

A STUDY OF THE DECISION MAKING PROCESS OF  
THE FARMERS OF DOWNS, KANSAS

by

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requirements for the degree

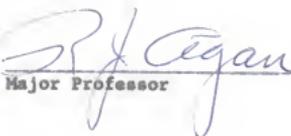
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I wish to express my gratitude to the forty farmers who so patiently and cheerfully supplied the information on which this report was based, and to Dr. Agan for the time and effort he devoted to this report and his encouragement to me.

## TABLE OF CONTENTS

INTRODUCTION . . . . .	1
Background . . . . .	1
Statement of the problem . . . . .	3
Limitations . . . . .	4
Definitions of terms . . . . .	4
Importance of the study . . . . .	5
REVIEW OF SELECTED LITERATURE . . . . .	5
SCOPE AND PROCEDURE . . . . .	15
RESULTS OF THE INTERVIEW . . . . .	17
SUMMARY . . . . .	28
BIBLIOGRAPHY . . . . .	32
APPENDIX . . . . .	35

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LIST OF TABLES

TABLE

I	Sources of Information Which Influenced the Use of Atrazine . . . . .	18
II	Categories of Information Which Influenced the Use of Atrazine . . . . .	19
III	The Influence of Information Sources . . . . .	22
IV	Number of Years Atrazine had been Used by Down's Farmers in 1965 . . . . .	22
V	A Comparison of the Education Acquired by the Farmers . .	24
VI	A Comparison of Categories of Information Used by Farmers of Different Age Groups . . . . .	24
VII	A Comparison of Categories of Information Used by Farmers of Different Educational Levels . . . . .	25
VIII	A Comparison of Educational Levels of the Farmers by Age Groups . . . . .	25
IX	A Comparison of Farms of the Atrazine and Non-atrazine Using Farmers . . . . .	26
X	A Comparison of the Ages of Farmers Using and Not Using Atrazine . . . . .	27

## INTRODUCTION

### Background

In 1960, Rogers<sup>1</sup> stated that there was a sharp contrast between the farmers using new technological practices and those not using them. This technological change had made it possible for one farmer to produce as much food and fiber as six farmers produced in 1830. Because of those technological advances, the farmers of the United States, who represented less than one per cent of the world's population, produced 51 per cent of the world's red meat, and 46 per cent of the world's fluid milk.

Another effect of technological change reported was that the number of farms and farmers was decreasing. Each year more farmers found that they could not adjust to the rapid transition in farming methods and they were forced to leave the farm. The number of farmers also decreased due to the fact that one farmer could, by using modern methods, do the work formerly done by many.

It was also reported that this technological change was started on the agricultural research stations, where scientists published the results of their studies. Some of these results were used directly by farmers, while others were developed further by commercial companies.

He further stated that some new technology could be used with only minor changes in the usual farming practices, while others required many

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<sup>1</sup>Everett M. Rogers, Social Change in Rural Society, (New York: Appleton-Century-Crofts, Inc., 1960), pp. 397-398.

costly adjustments for their use. The farmers's dilemma was that he had to make use of new technology if he were to compete with others who did, yet he had to determine what new methods were adapted to his situation and would be worth the expense they involved. An unwise decision could bring financial ruin.

Sutor<sup>1</sup> reported a similar situation when he wrote:

In the past a single farm problem could be solved by changing an individual farm practice. Today new technologies tend to set off a chain reaction or set of problems. An idea is developed. It solves a particular problem. The solution leads to another problem, however, and on and on. This usually means a complete reorganization of the farm business. Thus the impact and repercussions of technology have a far greater or more far reaching effect than does the technology itself.

The challenge to management is to develop and organize new technologies in a business-like fashion. This takes real creative ability. It requires a farmer willing to make decisions, often without all of the information he would like to have. With this type of decision-making, more stress and strain are involved. The index of frustration is high, but the level of boredom is low. To an innovator, problems are exciting things.

In a capitalistic society the innovator tends to receive the highest rewards. Yet only one farmer in forty is an innovator. Only five in forty are willing to adopt new ideas early in the game. The majority of them wait until a new practice is completely proven before attempting to apply it to their business. By then, the economic advantage is two-thirds gone.

Today there is a tendency to innovate in agriculture; yet there also is considerable tendency to stand pat. Large numbers of farmers prefer to wait and watch, perhaps in part because they lack the managerial capabilities, but in part because they lack the enthusiasm, the drive, or the willingness to accept new ideas.

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<sup>1</sup>Robert C. Sutor, The Courage to Change, (Illinois: The Interstate Printers and Publishers, 1964), pp. 8-9.

He further stated that the ideas developed by agricultural research were diffused to farmers by various methods. The extension service, vocational agriculture program, and the soil conservation service were organized to aid farmers make use of new agricultural technology and apply it to their farming operations. Also farmers traditionally were influenced much by the farming methods of their neighbors so when part of the farmers of a community successfully use new technology, the rest of them would eventually use it, too. Dealers and salesmen in their efforts to sell their products, explained the merits of new technology. Farm newspapers and magazines and agricultural programs on radio and television had their goal of bringing the news of better farming methods to farmers. All of these sources of farm information had a part in causing farmers to accept and use improved farming methods, and in so doing made the nations farms more efficient and productive. Agricultural research benefitted the country only as it was used by the farmers who produced the food.

#### Statement of the problem

The purpose of this research was to discover what sources of information, if any, were considered most valuable to a selected group of farmers of the Downs community, and to what extent, if any, this information was related to the organization of their farming operations. The study also attempted to determine to what extent the size of farm, age and education of farmers, employment off the farm, type and topography of the farm, and arrangement of the farm was related to the sources

of information used by the farmers. Another purpose of this study was to compare information habits of those using atrazine, a herbicide that had been available only a few years at the time of this study, with those not using this product. Other information gathered in this study dealt with the farmer's prestige in the community as measured by such factors as membership on governing boards.

#### Limitations

This study was limited to people buying fertilizer for corn or grain sorghum from the merchants of Downs, Kansas in 1965, and who raised either corn or grain sorghum, and the sources of information used by them.

#### Definitions of terms

Certain terms were given special definitions for the purpose of this study. The definitions were not necessarily those in common usage.

Atrazine--Atrazine was a chemical product developed by the Giegy Chemical Company and released for sale in 1960, which was designed to prevent the growth of weeds and grasses in corn or grain sorghum.

Sources of information--By sources of information was meant any method available to farmers to learn of new farm technology.

New technology--New technology referred to recently developed scientific methods or products that could result in more efficient farming operations.

### Importance of the study

In undertaking this study it was felt that knowledge of how progressive or conservative a rural community would be an important asset to those who worked with farmers or provided goods and services to them and even to the farmers themselves. This study had for one of its purposes to show the amount of innovativeness that was present among the farmers of the Downs community and the attitude of their neighbors to this trait. It was anticipated that the findings of this study would apply to the acceptance of other new practices as well, and would serve as a tool to those predicting future changes in this and similar communities, and a guide to those involved in planning facilities that would be adequate for future needs of the community.

### REVIEW OF SELECTED LITERATURE

A survey was made of literature, which included master's and doctor's reports and dissertations, text books, and other published and unpublished materials. From this survey certain selected literature was chosen for review in this report.

Research conducted by agricultural experiment stations would have had no effect on the efficiency of production unless farmers applied those results to their farming operations. Beal<sup>1</sup> stated that "society benefits from research findings, however only to the degree

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<sup>1</sup>George M. Beal and Everett M. Rogers, The Adoption of Two Farm Practices in a Central Iowa Community, (Ames, Iowa: Iowa State University of Science and Technology, 1960) p. 3.

that they are diffused to and used by farmers."

In his study of the adoption process in an Iowa community, Beal<sup>1</sup> found that it had five stages: (1) Awareness, (2) Information, (3) Application, (4) Trial, and (5) Adoption.

In the awareness stage the individual first learned of the existence of the new idea or practice. He knew no details about it and he was not motivated to seek more information about it.

In the information stage, the individual was motivated "by his curiosity and interest, or by some outside influence to seek additional information about the new practice." He would attempt to get general information about the idea and relate it with his past experience and knowledge.

In the application stage the individual was concerned with applying the new practice to his own situation. The individual would compare the relative advantages of the new practice over the other alternatives. In this stage the decision to try or not to try an idea was made.

In the trial stage the individual actually tried the new practice. He would seek answers to such specific questions as how, when, where, and how much. The trial was usually performed on a small scale.

At the adoption stage the individual decided either to continue use of the new practice or to discontinue it. The thought process at the adoption stage consisted mainly of an evaluation of the trial.

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<sup>1</sup>Ibid., p. 4.

Beal<sup>1</sup> grouped the sources of information used by farmers as (1) Mass media, (2) Agricultural agencies, (3) Commercial sources, and (4) Informal sources. The sources they included were as follows:

Mass media included farm magazines, farm papers, newspapers, radio, and television.

Agricultural agencies included direct contact with the state university, extension service and county agent, state agriculture college, bulletins, farm bureau, high school vocational agriculture, adult evening or young farmer classes, 4-H clubs, veterans-on-the-farm training, soil conservation services, and Agricultural Stabilization and Conservation Service.

Commercial sources included feed dealers, door to door salesmen, commercial sprayers, printed directions on sacks and containers, implement dealers, commercial circulars and veterinarians.

Informal sources included relatives, friends, neighbors, former employees, landlords, and farm managers.

Katz<sup>2</sup> found that mass media was most efficient in the awareness stage but least efficient in the acceptance stage.

Beal<sup>3</sup> grouped the farmers into categories according to how long it took them to adopt a new farm practice. These categories were:

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<sup>1</sup>Ibid., p. 5.

<sup>2</sup>Elihu Katz, Martin L. Levin, and Herbert Hamilton, "Traditions of Research on the Diffusion of Innovation," American Sociological Review, April, 1963, p. 246.

<sup>3</sup>Beal, op. cit., p. 12.

(1) Innovators, (2) Early adopters, (3) Early majority, (4) Late majority, and (5) Laggards. The first 2.5 per cent of the farmers to use a new practice were innovators. They were characterized by higher education, larger farms, higher incomes, higher social status, and wider travel than the average farmer. Innovators not only became aware of new ideas at an earlier date, but also required a relatively shorter adoption period to pass from awareness to adoption.

The next 13.5 per cent to use a new practice were the early adopters. When compared to the average farmer, the early adopters were a little younger, had a slightly higher education, and participated more in formal organizations.

The early majority farmers adopted new ideas a little earlier than the average farmer. Thirty-four per cent of the farmers fell in this group. They had a little more education, farming experience and contact with agricultural agencies than the average farmer.

The next thirty-four per cent to adopt new ideas were the late majority. They had slightly less education and social status than the average farmer.<sup>1</sup>

The laggards were the last to adopt new ideas. They were the oldest farmers with the least education. They resisted new practices until everyone else was using them. The laggards were suspicious of change agents.

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<sup>1</sup>Everett M. Rogers, Social Change in Rural Society, (New York: Appleton-Century-Crofts, Inc., 1960), pp. 409-410.

Havens<sup>1</sup> in a study of the adoption process of bulk milk tanks by Ohio dairy farmers, found that the adoption process was hastened because the milk buying cooperatives set a deadline when no milk would be accepted unless the dairy enterprise had a bulk tank operation. In this case the dairy farmers had three alternatives: (1) they could adopt the bulk tank operations, (2) they could reject the bulk tank and sell lower grade milk, or (3) they could reject the bulk tank and go out of the dairy business. However, not all dairy men realized they had an alternative, but rather felt they were forced to adopt the bulk tanks. Havens stated that change agents should make all alternatives clear to farmers. In this adoption process, there were only four stages since there was no trial stage because of the cost of installing a bulk tank.<sup>2</sup>

Coughenour<sup>3</sup> in checking the reliability of adoption data found that a farmer could recall dates of drastic changes in his farming operation more accurately than less drastic changes. As an example, he could remember the year he installed a bulk tank, but not the year he changed varieties of oats.

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<sup>1</sup>A. Eugene Havens, "Increasing the Effectiveness of Predicting Innovativeness," Rural Sociology, (June, 1965), p. 152.

<sup>2</sup>Ibid., p. 164.

<sup>3</sup>C. Milton Coughenour, "The Problem of Reliability of Adoption Data in Survey Research," Rural Sociology, (June, 1958), p. 201.

He also found that a person with a low status would be prone to bias his answers in the direction of public conformity with group norms.

In conservative communities farmers would go to conservative farmers and not innovators for advice, was the finding of Marsh<sup>1</sup> in a study of adoption rates in areas of Virginia and Kentucky. In high adoption areas, farmers sought advice from innovators.

In a study made by Ryan<sup>2</sup> concerning the acceptance of hybrid corn seed in Iowa, it was found that there was a lag of five years between information and acceptance. Salesmen were listed by 49 per cent of the farmers as being their first source of knowledge of hybrid corn seed, and were listed by 32 per cent as having most influenced their decision to accept it.

Neighbors were credited by 14.6 per cent as being sources of first information of the existence of hybrid corn seed but 45.5 per cent listed them as having had the most influence on their decision to accept it.

Katz<sup>3</sup> found that the most probable adopter of a new farm practice was the farmer living in the vicinity of someone who had just adopted it.

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<sup>1</sup>C. Paul Marsh and A. Lee Coleman, "Farmers Practice Adoption Rates in Relation to Adoption Rates of Leaders," Rural Sociology, (June, 1954), pp. 180-181.

<sup>2</sup>Bryce Ryan and Neal Cross, Acceptance and Diffusion of Hybrid Corn Seed in Two Iowa Communities, (Ames, Iowa: Agriculture Experiment Station, Iowa State College of Agriculture and Mechanic Arts, January, 1950), pp. 678-682.

<sup>3</sup>Katz, op. cit., p. 243.

Menzel<sup>1</sup> reported that agricultural innovators were leaders and as such they conformed to the norms of the community.

Dodd<sup>2</sup> worked out formulas for predicting word of mouth diffusion of information.

Larsen<sup>3</sup> showed that mass media were far more effective than interpersonal word of mouth in diffusing news.

Kaufman<sup>4</sup> stated:

There is quite a variation in type of dissemination between the case where the researcher is asked a few direct focal questions by administrator and the case where the principle audience is a lay public which has made known its needs in somewhat vague and general terms.

According to Fliegel<sup>5</sup>, farmers regarded another farmer with a relatively high income as being a good farmer. Farmers with high incomes were more likely to be innovators because high incomes helped finance new farming practices.

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<sup>1</sup>Herbert Menzel, "Innovation, Integration, and Marginality: A Survey of Physicians," American Sociological Review, (October, 1960) pp. 706.

<sup>2</sup>Stuart Carter Dodd, "Diffusion is Predictable: Testing Probability Models for Laws of Interaction," American Sociological Review, (August, 1955), pp. 392-401.

<sup>3</sup>Otto N. Larsen and Richard J. Hill, "Mass Media and Interpersonal Communication in the Diffusion of a News Event." American Sociological Review, (August, 1954), pp. 426-433.

<sup>4</sup>Harold F. Kaufman, Frank D. Alexander, and Herbert A. Aurbach, "A Case Study in Research Interpretation," Rural Sociology, (June, 1957), p. 158.

<sup>5</sup>Frederick C. Fliegel, "Farm Income and the Adoption of Farm Practices," Rural Sociology, (June, 1957), p. 161.

Beal<sup>1</sup> found in a study of 105 farmers that all reported going through the awareness, information, application, trial, and adoption process. In the case of antibiotics in hog feed, there was a lag of one and a half years from awareness to adoption.

Lionberger<sup>2</sup> found that some farm operators were alert for new developments and sought out information. Others showed little interest in new technology. Educators in charge of adult programs were apt to concentrate their efforts on those willing to learn.

In this study 279 farm operators were divided into three groups: (1) Those who received information from the county agent during the year of the interview, irrespective of other sources. (2) Those who used some institutionized source of information other than the county agent during that period. (3) Those who used no institutionized source of farm information.

Young farmers were more receptive to change than older farmers. The older farmers, however, were more likely to have the money to make changes.

The group that used the services of the county agent had more schooling than the other group. There was a tendency for this group

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<sup>1</sup>George M. Beal, Everett M. Rogers, and Joe M. Bohlen, "Validity of the Concept of Stages in the Adoption Process," Rural Sociology, (June, 1957), p. 161.

<sup>2</sup>Herbert F. Lionberger, "Information Seeking Habits and Characteristics of Farm Operators," Columbia, Missouri: Agricultural Experiment Station, (1955), pp. 3-4.

to be concentrated in the better parts of the county.<sup>1</sup>

Those who used institutionalized information sources scored higher on social participation. They also used more improved farming practices than did the other groups. This group operated bigger farms and had higher incomes. The members of this group more often had positions of prestige in social groups. More of them owned their farms, and more of them subscribed to magazines.<sup>2</sup>

For information concerning a practice closely related to existing operations, such as a new crop variety, friends and neighbors were the most popular source. However, for commercial fertilizer application, more technical information was required and institutionalized sources of information were used.<sup>3</sup>

Copp<sup>4</sup> stated that a person's peers were not likely to be better informed than he was. A farmer that learned from his neighbors was using second and third hand information.

Wilkening<sup>5</sup> must have noticed this, too, for he said,

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<sup>1</sup>Ibid., pp. 7-9.

<sup>2</sup>Ibid., pp. 18-20.

<sup>3</sup>Ibid., p. 34.

<sup>4</sup>James H. Copp, Maurice L. Sill, and Emory J. Brown, "The Function of Information Sources in the Farm Practices Adoption Process," Rural Sociology, (June, 1958), p. 157.

<sup>5</sup>Eugene A. Wilkening, "Sources of Information for Improved Farm Practices," Rural Sociology, (March, 1950), p. 29.

The exchange of information about farm matters between other farmers has been replaced to a great extent, or at least supplemented by, the information obtained through farm papers and magazines and radio talks. This trend is most noticeable among those farmers of the upper half with respect to socio-economic status and among those who have access to sources of information outside their community.

According to Barnett<sup>1</sup> innovations must have a sponsor or advocate and some innovations were never accepted because they lacked someone to recommend them. He stated,

Most people. . . . know that innovators are seldom honored and are often ruined, financially and otherwise, through being identified with their ideas. They way of the innovator is hard, and some men know this in advance. They are willing to leave such hardships to others.

Wilkening<sup>2</sup> found that the farmers who felt education was important for farm boys had high or medium acceptance of improved farming practices.

The farmers who most readily accepted improved farming practices were sensitive to their neighbor's ridicule even though they had contacts outside the community. This explained why farmers with no ties outside the community and strong ties within the community had not adopted new practices until they had been accepted by the community.

From this survey of literature the summary items most evident to the author were that farmers went through the several stages of the adoption process when they adjusted their farming operations to use new technology. The time required for the completion of this adoption

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<sup>1</sup>Homer G. Barnett, Innovation: The Basis of Cultural Change, (New York: McGraw-Hill Book Company, 1953), p. 294.

<sup>2</sup>Wilkening, op. cit., pp. 359-363.

process varied with (1) the degree of innovativeness of the farmer, and also his financial backing; (2) the norms of the community, and (3) the nature of the new technology. A new practice that needed only limited expense and no drastic changes would be adopted in less time than a new practice that necessitated large expenditures and major adjustments in the usual farming operations.

#### SCOPE AND PROCEDURE

This study was designed as a normative study to determine which of the sources of available information was considered most valuable by farmers and also how these sources influenced the farming operations.

In order to gather material for this study, the farmers using atrazine and an equal number of similar farmers who were not using atrazine were interviewed, and their answers were analyzed in this report.

It was assumed by the author that not all farmers could answer accurately what sources of information most influenced their farming operations, but that they could tell which influenced some recent major decision. The year that this study was made, 1965, was the first year that atrazine was used by more than a few farmers of that area (sixteen of twenty farmers were using it for the first time that year). For that reason the farmers using atrazine were chosen for this study.

A survey was made of all the merchants of Downs who sold farm supplies, and it was discovered that two merchants had sold atrazine that year. The Farmers Union Elevator had sold atrazine to eight farmers

and Huiting and Cary Fertilizer Company had made twelve sales. A list was made of the twenty farmers and then a comparable list of farmers were selected from the farmers who had bought fertilizer for corn or grain sorghum from these two firms but did not use atrazine. An effort was made to match these two groups of farmers by asking the merchants who sold atrazine to the twenty farmers to select twenty similar farmers who were not atrazine users. It was considered that those who used atrazine had been convinced by some source of information that this product was at least worth the effort and expense required to apply it; while those not using atrazine had not as yet been influenced to change their usual farming practices enough to take advantage of this new technology.

In the event that a farmer used atrazine on part of his crop, he was considered still in the trial stage of the adoption process. These people were asked if they planned to use it again the next year. A positive answer would indicate acceptance and a negative answer would indicate that they considered the old methods of weed control superior.

The farmers not using atrazine were asked if they planned to use it the next year. A positive answer would indicate that they were ready for the trial stage and a negative answer would mean that the adoption process had not as yet reached the trial stage with them.

A schedule was made which included the farmer's age, education, amount of experience, size and type of farm, positions of leadership in the community, use or lack of use of atrazine and the sources of

information used. (See Appendix A).

The farmers were asked to classify their sources of information as to: (1) Most used, (2) Occasionally used, (3) Had no faith in this source, and (4) This source was responsible for my decision to use atrazine.

The forty farmers, the twenty using atrazine and the twenty not using it, were interviewed in August and early September of 1965. The farmers answered that all the sources of information were of some value and that there were none without value.

#### RESULTS OF THE INTERVIEW

None of the farmers interviewed could name a single source of information as being the most important. The twenty farmers using atrazine named twenty-six sources of information responsible for their decision to use it and sixty-five sources of information as being most important as shown in Table I. The twenty not using atrazine named sixty-one sources of information as being most important and six sources of information that influenced their decision to use it next year. This was felt to support the statement made by one farmer, "each source of information helps."

Newspaper articles, farm magazines, radio, and television programs, appealed to large audiences and were categorized as mass media in Table II. Farm magazines were considered the most important sources of information by thirteen farmers using atrazine and seventeen farmers not using atrazine. Some category of mass media was checked most important twenty-six times

TABLE I  
 SOURCES OF INFORMATION WHICH INFLUENCED  
 THE USE OF ATRAZINE

Source of information	Atrazine Users		Non-atrazine Users	
	Influenced decision	Most important source	Influenced decision	Most important source
Newspapers		6		3
Magazines	7	13	1	17
Radio		4		6
Television		3		2
Neighbors	3	8	6	1
Relatives		2	1	2
Traveling	1	2		2
County agent	2	11	1	6
Vocational agriculture			1	7
Extension specialist	3	6		2
Experiment station	2	5		1
Landlord	1			
Farm management				1
Livestock reports				1
Soil conservation service				1
Personal experience				1
Salesmen	7	5	1	3
Other commercial sources	2	2		
Total	26	65	6	61

TABLE II  
 CATEGORIES OF INFORMATION WHICH INFLUENCED THE USE  
 OF ATRAZINE

Category	Atrazine Users		Non-atrazine Users	
	Why used atrazine	Most used source	Most used source	Why will use atrazine next year
Mass media	7	26	28	1
Informal	5	12	11	2
Governmental agencies	7	22	19	2
Commercial sources	9	7	3	1

by the atrazine using farmers, and twenty-eight times by the farmers not using atrazine. This agreed with Beal's<sup>1</sup> findings that mass media was most important at the awareness stage of the adoption process.

Seven farmers credited farm magazines as being the source of information most responsible for their decision to use atrazine. One of the non-atrazine using farmers said that magazines had influenced his decision to use atrazine next year if conditions were such that atrazine would help his crop. This also agreed with Beal's<sup>2</sup> conclusions concerning mass media as an important source of information.

Neighbors, relatives, traveling out of the community, landlords, and personal experience were categorized as informal sources of information.

<sup>1</sup>Beal, *op. cit.*, p. 6.

<sup>2</sup>Beal, *op. cit.*, p. 6.

Neighbors were considered most important by both the atrazine using group and the non-atrazine using group in diffusing information. This category was mentioned five times as the source of information that most influenced the decision to use atrazine and twice as the source of information most important in the decision to use this product next year. This was similar to the results of Beal's<sup>1</sup> study concerning informal sources of information.

The extension service with the county agents and extension specialists, vocational agriculture instructors, agricultural experiment stations, the farm management associations, the livestock reporting service, and the soil conservation service were all in part supported by tax assessments and were categorized as governmental agencies. The group of farmers using atrazine reported the county agent eleven times, the extension specialists six times and direct contact with experiment stations five times as being their most important source of farm information. The group not using atrazine made use of a wider range of governmental agencies with the vocational agriculture instructor mentioned most often in diffusing information. The governmental agencies were mentioned seven times as the information source most responsible for their decision to use atrazine. The county agent and the vocational agriculture teacher were each credited once with being most responsible for a farmer's decision to use atrazine next year.

Seven farmers using atrazine mentioned commercial sources as the most important source of information yet nine of the farmers credited

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<sup>1</sup>  
Ibid.

commercial information as being most important in their decision to use atrazine. For the group not using atrazine, three mentioned commercial sources as being important and one said that he intended to use atrazine because of the influence of commercial sources of information. This supported Beal's<sup>1</sup> conclusions that commercial sources of information were far more important at the trial stage than at the other stages of the adoption process.

When those reporting a category as being a most important source of information were compared with those who credited that category as being responsible for their decision to use atrazine, it was discovered that mass media was 14.8 per cent effective, informal sources of information were 30.4 per cent effective, governmental agencies were 22 per cent effective, while commercial sources were 100 per cent effective as shown in Table III.

It was assumed that if a farmer used atrazine on only part of his crop and farmed the remainder in the usual way, he was in the trial stage of the adoption process; however, if he used atrazine on the entire crop, he had faith in its value and had actually adopted it into his farming operations. Of the twenty farmers using atrazine four used it on their entire crop. One farmer was using atrazine for the fifth consecutive year, one for the fourth, another for the third, and another for the second year. The other sixteen were using it for the first time that year as shown in Table IV.

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<sup>1</sup>Ibid.

TABLE III  
THE INFLUENCE OF INFORMATION SOURCES

Categories	Number considering this source most important	This source influenced decision to use atrazine	Per cent effectiveness
Mass media	54	8	14.8
Informal	23	7	30.4
Governmental agencies	41	9	22
Commercial sources	10	10	100

TABLE IV  
NUMBER OF YEARS ATRAZINE HAD BEEN USED  
BY DOWN'S FARMERS IN 1965

Number of years atrazine was used	Farmers using on entire crop	Farmers using on part of crop
1st year	3	13
2nd year		1
3rd year		1
4th year		1
5th year	1	

Other information gathered in this survey concerned the education acquired by the farmer. Of the farmers interviewed using atrazine 25 per cent had done some college study and 15 per cent had an eighth grade education. A greater range of educational level was noted in the non-atrazine using group, in which 20 per cent were college graduates and 35 per cent had an eighth grade education. Both groups had more education than the average for either the farmers of Osborne County with 9.2 per cent with less than an eighth grade education and only 3.4 per cent college graduates, or for the rural males above twenty-five years of age in Kansas according to the U. S. Census Report<sup>1</sup> which showed 14.5 per cent with less than an eighth grade education and 2.5 per cent with a college degree. (See Table V.)

Tables VI, VII, and VIII were prepared to determine if the age or education of the farmer was related to the category of information used. No definite trend was ascertained in the information habits of farmers of different ages or different educational levels.

When the farms operated by the atrazine using group were compared with those operated by the non-atrazine using group, it was found that the group using atrazine operated farms nearly twice as large as the farms of the group not using atrazine. There was an average of 1162 acres in the farms of the atrazine users and 596 acres in the farms of those not using atrazine, as shown in Table IX. The distance in miles

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<sup>1</sup>United States Bureau of the Census. Eighteenth Census of the United States: 1960 Population, Vol. II (Washington: Government Printing Office, 1962), pp. 18-174.

TABLE V  
A COMPARISON OF THE EDUCATION ACQUIRED BY THE FARMERS

	Atrazine group %	Non-atrazine group %	Both groups %	Osborne County farmers %	State of Kansas %
Less than eighth grade	0	0	0	9.2	14.5
Eighth grade graduate	15	35	25	26.5	48.6
High school graduate	60	40	50	39.5	28
Some college work	25	5	15	8.4	6.2
College graduate	0	20	10	3.4	2.7
Total	100	100	100	100	100

TABLE VI  
A COMPARISON OF CATEGORIES OF INFORMATION USED BY FARMERS  
OF DIFFERENT AGE GROUPS

Category of information	Less than 30	30-39	40-49	50-59	More than 60	Total
Mass media	6	13	18	11	6	54
Informal	3	7	8	3	2	23
Governmental agencies	1	14	15	6	5	41
Commercial	1	4	4	1		10

TABLE VII

A COMPARISON OF CATEGORIES OF INFORMATION USED BY FARMERS  
OF DIFFERENT EDUCATIONAL LEVELS

Category of information	Graduated eighth grade	Graduated high school	Had some college work	College graduate	Total
Mass media	12	25	7	10	54
Informal	6	12	3	2	23
Governmental agencies	9	23	6	3	41
Commercial	1	6	3		10

TABLE VIII

A COMPARISON OF EDUCATIONAL LEVELS OF THE FARMERS BY AGE GROUPS

	Less than 30	30-39	40-49	50-59	More than 60	Total
Eighth grade graduate		1	4	2	3	10
High school graduate	2	7	7	4	1	20
Some college work	1	2	1	1	1	6
College graduate	1	1	1	1		4

TABLE IX  
A COMPARISON OF FARMS OF THE ATRAZINE AND NON-ATRAZINE  
USING FARMERS

	Atrazine group	Non-atrazine group
Average number of acres in farm	1162.4	596.7
Range in acres per farm	430-2000	240-1500
Distance in miles between the two most remote fields in the farm	8.8 average 1 to 30 range	9.4 average 1 to 34 range
Type of farm		
General	65%	45%
Livestock	10%	40%
Cash Grain	25%	15%

between the two most remote fields showed the larger farms of the atrazine using group to be more compact than the other group of farms.

All the farmers interviewed raised crops including either corn or grain sorghum. If crops were the main source of income, the farm was classified as a cash grain farm. If the crops were fed to livestock so that the main source of income came from livestock, the farm was classified as a livestock farm. In the event that crops and livestock each contributed greatly to the farm income so that the farmer could not name his main source of income, the farm was classified as a general farm. Ten per cent of the atrazine using group farms were classified as livestock farms, while 40 per cent of the smaller non-atrazine using farmers classified their farms as livestock farms.

TABLE X  
A COMPARISON OF THE AGES OF FARMERS USING AND NOT  
USING ATRAZINE

Age of farmer	Atrazine group		Non-atrazine group		Osborne County
	No.	%	No.	%	%
Less than 30	2	10	2	10	12.3
30 to 39	6	30	4	20	15.1
40 to 49	8	40	5	25	19.7
50 to 59	2	10	6	30	18.2
60 and over	2	10	3	15	34.7

\* This column includes only the rural male residents of Osborne County from the ages of 20 years and more.

Six of the farmers that had not used atrazine had formerly been employed in some business other than farming, and two of the group using atrazine had been employed other than farming.

In 1960, the average size farm in Osborne County was 590 acres,<sup>1</sup> which was slightly less than the 596 acres average size farm reported by the non-atrazine using farmers, and far less than the 1162 acres reported by the atrazine using group. The author assumed that this fact could be explained by pointing out that only farmers using fertilizer on corn or grain sorghums were interviewed; that these farmers would be of the early majority group as a user of fertilizer and did farm the larger farms in this area.

<sup>1</sup> Gene Ross, Area Development Specialist, Cooperative Extension Service, Kansas State University, Manhattan, Kansas.

As an indication of a farmer's prestige and leadership in the community, each farmer was asked to list the number of governing boards of which he was a member at that time. The twenty men using atrazine were members of twenty-five governing boards while the twenty not using atrazine were members of seventeen governing boards.

The farmers were asked if there was one farmer in the community that they considered a model farmer and after which they patterned their farming operations. Six of the atrazine using farmers could name one farmer whom they thought could be considered a model farmer and three of the non-atrazine using farmers named one model. No one farmer was named twice as being a model. Farmers did learn from their neighbors but not from just one neighbor indicating that no one farmer would determine what farming practices were used by the entire community.

All the farmers interviewed were full time farmers. By this it was meant that none of them held part time jobs off the farm.

#### SUMMARY

The purpose of this study was to discover what sources of information were considered most valuable by a selected group of farmers of the Downs community, and to what extent this information was related to their farming operations. The study further attempted to determine if the size of farm, age and education of the farmer, employment off the farm, type and topography of the farm, and arrangement of the farm was related to the sources of information used. This study also compared the information seeking habits of farmers using the herbicide, atrazine,

with those not using this product. Other information gathered concerned a farmer's prestige in the community as indicated by membership on governing boards.

A review of literature dealing with the acceptance of farm technology was made. It was found that farmers have typically gone through five stages from the time they learn of the existence of a new practice until they adopt it as part of their farming operation. These stages were awareness, information, application, trial, and adoption.

There was a variation among farmers in the time required for them to adopt a new farm practice. The first farmers to adopt new technology were known as innovators. The other groups of farmers in the order in which they adopted new methods were early adopters, early majority, late majority, and the last group to adopt were the laggards.

This study was made in an area where because of limited rainfall, commercial fertilizer had been used a relatively few years. The farmers studied in the two groups were limited to users of fertilizers. This was assumed to mean that both groups of farmers interviewed in the study were made up of innovators, early adopters, and early majority farmers. It was further assumed that they were all eager for information from any source and were willing to change their farming operation to make use of new technology if they thought it was worth the effort and expense that would be required. It was felt by the author that the farmers welcomed information and that they respected and admired the farmers willing to try new technology, however they also sought information

on new products from experiment stations. They were appreciative of any group helping them keep informed.

The sources of information used by farmers were categorized as (1) mass media, which included newspapers, magazines, radio, and television, (2) informal which included neighbors, relatives and others, (3) governmental agencies, including all tax supported institutions such as the county agent, and (4) commercial which included salesmen and dealers.

The greatest difference discovered between the group that used atrazine and the group that did not was in the size of farm. The farmers with the larger farms had the most income and could afford to try new products such as atrazine especially on a small scale, as most of them did. Also the farmers with the larger farms were more eager to find a method to lighten work load on their farms.

In the year that this study was made, sixteen farmers in the community were using atrazine for the first time. Selected characteristics of these sixteen plus four other farmers who had used atrazine before were compared with twenty similar farmers not using atrazine. The most important difference between the two groups was that the farmers using atrazine managed larger farms than the farmers not using atrazine. They also had greater prestige in the community as measured by the fact that more of them were members of governing boards.

The group using atrazine assumed more responsibility in the community as indicated by being members of more governing boards. This

would also indicate that innovators were respected in the community studied.

The group not using atrazine had more formal education yet lived on smaller farms and had less prestige in the community as measured by membership on governing boards. They also entered farming at a later date and they had less experience at farming.

It was found that all sources of information were used and appreciated by the selected farmers, and it was felt that each source had contributed to the success of the farmers in making use of the new technology.

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**APPENDIX**

## A STUDY OF THE SOURCES OF INFORMATION USED BY FARMERS

1. Age of the farmer
- |              |       |
|--------------|-------|
| Less than 30 | _____ |
| 30 to 39     | _____ |
| 40 to 49     | _____ |
| 50 to 59     | _____ |
| 60 or more   | _____ |
2. Education of farmer
- |                        |       |
|------------------------|-------|
| Less than eighth grade | _____ |
| Graduated eighth grade | _____ |
| Graduated high school  | _____ |
| Some college work done | _____ |
| College graduate       | _____ |
3. Have you had full time employment other than farming? Yes \_\_\_ NO \_\_\_
- a. How long? \_\_\_\_\_ What kind of work? \_\_\_\_\_
- b. Why did you decide to farm? \_\_\_\_\_
4. Do you work off the farm during a year's time? Yes \_\_\_ No \_\_\_
- a. Doing what? \_\_\_\_\_
- b. What per cent of your income comes from off-farm sources? \_\_\_\_\_ %
5. How big is your farm? \_\_\_\_\_ acres
6. What is the distance between the two most remote fields? \_\_\_\_\_
7. What is your principal source of farm income
- |              |       |
|--------------|-------|
| Cash grain   | _____ |
| Cattle       | _____ |
| Hogs         | _____ |
| Other (list) | _____ |
8. Topography of farm. Irrigated bottomland level upland Non-irrigated bottomland rolling upland
9. Are you a member of a governing board?
- |                 |       |                   |       |                |       |
|-----------------|-------|-------------------|-------|----------------|-------|
| Church office   | _____ | Township office   | _____ | School board   | _____ |
| Civic club      | _____ | Other             | _____ |                |       |
| Extension board | _____ | Soil conservation | _____ | Co-op director | _____ |

10. Can you name a farmer you look to for advice? His name \_\_\_\_\_
11. How many years have you used atrazine or propazine? \_\_\_\_\_
12. Did you use it on the entire crop? Yes \_\_\_\_\_ No \_\_\_\_\_  
How many acres \_\_\_\_\_
13. Do you plan to use atrazine next year? Yes \_\_\_\_\_ No \_\_\_\_\_



A STUDY OF THE DECISION MAKING PROCESS OF  
THE FARMERS OF DOWNS, KANSAS

by

ALLEN WATTS

B. S., Kansas State University, 1951

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AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

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College of Education

KANSAS STATE UNIVERSITY  
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1966

The purpose of this study was to discover what sources of information were considered most valuable by a selected group of farmers of the Downs community, and to what extent this information was related to their farming operations. The study further attempted to determine if the size of farm, age and education of the farmer, employment off the farm, type and topography of the farm, and arrangement of the farm was related to the sources of information used concerning the adoption of new farming. This study also compared the information seeking habits of farmers using the herbicide, atrazine, with those not using this product. Other information gathered concerned a farmer's prestige in the community as indicated by membership on governing boards.

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It was found that all sources of information were used and appreciated by the selected farmers, and it was felt that each source had contributed to the success of the farmers in making use of the new technology.