ABSTRACT

A STUDY OF SOME PERSONAL AND MANAGERIAL TRAITS
OF SOUTHERN MICHIGAN TELFARM DAIRYMEN
TO DETERMINE THEIR RELATIONSHIP TO
BUSINESS SUCCESS AND FORM OF BUSINESS ORGANIZATION

BY

Van Cleft Travis, Jr.

The economic principles of successful farm business performance have been known for a long time. Such factors as labor efficiency, cost control and output per unit of production have long been recognized as influencing farm business success. But, these factors have not answered the question of why some farm managers are successful while others possessing similar resources fail to achieve success.

Partnership-operated farm businesses differ from sole-proprietor-operated businesses in that the managerial process is a shared responsibility among the partners. Little consideration has been given to farm partnerships in farm management studies and no study has been located where partnerships are studied as the major object of the study. Thus, questions exist as to what differences there may be in personal and managerial traits between farm managers who operate alone and those who operate in partnership.

The purpose of this study is two-fold:

1. To determine the differences, if any, which exist in selected personal and managerial characteristics between a group who have been designated as outstanding farm managers, and a random group of southern

Michigan Telfarm farm managers. All respondents were owner-managers.

2. To determine the differences, if any, which exist in selected personal and managerial characteristics between a group of farm managers who operate as sole-proprietors and a group who operate as partners.

The study was conducted as a field survey with the administration of a questionnaire at the farm residence of each respondent. Financial and production information was obtained from the Telfarm electronic accounting records located at East Lansing, Michigan.

Three groups of respondents were selected. One group consisted of 14 sole-proprietor "Manager of the Year" award winners. Another group consisted of 14 randomly selected Telfarm Southern Michigan sole-proprietor dairymen and the third group consisted of 14 partnership operated "Manager of the Year" award winner businesses. Comparisons were made between the two sole-proprietor groups and between the sole-proprietor and partnership "Managers of the Year".

The sole-proprietor award winner and non-award winner groups were found to differ greatly in their farm business characteristics. The award winner group had more than twice as many cows, were 40 percent more efficient and earned twice the profits of the non-award winners. The partnership businesses had 17 percent more cows than the sole-proprietor award winner group and were less reliant upon hired labor for their labor supply, but other differences between the two groups were slight.

"Manager of the Year" award winners were questioned on the factors which contributed to their success and individuals who had extraordinarily influenced their career. Working hard and making well thought out decisions were mentioned most frequently among the factors

which contributed to their success. Extension personnel, father, and agricultural teacher were all mentioned frequently as individuals who had significantly influenced the careers of the operators.

The partnership operators were questioned on their written partnership agreement and their method of farm decision-making. Four of the operations had no written agreement. Two of the ten written agreements did not spell out the procedures to be followed in the case of the death of one of the partners and eight of the ten did not provide for arbitration in the case of unresolvable disputes between the partners. Partnership decision-making consisted of a considerable amount of individual decisions concerning daily operations, joint decisions but excluding the wife for intermediate capital investment decisions and inclusion of the wife in decision-making involving major capital investments.

Fifteen hypotheses were tested relating the personal and managerial characteristics of the farm operators to business success and form of business operation. They are listed with the following results:

1) Sole-proprietor "Manager of the Year" award winners possess a higher self-assessment of innovativeness than do sole-proprietor non-award winners. Not supported at the .05 level of significance. The data indicate that the non-award winner group possesses a higher self-assessment of their innovativeness than is justified by their actual adoption of new dairy technology.

2) Managers who operate as partners, possess a higher self-assessment of innovativeness than do managers who operate as sole-proprietors. Not supported at the .05 level of confidence, but supported at the .10 level of confidence. All of the partnership operators rated themselves in the top two adopter categories.

3) "Manager of the Year" award winners utilize more direct sources of information than do non-award winners. Not supported. The findings were in the opposite direction of that predicted.

4) Managers who operate as partners, utilize more direct sources of information than do managers who operate as sole-proprietors. The findings were in the predicted direction but not of sufficient magnitude to lend much support to the hypothesis. The difference was not tested for statistical significance due to the inability to assume a normal distribution of the index scores among the population.

5) "Manager of the Year" award winners have higher extension agent contact scores than do non-award winners. The data were in the predicted direction, but the differences were not submitted to statistical tests for level of confidence due to the inability to assume a normal distribution of the index scores among the population.

6) Managers who operate as partners have higher extension agent contact scores than do managers who operate as sole-proprietors. Not supported. The findings were opposite to those predicted.

7) "Manager of the Year" award winners have a greater willingness to assume risk than do non-award winners. Not supported at the .05 level of confidence.

8) Managers who operate as partners have a greater willingness to assume risk than do managers who operate as sole-proprietors. Not supported at the .05 level of confidence.

9) "Manager of the Year" award winners have a greater goal orientation than do non-award winners. Not supported. The findings were in the direction opposite to that predicted. In fact, the non-award winners had the highest goal orientation scores of the three groups studied.

10) Managers who operate as partners have a greater goal orientation than do managers who operate as sole-proprietors. The findings were in the predicted direction but were not submitted to statistical analysis due to the inability to assume a normal distribution of the index scores among the population.

11) "Manager of the Year" award winners have a more liberal attitude toward credit than do non-award winners. Not supported at the .05 level of confidence.

12) Managers who operate as partners have a more liberal attitude toward credit than do managers who operate as sole-proprietors. Not supported. The findings were opposite to those predicted.

13) "Manager of the Year" award winners have a higher educational level than do non-award winners. Not supported at the .05 level of confidence.

14) The wives of "Manager of the Year" award winners are less involved in the farm decision-making process than are the wives of non-award winners. Not supported at the .05 level of confidence.

15) The wives of managers who operate as sole-proprietors are more involved in the farm decision-making process than are the wives of managers who operate as partners. Not supported at the .05 level of confidence.

Interrelationships between several of the factors and implications for additional research are discussed.

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INTRODUCTION

A. Problem

1. What differences exist in personal and managerial characteristics between highly successful farm managers and farm managers of average success?

2. What differences exist in personal and managerial characteristics between farm managers who operate alone and farm managers who operate as partners?

B. Rationale

A poker player down to his last coins was asked, "How're ya doin"? "I dunno," he replied. "What? You don't know how you're making out?" "Oh sure", said the player. "I know how I'm making out, but I don't know how I'm doing it". "Some times we know how well we are doing, but we don't know exactly how we are doing it". (Mager, 1968) This is often the case with farm managers. We know that some managers perform better than others and in what ways, but we seldom know why they perform as they do.

The principles of successful farm business performance have been known since G. F. Warren surveyed the farms in the Town of Dryden, New York in 1908. Such factors as labor efficiency, cost control and output per unit of production have long been recognized as influencing farm business success. But, these factors have not answered the question

of why some farm managers are successful while others possessing similar resources fail to achieve success. Numerous farm management studies have noted that the performance variation within groups of farms, classified according to size, was greater than between groups, emphasizing the differences which exist between individual farm managers despite the physical similarity of their farm businesses. The human resource continues to be the factor which is least understood,and the most difficult to measure, of the many factors affecting a farm business.

Partnership-operated farm businesses differ from sole-proprietor-operated businesses in that the managerial process is a shared responsibility among the partners. The Inter-State Managerial Study (Johnson, et al.), stated that the managerial process among polypersonal management arrangements is diluted. For this reason they excluded partnership operated farm businesses from their study. Little consideration has been given to farm partnerships in farm management studies and no study has been located where partnerships are studied as the major object of the study. Thus, questions exist as to what differences there may be in personal and managerial traits between farm managers who operate alone and those who operate in partnership.

The Michigan State University Telfarm electronic accounting program annually cites outstanding farm managers through its "Manager of the Year" award. Each year, twenty farmers who rank in the top three percent of all Telfarm participants in labor income and who are judged to be outstanding in their management characteristics are selected by Michigan Extension personnel to receive "Manager of the Year" recognition. Of the twenty who are selected each year, no two may come from the same county and no farm operator is allowed to receive the award more than

once. In cases where more than two from one county qualify for the award in one year, the local county Extension agent is asked to assist in the choice, with the choice dependent upon the agent's individual assessment of the farmer's managerial ability.

During the period 1966-1970, 45 southern Michigan dairy farmers have received "Manager of the Year" recognition. Of this number, 14 were partnership operated businesses. This provides the researcher with a group of farm managers who have been cited for managerial excellence and whose personal and managerial traits can be studied.

The emphasis of this study is on the human resource in farming. Extension programs of the United States Land Grant Colleges have long emphasized the importance of the non-human factors in the operation of a farm business. Also, they have emphasized that it is the "Man in Management" that makes the difference. However, the aspects of the man which make the difference are not completely known.

C. Purpose of Study

The purpose of this study is two-fold:

1. To determine the differences, if any, which exist in selected personal and managerial characteristics between a group who have been designated as outstanding farm managers and a random group of Southern Michigan Telfarm farm managers.
2. To determine the differences, if any, which exist in selected personal and managerial characteristics between a group of farm managers who operate as sole-proprietors and a group who operate as partners.

General Researchable Questions

1. What are the personal and managerial traits of farm managers which are associated with managerial success?
2. What are the personal and managerial traits of farm managers which are associated with type of business organization?

Specific Research Questions

1. Is self-assessed innovativeness related to managerial success?
2. Is self-assessed innovativeness related to the form of business organization?
3. Is the directness of sources of information related to managerial success?
4. Is the directness of sources of information related to the form of business organization?
5. Is extension agent contact related to managerial success?
6. Is extension agent contact related to the form of business organization?
7. Is the willingness to assume risk associated with managerial success?
8. Is the willingness to assume risk associated with the form of business organization?
9. Is goal orientation associated with managerial success?
10. Is goal orientation associated with the form of business organization?
11. Is attitude toward the use of credit associated with managerial success?

12. Is attitude toward the use of credit associated with the form of business organization?
13. Is educational level associated with managerial success?
14. Is the role of the wife in the decision-making process associated with managerial success?
15. Is the role of the wife in the decision-making process associated with the form of business organization?

D. Definitions

The following terms which are used throughout this report are herein defined.

"Manager of the Year" Award Winner - A farmer participating in the Michigan State University Telfarm electronic farm accounting program who has been officially cited by the Telfarm program as a "Manager of the Year" in its annual achievement awards program.

Sole-Proprietorship - A farm business which is operated with one person or family being responsible for the managerial decisions associated with that business.

Partnership - A farm business which is operated with more than one person or family being responsible for the managerial decisions associated with that business. A polypersonal management system.

Innovativeness - Innovativeness is based upon the time at which an innovation is adopted by an individual in relation to the time at which adoption occurs among other individuals. (Rogers, 1962)

Information Sources - An individual, organization or medium from whom a farmer can obtain facts and data relative to the operation and management of his farm business.

Extension Agent - An individual employed by the Michigan Cooperative Extension Service for its field staff to inform and advise farmers on the operation and management of their farm business.

Risk - The variability or outcomes which are measurable in an empirical or quantitative manner. (Heady, 1952)

Goals - Objectives or levels of achievement to be attained at some future date.

Credit - The use of money borrowed from others.

Education - Formal schooling obtained through regular attendance at an institution whose primary purpose is the dispensing of knowledge and information.

Decision-making Process - The process of problem identification, observation, analysis, establishing goals and making the decision to take action.

CHAPTER II

REVIEW OF LITERATURE

A. Management

Webster's dictionary defines "management" as the skillful or judicious use of certain means in order to bring about or accomplish a certain end or ends.

The literature on management generally defines it as a combination of seven functions:

1. The formulation of certain goals or objectives.
2. A recognition of, or definition of, a problem or opportunity.
3. The observation and organization of relevant facts.
4. Analysis of the important alternatives and probable consequences of each.
5. Deciding on the most desirable or least undesirable course of action.
6. Acting to get the job done.
7. Bearing responsibility for seeing the project through and evaluating the results.

The formulation of goals and problem definition are relatively new additions to the management definition. The Inter-state Managerial Study (IMS) (Johnson et al., 1961) included only observation, analysis, decision, action and responsibility bearing in their definition of management. In their managerial model they assumed that problem definition took place outside the managerial process. However, recent personal

contact with Johnson's teaching shows that he too now includes problem definition and the formulation of goals in his definition of the management process.

Heady says that management can be broken down into two distinctive activities. One is coordination. The other phase is supervision. At first this seems to be somewhat different than the definition which was previously given. However, Heady goes on to define what is meant by coordination and supervision. "The important steps in coordination include expectations, plans, action, and acceptance of consequences." Supervision is the overseeing of the production process to see that the plans are carried out. Heady states, "We prefer to look upon management as being synonymous with coordination. Supervision is a somewhat distinct human activity of the "lower order" nature." (Heady, 1952, P. 465-466) Heady's definition of management, which at first blush seemed to be considerably different from our first definition, now upon close examination appears to be quite similar and in no way in opposition to our original concept of the managerial function.

Nielson has created a managerial performance model. Figure 1 shows the schematic of this model. Nielson states with respect to the model, "I believe that a set of variables that may explain a large part of the variation in managerial outcome is managerial behavior or PROCESS--how the manager carries out the process of management." He also states, however, "We will also give attention to the personal characteristics of the managers, with the characteristics classified under the headings of DRIVES and CAPABILITIES. Drives include motivation and variables which are likely related to it such as needs, goals, interests, and perhaps attitudes. Capabilities include such things as basic intelligence, and various skills and abilities.

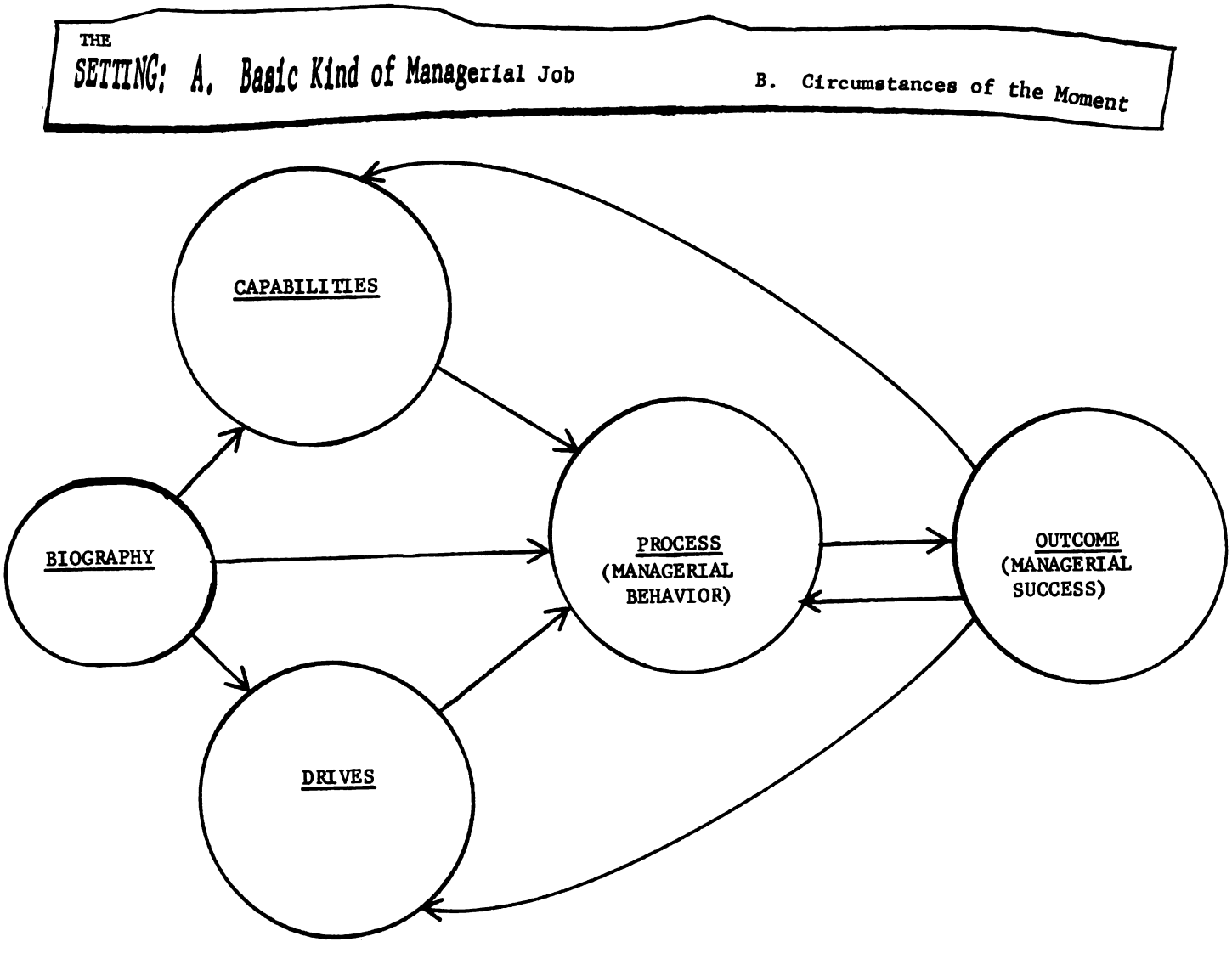

FIGURE 1. Managerial Performance Model

"At another stage in the research, we intend to look at variables which we refer to as BIOGRAPHY--age, formal education, environment in which the manager grew up, experience, etc.

"In the final analysis we may draw elements from biography, drives, capabilities, and processes in developing instruments for predicting managerial performance. But, we believe the information on biography will be meaningful only if and when we find its relationship to drives and capabilities, and information on drives and capabilities will be meaningful only after we have discovered their relationships to the processes." (Nielson, 1962a, P. 64-65)

Wirth, using the Nielson model as his definition of the managerial process, used pattern analysis to look at 60 items of information concerning individual farmers to test whether these items differentiated between low and high performance farmers. The items consisted of 21 biographical items, 26 drives and motivation items and 13 process items. "The results indicated that while with certain sets of antecedents, pattern analysis classifications were consistent with managerial performance criteria, with others, they were not.

"The significant antecedents included 26 items concerning drives, motivation, goals and attitudes interacting with 13 items about decision-making processes. Neither the 26 items as a group alone, nor the group of 13 items alone, provided significant classifications.

"The group of 21 biographical items were insufficient to provide significant classifications when used alone as a pattern-analysis input. Moreover, this group of items appeared to add nothing to the discriminatory capability of the informational input when used with other items. Some evidence suggests that biographical items may even have impaired the discriminatory capability of other information." (Wirth, 1964, P.29)

Managerial performance appears to be the result of a complex interaction of variables and can not generally be explained by means of the correlation of a few items of information about the manager with managerial performance.

Boettinger has spoken of the manager in terms of an artist, implying that it may not be completely possible to objectively measure managerial ability or to predict managerial performance. He says, "Modern managers are far closer in temperament to men like Michelangelo, DaVinci and Rubens than to the giants in the history of science. They observe the world, conceive visions of how it can be changed, gather people and resources, develop deployment strategies and inspire their followers to turn their visions into reality." (Boettinger, 1970)

Despite this conception of the manager an an artist, Boettinger's description of the functions of the manager closely parallels those given at the start of this chapter.

Suter describes a skillful manager as, "One who conducts his business, financial, personal or family affairs with economy, making whatever resources he has available to go as far as possible toward achieving those ends he most desires." (Suter, 1963)

Management and managers have been variously defined. However, general agreement is found in the literature as to the role and functions of managers in the management process.

B. Partnerships

Hepp and Kelsey have stated that there are three basic characteristics of a partnership operated business. They are 1) a sharing of profits and losses, 2) shared ownership and control of property, and 3) shared control and management of the business. (Hepp and Kelsey, 1970)

The literature does not contain many studies related to partnership operated businesses. This fact is pointed out and explained by Nielson when he said, "In the past, research into management of farms could be carried out largely in the context of single-person managerial units operating under perfect competition. More of the farm management research in the future may need to take account of managerial services purchased from off the farm, and complex multiple person managerial units with division of managerial responsibility." (Nielson, 1962a, P. 65)

Clearly, the model of business organization which was most typical of farm businesses in the past was the sole-proprietorship. While this is still the predominant form of business organization, polypersonal forms of business organization are becoming more prevalent.

Suter states that, "The most successful farm businesses today would probably include those where there are two persons working together - a father-son, two brothers, perhaps a husband-wife operating as partners." (Suter, 1970)

From this statement by Suter one might hypothesize that partnership operated businesses should be more successful than singly operated businesses. However, much discussion in the past has stated that partnership operated businesses tend to be less successful than singly operated businesses due to an excess supply of managerial services for the size of the firm. In this vein Peacock stated that, "Father and son relationships were expected to be associated with somewhat lower parity returns because of possible over utilization of labor with respect to their capital base. (Peacock, 1970) Generally, this hypothesis was supported.

Penrose states in her treatise on firm growth, "A firm has a given amount of managerial services available at any one time. Part of these are needed for ordinary operations; the rest are available for planning and executing expansion programmes." Also she states, "Internal inducements to expansion arise largely from the existence of a pool of unused productive services, resources and special knowledge all of which will always be found within any firm." (Penrose, 1959, P. 17-18)

This statement has implications for partnership operated businesses as they have a larger pool of managerial services available and thus should operate businesses which are larger and which grow faster. Also they should have more time to devote to the coordinating aspects of the managerial function and should therefore carry them out more fully and with greater precision.

Brake et al., found evidence to support the theory with respect to growth of the firm in their study of dairy farm expansion. A number of farmers, when questioned as to why they began thinking about expanding their herd, responded that the expansion was to support a family partnership where two or more families were involved. (Brake, Okay and Wirth)

While this expansion may have been out of necessity, it does demonstrate that there is a relationship between growth of the firm and form of business organization.

Hoglund in a study of adjustments on southern Michigan dairy farms found a higher percent of partnerships in the group studied stayed with dairying. (Hoglund, 1968) Evidently the stability of the labor force which the partnership form of business provides results in a lower rate of attrition from dairying for those firms.

Brake, et al., found that farmers do view the partnership form of business as a means of insuring a high quality labor force for the farm business. "Fourteen of the nineteen operators recommended that the expanding operator plan to get along mainly on family labor. Several farmers who had problems concluded that family labor was the only dependable labor. Another farmer even went so far as to say that a middle-aged farmer shouldn't expand without a younger family member who could work into the operation". (Brake, Okay and Wirth)

While the literature does not contain many references to partnership operated businesses, it does contain some items which indicate that form of business organization is worthy of further study and that differences may in fact exist between partnership and singly-operated businesses. For these reasons, form of business organization has been chosen as one of the major variables for study.

C. Innovativeness

Included among the drives and motivations influencing the manner in which the manager carries out the managerial process is innovativeness. The presence or absence of the drive to be innovative influences the success of the manager.

Wirth, in his pattern analysis of the Nielson managerial model, included an acceptance of new ideas scale as one of 26 drives and motivations influencing managerial performance. (Wirth, 1964)

Rogers states, "Both the measure of innovativeness and classification of individuals into adopter categories are based upon the time at which an innovation is adopted." (Rogers, 1962) Thus it is that Rogers uses the adopter categories of innovator, early adopter, early majority, late majority and laggard to describe the relative innovativeness of individuals.

The literature contains many references to the correlation of innovativeness with managerial success and manager traits and to the relationship between innovativeness and characteristics of the farm business.

Rogers states, "The personal characteristics of innovators indicate they have higher adoption leadership, more education, greater formal participation, higher social status, younger age, higher reading level and better interview rapport than other categories. The innovators' farm enterprises are also much different than their neighbors. Innovators are more likely to own their farms, have larger farms, higher gross farm incomes, greater farm efficiency, and a more specialized farm operation." (Rogers, 1961)

Fliegel found, "That there was a highly significant tendency for those operators who ranked high on innovativeness to report relatively high net farm incomes. The conclusion is that net farm income is significantly associated with the adoption of Extension recommended farm practices and that this association is positive in direction." (Fliegel, 1957)

Lionberger states, "High farm income nearly always is associated with high farm practice adoption. A reciprocal cause and effect relationship is likely. However, the fact that low income farmers are slow to adopt practices that they could well afford suggests that factors other than income are operative."

He also states, "Size of farm is nearly always related to the adoption of new farm practices. Many new technological advances require large-scale operations and substantial economic resources for their use. Also, use of improved farm practices produces economic benefits which

permit expansion of farming operations, which in turn make it economically possible to use more improved farm practices." (Lionberger, 1960, P. 100-101)

Havens in a review of the literature found 30 studies which looked at size of operation as related to innovativeness. Twenty-seven of the 30 reported a positive significant relationship at the five percent level, while three reported a relationship that was not significant or in the wrong direction. (Havens, 1962)

Also Havens has reported that in reviewing 60 studies, 13 variables were found to be consistently and positively related to the acceptance of innovations. Included among the 13 were 1) total acres farmed, 2) size of the enterprise, and 3) number of cows milked before adoption. In this study, size of the enterprize and number of cows milked were found to be significantly related to the adoption of bulk milk tanks at the one percent level. (Havens, 1965)

Cummings found that those factors showing the greatest differences between the high and low adopter groups among New York dairymen were 1) Socio-economic status, 2) income, 3) participation in organized groups and 4) most favorable attitudes toward Farm Bureau, among others. (Cummings, 1950)

A North Central Regional study stated, "There are differences in the nature of farm businesses among the adopter categories. The farm enterprizes of innovators in comparison to those who adopt later are characterized by: 1) larger farms, 2) higher gross farm incomes, 3) greater farm efficiency, 4) more specialized enterprizes and 5) greater farm ownership." (North Central Rural Sociology Subcommittee For The Study of Diffusion of Farm Practices, 1961)

Pointing out that the relationships stated above do not always hold, Fliegel found size of operation, consisting of a combination of number of cows and number of crop acres, was not significantly related to adoption. (Fliegel, 1956)

Most measures of innovativeness have been by means of a practice adoption score in which the manager is asked if he has adopted certain practices and when. Rogers states,"For some purposes, however, a more subjective rating as to adopter category may be valuable. If a farmer views himself as an innovator (that is, he "thinks he's an innovator") then he will act as if he were an innovator.

To obtain the individual's perception of his degree of innovativeness, Rogers asked, "About where would you rate yourself in respect to adopting new farm practices?"

1. Among the first in the neighborhood.
2. A little faster than most of the neighbors.
3. About average.
4. A little slower than most of the neighbors.
5. Among the last in the neighborhood.

There was a general tendency for the self-images to be accurate. The coefficient of agreement between adopter categories and self-images is .792.

Rogers goes on to say, "The present findings do indicate that there is a good deal of accuracy in farmer self-images as to adopter categories. About 30 percent of the commercial farmer sample rated themselves in the same adopter category as that indicated on the basis of more objective criteria. Another 46 percent rated themselves in an adopter category adjacent to that determined on an objective basis. Thus, only 24 percent

of the commercial farm sample had widely inaccurate self-images as to adopter category." (Rogers, 1961)

Based upon the above citations of the literature, it was decided to study the differences which exist, if any, in self-assessed innovativeness between managers of different performance characteristics and between managers who operate under different forms of business organization.

Hypothesis 1: Sole-Proprietor "Manager of the Year" award winners possess higher self assessment of innovativeness than do sole-proprietor non-award winners.

Hypothesis 2: Managers who operate as partners possess a higher self-assessment of innovativeness than do managers who operate as sole-proprietors.

D. Sources of Information

Heady states, "Without the combination of time, change, and inability of perfect prediction, there would be no need for management or perhaps more accurately, the need for management would arise only as the firm was initially established. Given time and change which can be predicted with certainty (perfect knowledge of the future), management in the coordination sense would be needed only to formulate a single plan for the future." (Heady, 1952, P. 466) Thus, the need for management arises out of our imperfect knowledge of the future. One of the steps of the management process which we have outlined is that of observation, or the gathering of information from which to make a decision.

The sources of this information can have an important influence upon the accuracy of the information which is received and consequently

the source of the information affects the decisions which are made by the manager.

The Inter-state Managerial Study found, "Different kinds of farmers or farmers in different positions relative to certain variables (i.e. education, incomes, background experiences, etc.) use different communicative sources. In general, variation in sources employed in securing a given type of information was associated with education, background experience, personal situations, size of operation, type of farm and farm group meeting attendance." (Johnson et al., 1961, P. 32)

Wilkening reported, "There were important differences in the sources reported by farmers of different socio-economic levels and in the sources reported for different types of practices. Farmers of the upper socio-economic levels gave agricultural agencies most frequently, while those of the lower socio-economic levels gave other farmers and dealers most frequently as their main source of information. Other farmers or dealers were also given more frequently as the main source for those practices associated with established farm operations while the agricultural agencies and mass media were more important sources for practices which represent more recent innovations." (Wilkening, 1950)

Lionberger notes, "Irrespective of causal relationships and of conditions or circumstances that intervene between exposure to new ideas and the active use of them, number of sources used or contacts with information sources is positively related to adoption rates. The relationship is even more marked when comparisons are made between adoption rates and particular sources of information. A high positive correlation

is particularly evident with the use of such sources as the county agent, the college of agriculture and vocational agriculture teachers. On the other hand, high dependence on relatives and friends as sources of information is usually negatively associated with the adoption of new farm practices." (Lionberger, 1960, P. 103)

A North Central Regional Extension Publication stated, "The typical innovator not only receives more different types of information about new practices, but also is likely to receive information sooner and from more technically accurate sources." (North Central Rural Sociology Subcommittee For the Study of Diffusion of Farm Practices, 1961, P. 8)

Copp, Sill and Brown noted, "Farmers who mention other farmers as sources of information have significantly lower progress scores than farmers who do not cite peer influence for the awareness and interest stages. Peer influences are less effective than other influences in developing a cognitive structure leading to the attainment of later stages in the adoption process. Learning of a practice from relatives and other farmers is somewhat analogous to lifting oneself by one's bootstraps, for ego's peers are not likely to be much better informed than ego. The farmer who learns from his peers is learning second-or-third-hand information, which may have lost much of its original accuracy." (Copp and others, 1958)

Peacock in relating certain variables to parity of income found the information sources used by the farmer to be related to his income and therefore useful in explaining his managerial performance. (Peacock, 1970)

Based upon the above literature review with respect to sources of information, the following hypotheses are put forth.

Hypothesis 3: "Manager of the Year" award winners utilize more direct sources of information than do non-award winners.

Hypothesis 4: Managers who operate as partners utilize more direct sources of information than do managers who operate as sole-proprietors.

E. Extension Agent Contact

The County Agricultural Extension Agent is one of the important sources of information for farmers in the United States. However, the literature indicates that the extent of use of the county agent varies among farmers and that this variation helps to explain some of the differences in managerial performance.

Lionberger states, "The non-users of institutionalized sources differed from the users of county agent services and users of other institutionalized sources in that they were older, smaller operators and were accorded a lower status in the community.

"Almost without exception, users of county agent services exhibited the opposite extreme with respect to characteristics possessed by non-users. They were younger, technologically more competent, were larger operators, had larger incomes and were more alert to new developments in farming than farmers who made no use of county extension agent services." (Lionberger, 1955)

Coleman noted, "There was a direct and consistent relation between the size of the farm operation and whether the operator was reached by Extension. Only one in six of the small farmers were Farm Bureau members, as compared with 3/4 of the large. Less than one in ten of the homemakers on the small farms were Home Bureau members, while four in ten of those on large farms were members. None of the

small farmers held leadership positions in the Farm Bureau, but about a fourth of large operators held such positions. Three-fifths of the small farmers had never had any contact with the County Agent, as compared with only 1/5 of the large who had not had contact." (Coleman, 1951)

Somewhat in contrast to Coleman's findings, Slocum and others state, "Size of farm was not significantly related to the level of Extension contacts. Low contact operators tended to have fewer assets, lower net worth, less debt, less valuable machinery, fewer farm expenses and lower agricultural income. (Slocum and others, 1958, P. 27)

Rogers and Capener reported, "Farmers who make the greatest use of their County Extension Agent were found to operate the largest farms and earn higher farm incomes." (Rogers and Capener, 1960, P. 19)

Photiadis reported that the following factors were found to be related to agent contact and significant at the one percent level: 1) Acres farmed, 2) Value of livestock, 3) Value of machinery, and 4) Gross farm income. (Photiadis, 1961)

Contacts with the county agent vary in purpose from obtaining a bulletin to budgeting the consequences of a major change in the farm business. The literature does not contain many references to this differential use of the county agent. All of the farmers in this study are known to have some contact with the county agent through their participation in the Telfarm record keeping program. Therefore, it has been decided to study county agent contact not only in the context of frequency of contact but also from the standpoint of quality of purpose of the contacts.

Based upon the literature review presented herein, the following hypotheses are proposed for study.

Hypothesis 5: "Manager of the Year" award winners have higher extention agent contact scores than do non-award winners.

Hypothesis 6: Managers who operate as partners have higher extension agent contact scores than do managers who operate as sole-proprietors.

F. Risk

Heady states that, "Risk refers to variability or outcomes which are measurable in an empirical or quantitative manner. It is only necessary that the probability of outcome or loss can be established for a large number of cases or observations." (Heady, 1952, P. 440)

Risk and uncertainty are often cited in farm management literature and discussed in the context of how farm managers function in their presence.

Uncertainty differs from risk in that with uncertainty, the probability of variability or outcomes can not be established through empirical or quantitative means.

Heady goes on to say, "Pure risk does not, or need not, have impact of a nature to affect decision-making and resource use. Since pure risk involves complete knowledge of the mean and modal outcome, the range and dispersion of outcomes, losses and gains which grow out of risk phenomena can be incorporated into the firm's cost schedule." (Heady, 1952, P. 442)

If risk does not, or need not affect decision-making, then why should it be studied? The important phrase in Heady's statement is "need not". While it need not affect decision-making, it often does. Farmers incorporate risk into their cost schedules to varying degrees. The primary means of doing this is through insuring against the occurrence

of the event involved. Examples include insuring against fire or hail through formal insurance schemes and insuring against drought or decreased crop yields through informal schemes such as carrying over feed supplies from one year to the next.

The Inter-state Managerial Study found these personal or managerial characteristics and problematic situations most frequently associated with insurance use: degree of price risk of the main product, (i.e., whether the main product had government price support and had relatively high or low price variability), ratio of debts to assets, net worth, years of formal education, age, years of farm experience, number of dependents and whether a farmer was willing to be the first, or preferred to wait in adopting new farming methods. Farmers' expectations as to changes in farm technology, their willingness to insure at unfair odds, percent of gross income from farming, concern for Types I and II errors, farmers' expectations as to changes in government programs and policies for farmers, percent income from main product, level of gross income, nonfarm experience, and tenure, (i.e., percent of acres rented to acres managed), were infrequently associated with insurance use. (Johnson et al., 1961, P. 112)

Peacock found that willingness to accept risk was one of the factors which was useful in explaining managerial performance when measured in terms of parity income. (Peacock, 1970)

The following hypotheses are made with respect to the willingness of farm managers to accept risk.

Hypothesis 7: "Manager of the Year" award winners have a greater willingness to assume risk than do non-award winners.

Hypothesis 8: Managers who operate as partners have a greater

willingness to assume risk than do managers who operate as sole-proprietors.

G. Goals

Goals are objectives or levels of achievement to be attained at some future time.

Goal formation is one of the initial steps of the management process.

Suter says with respect to goals and the farm manager, "The successful manager has a specific set of goals and objectives. The successful manager knows what he wants, he knows where he is going, and he generally knows why.

"The successful manager has a set of goals and objectives that have been intelligently conceived.

"Goals, to the unsuccessful manager, are in many cases, non-existent. He knows not what he wants." (Suter, 1970)

Boettinger stated, "The (planning) process begins by acquiring in some way what we can call "aims". Aims can spring from inheritance, rational calculation, divine revelation, irritation, shrewd discernment of opportunity, fear, love, dissatisfaction or any other shock to the mind. They are essentially visions, in a non-pathological sense, of desired future states. They are also the "sine qua non" of the planning process." (Boettinger, 1970)

Wilkening and Van Es studied goals among German farm families and found farm size to be highly associated with aspirations for the farm and for the home and with attainments in both. A positive relationship was found among large farms between degree of farm aspirations and

attainment of higher incomes and farm mechanization. (Wilkening and Van Es, 1967)

Nielson found in Michigan that, "There was a significant relationship between clearness of farm goal orientation and net farm earnings. There was a very strong tendency for those with clearly formulated goals to be in the highest earnings group and a fairly strong tendency for those in category with goals not clearly formulated to be in lower income groups." (Nielson, 1962b, P. 25)

The following hypotheses are made with respect to goal orientation.

Hypothesis 9: "Manager of the Year" award winners have a greater goal orientation than do non-award winners.

Hypothesis 10: Managers who operate as partners have a greater goal orientation than do managers who operate as sole-proprietors.

H. Credit

"The word credit comes from the Latin word "credo" meaning "I believe." Hence, credit is based upon confidence. When one borrows money, the loan is based upon confidence in the future solvency of the person and in his repaying the loan as per agreement. In this sense, credit means ability to command the capital of another in return for a promise to pay at some specified time in the future." (Nelson and Murray, 1967, P. 92)

Irwin, in his discussion of firm growth, points out the role of credit when he states, "The firm has a balance sheet as well as a production mechanism. The nature of the balance sheet items, in combination with the efficiency of the production mechanism in generating cash

flows, are the interface with an off-farm capital market. This market, together with the rate at which the production mechanism generates residual funds internally and the rate of consumption withdrawal, determines a maximum for the investment process.

"In its simplest terms, the principle of growth is to acquire control of the services of additional productive resources by paying a price less than they will earn. The process of growth is, at its core, obtaining funds to purchase these resources, either internally or from external sources." (Irwin, 1968)

While credit can play an important part in the growth of the firm, not all farmers view indebtedness with equanimity. Nelson and Murray point out that, "Fear of debt has been a factor in management decisions of farmers for a long time. In some cases farmers expressed this fear by feeling it was bad to be in debt. They felt debt was something to be avoided at almost any cost. This view was expressed long ago by Shakespeare where he had Polonius say:

> Neither a borrower nor a lender be,
> For loan oft loses both itself and friend,
> And borrowing dulls the edge of husbandry.

This attitude continues to be held by some farmers today; these borrow only after they run out of money and have to borrow." (Nelson and Murray, 1967, P. 93)

Despite the role of credit in modern agriculture not all studies have shown attitude toward credit use to be related to managerial performance. Peacock, in his study relating managerial performance to parity of income, found attitude toward credit use to not be an important predictor of parity income levels.

These hypotheses are made with respect to credit usage.

Hypothesis 11: "Manager of the Year" award winners have a more liberal attitude toward credit than do non-award winners.

Hypothesis 12: Managers who operate as partners have a more liberal attitude toward credit than do managers who operate as sole-proprietors.

I. Education

Education has become a universal part of American life. Despite the fact that education through high school has been available to almost everyone for all of the twentieth century, we find a wide variance among farmers in the amount of formal schooling which they have had. Numerous studies have examined the relationship between education and managerial performance. Most of these have been in the area of the adoption of farm practices.

Lionberger states, "The relationship between years of schooling and farm practice adoption rates is likely to be indirect, except in cases where persons learn specifically about new practices in school. Where this is not the case, education may merely create a supposedly favorable mental atmosphere for the acceptance of new practices. Since favorable orientations may be gained outside the schoolroom, correlation between years completed and adoption of farm practices is not always high. Nevertheless, more than eight years schooling is almost always associated with higher adoption rates than lesser amounts. Here, as with other variables associated with the adoption of farm practices, clear-cut relationships are hard to establish because years of schooling is related to other factors likely to condition adoption rates, as for example income and age of the farm operator." (Lionberger, 1960, P. 97)

Wilkening found, "While the level of formal education of the younger and older farm operators varies considerably, education completed is highly associated with the acceptance of innovations in farm matters. Education of the operator is as highly predictive of the approval of improved practices and adoption of those practices as any other socio-economic factor". (Wilkening, 1952, P. 44)

"Research findings generally indicate that farmers who are among the first to adopt new practices have the most formal education. In a Midwestern study, innovators averaged slightly more than a high school education; about twenty percent were college graduates. In contrast, the laggards averaged only slightly more than a grade school education." (North Central Rural Sociology Subcommittee for the Study of Diffusion of Farm Practices, 1961, P.6)

Hess and Miller studied the relationship between level of education and farmer success. They found, "Higher levels of formal schooling appeared to be reflected in higher knowledge scores and higher labor incomes. The 79 grade school operators had labor incomes averaging $2,547. The average labor incomes for the "high school" and "more than high school" groups were $3,166 and $3,286 respectively." (Hess and Miller, 1954)

Peacock in studying the personal traits of managers as related to parity of income found level of education useful in predicting managerial performance. (Peacock, 1970)

Based upon this review of the literature, we make the following hypothesis.

Hypothesis 13: "Manager of the Year" award winners have a higher educational level than do non-award winners.

J. Role of the Wife

Farming in America is a family business. The farming operation is usually carried out at the farmer's place of residence. For this reason, the entire family is usually involved in the operation and management of the farm business. Thus, joint decision-making between the husband and wife is more prevalent in farming than in other types of businesses. The role of the wife has been studied by several researchers.

Burchinal has stated, "It is generally believed that semipatriarchal patterns characterized rural family life 100 years ago. Husbands and fathers made most of the important decisions, and only a few family tasks were the joint responsibility of males and females.

"If farm and rural family life formerly was based on semi-patriarchal norms, these norms are not evident among farm, rural, and urban families in Iowa today. The considerable homogeneity found among family decision-making role patterns for the present sample suggests that, in Iowa at least, some of the main values for organizing family relationships are widely diffused and reflect general values of our urbanized society." (Burchinal,1964)

Suter, in commenting on the role of the wife in managing a farm states, "Most farmers have, at one time or another, the need for a bona fide critic with whom one can brainstorm a new idea, think it through realistically, and double check the calculations. When the farm wife assumes this role, the farm operator has financial, legal and other advantages. In fact the wife as a partner is the most valuable and the least costly consultant one can have." (Suter, 1970)

Craven in reviewing the literature on the family role in decision-making found that joint participation in decision-making appears to have some relationship to gross farm income and level of living. It was found that as gross farm income increased there was a greater tendency for level of living to be associated with individual rather than joint decision-making.

As the farm operation becomes more specialized and gross income is high there is a tendency for the wife to be less involved in family decisions. In addition to the influence that competition for resources may have on the wife's participation in low and medium income or debt-ridden families, it may also be that the wife in high economic status families feels less capable of sharing the responsibility of specialized farm management decisions.

Role is also influenced by type of decision. Major decisions are usually made jointly. Intermediate capital investments such as machinery and daily decisions are more likely made by the husband without discussion with the wife. This pattern holds in high income as well as low and medium income farms. (Craven, 1963)

Wilkening and Guerrero found that adoption of recommended farm practices is higher when both husband and wife have "high aspirations" for farm improvement than when only one or neither has "high aspirations". This was found to hold for both high and low income groups. (Wilkening and Guerrero, 1969)

Wilkening found in a study of joint decision-making, that the joint involvement of husbands and wives in major farm and home decisions was significantly related to the degree of commercialization of a farm but in a non-linear way. Joint decision-making was high for the middle

group but low for the high and low groups. (Wilkening, 1958)

Based upon the studies cited herein the following hypotheses are made with respect to the role of the wife in farm decision-making.

Hypothesis 14: The wives of "Manager of the Year" award winners are less involved in the farm decision-making process than are the wives of non-award winners.

Hypothesis 15: The wives of managers who operate as sole-proprietors are more involved in the farm decision-making process than are the wives of managers who operate as partners.

CHAPTER III

PROCEDURE

A. Design of Study

This research was conducted as a field study. Field studies are ex post facto scientific inquiries, utilizing non-experimental techniques, to study the relationship between variables, describe situations and to test hypotheses.

Two techniques were used to collect the data for this study. A field survey was conducted to obtain data on personal characteristics and managerial traits from the farmers included in the sample. Farm record analysis was used to obtain physical and financial data for each farm from the Telfarm electronic farm records which are located on the Michigan State University campus.

B. The Sample

This study required three groups of respondents in order to test the hypotheses proposed for study: one group of "Manager of the Year" award winners who operated as sole-proprietors, one group who were sole-proprietor non-award winners, and a third group of partnership operated businesses who were "Manager of the Year" award winners.

The population for this study was 333 Specialized Southern Michigan dairy farms participating in the Telfarm electronic record keeping program and whose records had been analyzed by Brown and Speicher in Agricultural Economics Report No. 175. (Brown and Speicher, 1970) However,

11 of the "Manager of the Year" award winners were not within this group of 333. Eight were located in Hepp and Brown's Southern Michigan general dairy summary. (Hepp and Brown, 1970) Three of the farms were found in neither group. As all three were partnership operations and their records were needed to increase the size of the sample, their 1970 business records were analyzed to see if they qualified as specialized dairy farms. The examination of their records proved them to be satisfactory for use and they were included in the sample of partnerships, giving a total of 14 partnership-operated businesses.

Thirty-one dairy farm sole-proprietor "Manager of the Year" award winners had been chosen between 1966 and 1970. Fourteen of these were randomly selected, using a random numbers table, to equal the 14 partnership award winners which existed. Additionally, 14 sole-proprietor non-award winners were chosen at random by use of a random numbers table from the 305 farms in Brown and Speicher's specialized southern Michigan dairy farms. The 305 from which the non-award winner sample was drawn is the original 333 farms which were studied by Brown and Speicher less 28 award winners who were among the 333 in the study.

The random sample of non-award winners can not be considered as average southern Michigan dairymen. The fact of their participation in the Telfarm program makes them in this respect alone, different from the average. However, this group is considered to be representative of southern Michigan commercial dairymen and typical of the clientel of the Michigan State University Extension dairy program. Based upon an analysis of the 1964, U.S. Census of Agriculture for Michigan, the random sample of non-award winners appears to be representative of economic class I, II and III farms which includes farms with $10,000 of gross farm sales and more.

The sample of 42 dairy farms was located in 20 southern Michigan counties.

C. The Questionnaire

The questionnaire consisted of three sections. Section one was administered to all respondents. Section two was administered only to respondents who operated as partners and section three was administered to all "Manager of the Year" award winners.

The questions in Section one were grouped into seven categories. They were: farm practices, farm labor information and practices, seven questions designed to test seven of the eight proposed hypotheses, growth, changes in farm practices, personal data, and capital investment and indebtedness.

A copy of the questionnaire is displayed in Appendix B. The questionnaire was pretested on two southern Michigan partnership-operated dairy farms who were non-award winners. Section three of the questionnaire was not pre-tested due to award winners not being readily available for pre-testing. Also the section was not complicated, did not pertain to the testing of hypotheses, and did not appear to pose any special problems. This analysis of the situation proved to be accurate when the questionnaire was taken to the field.

The pre-test did not reveal any special problems within the survey instrument and no changes were made as a result of the pre-test. This evaluation proved to be accurate as no special problems arose with respect to the questionnaire during the survey of the respondents.

D. The Survey and Data Collection

The field survey was initiated by a letter of introduction to each of the respondents by Prof. John C. Doneth. A copy of the letter is displayed in Appendix A.

Each respondent was contacted by telephone and an appointment was made for the conducting of the interview at his farm. There was one refusal to consent to an interview.

The 42 farm interviews were conducted in 14 work days within the period April 15 - May 3, 1971.

The time of the interviews varied between 45 and 75 minutes, depending upon how many sections of the questionnaire needed to be presented to the respondent, with non-award winners requiring only one section, sole-proprietor award winners, two sections, and partnership operated businesses, three sections.

The intention at the outset was to interview all of the partners associated with each operation. However, due to the pressing need to keep field work going on these large operations, all partners were interviewed in only two of the 14 cases. While this did not permit the observation of the interaction between the partners during the interview process, it did not affect the data obtained or its usefulness for the study.

The wives of the farm operators were not interviewed in this study.

Due to the availability of the farm financial and production records at the Michigan State University campus, the questionnaire did not attempt to obtain this type of information. The financial and production data were obtained from the Michigan State University Telfarm office at East Lansing.

E. Tabulation and Summary of Findings

The information from the questionnaires and from the farm records was summarized on 11 X 24 columnar sheets and placed in tables.

The summarized data were grouped by category for inclusion in the Findings chapter of the thesis.

Descriptive statistics, percentages and indexes were used in reporting the findings of the study. Indexes were used to obtain a directness of sources of information score, an agent contact score, and a goal orientation score.

The directness of sources of information score was based upon the respondent's ranking of sources of information which he had used during the past year. He was asked to rank the five most important sources of information on a list of 10 sources presented to him with one being the most important, two the next in importance and so on through five. The ten items on the list were assigned varying point values ranging from six to zero with six being assigned to the most direct sources of information and lesser values to less direct sources. Directness of a source is related to its proximity to the original source of the information. Therefore, university personnel are considered to be very direct sources of information and therefore receive high point values in scoring directness, whereas neighbors and the milk hauler are not closely related to the source of highly technical agricultural information and therefore receive low point values on directness. The directness of information score was derived by totaling the point value of the first three sources ranked by the respondents. The specific scoring of the question is described in Appendix C.

The agent contact score was derived from the respondent checking a list of 10 items concerning the purpose of his contacts with the county agent during 1970. Also, he was able to add any items to the list which did not appear there, but for which he had had contact with the county agent during 1970. The items on the list were assigned point values ranging from five to zero and items added by the respondent were scored on a five to zero basis depending upon the author's evaluation of the item. The highest point values were assigned to those items which were most technically complicated and purposeful. Therefore, budgeting a change in the business received five points and obtaining a bulletin received only one point. A friendly visit was awarded zero points. The agent contact score equals the sum of the point value of all of the items checked or listed by the respondent. The specific scoring of the question is described in Appendix D.

The goal orientation index was based upon the number of goals or plans for the farm business which the respondent listed plus a subjective analysis of the specificity of the goals. Each goal was assigned a point score on specificity ranging from two to zero with two being assigned to those goals which were most specific and zero to those which were generalizations or vague statements. For example, two points would be awarded to for a goal which stated, "Increase my herd size by 20 cows", one point for "increase my number of dairy cows", and zero points for, "Get bigger". The goal orientation score equals the sum of the number of goals listed plus the sum of the specificity score.

F. Statistical Tests

The statistical tests used to test the hypotheses were the chi-square approximation using the Kolmogorov-Smirnov two-sample test for data summarized as frequency distributions and the Student's t-test for data summarized using the mean. Data consisting of index scores was not tested for statistical significance because of the inability to assume a normal distribution of the index scores among the population. Index scores were analyzed on the basis of their means, the range of the scores and the coefficient of variation.

The chi-square approximation using the Kolmogorov-Smirnov two-sample test is useful for small samples where the chi-square test can not be appropriately used. Its use with small samples leads to a conservative test. The error is always in the safe direction, that is, when H_o is rejected using the Kolmogorov-Smirnov chi-square approximation, you can surely have confidence in the decision. (Siegel, 1956, P. 134)

CHAPTER IV

FINDINGS

This chapter is organized into four major sections. Section A describes the farm businesses of the respondents, including production and financial information, farm practice information, growth of the farm business, and changes in the businesses over a five year period.

Section B describes the human resource in the businesses studied. Personal characteristics of the farm managers and their managerial traits are analyzed.

Section C discusses the factors which "Manager of the Year" award winners indicated were important contributors to their farm business success.

Section D pertains to the partnership operated businesses and discusses their partnership agreement and their decision-making process.

A. Farm Business Characteristics

The Dairy Herd

In analyzing the dairy herd we studied milk production, feeding, culling of the milking herd, type of housing and milking system, and the use of specific management practices on the farm. Table 1 lists some of the factors which were studied.

The award winners sold approximately 500 pounds more milk per cow than the non-award winners, with production of 12,800 and 12,300 pounds per cow respectively. There was essentially no difference in milk production per cow between the two award winner groups.

TABLE 1

SELECTED DAIRY FACTORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Pounds Milk Sold Per Cow	12,312	12,878	12,804
Feed Disappearance Per Cow	$ 451	$ 400	$ 407
Crop Acres Per Cow	4.4	2.7	3.8
Culling Rate	25%	22%	21%

There was little difference in dairy herd feeding between the award winner groups with essentially no difference in feed disappearance per cow. The non-award winner group exhibited a higher rate of feed disappearance by approximately $50 per cow.

The stocking rate expressed in terms of crop acres per cow varied widely between the three groups. The non-award winners were cropping 4.4 crop acres for each dairy cow, while the partnership group averaged 3.8 and the sole-proprietor award winners averaged 2.7 crop acres per cow.

The rate of culling of the milking herd showed little difference between the groups, with the non-award winning group exhibiting a three to four percent higher culling rate than the award winners.

A major difference existed between the groups in the dairy housing systems which they possessed. Table 2 shows the distribution of the farms among the different types of dairy housing systems. All of the partnership herds were housed in free-stall housing, 11 of the sole-

proprietor award winners had free-stall housing and only four of the non-award winner group utilized free-stalls. Eight of the non-award winners utilized stanchions on their farms, but only four of the sole-proprietor award winners were using stanchion barns. The other category consisted primarily of open lot housing using a bedded pack. Four of the non-award winners were using this system as compared with one of the sole-proprietor award winners and none of the partnership group.

TABLE 2

TYPE OF HOUSING FOR DAIRY COWS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Stanchion Barn	8	4	0
Free-Stall	4	11	14
Other	4	1	0

Total does not equal 14 because of multiple choices

The milking system which a farmer possesses is to a large degree a function of the housing system which he has. Table 3 shows that the differences which exist between the groups in the milking system which they use is of the same nature and magnitude as that which existed for the housing systems. All of the partnership group milked in a parlor, 11 of the sole-proprietor award winners utilized a parlor for milking but only four of the non-award winners had parlors. As would be expected by their predominant use of stanchion barn housing, the non-award winners utilized milking systems customary to that system.

Grain feeding practices of the respondents was primarily a function of the milking system which they possessed. The award winner groups, who primarily milked in a parlor, grained their cows on a free choice or all cows receive the same basis in the majority of the cases. The non-award winner group utilized graining practices which were more compatible to stanchion barn housing than parlor milking and thus showed more evidence of individual cow feeding than did the award winner groups.

TABLE 3

TYPE OF MILKING SYSTEM

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Milking Machine and Bulk Tank	3	1	0
Milking Machine, Dumping Station and Bulk Tank	4	2	0
Around the Barn Pipeline and Bulk Tank	2	0	0
Milking Parlor	4	11	14
Other	1	0	0

The respondents were questioned as to their use of veterinary services in the form of pregnancy checks and post calving checks of the cow's reproductive track. No major differences were found between the groups but there was a slight tendency for the partnership-operated businesses to perform these two practices more regularly than the other two groups.

There was a greater tendency among the award winner groups to use the natural service of a bull in breeding their herd. While the reason for this was not directly ascertained it is felt that this may be due to a higher percentage of the award winners keeping registered cattle. Also, among the larger herds there was a tendency to keep a bull to take care of any problem cows which did not breed readily by artificial means. All but three of the non-award winner group bred 100 percent of their herd by artificial insemination. Only six of the 14 sole-proprietor award winners and eight of the partnership operations used artificial insemination exclusively.

There was some tendency for the award winners to use more scientific means in choosing which bulls to use artificially and to depend less upon the inseminator to select the bulls for them. However, the differences which did exist were slight. Eight of the non-award winners used analysis of the bull's predicted difference for milk and fat in selecting which sire to use as compared with 11 of the sole-proprietor award winners and ten of the partnership group. Five of the non-award winners left the selection of the bull up to the inseminator as compared with three of the sole-proprietor award winners and two of the partnership group.

Little difference was found between the groups in participation in DHIA testing. All but one of the respondents in each of the sole-proprietor groups were members of Michigan DHIC and three of the partnership operations did not participate in dairy herd production testing. Several of the non-participants among the partnership group noted that they had participated in the past, but had had difficulty in retaining a supervisor to test their large herd.

Crops

Selected factors related to the cropping program on the respondent's farms were examined. Table 4 lists three of these factors. The evidence indicates that the award winner groups were using a more intensive cropping system than the non-award winners with approximately 55 percent of their crop acreage in corn production as compared to 45 percent for the non-award winner group.

TABLE 4

SELECTED CROP FACTORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Percent of Crop Acreage in Corn	45%	57%	55%
Dollars of Fertilizer Expense Per Crop Acre	$ 11.17	$ 14.89	$ 13.52
Crop Value Per Acre	$ 94	$111	$108

Not only were the award winners cropping more intensively, but they were spending approximately two to three dollars more per acre for fertilizer.

This combination of more intensive cropping system and higher rates of fertilization resulted in a higher value of crop production per acre for the award winner groups. The non-award winners averaged $94 of crop value per acre as compared with $111 for the sole-proprietor award winner group and $108 for the partnership-operated farms.

The respondents were questioned as to their soil testing practices, whether or not they soil tested, the frequency with which they soil tested and the method which they utilized to determine how much fertilizer to apply. No major differences existed between the groups in their utilization of soil testing or the frequency with which they soil tested a field. However, there was a tendency for the partnership group to rely less upon soil test results in determining how much fertilizer to apply. Eight of the partnership farms relied primarily upon soil test results in determining fertilizer rates as compared with 14 of the sole-proprietor award winners and 11 of the non-award winners.

The Labor Force

The source of the farm labor supply was examined. Table 5 describes the source and amount of farm labor for each of the three groups studied. Table 6 lists several selected factors related to the source of farm labor for the three groups of farms.

The data reveal a marked difference between the groups in the composition of their farm labor force and some striking similarities between the partnership and sole-proprietor non-award winner groups in their labor force composition. The farm operators comprised 60 percent of the total labor force for the partnership and sole-proprietor non-award winners. Similarly, full-time hired labor comprised 20 and 12 percent of the total labor force respectively for the partnership and sole-proprietor non-award winner groups whereas 46 percent of the total labor supply was in the form of full-time hired personnel for the sole-proprietor award winners. Unpaid family labor contributed three percent of the total labor supply on the partnership farms, eight

TABLE 5

SOURCE OF FARM LABOR

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Operator - Mos.	12	11.5	25.4
Unpaid Family - Mos.	3.4	2.8	1.2
Hired - Full Time - Mos.	2.3	16.1	8.3
Hired - Part Time - Mos.	2.2	4.3	5.7
Total - Mos.	19.9	34.7	40.6
Total Man Equivalent	1.6	2.9	3.4

TABLE 6

FACTORS RELATED TO SOURCES OF LABOR

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Percent of Labor Force Supplied By Operator(s)	60%	34%	60%
Percent of Labor Force Supplied by Unpaid Family Labor	17%	8%	3%
No. Hiring Full Time Labor	3	11	8
Percent of Labor Force Supplied by Full Time Hired Labor	12%	46%	20%
Cash Labor Expense Per Cow	$ 42	$ 137	$ 72

percent on the sole-proprietor award winner farms, and 17 percent among the sole-proprietor non-award winners. It should be noted that this figure tends to understate the role of family labor in all of the groups due to the tendency to pay family members for work actually done due to the savings which result in income taxes paid by the farm operator under this arrangement. Thus, some of the family labor was enumerated under part-time hired help.

Only three of the non-award winners hired full-time help as compared with 11 of the sole-proprietor award winners and eight of the partnership-operated businesses. This is reflected in the cash labor expense per cow which was $42 for the non-award winners, $137 for the sole-proprietor award winners and $72 for the partnership group.

A series of questions was asked of those hiring full-time hired labor as to their labor management practices. The questions included the topics of vacations and time off, retirement plans, personal health insurance, time period used to compute pay, and whether or not a written agreement existed between the employer and the employee as to the terms of employment. Among the non-award winners, only three hired full-time help and two of those were sons. Thus, a comparison was not possible among the two sole-proprietor groups. No significant differences were found in the farm labor management practices between the sole-proprietor and partnership award winners.

Size of Business

Major differences existed between the three groups of farms in their size of business. Table 7 describes the differences which existed among selected size factors between the three groups.

TABLE 7

SELECTED SIZE FACTORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
No. of Cows	40	99	116
No. of Cows As a Percent of Dairy Housing Capacity	74%	82%	86%
Land Investment	$ 56,775	$ 87,857	$ 148,966
Building Investment	$ 17,898	$ 45,119	$ 66,967
Machinery and Equipment Investment	$ 16,935	$ 36,180	$ 48,871
Livestock Investment	$ 18,928	$ 43,626	$ 50,308
Total Capital Investment	$121,500	$229,000	$ 334,200
Milk Sales - Cwt.	4,880	12,622	14,938
Milk Sales - Dollars	$ 29,800	$ 75,900	$ 90,000
Total Cash Receipts - Dollars	$ 36,000	$ 92,000	$ 110,000
Total Acres Rented	61	79	166
Total Acres Operated	249	376	589
Acres Rented As a Percent of Total Acres Operated	24	21	28

Immediately noticeable is the difference in number of cows which exists between the groups. The sole-proprietor award winners have more than twice as many cows per farm as the non-award winners and the partnership-operated farms have almost three times more cows than the non-award

winners and 17 percent more cows than the sole-proprietor award winners. The same direction and approximate magnitude holds for the differences among other size factors such as milk sales in pounds and dollars and total cash receipts. The magnitude of the difference between the groups on the factor of capital investment was greater than that for number of cows. Between the two sole-proprietor groups the difference in land investment was less than the proportional difference in cow numbers due to the higher stocking rate of the award winners. Machinery and equipment investment and livestock investment differed by approximately the same proportion as cow numbers. However, building investment was almost three times greater for the award winners reflecting the greater use of free-stall housing and milking parlors. The partnership group had approximately a 45 percent greater total capital investment than the sole-proprietor award winner group despite only 17 percent more cows. This resulted from a 70 percent greater investment in buildings due to more complete use of the new dairy technology of free-stalls and milking parlors and a 33 percent greater machinery and equipment investment.

Total acres owned, rented and operated all increase with the increasing number of cows, however not in the same proportion. The non-award winners operate more than six acres for each cow as compared with 3.7 acres per cow for the sole-proprietor award winners and 5.1 acres for the partnership group.

None of the three groups of farms was operating at or near their capacity to house or feed dairy cows. The non-award winners were operating at only 74 percent of the capacity of their dairy housing system and the sole-proprietor award winners and partnership award winners were operating at 82 and 86 percent, respectively. None of these figures is

as high as one would ordinarily expect from fully established operating dairy farms. Among the non-award winners several of the farms had reduced their herd size due to older age of the operator. Among all three groups there were farms which had recently completed a new building program and had not yet filled the new facility with milking cows. This accounts for much of the difference between barn capacity and actual herd size.

Efficiency and Cost Control

The data clearly indicate that the award winner groups operated more efficient businesses and achieved lower costs of production than the non-award winners. Table 8 lists a number of selected efficiency and cost control factors for the farms in the study. While there was little difference in the pounds of milk sold per man and cash receipts per man between the partnership farms and the sole-proprietor award winners, the award winners sold approximately 120,000 more pounds of milk per man than did the non-award winner group, or approximately 40 percent more. Also, there was an approximate $8000 difference in cash receipts per man. This is a large difference in the level of labor efficiency, which is one of the most important factors affecting earnings.

The differences in the increases in labor efficiency were not great. While the award winner groups did improve their efficiency slightly more than the non-award winners during the period 1966-70, they essentially held an advantage over the non-award winners in 1966 similar in magnitude to their advantage in 1970. Although the sole-proprietors did improve their efficiency at a slightly more rapid rate than the partnership group, the difference was not major.

TABLE 8

SELECTED EFFICIENCY AND COST CONTROL FACTORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Efficiency			
Milk Sold Per Man - Lbs.	287,100	400,700	407,000
Increase in Lbs. Milk Sold Per Man, 1966-70	28,800	37,000	31,000
Cash Receipts Per Man	$ 21,178	$ 29,215	$ 29,980
Cost Control			
Building Investment Per Cow	$ 447	$ 456	$ 577
Machinery Investment Per Cow	$ 423	$ 365	$ 421
Total Investment Per Cow	$ 3,037	$ 2,313	$ 2,881
Power and Machinery Costs Per Cow **	$ 187	$ 154	$ 182
Labor Costs Per Cow **	$ 312	$ 230	$ 232
Livestock Costs Per Cow **	$ 110	$ 105	$ 105
Net Cost Per Cwt. of Milk	$ 6.45	$ 5.50*	$ 5.02

* The average of 11 farms
** Costs are based on total farm costs and not on an allocated enterprise basis

The non-award winner farms exhibited a net cost per hundredweight of milk of $6.45 which was higher than the $6.11 which they received for their product. Their level of labor efficiency was so low as to significantly increase their cost of production. Their labor costs per cow were approximately $80 more than the award winner farms. The non-award

winner farms had a relatively high investment per cow without the advantages of the new technology possessed by the award winner farms. Consequently, they have a high investment per cow coupled with low labor efficiency which results in high costs of production.

In comparing the two award winner groups, it should be noted that three of the sole-proprietor farms did not have net cost per hundredweight of milk calculated due to their possession of minor livestock enterprises. It is felt that the average net cost figure of $5.50 for the sole-proprietor group may be spuriously high based upon an examination of the other cost figures. Nevertheless, it is well below the $6.13 per hundredweight which they received for their product.

The higher investment per cow of more than $500 for the partnership group results from the more complete use of the new dairy technology of free-stall housing and milking parlors. Despite their higher investment per cow, their cost per hundredweight of milk sold of $5.02 is well below the $6.03 which they received for their product. This illustrates that the investment in highly mechanized buildings and equipment resulted in greatly reduced labor inputs and lower net costs.

The partnership operations exhibited higher power and machinery costs than the sole-proprietor group by $28 per cow and higher non-feed costs by $82 per cow. The larger number of acres per cow for the partnership group was a contributing factor to their higher power and machinery costs. However the additional land made them less reliant upon purchased feed for the dairy herd than were the sole-proprietors.

Profits

The primary purpose of most business enterprises is to adequately compensate the supplier of labor, management and capital for the use of

these inputs. While some prefer not to call this compensation profit, most businessmen think of it as such. Therefore, we here shall refer to labor income and percent return on investment as business profits.

Table 9 lists several selected profit factors for the farm businesses included in this study.

Labor income per operator was almost twice as high for the award winner farms as for the non-award winners. This was to be expected, as the major criterion for selection as "Manager of the Year" is a labor income which ranks in the top three percent of all Telfarm farms.

TABLE 9

SELECTED PROFIT FACTORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Labor Income Per Operator	$ 7,731	$ 14,958	$ 15,358
Change in Labor Income Per Farm, 1966-1970 Dollars	$ 1,234	$ -1,662	$ 3,728
Change in Labor Income Per Farm, 1966-1970 Percent	19%	- 10%	19%
Percent Return on Investment	4.5%	9.8%	12.3%

It has been contended by some that partnership operations will generally show lower profit levels than singly operated businesses due to the under utilization of the managerial input. In this instance, the partnership operations averaged $400 more labor income per operator than did the sole-proprietor award winners. While this difference is not of major proportions, it does illustrate that partnership businesses

are capable of providing the operators with adequate returns for their management and labor when properly organized and managed.

The non-award winner and partnership groups both increased their labor income per farm during the period 1966-1970 by 19 percent. The sole-proprietor award winners experienced a ten percent decrease during the same period. Labor income in any given year can be strongly influenced by changes in the feed supplies or unusual situations regarding the calculation of depreciation, however, the labor income for the partnership group during this five year period trended upward, while for the sole-proprietor award winners the trend was definitely down. While the non-award winners showed a percentage increase in labor income equal to that of the partnership group, it was calculated on a smaller starting base and thus amounted to only a $1,200 increase over the five-year period.

The sole-proprietor award winners had twice the return on their capital investment that the non-award winners had, averaging 9.8 and 4.5 percent, respectively. The partnership operations with a 12.3 percent return to capital averaged approximately one-third more return on capital than did the sole-proprietor award winners.

Growth

Growth of a business is usually defined as the acquiring of additional productive resources. However, business growth can also occur by increasing the production of existing resources such as increasing crop yields or milk production per cow. For growth to occur, certain of the resources used in the production process must be not fully utilized. One of these resources which can be under utilized is

managerial capacity. Based upon the premise that the supply of managerial resource affects the growth of the firm, one would hypothesize that the sole-proprietor award winners would have experienced greater firm growth than the non-award winners and that the partnership-operated businesses would have grown at a more rapid rate than the sole-proprietor-operated businesses.

Table 10 presents some selected growth factors for the farm firms studied. The general hypothesis stated above appears to be supported by the data presented here. The sole-proprietor award winners showed greater absolute and rate of growth than did the non-award winners. The partnership-operated farms exhibited greater absolute growth in all of the factors studied than did the sole-proprietor award winners, but their rate of increase in machinery investment and milk sold was below that of the sole-proprietor award winners.

TABLE 10

SELECTED GROWTH FACTORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Land Acquired by Rental 1960-1970 - Acres	48	74	149
Land Acquired by Purchase 1960-1970 - Acres	86	99	108
Building and Improvement Acquisitions 1960-1970 Dollars	$14,195	$39,418	$56,514
Total Acquisition of Additional Productive Resources 1960-1970 Dollars	$38,028	$71,151	$100,700
Increase in Machinery Investment 1966-1970 Dollars	$ 6,296	$15,636	$16,618
Increase in Machinery Investment 1966-1970 Percent	59%	76%	52%
Increase in Number of of Cows 1966-1970	3	17	23
Percent Increase in Number of Cows 1966-1970	8%	21%	25%
Increase in Cwt. of Milk Sold Per Farm 1966-1970	312	2,208	2,374
Percent Increase in Cwt. of Milk Sold 1966-1970	7%	21%	20%

B. The Human Resource

Age, Tenure and Education

Table 11 reports the average age of the farm operators in this study. The sole-proprietor award winners were the oldest group, averaging five years older than the non-award winners. The partnership group was the youngest of the three groups reflecting the younger age of the junior partners.

TABLE 11

AVERAGE AGE OF OPERATORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
	46	51	42

TABLE 12

AVERAGE YEARS FARMING

42 SOUTHERN MICHIGAN DAIRY FARMERS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
	22	28	21

Table 12 shows the average tenure of the farm operators. The differences in years farmed closely parallel the differences in age between the groups and for the same reasons.

Table 13 gives the average years of formal education for the farm operators.

TABLE 13

AVERAGE YEARS OF FORMAL EDUCATION

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
	12	13	12

t-test for difference between sole-proprietor non-award winners and sole-proprietors award winners = 0.229 $P > .05$

The sole-proprietor award winners had the highest level of formal education, averaging 13 years. Both the non-award winners and the partnership operators averaged 12 years of formal schooling. Four of the 14 non-award winners attended school beyond the twelfth grade, with one attaining a Bachelors degree at Michigan State University, one attending the MSU Dairy Short Course, and two attending other non-degree programs. Eleven of the 14 sole-proprietor award winners attended school beyond the twelfth grade with one receiving a B.S. degree from MSU, eight attending the MSU Dairy Short Course, and two attending other non-degree programs. Thirteen of the partnership farm operators attended school beyond the twelfth grade, with four receiving a BS from MSU, seven attending the MSU Dairy Short Course, and two attending other non-degree programs.

The t-test was used to test the hypothesis that "Manager of the Year" award winners operating as sole-proprietors would have a significantly higher educational level than non-award winners. A t-value of 0.229 was obtained which for 26 degrees of freedom was not significant at the five percent level.

Innovativeness

The respondents were asked to rank themselves as to when they adopted new farm practices as compared with most of their neighbors. Table 14 shows the distribution of their assessment of their innovativeness. While a fewer number of the non-award winner group rated themselves as being among the first in the neighborhood, a greater number of them ranked themselves in the first two categories than did the sole-proprietor award winners. One non-award winner ranked himself as being among the last in the neighborhood to adopt new farm practices and was the only one of the 42 respondents to do so. The sole-proprietor award winners ranked themselves evenly among the first three categories, with two of the group stating that they were a little slower than most of the neighbors in adopting new farm practices. The partnership group all ranked themselves within the first two categories. It was hypothesized that the sole-proprietor award winners would have a higher self assessment of their innovativeness than the non-award winners. Using the Kolmogorov-Smirnov two sample test approximation of chi-square, a value of 0.56 was obtained which was not significant at the five percent level.

Using the same statistical procedure to test the hypothesis that the partnership managers would have a higher self assessment of innovativeness than the sole-proprietor award winners, a chi-square value of

5.129 was obtained which was not significant at the five percent level. However, this value of chi-square was significant at the ten percent level of confidence.

TABLE 14

SELF ASSESSED INNOVATIVENESS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Among the First in Neighborhood	2	4	6
A Little Faster Than Most Of Neighbors	8	4	8
About Average	2	4	0
A Little Slower Than Most of the Neighbors	1	2	0
Among the Last in the Neighborhood	1	0	0

X^2 for difference between sole-proprietor non-award winners and sole-proprietor award winners = 0.56 $P > .05$
X^2 for difference between partnership award winners and sole-proprietor award winners = 5.129 $P > .05$

While statistical significance was not obtained at the five percent level, the data clearly indicate that the partnership group viewed themselves as being more innovative than did either of the other groups.

Agent Contact

The respondents were questioned as to the frequency of their contacts with the county agricultural agent and the purposes for which they

had contact with him. Table 15 shows the average number of contacts during 1970 each group had with the agent on their farm, at his office, and by telephone and or mail.

TABLE 15

FREQUENCY OF COUNTY AGENT CONTACTS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Agent Contacts at Farm			
Mean	4.2	4.4	4.1
Range	0 - 27	0 - 20	0 - 10
Agent Contacts at Office			
Mean	2.4	2.7	2.3
Range	0 - 4	0 - 6	0 - 5
Agent Contacts By Phone or Mail			
Mean	3.6	4.3	3.8
Range	0 - 10	0 - 15	0 - 12

The differences in the mean number of contacts between groups under all three categories is small; however, the sole-proprietor award winners do have the highest score in all three cases. It would appear, based upon this data, that there are no major differences between the three groups in the frequency of their contact with the county agent.

Based upon the reasons for which the farmer had contact with the county agent during 1970, an agent contact score was computed.

Operationalization of the agent contact score is described on page 38. Table 16 presents the agent contact scores for the three groups studied.

TABLE 16

COUNTY AGENT CONTACT SCORE

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Mean	8.3	10.1	6.9
Range	3 - 20	2 - 22	2 - 15
Coefficient of Variation	48.3	54.0	57.1

The data indicate that the sole-proprietor award winners use the county agent for more complicated and technically purposeful reasons than either of the other two groups. The partnership managers had the lowest agent contact scores of the three groups. The variation in the agent contact scores was high as expressed by the coefficient of variation, with the partnership group showing the greatest degree of variation in their scores.

The hypothesis was stated that sole-proprietor award winners would have higher agent contact scores than non-award winners. While the statistical significance of the findings was not tested due to the inability to assume a normal distribution of the index scores among the population, the data presented is in the direction stated in the hypothesis.

It was also hypothesized that the managers of farm business partnerships would have higher agent contact scores than managers operating

as sole-proprietors. This was not the case, in fact the partnership managers had the lowest contact scores of any of the groups.

Goal Orientation

The farmers interviewed were asked to list their goals or plans for the farm business during the next five years. A goal orientation score was computed for each respondent based upon the number of goals listed and the specificity of the goals. A detailed operationalization of the goal orientation score is contained on page 38. Table 17 lists the goal orientation score for each group.

TABLE 17

GOAL ORIENTATION SCORE

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Mean Score	7.4	6.6	7.2
Range	3 - 19	1 - 16	0 - 19
Coefficient of Variation	54.86	55.40	70.55

The award winners obtained lower goal orientation scores than did the non-award winners. Thus, the hypothesis that managerial success is associated with goal orientation, does not appear to be supported by the data.

The partnership group of managers did score higher in goal orientation than the sole-proprietor award winners, however, the difference

was only six-tenths of a point. This does not appear to be a great enough difference to lend much support to the hypothesis that managers who operate as partners have a higher goal orientation than do those who operate alone. This hypothesis was not statistically tested due to the inability to assume a normal distribution of the index scores among the population.

The variation among the scores was high as evidenced by the coefficient of variation values. The degree of variation was extremely high among the partnership group with V equals 70.55. This variation can also be noted in that the partnerships had the widest range of goal orientation scores.

Sources of Information

It was hypothesized that award winners would utilize more direct sources of information than non-award winners, and that managers who operate partnership businesses would utilize more direct sources of information than sole-proprietor award winners.

A directness of sources of information score was computed based upon the respondents ranking of various sources which he used. A detailed operationalization of the directness score is contained on page 37.

The data presented in Table 18 do not lend support to either of these hypotheses. The non-award winners had slightly higher source of information scores than the sole-proprietor award winners, although the range and variation among their scores was slightly greater than among the scores of the award winners.

The partnership managers did have slightly higher scores than the sole-proprietor award winners, 12.6 versus 12.2, but this difference

seems to be of insufficient size to attach any significance to it. The difference was not subjected to a statistical test for significance due to the inability to assume a normal distribution of the index scores among the population. The partnership operators had the narrowest range of scores and the lowest degree of variation among their scores of any of the three groups.

TABLE 18

DIRECTNESS OF SOURCES OF INFORMATION SCORE

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Mean	12.6	12.2	12.6
Range	6 - 15	8 - 15	10 - 15
Coefficient of Variation	18.73	15.65	12.22

Table 19 shows the number of times each group ranked the various sources of information presented to them within the top five based upon importance as a source of information.

The maximum number of times that a source could be mentioned is 14. The local extension agent and farm magazines rated high as sources of information among all three groups. The partnership operators mentioned meetings at Michigan State University or university sponsored tours or field days more often than the other groups, perhaps reflecting the ability of partnership managers to get away from their base of operation with greater ease and frequency than sole-proprietor operators.

The banker, merchants, neighbors and milk hauler were not often mentioned by any of the three groups as being important sources of information.

TABLE 19

NUMBER OF TIMES THAT SOURCE OF INFORMATION WAS RANKED IN TOP FIVE

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

Source of Information	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Direct Contact With Someone on the Staff at MSU	5	7	7
Attended Meetings at MSU or University Sponsored Tours or Field Days	8	7	11
Travelled to Other Areas or to Dairymen in Your Own Area Specifically to See First-hand the Methods That Other Farmers Are Using	9	8	10
Local Extension Agent	14	13	11
University Publications	10	10	5
Farm Magazines	12	11	13
Banker or Credit Institution Representative	2	2	3
Machinery Dealer, Fertilizer Dealer, Elevator Operator	3	7	6
Discussions with Neighbors and Personal Observation of Their Methods	4	5	2
Milk Hauler	1	0	0

Risk

The farm operators were questioned on their willingness to accept risk using three successive situations which combined successively higher risk situations with successively higher payoff opportunities. Appendix F lists the probability of loss and expected value of each of the three situations presented to the farmer and the classification of responses into risk categories.

TABLE 20

WILLINGNESS TO ACCEPT RISK

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
High Risk Acceptance	6	8	10
Moderate Risk Acceptance	3	2	3
Low Risk Acceptance	3	0	1
Very Low Risk Acceptance	1	2	0
Other*	1	2	0

* Answers not consistent with the construction of the question, such as accepting the medium and high risk situations but not the low risk situation.

X^2 for difference between sole-proprietor non-award winners and sole-proprietor award winners equal 0.56 $P > .05$

X^2 for difference between sole-proprietor award winners and partnership award winners equals 2.268 $P > .05$

The hypothesis stated that sole-proprietor "Managers of the Year" would have greater willingness to accept risk than non-award winners. The data in Table 20 describes the findings.

The tendency for award winners to more willingly accept risk than the non-award winners was very slight with a chi-square value using the Kolmogorov-Smirnov two sample test of 0.56. This value of chi-square was not significant at the five percent level.

It was also hypothesized that partnership operators would possess a greater willingness to accept risk than the sole-proprietor award winners. While the data points in this direction, the chi-square value of 2.268 is not significant at the five percent level.

It was also hypothesized that partnership operators would possess a greater willingness to accept risk than the sole-proprietor award winners. While the data points in this direction, the chi-square value of 2.268 is not significant at the five percent level.

Attitudes Toward Credit and Credit Usage

The respondents were questioned as to their attitude toward credit usage by asking whether they strongly agreed, agreed, disagreed, or strongly disagreed with statements expressing a conservative, a moderate, and a liberal attitude toward the use of credit. Table 21 summarizes their responses. The classification of the responses to the question are listed in Appendix E.

The hypothesis with respect to attitude toward credit predicted a more liberal attitude among award winners than non-award winners and a more liberal attitude among partnership operators than among sole-proprietor award winners.

The sole-proprietor award winners did show a slightly more liberal attitude than the non-award winners but the chi-square approximation, using the Kolmogorov-Smirnov two-sample test, of 0.56, was not

significant at the five percent level. Two of the sole-proprietor award winners indicated agreement with all three statements, perhaps indicating a misunderstanding of the question. None of the non-award winners evidenced this misunderstanding.

TABLE 21

ATTITUDE TOWARD CREDIT USAGE

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Conservative	2	1	2
Moderately Conservative	2	1	1
Moderate	4	2	3
Moderately Liberal	2	2	1
Liberal	0	1	0
Very Liberal	4	5	4
Agrees With All Three Positions*	0	2	3

* Agreeing with all three positions may reflect a misunderstanding of the question.

X^2 for the difference between sole-proprietor award winners and non-award winners equals 0.56 $P > .05$

X^2 for the difference between partnerships and sole-proprietor award winners equals 1.232 $P > .05$

The direction of the data measuring the difference in attitude between partnership managers and sole-proprietor award winners was opposite to the predicted direction. However, the difference between the two groups was not statistically significant at the five percent level with a chi-square value of 1.232. Three of the partnership

operators responded by indicating agreement with all three of the statements, the highest such response of any of the three groups.

Table 22 presents three factors pertaining to the actual credit usage practices of the respondents. The dollars of indebtedness increased with the size of farm. The percent equity for each of the three groups was similar illustrating that creit was used to a similar extent by all three. The number having no indebtedness was equal between the partnership and sole-proprietor award winners with three each, while the non-award winner group had only one operator who owed no money to others. It is felt that the lack of indebtedness is more an indicator of past business success and the ability to finance capital purchases from savings than it is an indicator of an attitude toward credit usage.

TABLE 22

SELECTED CREDIT FACTORS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Dollars Owed to Others	$ 31,300	$ 60,500	$ 85,400
Percent equity	75%	80%	75%
Number With No Indebtedness	1	3	3

The Wife in Decision-Making

It was hypothesized that the wife would play a lesser role in the decision-making process among sole-proprietor award winners than among

non-award winners, and among partnerships than among sole-proprietor award winners.

To test these hypotheses the farmer was asked how frequently he consulted his wife when making three types of farm decisions, daily operational decisions, capital investments of less than $15,000, and major capital investments. Table 23 shows the results of the three questions.

In daily operational decisions, the wives played almost no part with only one partnership operator stating that the wives were always consulted when making decisions about daily operations. Support for the hypothesis that wives would play a lesser role among award winners than among non-award winners was not found in this case and in fact the direction of the data was opposite to that predicted although not significantly different at the five percent level with a chi-square of 0.1372.

The wives of partnership operators did play a lesser role in daily operational decisions than did the sole-proprietor's wives, as predicted, although the difference was not statistically significant at the five percent level, with a chi-square value of 0.56.

In decisions involving capital investments of less than $15,000 the differences in the role of the wife were very much in the predicted direction but in neither case were the differences significant at the five percent level of confidence. In both cases of the difference between the sole-proprietor award winners and non-award winners, and the partnerships and sole-proprietor award winners, a chi-square value of 3.569 was obtained.

In the case of major capital investment decisions, the wife plays a greater role than in the other types of decisions except in the case

TABLE 23

FREQUENCY OF CONSULTATION WITH WIFE IN MAKING FARM DECISIONS

42 SOUTHERN MICHIGAN DAIRY FARMS - 1970

	Sole-Proprietor Non-Award Winners	Sole-Proprietor Award Winners	Partnership Award Winners
Dairy Operational Decisions			
Always Consulted	0	0	1
Sometimes Consulted	2	3	0
Seldom Consulted	12	11	13

X^2 = 0.1372 for difference between sole-proprietor non-award winners and sole-proprietor award winners $P > .05$
X^2 = 0.56 for difference between sole-proprietor award winners and partnership award winners $P > .05$

Capital Investments of Less Than $15,000			
Always Consulted	14	9	4
Sometimes Consulted	0	1	2
Seldom Consulted	0	4	8

X^2 = 3.569 for difference between sole-proprietor non-award winners and sole-proprietor award winners $P > .05$
X^2 = 3.569 for difference between sole-proprietor award winners and partnership award winners $P > .05$

Major Capital Investments			
Always Consulted	14	12	9
Sometimes Consulted	0	2	2
Seldom Consulted	0	0	3

X^2 = 0.56 per difference between sole-proprietor non-award winners and sole-proprietor award winners $P > .05$
X^2 = 1.232 for difference between sole-proprietor award winners and partnership award winners $P > .05$

of the sole-proprietor non-award winners where all 14 respondents stated that the wife was always consulted in both intermediate and major capital investment decisions. The nature of the differences in the role of the wife in making major capital investment decisions was as predicted by the hypotheses, but the differences were slight and not statistically significant at the five percent level of confidence, with chi-square values of 0.56 being obtained for the non-award winners versus the sole-proprietor award winners and 1.232 for the difference between the partnership group and the sole-proprietor award winners.

Generally, the relationships, stated in the hypotheses regarding the role of the wife in farm decision-making, were found to exist, but not at a five percent level of confidence.

C. Factors Contributing to Manager's Success

"Manager of the Year" award winners were asked to check a list of 15 items as to whether or not the items were important factors in their success as farm managers. The list of factors can be found in Appendix B. They were also allowed to add any items not on the list which they considered to be important to their success. After checking the list, they were then asked to rank the five most important items of those checked, with one being the most important, two the next most important, and so forth through five. The items were then scored by awarding five points for each time an item was ranked first, four points for second, three points for third, two points for fourth, and one point for fifth. Table 24 shows the ranking by point score of the top eight items ranked by the respondents.

TABLE 24

FACTORS CONTRIBUTING TO SUCCESS OF MANAGERS OF THE YEAR
(28 RESPONDENTS)

Item	Score
Working Hard	66
Making well thought out decisions	56
Having a high producing dairy herd	42
Plan work to be done and get it done on time	39
Having a wife who helps with work and decision making	36
Getting good training from my father	32
Financial help from father in starting farming	29
We aim for high labor efficiency by getting large machinery and labor saving buildings	28

The data would indicate that the Protestant Ethic is not dead among Michigan Telfarm "Managers of the Year". Working hard received the highest ranking of the fifteen items listed by a wide margin. Additionally, the respondents viewed their ability to make good decisions as being the second most important factor contributing to their success. Having a high producing dairy herd, planning work and getting it done on time, and the help of the wife also received high marks from the "Managers of the Year". Training and financial help from the father and high labor efficiency were also considered as important.

The award winners were asked if there had been any individual or individuals who had, through their actions, extraordinarily influenced

their career. Nineteen said yes there had been and nine said no. Table 25 shows who those people were who contributed to the success of the management award winners.

TABLE 25

PERSON WHO HAD A SPECIAL INFLUENCE UPON CAREER OF MANAGER OF YEAR*
(19 RESPONDENTS)

Person	Number of Times Mentioned
Extension personnel	6
Father	5
Agricultural teacher	4
Neighboring farmer	3
Wife	2
Brother	1
Seller of farm	1
Former employer	1

* More than one response permitted

Extension personnel were mentioned more often by the respondents than any other group of people. While this finding was not expected, careful examination of the question, the interview procedures, and previous questions give no evidence that any bias was introduced that would produce this result. Fathers and agricultural teachers were mentioned with some regularity as were neighboring farmers.

The respondents were asked in what way this person or persons had contributed to their success? Advice and counsel was mentioned 11 times, setting a good example was mentioned seven times, with

encouragement and support, and financial help listed by four of the operators, and taking me into partnership listed three times.

While the "Managers of the Year" credited their hard work and decision-making ability for much of their success, many also recognized the role that others played in their journey to success.

D. Partnership Agreements, Problems and Decision-Making

One section of the questionnaire, consisting of 19 questions, was devoted to subjects unique to the partnership operated businesses. The topics included the written partnership agreement, special problems associated with the partnership form of business organization, and the decision-making process in partnership-operated farm firms. These topics fall generally outside of the major purposes of this study, but due to the author's interest in the subject, were included in the questionnaire because of the unique opportunity to gain the information while at the farm. The findings shall be briefly summarized here.

Fourteen partnership operations were included in the study. Six of these were father-son arrangements, five brother-brother, two father-son-son-in-law, and one consisted of partners who were not related.

The mean years which the partnerships had been in existence was 12 with a range of 3-26 years.

Somewhat surprisingly, four of the 14 operations did not have a written partnership agreement. One of the respondents actually felt that this was preferable due to his opinion that a written agreement would not permit flexible operation of the business.

The operators were asked whom they had consulted in planning their written agreement. The county extension agent, Michigan State

Extension specialists, and life insurance agents were all mentioned an equal number of times. The role of the life insurance agent in the planning of the agreement was unexpected. The reason for this is not known with certainty. Whether the agent, in previous contacts, had created an image of expertise in this subject with the hope of later making a sale of partnership life insurance, or whether farmers in southern Michigan generally hold life insurance agents as being knowledgeable in this subject and therefore contact them when planning a partnership agreement, is not known. Regardless, it is obvious from this data that the life insurance agent is an important source of information to dairymen when planning a partnership agreement.

Eight of the operations carried partnership life insurance on the lives of the partners. In two of the eight cases the coverage was limited to the senior partner being insured against the death of the junior partner. An analysis was not made as to the extent of the life insurance coverage and what other life insurance was carried by the partners on their own life.

Of the ten who had written partnership agreements, two stated that their agreement did not provide the surviving partner with an option to buy or rent the farm operation in the case of the death of the other partner. Also, eight of the ten stated that the agreement did not provide for arbitration by an outside party in cases where the partners were unable to agree. The omission of these two items from a partnership agreement is considered to create a weakness in the agreement.

The respondents were asked if there are any special problems associated with the partnership form of business organization. Eight said that there were none, but five mentioned the opportunity for

disagreement to occur which does not exist in a sole-proprietorship. Three of the operators mentioned that the ability to compromise, or more appropriately, the inability of the partners to compromise could be a serious problem in a partnership business.

When asked what advice they would give to someone who was planning to form a partnership, the most frequently mentioned item was, make sure that the partners are capable of compromising. This advice reminds the author of a remark made by Prof. S. W. Warren to a farm management class at Cornell University in 1959. He stated that whenever you find two partners who say that they never have a disagreement, you can be fairly certain that one of them is making all of the decisions. The responses of the farmers in this survey indicate that the ability to solve differences amicably is important to partnership success.

The respondents were asked to indicate how they made three different types of farm decisions; daily operational decisions, capital investment decisions of less than $15,000, and major capital investment decisions. They were asked to choose between three methods of making decisions which were presented to them or if these did not adequately describe their decision-making procedure they could describe their method.

In making daily operational decisions, eight indicated that each member of the partnership had specific responsibilities for certain parts of the farm operation and made the daily operational decisions pertaining to his area of responsibility. Five of the partnerships made the daily operational decisions jointly, and none indicated that the wives were involved in the daily operational decisions. One

partnership indicated that their daily operational decisions were made by means of a combination of joint and individual decisions.

With regard to medium size capital investments, nine indicated that these decisions were made jointly among the male partners, with only one operation stating that these decisions were made by a partner individually with respect to his area of responsibility. Four of the firms said that medium size capital investment decisions were made jointly with the wives.

For major capital investment decisions, nine of the farm partnerships stated that the decisions were made jointly with the wives. Five said that the decisions were made jointly among the male partners only and none said that the decision for a major capital investment was the sole responsibility of one partner based upon his area of responsibility.

The major pattern of decision-making on the partnership farms studied appears to be a considerable amount of individual decisions concerning daily operations, joint decisions but excluding the wife for intermediate capital investment decisions and inclusion of the wife in decision-making involving major capital investments.

CHAPTER V

CONCLUSIONS

This field study of 42 southern Michigan Telfarm dairymen had as its major purpose, to explore the relationship of selected personal and managerial traits to business success and form of business organization. In addition to studying the managerial resource on the farms, the farm business performance was analyzed.

The sample consisted of three groups of 14 farms each, one group of sole-proprietor non-award winners, one group of sole-proprietor award winners, one group of partnership winners. The non-award winners were selected at random from 333 southern Michigan specialized dairy farms. The award winners were chosen from dairymen recipients of the Telfarm "Manager of the Year" award during the period 1966-1970.

The comparisons in this study were made between the sole-proprietor award winners and non-award winners, and between the partnership farms and sole-proprietor award winners.

A. Summary of Farm Business Characteristics

Major differences existed between the groups in their farm business characteristics. While the groups did not differ greatly in milk per cow and dairy herd management practices, a large difference existed in their utilization of free-stall housing and milking parlors. All of the 14 partnership operations handled their dairy herds by this method, while 11 of the sole-proprietor award winners and only four of

the non-award winners had adopted the new housing and milking technology.

Little difference existed between the partnership and sole-proprietor award winners in their cropping performance or practices, but the award winners had a more intensive cropping system, used more fertilizer per acre and obtained a higher crop value per acre than the non-award winners.

Major differences existed in the composition of the farm labor force between the groups. Operators made up 60 percent of the labor force on the partnership and non-award winner farms, but only one-third of the farm labor was supplied by the operator on the sole-proprietor award winner operations. Unpaid family labor was twice as important on the non-award winner farms, with 17 percent of the total labor force coming from this source, as on the sole-proprietor award winner farms where only eight percent of the labor force was derived from unpaid family sources. Only three percent of the partnership farm labor force consisted of unpaid family labor.

Major differences existed in the extent to which the three groups utilized full-time hired labor. Only three of the non-award winners employed full-time help, as compared with 11 of the sole-proprietor award winners. Eight of the partnership operations utilized full-time employees but, full-time help made up only 20 percent of the total labor force on the partnership operations as compared with 46 percent on the sole-proprietor award winner farms and only 12 percent on the farms of the non-award winners.

The differences with respect to the labor force are striking. The differences may result from things which are deeper than may first appear and the effects of the differences appear to manifest themselves

in the ultimate performance of the business. Is the fact that the non-award winners do not employ hired labor, to any large degree a result of their inability to manage employees and thus a reflection upon their managerial ability, or is it a result of their attitude toward hired labor and their unwillingness to attempt to cope with the attendant problems associated with hired help and again a reflection upon their ability as managers? Another possibility is that the non-award winners have an aversion to large-size businesses in general and therefore have not increased their herd size over time. Thus, they have no need for hired help rather than an unwillingness or inability to cope with it. In either case, that it has an effect of major proportions upon the performance of the business, is without question.

Before discussing the effects which the labor situation has upon the performance of the business, one comment should be made with respect to labor and the partnership operations. The partnership form of business organization appears to be a viable alternative for coping with the labor problem although this may not be the primary reason for the original formation of the partnership. Although the percentage of the partnership labor force coming from full-time hired sources was relatively low, eight of the operators did employ full-time help, thus indicating that there may be some credence to the notion that the situation among the non-award winners is related to managerial ability.

That the labor situation influences the business performance, is evidenced by an analysis of the size and growth factors for the businesses. The non-award winners averaged 40 cows per farm, compared with 99 cows for the sole-proprietor award winners, and 116 for the partnership operations. While none of the three groups were operating at the

capacity of their housing facilities, the non-award winners were operating at 74 percent of capacity and were understocked with respect to their crop land with 4.4 crop acres per cow. Despite the possession of the physical resources for a much larger business, the non-award winners have seemingly limited themselves to the size of business which can be operated by one man and family and part-time help.

The theory on firm growth states that growth is influenced in part by the supply of unused managerial resource. The non-award winners increased their herd size by only three cows during the period 1966-70 as compared with 17 for the sole-proprietor award winners and 23 for the partnership farms. The difference in the magnitude of growth between the firms was as predicted by the theory. The growth of the non-award winner firms appears to be limited by the size of the labor force, which in turn may be affected by the managerial ability of the operators. Thus, we seem to be able to relate managerial ability to growth, and growth to the size of the labor force and hence, managerial ability to the use of hired labor.

Measuring profits by labor income, the award winner farms were twice as profitable as the non-award winners. Little difference existed between the partnership and sole-proprietor award winners in labor income per operator. When profit is measured in terms of percent return on investment, the non-award winners earned 4.5 percent which is less than the rate which can be earned from U. S. savings bonds and with much less risk. The sole-proprietor award winners earned 9.8 percent on their investment and the partnership firms earned 12.3 percent. The award winner firms were more than twice as profitable as the non-award winners and the partnership firms were slightly more profitable than the sole-proprietor award winners.

The award winner farms were approximately 40 percent more efficient in terms of milk sold per man with little difference existing between the partnership and sole-proprietor award winners. In cost control, the net cost of producing milk for the non-award winners was greater than the price they receive for their product, while the award winners had costs that were well below the prevailing price for milk. While the partnership operations exhibited a lower cost of production by 48 cents than the sole-proprietor award winners, the figure for the sole-proprietors may be spuriously high due to the fact that three of the group did not have the factor calculated because of the existence of minor non-dairy livestock enterprizes. Thus, it is felt that based upon all of the cost control data, little difference existed between the two groups.

In total, major differences existed between the award winner and non-award winner farm businesses but the differences between the partnership award winners and sole-proprietor award winners were slight.

B. Summary of Hypotheses

Fifteen hypotheses were proposed with respect to the relation between the personal and managerial traits of the farm operators and their business success and form of business organization. None of the fifteen hypotheses was supported at the five percent level of confidence.

Hypothesis 1: Sole-proprietor "Manager of the Year" award winners possess a higher self-assessment of innovativeness than do sole-proprietor non-award winners.

A chi-square value of 0.56 was obtained with the direction being in the stated direction of the hypothesis. This value for chi-square

is not sufficient to support the hypothesis at the five percent level of confidence. The non-award winners had a high self-assessment of their innovativeness which does not appear to be justified by the evidence presented in the dairy herd section with respect to the adoption of new dairy technology. Only four of the 14 non-award winners had adopted free-stall housing and milking parlors as compared to 11 of the award winners. This indicates that the non-award winners self-assessment of their innovativeness does not correspond with their actual performance. Admittedly, the non-award winners' size of herd does not justify the use of free-stall housing and milking parlors, but the innovator is usually characterized as one who pushes ahead and there is little evidence that the non-award winners have done anything but maintain the status quo during the last five years.

Hypothesis 2: Managers who operate as partners, possess a higher self-assessment of innovativeness than do managers who operate as sole-proprietors.

The data tend to lend support to this hypothesis, but the chi-square value of 5.129 was not sufficient to support the hypothesis at the five percent level of confidence. However, the chi-square value was sufficient to support the hypothesis at the ten percent level of confidence. The data on the adoption of new dairy housing and milking technology tend to support these findings, since all fourteen of the partnership operators utilized free-stall housing and milking parlors compared with 11 of the sole-proprietors. All of the partnership operators ranked themselves within the two highest adopter categories, and this appears to be a reasonable self-assessment of their innovativeness.

Hypothesis 3: "Manager of the Year" award winners utilize more direct sources of information than do non-award winners.

The findings of this study do not lend support to this hypothesis and in fact the findings were in the opposite direction to that stated in the hypothesis. Non-award winners utilized more direct sources of information than did award winners.

Hypothesis 4: Managers who operate as partners utilize more direct sources of information than do managers who operate as sole-proprietors.

The partnership operators did possess a slightly higher directness score than did the sole-proprietors, 12.6 versus 12.2, but this does not appear to be of sufficient magnitude to lend much support to the hypothesis. The difference was not tested for statistical significance due to the inability to assume a normal distribution of the index scores among the population.

Hypothesis 5: "Manager of the Year" award winners have higher extension agent contact scores than do non-award winners.

The data tend to lend support to this hypothesis, but the index scores were not submitted to a statistical test for significance because of the inability to assume a normal distribution of the scores among the population. The award winners possessed an average contact score of 10.1 as compared with 8.3 for the non-award winners.

Hypothesis 6: Managers who operate as partners have higher Extension agent contact scores than do managers who operate as sole-proprietors.

The findings with respect to this hypothesis were, in fact, opposite to those predicted. The partnership group had the lowest agent contact score of any of the three groups studied with 6.9. The

partnership group also tended to have less frequent contact with the county agent than did the sole-proprietor group. This may be a result of their somewhat greater use of more direct sources of information.

Hypothesis 7: "Manager of the Year" award winners have a greater willingness to assume risk than do non-award winners.

The tendency of the data was very slightly in the direction stated in the hypothesis. However, the chi-square value of 0.56 was not of sufficient magnitude to support the hypothesis at the five percent level of confidence.

Hypothesis 8: Managers who operate as partners have a greater willingness to assume risk than do managers who operate as sole-proprietors.

The data was definitely in the direction stated in the hypothesis, but the chi-square value of 2.268 was not sufficient to support the hypothesis at the five percent level of confidence.

Hypothesis 9: "Manager of the Year" award winners have a greater goal orientation than do non-award winners.

The findings on goal orientation were opposite to those stated in the hypothesis. The non-award winners had an average goal orientation score of 7.4 as compared with 6.6 for the sole-proprietor award winners. The reason for this is not known, but it may have been due to the five year older age of the award winners and the fact that many of them had achieved many of the goals which are reasonable to achieve for a farm business based upon the present state of technology and knowledge.

Hypothesis 10: Managers who operate as partners have a greater goal orientation than do managers who operate as sole-proprietors.

The partnership award winners did average slightly higher in

their goal orientation scores than did the sole-proprietor award winners, but not as high as the non-award winners. Their average score was 7.2 as compared with 6.6 for the sole-proprietors which does not seem to be of sufficient magnitude to give much strength to the hypothesis. The difference between the scores was not subjected to a statistical test for significance because of the inability to assume a normal distribution of the index scores among the population.

Hypothesis 11: "Manager of the Year" award winners have a more liberal attitude toward credit than do non-award winners.

The data do not support this hypothesis at the five percent level of confidence. While the difference between the two groups was in the predicted direction, the chi-square value of 0.56 was very low.

Hypothesis 12: Managers who operate as partners have a more liberal attitude toward credit than managers who operate as sole-proprietors.

The findings related to this hypothesis were in the opposite direction of that predicted. However, the difference between the two groups was not great, with a chi-square value of 1.232 indicating that the difference was not significant at the five percent level of confidence.

Additional data on actual credit usage tend to confirm the findings that little difference exists between the groups in attitude toward credit. While the actual amount of credit usage was directly related to the size of business, the percent equity of the three groups was similar with 75 percent for the non-award winners and partnership farms and 80 percent for the sole-proprietor award winners.

Hypothesis 14: The wives of "Manager of the Year" award winners are less involved in the farm decision-making process than are the wives of non-award winners.

This hypothesis was examined with respect to three types of farm decisions: daily operational decisions, capital investment decisions involving less than $15,000 and major capital investment decisions. With respect to daily operational decisions, the findings were in the opposite direction of that predicted in the hypothesis but not at a statistically significant level. In fact, with a chi-square value of 0.56 the difference was very slight.

For intermediate capital investment decisions, findings were definitely in the predicted direction but the chi-square value of 3.569 was not adequate for support of the hypothesis at the five percent level of confidence.

In decisions involving major capital investments, the role of the wife was in the predicted direction but again not at a statistically significant level with a chi-square value of 0.56 indicating that the difference between the two groups was slight.

Hypothesis 15: The wives of managers who operate as sole-proprietors are more involved in the farm decision-making process than are the wives of managers who operate as partners.

The wives of sole-proprietor operators did play a greater role in farm decision-making on a daily basis, but the difference was not significant at the five percent level of confidence with a chi-square value of 0.56.

In the case of intermediate size capital investments, the findings were in the predicted direction but the chi-square value of 3.569

was not sufficient to support the hypothesis at the five percent level of confidence.

The findings with respect to major capital investment decisions, indicate that the direction stated in the hypothesis is correct but the chi-square value of 1.232 was not sufficient to support the results at the five percent level of confidence.

The findings indicated that the role of the wife in farm decision making increases significantly with the size of the decision to be made. The wives played very little role in the daily operational decisions on the farm, a somewhat more important role with respect to capital expenditures of less than $15,000, and an important role in decisions involving major capital expenditures.

None of the fifteen hypotheses is supported at the five percent level of confidence. It is felt that the small size of the sample, 14 in each group, was detrimental to the use of conventional statistical procedures, and thus hindered our ability to establish differences which could be supported at a five percent level of confidence. This points out the need to have samples of adequate size if standard statistical procedures are to be appropriately carried out. Twenty-five to 30 respondents in each group would have provided an adequate sample size for proper statistical analysis. However, it should be noted that the sample size was deliberately established with the knowledge of the problems that would exist. This research design was considered to be most beneficial to the education of the author even though it had special limitations from a purely research standpoint.

C. Implications for Additional Research

One of the major implications has been discussed above. That is the need to test some of the hypotheses which showed the strongest trends toward significance with a larger sample.

The area of farm business partnerships is still a relatively unstudied area. A more complete exploration of such things as the profit levels of partnership operations versus sole-proprietorships, the accumulation of capital by the junior partner, and the usage of partnership life insurance and its role in the partners' total life insurance program are all worthy of study.

This study has implications for additional research into why certain farm firms did not grow despite the abundance of unused resources which existed.

Also, study is needed into the differences in personal and managerial traits between those operators who do employ full-time hired help and those who do not.

D. Conclusions

It has been said that the best way to measure attitudes is to measure the individual's behavior. (Mager, 1968) This study attempted to do both, with relatively successful results in the case of behavior and less success with respect to the attitudes. While the measuring of behavior may be a valid means of determining values and attitudes, it is ex post facto in nature and therefore has no predictive value. Farm management researchers and extension workers need to be able to predict the possible future success of farm managers. Numerous studies

have attempted to construct attitudinal measurements which would be useful in predicting managerial performance. The rate of success is dismally low. In retrospect, the answer may lie with Mager's idea of measuring behavior. But to measure behavior which may serve as a precursor to future performance. Are there certain behavioral activities which occur during the teenage years and early adulthood which if known to the farm management extension worker, would be of predictive value in determining the manager's future performance? This type of study falls in part outside of the realm of agricultural economics. Psychology and sociology are very much a part of this type of work. Needed is an interdisciplinary attack upon the problem of predicting managerial behavior.

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APPENDICES

APPENDIX A

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY · EAST LANSING · MICHIGAN 48823

AND U.S. DEPARTMENT OF AGRICULTURE COOPERATING

Agricultural Economics
Agriculture Hall

April 9, 1971

Dear Telfarm Cooperator:

Van Travis, a graduate student at Michigan State University, is presently making a study among the Michigan Telfarm cooperators. His study pertains to the management of dairy farms and a comparison of partnership and singly operated farm businesses.

Within the next four to six weeks he will be contacting you by phone to arrange a time when he might spend approximately 45 minutes with you to complete a questionnaire which he is using for his study.

We feel that the work which Mr. Travis has undertaken will be of value to the Michigan dairy industry. The information which he receives will be used for his thesis. If in the view of his advisors the findings merit publication, you will receive a copy of the report. We hope that you will be able to accommodate him within your busy schedule and provide him with the needed information.

Van is an extension dairy agent in New York State, on leave doing graduate work at MSU. I think that you will enjoy visiting with him.

Sincerely,

John C. Doneth

John C. Doneth
Extension Specialist
Agricultural Economics

dt

APPENDIX B. Questionnaire

CONFIDENTIAL

Name_____

Date_____

Interviewer_____

Survey of Michigan Farm Managers

1. What type of farm business organization do you have?

   a. Operate alone (sole-proprietor) _____

   b. Partnership _____

   c. Other (Specify)_____ _____

2. I would like to start off with some questions relating to your dairy herd. Do you have the veterinarian check cows' reproductive tracks after calving and prior to breeding?

   a. Regularly _____

   b. Only if trouble occurs _____

   c. Not at all _____

3. Do you have the veterinarian make pregnancy checks on your cows?

   a. Regularly _____

   b. Occasionally _____

   c. Not at all _____

4. What is the calving interval for your dairy herd?

   a. 12-14 months _____

   b. 15-16 months _____

   c. 17 months or more _____

5. Are you a member of the Michigan Dairy Herd Improvement Cooperative?

   Yes _____

   No _____

6. How do you determine how much grain to feed each cow?

   a. DHIA or other production record recommendations _____

   b. A fixed ratio of grain to milk _____

   c. A variable ratio of grain to milk depending upon stage of lactation _____

   d. Individual judgement _____

   e. All cows receive the same _____

   f. Free-choice in the parlor _____

   g. Other (specify) _____ _____

7. What percentage of your milk cows are bred artificially?

   a. 100% _____

   b. 75-99% _____

   c. 50-74% _____

   d. 49% or less _____

8. How do you select the bulls which you use artificially?

   a. Analysis of the predicted difference for milk and fat of their offspring _____

   b. Analysis of the type of their offspring _____

   c. Use the most currently "popular" bulls _____

   d. Leave the choice up to the inseminator _____

9. What type of dairy housing system do you have?

   a. Stanchion barn _____

   b. Open lot free-stall _____

   c. Covered free-stall _____

   d. Other (specify) _____ _____

10. What is its capacity for milking cows?

    Number _____

11. What type of milking system do you have?

    a. Milking machine and cans _____

    b. Milking machine and bulk tank _____

    c. Milking machine, dumping station and bulk tank _____

    d. Around the barn pipeline and bulk tank _____

    e. Milking parlor _____

    f. Other (specify) _____ _____

12. How many milk cows did you sell as culls during 1970?

    Number _____

13. Next, I would like to ask about some of your cropping practices. Do you soil test for soil nutrients other than lime?

    Yes _____

    No _____

14. How often do you soil test a field?

    a. Yearly _____

    b. Every two years _____

    c. Once in each rotation _____

    d. Only when a problem arises _____

15. How do you decide how much fertilizer to use on your crops?

    a. Soil test results _____

    b. Fertilizer dealer recommendations _____

    c. About the same as in previous years _____

    d. Neighbors recommendations _____

    e. Apply what I think will pay _____

16. I would now like to ask some questions about the farm labor force. During the calendar year 1970, what has been the source of your farm labor?

	Total Months Man Equiv.
Yourself	
1st partner	
2nd partner	
Family (unpaid)	
Wife or wives	
Sons	
Daughters	
Other _____	
Total Unpaid Family	
Hired	
Full-time	
Part-time	
Total Hired	
Total Labor Force	

IF NO FULL-TIME HIRED HELP, GO TO QUESTION 31

17. If you employ full-time hired labor, we are interested in the labor management practices which you carry out. Do your employees receive a vacation with pay?

Yes _____

No _____

18. If yes, how many weeks? _____

19. How long must they work before being entitled to a vacation? _____

20. Do you carry workman's compensation or employer's liability insurance?

Yes _____

No _____

21. Do you provide your employee with personal health insurance?

    Yes _____

    No _____

22. If yes, by whom are the premiums payed?

    a. By employer _____

    b. By employee _____

    c. By employer and employee _____

23. If "c" above, what is the percentage payed by each?

    Employer _____

    Employee _____

24. Do you have a retirement program for your employee?

    Yes _____

    No _____

25. If yes, is this in conjunction with a Keough Act retirement plan which you have for yourself?

    Yes _____

    No _____

26. If yes, with whom is the retirement plan carried?

    a. Insurance company _____

    b. Bank _____

    c. Mutual Fund _____

    d. Federal Retirement Bonds _____

    e. Other (specify) _____ _____

27. On what basis do you pay your employee?

    a. By the week _____

    b. By the month _____

    c. By the hour _____

    d. Other _____ _____

28. If by the hour, do you use a time clock to record the hours worked?

    Yes _____

    No _____

29. In addition to vacation, how much time off does the employee get?

    _____

30. Are the conditions of employment (hours, pay, vacations, etc.) spelled out in writing to the employee?

    Yes _____

    No _____

31. Dairy farmers react differently to new ideas and technology. Listed below are five statements about trying something new. About where would you rate yourself in respect to adopting new farm practices?

    Among the first in the neighborhood. _____

    A little faster than most of the neighbors _____

    About average _____

    A little slower than most neighbors _____

    Among the last in the neighborhood _____

32. One of the sources of information available to the farmer is the county extension agent.

    a. During 1970, how many times did the county agent visit your farm? _____

    b. How many times during 1970 did you visit with the county agent at his office? _____

    c. How many times during 1970 did you talk by telephone and correspond by mail with the county agent? _____

33. For what purposes did you have contact with the county agent during 1970?

    a. Obtain a bulletin or other literature _____

    b. Obtain general cropping information _____

    c. Obtain general dairy information _____

33. (Continued)

d. Design a cropping program _____

e. Design a dairy feeding or herd health program _____

f. Discuss and make plans concerning a farm building or agricultural engineering problem _____

g. Discuss and plan a farm business arrangement such as a partnership or incorporation _____

h. Budget or calculate the consequences of a major change in the farm business _____

i. Used the touch-tone computer service of the extension service _____

j. Just a friendly visit _____

k. Other _____ _____

34. Farm managers establish certain goals or plans for their business operation. Would you please state specifically each of the major goals or plans you have for your business for the next 5 years. Please be as specific as possible.

_____

_____

35. Listed below are several sources of information about farming methods and farm business management. Select from the list only those sources you have used in the past year and rank the five most important with 1 being the most important, 2 the next most important, etc.

	Used in 1970	Rank
a. Direct contact with someone on the staff at Michigan State University (Dairy Dept., Agr. Economics, Soil Science, etc.)	_____	_____
b. Attended meetings at MSU or University sponsored tours or field days	_____	_____
c. Travelled to other areas or to dairymen in your own area specifically to see first-hand the methods that other farmers are using	_____	_____
d. Local extension agent	_____	_____

35. (Continued)

e. University publications _____ _____

f. Farm magazines _____ _____

g. Banker or credit institution representative _____ _____

h. Machinery dealer, fertilizer dealer, elevator operator _____ _____

i. Discussions with neighbors and personal observation of their methods _____ _____

j. Milk hauler _____ _____

36. Suppose that you have just learned about a new higher-yielding variety of corn. Assume that you have also found out that this variety would cost you $400 more to plant than your present variety, and that its success depends upon the crop year. WOULD YOU PLANT IT?

(Check yes or no under each statement - a, b, and c.)

a. IF you knew that on the average of three out of four years this new variety would yield higher than your present variety and give you about $1000 worth of additional corn per year. On the other hand, on the average of once in every four years, you would not get any different yield than from your present variety and earn nothing from your additional $400 of planting expense. Unfortunately, there is no way of telling at planting time if the extra $400 of expenses would be profitable in that particular year. Would you plant the new variety?

Yes _____

No _____

b. IF you knew that on the average of two out of four years this new variety would yield higher than your present variety and give you about $2000 worth of additional corn per year. But on the average of two in four years no additional yield over present varieties would occur and you would earn nothing from your additional $400 planting expenses. Again, you have no way of foreseeing at planting time whether or not the new variety will result in the additional yields in that particular year. Would you plant the new variety?

Yes _____

No _____

36. (Continued)

c. IF you knew that on the average in only one out of four years the new variety would yield higher than your present variety and give you about $5000 worth of additional corn per year. And on the average of three out of four years it would yield the same as your present variety and you would earn nothing from your $400 of extra planting expenses. Finally, you can not be certain at planting time whether your $400 of extra planting expenses would result in the same or higher yields for that particular year. Would you plant the new variety?

Yes _____

No _____

37. The following are three possible strategies a farmer could use for improving or expanding his farm operation. Indicate the extent to which you agree or disagree that each of the statements (a, b, and c) is the strategy farmers should be using. (Please check a response under each statement.)

a. Farmers should improve things as they can afford to and avoid borrowing large amounts of money.

1. Strongly agree _____
2. Agree _____
3. Disagree _____
4. Strongly disagree _____

b. Farmers should be willing to borrow substantial amounts of money for profitable investments, but they should be quite sure that they can eventually get out of debt.

1. Strongly agree _____
2. Agree _____
3. Disagree _____
4. Strongly disagree _____

c. Farmers should be willing to always carry an indebtedness as long as there are profitable uses for available credit.

1. Strongly agree _____
2. Agree _____
3. Disagree _____
4. Strongly disagree _____

38. The wives of farmers play varying roles in the farm decision making process.

    a. To what extent does your wife (wives) play a part in the making of daily operational decisions such as whether or not to call the veterinarian, which bull to use in breeding a cow, etc.

        1. She is always consulted in making these daily operational decisions _____

        2. She is sometimes consulted in making these daily operational decisions _____

        3. She is seldom consulted in making these daily operational decisions _____

    b. To what extent does your wife (wives) play a part in the making of decisions involving intermediate size capital investments? For example, machinery and equipment investments of less than $15,000.

        1. She is always consulted in making these intermediate capital investment decisions. _____

        2. She is sometimes consulted in making these intermediate capital investment decisions _____

        3. She is seldom consulted in making these intermediate capital investment decisions _____

    c. To what extent does your wife (wives) play a part in the making of decisions involving a major capital investment or change in the business? For example, a new barn and milking system or buying more land.

        1. She is always consulted in making these major capital investment decisions. _____

        2. She is sometimes consulted in making these major capital investment decisions _____

        3. She is seldom consulted in making these major capital investment decisions _____

39. We are interested in the growth which occurs in farm businesses. One definition of growth is the acquiring of additional productive resources such as land, machinery and equipment, buildings and cattle. Would you please list for us the acquisitions of these items which you have made either by purchase, leasing or rental during the period 1960-1970, giving the year, item acquired and

39. (Continued)

approximate cost, if purchased. List only those items which were additions to your operation as opposed to the replacement of old machinery or culled cattle.

Year	Item	Cost

40. How have you primarily financed the growth of your business?

a. From savings _____

b. Borrowed money _____

c. Both _____

41. From whom do you borrow money? (Check all that apply)

a. Commercial Bank _____

b. Federal Land Bank _____

c. PCA _____

d. Machinery and equipment dealers _____

e. Cattle dealers _____

f. Relatives _____

g. Unrelated individual _____

h. Insurance company _____

i. Other (Specify) _____ _____

42. What changes have you made in your farm practices in the following areas during the period 1960-1970?

a. Herd health and breeding

_____

_____

42.(Continued)

b. Cropping practices and crop varieties

_____

_____

c. Dairy herd feeding and milking

_____

_____

d. Materials handling and farm mechanization

_____

_____

43. What changes have you made in your farm business during the period 1960-1970 in enterprise size or combinations? For example, dropping a hog enterprise or increasing the amount or types of cash crops.

_____

_____

44. What is your age and the age of any members of the partnership?

Yourself _____

1st partner _____

2nd partner _____

45. How many years of formal education have you had and what is the amount of formal education of other members of the partnership?

Yourself _____

1st partner _____

2nd partner _____

46. If more than 12 years of schooling is indicated, what was the schooling received beyond high school and what degree, if any, was received?

	School or Course	Degree
Yourself	_____	_____
1st partner	_____	_____
2nd partner	_____	_____

47. How many years have you been farming?

Yourself	_____
1st partner	_____
2nd partner	_____

48. We are interested in the extent to which you use credit in operating your business. First, we would like to obtain your estimate of the value of your assets as of January 1, 1971. Could you please estimate the market value of these assets, not their book or depreciated value?

Land and buildings	$ _____
Livestock	_____
Machinery and equipment	_____
Feed and supplies	_____
Cash on hand	_____
Stocks, bonds and other investments	_____
Money owed to you	_____
Other assets	_____
Total	_____

49. Also, we are interested in the amount of money which you owe to others. Would you please give us your best estimate of the amount of money which you owed on January 1, 1971?

Real estate debt	$ _____
Machinery and equipment debt	_____
Livestock debt	_____
Short-term notes	_____
Operating accounts payable	_____
Household installment debts	_____
Other debts	_____
Total	$ _____

Name_____

Partnerships

1. What is the family relationship, if any, of the partners? (Father - Son, etc)

_____

2. How many years has this partnership been in existence?

   Years _____

3. Specifically, why did you form a farm partnership?

_____

_____

4. Do you have a written partnership agreement?

   Yes _____

   No _____

5. If yes, was this written agreement prepared with the assistance of an attorney?

   Yes _____

   No _____

6. Were any of the following individuals consulted in planning the partnership agreement?

   a. Banker or credit representative _____

   b. Life insurance agent _____

   c. MSU college specialist _____

   d. County extension agent _____

   e. Other (Specify) _____ _____

7. Did you feel that there were any inadequacies in the information you received when planning for your partnership?

   Yes _____

   No _____

8. If yes, would you please list what additional information would have been useful to you?

_____

_____

9. Does your partnership agreement provide the surviving partner with an option to buy or rent the farm business in the event of the death of one of the partners?

Yes _____

No _____

10. Does the agreement provide for mediation or arbitration by an outside person(s) in the case of the inability of the partners to agree?

Yes _____

No _____

11. Does the agreement state the manner in which profits shall be calculated and divided at the end of each year?

Yes _____

No _____

12. Do you own partnership insurance on each others lives?

Yes _____

No _____

13. If you were to rewrite your partnership agreement, are there any changes which you would make in it?

Yes _____

No _____

If yes, please list them.

_____

_____

14. Are there any specific problems associated with the partnership form of business operation which you would note?

_____

_____

15. Is there any special advice you would give to someone who is thinking of forming a farm partnership?

_____

_____

16. Was the farm size increased after the partnership was formed?

Yes _____

No _____

17. If yes, how soon after the formation of the partnership did the increase occur?

Years _____

18. What was the nature and size of the increase? For example, barn addition and more cows, more land, etc.

_____

_____

19. We are interested in how various types of decisions are made by your partnership?

a. What members of the partnership and members of their families (especially wives) play a part in the making of daily operational decisions such as whether or not to call the veterinarian, which bull to use in breeding a cow, what specific field work should be done that day, etc.

1. All male members of the partnership decide jointly in making daily operational decisions. _____

2. Male members of the partnership have responsibility for specific parts of the business, for example crops or dairy herd, and each makes the daily operational decisions with respect to that part of the business. _____

3. Partnership members and their wives decide jointly in making daily operational decisions. _____

4. Other (Specify) _____

_____ _____

19. (Continued)

b. What members of the partnership and members of the families (especially wives) play a part in the making of decisions involving intermediate size capital investment decisions? For example, machinery and equipment investments of less than $15,000.

1. All male members of the partnership decide jointly in making these intermediate capital investment decisions? _____

2. Male members of the partnership have responsibility for specific parts of the business, for example crops or dairy herd, and each makes the intermediate capital investment decisions with respect to that part of the business. _____

3. Partnership members and their wives decide jointly in making these intermediate capital investment decisions. _____

4. Other (Specify) _____

_____ _____

c. What members of the partnership and members of the families (especially wives) play a part in the making of decisions involving a major capital investment or change in the business? For example, a new barn and milking system or buying more land.

1. All male members of the partnership decide jointly in making these major capital investment decisions _____

2. Male members of the partnership have responsibility for specific parts of the business, for example crops or dairy herd, and each makes the major capital investment decisions with respect to that part of the business. _____

3. Partnership members and their wives decide jointly in making these major capital investment decisions. _____

4. Other (Specify) _____

_____ _____

Name_____

Manager of the Year

1. Being selected as a Michigan Telfarm "Manager of the Year" is recognition of your success in farming. To which of the following factors do you attribute your success? Please check those which were important to your success and then rank the top five (one most important, two next in importance, etc.)

	Was Important	Rank
1. Getting good training from my father.	_____	_____
2. Financial help from father in starting farming.	_____	_____
3. Financial help from person outside immediate family.	_____	_____
4. Vo-Ag or 4-H training.	_____	_____
5. Land was available for expansion through: a. renting_____ No. of acres_____ b. buying_____ No. of acres_____	_____	_____
6. Bought land before price rose rapidly.	_____	_____
7. Having a lot of family labor.	_____	_____
8. Working hard.	_____	_____
9. Plan work to be done and get it done on time.	_____	_____
10. Making well-thought-out decisions.	_____	_____
11. Having a wife who helps with work and decision making.	_____	_____
12. Farm has very good soil.	_____	_____
13. We grow the crops that will yield the most feed per acre.		
14. We aim for high labor efficiency by getting large machinery and labor saving buildings.	_____	_____

1. (Continued)	Was Important	Rank
15. Having a high producing dairy herd.	_____	_____
16. Other (Specify) _____	_____	_____

2. Most people in looking back upon their career think of some individual or individuals who through their advice or actions had a special influence upon their career. Was there any such individual(s) who extraordinarily influenced your farming career?

   Yes _____

   No _____

3. If yes, who was it? (Occupation or relationship, not by name)

   _____

   _____

4. Could you tell us in what way this person(s) influenced your career?

   _____

   _____

APPENDIX C

SCORING OF INFORMATION SOURCES FOR DIRECTNESS INDEX

a.	Direct contact with someone on the staff at Michigan State University. (Dairy Dept., Agr. Economics, Soil Science, etc.)	6 points
b.	Attended meetings at MSU or University sponsored field days	5 points
c.	Travelled to other areas or to dairymen in your own area specifically to see first-hand the methods that other farmers are using.	5 points
d.	Local extension agent	4 points
e.	University publications	4 points
f.	Farm magazines	3 points
g.	Banker or credit institution representative	2 points
h.	Machinery dealer, fertilizer dealer, elevator operator	1 point
i.	Discussions with neighbors and personal observation of their methods	1 point
j.	Milk hauler	0 points

APPENDIX D

SCORING OF ITEMS FOR AGENT CONTACT INDEX

a.	Obtain a bulletin or other literature	1 point
b.	Obtain general cropping information	2 points
c.	Obtain general dairy information	2 points
d.	Design a cropping program	3 points
e.	Design a dairy feeding or herd health program	3 points
f.	Discuss and make plans concerning a farm building or agricultural engineering problem	3 points
g.	Discuss and plan a farm business arrangement such as a partnership or incorporation	4 points
h.	Budget or calculate the consequences of a major change in the farm business	5 points
i.	Used the touch-tone computer service of the extension service	5 points
j.	Just a friendly visit	0 points
k.	Other (Scored on the basis of complexity and technical purposefulness on a scale of 0-5 points.)	

APPENDIX E

PROBABILITY OF LOSS AND EXPECTED VALUE OF ALTERNATIVE RISK SITUATIONS

Alternative a - P (losing $400) = .25, E(V) = $650

Alternative b - P (losing $400) = .50, E(V) = $800

Alternative c - P (losing $400) = .75, E(V) = $950

CLASSIFICATION OF RESPONSES INTO RISK CATEGORIES

High Risk Acceptance - Accepts all three alternatives.

Moderate Risk Acceptance - Accepts alternatives A and B, but rejects C.

Low Risk Acceptance - Accepts alternatives A, but rejects B and C.

Very Low Risk Acceptance - Rejects all three alternatives.

APPENDIX F

SCORING OF QUESTION ON ATTITUDE TOWARD CREDIT USAGE

Conservative - Agreed with A and strongly agreed or agreed with B and disagreed with C.

Moderately Conservative - Disagreed with A, agreed with or strongly agreed with B, and disagreed with C.

Moderate - Disagreed with A, agreed with B, agreed with C.

Moderately Liberal - Disagreed with A, either strongly agreed with B and C, or strongly agreed with B and agreed with C or disagreed with B and agreed with C.

Liberal - Disagreed with A, agreed with B, and strongly agreed with C.

Very Liberal - Disagreed with A and B, and agreed or strongly agreed with C.