The Role of Management

Farm firms operate in a dynamic environment in which any of the variables which affect farming operations may change at any time. Change—along with values, beliefs and limitations on man's perceptual abilities—leads to imperfect knowledge and imperfect foresight. Lack of perfect knowledge and foresight leads to uncertainty. Thus, the crucial role of management is to formulate expectations regarding the future, to devise strategies for dealing with uncertainty, to decide upon and take action designed to fulfill goals of the firm, and when necessary to adjust the goals themselves.

More specifically, management consists of performing these functions or processes: (1) formulating the goals of the firm, (2) recognizing problems and opportunities, (3) obtaining information and analyzing alternatives, (4) making decisions, and (5) taking action, accepting responsibility, and evaluating the outcome.

Objectives

The purpose of this paper is to discuss changes in the demand for and supply of managerial services in farm firms during the next 15 years.

First, I shall outline recent and prospective changes in agriculture, with emphasis on changes that have an impact on managerial requirements and on the supply of managerial services. Because of the wide variations which are likely to be relevant in our analysis, I do not consider it fruitful to attempt to predict what the "average" or "typical" farm will look like in 1980. I intend only to indicate the possible range which may exist in important variables affecting the demand and supply of management. Thus, if I suggest that there will be a number of very large farms by 1980, I mean only that there will be enough of them to merit some of our attention; I will not be implying that all farms or the typical farm will be very large.

Next I shall consider the demand for managerial services. The major factors which influence the managerial requirements of farm firms are (1) economic environment, (2) input mix, (3) degree of specialization, (4) size of business, and (5) form of ownership and control.

Then I shall discuss the supply of managerial services for farms; it is influenced primarily by (1) migration, (2) development of managerial abilities

*Professor of agricultural economics, Michigan State University.
in individuals in the farm unit, and (3) hiring outside consultants and other managerial services.

I shall conclude with a brief section on what I consider the challenge of management.

**Changes in Farming**

**Changes in Economic Environment**

During the next 15 years there will likely be steady and sustained growth in the U. S. economy, with government action designed to avoid major ups and downs in the business cycle.

Even though population and per capita income levels will be increasing, output of a number of farm products will exceed effective demand, and farm prices will be under continued pressure. With the moderate inflationary trend which is expected, prices of inputs purchased by farmers will increase. Some farm groups will press for higher farm price supports and other programs to aid farmers; these programs will be increasingly difficult to obtain because of the diminishing political influence of farmers.

In the past decade competition has led to the rapid adoption of new technology on farms. Much of the new technology has been in the form of inputs purchased off the farm. Many of these inputs require large investments, and farmers have expanded operations in order to spread overhead costs and attain lower costs per unit of output. At the same time, expanded output has kept ahead of the demand for farm products, resulting in depressed prices, the price-cost squeeze, and the necessity for many farms to operate on narrow margins. This cycle seems almost sure to continue during the next 15 years, barring a major war or other occurrence.

**Changes in Inupt Mix**

One of the most dramatic changes in American agriculture has been the shift toward greater use of capital relative to land and labor. The shift toward substituting capital for labor, and to lesser extent land, was particularly rapid during the 40's and 50's. Increased capital came mainly in the form of inputs purchased from off the farm, such as mechanical power, equipment, feed, fertilizer, and insecticides. The shifts came about partly because of the rapid development of machine technology, partly because of the high prices of land relative to the prices of other farm inputs, and partly because of difficulties farmers experienced in getting the quality of labor they desired. The shifts were hastened by the research and educational work of the USDA and the land-grant colleges.

By 1980 it seems certain that in considering management we shall have to take account of further changes in the input mix on farms.

With continuing inflation and the demand for land for urban development, land prices and real estate taxes will probably continue to rise.
Most certainly the quantity of inputs purchased from off the farm will increase further. Many farmers will find it profitable to adopt the new inputs that result from technological research and innovation. Not only will there be an increased range of inputs available to farmers, there will also be many improvements in the qualities of inputs that are presently available.

By 1980 it is highly probable that a federal minimum wage, and perhaps also federal regulations on housing and working conditions, will apply to hired farm labor. These federal regulations, plus the increasing mobility of labor, will result in significant increases in costs for farmers using substantial amounts of hired labor. Higher labor costs suggest the consideration of further mechanization on some farms.

I suspect that by 1980, many farming operations that are now done by hand will either be eliminated or mechanized, and many that are now mechanized will be automated. In the fall of 1964, the head of the production planning division of the International Harvester Company made the flat declaration that every farming operation conceivable could be mechanized -- at a cost. He went on to express the conviction that farmers will pay the necessary price for machines that will relieve them of the drudgery of performing the most repetitive farming operations -- tasks that are repeated day after day over a prolonged period of time. He also pointed out that much new technology in machinery design does not replace the old but instead is added to it, thus increasing the number of machines and the machinery investments on farms.

Thus, I expect further declines, relatively, in the importance of the land and labor inputs in farming, and increased use of purchased capital per farm, per acre, and per farm worker. Our analysis of managerial requirements, however, will need to consider the wide variation in the proportions in which inputs are combined on farms.

**Changes in Degree of Specialization**

In general there has been a trend toward increased enterprise specialization on farms, and I expect this trend to continue. On farms with limited resources, advantages to be gained from adopting new technology can be gained only by specializing in order to attain adequate scale. Other factors which may lead toward greater specialization are (1) opportunities for concentrating efforts and skills on production of one or a few products, (2) buying and selling advantages that may result from increased volume of a commodity, and (3), under some circumstances, greater efficiency in the use of labor and management. On the other hand, the move toward more specialization will be limited by the need and desire of some farmers to remain flexible in order to cope with uncertainty, and by the possibilities of utilizing some resources more effectively in a diversified rather than in a specialized organization. In some farming operations diversification may
may move in the direction of taking on more processes, especially to utilize resources during the winter months.

During the next 15 years we shall need to give attention to the managerial requirements of farm units with fairly wide product diversification: those that are specialized on one product, but carry it forward through a number of stages in processing; and those who specialize down to one stage on one product (producing feeder pigs, raising dairy heifers, finishing cattle).

**Changes in Size of Business**

For some time there has been a steady increase in the average size of farms, whether measured in terms of acres, capital investment, or volume of output per farm.

During the 20 year period 1939 to 1959 the total number of commercial farms declined from 4.1 to 2.4 million according to the U.S. Census. The decrease in the total number of commercial farms was mainly accounted for by the disappearance of small marginal units with less than $2,500 worth of sales.

Nikolitch's study of census data indicated that the number of farms with total value of sales of $10,000 to $40,000 increased from 284,000 to 693,000 from 1939 to 1959; the number with sales of $40,000 to $100,000 increased from 24,000 to 82,000; the number with sales of $100,000 or more increased from 5,000 to 20,000.¹ By 1959 there were about 800 farms with one-half million to 1 million dollars of sales, and 400 farms with 1 million dollars or more of sales.

While there were increases in the number of larger farms in all farm types, the greatest increase in the number of larger farms was in livestock farms, followed by cotton, poultry, dairy, and fruit and nut farms, with the least increase on tobacco farms.

Even though the average size of farms and the number of larger farms has been increasing, Nikolitch's study showed essentially no change in the proportion of farms using more than 1.5 man-years of hired labor.

A continued decrease in the number of farms through farm consolidation, an increase in the average size of farms, and an increase in the number of larger farms are expected during the next 15 years. The extent of change will depend on a number of factors. Some agricultural economists believe that institutional factors will limit the growth of larger farm units. It is true that the size of farm units has been strongly influenced by national policies and programs in the past, and this will probably continue to be true to some extent in the future. The institutional restraints relate primarily to ownership and the use of land, and these restraints are likely to decline in importance in the period ahead. Federal government policies -- such as those which had strong influence on land settlement and land use in the past--will have decreasing relevance as a determinant of farm size. Also, land is becoming less of a limiting factor in expanding the size of business because it is increasingly replaced by purchased nonfarm inputs and technical know-how. Land tenure and transfer laws, as well as difficulty in finding farmland available for purchase, will limit farm expansion in some states. Thus, growth patterns may vary considerably from state to state.

There are few effective institutional restraints on the acquisition of non-land inputs needed in farming. Financing has served as a limiting factor in the past, and will certainly continue to be for some farms in the future. At the same time, some farm managers will be able to obtain sufficient financing to carry out substantial expansions in farm size.

Probably the most important factors that will influence the growth in size of farm units are those that relate to economies and diseconomies of scale. The disappearance of many smaller farm units is generally attributed to economies in the use of technology and equipment which require large capital investments. Many of these investments cannot be justified on small farms; per unit cost advantages can be realized only by expanding output. Also, an increase in the scale of operations may lead to efficiencies in the use of labor, and to buying and selling advantages.

Beyond a certain point, some agricultural economists believe that further growth in the size of firms is discouraged by the appearance of diseconomies. Diseconomies of scale are generally attributed to management as the limiting factor -- the inability of management to coordinate and control a large organization, and to supervise workers -- some of which may be at a considerable distance from headquarters. Other diseconomies which are suggested are increased costs and difficulties of obtaining the amount and quality of inputs needed, and finding markets for certain kinds of outputs.

Economies of scale studies frequently have shown that smaller units can achieve substantial reductions in unit costs by expanding, but that after an efficient size is reached there are no strong economic incentives for further expansion. At the same time a number of studies have indicated that unit costs are approximately constant over a wide range. This evidence seems to indicate that the average cost curve remains flat, or at worst
rises only gradually, with considerable increases in farm size. This may indicate that over a wide range of farm sizes neither important economies nor diseconomies apply—or more likely, that such economies and diseconomies as exist pretty well balance each other. Where either of these conditions exist larger farms will have higher net incomes simply because of the larger volume of business.

With roughly constant average per unit costs, or even with slightly increasing costs, some more talented and adventurous managers explore the possibilities of very large farm operations. In some cases, the farm manager decides upon the size and organization of a sub-unit which is efficient, and then tests his ability to control additional sub-units of this same size and organization. After successful large scale units are established, other farmers try units of similar scale. Once the pattern of large scale farm units is established, the pattern tends to be repeated within the region where it starts, and to spread to other regions.

Economies of large scale production appear to have developed to a greater extent in livestock and poultry production than in crop production. Examples are broiler producers who turn out hundreds of thousands of broilers, cattle feeders who handle 50,000 or more head of cattle, dairy herds of several thousand cows, and operating units with as many as a million laying hens. Many of these operations are carried on with very small acreages of land, and many are large integrated units that cannot be classified as family farms. Of the very large units that have been established, a number have gone broke, some are moderately profitable, and some are highly successful and persist.

In the next 15 years there will certainly be an increase in the average size of farms, perhaps a doubling. There will particularly be a decrease in the number of smaller farm units, although some of them will not doubt persist. There is no doubt in my mind that the great majority of farms will be family farms, although the family farms will increase in size. While many of them will be approximately one-man farms, there will likely be an increase in two-man and possible three-man farms, especially on livestock farms where chores and other operations must be performed every day. I tend to believe that there will be a faster increase in the number of larger units than some of the other participants in the conference. It is not essential for us to agree on this, however. My point is that in considering managerial requirements we shall need to take account of the very wide range in farm sizes which will exist.

Changes in the Form of Ownership and Control

Given the increasing technical and economic complexity of farm management, some agricultural leaders raise the question whether the individual general-purpose farmer -- asset owner, risk bearer, manager, supervisor and
laborer -- is capable of handling the multiplicity of functions which must be handled in a successful farm business in the years ahead. The large capital investments required for entry into farming and the difficulties of refinancing with each new generation of farmers also raise questions about the persistence of the present system of ownership and control.

Ownership of Assets. The changes which have occurred in farming so far have not appreciably changed the tenure of land ownership in the U.S. However, one of the results of structural changes now occurring in agriculture likely will be decreased emphasis on full farm ownership. Where farmland is available at existing or prospective rental rates, a number of farm managers will find that their best alternative may be to rent the land and to allocate most of their capital to the purchase of machinery and current inputs. We may also see an increase in farmer leasing of equipment and other capital items. In addition, as newer generations of farmers are willing to use more borrowed funds and as financing becomes more readily available through various lending agencies, there will be greater use of credit in accumulating farm resources.

Partnerships. There will likely be an increase in farm partnerships, particularly family partnerships, as a means of getting together sufficient capital for an economic unit. This may be the only way that some farm youths can obtain a start in farming.

Incorporation of the Farm Business. Many agricultural writers have referred to the increase in corporation farming and to the expected, and sometimes feared, increase in prospect. Data available for a few scattered states show rather dramatic percentage increases in the number of incorporated farms, but indicate that they are a very small fraction of the total numbers of farms. Incorporation has occurred most frequently on larger farms, and particularly on large fruit and vegetable farms and certain kinds of livestock operations. In 1954, 5.0 percent of the farmland in the U.S. was in corporation farms, ranging from 1.1 percent in the East North Central region to 11.5 percent in the Pacific region.2

The greatest interest in incorporation relates to the process of capital accumulation, the family farm cycle, and farm transfer. In some cases, incorporation may result in savings on income or estate taxes. Expansion of corporation farming is limited by statutes in some states.

Taking all factors into consideration, I expect some increase in the number of corporation farms during the next 15 years. In most cases the choice will be between forming a partnership and incorporating. Incorporation, to the extent it occurs, will be concentrated in larger farming units. While some of the incorporated farms will not be family farms, many of them

will be. Because of the possibilities for continuity and orderly transfer, more and more farm families may come to look on incorporation as a means of preserving the family farm. While some farm corporations will be able to tap equity sources outside agriculture, much of the equity capital for incorporated farms will probably come from family members associated directly with the farm and from other family members who have migrated to the city.

**Vertical Integration.** There has been some increase in contract farming and vertical integration, particularly in the production of broilers, processing vegetables and other specialty crops, sugar beets, seed crops, and fluid milk. There is some tendency toward increased cattle feeding on a contract or custom feeding basis. The main reasons for the increase in vertical integration has been to finance heavy investments in specialized equipment and to offset some kinds of uncertainty that accompany increased specialization. We may see some further expansion in vertical integration and contract farming.

**Increased Similarities between Farm and Nonfarm Businesses.** There are some tendencies for farm businesses to become more like nonfarm businesses. As land becomes a relatively less important input in farming, and as farms become more specialized, increase in volume, use more inputs purchased off the farm, and adopt more advanced technology, they become more like nonfarm industrial firms. This is already true of many large livestock operations.

As farm units become larger and more highly commercialized, we observe greater separation between the firm and the household, and I think this trend will continue. Within the farm family there will be greater separation of production and consumption decisions. Taking into account household demands and goals of the farm wife and other family members will be less relevant in formulating the firm goals. Farm wives will have less voice, by mutual agreement, in such things as complex investment decisions that run into the hundreds of thousands of dollars. Farm wives will play essentially the same role in helping or hurting the business -- through their interest, encouragement, tolerance of late hours, or the opposite -- as wives of urban businessmen.

Thus, I do not believe managing a farm business in 1980 will be much different from managing any other business of similar size. At the same time, there will be increasing similarities between the managers of farm and nonfarm firms. More and more the distinction between rural and urban is disappearing in the U.S. In many but not all sections of the country, farm children attend the same schools as urban, and farm families shop, go to church, and use recreational and social facilities the same or similar to those of urban people. This situation influences their values, attitudes, and to some extent interests -- factors which have an influence on how the

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person carries out the processes of management.

**Demand for Managerial Services**

**Impact of Economic Environment on Managerial Requirements**

During the next 15 years there surely will be many changes in economic factors and government farm programs which will call for response on the part of farm managers. More particularly, the narrow profit margins which are expected to prevail indicate increased demand for managerial services to keep up-to-date on outlook and other information, to decide upon the appropriate action to take in response to changes in the economic situation, and to carry out the action successfully.

**Impact of Input Mix on Managerial Requirements**

When family labor and land were the principal inputs in farming, the manager's chief problems were selecting enterprises and practices that would provide the best return to those resources. The increased availability of nonfarm inputs greatly widens the relevant decision-making horizon with which the farm manager must deal. New discoveries increase the number of kinds of inputs or techniques the manager must consider. In addition, within the constraints of his ability to finance their purchase, the individual farmer has an essentially limitless quantity of nonfarm inputs available for his consideration. In the present and near future, increased financing with more realistic repayment terms may be available to qualified farm borrowers. At the same time, more farmers will probably be willing to use more credit to finance purchase of inputs. Because of the availability of both nonfarm inputs and financing, many farmers will be in position to consider a very wide range in both variety and quantity of inputs to be purchased.

Farm managers in the future, then, will be called upon to make a large number of decisions regarding resource acquisition and use. Examples are: (1) what resources to acquire, including both kinds and qualities of inputs, (2) how much of the resources to use, (3) where to acquire the inputs, and (4) how to gain control of the resources. Many of these decisions are interdependent and need to be made jointly. In addition, once it has been determined that investments in a new asset or technique would be profitable, there are further questions of timing of the purchase, deciding how to fit old and new technology and equipment together into a system, and how to modify the system for different scales of operation.

Farmers in some areas will find that rapid increases in the price of land because of urbanization will require the use of managerial resources to decide when to sell land and move to another farming area, or whether to sell land and move out of agriculture.
During the next 15 years farmers who need hired labor in their farming operations must pay wages and offer other benefits which are more competitive with nonfarm labor. The increase in labor costs will call for managerial services to analyze the profitability of further investments in labor saving machinery and methods. Some may be forced to reorganize their farm businesses to do away with seasonal labor peaks and to employ labor year-round; among other things, this may require training workers to do a number of different jobs. On the other hand, adoption of new technology often reduces the number of laborers required, thereby reducing managerial requirements connected with recruiting, training, and supervising labor.

Thus, between now and 1980 there will be a substantial increase in the need for managerial services to carry out learning processes to obtain relevant facts about the new discoveries and analytical processes to determine the extent to which the new alternatives should be adopted. New technology frequently calls for changes in proportions of inputs -- substitutions needing to take place between two or more inputs because of changes in the relative prices; an important function of management is to decide what substitutions are optimum. With the narrow profit margins that seem in prospect, the value of refined analysis is increased.

Greater managerial skill will also be required to successfully manage farming operations which increase in complexity because of the use of new kinds of inputs, very large and expensive equipment, and complicated techniques.

In addition, increased managerial resources may be required to deal with increased risk and uncertainty resulting from the greater proportion of purchased factors in the input mix. There have been substantial increases in the investment required to generate a dollar of net farm income and in the proportion of farm income required to cover cash operating expenses. These conditions make the farm operator more vulnerable to a crop failure, outbreak of disease, or sharp decline in prices received. On the other hand there are a number of changes in inputs and techniques that have the effect of reducing the uncertainty faced by farm managers -- for example, improved varieties, use of irrigation water, methods of insect and disease control, environmental control, and uniformity in quality of inputs purchased.

Managers who are first to innovate receive a high payoff for innovations that are successful. However high costs and high risk are associated with innovation -- particularly in trying out a series of interrelated farming adjustments which may involve substantial investment and the probability of considerable financial loss if the idea does not turn out as expected. During the next 15 years I would expect the farm managers who are most venturesome in trying new combinations of factors of production and new production and marketing techniques to fall into classes roughly as follows: (1) those who innovate successfully most of the time -- they will profit from their success and other managers will learn from them, although farmers who discover new things will increasingly take action to slow down the speed
at which this happens in order to retain competitive advantage; (2) those who try out so many things that do not work that their losses will be high, and many of them will eventually be forced from the game; and (3) various gradations in between.

On the average, the most successful managers may be those in what may be referred to as the early imitative group. Managers in this category may leave the production of new farming ideas to the agricultural colleges, the USDA, firms which supply inputs to agriculture, and the innovating farmers. They may have the managerial ability to seek out and obtain information on new developments early, sort them rather quickly, and decide which they should adopt. They will thus forego the cost and risk involved in developing new ideas, and will profit through application of more perfected inputs or methods. Firms that are too slow in adopting new techniques will find the production increases resulting from the actions of earlier adopters will make their profits smaller than previously, and many will likely be driven out of farming. The faster a new idea is adopted by farmers, the quicker the pressure will develop on the late adopters to accept the idea, or to suffer the consequences.

Taking all factors into consideration, I conclude that production of new technology and possibilities or necessity of making changes in the input mix will cause substantial increases in managerial requirements -- both in terms of total requirements per farm firm and as a proportion of total resource used.

Impact of Specialization on Managerial Requirements

Managerial requirements for gathering and analyzing information, making decisions, and taking action vary more or less directly with the number of enterprises and processes included in the farm organization. That is, fewer managerial resources are required to keep up-to-date on one enterprise than on several. Where a farm handles more products or processes rather than fewer, the increase in managerial services needed to keep up-to-date will depend a great deal on how similar the products and processes are to each other; taking advantage of supplementary relationships and attaining year-round use of resources usually require substantial differences.

On the other hand, higher level of management may be required on very highly specialized farms to overcome problems which accompany the increased specialization -- such as failure to take advantage of supplementary relationships and problems of timing in farming operations. Yields and quality may drop if planting and harvesting operations cannot be completed at the right time, and higher costs and supervisory needs may be involved in handling peak labor requirements.

Improved technology -- such as use of different varieties which can be planted and which mature at different dates, new techniques for controlling insects and diseases, use of irrigation water, and adoption of
certain other practices -- tends to reduce some of the risks and uncertainties involved in specialization. Others can be handled by buying insurance and by various kinds on contracting and cooperation. But there are other kinds of risks and uncertainties that will increase with specialization -- uncertainties resulting from changes in yields, uncontrollable outbreaks of disease, price changes, and technical changes which may have different impacts on the various enterprises and processes in the farm plan. The stability of farm income resulting from possibilities for "averaging out" returns from several enterprises may not be possible in certain kinds of specialized operations. This lack of a stable farm income results in an increased demand for managerial services -- that is, services to carry out learning and analytical processes designed to insure optimum efficiency and services to avoid costly losses on the enterprises or processes chosen.

In the size ranges that will be most typical by 1980, I believe that managerial requirements per enterprise will be higher on specialized operations, but that total managerial requirements per farm will be lower on specialized farms than on diversified farms of similar size.

Impact of Size of Business on Managerial Requirements

The payoff from more accurate estimation of economic optima increases as the size of business increases. This fact emphasizes the importance of problem recognition, information gathering, analysis, and use of appropriate choice criteria.

First, in considering large investments in expanding the farm unit, careful and detailed analysis will be necessary to see if the outlay can be justified and can be paid off in a reasonable period of time. The consequence of error is obvious. Second, with large scale operations, the gains which can be realized from more accurate estimates of economically optimum rates of inputs (such as feed, fertilizer, and fuel) will be substantial. While missing the optimum rate of input frequently doesn't make too much difference dollar wise on a smaller unit, it can mean thousands of dollars on a large unit. The same applies to analyses designed to provide estimates of the least-cost mix of inputs. The effect of what we are saying at the moment is that the value of additional information to the firm has increased, making it worthwhile to spend more time and money carrying out managerial processes.

Successfully carrying out the managerial functions discussed in the following paragraphs will become increasingly important as the size of the farm business increases.

Record Keeping and Analysis. Managers of larger farm units will certainly find it necessary to keep more complete and accurate farm records, and to analyze and use this information in making decisions. As farms become larger, and perhaps also as they become more specialized and more mechanized, experiences and observations on the farm unit itself may become increasingly important sources of information. Managers of larger
farms may find it feasible, and in some cases essential, to do the systematic testing to find the inputs and techniques that are best adapted to their setup. In doing so, they will often ask help from or cooperate with personnel from agricultural colleges, machinery manufacturers, feed manufacturers, and fertilizer companies. A number of large farms are already doing a good deal of such testing. One large farm I visited in California last summer, for example, has carried out well designed experimenting and record keeping to determine the optimum number of times to recap truck tires on its operation, and the optimum gear in which to operate tractors under various soil and crop conditions. By cooperating with input suppliers, managers of such units help to communicate the needs of larger scale farms -- such as the need for more durability to be built into machines to be used in large scale farming.

**Capital Acquisition and Financial Management.** The large amount of capital needed to finance investments and to purchase current inputs on larger farms suggests the importance of capital acquisition and financial management functions, including management of cash, credit, credit reserves, and insurance. Part of the job will be to make and carry out decisions regarding how to gain control of the inputs needed. Many farm firms will need to use large amounts of borrowed funds during the next 15 years. This will call for management to plan, make decisions, and carry out negotiations regarding source of funds, terms of the loan, and repayment plans. Deciding on the optimum amount of borrowed money to use and timing of both borrowing and repaying will be important.

Operators of large units must get used to living with large capital investments and frequently with large amounts of debt. Such responsibilities weigh heavily on some managers, but are taken in stride by others. To the extent that possibilities of loss of large amounts of assets exist, large firms require more intensive use of managerial services in gathering and analyzing information and making and carrying out decisions designed either to reduce or deal with risk and uncertainty.

**Buying and Selling.** With the narrow profit margins per unit that are in prospect, buying and selling will become increasingly important functions of management during the next 15 years. Particularly on farms with a large volume of output, the manager will be able to afford to spend more time and money gathering information on sources, prices, and qualities of inputs, and on outlets, prices, and reliabilities of buyers of his products. Dealing with buyers and sellers so as to attain the greatest advantage possible will have significant payoff. While the manager may be able to get only a very small additional margin for what he sells, this may be of real significance for large volume producers where a small change in the net price can have a rather sizable effect on net income. Likewise on the buying side, large farm operators can frequently gain some advantages through skillful bargaining with suppliers.
Studying outlook information and timing seasonal transactions will have high payoff in buying some inputs and selling some outputs.

By 1980, farmers will be dealing with marketing firms of much larger size than at present. There will be an increasing emphasis on direct buying from farmers by processing and even retailing firms, and the trend toward bypassing of such central marketing facilities as stockyards and commodity exchanges will probably continue. As direct buying increases, price quotations of the type now generated by central markets will either disappear or become highly unreliable. Managers of large farm units particularly may find that there is high payoff in organizing their production and marketing to meet buyer specifications with respect to grade and timing of delivery; this will be particularly important in the case of products where quality and perishability are problems.

Selection and Training of Workers. On larger farms which employ significant numbers of hired laborers, selection and recruiting of workers will be important functions. Perhaps an even more important personnel function will be training of workers. While the selection of workers is important, I suspect that farmers frequently devote too much time trying to find exactly the right man. It is typical for farm operators to insist that hired men have considerable experience. They might solve their personnel problems more easily by hiring young men with a high school education and preference for farm work, and then providing the necessary training. Well-trained workers are more productive, can accept more responsibility, and require less supervision.

Last summer in California I visited farms with up to 300 year-round employees. While some day-to-day instruction no doubt took place, in no case did I find a farm with any very well thought out training program. When asked why, the managers most often said that if they provided good training for their men, someone else would hear about it and hire them away—a not very valid reason in my estimation. It appears to me that in the past, few farm units have had enough employees to motivate management to give much attention to training, and we simply have a lag in attending to this important personnel matter.

Working with People. On large farm units employing a number of workers, certain managerial skills will be necessary that are not as crucial on smaller farms. Skill in dealing with people or handling interpersonal relations is one of these. The success of the total operation will depend partly upon the manager's ability to carry on successful relations on a continuing basis with employees, suppliers, buyers, and others.

In working with people, one of the skills that managers of large firms must develop is using authority. Because of their values and background, many farmers are reluctant to exercise authority. Being independent and not liking to be told what to do themselves, they are hesitant to tell others what to do. Proper exercise of authority includes delegating authority to subordinates. Some managers will not delegate sufficient
authority, try to do too much themselves, and thus have too little time and energy for the larger, integrative functions of management. When the top executive tries to retain too many tasks for himself and spreads himself too thin, things break down internally; this has been noted in both non-farm and farm firms.

Having recruited personnel with some potential and developed this potential through investments in training, management has the continuing responsibility for providing an organization and atmosphere that will permit all of the individuals in the firm to grow and further develop their capabilities. "The feeling of being part of a team, of being part of a joint effort, of having a common goal provides powerful motivations at work. The way in which the worker sees himself and his job holds the key to motivational forces that are probably far stronger in practice than those controlled by pay alone." 4

**Communicating.** Managerial processes in larger firms will call for more attention to the communication function. The larger organization will be made up primarily of a group of specialists who are interdependent on one another's skills and processes in making the whole unit function effectively. The problem is to figure out what information is needed at what points in the organization, and then to get it there as quickly and efficiently as possible. Among other things, this suggests the importance of a farm business center with an intercommunication system leading to key personnel who may be on farm equipment, in cars or trucks, in milking parlors or feed lots.

**Staffing in Relation to Size of Business.** On the one-man farm most of the operator's time is spent as a laborer, with some time devoted to handling business affairs or managing; there is little to be done in the way of supervision. As the unit expands to take in hired labor, say part-time help or a full-time man, the operator must spend less time in physical labor and more time supervising others.

As the size of the firm continues to grow, employing more workers and other resources, the manager must spend less and less time in physical labor and more time managing and supervising. After a certain point is reached, the farm operator will have to spend full time managing and supervising. Further increases in scale mean that the manager will not only have to spend full time managing; he will have to set up a chain of command and delegate many important responsibilities, including supervisory and managerial responsibilities, to others. The manager will find it necessary to "buy" certain kinds of managerial services by hiring highly trained, skilled specialists on a consulting, part-time or full-time basis.

As farms increase in size, various forms of organizational structures can occur, depending upon the phenomena that lead to growth with the firm. Scale increases which bring about roughly proportional increases in the use of all resources imply, among other things, increases in

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the number of workers that will need to be supervised. In industry one commonly observes the concept of the plant, with a manager or supervisor directing it. In large scale farming one observes a parallel organization--namely dividing the farm or ranch into units (a geographic area of the farm, laying installation, feed lot) with a supervisor or manager in charge of each unit and a top executive in charge of the entire operation. This type of organization implies replication and can include varying degrees of decentralization of decision making.

A firm that is diversified may have an organization that calls for enterprise managers--a crops man and a dairy man on a dairy farm, for example. On very large units one finds a man in charge of each crop, and the dairy business may be broken down to one person in charge of the milking herd and another in charge of raising the replacement heifers.

Some large farms are organized around full-time or part-time functional specialists such as agronomists, nutritionists, entomologists, accountants, and equipment and irrigation managers. With large scale and close margins in the next 15 years, there may be increased need for the services of farm management specialists on a full-time or consulting basis to help estimate various kinds of economic optima. The kind of managerial hierarchy formed depends largely on the size and kind of unit, and to some extent on the preferences of the organization builder. On the largest farm units the various kinds of breakdowns are sometimes combined--that is, they have division of responsibility by enterprise, by functional specialty, and by units. Examples of the organizations on two actual farm units are given in the following paragraphs.

A 14-man dairy operation with 600 cows (500 milking at any one time) is operated by the following: the manager who is the owner of the operation, a herdsman, assistant herdsman, a feed foreman with two helpers, one wash-up man, and seven milkers.

A large beef feeding operation, employing 30 men, and feeding out around 35,000 head of cattle a year is staffed as follows: the owner who is involved in the most important management decisions but who divides his time between the feeding operation and other interests; a full-time hired manager; nine cowboys working under the cowboy superintendent; five feeders working under the feeding superintendent; a four-man mill crew working under the mill superintendent; a three-man maintenance crew working under the maintenance superintendent; a man with two helpers who clean the lots; and a full-time accountant. In addition, a free lance nutritionist and a veterinarian are retained on a part-time basis.

Large farms with multiple person managerial staffs attain the advantages that can be obtained through specialization and division of labor, as well as the frictions and need for integration that apply to all large scale organizations.
Managerial Requirements as Related to Size of Business. Some managers will have or will be able to develop the ability to perform the managerial functions necessary to be successful with a large farming operation. Others will not be able to handle all of these functions effectively, particularly the control and integrative functions which are especially crucial in large operations. In some cases there will be unused or underutilized managerial ability that may lead to farm expansion, or at least will be more nearly utilized after expansion. In other cases, expansion in the size of the business may lead or force the development of previously untouched capacity in the manager. When a farm reaches sufficient scale that it can afford a full-time manager, he will frequently have the time and ability to be successful in undertakings that are out of the question for the operator who is thinking in terms of himself and perhaps a hired man or two.

Demands for managerial services will increase as the size of business increases, and managerial requirements will certainly be significantly higher per farm on larger farms than on smaller ones. However, partly because there is an almost irreducible minimum of management required regardless of the size of the firm and partly because of efficiencies which can be gained in the use of managerial resources, management will decrease as a proportion of the total of all resources used as the size of the farm business increases. 5

Impact of Form of Ownership and Control on Managerial Requirements

Incorporation of a farm business is likely to call for small increases in the use of managerial resources. Separation of ownership and control may result in conflicts in goals and policies of managers versus owners which must be resolved. Also, some additional activities may be carried out in the firm because of the corporate structure -- multiple bookkeeping and accounting, corporation reports, attending to legal matters, and in larger farm corporations, information gathering and analysis designed primarily to convince a board that a certain action should be taken.

Under the usual arrangements in which vertical integration of farming operations occurs at the initiative of outside integrators, the integrator becomes a participant in a specific enterprise. The integrator often furnishes all or a part of the capital requirements and sometimes guarantees certain marketing conditions. Managerial resources in the form of direction of the organization and technical details of operation of the enterprise frequently accompany the integration (more often this managerial discretion is taken over by the insistence of the outside integrator than by demand on the part of the farm operator). In cases where technical and organizational know-how are provided by the integrator, managerial resources which must be provided within the farm firm are decreased.

Resources Needed to Carry out Managerial Processes

The managerial functions mentioned at the beginning of the paper are in reality closely interrelated parts of a whole process. There is, however, need for more emphasis on certain of the managerial processes in some situations, and need for more emphasis on other functions under other conditions. Shifts in emphasis which may be called for between now and 1980 are discussed briefly in the following paragraphs.

Formulating Goals. Clearly formulated goals, both long run and short run, will be especially important in the period ahead in quickly recognizing problems which need to be solved and in recognizing opportunities which, if pursued, will lead to goal attainment. The changes which must be faced by managers, and the narrow profit margins in prospect, will call for rather prompt adjustments in goals in response to changes in circumstances and success or failure in goal attainment. Some will likely need to give up the goal of farming as an occupation. An additional responsibility will confront the management of large scale farm firms with many employees operating at different levels in the hierarchy; namely, resolving competing individual goals and organizing and conducting the affairs of the firm in a manner which will provide meaningful opportunities for individuals within the firms to attain their personal goals.

Recognizing and Defining Problems. Recognizing problems and opportunities created by changes in the environment, changes within the firm, or arising because of unexpected outcomes is one of the important responsibilities of management. In the highly competitive period ahead managers who recognize problems or opportunities earliest -- and who can define problems in clear enough terms so that they can be solved -- will have an advantage over other managers. Doing so may depend largely on clearly formulated goals and on effective information gathering processes.

Gathering and Analyzing Information. Increases in specialization so that one enterprise cannot so easily bail out an unprofitable one, high rates of purchased inputs, and generally narrow margins emphasize the importance of information gathering and analysis for successful farm operation between now and 1980. Detailed records by enterprises and by inputs may be essential sources of information in making some management decisions. These records may also be increasingly useful in obtaining financing. Managers of some large farms already find it worthwhile to keep complete records of repairs and maintenance on each major piece of equipment on the farm.

The most effective managers in the period ahead will likely be those who work out and follow routine procedures for analyzing the repetitive types of problems they face in operating their farms, freeing managerial time and energy for important once-over decisions.
Making Decisions. One of the key functions of management is making decisions -- deciding on appropriate actions or reactions on the part of the firm. In order to be effective decision makers, managers of the future will need to give more attention than they have in the past to the development and use of effective decision processes and criteria or bases for choice when confronted with alternatives. One of the marks of successful managers operating under the economic conditions in prospect is decisiveness -- the willingness to go ahead and make a decision in the face of uncertainty without undue insistence on complete information and highest accuracy in prediction.

Taking Action, Accepting Responsibility, and Evaluating Outcome. Having analyzed alternatives and made decisions, it is the task of management to take the appropriate action, and to accept responsibility for the outcome. This is another stage at which many managers fall down; they make lots of plans, have good intentions, but never carry them out. The successful farm managers of the future are those who can maintain the drive to put their plans into action.

Also, better managers will do some systematic evaluating of the outcome of their decisions and actions, and provide feedback for correcting errors before they get too far out of hand. Under dynamic conditions, effective managers can and do substitute feedback for some information gathering and analysis which might precede decisions; that is, rather than trying to reach exactly the right decision ahead of time, they decide to try something and assume that corrections and adjustments will have to be made on the basis of insights provided by experience. Farm records from mail-in account projects, studied on a quarterly or even monthly basis, may be an effective source of feedback information for use in controlling the business.

Summing up the Demands for Managerial Services

The changes in managerial requirements of individual farm firms which will occur in the next 15 years will vary widely, depending upon the changes in input mix, degree of specialization, size of business, and form of ownership or control. In general, however, our analysis of managerial requirements per farm indicates the following: (1) substantial increases in size of business will cause substantial increases in total managerial services required, (2) substantial changes in input mix and adoption of new technology will result in substantial increases in use of managerial resources, (3) a shift to more complicated forms of business organization and control will call for slightly increased managerial services, and (4) increases in the degree of specialization will result in moderate decreases in managerial requirements.

In addition to these important factors internal to the firm, external factors which farm firms must face during the next 15 years are almost sure to increase the need for management. In some of our managerial research in Michigan we asked farmers what had happened to their ability to manage during the previous five years. Quite a number responded by saying
that they thought their ability had improved, but that changes in farming had increased the complexity of management. Typical responses were "Decisions are getting harder due to economic conditions, cost-price squeeze, etc." and "It's a lot harder to make decisions today. Sure we've learned a lot but I'm up against tougher situation and the decisions we have to make are more difficult." With the anticipated narrower profit margins per unit, success in farming will depend to a high degree on sophisticated management of large capital investments and high current inputs, and on the application of complex techniques of production. These will make high demands on managerial services.

The complexity of management appears to increase with each turn of the cycle, and the various factors influencing managerial requirements interact with each other. For example, the competitive situation forces farmers to adopt new technology; in order to make the new technology pay off they frequently find it necessary to increase their scale of operations; in order to attain sufficient scale in enterprises many are forced to specialize; specialization frequently calls for use of more purchased inputs and increases uncertainty. The net effect is the increased need for management.

Taking all factors into consideration, I believe that changes in factors internal to the firm and those external to the firm all combined will result in substantial increases in managerial requirements per farm firm in the next 15 years. One cannot help but feel somewhat inadequate in having to use terms like "substantial" in referring to managerial needs. The main part of the difficulty is our inability, in the present state of managerial knowledge, to identify both quantity and quality of the factor.

To be more specific, I believe that on the average there will need to be a substantial increase -- perhaps a doubling -- in the number of hours devoted to carrying out managerial processes per farm per year. In addition, management will need assistance from various aids such as accounting systems, and computers. Not only that, but the quality or sophistication -- the effectiveness of each hour spent in managerial activity -- must improve. Managers of farms in the future will need the level of intelligence, amount of training, and degree of managerial skill possessed by managers in middle management positions in medium sized nonfarm firms. Managers of medium sized farms or larger will need at least the equivalent of a bachelor's degree in addition to managerial skills which are developed through experience.

If it's difficult to make meaningful quantitative statements about the managerial requirements of individual farms, it is even more so to make projections for the entire farm economy. Even if we had acceptable measures of management, such projections would require estimates of the number of all sizes and types of farms for all regions of the country. In general terms, however, I would conclude that the total managerial requirements in farming would decrease significantly in terms of the total number of man-hours needed to carry out managerial functions. An almost irreducible amount of management is needed to run any farm unit. The projected decreases in the number of farm units should result in total decreases in managerial requirements, even though requirements per unit increase. Fewer managers will be needed on farms, but as implied by previous comments, they will need to be more competent ones.
Supply of Managerial Services

The supply of managerial resources on farms is increased through individuals entering farm managerial positions and through development of their managerial capacities. The supply is decreased by deaths, migration off the farm, and through decreases in abilities to manage.

There has been some research on farm-nonfarm migration, but we really know very little about the supply functions for farm managers of different competencies. Even though there is sometimes lack of information on the part of farm people, and other imperfections in the labor market, the principle of comparative advantage would apply at least to a certain extent. Within the limits of personal preferences and knowledge of alternatives, we would expect many people to move to positions that would provide the greatest rewards for their services (and other productive assets if they have them).

What quality of managers will the new entrants to agriculture be? Our discussion of managerial requirements suggests that a very high level of management is needed to successfully operate farms of the future. There is, however, a question of whether farm incomes relative to nonfarm incomes will be sufficiently high to attract farm youth with the greatest managerial potential.

It may be that the majority of farm managers of the future, especially on small to medium sized farms, will be of rather middling managerial competence. The talent that has potential for handling a sizable and complex farming operation successfully is somewhat scarce and is well paid outside agriculture. Because of the higher rewards they may receive, farm youth with greatest managerial potential may migrate off the farm to work in professional or managerial positions.

At the same time, those with the least potential for being successful as farm managers may also earn higher incomes in laboring jobs off the farm. They may migrate because they see where their comparative advantage lies, because they cannot control the necessary resources to start farming, or because they start and are so unsuccessful that they are forced out.

Developing the Managerial Potential of Farm Operators

Because of the increase in average age of farm operators, and also the possible greater ease of retirement for some farmers during the next 15 years, more new operators will be entering farming in the period ahead. Even though many may not be those with greatest management potential, they will be younger and therefore possibly more aggressive. Since the average number of years of schooling completed is increasing, they are almost sure to have higher levels of formal education than those retiring from farming. In the future, there will be essentially no people involved in managerial jobs on farms that have less than a high school education. In parts of the country many farm managers have had college short courses or have attained a B.S. degree, some have M.S. degrees, and a limited number on large scale farms have Ph.D. degrees.
The trend toward higher levels of formal education will probably continue, and this education can help increase potential managerial performance. Our consideration of managerial requirements suggests that several kinds of emphasis in the education of prospective managers are relevant:

1. The pervasiveness of technological, economic, and institutional change makes managerial ability of crucial importance in living with and dealing with change effectively. This suggests that managerial training should accomplish these important objectives. It should provide a conceptual background for recognizing and formulating problems. It should build an intellectual curiosity that leads to a continuous desire to learn. It should encourage flexibility, adaptability, and imaginative response to change whenever it occurs.

2. The need for managers to deal with normative concepts suggest the possible usefulness of training in philosophic value theory.

3. The information gathering functions of managers suggest the relevance of teaching improved learning processes, providing an appreciation of the values and costs of learning, and the effective use of machines and other aids in processing information.

4. The analysis function suggests the importance of teaching principles and concepts (in the various technical fields in and related to agriculture, economics, logic, mathematics and statistics) which may be helpful in carrying out analytical processes. This part of the training should take account of the now established use of deductive reasoning processes on the part of farm managers.

5. Because the decision-making function is crucial, training in decision theory should be helpful in teaching prospective managers how to effectively formulate and use decision processes and choice criteria.

6. The importance and the trickiness of communication suggest the need for the developing verbal facility on the part of managers.

7. The need for effective interpersonal relationships in management suggests the advisability of training in psychology, sociology, and organization theory.

In many respects, the problems of the generation and accumulation of managerial resources are similar to those of capital formation. Once an individual has entered a managerial position, he can continue to learn and to improve his managerial ability. Observation of one's own managerial processes and the outcome of one's actions may contribute to a better system for carrying out managerial processes in the future if the manager works at making the experience pay off.

**Hired Managerial Staff**

Beyond a certain point in the growth of farm firms, one individual will not be able to develop all of the skills and abilities that are needed. As previously indicated, such farms will find it feasible to hire specialists to perform various managerial functions.

**Off-Farm Sources of Managerial Services**

There is increasing evidence that farmers able and willing to pay substantial amounts for managerial services. What dairy farmers pay for DHIA services are one example. A number of farmers pay $500 or more to have their scil tested and fertilizer inputs specified. Fruit farmers pay that and more for prescriptions.
on spraying. Many farmers pay for accounting and tax services. In 1964, 1,163 farmers paid an average of $107 each to participate in Michigan's mail-in accounting project. Off-farm sources of managerial services which are presently available or in prospect are discussed below.

**Part-time Consultants.** Farmers who cannot afford to hire specialists on a full-time basis can obtain services from them on a part-time or consulting basis. Examples of specialist services which may be secured in this way are those of veterinarians, nutritionists, accountants, lawyers, and soil technicians. Professional farm management specialists are available on a consulting basis, and their use by larger farms will probably increase. Other types of specialists are implied in the paragraphs which follow.

**Lending Agencies.** In the future, lending agencies may provide substantial amounts of technical information and managerial advice -- in fact they may insist that their advice be followed if they are to provide substantial amounts of capital to the farm. FHA men, for example, visit some farms 12 to 15 times a year. Commercial banks and insurance companies that make large agricultural loans frequently have agriculturally trained staffs to assist and advise farm managers. Farms with low equities particularly may have to borrow from sources that demand the right to participate in major management decisions and supervise operations.

**Integrators.** On some enterprises and under certain financial and management circumstances (for example, where capital and technical know-how are inadequate), managers may enter into integrative arrangements under which the outside firm provides some managerial services.

**Cooperatives, Trade or Bargaining Associations.** In industry, trade associations provide technical and market information for firms too small to do it for themselves and help firms restrict production and allocate marketing. In the future, cooperatives, trade or commodity associations may provide more of such services to farmers.

**Computing Services.** Simon is convinced that in the near future nearly all routine decision making now performed by "middle management" will be taken over by machines which will carry out the necessary processes faster, better and more economically than humans. He believes that executives will retain some relative advantage in solving unique problems, but that by some time in the 1970's machines will be able to solve at least the range of problems that people now can. I have substantial reservations about the ability of machines to solve important management problems which arise because something completely new has occurred and for which there is no precedent. In any case, I believe that during the next 15 years the most significant, and to me the most interesting, managerial process will take place in the human mind. Machines will be helpful in assisting with certain managerial processes, however.

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To the extent that automation of managerial processes will be technically possible in nonfarm industrial firms, it will be possible to a similar extent in farm firms. The expansion in the use of machines will depend on their ability to lower the cost of carrying out managerial processes such as information storage, retrieval, processing, and analysis. Electronic computers of course are already in use in summarizing farm records, to some extent in analyzing farm businesses, and in programming optimum feed and fertilizer mixes.

In very large farm firms, purchase of computing equipment may be feasible. Most farm managers, however, will find it more economical to use computing services available from commercial companies or agricultural colleges. These services could be used for farm analysis and for estimating optimum farm plans. The farmer could send in his resource situation, the kinds of alternatives he would be willing to consider, estimates of production and yield possibilities, and other information. The computations of expected outcomes under various alternatives could then be computed and sent back to the farmer. It may be that more farmers will avail themselves of these services in the future, and the most successful managers may be those who are most skillful in adapting the results to their operations.

Input Suppliers. As nonfarm firms find increasing markets for their products as inputs of farm firms they have increasing incentive to test the performance of their products under farm conditions and to communicate this information to farmers. This technological information, as well as other information, counsel, and services provided by suppliers, is a form of managerial service that will be available to farmers. Also, beyond a certain point in the complexity of machines, the manager may increasingly look to the manufacturers or outside service men to keep the machines maintained and operating properly.

Public Agencies. Public agencies such as the agricultural colleges and the USDA will likely continue to serve as important sources of technological information through their programs of basic and applied research and experimentation. Farm management workers can provide analyses of the impacts of new technology, resource combinations, enterprise combinations, scale, vertical integration, and government programs. Outlook information and analyses will also be an important service to farmers.

Extension workers, in addition to providing information to farmers, can provide motivation, assist in goal formulation, suggest alternatives for consideration, and help managers see the consequences of errors. In addition, they can assist farm operators in improving their managerial ability through individual consultation, group meetings, and particularly through the kinds of sequential management training schools now being conducted by farm management specialists in several states.

Summing up the Supply of Management
Within limits, I suspect that there is a fairly wide range of persons who have the potential ability -- with training and experience -- to serve effectively in managerial positions on farms. I believe that a sufficient
number of persons with adequate potential will remain in or be attracted into farming in the decade and a half ahead.

Thus, with the off-farm managerial services that will be available and the possibilities for developing the managerial potential of present and prospective managers, I believe the supply of managerial resources available to farm firms during the next 15 years will be adequate to meet the needs.

**The Challenge of Management**

During the next 15 years we need a managerial revolution in agriculture to match the technological revolution of the past 15 years. Some students of management of nonfarm industrial firms believe that changes in techniques of management have done more to revolutionize American industry during the last 15 years than engineering changes. I do not believe this has been the case in agriculture, but I believe that such changes are possible.

I have great confidence in the improvability of the human resource, including improvement in man’s behavior in his role as a manager. Improvements in managerial performance could lead to increases in efficiency of all resources used in agriculture, and to more satisfying lives for farm families.

Very briefly, some of the managerial research now needed is as follows:

1. We need to know more about the supply functions for various qualities of farm managerial talent. Effects of migration on the management supply should be included in such research.

2. It would be useful to know more about how operators of different sizes and types of farms divide their time among managing, supervising, laboring, and other activities.

3. Research is badly needed to develop techniques and instruments for measuring and predicting managerial performance. Some of such research is now underway in a North Central regional project and elsewhere, but more is needed.

4. All of us have observed farm businesses get badly out of balance because of rapid and drastic changes in size and organization. We ought to do more work on the change process -- how it occurs, how it can be fostered or speeded up where needed, and how educationalists can be of greatest service to individuals or groups who face the need for large and frequent change.

5. We could be of greater help to managers if we knew more about the forces related to motivation, and how to help managers get and stay motivated.
6. Probably most important of all, we need to do research that will lead to improved managerial processes which can be taught to managers. In order to do this effectively we need to learn more about human and other limitations on man's abilities to carry out management processes, even while acknowledging that man's abilities can continue to increase through time. Then we need to formulate and test hypotheses regarding improved processes -- processes which hopefully may take account of individual differences in such things as age, experience, capabilities, and personality. Development and teaching of improved managerial processes would do much to help managers cope with the problems of management which will become more complex between now and 1980.