in the year ahead.



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