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To the Graduate Council:

I am submitting herewith a thesis written by Norman R. Huddleston entitled "Decision Making Patterns of Farmers Who Grow Corn in Two Tennessee Counties." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

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DECISION MAKING PATTERNS OF FARMERS WHO GROW CORN IN TWO TENNESSEE COUNTIES

A Thesis

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

---

by

Norman R. Huddleston

December 1960

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33

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TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	1
	Preface	1
	Problem	1
	Definition of Terms	3
	Justification	4
	Previous Studies	7
	Hypotheses	20
	Source of Data	21
II.	RESULTS OF ANALYSIS	27
III.	SUMMARY AND CONCLUSIONS	49
BIBLIOGRAPHY		52
APPENDIX A		55
APPENDIX B		76

LIST OF TABLES

TABLE		PAGE
I.	Criteria for Classifying Respondents	25
II.	The Relationship of the Adoption of Approved Corn Production Practices to Factors Rated Important When Deciding How Much Ear Corn to Grow	29
III.	The Relationship of the Adoption of Approved Corn Production Practices to Factors Rated Important When Deciding How Many Bushels of Corn Per Acre to Try to Get	36
IV.	The Relationship of the Adoption of Approved Corn Production Practices to Factors Rated Important When Deciding What Kind of Fertilizer (Brand) to Buy	41

LIST OF FIGURES

FIGURE PAGE

1. Paradigm Illustrating Theoretical Relationship Between Social Characteristics, Rationality, and Adoption of Approved Agricultural Practices 14

LIST OF APPENDIX TABLES

TABLE PAGE

I. Rate of Adoption by Rating of the Importance of the Availability of a Corn Picker as a Factor in Deciding How Much Ear Corn to Grow 56

II. Rate of Adoption by Rating of the Importance of the Feed Requirements of the Grower's Livestock as a Factor in Deciding How Much Ear Corn to Grow 56

III. Rate of Adoption by Rating of the Importance of the Size of the Cash Outlay the Grower Would Have to Make for Seed, Fertilizer and Fuel or Feed as a Factor in Deciding How Much Ear Corn to Grow 57

IV. Rate of Adoption by Rating of the Importance of the Number of Acres of Cropland Available to the Grower as a Factor in Deciding How Much Ear Corn to Grow 57

V. Rate of Adoption by Rating of the Importance of the Number of Acres the Grower's Friends and Neighbors Grow as a Factor in Deciding How Much Ear Corn to Grow 58

VI. Rate of Adoption by Rating of the Importance of the Fertility of the Soil Where the Growers Grow Corn as a Factor in Deciding How Much Ear Corn to Grow . . . 58

TABLE PAGE

VII. Rate of Adoption by Rating of the Importance of the Amount of Labor the Grower Expects to Have Available as a Factor in Deciding How Much Ear Corn to Grow 59

VIII. Rate of Adoption by Rating of the Importance of the Availability of a Tractor as a Factor in Deciding How Much Ear Corn to Grow 59

IX. Rate of Adoption by Rating of the Importance of the Amount of Time It's Going to Take to Work and Harvest the Corn as a Factor in Deciding How Much Ear Corn to Grow 60

X. Rate of Adoption by Rating of the Importance of the Kind of Weather the Grower Expects to Have During the Growing Season as a Factor in Deciding How Much Ear Corn to Grow 60

XI. Rate of Adoption by Rating of the Importance of the Market Price for Corn that the Grower Expects at Harvest Time as a Factor in Deciding How Much Ear Corn to Grow 61

XII. Rate of Adoption by Rating of the Importance of the Amount of Energy the Grower Would Have to Put Out to Make the Crop as a Factor in Deciding How Much Ear Corn to Grow 61

TABLE PAGE

XIII. Rate of Adoption by Rating of the Importance of the Amount of Cash the Grower May Get for it as a Factor in Deciding How Much Ear Corn to Grow 62

XIV. Rate of Adoption by Rating of the Importance of the Amount of Money the Grower Might Have to Borrow to Grow the Corn as a Factor in Deciding How Much Ear Corn to Grow 62

XV. Rate of Adoption by Rating of the Importance of the Extent to Which the Corn Production will Interfere with Other Things the Grower Likes to do, Such as go Fishing, Hunting, Talking with Friends at the Store, etc. as a Factor in Deciding How Much Ear Corn to Grow 63

XVI. Rate of Adoption by Rating of the Importance of the Kind of Yields the Most Successful Farmers in the County are Getting as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 63

XVII. Rate of Adoption by Rating of the Importance of the Extra Time and Care it Would Take the Grower to Get a Higher Yield as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 64

TABLE PAGE

XVIII. Rate of Adoption by Rating of the Importance of the Yield Obtained from Corn Demonstration in the Grower's County as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 64

XIX. Rate of Adoption by Rating of the Importance of the Size of the Yield the Grower Got Last Year as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 65

XX. Rate of Adoption by Rating of the Importance of the Extra Cash the Grower Might Get Through a Higher Yield as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 65

XXI. Rate of Adoption by Rating of the Importance of the Extra Cash Outlay the Grower Would Have to Make for Seed and Fertilizer to Get a Higher Yield as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 66

XXII. Rate of Adoption by Rating of the Importance of the Availability of Labor Which the Grower Could Count on to Follow His Instructions Exactly as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 66

TABLE PAGE

XXIII. Rate of Adoption by Rating of the Importance of the Natural Fertility of the Soil Where the Grower Grows Corn as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 67

XXIV. Rate of Adoption by Rating of the Importance of the Kinds of Yield the Grower's Friends and Neighbors are Getting as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 67

XXV. Rate of Adoption by Rating of the Importance of the Seed Salesman's Talk About the Yields Obtained with the Seed He Sells as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 68

XXVI. Rate of Adoption by Rating of the Importance of the Need to Get as Much as the Grower Can From the Limited Acreage Available as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 68

XXVII. Rate of Adoption by Rating of the Importance of the Extra Effort That Would be Required on the Grower's Part to Get a Higher Yield as a Factor in Deciding How Many Bushels of Corn Per Acre to Try to Get 69

XXVIII. Rate of Adoption by Rating of the Importance of the Cost Per Unit of Plant Food as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 69

TABLE PAGE

XXIX. Rate of Adoption by Rating of the Importance of the Analysis of the Fertilizer as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 70

XXX. Rate of Adoption by Rating of the Importance of What Advertisements Say About Fertilizers as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 70

XXXI. Rate of Adoption by Rating of the Importance of What the Grower Reads in Farm Papers and Magazines as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 71

XXXII. Rate of Adoption by Rating of the Importance of the Brand of the Fertilizer as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 71

XXXIII. Rate of Adoption by Rating of the Importance of the Fertilizers Dealer's or Co-Op Manager's Recommendation of a Particular Kind of Fertilizer as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 72

XXXIV. Rate of Adoption by Rating of the Importance of Past Experience the Grower Had with a Particular Kind of Fertilizer as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 72

XXXV. Rate of Adoption by Rating of the Importance of the Cost Per Bag as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 73

TABLE PAGE

XXXVI. Rate of Adoption by Rating of the Importance of the Weight of the Bags as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 73

XXXVII. Rate of Adoption by Rating of the Importance of the Physical Characteristics (Drillability) of the Fertilizer as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 74

XXXVIII. Rate of Adoption by Rating of the Importance of the Kind of Equipment the Grower Has to Spread the Fertilizer as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 74

XXXIX. Rate of Adoption by Rating of the Importance of the Kind of Fertilizer the Grower's Friends and Neighbors Use as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 75

XL. Rate of Adoption by Rating of the Importance of the Kind of Fertilizer the Dealer Happens to Carry (or Have on Hand) as a Factor in Deciding What Kind of Fertilizer (Brand) to Buy 75

CHAPTER I

INTRODUCTION

I. PREFACE

With improved technology in the field of agriculture, there still exist some segments of the farm population which refuse to adopt improved farming practices. Numerous studies have been conducted to gain a better understanding of the basis for the non-adopter's actions. This study is designed to examine the importance these non-adopters place on the values involved in farm decisions. It is hoped it will contribute to the understanding of the factors involved in the adoption or non-adoption of improved farm practices.

II. PROBLEM

Failure to adopt an improved practice in farming is a matter of practical importance not only to the general public but also to the farmers themselves. Since improved practices have been both research and field tested and are generally assumed to be remunerative, and since it is assumed that farmers are interested in making as good a living as they can, one wonders why farmers do not adopt most if not all practices recommended. Apparently the profit motive alone is not sufficiently effective as a motivating influence for adoption.[1]

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[1]Charles R. Hoffer and Dale Stangland, "Farmers' Attitudes and Values in Relation to Adoption of Approved Practices in Corn Growing," Rural Sociology, 23:112, March, 1958.

In studying farm practice adoption, it is believed that value orientations influence the process of adoption by both serving as criteria in deciding among alternatives, and serving as factors which foster rapid diffusion, e.g., high value on science.[2]

In the decision making aspect of adoption, value-concepts may provide a basis for the decisions and actions of people. They may be thought of as integrative concepts which allow the individual to direct his behavior to attain the greatest total satisfaction. In a society in which there are many alternative courses of action, the individual develops certain value-concepts out of his experience which provide this integrating influence.[3] This study consists of an examination of the behavior involved in making farm decisions and it is hoped it will help clarify the difference between those who follow a number of approved farm practices as compared with those who do not.

The problem then is to examine the values involved in the decision making of low adopters and compare them with the values involved in the decision making of high adopters. The question which this study will try to answer is: How do the values of the high and low adopters differ?

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[2]Charles E. Ramsey, Robert A. Polson and George E. Spencer, "Values and the Adoption of Practices," Rural Sociology, 24:35, March, 1959.

[3]Eugene A. Wilkening, Adoption of Improved Farm Practices as Related to Family Factors, Research Bulletin 183 (Madison: University of Wisconsin Agricultural Experiment Station, December, 1953), p. 34.

III. DEFINITION OF TERMS

Decision making. Decision making is the process of interaction leading to and including commitment to a program of policy or operation.

Dependent variable. The interpretation of dependent variable shall be that variable which is the central interest of the study and which is allowed to vary according to the value of each of the other variables.

Independent variable. The term independent variable is used to mean those variable quantities or qualities which are felt to be related causally or concomitantly to the dependent variable.

Trial Acre Program. This was a project undertaken by the University of Tennessee-Tennessee Valley Authority to determine the utility of one approach to that segment of the farm population which follows fertilizer and related practices that produce low corn yields, that segment being out of contact with the Agricultural Extension Service and other communication channels.

Values.

> While the definition of what values are varies with different writers, there is general agreement that values (1) are abstract concepts inferred from behavior, (2) operate to influence a selection of the available means and ends of action, and (3) have either favorable or unfavorable connotations for the well-being of the individual or of the group. There is also general agreement that values can be effectively studied or inferred through

the observation of choices among the means or goals of action, in either actual or hypothetical situations.[4]

Rationale. In this study rationale shall be interpreted as a general view of an exposition underlying or constituting the foundation of human enterprise, especially of scientific work or experimentation.

IV. JUSTIFICATION

Economic and cultural development has progressed at highly variable rates in the United States with a large number of people continuing in the routines of life which have been handed down to them from previous generations. In spite of our highly developed means of communication, it is still most difficult to bring new ideas about farming, homemaking, or community activities to people who remain outside the realm of our general community life and cultural development.[5]

One program which is attempting to bring about this change is the Rural Development Program. The Rural Development Program is a cooperative long-range one aimed at improving opportunities of our farm families with cash incomes of less than $1,000 a year. It involves a coordinated approach by civic, business, and industrial leaders, farm

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[4]Eugene A. Wilkening, "Techniques of Assessing Farm Family Values," Rural Sociology, 19:49, March, 1954.

[5]William H. Metzler, Socio-Economic Aspects of Manpower Adjustments: Low Income Areas, U. S. Department of Agriculture, Agricultural Research Service, Farm Economics Research Branch, August, 1958, pp. 1-2.

organizations, schools, churches, community and service clubs, as well as local, state and federal agencies, and is supported with federal and state aid, the greater amount coming from the Federal Government. The program is designed to improve family incomes and to bring about the fundamental growth and development of the people involved through the attainment, utilization, and enjoyment of a better standard of living.[6]

The Agricultural Extension Service which provides leadership and coordination for the Rural Development Program is one educational agency which assists people engaged in farming and homemaking to utilize more fully their own resources, as well as those available to them, in solving current problems and in meeting changing economic and social conditions. Through the educational service approach rural people are stimulated to make changes that result in more efficient production and marketing of farm products, conservation of natural resources, more comfortable homes, improved health and more satisfying family and community life.[7]

There are many people who fail to take advantage of these opportunities in spite of the efforts of the Agricultural Extension Service and other agencies and organizations through the Rural Development Program and other such programs and services. Often these people have been found to be satisfied with their present level of living.

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[6]The Rural Development Program, U. S. Department of Agriculture, Federal Extension Service, AO-141, September, 1956.

[7]Meredith C. Wilson and Gladys Gallup, Extension Teaching Methods, Extension Service Circular 495 (Washington: U. S. Department of Agriculture, Federal Extension Service, August, 1955), p. 1.

Therefore, opportunities which offer improvement in their social and economic standards may be resisted.

It is hoped that the results of this study will afford a better understanding of the farmer and his reaction to suggestions concerning improvement of his production practices. From such insights, programs might be designed and initiated which would be more successful in influencing non-adopters of recommended practices. A non-adopter is a farm operator who does not follow or possess a knowledge of either two of the three approved practices--soil testing, fertilization, and cultivation. Ultimately it is anticipated that policies can be formulated which will appeal to the non-adopters, thus creating interest and stimulating initiative in those in greatest need.

It has been found that these people who are usually in the low income[8] category have to be sought out, informed about the available resources, and persuaded to use them.[9] In general, if a farmer is conservative and values security highly, he is likely to postpone adoption of a practice or perhaps never adopt it at all.[10]

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[8]Herbert F. Lionberger and C. Milton Coughenour, Social Structure and Diffusion of Farm Information, Based on Study of a Farm Community in Missouri, Research Bulletin 631 (Columbia: University of Missouri Agricultural Experiment Station, April, 1957), p. 82.

[9]Lee Coleman, "Differential Contact with Extension Work in a New York Rural Community," Rural Sociology, 23:216, March, 1951.

[10]Hoffer and Stangland, op. cit., p. 120.

V. PREVIOUS STUDIES

Longwell in his study, Information Seeking Habits and Characteristics of Farm Operators, conducted during the fall and winter of 1950 from interviews with 279 farm operators and their wives living in a Northeast Missouri farming community, found that the non-user of institutional sources of farm information was most distinctive with respect to characteristics affecting the diffusion of farm information.

They were much older than users of county agent services and users of services of other institutionalized sources. The median age reported for the non-user group was almost fifty-nine years. More than 45 per cent of them had attained the age of sixty, while less than 10 per cent were under thirty-five years of age. Thus, many of them were anticipating or entering the usual stage of declining farm operations. Their scale of farming was smaller than that of those who used the institutionalized sources of information. Their farms, which averaged 164 acres in size, were about sixty-eight acres smaller than the farms of the county agent using group, and seventy acres smaller than the farms of those who used other institutionalized sources. Sixty-three per cent owned tractors compared to 90 per cent in the other two groups. Gross farm incomes of non-users were only about half as large as those of the users of one or more institutionalized sources of farm information.

Non-users of institutionalized sources of farm information were much less active in formal social organizations than others in the community. Also, their social activities were much more restricted to the immediate locality than the social activities of other farmers in the community. This meant that their opportunity for getting farm information by word of mouth was largely restricted to the immediate locality.[11]

Wilson and Gallup[12] in a bulletin concerned with improvement in the use of extension teaching methods stated that the following are factors which influence the extent and rate of adoption of practices:

1. Higher proportion of adoptions occurred with some college training than with high school training only. The high school group was in turn superior to the group with no educational training beyond the eighth grade.
2. The rate of adoption of new practices tends to increase with the size of the farm. The advantage of large farms is not great. However, it is probable that the men on larger farms exert greater effort than others to obtain the assistance of extension agents and specialists.

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[11] J. H. Longwell, Information Seeking Habits and Characteristics of Farm Operators, Research Bulletin 581 (Columbia: University of Missouri Agricultural Experiment Station, April, 1955), p. 42.

[12] Wilson and Gallup, op. cit., pp. 22-25.

3. Tenure has a small bearing on adoption. Owners, in some studies, have been found to adopt more quickly than renters because of greater decision making opportunities. Capital, of course, enters as a limiting resource. Obviously, degree of managerial responsibility is involved. Whether the family owns or rents has little bearing upon the extent of the use of extension information.

4. Greater use is made of extension information when farmers are high on the socio-economic scale. These people tend to ask for help while those persons at the other end of the scale have to be sought out, informed about available services, and persuaded to use them.

5. Those in contact with the extension agents are more likely to adopt. This is a question of motivation, since participation in extension activities, calls at the office, and requests that the agent visit the farm are voluntary.

Hoffer and Stangland in an intensive survey secured data from a total of ninety-three farmers in central Michigan as part of a study of farmers' reactions to new practices. The evidence they collected indicated that the more education the farmers have, the greater is the likelihood that they will adopt approved farm practices. They also found a tendency for young farmers to adopt approved farm practices, but the differences found were not statistically significant.

As in the case of age, a higher percentage of farmers who had been farming less than ten years adopted improved practices to a greater extent than did those who had been farming for a longer period of time, but differences were not statistically significant. Likewise, no difference in the rate of adoption of practices occurred among part-time and full-time laborers.[13]

In 1952, Wilkening, at the University of Wisconsin, conducted a study to describe certain aspects of the process of acceptance of farm practices and to show how decisions to adopt those practices are influenced by family values and family relationships. The findings are as follows:

The adoption of improved farm practices was lower on those farms on which most all labor was provided by the family than on those on which a substantial part of the labor was hired. This relationship is significant only for those farms with 100 acres or more of cropland.

Operators having more than one child in farm projects (4-H, Vocational Agriculture) had adopted significantly more improved farm practices than those with no children in such projects. Operators reporting use of new practices encouraged by their sons twelve years of age or over had adopted significantly more improvements in farming than those reporting no such influence.

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[13]Charles R. Hoffer and Dale Stangland, Farmers' Reactions to New Practices, Corn Growing in Michigan, Technical Bulletin 264 (East Lansing: Michigan State University Agricultural Experiment Station, February, 1958), pp. 4-18.

The extent of familism (interdependence between generations and between relatives) is not consistently associated in either direction with the adoption of improved farm practices. However, those operators reporting having learned most about farming from their fathers had adopted fewest improvements in farming.

Placing a high value upon education for children is positively associated with the adoption of improved farm practices, while owning one's farm free of debt in comparison with other goals is negatively associated with the adoption of improved farm practices.

Formal social participation in farm organizations of the families interviewed is positively associated with the adoption of improved practices on their farm. The extent of informal social contact is not significantly associated with the adoption of new practices on the farm.[14]

In summary, Longwell's study reveals the importance of institutional sources of farm information in the diffusion process. Wilson and Gallup's study indicated that contact with the extension service was positively important in the rate and extent of farm practice adoption. Hoffer and Stangland found that farmers who are efficient, self-reliant, and progressive tend to adopt, while those who value security and are conservative fail to adopt. Wilkening's study indicates that participation of children in farm projects, education for children, and formal social participation of the families is positively associated with the adoption of improved farm practices.

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[14]Eugene A. Wilkening, "Techniques of Assessing Farm Family Values," Rural Sociology, 19:49, March, 1954.

These studies are helpful in shedding some light on the various factors related to the diffusion of farm information and on the decision to adopt improved farm practices. Thus, an understanding of these areas is of utmost importance if an agent is to more effectively influence non-adopters to use improved farm practices.

This study is concerned with examining the values involved in the decision making process of low and high adopters. Therefore, the findings in this study may be thought of as adding to and/or increasing the knowledge already available concerning diffusion of farm information.

It should be noted that this review is not exhaustive with respect to the literature that is available on improved practice adoption. Rather, it is intended to be illustrative of the work that has been done as well as to provide evidence that there is a scholarly concern about this area and to provide a background for the present study.

Rationality

A substantial amount of research has consistently demonstrated the relationships of the sociocultural variables, to the adoption of farm practices. Variable analysis is referred to as the scheme of sociological analysis which seeks to reduce human group life to variables and their relations. The interpretation of such relationships involves postulating the relationship of the sociocultural variables to other variables such as values, aspects of motivation, and primary group relationships.

> It is possible to conceive of these latter variables as impinging upon a variety of decision-making processes in farm management. Indeed, such a conception is often implicit in the diffusion literature. It is possible, furthermore, to view these variables as affecting, in some manner, the rationality of decision making as an intervening variable. In such a framework, "to adopt" or "not to adopt" is only one of the questions on decision making which confront the farmer and to which he can respond with some variable degree of rationality. These relationships are depicted in Figure 1.
>
> . . . . . .
>
> The working definition of rationality possesses several theoretical characteristics requiring further consideration. In the first place, rationality is defined in terms of a means-ends schema; i.e., an act is rational to the extent that it is likely to be effective toward the achievement of economic ends. This definition manifests an implicit assumption that the ends of action in the farm management decision-making process are economic gain. Rationality, then, refers to an economic rationality. . . . In actuality, the definition utilized here allows the respondent to be nonrational in two ways: (1) in terms of his selection of nonrational means; or (2) in the selection of noneconomic ends.[15]

This indicates that rationality is a type of decision making process that leads to and includes commitments to a program or policy of operation involving the adoption of improved farm practices.

The association between rationality and adoption and the relationship between rationality and the independent variables suggests that rationality may operate as an intervening variable between the independent variable and adoption. In other words, the relationship between adoption and the independent variables may result because adoption is related to rationality and rationality in turn is related to the same variable but is antecedent to adoption.

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[15]Alfred Dean, et al, "Rationality in Decision Making," Rural Sociology, 23:126, March, 1958.

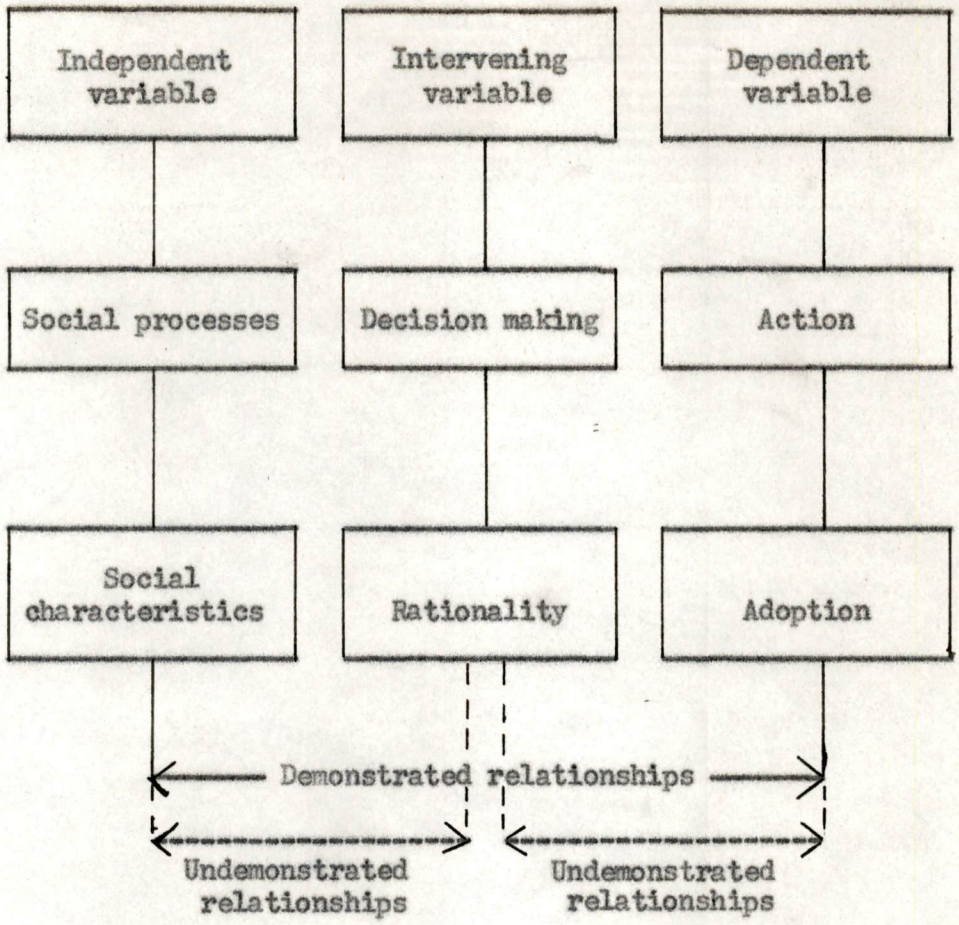


Figure 1

PARADIGM ILLUSTRATING THEORETICAL RELATIONSHIP BETWEEN SOCIAL CHARACTERISTICS, RATIONALITY, AND ADOPTION OF APPROVED AGRICULTURAL PRACTICES*

* Taken from "Rationality in Decision Making," Alfred Dean.

In a study by Dean, Aurbach, and Marsh, a number of socio-economic variables found to be associated with the adoption of recommended farm practices were also found to be associated in the same manner with a rationality index. Nine questions were used in constructing this rationality index and the response to each question was placed on a three-point scale of rationality.

> Five of these questions were open-ended, and four were of the forced-choice variety. Categories were developed to code the responses to the open-ended questions. The items combined into the index, as well as the rationality weights assigned to the response categories, were achieved by the consensus of a board of judges consisting of the faculty of the Department of Rural Sociology of North Carolina State College. The judges were asked to make their evaluation on the basis of a working definition which stated that "rationality" involves the use of deliberation, planning, and the best available source of information and advice in arriving at decisions as a means of achieving maximum economic ends.[16]

This rationality index was also found to be associated with adoption of recommended practices, and suggests that the degree of rationality of the farm operator may operate as an important intervening variable between these socio-economic variables and the adoption of practices.[17]

Rationalism

Although we have been dealing with rationality, which is operationally defined, it is also appropriate that we look at rationalism which is a related philosophical concept. Some realists have asserted

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[16] Alfred Dean, et al, "Rationality in Decision Making," Rural Sociology, 23:122-26, March, 1958.

[17] Ibid., pp. 133-36.

that the question of rationalism versus irrationalism invites all other metaphysical questions. They have been mistaken in this assertion, since not all rationalism is realistic. One form of nominalism which is known as subjective idealism admits of the efficacy of reason, and many subjective idealists have been ardent rationalists.

In the light of these remarks, let us examine what Lovejoy has to say concerning points which bear on the question of rationalism. According to Lovejoy, whenever a simple system proves inadequate in the light of more recent empirical findings the question arises as to whether any system exists which is adequate to cover facts.

> The failure of some particular empirical entity has never cast doubt on the validity of empirical entities in general. Systems seem so much less empirical than entities because they are so much higher in the organizational series. But the necessity for having some kind of system is as imperative to science, and consequently to rationalism, as the necessity for having empirical entities. And the substitution of new and adequate systems for old and inadequate should not be signal to challenge the validity of systems. Rationalism is in danger from time to time but only in the understanding of philosophers and scientists and never in the constitution of the conditions of nature herself.

> When Lovejoy is confronted with true realism expressing its attitude toward the logico-ontological structure of the world, his comments lead to the suspicion that he does not understand the position at all. He seems to think that any plausible reason must inhere in human minds (subjective idealism) and that the granting of rationality to any part of the inanimate world is a peculiar sort of panlogism, a doctrine of the ubiguity of the rudiments of rationality in all natural things. This is the very fundamental doctrine of rationalism maintained by true realism.[18]

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[18]James Feibleman, The Revival of Realism (Chapel Hill: University of North Carolina Press, 1946), pp. 122-27.

Since we have been dealing with the rational process a few remarks about irrationality are in order. During the nineteenth century considerable stress came to be placed upon the illogicality of human behavior. LeBon, for example, placed irrationality and suggestion at the center of his thinking about crowd behavior. Tarde, a French judge, wrote extensively on imitation and suggestion, and his notion that these processes underlie much social life attracted attention in many countries. The development of mass media of communication and of self-conscious advertising and propagandizing, along with the rise of the Nazi and other anti-intellectual movements, have provided more evidence of man's irrationality.

William McDougall defined suggestion as the acceptance of a proposition in the absence of logically adequate grounds. The basis of this usage is the recognition that an irrational process is at work.

The term "suggestion" has sometimes been applied to situations in which the suggestion may be said to emanate from behavior or from the situation rather than from persons. Thus, if a subject is shown a series of lines, each longer than the one before, he will come to expect the next one to be still longer and may judge it to be so even if it is not. This involves an anticipation on the basis of previous experience and is not necessarily irrational.

> The line between suggestion and rational advice is sometimes very difficult to determine. When the man of prestige gives an opinion or a suggestion, particularly when he is a specialist, the opinion is not to be lightly disregarded by an intelligent person, regardless of whether he has any real grasp of the reason for the suggestion. Persons who are unable to see their way through diffi-

> cult problems of any kind are particularly open to suggestion. This is because they hope to have new alternatives presented to them, or being desperate, they are willing to try any proffered solution.[19]

Therefore, there is a tendency for "irrationality" to increase with the difficulty of the problem and decrease when subjects are given more information and understand the problem. We may then conclude that farmers who are rational tend to possess more information and a better understanding of the problem.

According to Weber, who views rationality from the standpoint of being favorable and good, man has come to depend more and more on his rational knowledge in carrying on his everyday affairs and less upon superstitution, faith, and the supernatural. Thus, tradition and custom play roles of decreasing importance in directing behavior, and confidence in empirical observations and analysis increases. Experimentation becomes the criterion for accepting innovations in farming and home practices, and economic efficiency, within limits of costs, becomes the test of their worth.

> Evidences of increasing "rationalization of life conduct" as defined by Weber are found in areas other than the purely economic, and it is in these areas that modifications of the value system may find greatest resistance among the rural population. It is generally agreed, for example, that the recent decrease in birth rates in the western world is due, in large part, to the effective use of birth-control devices, i.e., rational means of control.[20]

Thus, rationality is a sort of prerequisite to adoption. This is the point at which the operator must decide what is best for him.

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[19]Alfred R. Lindesmith and Anselm L. Strauss, Social Psychology (New York: Henry Holt & Co., 1956), pp. 454-57.

[20]Alvin L. Bertrand, Rural Sociology (New York: McGraw-Hill Book Co., 1958), pp. 44-5.

For example, it may be more rational for a farmer to send his son through college than to adopt a given farm practice. To say that a farmer is rational if he adopts or non-rational if he does not adopt is bigotry. A farmer may be said to be rational if he adopts a practice from an economic point of view--economic rationality; however, he may still be rational in refusing if he, in declining to adopt, is rational in his decision making in regard to other values which affect his welfare.

Rationality, as used in this study, means that the desired end of action in the farm management decision making process is economic gain. For example, an act is rational to the extent that it is likely to be effective toward the achievement of economic gain. However, there is realization that the adoption of a particular farm practice is only one area in which the degree of rationality of the decision making process might be measured.

Farmers who place a higher rating upon other goals and values in preference to economic considerations may be considered rational even though they fail to qualify as being economically rational. Therefore, we may conclude there are other ways in which a farmer may be rational due to the other areas in which rationality of decision making is measured. But in this study rationality will be used exclusively as economic rationality.

VI. HYPOTHESES

Since the general hypothesis, that the value systems held by farmers are not responsible for (causally related to) the decisions to adopt or not to adopt specific improved farm practices, is not directly testable, other, more specific hypotheses were needed. Therefore, from the more general hypothesis the more specific hypotheses were derived. By accepting or rejecting these specific hypotheses it was then possible to test the general hypothesis. The hypotheses which the present study proposes to test are as follows:

General Hypothesis (null form)

That the value systems held by farmers are not responsible for (causally related to) the decisions to adopt or not to adopt specific improved farm practices.

Sub-hypothesis I (null form)

That the values involved in making decisions concerning the farm operator are no different for low adopters (those who follow two or fewer recommended practices) as compared with the high adopters (those who were using six, seven or eight of the practices).

Sub-sub-hypotheses Ii (null form)

That no difference exists between low adopters and high adopters in the value placed on how important is the amount of labor (family and hired) that they expect to have available when they are deciding how much ear corn to grow.

That no difference exists between low adopters and high adopters in the value placed on how important is the size of the yield they got last year when they are deciding how many bushels of corn per acre to try to get.

That no difference exists between low adopters and high adopters in the value placed on how important is the past experience they have had with a particular kind of fertilizer when they are deciding what kind of fertilizer (brand) to buy.[21]

VII. SOURCE OF DATA

To secure information for analysis of this problem, data were obtained by a survey of corn growers in Bradley and White Counties, Tennessee. These data were collected in the summer of 1960.

The Sample

Bradley, the county selected for the Trial Acre Program, was divided into 301 sample segments with sample areas to include between five and ten farm units. In selecting the sample segments a general highway map of Bradley County was used; this map was prepared by the Tennessee State Highway Department in cooperation with the U. S. Department of Commerce in 1953. The sample segments contained a total of 2,088 farm units. In delineating the sample segments the following

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[21]Since several values are to be tested, it seems unnecessary to list all of the sub-sub-hypotheses. However, it may be pointed out that the remaining values to be tested conform very closely in form to the preceding hypotheses.

housing units were eliminated: (1) non-farm; (2) groups of houses--on the assumption that they would be non-farm. Identical sampling procedures were used for White County, the control county of the Trial Acre Program. The sampling was without replacement.

The sampling procedure consisted of choosing segments by random.[22] In using a table of random numbers the following rules were observed. The digit on which the pencil fell was considered the units digit and the three consecutive numbers to the left were considered the tenths, hundredths and thousandths digits, respectively. Resulting numbers which were too large and those previously selected were rejected. In the case of a number larger than 2,500, multiples of 2,500 were subtracted until the original number was less than 2,500. This number corresponded to a farm unit. The segment was then selected in which this unit appeared. Using the same procedure, the process proceeded with consecutive numbers up the columns of four numbers using the same procedure as above. Upon reaching the top of the column, the process started again at the bottom of the next column of four numbers to the left.

This procedure was followed until enough segments were selected to yield approximately 200 farm units. It was assumed that this would yield about sixty non-adopters of recommended farm practices who would be willing to participate in the Trial Acre Program. However, to be on

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[22]Allen L. Edwards, Experimental Design in Psychology Research (New York: Rinehart & Co., Inc., 1950), p. 381.

the safe side, following the procedure described above, a supplementary group of segments was selected for use if the first group of segments did not provide sufficient cases. This proved to be the case so the supplementary segments were included in the sample. The yield was still insufficient in Bradley County so additional segments were selected with the aid of the Bradley County Agricultural Agent.

The county agent indicated those segments which he felt certain contained one or more corn growers and those were included as part of the sample. While other segments may have contained a very limited number of corn growers, they were widely scattered and their numbers must necessarily have been very small. Locating them using the system of sampling described above would have been prohibitive from the point of view of both time and expense. The method used made it possible to achieve the survey objectives within the limitations imposed by the amounts of time and money available. Interviews were completed with 189 farmers who qualified through initial screening questions in the two counties.

The Rating Scale[23]

As part of a larger schedule of questions, each respondent was asked a number of questions dealing with how much ear corn to grow, how

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[23]The rating scale for the decision making questions was divided into nine parts starting with zero which indicated that the decision was not an important consideration and continuing numerically with consecutive numbers, each indicating greater importance being placed on the considerations, until eight was reached which indicated the decision was extremely important. However, the scale was divided into three major parts for those who would not follow the numerical system of rating--nothing to do with the decision (0), moderately important (4), and extremely important (8).

many bushels of corn per acre to try to get and what kind of fertilizer (brand) to buy, decisions which each would have to make as a corn grower. For each of the forty questions of this nature asked of the respondents there were nine possible answers depending upon the importance placed on different factors involved in making the decisions. If a farmer placed no importance on a value in regard to the decision he would reply by giving a rating of zero on the rating scale. However, if he felt the factor was of extreme importance in making the decision he would give a rating of eight. Therefore, he could give any rating from zero through eight according to the importance he placed upon that particular value with respect to that particular decision.

Criteria for High and Low Adopters

The criteria for classifying respondents as high adopters or low adopters was constructed on the basis of adoption or rejection of part or all of nine farm practices included in the interview schedule. (See Table I for criteria.)

The respondents were categorized into five groups according to the number of farm practices adopted. The five groups range from high adopters to low adopters as follows: low, medium-low, medium, medium-high, and high. Those in the low groups were following two or fewer of the practices. The medium-lows were following three; the mediums four; the medium-highs five; and the highs were using six, seven or eight of the practices. None of those interviewed were following all nine of the practices.

TABLE I

CRITERIA FOR CLASSIFYING RESPONDENTS

Practices	Adopter Response	Non-adopter Response
Plant population	High	Medium; low
Cultivation: last shallow	Yes	No
Took soil test recently	Yes	No
Followed recommended fertilization	Yes	No
Source of seed corn	Store	Crib; neighbor; other
Limed corn field in past 5 or 10 years	Yes	No; don't know
Placement of fertilizer	Beside and/or below seed	In row with seed; other placement; none placed in row
Frequency of corn cultivation	One, two, or no more than necessary; use chemical weed control	Three, four or more
Soil test recommendation: fertilization	Followed; exceeded	Short; not applicable

Because three respondents refused to answer part or all of the decision making questions the total number of respondents used in the calculations ranged from 186 to 189.

In arriving at the dividing point for analysis of the ratings of the decision making questions the following procedure was used. The number of respondents following the number of practices as classified above did rate each question in importance from zero through eight. In analyzing these ratings it was found that some cells were very small. Where necessary, adjacent categories were combined in order to raise the expected cell frequency to or above the minimum of five.

CHAPTER II

RESULTS OF ANALYSIS

This study is a part of a larger project sponsored by the University of Tennessee-Tennessee Valley Authority, termed the Trial Acre Program.

Corn is a popular crop grown throughout Tennessee by a large segment of the farm population. Since the average yield is approximately thirty-two bushels per acre compared to an indicated average attainable yield of approximately seventy bushels per acre, it was decided that work was needed to find ways to influence those farmers with low corn yields.

Therefore, corn production seemed to provide the setting necessary for a study of this type because it is grown extensively with the average yield far below the attainable yield. Thus, by inquiring in the field of corn production, more people who need to be influenced could be reached as result of this program.

In the process of growing corn there are three areas which involve decisions every farmer consciously or unconsciously makes. The first area is concerned with decisions involved in deciding how much ear corn to grow. It is composed of fifteen decision making questions. The second area concerns the number of bushels of corn per acre to try to get. There are twelve decision making questions in this area. The last area involves decisions in deciding what kind of fertilizer (brand) to buy and is composed of thirteen decision making questions.

The tables in Appendix A indicate results of cross tabulation between rating of factors deemed important and the number of practices adopted.

Number of Acres of Corn

When deciding how much corn to grow there were several characteristics on which the low and high adopters differed at various levels of significance (see Table II). These characteristics[24] are:

The availability of corn picker. There is a significant difference at the .01 level with 1 degree of freedom between the high adopters and low adopters with the high adopters considering it more important. This is probably due to high adopters having a limited supply of family and hired labor and are thereby forced to rely upon a corn picker for harvesting their corn. If a corn picker were not available it is doubtful that the growing of corn would be considered. On the other hand, very few low adopters would consider the availability of a corn picker in deciding to grow more corn. For one thing, the investment is probably too high and they depend more upon the labor supply available to them within their immediate family in arriving at their decisions. For, according to Wilkening, the farms on which almost all labor was provided by the family adopted significantly fewer practices

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[24]The characteristics, as well as the values on the following pages are listed in order of importance.

TABLE II

THE RELATIONSHIP OF THE ADOPTION OF APPROVED CORN PRODUCTION PRACTICES TO FACTORS RATED IMPORTANT WHEN DECIDING HOW MUCH EAR CORN TO GROW

Characteristics	Chi Square	D.F.	Significance Level	Direction of High Adopter	Corrected C Value
Availability of corn picker	7.8122	1	.01	Positive	.31
Feed requirements of the grower's livestock	10.7550	4	.02	Positive	.31
The size of the cash outlay the grower would have to make for seed, fertilizer and fuel or feed	21.7065	8	.01	Negative	.40
The number of acres of cropland available to the grower	7.3781	1	.01	Negative	.30
The number of acres the grower's friends and neighbors grow	4.7672	1	.05	Negative	.25
The fertility of the soil where the growers grow corn	3.7510	1	N.S.		
The amount of labor the grower expects to have available	3.2253	8	N.S.		
Availability of tractor	2.7118	4	N.S.		
Amount of time it's going to take the grower to work and harvest the corn	2.1280	8	N.S.		

TABLE II (continued)

Characteristics	Chi Square	D.F.	Significance Level	Direction of High Adopter	Corrected C Value
The kind of weather the grower expects to have during the growing season	3.3287	8	N.S.		
Market price for corn that the grower expects at harvest time	1.9792	4	N.S.		
Amount of energy the grower would have to put out to make the crop	2.9693	8	N.S.		
The amount of cash the grower may get for it	5.077	2	N.S.		
The amount of money the grower might have to borrow to grow the corn	3.061	1	N.S.		
The extent to which the corn production will interfere with other things the grower likes to do, such as go fishing, hunting, talking with friends at the store, etc	1.7579	4	N.S.		

than those on which a substantial proportion of labor was hired.[25]

Another possible explanation is that high adopters were more capable in dealing with abstractions and so were better able to understand the question.

Feed requirements of the grower's livestock. There is a significant difference (at the .02 level with 4 degrees of freedom) between high and low adopters with the high adopters placing greater emphasis on this factor. Although the correlation is not very strong it appears that high and low adopters view the characteristics from different standpoints, the feed requirements of livestock weighing very heavily in the decision of the high adopters when deciding to grow additional acreage. Without the possession of livestock it is very doubtful that any corn would be grown at all so it is fairly safe to assume that all of the corn growers had livestock. The relatively low correlation between practice adoption and this value, however, might be explained by the fact that many farmers in this area say it is more economical to purchase shipped corn than to grow it.

The low adopters do not consider the feed requirements of their livestock to the same extent as high adopters when deciding how much corn to grow. The low adopters seem to grow a predetermined acreage

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[25]Eugene A. Wilkening, Adoption of Improved Farm Practices, Research Bulletin No. 183 (Madison: University of Wisconsin Agricultural Experiment Station, December, 1953), p. 28.

rather than adjusting acreage to their needs. As long as they are able to satisfy the bare necessities needed to sustain life, little thought is given to economic considerations.

The size of the cash outlay the grower would have to make for seed, fertilizer, and fuel or feed. There is a significant difference at .01 level with 8 degrees of freedom between high and low adopters with the low adopters placing a high rating on this factor.

The high adopters are more prone to take risks to gain access to the factors of production as compared to the low adopters. They seem more willing to invest as long as the promise of extra returns makes the investment appear worthwhile.

However, the low adopters seem more satisfied to go along on the available cash basis. They have a negative attitude toward borrowing and must depend on the available cash which in most cases is limited. For example, the fertilizer available from the limited cash must be thinly spread over a predetermined acreage. Lack of fertilizer is not sufficient reason for cutting acreage for the low adopters.

The number of acres of cropland available. There is a significant difference (at .01 level with 1 degree of freedom) between the high and low adopters with the low adopters considering it more important.

Since high adopters are usually involved in larger farming operations, they tend to operate their farming enterprises from a business standpoint. As a result they are more likely to feel forced to make

decisions due to competition of other crops that are mandatory for their farming program. That is, they are forced to allocate their cropland to enterprises which are most productive if their business arrangement is to succeed. In this sense they are more rational than low adopters in their decision making in order to maximize economic returns.

In contrast, the low adopters are usually not involved with such large farming operations and tend to grow a predetermined amount of corn regardless of possible increases in economic returns that might be obtained from alternative uses. To them corn is the primary enterprise. This results in other crops being sacrificed to make space available for this crop. Thus, the low adopters are irrational in regard to decision making.

The number of acres the grower's friends and neighbors grow. There was a significant difference between the high adopters and low adopters at the .05 level with 1 degree of freedom with the high adopters considering it to be less important.

High adopters tend to be alert to the progress of their friends and neighbors within the community. However, they are more alert to the progress of the better farmers in the community instead of relying on practices followed in their neighborhood.

Thus, high adopters are less likely to follow practices of their friends and neighbors than are the low adopters unless such friends and neighbors are progressive and alert to improved farming practices. They are rational in that farming is a business, and decisions are made

accordingly. Therefore, they are less apt to consider practices which would not improve their business. In some instances high adopters consult with leaders of other communities in regard to improved farm practices.

Low adopters, however, tend to go along with friends and neighbors in placing less emphasis on adopting improved farming practices. Following the traditional procedures used by their friends and neighbors without considering the higher income which might be derived as a result of adopting an improved practice of the better adopters in the community is a characteristic of this group.

In addition, there are several characteristics which both the low and high adopters tend to rate as having equal importance in making their decision concerning how many acres of corn to plant. At least the differences between them are not significant. These are as follows: (1) the fertility of the soil where the grower grows corn; (2) the amount of labor (family and hired) that the grower expects to have available; (3) the availability of a tractor; (4) the amount of time it's going to take to work and harvest the corn: (5) the kind of weather the grower expects to have during the growing season (from almanac or other sources); (6) the amount of energy the grower would have to put out to make the crop; (7) the amount of cash the grower may get for it; (8) the amount of money the grower might have to borrow to grow the corn; and (9) the extent to which the corn production will interfere with other things the grower likes to do, such as go fishing, hunting, talking with friends at the store, etc.

Bushels of Corn Per Acre

When determining how important the rating of values differ between high and low adopters in deciding how many bushels of corn per acre to try to get (at different levels of significance) the following was observed (see Table III).

The kind of yields the most successful farmers in the county are getting. At the .05 level of significance with 1 degree of freedom there was a difference between the high and low adopters with the high adopters placing a higher rating on this factor.

In this case high adopters regard the yields of the most successful farmers in the community as an indication as to what their yields should be. If their yields are below the yields of the better farmers, then they may be motivated to find the reasons for the low yields. This indicates further that high adopters watch the yields obtained as a result of applying new practices. They promptly adopt those practices which prove their worth as soon as possible after being exposed. Whereas, low adopters usually wait until practically everyone is using the improved method if they adopt at all. They seem to feel no need to change.

Further, low adopters usually depend primarily on the local adoption leaders for information and ideas. They have less education, participate less in community affairs and are older than those who

TABLE III

THE RELATIONSHIP OF THE ADOPTION OF APPROVED CORN PRODUCTION PRACTICES TO FACTORS RATED IMPORTANT WHEN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Characteristics	Chi Square	D.F.	Significance Level	Direction of High Adopter	Corrected C Value
The kind of yields the most successful farmers in the county are getting	4.7210	1	.05	Positive	.25
The extra time and care it would take the grower to get a higher yield	4.5688	1	.05	Positive	.24
The yield obtained from corn demonstration in the grower's county	18.6497	8	.01	Negative	.37
The size of the yield the grower got last year	3.827	1	N.S.		
The extra cash the grower might get through a higher yield	3.454	1	N.S.		
The extra cash outlay the grower would have to make for seed and fertilizer to get a higher yield	2.3496	8	N.S.		

TABLE III (continued)

Characteristics	Chi Square	D.F.	Significance Level	Direction of High Adopter	Corrected C Value
The availability of labor the grower could count on to follow his instructions exactly	3.7005	4	N.S.		
The natural fertility of the soil where the grower grows corn	3.6193	8	N.S.		
The kinds of yields the grower's friends and neighbors are getting	4.9558	4	N.S.		
The seed salesman's talk about the yields obtained with the seed he sells	1.4168	4	N.S.		
The need to get as much as the grower can from the limited acreage available	2.9735	4	N.S.		
The extra effort that would be required on the grower's part to get a higher yield	2.1903	1	N.S.		

adopt ideas earlier.[26] Therefore, it seems that education, social interactions, age, etc., all contribute their share to the low adopters placing little importance on increased yields of friends and neighbors.

The extra time and care it would take to get a higher yield. There was a notable difference between high adopters and low adopters at a level of significance of .05 with 1 degree of freedom with the high adopters placing greater interest on this factor.

To the high adopter this is a very important consideration. High adopters are usually ready to expend extra time and care if returns are above cost. Due to high adopters following approved practices and being better mechanized, opportunity cost might also enter into the decision as far as returns go. Even though time is available other crops might return more for the extra time than corn would return. However, in some instances high adopters who have a shortage of labor might not be able to adopt even if it meant a gain in returns.

As for the low adopters this is only of minor importance, being due to the operator increasing production by alloting more land to corn instead of trying to increase the number of bushels per acre. To most low adopters increasing the yield per acre is not the necessary means of increasing total production. In some instances time might be important to low adopters because less time would be available to loaf or sit on a river bank.

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[26] How Farm People Accept New Ideas, Special Report No. 15 (Ames: Iowa State College, Agricultural Extension Service, November, 1955), pp. 10-11.

The yield obtained from corn demonstrations in the grower's county. At the .01 level of significance with 8 degrees of freedom there was a difference between the high and low adopters with the low adopters placing higher emphasis on this factor.

To the high adopters seeing is believing. So by observing and obtaining information from demonstrations, high adopters are able to evaluate the results of improved farming practices before tying up limited capital on a practice for which the potentials are not known. It then becomes apparent that high adopters are more rational in making decisions since practices which emerge as a result of corn demonstrations are usually adopted in order to increase economic returns.

The low adopter's interest in corn demonstration may be due to other motives which are not economically rational. Since the low adopter fails to contact agricultural agencies this then is one means of becoming aware of what is actually being done. Before adoption takes place the low adopter must see the practice locally accepted by friends and neighbors. But corn demonstrations do tend to alert low adopters to the potential yields of the area.

However, there are several considerations the importance of which neither low or high adopters seem to regard as significantly different when deciding how many bushels of corn per acre to try to get. These are: (1) the size of the yield the grower got last year; (2) the extra cash the grower might make through a higher yield: (3) the extra cash outlay the grower would have to make for seed and fertilizer

to get a higher yield; (4) the availability of labor which the grower could count on to follow his instructions exactly; (5) the natural fertility of the soil where the grower grows corn; (6) the kind of yield the grower's friends and neighbors are getting; (7) the seed and fertilizer saleman's talk about the yields obtained with the seed or fertilizer he sells; (8) the need to get as much as the grower can from the limited acreage available; (9) the extra effort that would be required on the grower's part to get a higher yield.

Kind of Fertilizer

In the process of deciding what kind of fertilizer (brand) to buy, there were several characteristics on which the low and high adopters differed at various levels of significance (see Table IV). These characteristics are:

The cost per unit of plant food. There is a significant difference at .05 level with 8 degrees of freedom between high and low adopters with the high adopters considering it more important.

High adopters are constantly striving to use more efficient methods of production. By paying particular attention to the cost per unit of plant food instead of buying by the bag, high adopters are able to lower cost and, presumably, to increase total revenue. It may safely be concluded then that high adopters are more rational in their decision to consider the cost of the plant food when buying fertilizer.

Low adopters usually buy by the bag of the then popular brand without regarding the cost per unit of plant food. In other words, as

TABLE IV

THE RELATIONSHIP OF THE ADOPTION OF APPROVED CORN PRODUCTION PRACTICES TO FACTORS RATED IMPORTANT WHEN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Characteristics	Chi Square	D.F.	Significance Level	Direction of High Adopter	Corrected C Value
The cost per unit of plant food	16.2980	8	.05	Positive	.35
The analysis of the fertilizer	9.2370	4	.05	Positive	.29
What advertisements say about fertilizers	4.6720	1	.05	Positive	.25
How important is what the grower reads in farm papers and magazines	26.2859	8	.01	Negative	.43
The brand of fertilizer	18.4686	8	.02	Negative	.37
The fertilizers dealer's or Co-Op manager's recommendation of a particular kind of fertilizer	14.5526	8	.05	Negative	.33
The past experience the grower had with a particular kind of fertilizer	14.2645	8	.05	Negative	.33

TABLE IV (continued)

Characteristics	Chi Square	D.F.	Significance Level	Direction of High Adopter	Corrected C Value
The cost per bag	5.9958	2	.05	Negative	.26
The weight of the bag	.1452	1	N.S.		
The physical characteristics (drillability) of the fertilizer	2.5461	4	N.S.		
The kind of equipment the grower has to spread the fertilizer	2.0863	4	N.S.		
The kind of fertilizer the grower's friends and neighbors use	3.9781	2	N.S.		
The kind of fertilizer the dealer happens to carry (or have on hand)	3.2778	4	N.S.		

long as low adopters are able to buy the brand they want, the cost per unit of plant food is of little importance.

The analysis of the plant food. There is a significant difference at the .05 level with 4 degrees of freedom between high and low adopters with the high adopters placing a high rating on this factor. Since high adopters seem to place a higher value on soil testing, it would naturally follow that they would, as a result, place a high value on the analysis of the fertilizer. For there would be no good reason for having a soil analysis unless results are followed. The findings in this study bear this out. Since high adopters tend to rely on practices followed by the better neighbors in the community as well as practices recommended as a result of corn demonstrations, to mention a few, the proper analysis of the plant food is of utmost importance if returns are to be maximized.

In contrast, the low adopters as indicated in the first part of this study, are more prone to follow their friends and neighbors in placing less emphasis on adopting improved practices. They do not usually follow soil testing and as a result are not informed to the advantage of using the recommendations. Therefore, the analysis of the plant food would be of little importance when buying fertilizer.

What advertisements say about fertilizers. This proved to be significant at the .05 level with 1 degree of freedom with the high adopters placing greater emphasis on this factor. This would indicate

that high adopters are more susceptible to advertisements than low adopters due to the high adopters seeking better means and methods of production. This is not to say that high adopters rely entirely on what advertisements say about fertilizers. When they realize just what is needed in a fertilizer, advertisements then serve to acquaint the farmer with the different fertilizers that are available. Therefore, economic rationality will determine what is needed after the high adopter has become acquainted with what is available.

However, some low adopters indicated that they too followed fertilizer advertisements closely. This difference may be due to the low adopters looking at the different fertilizers from the brand standpoint. This again is the result of the low adopters being irrational from the standpoint of economic returns.

How important is what the grower reads in farm papers and magazines. There is a significant difference at .01 level with 8 degrees of freedom between low and high adopters with the high adopter placing a low rating on this factor. These findings would indicate that high adopters place a low value on what is contained in farm papers and magazines. To high adopters farm papers and magazines are important ways in which they may become aware of the validity of new practices. By being aware, and then interested, they seek more concrete evidence from agricultural agencies and neighbors. Therefore, farm papers and magazines serve as an influential media in the adoption of improved farming practices.

Low adopters may place importance on readings in farm papers and magazines in order to become acquainted with approved practices. Since low adopters do not rely on personal contact with agricultural agencies more emphasis is placed on farm papers and magazines. However, the low adopter is slow to adopt and depends upon his friends and neighbors for guidance. In other words, they may realize the importance of new methods but are less inclined to follow the recommendations.

The brand of the fertilizer. There is a significant difference at the .02 level with 8 degrees of freedom with the low adopter placing a higher emphasis on this value. High adopters usually depend upon other criteria in determining the type of fertilizer. It was indicated earlier that the analysis and cost per unit of plant food are important considerations to the high adopters. Since the high adopters are more rational in their decision making it would seem less likely that they would depend upon brand exclusively in buying fertilizer.

In contrast, low adopters have limited contact with agricultural agencies. They do not realize the importance of cost and analysis per unit plant food in buying fertilizer. If a brand has proved successful in the past it is likely that the same will be used again.

The fertilizers dealer's recommendation of a particular kind of fertilizer. There is a significant difference at .05 level with 8 degrees of freedom with the low adopter placing a high rating on this factor. In explaining this phenomena the high adopters do not need the

advice of the various dealers as frequently as the low adopters in determining which fertilizer to buy. They depend more upon the analysis of plant food. They know what they want before they buy.

The low adopters place a higher rating on this characteristic than high adopters. This is probably due to failure to communicate with agricultural agencies. They are forced to seek information from other sources.

When advice is needed by the low adopters the fertilizer dealer is most often sought. Low adopters are more inclined to discuss problems with dealers than with representatives from agricultural agencies.

The past experience the grower had with a particular kind of fertilizer. This characteristic proved to be significant at the .05 level with 8 degrees of freedom with the high adopter considering this factor as less important. Since it is known that high adopters depend upon the analysis per unit of plant food in buying, past experience would have little bearing on a particular kind of fertilizer.

In contrast, the low adopter rates past experience very highly. Several farmers indicated that a fertilizer which did not clog and which produced a good crop of corn would be used again next year. However, any negative results from past experience of a particular kind of fertilizer may serve to motivate the farmer to look for something better next year.

The cost per bag. There is a significant difference at the .05 level with 1 degree of freedom with the low adopter placing a high rating on this factor. As indicated earlier it was found that the cost and analysis of plant food was very important to the high adopter when buying fertilizer. Since a number of high adopters may buy by the bag, it is only logical that they buy as cheaply as possible if the analysis is as desired. By being rational in maximizing returns, the high adopter is motivated to seek the best which will return the greater profit with a lesser regard for cost.

The low adopters rate this factor higher than the high adopters. As a result of the negative attitude toward borrowing, the low adopters are forced to meet their obligations with the available cash on hand. Thus, with limited funds and a dislike for borrowing it is evident that they pay particular attention to the cost per bag.

In addition there are a number of characteristics of which the rating of importance by high and low adopters is not significantly different when deciding what kind of fertilizer (brand) to buy. These are as follows: (1) the weight of the bag it comes in; (2) the physical characteristics (drillability) of the fertilizer; (3) the kind of equipment the grower has to spread the fertilizer; (4) the kind of fertilizer the grower's friends and neighbors use; and (5) the kind of fertilizer the dealer happens to carry (or have on hand).

CHAPTER III

SUMMARY AND CONCLUSIONS

Despite the general acceptance of improved practices in Tennessee there still remains that segment of the farm population which refuses to change or is very slow in changing to the recommended methods of farming. This thesis is concerned with analyzing the decision making patterns of a group of farmers with respect to the importance of certain values when making decisions concerning the growing of corn.

Data used in this analysis were collected through interviews with 189 corn growers selected at random in Bradley and White Counties of Tennessee. The respondents were then classified as high or low adopters on the basis of adoption or rejection of part or all of nine recommended farm practices included in the interview schedule.

The study was concerned with comparing values involved in the decision making process of the low and high adopters. As anticipated, it was found that the low adopters differ significantly from the high adopters in the importance placed on a number of the values rated.

In deciding how much ear corn to grow the following were very important considerations for the low adopters: the size of the cash outlay, the number of acres of cropland available, and the number of acres of corn the grower's friends and neighbors grow. On the other hand, the high adopters rated the availability of a corn picker and the feed requirements of livestock as important considerations.

The yield obtained from corn demonstration in the county was the only characteristic which was of any importance to the low adopters when deciding how many bushels of corn per acre to try to get. Although low adopters do not adopt a large number of approved practices, they are alert as to the possibilities of increasing yields. In contrast, the high adopters rated the kind of yields the most successful farmers in the county are getting and the extra time and care it would take to get a higher yield as important considerations in deciding how many bushels of corn per acre to try to get.

In deciding what kind of fertilizer (brand) to buy the low adopters regard the following as important considerations: (1) what they read in farm papers and magazines; (2) the brand of the fertilizer; (3) the fertilizer dealer's recommendation of a particular kind of fertilizer; (4) the past experience they have had with a particular kind of fertilizer; and (5) the cost per bag. However, the high adopters rated the cost per unit of plant food, the analysis of the fertilizer and what advertisements say about fertilizers as important considerations in this decision.

As the result of the analysis of this study it was necessary to reject sixteen of the forty sub-sub-hypotheses that no difference exists between low adopters and high adopters in the values placed on how important the various characteristics are in deciding how much ear corn to grow, how many bushels of corn per acre to try to get, and the kind of fertilizer (brand) to buy. Since one should expect only 5 per cent (two out of

forty) of these findings to be due purely to chance, the sub-hypothesis that the values involved in making decisions concerning the farm operator are no different for low adopters as compared with high adopters was rejected. The sub-sub-hypotheses were derived from the sub-hypothesis, and the sub-hypothesis in turn was derived from the general hypothesis. Since the sub-sub-hypotheses and sub-hypothesis were rejected, and since they were derived from the general hypothesis, the general hypothesis could then logically be rejected.

Thus, the general hypothesis that the value system held by farmers is not responsible for the decisions to adopt or not to adopt specific improved farm practices was rejected. As a result the alternate hypothesis that the values involved in decision making are different for the low adopters as compared with the high adopters was accepted.

The low adopters do not consider the availability of a corn picker or the feed requirements of livestock as important as high adopters when deciding how much ear corn to grow. When deciding how many bushels of corn per acre to try to get the low adopters rate lower in importance the kinds of yields the most successful farmers in the county are getting and the extra time and care it would take to get a high yield than do high adopters. Comparing low adopters with high adopters when deciding what kind of fertilizer (brand) to buy, the low adopters do not rate the cost per unit of plant food, the analysis of the fertilizer and what advertisements say about fertilizers as important as high adopters.

The results of this study indicate that the low adopters' outlook on borrowing, the lack of communication with agricultural agencies, along with the lack of knowledge of approved methods of farming, and various other factors have a negative or irrational influence on his decision making process when confronted to adopt or not adopt.

The findings of this study have practical implication for the various agricultural agencies and organizations engaged directly or indirectly in changing people's behavior. They have important theoretical implications because they may be used for developing subsequent research in such things as what kind of individuals respond to different kind of media, and why various farmers use different sources of information. Research in this area should contribute greatly to the understanding of how people are influenced to acquire new knowledge and techniques.

This would suggest that education is needed to change the value system of this segment of the population. There is a need for more contact with these people who need assistance if their traditional system of values are to be broken.

This would imply that more research is needed on the decision making process involved in adoption. By better understanding of the values involved, the extension service along with other agricultural agencies could devise more appealing programs and policies in order to stimulate interest in those most in need. Nevertheless, it is hoped the results of this study will be used by extension and other agencies and organizations to influence the low adopters to adopt improved farm practices.

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APPENDIX A

TABLE I

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AVAILABILITY OF A CORN PICKER AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	37	3	40
High (3-9)	106	43	149
Total	143	46	189

TABLE II

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE FEED REQUIREMENTS OF THE GROWER'S LIVESTOCK AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	20	20	40
Medium-low (3-4)	9	30	39
Medium (4-5)	14	27	41
Medium-high (5-6)	8	31	39
High (6-9)	7	22	29
Total	58	130	188

TABLE III

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE SIZE OF THE CASH OUTLAY THE GROWER WOULD HAVE TO MAKE FOR SEED, FERTILIZER AND FUEL OR FEED AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	9	16	15	40
Medium-low (3-4)	16	6	17	39
Medium (4-5)	14	16	12	42
Medium-high (5-6)	22	7	10	39
High (6-9)	18	5	6	29
Total	79	50	60	189

TABLE IV

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE NUMBER OF ACRES OF CROPLAND AVAILABLE TO THE GROWER AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	65	14	79
High (4-9)	70	39	109
Total	135	53	188

TABLE V

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE NUMBER OF ACRES THE GROWER'S FRIENDS AND NEIGHBORS GROW AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-6)	136	23	159
High (6-9)	20	9	29
Total	156	32	188

TABLE VI

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE FERTILITY OF THE SOIL WHERE THE GROWERS GROW CORN AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-5)	79	41	120
High (5-9)	35	33	68
Total	114	74	188

TABLE VII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AMOUNT OF LABOR THE GROWER EXPECTS TO HAVE AVAILABLE AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	10	19	11	40
Low-medium (3-4)	11	16	12	39
Medium (4-5)	14	17	11	42
Medium-high (5-6)	11	15	13	39
High (6-9)	5	13	11	29
Total	51	80	58	189

TABLE VIII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AVAILABILITY OF A TRACTOR AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	21	19	40
Low-medium (3-4)	15	24	39
Medium (4-5)	15	27	42
Medium-high (5-6)	16	23	39
High (6-9)	12	17	29
Total	79	110	189

TABLE IX

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AMOUNT OF TIME IT'S GOING TO TAKE TO WORK AND HARVEST THE CORN AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	10	21	9	40
Medium-low (3-4)	11	19	9	39
Medium (4-5)	12	21	9	42
Medium-high (5-6)	13	17	9	39
High (6-9)	6	18	5	29
Total	52	96	41	189

TABLE X

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE KIND OF WEATHER THE GROWER EXPECTS TO HAVE DURING THE GROWING SEASON AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	22	18	40
Medium-low (3-4)	26	13	39
Medium (4-5)	29	13	42
Medium-high (5-6)	24	15	39
High (6-9)	15	14	29
Total	116	73	189

TABLE XI

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE MARKET PRICE FOR CORN THAT THE GROWER EXPECTS AT HARVEST TIME AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	23	17	40
Medium-low (3-4)	24	15	39
Medium (4-5)	28	14	42
Medium-high (5-6)	25	14	39
High (6-9)	15	14	29
Total	115	74	189

TABLE XII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AMOUNT OF ENERGY THE GROWER WOULD HAVE TO PUT OUT TO MAKE THE CROP AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	11	21	8	40
Medium-low (3-4)	14	15	10	39
Medium (4-5)	15	16	10	41
Medium-high (5-6)	14	16	9	39
High (6-9)	12	12	5	29
Total	66	80	42	188

TABLE XIII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AMOUNT OF CASH THE GROWER MAY GET FOR IT AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	29	50	79
Medium (4-6)	42	38	80
High (6-9)	10	19	29
Total	81	107	188

TABLE XIV

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AMOUNT OF MONEY THE GROWER MIGHT HAVE TO BORROW TO GROW THE CORN AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	34	45	79
High (4-9)	61	48	109
Total	95	93	188

TABLE XV

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE EXTENT TO WHICH THE CORN PRODUCTION WILL INTERFERE WITH OTHER THINGS THE GROWER LIKES TO DO, SUCH AS GO FISHING, HUNTING, TALKING WITH FRIENDS AT THE STORE, ETC. AS A FACTOR IN DECIDING HOW MUCH EAR CORN TO GROW

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	27	13	40
Medium-low (3-4)	28	11	39
Medium (4-5)	28	13	41
Medium-high (5-6)	31	8	39
High (6-9)	21	8	29
Total	135	53	188

TABLE XVI

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE KIND OF YIELDS THE MOST SUCCESSFUL FARMERS IN THE COUNTY ARE GETTING AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	22	17	39
High (3-9)	55	93	148
Total	77	110	187

TABLE XVII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE EXTRA TIME AND CARE IT WOULD TAKE THE GROWER TO GET A HIGHER YIELD AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	20	20	40
High (3-9)	101	47	148
Total	121	67	188

TABLE XVIII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE YIELD OBTAINED FROM CORN DEMONSTRATION IN THE GROWER'S COUNTY AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	27	8	4	39
Medium-low (3-4)	25	4	10	39
Medium (4-5)	23	11	7	41
Medium-high (5-6)	16	9	14	39
High (6-9)	11	5	13	29
Total	102	37	48	187

TABLE XIX

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE SIZE OF THE YIELD THE GROWER GOT LAST YEAR AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	38	41	79
High (4-9)	37	72	109
Total	75	113	188

TABLE XX

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE EXTRA CASH THE GROWER MIGHT GET THROUGH A HIGHER YIELD AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	17	62	79
High (4-9)	37	72	109
Total	54	134	188

TABLE XXI

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE EXTRA CASH OUTLAY THE GROWER WOULD HAVE TO MAKE FOR SEED AND FERTILIZER TO GET A HIGHER YIELD AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	15	11	14	40
Medium-low (3-4)	17	10	12	39
Medium (4-5)	16	15	10	41
Medium-high (5-6)	16	12	11	39
High (6-9)	12	10	7	29
Total	76	58	54	188

TABLE XXII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE AVAILABILITY OF LABOR WHICH THE GROWER COULD COUNT ON TO FOLLOW HIS INSTRUCTIONS EXACTLY AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	23	17	40
Medium-low (3-4)	23	16	39
Medium (4-5)	26	15	41
Medium-high (5-6)	23	16	39
High (6-9)	12	17	29
Total	107	81	188

TABLE XXIII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE NATURAL FERTILITY OF THE SOIL WHERE THE GROWER GROWS CORN AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	12	13	15	40
Medium-low (3-4)	10	14	15	39
Medium (4-5)	9	11	21	41
Medium-high (5-6)	12	10	17	39
High (6-9)	7	7	15	29
Total	50	55	83	188

TABLE XXIV

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE KINDS OF YIELD THE GROWER'S FRIENDS AND NEIGHBORS ARE GETTING AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	22	18	40
Medium-low (3-4)	15	24	39
Medium (4-5)	19	22	41
Medium-high (5-6)	15	24	39
High (6-9)	10	19	29
Total	81	107	188

TABLE XXV

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE SEED SALESMAN'S TALK ABOUT THE YIELDS OBTAINED WITH THE SEED HE SELLS AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	19	20	39
Medium-low (3-4)	17	22	39
Medium (4-5)	21	20	41
Medium-high (5-6)	18	21	39
High (6-9)	11	18	29
Total	86	101	187

TABLE XXVI

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE NEED TO GET AS MUCH AS THE GROWER CAN FROM THE LIMITED ACREAGE AVAILABLE AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	26	13	39
Medium-low (3-4)	26	13	39
Medium (4-5)	25	16	41
Medium-high (5-6)	20	19	39
High (6-9)	16	13	29
Total	113	74	187

TABLE XXVII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE EXTRA EFFORT THAT WOULD BE REQUIRED ON THE GROWER'S PART TO GET A HIGHER YIELD AS A FACTOR IN DECIDING HOW MANY BUSHELS OF CORN PER ACRE TO TRY TO GET

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-5)	46	73	119
High (5-9)	19	49	68
Total	65	122	187

TABLE XXVIII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE COST PER UNIT OF PLANT FOOD AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	17	15	7	39
Medium-low (3-4)	11	15	12	38
Medium (4-5)	8	19	14	41
Medium-high (5-6)	12	10	17	39
High (6-9)	7	6	16	29
Total	55	65	66	186

TABLE XXIX

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE ANALYSIS OF THE FERTILIZER AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	23	16	39
Medium-low (3-4)	17	21	38
Medium (4-5)	17	24	41
Medium-high (5-6)	12	27	39
High (6-9)	8	21	29
Total	77	109	186

TABLE XXX

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF WHAT ADVERTISEMENTS SAY ABOUT FERTILIZERS AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	42	35	77
High (4-9)	42	67	109
Total	84	102	186

TABLE XXXI

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF WHAT THE GROWER READS IN FARM PAPERS AND MAGAZINES AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	25	6	8	39
Medium-low (3-4)	19	7	12	38
Medium (4-5)	15	11	15	41
Medium-high (5-6)	8	10	21	39
High (6-9)	5	12	12	29
Total	72	46	68	186

TABLE XXXII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE BRAND OF THE FERTILIZER AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	11	8	20	39
Medium-low (3-4)	7	20	11	38
Medium (4-5)	20	9	12	41
Medium-high (5-6)	14	10	15	39
High (6-9)	10	10	9	29
Total	62	57	67	186

TABLE XXXIII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE FERTILIZERS DEALER'S OR CO-OP MANAGER'S RECOMMENDATION OF A PARTICULAR KIND OF FERTILIZER AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	12	10	17	39
Medium-low (3-4)	8	12	18	38
Medium (4-5)	18	18	5	41
Medium-high (5-6)	12	13	14	39
High (6-9)	11	9	9	29
Total	61	62	63	186

TABLE XXXIV

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF PAST EXPERIENCE THE GROWER HAD WITH A PARTICULAR KIND OF FERTILIZER AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor			Total
	Low	Medium	High	
Low (0-3)	11	19	9	39
Medium-low (3-4)	15	9	14	38
Medium (4-5)	20	13	8	41
Medium-high (5-6)	10	12	17	39
High (6-9)	10	7	12	29
Total	66	60	60	186

TABLE XXXV

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE COST PER BAG AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	58	19	77
Medium (4-5)	24	17	41
High (5-9)	54	14	68
Total	136	50	186

TABLE XXXVI

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE WEIGHT OF THE BAGS AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-6)	97	60	157
High (6-9)	19	10	29
Total	116	70	186

TABLE XXXVII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE PHYSICAL CHARACTERISTICS (DRILLABILITY) OF THE FERTILIZER AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	20	19	39
Medium-low (3-4)	21	17	38
Medium (4-5)	26	15	41
Medium-high (5-6)	19	20	39
High (6-9)	18	11	29
Total	104	82	186

TABLE XXXVIII

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE KIND OF EQUIPMENT THE GROWER HAS TO SPREAD THE FERTILIZER AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	10	29	39
Medium-low (3-4)	13	25	38
Medium (4-5)	12	29	41
Medium-high (5-6)	15	24	39
High (6-9)	11	18	29
Total	61	125	186

TABLE XXXIX

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE KIND OF FERTILIZER THE GROWER'S FRIENDS AND NEIGHBORS USE AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-4)	51	26	77
Medium (4-5)	34	7	41
High (5-9)	46	22	68
Total	131	55	186

TABLE XL

RATE OF ADOPTION BY RATING OF THE IMPORTANCE OF THE KIND OF FERTILIZER THE DEALER HAPPENS TO CARRY (OR HAVE ON HAND) AS A FACTOR IN DECIDING WHAT KIND OF FERTILIZER (BRAND) TO BUY

Adopter Category	Rated Importance of the Factor		Total
	Low	High	
Low (0-3)	10	29	39
Medium-low (3-4)	15	23	38
Medium (4-5)	13	28	41
Medium-high (5-6)	14	25	39
High (6-9)	13	16	29
Total	65	121	186

APPENDIX B

Department of Agriculture Economics and Rural Sociology

University of Tennessee

Summer, 1960

CORN PRODUCTION PRACTICES STUDY

1. How many acres of corn are you growing this year? _____Acres

   IF FEWER THAN ABOUT FIVE, TERMINATE INTERVIEW.

2. How many acres of this do you expect to use for silage? _____Acres

3. How many acres of ear corn did you harvest last year? _____Acres

4. How many acres of ear corn do you plan to grow next year? _____Acres

   IF FEWER THAN FIVE, TERMINATE INTERVIEW.

5. What is your name? _____

6. What is your address? _____

7. Do you have more than one field of corn? _____Yes _____No

   IF YES, ASCERTAIN WHICH IS THE LARGEST THAT IS USUALLY USED FOR CORN, REFER PRODUCTION QUESTIONS TO THAT FIELD.

* 8. Have you had the soil of your present corn field tested for fertilizer needs in the past three years?

   _____Yes

   _____No

9. (IF NO) Have you ever had such a test made?

   _____Yes

   _____No

10. (IF YES TO EITHER 8 OR 9) When you got the soil test report back, did you put on the amount of fertilizer recommended, or did you put more or less than the recommended amount?

(1) ____recommended amount

(2) ____more

(3) ____less

(4) ____not applicable

* 11. How did you (would you) go about taking a soil sample?

DO NOT SUGGEST ALTERNATIVES. CHECK THOSE INCLUDED IN HIS RESPONSE. PLACE "X" BESIDE THOSE FOR WHICH YOU HAD TO PROBE.

____Separate samples for "different" areas

____Number of locations in the field

____Vertical section

* 12. (HAND RESPONDENT CARD #1) Which of these commercial mixed fertilizers would you recommend to a neighbor for corn at the time of planting if his soil test showed that:

a. his greatest deficiency is in potash (k)?

(1) ____16-8-8

(2) ____12-24-12

(3) ____3-9-27

(4) ____10-10-10

(Y) ____Don't know

(RESPONDENT MUST SELECT ONE OF THESE CATEGORIES--NOT ANOTHER KIND OF FERTILIZER.)

b. his greatest deficiency is in nitrogen (N)?

(1) ___16-8-8 (RESPONDENT MUST SELECT ONE

(2) ___12-24-12 OF THESE CATEGORIES--NOT

(3) ___3-9-27 ANOTHER KIND OF FERTILIZER.)

(4) ___10-10-10

(Y) ___Don't know

13. How much nitrogen, phosphate and potash per acre did you put on your corn field at planting?

Broad cast ___lbs ___ - ___ - ___ /Acre

In the row ___lbs ___ - ___ - ___ /Acre

IF UNKNOWN, ASK THE FOLLOWING:

I. a) How many bags of fertilizer did you broad cast at planting?

b) What was the weight of each bag? ___bags at ___lbs.

c) What was the analysis of the fertilizer? ___ - ___ - ___

II. a) How many bags of fertilizer did you put in the row at planting?

b) What was the weight of each bag? ___bags at ___lbs.

c) What was the analysis of the fertilizer? ___ - ___ - ___

14. (IF SOME PLACED IN ROW) Was the fertilizer you put in the row

(1) ___placed with the seed or

(2) ___to the side and/or below the seed?

15. How much nitrogen, phosphate and potash per acre did you use to side dress your corn?

Side dressed ___lbs ___ - ___ - ___ /Acre

IF UNKNOWN, ASK THE FOLLOWING:

III. a) How many bags of fertilizer did you use in side dressing your corn?

b) What was the weight of each bag? ____bags at ____lbs.

c) What was the analysis of the fertilizer? ___ - ___ - ___

16. How many tons of manure per acre did you use in fertilizing your corn? ____tons

IF UNKNOWN, ASK THE FOLLOWING:

IV. a) How many loads of manure did you put on the field? ____

b) What is the capacity of your spreader box? ____tons

* 17. How do you decide how much fertilizer to put on your corn?

DO NOT READ ALTERNATIVES. CHECK THOSE COVERED IN HIS RESPONSE. PLACE "X" BESIDE THOSE FOR WHICH YOU HAD TO PROBE.

____Soil test
____Money available
____Past experience
____Other (list)

18. How many times after planting do you usually cultivate your corn?

(1) ____None
(2) ____One or no more than necessary
(3) ____Two
(4) ____Three
(5) ____Four or more
(6) ____Use chemical weed control

* 19. What was the depth of your last cultivation?

(1) ____Shallow (0-2 inches)

(2) ____Medium (2-4 inches)

(3) ____Deep (4-6 inches)

(4) ____Not applicable (chemical weed control)

* 20. a) Does cultivation do anything for your corn other than control weeds?

(1) ____Yes

(2) ____No

(3) ____Don't know

b) (IF YES OR DON'T KNOW) What sorts of things do you have in mind?

DO NOT READ ALTERNATIVES. PLACE "X" BESIDE THOSE FOR WHICH YOU HAD TO PROBE.

____Puts air in the soil

____Lets water in the soil

____Breaks up capillary action

____Saves moisture

____Lets seeds get through crust

____Reduces cutworm population

____Other (list)

Refer to asterisked (*) items to fill in following tables:

Practice	Followed?	Knowledge Response
Soil test	(1) ____Yes	(1) ____Adequate
	(2) ____No	(2) ____Inadequate
Fertilization	(1) ____Yes	(1) ____Adequate
	(2) ____No	(2) ____Inadequate
Cultivation	(1) ____Yes	(1) ____Adequate
	(2) ____No	(2) ____Inadequate

21. How many bushels (barrels) of ear corn did you harvest last year?

(1 BARREL = 5 BUSHELS) Bushels ____ =

Acres (from #3) ____bu./acre

Yield obtained (bu./acre) ____ =
____% actual is of potential
Estimated potential yield ____

Now, I would like to ask some questions about the field where you are growing your corn.

22. Is it (1) ____flat

(2) ____gently rolling, or

(3) ____on a slope?

23. Is it (1) ____a heavy, clayey soil,

(2) ____a light, sandy, easily worked soil, or

(3) ____about halfway between these two?

24. Is it (1) ____well drained, (warm up quickly in the Spring) or does it have a

(2) ____tendency to stay wet in places (stay cold and wet in the Spring)?

25. Does the corn tend to (1) ____give low yields and the leaves curl in a dry summer (droughty)

(2) ____or does it do well in spite of dry weather?

26. Is it (1) ___bottomland (made land) or

(2) ___hill land?

27. Is it (1) ___free of stones or does it tend to be

(2) ___rocky?

Estimated potential yield--assuming average weather conditions___

28. Do you grow corn on this field (1) ___every year

(2) ___every other year, or

(3) ___once in three or more years?

29. When you plant your corn, what is the width between the "shoes" on the corn planter (or, how many inches between your rows)?

___inches

30. What is the distance between plants in the row? ___inches

31. Where did you get your seed corn?___crib ___store ___neighbor

32. (IF STORE) What variety? _____

33. Have you limed your corn field in the past 5 to 10 years?

(1) ___Yes

(2) ___No

(Y) ___Don't know

Now, I would like to ask you some questions about the things you consider when you make certain decisions which you have to make in the course of your farming.

In your answer to one of the first questions I asked, you indicated that you plan to grow a certain number of acres of corn for ear corn next year. This represents a decision you have made. People differ in the things they consider in reaching a decision and I would like for you to indicate on this little column (SHOW HIM CARD) how important each of the following is when you are deciding how much ear corn to grow:

a) How important is the amount of labor (family and hired) that you expect to have available?

b) How important is the availability of a tractor?

c) How important is the availability of a corn picker?

d) How important a factor is the amount of time it's going to take to work and harvest the corn?

e) How important is the size of the cash outlay you would have to make for seed, fertilizer, and fuel or feed?

f) How important is the kind of weather you expect to have during the growing season (from almanac or other sources)?

g) How important is the market price for corn that you expect (anticipate) at harvest time?

h) How important is the amount of energy you would have to put out to make the crop?

i) How important are the feed requirements of your livestock?

j) How important is the amount of cash you may get for it?

k) How important is the number of acres of cropland available to you?

l) How important is the number of acres of corn your friends and neighbors grow?

m) How important is the amount of money you might have to borrow to grow the corn?

n) How important is the fertility (productivity) of the soil where you grow your corn?

o) How important is the extent to which the corn production will interfere with other things you like to do, such as go fishing, hunting, talking with friends at the store, etc?

Now, using the same little scale, how important is each of the following when you are deciding how many bushels of corn per acre to try to get?

a) How important is the size of the yield you got last year?

b) How important is the extra cash you might make through a higher yield?

c) How important is the extra cash outlay you would have to make for seed and fertilizer to get a higher yield?

d) How important is the extra time and care it would take to get a higher yield?

e) How important is the availability of labor which you could count on to follow your instructions exactly?

f) How important is the natural fertility of the soil where you grow your corn?

g) How important is the kind of yield your friends and neighbors are getting?

h) How important is the kind of yield the most successful farmers in the county are getting?

i) How important is the seed and fertilizer salesman's talk about the yields obtained with the seed or fertilizer he sells?

j) How important is the need to get as much as you can from the limited acreage available to you?

k) How important is the yield obtained from corn demonstrations in this county?

l) How important is the extra effort that would be required on your part to get a higher yield?

Now, I would like to know how important each of the following is when you are deciding what kind of fertilizer (brand) to buy.

a) How important is the past experience you have had with a particular kind of fertilizer?

b) How important are the physical characteristics (drillability) of the fertilizer?

c) How important is the fertilizer dealer's or co-op manager's recommendation of a particular kind of fertilizer?

d) How important is the kind of equipment you have to spread the fertilizer?

e) How important is the weight of the bags it comes it?

f) How important is the cost per bag?

g) How important is the analysis of the fertilizer?

h) How important is the cost per unit of plant food?

i) How important is the brand of the fertilizer?

j) How important is the kind of fertilizer your friends and neighbors use?

k) How important is the kind of fertilizer the dealer happens to carry (or have on hand)?

l) How important is what you read in farm papers and magazines?

m) How important is what advertisements say about fertilizers?