8-1977

Relationships between selected characteristics of soybean producers and their management practices and participation in the extension program in Fayette County, Tennessee

Jamieson H. Jenkins

To the Graduate Council:

I am submitting herewith a thesis written by Jamieson H. Jenkins entitled "Relationships between selected characteristics of soybean producers and their management practices and participation in the extension program in Fayette County, Tennessee." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Extension.

Cecil E. Carter, Jr., Major Professor

We have read this thesis and recommend its acceptance:

Robert S. Dotson, Wayne Flinchum

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

To the Graduate Council:

I am submitting herewith a thesis written by Jamieson H. Jenkins entitled "Relationships between Selected Characteristics of Soybean Producers and Their Management Practices and Participation in the Extension Program in Fayette County, Tennessee." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Extension.

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We have read this thesis and recommend its acceptance:

Accepted for the Council:

Vice Chancellor
Graduate Studies and Research

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RELATIONSHIPS BETWEEN SELECTED CHARACTERISTICS OF SOYBEAN PRODUCERS AND THEIR MANAGEMENT PRACTICES AND PARTICIPATION IN THE EXTENSION PROGRAM IN FAYETTE COUNTY, TENNESSEE

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Jamieson H. Jenkins

August 1977

ACKNOWLEDGMENTS

The author acknowledges the assistance given by his graduate committee: Dr. Cecil Carter, Jr., Dr. Robert S. Dotson, and Dr. Wayne Flinchum for their constructive criticisms and helpful suggestions in reviewing this thesis.

Gratitude is expressed to Dr. Webster Pendergrass, Vice President for Agriculture, Institute of Agriculture, the University of Tennessee; Dr. William D. Bishop, Dean Emeritus and Dr. Lloyd Downen, Dean, Agricultural Extension Service, the University of Tennessee; Mr. Haywood Luck, District Supervisor; Dr. Gene Turner, Associate District Supervisor; Mr. Everett E. Carrell, deceased, Extension Leader, Fayette County; and the Fayette County Agricultural Extension Service Committee for encouragement and the granting of study leave.

The author is grateful to the Fayette County Extension staff for their assistance and patience in gathering data for this work.

Appreciation is expressed to my wife, Jean, and children, Elisha and Eric, for their love and understanding during this study.

ABSTRACT

The major purpose of this study was to determine the relationship between characteristics of soybean producers and their farming operation and their use of recommended management practices and their participation in the Extension Program. Fifty producers were randomly selected from the Fayette County Extension Service's mailing list of all known soybean producers in the county. The "nth" number method of sampling was used to select the producers to be interviewed. An interview schedule was developed and the 50 producers were visited and personally interviewed by the researcher who was also the Assistant Extension Agent. All interviews were made from the period immediately following harvest in 1975 to April 1976.

The data were coded and punched on computer cards and computations were made by the University of Tennessee Computer Center. The analysis of variance F test statistic was used to determine the association between each dependent variable and each of the qualitative independent variables. F values which achieved the .05 level of probability were accepted as being statistically significant. The Pearson Correlation Coefficient was used to determine the relationships between each dependent variable and each of the quantitative independent variables.

Findings indicated that neither the producer's major occupation nor his major source of income had significant influence upon the number of Extension contacts which he made. The number of contacts which the soybean producers had with Extension did not significantly influence the

use of the nine recommended soybean production practices (i.e., prepared initial seedbed in fall or early spring, fertilized and limed according to soil test, planted soybeans between April 15 and June 15, planted a variety(s) recommended for 1975, used the recommended seeding rate, used inoculant on seeds on land where soybeans have not been grown in 3-5 years, treated seed with molybdenum when grown on soils with a pH of 6.5 or below or first year limestone was applied, used herbicides according to recommendations, harvested beans when the moisture was between 12 percent and 13.5 percent). Also, the number of contacts which the soybean producers made with Extension did not significantly influence their use of other soybean production and marketing practices. However, it was found that producers who frequently contacted the Extension Agents also contacted other available sources of information. There were definite correlations between size and Extension participation and age of producer and Extension participation. Those producers who farmed larger acreages made a significantly greater number of Extension contacts than the smaller producers. Also, as the producer's age increased, the number of contacts he made with Extension decreased significantly.

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THE PROBLEM AND ITS SETTING

I. INTRODUCTION

Cooperative Extension work in agriculture and home economics assist people engaged in farming and homemaking to utilize more fully their own resources, and those available to them in solving current problems and in meeting changing economic and social conditions. Through the educational and 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 (9:1).[1] The role of the Extension Agent is two-fold in that he not only disseminates useful and practical information relating to agriculture, but also helps rural people make practical application of such knowledge to farm situations.

The teaching methods employed by the Extension Agent directly influence the effectiveness of his efforts. An understanding of the capabilities and limitations of available teaching methods is essential to their intelligent selection and efficient use (9:3).

This study is concerned with the various contacts (i.e., Extension meetings, office and telephone calls and farm visits) which 50 randomly

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[1]Numbers in parentheses refer to numbered references in the Bibliography; those after the colon are page numbers.

selected soybean producers in Fayette County had during a 12-month period with Extension. It is believed that an analysis of these contacts will help identify Extension program areas where improvements should be made. Also, teaching methods may be noted needing more attention if the Extension program is to become more effective.

II. NEED FOR THE STUDY

Previous to this study no study had been made of the characteristics of soybean producers in Fayette County, their use of recommended production practices, or the relationship between the number of contacts producers had with Extension and their use of recommended practices. Extension Agents in Fayette County are concerned with serving their clientele as effectively and efficiently as possible. It was believed that information from this study would help to improve the effectiveness of the Extension program in Fayette County.

This study is not only concerned with the characteristics of soybean producers now, but should serve as a basis for determining the need for and direction of change in the Fayette County Extension Program.

III. STATEMENT OF THE PROBLEM

According to the 1974 agricultural census, there were 1,073 farms in Fayette County. These farms have an average size of 329 acres and totaled 353,437 acres. The value of agricultural products sold was almost 29 million dollars.

The production of soybeans has quickly become the major enterprise and accounts for 82,100 acres which more than doubles the acreage of

cotton, which was "King" for so many years. At least 365 farms reported having soybean acreage. During recent years the average yield of soybeans had continued to climb, but had not yet reached its potential.

The Extension Service has traditionally had a definite effect upon soybean producers by providing the most up-to-date research available. Thus, it was the purpose of this study to provide information which might aid in determining how Extension can be of better service to such producers to improve their productivity and standard of living.

IV. PURPOSE OF THE STUDY

The purpose of this study, then, was to determine the influence of selected characteristics soybean producers and their farming operations and management practices upon their participation in the Extension Program.

The specific objects of this study were:

1. To characterize soybean producers in Fayette County as to their personal characteristics, characteristics of their farm and its management, the extent to which they were using recommended soybean production and management practices and their participation in the Extension Program.
2. To determine the influence of selected characteristics of soybean producers and their farm operation upon the number of contacts they had made with the Agricultural Extension Service.
3. To determine the influence of Extension contacts upon the production and marketing practices used by the soybean producers.

4. To determine the relationship between soybean producers' use of selected sources of information and the number of contacts they had with Extension Agents.

V. LIMITATIONS OF THE STUDY

Data for the study were limited to soybean producers in Fayette County, Tennessee who grew soybeans in the year 1975. The study was limited to five dependent variables and four main groups of independent variables. The five dependent variables were the number of Extension meetings attended, the number of visits to the Extension soybean meetings attended, the number of visits to the Extension Office, the number of telephone calls to the Extension Office and the number of farm visits received from Extension Agents during a 12-month period. The four main groups of independent variables were the characteristics of soybean producers and their farm operation, use made of the recommended soybean production practices, the production and marketing practices used by soybean producers and the producers' use of the major sources of soybean production and marketing information.

VI. RELATED STUDIES

Available literature concerning the influence of personal, farm and production and marketing characteristics upon Extension teaching (i.e., Extension meetings attended, soybean meetings attended, visits to Extension Office, telephone calls to Extension Office and farm visits by Extension Agents) was very limited. Only those studies which were judged to be related are included in this report.

For the purpose of this study, the findings of the literature reviewed are reported under three headings, based on the influence of selected personal, farm and production and marketing characteristics upon: (1) frequency of Extension meetings attended, (2) frequency of contacts with the Extension Office, and (3) frequency of farm visits by Extension Agents.

Influence of Selected Personal, Farm and Production and Marketing Characteristics on the Frequency of Extension Meetings Attended

Meredith and Gallup found in their nationwide study of pertinent research relating to education containing findings over a 30-year period that approximately 14.6 percent of the practices adopted by producers was due to meetings that they attended. In this study they listed the advantages and limitations of having meetings as a means of getting practices adopted.

Advantages

1. Reaches a larger number of people
2. Adapted to practically all lines of subject matter
3. Recognizes basic urge of individuals for social contacts
4. Group psychology stimulates conviction to act
5. Has great news possibilities
6. Effective in influencing adoption of many practices at a relatively low cost.

Limitations

1. Wide diversity in character and interest of audience may create a difficult teaching situation
2. Available meeting place often inadequate
3. May require an undue amount of night work
4. The holding of a meeting may become the "real" objective, rather than the purpose of the meeting. (9:55)

In his study on the influence of selected factors on numbers of office visits and telephone calls made to the Wilson County Extension

Office, Arnett (1) found that those producers who attended meetings sponsored by the Extension Service also made more visits to the Extension Office. Also, in a study by Hall (4) it was found that 71 percent of the soybean producers in Marion County used farm meetings as a source of obtaining soybean production information.

In a subcommittee report of the Agricultural Extension Service (5:3) it was shown that awareness is the first stage in which a practice is accepted by farm people. Since Extension meetings reach a large number of people, their importance should be emphasized.

Influence of Selected Personal, Farm and Production and Marketing Characteristics on the Frequency of Contacts with the Extension Office

According to Meredith and Gallup, the average County Extension worker handles between 900 and 1,000 calls a year. Their data also showed that approximately 6 percent of all the practices that were changed as a result of Extension teaching were accredited to office calls. However, the advantages and limitations of office calls are as follows:

Advantages

1. Callers likely to be highly receptive to learning
2. Economical use of agent's time
3. Good barometer of total Extension accomplishments in the county.

Limitations

1. Office contacts removed from actuality of farm or home situation may not reflect the real problem or accurately reveal pertinent conditions
2. Office callers are likely to be limited to those participating in other Extension activities. (9:37-38)

This study further showed that farmers do not associate the adoption of many practices with information obtained by telephone from the

Extension Office. Telephone calls have not been shown to influence as many as 1 percent of the practices adopted. Therefore, it is suggested in this study that the Extension use of the telephone is not to supply subject matter but rather to facilitate the use of other teaching methods. However, since there is such a large number of telephone calls made to the Extension Office and since public relations are involved, their importance should be emphasized (9:39).

Arnett (1) found that those producers who frequently or occasionally attended Extension meetings made more visits to the Extension Office than did those who did not attend Extension meetings. He also found that the larger farmers (over 125 acres) made more office visits to the Extension Office than did the smaller farmers (under 125 acres). However, Arnett found few significant relationships between personal or family characteristics and the frequency of telephone calls.

Influence of Selected Personal, Farm and Production and Marketing Characteristics on Frequency of Farm Visits by Extension Agents

Meredith and Gallup found that when measured in terms of influencing farmers to change practices, personal visits from Extension Agents accounted for about 13 percent of the practices changed as a result of all Extension teaching (9:34). However, the advantages and limitations of farm visits as a means of Extension contacts are as follows:

Advantages

1. Provides agent with first-hand knowledge of farm conditions and the point of view of farm people
2. If made on request, the farmers are likely to be ready to learn
3. Builds confidence in agents

4. Contributes to selection of better local leaders, demonstrators and cooperators
5. Develops good public relations
6. Useful in contacting those who do not participate in Extension activities.

Limitations

1. Requires a relatively large amount of time
2. Number of contacts is limited
3. Time of visits is not always opportune for farmers
4. Dangers of concentrating visits on the most progressive farmers and neglecting those where personal visits are most needed. (9:35-36)

Hall (4) found that 68 percent of the soybean producers in Marion County had sought the advice of Extension Agents. In a similar study of dairymen in Lincoln County, Glasgow (3) found that 55 percent of the high producing dairymen and 20 percent of the low producing dairymen sought Extension Agents for advice.

These studies indicate that a rather high percentage of agricultural producers contact Extension Agents for advice. In view of this and because no other study was located concerning the effects which Extension teaching has upon soybean producers, the present study was undertaken.

VII. METHOD OF ANALYSIS

Fifty producers were randomly selected from the Fayette County Extension Service's mailing list of all known producers of soybeans in Fayette County. The "nth" number method of sampling was used to select the producers to be interviewed.

An interview survey schedule was developed with the assistance of the staff of the Agricultural Extension Education Department of the

University of Tennessee, Knoxville, and the Extension Soybean Specialist, Plant and Soil Science Section, Jackson.

All 50 soybean producers were visited and personally interviewed by the researcher, who also was the Assistant Extension Agent, concerning their 1975 soybean crop. All interviews were made from the period immediately following harvesting in 1975 until April 1976.

The data were coded and punched on computer cards. Computations were made by the University of Tennessee Computer Center. The analysis of variance F test statistic was used to determine the association between each dependent variable and each of the independent variables. F values which achieved the .05 level of probability were accepted as being statistically significant. Numbers, percentages, means, highs, lows, and ranges were computed and inserted where it was deemed appropriate.

The Pearson Correlation Coefficient was used to determine the relationship between each dependent variable and each of the quantitative independent variables.

CHAPTER II

SURVEY FINDINGS

The findings of the study are presented in nine tables with each table constituting a section. Each table presents findings regarding several variables selected from the survey instrument. Each variable is discussed under a separate heading.

Section I presents findings regarding nine characteristics of the soybean producers or characteristics of their farming operations.

Section II presents findings regarding the number and percentage of soybean producers using each of the nine recommended soybean production practices set forth in the survey.

Section III presents findings regarding 22 other marketing practices used by Fayette County soybean producers.

Section IV presents findings regarding the use of 20 major sources of soybean production and marketing information by the producers.

Sections V through VIII present findings regarding relationships between four types of participation variables (i.e., Extension meetings attended, Extension soybean meetings attended, visits to Extension Office, and farm visits by Extension Agents) and each of the variables included in the first four basic tables.

Section IX presents findings regarding the correlations between Extension participation and selected quantitative variables.

I. CHARACTERISTICS OF SOYBEAN PRODUCERS AND THEIR FARM OPERATIONS

Findings regarding nine variables selected to characterize the soybean producers and their farm operations are presented in Table I. The first three variables pertain to the characteristics of the soybean producer, while the last six show the scope of his farming operation. In all cases the number equals 50. The mean, low, high, and range are given where appropriate.

Major Occupation

Table I shows that 86 percent of the 50 producers interviewed were full-time farmers. Of the remaining 14 percent who were not full-time farmers, 12 percent gave their major occupation as a part-time farmer while 2 percent listed business as their major occupation.

Age of Producers

The mean age of the soybean producers was 46.5 years with a low of 23 and a high of 78. Thirty-eight percent were in the 40-49 group and 20 percent were in the 50-59 group. It is interesting to note that 16 percent were 60 years or older. It should also be noted that 12 percent of the producers were young farmers under 30 years of age.

Education of Soybean Producers

Forty percent of the soybean producers surveyed had completed some college training. Four percent had completed their Master's degree and 16 percent had completed college, while another 20 percent were college undergraduates. Another 38 percent checked the high school group,

TABLE I

CHARACTERISTICS OF SOYBEAN PRODUCERS AND THEIR FARM OPERATIONS

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Major Occupation		
Full-time farmer	43	86.0
Part-time farmer	6	12.0
Business	1	2.0
Age of Soybean Producer		
Under 30	6	12.0
30—39	7	14.0
40—49	19	38.0
50—59	10	20.0
60 and over	8	16.0
Mean = 46.5 Low = 23 High = 78 Range = 55		
Education of Soybean Producer		
Grade school (1-6)	3	6.0
Junior high school (7-9)	8	16.0
High school (10-12)	19	38.0
College undergraduate	10	20.0
College graduate	8	16.0
Master's degree	2	4.0
Major Source of Farm Income		
Soybeans	32	64.0
Cotton	10	20.0
Swine	2	4.0
Dairy	2	4.0
Eggs	1	2.0
Business	3	6.0
Total Acres Farmed		
Under 500	14	28.0
500—999	10	20.0
1,000—1,999	13	26.0
2,000—2,999	8	16.0
3,000 and over	5	10.0
Mean = 1,392.48 Low = 70 High = 5,000		

TABLE I (continued)

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Total Acres of Cropland Farmed		
Under 200	7	14.0
200—499	14	28.0
500—999	9	18.0
1,000—1,999	18	36.0
2,000 and over	2	4.0
Mean = 811.86 Low = 10 High = 2,300		
Acres of Soybeans Planted in 1975		
Under 200	15	30.0
200—499	17	34.0
500—999	9	18.0
1,000 and over	9	18.0
Mean = 496.78 Low = 10 High = 1,900		
Acres of Soybeans Planted in Bottoms in 1975		
Under 200	33	66.0
200—499	14	28.0
500—999	3	6.0
1,000 and over	0	0.0
Mean = 149.94 Low = 0 High = 600		
Acres of Soybeans Planted on Hill Land		
Under 200	22	44.0
200—499	15	30.0
500—999	11	22.0
1,000 and over	2	4.0
Mean = 332.26 Low = 0 High = 1,250		

making a total of 78 percent who had completed the tenth grade or above. Eight, or 16 percent, of all producers had completed junior high school and 6 percent had completed only grade school.

Major Source of Farm Income

Of the 50 soybean producers interviewed, 64 percent stated that income from soybeans was their major source of farm income. Ten farmers, or 20 percent of the producers, said that cotton was their major source of farm income. This is not surprising since cotton is the second largest acreage of row crops planted in Fayette County. Four percent of the soybean producers stated that swine was their major source of farm income while another 4 percent stated that dairy was their major source of farm income. Two percent of the producers stated that eggs were their major source of income and 6 percent said that business was their major source of income.

Total Acres Farmed

The number of acres farmed by soybean producers ranged from a low of 70 acres to a high of 5,000 acres. The mean acreage farmed was 1,392 acres. Fourteen producers, or 28 percent, farmed under 500 acres. Another 20 farmed less than 1,000 acres, making a total of 48 percent farming less than 1,000 acres. There were 26 percent farming between 1,000 and 1,999 acres and 16 percent more farming between 2,000 and 2,999 acres. It is interesting to note that 10 percent of the soybean producers were farming 3,000 acres or more.

Total Acres of Cropland Farmed

Forty percent of the soybean producers stated that they farmed 1,000 or more acres of cropland while 60 percent farmed less than 1,000 acres of cropland. Of the 50 producers interviewed, the low was 10 acres of cropland farmed to a high of 2,300 acres. The mean acres of cropland farmed was 812 acres. Forty-two percent farmed less than 200 acres. Only 2 percent stated that they farmed 2,000 or more acres of cropland.

Acres of Soybeans Planted in 1975

The number of acres of soybeans planted ranged from a low of 10 acres to a high of 1,900. The mean acres of soybeans planted by all producers interviewed was 496.78 acres. The producers were divided into the following four groups according to the acres of soybeans planted: 30 percent of the producers planted less than 200 acres, 34 percent planted 200-499 acres, 18 percent planted 500-999 acres, and 18 percent planted over 1,000 acres.

Acres of Soybeans Planted in Bottoms in 1975

Acres of soybeans planted in the bottoms ranged from zero to a high of 600 acres with a mean of 149.94 acres. The data indicated that only about 30 percent of the beans planted were planted on bottom land. Sixty-six percent of the producers fell into the under 200 acres group of soybeans planted in bottoms, 28 percent in the 200-499 acre group, 6 percent in the 500-999 acre group, and none in the over 1,000 acre group.

Acres of Soybeans Planted on Hill Land

Soybeans planted on hill land ranged from zero to 1,250 acres with a mean of 332.26 acres per producer. This indicates that about 70 percent of the soybean acres were planted on hill land. Forty-four percent of the producers were in the under 200 acre group, 30 percent in the 200-499 acre group, 22 percent in the 500-999 acre group, and only 4 percent in the 1,000 acre and over group.

II. USE OF RECOMMENDED SOYBEAN PRODUCTION PRACTICES

Findings regarding the use of nine recommended soybean production practices are presented in Table II. Producers were classified into six categories according to their use of or knowledge about each of the nine practices. These categories are (1) unaware of practice, (2) aware, but does not plan to try it, (3) aware and plans to try it, (4) has tried but not using in 1975, (5) used on part of crop in 1975, and (6) used on all of crop in 1975.

Prepared Initial Seedbed in Fall or Early Spring

Ninety-two percent of the producers prepared either part or all of their initial soybean seedbed in the fall or early spring. Sixty-four percent used this recommended practice on all of their 1975 soybean land while 28 percent more used it on part of the soybean land. Four percent of those interviewed were unaware of the practice. Two percent were aware of the practice but did not plan to try it, while another 2 percent were aware of the practice and were planning to try it. All

TABLE II

USE OF RECOMMENDED SOYBEAN PRODUCTION PRACTICES

Recommended Production Practice	Number of Producers (N = 50)	Percent of Producers
Prepared Initial Seedbed in Fall or Early Spring		
Unaware of practice	2	4.0
Aware, but does not plan to try it	1	2.0
Aware and plans to try it	1	2.0
Has tried but not using in 1975	0	0.0
Used on part of crop in 1975	14	28.0
Used on all of crop in 1975	32	64.0
Fertilized and Limed According to Soil Test		
Unaware of practice	1	2.0
Aware, but does not plan to try it	5	10.0
Aware and plans to try it	6	12.0
Has tried but not using in 1975	8	16.0
Used on part of crop in 1975	10	20.0
Used on all of crop in 1975	20	40.0
Planted Soybeans between April 15 and June 15		
Unaware of practice	0	0.0
Aware, but does not plan to try it	0	0.0
Aware and plans to try it	1	2.0
Has tried but not using in 1975	0	0.0
Used on part of crop in 1975	14	28.0
Used on all of crop in 1975	35	70.0
Planted a Variety(s) Recommended for 1975		
Unaware of practice	0	0.0
Aware, but does not plan to try it	0	0.0
Aware and plans to try it	2	4.0
Has tried but not using in 1975	0	0.0
Used on part of crop in 1975	2	4.0
Used on all of crop in 1975	46	92.0

TABLE II (continued)

Recommended Production Practice	Number of Producers (N = 50)	Percent of Producers
Used the Recommended Seeding Rate		
Unaware of practice	2	4.0
Aware, but does not plan to try it	0	0.0
Aware and plans to try it	1	2.0
Has tried but not using in 1975	0	0.0
Used on part of crop in 1975	3	6.0
Used on all of crop in 1975	44	88.0
Used Inoculant on Seeds on Land Where Soybeans Have Not Been Grown in 3-5 Years		
Unaware of practice	0	0.0
Aware, but does not plan to try it	1	2.0
Aware and plans to try it	0	0.0
Has tried but not using in 1975	0	0.0
Used on part of crop in 1975	2	4.0
Used on all of crop in 1975	47	94.0
Treated Seeds with Molybdenum When Grown on Soils with a pH of 6.5 or Below or First Year Limestone was Applied		
Unaware of practice	2	4.0
Aware, but does not plan to try it	0	0.0
Aware and plans to try it	1	2.0
Has tried but not using in 1975	0	0.0
Used on part of crop in 1975	3	6.0
Used on all of crop in 1975	44	88.0
Used Herbicides According to Recommendations		
Unaware of practice	0	0.0
Aware, but does not plan to try it	3	6.0
Aware and plans to try it	3	6.0
Has tried but not using in 1975	0	0.0
Used on part of crop in 1975	34	68.0
Used on all of crop in 1975	10	20.0

TABLE II (continued)

Recommended Production Practice	Number of Producers (N = 50)	Percent of Producers
Harvested Beans When Moisture was between 12 Percent and 13.5 Percent		
Unaware of practice	2	4.0
Aware, but does not plan to try it	1	2.0
Aware and plans to try it	1	2.0
Has tried but not using in 1975	1	2.0
Used on part of crop in 1975	33	66.0
Used on all of crop in 1975	12	24.0

of the producers surveyed that had tried it in the past were using it in 1975.

Fertilized and Limed According to Soil Test

Sixty percent of the soybean producers fertilized and limed either all or part of their soybean land according to a soil test report. Two percent were unaware of the practice. Ten percent were aware of the practice but did not plan to try it, and 12 percent were aware and planning to try it. Sixteen percent had fertilized and limed according to a soil test in the past but were not using the production practice in 1975.

Planted Soybeans between April 15 and June 15

Seventy percent of the producers planted their soybeans between April 15 and June 15. Another 28 percent planted part but not all of their soybeans within this recommended planting date. Two percent were aware of the recommended date and although they did not plant within this time in 1975, they indicated that they plan to try it. None of the producers interviewed were unaware of the practice and none were aware of the practice who did not plan to try it. It should be noted that all of the producers that had previously used this practice also used it in 1975.

Planted a Variety(s) Recommended for 1975

Ninety-two percent of the soybean producers planted a recommended variety(s) and 4 percent planted a recommended variety(s) on part but not all of their acreage. Four percent more were aware of the

recommended variety(s) and were planning to try them. None of those interviewed were unaware of the recommended variety(s) nor were there any who were aware of the recommended variety(s) who did not plan to try them. It should also be noted that there were none who had tried a recommended variety(s) who were not using one in 1975.

Used the Recommended Seeding Rate

Eighty-eight percent of the soybean producers used the recommended seeding rate and 6 percent used the recommended rate on part but not all of their crop. Four percent were unaware that the recommended seeding rate was 45-60 pounds per acre. There were 2 percent who were aware of the rate and although they were not presently using it they were planning to. There were no producers that were aware of the recommended rate that did not plan to try it nor were there any producers who had tried it who were not using it in 1975.

Used Inoculant on Seeds on Land Where Soybeans Have Not Been Grown in 3-5 Years

Ninety-four Percent of the soybean producers used inoculant on all of their crop while another 4 percent used it on at least part of their crop. Only 2 percent were aware of the practice but did not plan to try it. None of the producers were unaware of the practice nor were there any that had tried it that were not using the practice in 1975.

Treated Seeds with Molybdenum When Grown on Soils with a pH of 6.5 or Below or First Year Limestone was Applied

Ninety-four percent of the producers treated their seed with molybdenum when grown on soils with a pH of 6.5 or below or the first

year limestone was applied on either all or part of the crop in 1975. Eighty-eight percent indicated that they used this practice on all of their crop, while another 6 percent indicated that they used it on part of their 1975 crop. Four percent indicated that they were unaware of this recommended practice but 2 percent indicated that they were aware of the practice and planned to try it. None of the producers indicated that they had tried it and were not using it in 1975 nor did any indicate that they were aware of the practice but did not plan to try it.

Used Herbicides According to Recommendations

It should be noted that only 20 percent of the Fayette County producers were using herbicides according to the recommendations. It should also be noted that another 6 percent were aware of the recommendations but did not plan to apply the herbicides as recommended. However, 6 percent did indicate that they were aware of the practice and planned to try it. None of these producers indicated that they had tried the practice but were not using it in 1975, nor did any producers indicate that they were unaware of the practice. Sixty-eight percent of the soybean producers used the herbicides on part of their crops in 1975 according to the recommendations.

Harvested Beans When Moisture was Between 12 Percent and 13.5 Percent

Even though only 24 percent of the soybean producers harvested their beans when the moisture was between 12 percent and 13.5 percent, another 66 percent harvested part of their crop within this moisture range. Two percent of the producers had tried harvesting within this

range but were not using the practice in 1975 and 2 percent were aware of the practice and planned to try it. Another 2 percent were aware of this harvesting practice but indicated that they did not plan to try it and 4 percent indicated that they were unaware of this production practice.

III. CHARACTERISTICS OF PRODUCTION AND MARKETING PRACTICES USED BY SOYBEAN PRODUCERS IN FAYETTE COUNTY

Findings regarding 22 variables selected to characterize the production and marketing practices used by soybean producers in Fayette County are presented in Table III.

Have an Established System of Soil Testing

For the purpose of this paper an established system of soil testing is defined as any systematic way the producer has of maintaining high fertility levels of his soils. This may mean taking a soil sample every 1, 2, or 3 years and liming and fertilizing according to this test. Less than half (44 percent) had an established system while 56 percent stated that they did not. This is less than desirable since it is recommended that all producers establish some system.

Type of Equipment Used in Initial Seedbed Preparation

As shown in Table III, Fayette County producers used the chisel plow, the moldboard or breaking plow, and the disk as tools for initially preparing a seedbed. Twenty-seven (54 percent) indicated that they used a chisel plow which seems to be the trend with this newer implement. Of the remaining 46 percent, 26 percent indicated that they

TABLE III

CHARACTERISTICS OF THE PRODUCTION AND MARKETING PRACTICES USED BY SOYBEAN PRODUCERS IN FAYETTE COUNTY

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Have an Established System of Soil Testing		
Yes	22	44.0
No	28	56.0
Type of Equipment Used in Initial Seedbed Preparation		
Chisel plow	27	54.0
Moldboard	13	26.0
Disk	10	20.0
Used a Moly-Inoculant Mixture		
Yes	45	90.0
No	5	10.0
Size of Planter Used		
Two row	3	6.0
Four row	32	64.0
Six row	12	24.0
Eight row	3	6.0
Planting Depth of Seed		
3/4 inch	3	6.0
1 inch	11	22.0
1 1/2 inch	29	58.0
2 inches	7	14.0
Application of a Pre-Plant Herbicide		
Yes	46	92.0
No	4	8.0
Method of Incorporating Pre-Plant Herbicide		
Did not use pre-plant herbicide	4	8.0
Do-all	15	30.0
Disk	31	62.0

TABLE III (continued)

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Application of Pre-Emergence Herbicide		
Yes	34	68.0
No	16	32.0
Application of Post-Emergence Herbicide		
Yes	42	84.0
No	8	16.0
Application of Both a Pre-Plant and Pre-Emergence Herbicide		
Yes	31	62.0
No	19	38.0
Application of Either a Pre-Plant or Pre-Emergence and a Post-Emergence Herbicide		
Yes	41	82.0
No	9	18.0
Use Only a Pre-Plant Herbicide		
Yes	2	4.0
No	48	96.0
Use Only a Pre-Emergence Herbicide		
Yes	1	2.0
No	49	98.0
Use Only a Post-Emergence Herbicide		
Yes	1	2.0
No	49	98.0
Method of Applying Post-Emergence Herbicide		
Direct application	3	6.0
Recommended over-the-top	1	2.0
Not recommended over-the-top	34	68.0
Direct and not recommended over-the-top	4	8.0
Did not use a post-emergence herbicide	8	16.0

TABLE III (continued)

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Height of Plants at First Cultivation		
2—3 inch stage	14	28.0
3—5 inch stage	23	46.0
5—8 inch stage	7	14.0
8—12 inch stage	4	8.0
Did not cultivate	2	4.0
Spray Application for Soybean Disease		
Yes	2	4.0
No	48	96.0
Was Lodging a Problem in 1975?		
Yes	14	28.0
No	36	72.0
Owned Combine		
Yes	39	78.0
No	11	22.0
Method of Payment for Harvesting		
Owned combine	39	78.0
Portion of yield	2	4.0
Payment by bushel	8	16.0
Other	1	2.0
Size of Combine		
Two row	1	2.0
Four row	41	82.0
Five row	7	14.0
Six row	1	2.0
Most Limiting Production Facts (Opinion)		
Labor	1	2.0
Capital	4	8.0
Weed control	11	22.0
Nematodes	3	6.0
Soil fertility	11	22.0
Weather	15	30.0
Other	5	10.0

used a disk. For Fayette County soils it would be desirable to maintain this trend by having the least number using the disk.

Used a Moly-Inoculant Mixture

Forty-five (90 percent) of the producers interviewed stated that they used a moly-inoculant which is a combination of molybdenum and a seed inoculant. Only five (10 percent) stated that they did not use this mixture. However, this does not imply that they did not use either or both of the materials but instead it implies that they did not use this commercial mixture.

Size of Planter Used

The majority (64 percent) of the producers used four-row planters. Due to the size and slope of most fields, this is likely to be the trend. Six-row planters (24 percent) are well adapted but require six-row cultivating and harvesting equipment. The larger producers were using eight-row planters (6 percent) with which they can also utilize their four-row equipment. Few producers (6 percent) continued to use the smaller two-row equipment.

Planting Depth of Seed

The majority (58 percent) of the producers were planting their soybean seed about 1 1/2 inches deep. This is desirable since the seed need the moisture to germinate. Six percent of those interviewed stated that they planted approximately 3/4 inch deep and 22 percent planted at the 1 inch depth. Only 14 percent planted their seed 2 inches or deeper.

Application of a Pre-Plant Herbicide

Most of the producers (92 percent) were using a pre-plant herbicide. This is highly desirable and recommended because of the grass problem in Fayette County. Eight percent indicated that they were not presently using a pre-plant herbicide.

Method of Incorporating Pre-Plant Herbicide

Of the 50 producers interviewed 62 percent stated that they incorporated their pre-plant herbicide with a disk, 30 percent incorporated with a do-all and the remaining 8 percent did not use a pre-plant herbicide. Of the 46 producers that did use a pre-plant herbicide, 31 (67 percent) used the disk and 15 (33 percent) incorporated with the do-all.

Application of Pre-Emergence Herbicide

The majority (68 percent) of the producers were using a pre-emergence herbicide. However, 32 percent did not use a pre-emergence in 1975. It would be desirable to use a pre-emergence since other conditions may prevent further application of herbicides.

Application of Post-Emergence Herbicides

At some stage in the growth of the soybean plant, 42 producers (84 percent) applied a post-emergence herbicide. Even though all methods of applying a post-emergence herbicide are not desirable, it is usually necessary to apply a post-emergence herbicide because of the numerous broadleaf weeds. Only eight (16 percent) of these producers did not use this type of herbicide.

Application of Both a Pre-Plant and a Pre-Emergence Herbicide

Thirty-one of the producers (62 percent) used both a pre-plant and a pre-emergence herbicide while 38 percent either used one or did not apply either one. In most cases it would be desirable to use both.

Application of Either a Pre-Plant or Pre-Emergence and a Post-Emergence Herbicide

Forty-one (82 percent) of those interviewed stated that they used either a pre-plant or a pre-emergence and a post-emergence herbicide. It is usually necessary to apply a post-emergence, although either a pre-plant or pre-emergence has been used. Only 18 percent stated that they did not use this practice.

Use Only a Pre-Plant Herbicide

It should be noted that very few (4 percent) of the producers used only a pre-plant herbicide. Since most pre-plant herbicides are for grass control, it is usually necessary to apply some other herbicide for broadleaf weed control.

Use Only a Pre-Emergence Herbicide

As shown in Table III (p. 24), it is very evident that Fayette County soybean producers don't rely heavily on a pre-emergence herbicide alone to solve their weed problems. Only one producer (2 percent) stated that he used only a pre-emergence herbicide. The remaining 98 percent used a combination of herbicides.

Use Only a Post-Emergence Herbicide

Again it is shown that soybean producers don't rely on one type of herbicide application. Only one producer (2 percent) used only a post-emergence herbicide.

Method of Applying Post-Emergence Herbicides

It should be stated that at the time these interviews were made, Basagran was the only chemical that had a label cleared to be applied over the top of soybeans. Even though there are other chemicals that were used over the top that are cleared today, these are in the "not recommended" group because they were not cleared at the time the interviews were conducted.

The majority of the soybean producers were applying their post-emergence herbicides over the top of the plants in a manner not recommended by the University of Tennessee. It also should be noted that since the number equals 50, the producer could select only one answer and if he applied part of his herbicides in a nonrecommended manner it was interpreted to mean that he was not following the recommended practice. Only one producer used the recommended over-the-top chemical but this is partly due to its being a new, expensive and hard to obtain chemical. Only three producers used solely a directed application which had long been a recommended practice.

Height of Plants at First Cultivation

Twenty-three (46 percent) of the producers were making their first cultivation at the 3 to 5 inch stage of growth and 14 (28 percent) were following this practice at the 2 to 3 inch stage. This indicates that

the majority of the producers were cultivating before the soybeans were taller than 5 inches. It would be desirable to cultivate when the soybean plants are small, hoping that the weeds would be small also. Four percent did not cultivate but it should be kept in mind that drilled or broadcast soybeans cannot be cultivated. Seven of the producers first cultivated at the 5 to 8 inch stage and only 8 percent cultivated in the 8 to 12 inch stage.

Spray Application for Soybean Diseases

Soybean diseases may be partly controlled by the use of a foliar fungicide. However, spraying for soybean diseases is a new practice and at the time the interviews were conducted, the University of Tennessee had not given this practice a full recommendation even though it had shown increase in yield. This is indicated since only 4 percent of the producers had used this practice.

Was Lodging a Problem in 1975?

Even though 72 percent of the producers indicated that they had no problem with soybean plants lodging (falling down), it is undesirable to have any plants lodging. This problem is most often associated with planting too many seeds.

Owned Combine

It was interesting to note that 78 percent of the producers owned their own combine. This could certainly be influenced by the number of acres planted per producer as shown in Table I (p. 12).

Method of Payment for Harvesting

Of the 22 percent that did not own their own combine, payment for harvesting their soybeans was usually made by giving a portion of the yield such as one-fifth, or by paying a set amount of money per bushel combined. Eight of the 11 producers stated that they paid a given amount per bushel while only two of the producers made payment by giving a portion of the yield. One producer (other) stated that no payment was made since his son did his work free of charge.

Size of Combine

As may be seen in Table III (p. 24), most two-row combines are inadequate and obsolete. Four or five-row combines which make up 96 percent are the most commonly used. Only 2 percent of the producers stated that they were using six-row harvesting equipment.

Most Limiting Production Factor (Opinion)

Thirty percent of the producers felt that the weather has the most control over their soybean yield. Weed control and soil fertility each accounted for 22 percent for a total of 44 percent. It is interesting to note that only three (6 percent) of the producers felt that nematodes were their most limiting factor. Also, 2 percent stated that labor and 8 percent stated that capital was their most limiting factor.

IV. MAJOR SOURCES OF SOYBEAN PRODUCTION AND MARKETING INFORMATION

Extension Agents

Thirty-seven (74 percent) of the soybean producers interviewed stated that they used Extension Agents as a source of soybean production and marketing information, as presented in Table IV. Contacts with an Extension Agent could have been by telephone calls, office calls, farm visits, or other on-site visits.

Extension Specialist

Ten of the soybean producers (20 percent) had directly made use of information presented by Extension Specialists. This is to say that the Extension Specialist had made a farm visit to the producer or that the producer had made direct contact with the specialist by either telephone or by an office visit. Visits at Extension meetings or other group meetings were not included in this table.

Soybean Buyer

Even though 14 producers (28 percent) indicated that they received information from the soybean buyers, it was noted by the interviewer that this was marketing information. It was further noted that most contacts were made to determine the price of beans that day or the future contracting prices. It would be desirable that a higher percentage of producers be in contact with the local buying stations to keep informed of the marketing situation.

TABLE IV

MAJOR SOURCES OF SOYBEAN PRODUCTION AND MARKETING INFORMATION

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Extension Agents		
Yes	37	74.0
No	13	26.0
Extension Specialist		
Yes	10	20.0
No	40	80.0
Soybean Buyer		
Yes	14	28.0
No	36	72.0
Soil Conservation Service Representative		
Yes	7	14.0
No	43	86.0
Farmers Home Administration Representative		
Yes	4	8.0
No	46	92.0
Equipment Dealer		
Yes	13	26.0
No	37	74.0
Farm Supply Dealer		
Yes	28	56.0
No	22	44.0
Banker or Production Credit Association Representative		
Yes	12	24.0
No	38	76.0

TABLE IV (continued)

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Neighbor or Friend		
Yes	44	88.0
No	6	12.0
Extension Bulletins or Publications		
Yes	40	80.0
No	10	20.0
Commercial Bulletins		
Yes	29	58.0
No	21	42.0
Farm Magazines		
Yes	42	84.0
No	8	16.0
Daily Newspaper		
Yes	34	68.0
No	16	32.0
Weekly Newspaper		
Yes	32	64.0
No	18	36.0
Monthly or Other Newspaper		
Yes	20	40.0
No	30	60.0
Radio		
Yes	30	60.0
No	20	40.0
Television		
Yes	28	56.0
No	22	44.0

TABLE IV (continued)

Name of Variable	Number of Producers (N = 50)	Percent of Producers
Farm Meeting		
Yes	34	68.0
No	16	32.0
Field Day or Tours		
Yes	18	36.0
No	32	64.0
Newsletters		
Yes	40	80.0
No	10	20.0

Soil Conservation Service Representative; Farmers Home Representative

Fourteen percent of the soybean producers received soybean production and marketing information from the Soil Conservation Service, while 8 percent received information from the Farmers Home Administration. These small percentages would be expected since both of these organizations are specialty agencies, and even though they do promote the use of recommended production and marketing practices they make few recommendations.

Equipment Dealer; Farm Supply Dealer

More than twice the number of soybean producers stated that they received soybean production and marketing information from farm supply dealers than they did from the equipment dealers. It has been advantageous for the Extension Service to work with the farm supply dealers and to keep them informed regarding recommendations of the University of Tennessee.

Banker or Production Credit Association Representative

It is shown that 24 percent of the producers received soybean production and marketing information from these lending businesses. Both groups have made special efforts to attend and sponsor Extension activities.

Neighbor or Friend

All but 12 percent of the producers stated that they received information on soybean production and marketing from their neighbor or friend. In many cases, this would be desirable since many of the

Extension methods and practices are passed on by word of mouth among farmers or on-site farm contacts.

Extension Bulletins or Publications

Eighty percent of the soybean producers used Extension bulletins as a source of soybean production and marketing information. Since these bulletins and publications contain years of research of unbiased data, it would be desirable that all producers be aware of and use such materials.

Commercial Bulletins; Farm Magazines; Daily Newspapers; Weekly Newspapers, Monthly or Other Newspapers

More soybean producers (84 percent) obtained information on soybean production and marketing from farm magazines than any other source of information other than from neighbors or friends. Fifty-eight percent of the producers received soybean production and marketing information from commercial bulletins, and 68 percent and 64 percent, respectively, received information from daily and weekly newspapers. Only 40 percent of the soybean producers received production or marketing information from monthly or other newspapers.

Radio; Television

It is interesting to note that there is little difference between the number of producers who received production and marketing information from radio (60 percent) and from television (56 percent). Even though television is a more modern piece of equipment, most farm trucks and much farm machinery (e.g., tractors, combines, and so forth) are

equipped with radios. It would appear to be desirable that more soybean producers utilize these sources of marketing information.

Farm Meetings; Field Days or Tours

For the purpose of this survey, a farm meeting was any meeting (i.e., Extension or commercial) to promote production or marketing information to the farmers. Field days or tours were visits to the experiment station of the University of Tennessee. Since there are more farm meetings available to Fayette County soybean farmers, this would account for the fact that nearly twice the percentage of producers received soybean information and marketing information from farm meetings (68 percent) than did from field days or tours (36 percent). It also should be noted that most farm meetings were held in the county seat, whereas the closest experiment field station was 20 miles away.

Newsletters

Newsletters were interpreted to be any newsletter, commercial or private, which the producer received. Even though there are several types of farm newsletters, it should be noted that the Fayette County Extension Service sends a newsletter to every known producer concerning his specified area of interest. Thus it is shown that 80 percent of the soybean producers did receive production and marketing information through newsletters.

V. RELATIONSHIPS BETWEEN EXTENSION PARTICIPATION AND CHARACTERISTICS OF SOYBEAN PRODUCERS AND THEIR FARM OPERATIONS

Findings regarding the relationships between two selected producer and farm characteristic variables and Extension participation are presented in Table V. Each soybean producer on the average attended 2.2 Extension meetings, 0.6 soybean Extension meetings, 5.5 visits to Extension Office, made 5.5 telephone calls to the Extension Office, and received 4.0 farm visits from Extension Agents during the preceding 12 months. In all cases the total number of producers equals 50.

Relationships between Major Occupation and Extension Participation

Soybean producers who were full-time farmers attended a larger number of Extension meetings and Extension soybean meetings, made more visits and telephone calls to the Extension Office and received a larger number of visits from Extension Agents than did those who farmed part-time. The one producer, who was also an engineer, had more Extension contacts than did either the full-time or part-time producers, except for the number of visits made to the Extension Office and visits received from Extension Agents. When tested by the F test, these observed differences in the number of Extension contacts by producer occupations were not significant excepting the number of Extension meetings attended. The number of Extension meetings attended by the soybean producers was significantly related to the major occupation of the producers. Those who were either full-time or business attended more Extension meetings than did those producers who were farming part-time.

TABLE V

RELATIONSHIP BETWEEN EXTENSION PARTICIPATION AND CHARACTERISTICS OF SOYBEAN PRODUCERS AND THEIR FARM OPERATIONS

Producer and Farm Characteristics	Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
	Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Major Occupation:					
F value =	9.20[a]	3.19[b]	1.81[b]	.89[b]	1.57[b]
Full-time farmer (N=43)	2.3	0.7	6.2	6.0	4.4
Part-time farmer (N=6)	0.3	0.2	1.0	1.0	0.8
Business (N=1)	8.0	1.0	2.0	10.0	4.0
Total (N=50)	2.2	0.6	5.5	5.5	4.0
Major Source of Income:					
F value =	1.89[b]	1.95[b]	1.64[b]	.90[b]	.83[b]
Soybeans (N=32)	1.9	0.6	4.8	4.1	3.6
Cotton (N=10)	3.6	0.9	10.3	10.9	6.3
Swine (N=2)	0.5	-	4.0	3.5	5.5
Dairy (N=2)	1.5	1.0	3.5	3.0	1.5
Eggs (N=1)	-	-	-	2.0	1.0
Business (N=3)	2.7	0.3	1.3	5.7	2.3
Total (N=50)	2.2	0.6	5.5	5.5	4.0

[a]Calculated value significant at .05 level.

[b]Calculated value not significant at .05 level.

Relationships between Major Source of Income and Extension Participation

Soybean producers whose major source of income was cotton attended more Extension meetings, made more contacts (i.e., office visits and telephone calls) with the Extension Office and received more farm visits from Extension Agents than did those having other major sources of income. However, those whose major source of income was dairy attended the most Extension soybean meetings. Those whose major source of income was a business were next to cotton producers in the number of Extension meetings attended and the number of telephone calls made to the Extension Office. Those having the least number of Extension contacts were those soybean producers whose major source of income was from eggs. However, when tested by the F test, not any of the observed differences were significant. Thus, the source of income was not shown to be a significant factor which influenced the number of contacts soybean producers had with Extension. However, there was a tendency for cotton producers to make more Extension contacts.

VI. RELATIONSHIP BETWEEN EXTENSION PARTICIPATION AND THE USE OF RECOMMENDED SOYBEAN PRODUCTION PRACTICES

Findings regarding the relationship between the use of each of the nine recommended soybean production practices and Extension participation are presented in Table VI. Each soybean producer on the average attended 2.2 Extension meetings, 0.6 soybean Extension meetings, made 5.5 visits to the Extension Office, made 5.5 telephone calls to the Extension Office

TABLE VI

RELATIONSHIP BETWEEN EXTENSION PARTICIPATION AND THE USE OF RECOMMENDED SOYBEAN PRODUCTION PRACTICES

Recommended Production Practice	Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
	Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Prepared Initial Seedbed in Fall or Early Spring F value =	.38[b]	.38[b]	2.38[b]	.34[b]	4.54[a]
Unaware of practice (N=2)	1.0	0.5	1.5	1.0	1.0
Aware, no plans to try (N=1)	4.0	1.0	24.0	12.0	20.0
Aware, plans to try (N=1)	2.0	1.0	4.0	2.0	-
Tried, not using in 1975 (N=0)	-	-	-	-	-
Used on part of crop (N=14)	2.1	0.7	5.1	4.4	2.9
Used on all of crop (N=32)	2.3	0.6	5.4	6.1	4.3
Total (N=50)	2.2	0.6	5.5	5.5	4.0
Fertilized and Limed According to Soil Test F value =	3.5[a]	3.36[a]	1.48[b]	1.38[b]	1.20[b]
Unaware of practice (N=1)	-	-	1.0	-	-
Aware, no plans to try (N=5)	0.8	0.2	2.0	1.6	2.4
Aware, plans to try (N=6)	2.0	0.8	5.5	3.0	3.8
Tried, not using in 1975 (N=8)	0.5	0.3	1.5	0.6	1.4
Used on part of crop (N=10)	3.0	0.9	7.9	6.6	5.9
Used on all of crop (N=20)	3.0	0.8	7.0	8.8	4.7
Total (N=50)	2.2	0.6	5.5	5.5	4.0

TABLE VI (continued)

Recommended Production Practice	Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
	Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Planted Soybeans between April 15 and June 15 F value =	.38[b]	.24[b]	.36[b]	.17[b]	1.86[b]
Unaware of practice (N=0)	-	-	-	-	-
Aware, no plans to try (N=0)	-	-	-	-	-
Aware, plans to try (N=1)	2.0	1.0	4.0	2.0	-
Tried, not using in 1975 (N=0)	-	-	-	-	-
Used on part of crop (N=14)	1.8	0.6	6.8	4.6	5.9
Used on all of crop (N=35)	2.3	0.6	5.0	5.9	3.3
Total (N=50)	2.2	0.6	5.5	5.5	4.0
Planted a Variety(s) Recommended for 1975 F value =	1.5[b]	1.02[b]	4.21[a]	.15[b]	9.61[a]
Unaware of practice (N=0)	-	-	-	-	-
Aware, no plans to try (N=0)	-	-	-	-	-
Aware, plans to try (N=2)	2.5	1.0	3.5	2.5	1.0
Tried, not using in 1975 (N=0)	-	-	-	-	-
Used on part of crop (N=2)	4.5	1.0	18.0	7.5	16.0
Used on all of crop (N=46)	2.1	0.6	5.0	5.5	3.6
Total (N=50)	2.2	0.6	5.5	5.5	4.0

TABLE VI (continued)

Recommended Production Practice		Ext. Meetings Attended: Total (Mean)	Ext. Meetings Attended: Soybean (Mean)	Contacts to Ext. Office: Visits (Mean)	Contacts to Ext. Office: Calls (Mean)	Contacts by Ext. Agents: Farm Visits (Mean)
Used the Recommended Seeding Rate	F value =	3.7[a]	2.75[b]	9.19[a]	4.03[a]	6.79[a]
Unaware of practice (N=2)		5.0	1.0	7.0	7.5	3.5
Aware, no plans to try (N=0)		-	-	-	-	-
Aware, plans to try (N=1)		2.0	1.0	4.0	2.0	-
Tried, not using in 1975 (N=0)		-	-	-	-	-
Used on part of crop (N=3)		4.7	1.3	21.3	21.7	14.0
Used on all of crop (N=44)		1.9	0.6	4.4	4.3	3.4
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Used Inoculant on Seeds on Land Where Soybeans Have Not Been Grown in 3-5 Years	F value =	.36[b]	.84[b]	.43[b]	.37[b]	.85[b]
Unaware of practice (N=0)		-	-	-	-	-
Aware, no plans to try (N=1)		2.0	-	2.0	1.0	2.0
Aware, plans to try (N=0)		-	-	-	-	-
Tried, not using in 1975 (N=0)		-	-	-	-	-
Used on part of crop (N=2)		1.0	0.5	2.0	1.0	-
Used on all of crop (N=47)		2.2	0.7	5.7	5.7	4.2
Total (N=50)		2.2	0.6	5.5	5.5	4.0

TABLE VI (continued)

Recommended Production Practice	Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
	Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Treated Seeds with Molybdenum When Grown on Soils with a pH of 6.5 or Below or First Year Limestone was Applied F value =	.89[b]	1.18[b]	.52[b]	.14[b]	.54[b]
Unaware of practice (N=2)	-	-	-	4.0	1.5
Aware, no plans to try (N=0)	-	-	-	-	-
Aware, plans to try (N=1)	3.0	1.0	3.0	3.0	1.0
Tried, not using in 1975 (N=0)	-	-	-	-	-
Used on part of crop (N=3)	2.0	0.7	6.0	2.7	1.7
Used on all of crop (N=44)	2.8	0.7	5.8	5.8	4.3
Total (N=50)	2.2	0.6	5.5	5.5	4.0
Used Herbicides According to Recommendations F value =	.79[b]	.66[b]	1.40[b]	.87[b]	.29[b]
Unaware of practice (N=0)	-	-	-	-	-
Aware, no plans to try (N=3)	2.7	0.3	1.3	3.7	1.7
Aware, plans to try (N=3)	2.7	0.7	5.7	2.3	5.0
Tried, not using in 1975 (N=0)	-	-	-	-	-
Used on part of crop (N=34)	1.9	0.6	4.9	4.7	4.1
Used on all of crop (N=10)	2.9	0.8	8.9	9.5	3.9
Total (N=50)	2.2	0.6	5.5	5.5	4.0

TABLE VI (continued)

Recommended Production Practice	Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
	Total (mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Harvested Beans When Moisture was Between 12 Percent and 13.5 Percent F value =	1.28[b]	1.21[b]	1.15[b]	.25[b]	1.44[b]
Unaware of practice (N=2)	3.5	1.0	12.0	4.0	7.5
Aware, no plans to try (N=1)	1.0	-	6.0	6.0	6.0
Aware, plans to try (N=1)	6.0	1.0	5.0	6.0	1.0
Tried, not using in 1975 (N=1)	4.0	1.0	12.0	8.0	11.0
Used on part of crop (N=33)	2.1	0.7	6.0	6.4	4.4
Used on all of crop (N=12)	1.9	0.4	2.4	2.9	1.8
Total (N=50)	2.2	0.6	5.5	5.5	4.0

[a]Calculated value significant at .05 level.

[b]Calculated value not significant at .05 level.

and received 4.0 farm visits from Extension Agents during the preceding 12 months. In all cases the total number of producers equals 50.

Relationships between the Recommended Practice of Preparing the Initial Seedbed in Fall or Early Spring and Number of Extension Contacts

Forty-six of the 50 producers were using this practice. With the exception of the one producer who was aware of the practice, but did not plan to try, producers who were using the practice on either part of the crop attended more Extension meetings, made more office contacts (i.e., both office visits and telephone calls), and received more farm visits than the other producers. However, these observed differences in the number of Extension contacts were not significant when tested by the analysis of variance F test. The one producer who was aware of the practice, but had no plans to try it, received significantly more farm visits from Extension Agents than did the other producers.

Relationships between the Use of the Recommended Practice of Fertilizing and Liming According to Soil Test and the Number of Extension Contacts

Soybean producers who fertilized and limed either part or all of their soybean land by a soil test report attended on an average more total Extension meetings, more Extension soybean meetings, made more office visits and telephone calls, and received more farm visits by Extension Agents than did those who did not use the practice. The producer who was unaware of this practice had made only one Extension contact (i.e., office visit) during the preceding 12 months. When compared with those who did not use the practice in 1975, those that

were aware of the practice and planned to try it had made a greater number of Extension contacts.

When tested by the F test of significance it was shown that soybean producers who were using the practice of fertilizing and liming according to a soil test attended a significantly larger number of Extension meetings (i.e., total number of meetings attended and total number of soybean meetings attended) than those who were not using the practice in 1975.

Relationships between Seven Recommended Production Practices and the Number of Extension Contacts

Approximately an average of 91 percent (i.e., 46 of the 50 producers) were using each of the remaining seven recommended production (i.e., planted soybeans between April 15 and June 15, planted a variety(s) recommended for 1975, used the recommended seeding rate, used inoculant on seeds on land where soybeans had not been grown in 3-5 years, treated seeds with molybdenum when grown on soils with a pH of 6.5 or below or first year limestone was applied, used herbicides according to recommendations and harvested beans when moisture was between 12 percent and 13.5 percent moisture) practices. Since soybeans had been grown in Fayette County for several years, many of these key practices were being extensively used. As was noted in Table V (p. 41), soybean producers whose major source of income was cotton had more contacts with Extension, indicating that they had had more problems with cotton than they had with soybeans. Only six of the 35 relationships between the seven production practices and the five methods of Extension contacts were significant at the .05 level. This lack of significant

relationships could be due to the relatively small numbers of producers not using the practices. Although these data were inconclusive, producers who were using the recommended practices tended to have had a larger number of contacts with Extension than did those who were not using the practices.

VII. RELATIONSHIP BETWEEN EXTENSION PARTICIPATION AND CHARACTERISTICS OF PRODUCTION AND MARKETING PRACTICES USED BY SOYBEAN PRODUCERS IN FAYETTE COUNTY

Findings regarding the relationships between six production and marketing characteristics and Extension participation are presented in Table VII. Each soybean producer on an average attended 2.2 Extension meetings, 0.6 Extension soybean meetings, made 5.5 visits to the Extension Office, made 5.5 telephone calls to the Extension Office, and received 4.0 farm visits from Extension Agents during the preceding 12 months.

Relation between Having an Established System of Soil Testing and Extension Participation

Soybean producers who had established a system of soil testing averaged almost twice as many Extension contacts (i.e., total Extension meetings, soybean meetings, office visits, office telephone calls and visits received by Extension Agents) than those who had not. When tested by the F value, it was shown that there was a significant relationship between having an established system of soil testing and the total number of Extension meetings attended, the number of Extension soybean meetings attended, and the number of visits to the Extension

TABLE VII

RELATIONSHIP BETWEEN EXTENSION PARTICIPATION AND CHARACTERISTICS OF PRODUCTION AND MARKETING PRACTICES USED BY SOYBEAN PRODUCERS IN FAYETTE COUNTY

Production and Marketing Characteristics		Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
		Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Have an Established System of Soil Testing	F value =	16.91[a]	8.16[a]	4.95[a]	3.49[b]	3.85[b]
Yes (N=22)		3.1	0.9	7.8	8.1	5.4
No (N=28)		1.3	0.5	3.7	3.4	2.9
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Use of a Moly-Inoculant	F value =	.07[b]	.03[b]	.55[b]	.004[b]	1.49[b]
Yes (N=45)		2.2	0.6	5.3	5.5	3.7
No (N=5)		2.4	0.6	7.6	5.2	6.4
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Application of Both a Pre-Plant and a Pre-Emergence Herbicide	F value =	2.9[b]	.41[b]	.06[b]	.005[b]	.11[b]
Yes (N=31)		2.5	0.7	5.3	5.4	3.8
No (N=19)		1.6	0.6	5.8	5.6	4.3
Total (N=50)		2.2	0.6	5.5	5.5	4.0

TABLE VII (continued)

Production and Marketing Characteristics	Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
	Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Application of Either a Pre-Plant or Pre-Emergence and a Post-Emergence Herbicide F value =	.06[b]	.28[b]	.22[b]	.35[b]	.47[b]
Yes (N=41)	2.1	0.7	5.7	5.1	4.2
No (N=9)	2.3	0.6	4.6	7.1	3.0
Total (N=50)	2.2	0.6	5.5	5.5	4.0
Method of Applying Post-Emergence Herbicide F value =	1.0[b]	1.4[b]	11.53[a]	6.26[a]	2.44[b]
Direct application (N=3)	2.7	1.0	7.7	1.7	5.7
Recommended over-the-top (N=1)	-	-	1.0	1.0	1.0
Not recommended over-the-top (N=34)	2.0	0.6	3.8	3.4	3.4
Direct and not recommended over-the-top (N=4)	3.8	1.0	21.0	23.0	10.3
Did not use post-emergence (N=8)	2.3	0.5	4.8	7.6	3.1
Total (N=50)	2.2	0.6	5.5	5.5	4.0
Method of Payment for Harvesting F value =	.84[b]	.85[b]	.68[b]	.28[b]	.53[b]
Owned combine (N=39)	2.2	0.7	6.2	6.1	4.4
Portion of yield (N=2)	1.0	0.5	3.5	3.5	2.0
Payment by bushel (N=8)	2.8	0.5	3.4	3.2	2.8
Other (N=1)	-	-	-	2.0	1.0
Total (N=50)	2.2	0.6	5.5	5.5	4.0

[a]Calculated value significant at .05 level.

[b]Calculated value not significant at .05 level.

Office. However, the number of telephone calls to the Extension Office and the number of farm visits received from Extension Agents were not significantly related to whether or not the producers had an established system of soil testing, though some tendency was noted.

Relationship between the Use of a Moly-Inoculant and Extension Participation

The five soybean producers who did not use a moly-inoculant on their soybeans attended more total Extension meetings, attended the same number of Extension soybean meetings, made more visits to the Extension Office, and received more farm visits from Agents than did those who used a moly-inoculant mixture. On the other hand, those producers that did use a moly-inoculant made more telephone calls to the Extension Office. However, when tested by the F test, it was shown that there was not a significant relationship between the number of Extension contacts and use of a moly-inoculant mixture by the soybean producers.

Relationship between the Application of Both a Pre-Plant and a Pre-Emergence Herbicide and Extension Participation

Soybean producers who used both a pre-plant and a pre-emergence herbicide attended more Extension meetings (i.e., both total and soybean meetings) than those producers who did not use both herbicides. However, those producers that did not use both herbicides made more office visits, more telephone calls to the Extension Office, and received more farm visits from Extension Agents. This would be expected since the deletion of either herbicide could cause a weed control problem. However, the F test showed that the relationship between the use of

both of these herbicides and Extension participation was not significant at the .05 level of probability.

Relationships between the Application of Either a Pre-Plant or Pre-Emergence and a Post-Emergence Herbicide and Extension Participation

The 41 soybean producers who used either a pre-plant or a pre-emergence and a post-emergence herbicide attended more Extension soybean meetings, made more visits to the Extension Office and received more farm visits by Extension Agents than those who did not use this particular combination of herbicides. The nine producers who did not use either a pre-plant or a pre-emergence herbicide and a post-emergence herbicide, on the other hand, attended more total Extension meetings and made more telephone calls to the Extension Office. However, when tested by the F test, it was shown that there was no significant relationship between the use of either a pre-plant or pre-emergence herbicide and a post-emergence herbicide and Extension participation.

Relationships between the Methods of Applying Post-Emergence Herbicides and Extension Participation

The seven producers who used either a direct or a direct and not recommended over-the-top method of applying their post-emergence herbicides attended more total Extension meetings, attended as many soybean meetings as producers using the direct method of application, made more visits to the Extension Office, made more telephone calls to the Extension Office, and received more farm visits from Extension Agents than did those producers using the other listed methods of applying herbicides. It should also be noted that the one producer who

used the recommended over-the-top herbicide (Basagran) did not attend any of the Extension meetings and he also made fewer visits and telephone calls to the Extension Office, and received fewer farm visits from Extension Agents. When tested by the F test of significance, it was shown that there was a significant relationship between the number of contacts producers made with the Extension Office (i.e., both visits and telephone calls) and the method used to apply post-emergence herbicides. These data indicate, however, that soybean producers were not following the recommendations of the Extension service regarding the method of applying post-emergence herbicides.

Relationship between Method of Payment for Harvesting Soybeans and Extension Participation

The 39 soybean producers who owned their own combine for harvesting, attended more Extension soybean meetings, made more visits to the Extension Office, made more telephone calls to the Extension Office, and received more farm visits from Extension Agents. However, when tested by the F test, these observed differences in the number of contacts producers had with Extension did not differ significantly regarding the method they used to pay for the harvesting of their soybeans.

VIII. RELATIONSHIP BETWEEN EXTENSION PARTICIPATION AND MAJOR SOURCES OF SOYBEAN PRODUCTION AND MARKETING INFORMATION

Findings regarding the relationship between Extension participation and the major sources of soybean production and marketing information are presented in Table VIII. Each soybean producer, on the average,

TABLE VIII

RELATIONSHIP BETWEEN EXTENSION PARTICIPATION AND MAJOR SOURCES OF SOYBEAN PRODUCTION AND MARKETING INFORMATION

Sources of Information		Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
		Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Extension Agents	F value =	15.3[a]	21.3[a]	8.66[a]	4.59[a]	.30[b]
Yes (N=37)		2.8	0.8	7.0	7.1	4.9
No (N=13)		0.5	0.2	1.2	0.9	1.3
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Soybean Buyer	F value =	1.8[b]	.32[b]	.65[b]	1.10[b]	2.99[b]
Yes (N=14)		1.6	0.6	7.4	7.6	5.8
No (N=36)		2.4	0.7	4.8	4.6	3.3
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Soil Conservation Representative	F value =	1.4[b]	4.06[b]	17.03[a]	7.41[a]	13.81[a]
Yes (N=7)		3.0	1.0	13.9	13.7	9.4
No (N=43)		2.0	0.6	4.1	4.1	3.1
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Extension Bulletins or Publications	F value =	9.12[a]	5.74[a]	6.34[a]	2.51[b]	6.36[a]
Yes (N=40)		2.6	0.7	6.6	6.5	4.8
No (N=10)		0.6	0.3	1.0	1.4	0.8
Total (N=50)		2.2	0.6	5.5	5.5	4.0

TABLE VIII (continued)

Sources of Information		Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
		Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Commercial Bulletins	F value =	0.29[b]	3.72[a]	4.28[a]	1.54[b]	3.93[a]
Yes (N=29)		2.3	0.7	7.1	6.8	5.1
No (N=21)		2.0	0.5	3.3	3.6	2.5
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Farm Magazines	F value =	1.11[b]	2.49[b]	2.94[b]	1.26[b]	1.95[b]
Yes (N=42)		2.3	0.7	6.2	6.1	4.4
No (N=8)		1.5	0.4	1.9	2.1	1.9
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Daily Newspaper	F value =	0.10[b]	3.69[b]	2.18[b]	0.02[b]	6.20[a]
Yes (N=34)		2.1	0.7	6.4	5.6	5.1
No (N=16)		2.3	0.4	3.5	5.2	1.7
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Radio	F value =	0.003[b]	2.44[b]	1.96[b]	2.35[b]	2.55[b]
Yes (N=30)		2.2	0.7	6.6	7.1	4.8
No (N=20)		2.2	0.5	3.9	3.1	2.7
Total (N=50)		2.2	0.6	3.3	5.5	4.0
Television	F value =	0.19[b]	0.34[b]	1.67[b]	1.12[b]	0.89[b]
Yes (N=28)		2.1	0.7	6.6	6.7	4.5
No (N=22)		2.3	0.6	4.1	3.9	3.3
Total (N=50)		2.2	0.6	5.5	5.5	4.0

TABLE VIII (continued)

Sources of Information		Ext. Meetings Attended		Contacts to Ext. Office		Contacts by Ext. Agents
		Total (Mean)	Soybean (Mean)	Visits (Mean)	Calls (Mean)	Farm Visits (Mean)
Field Day or Tours	F value =	3.74[b]	1.97[b]	9.06[a]	2.97[b]	3.57[b]
Yes (N=18)		2.9	0.8	9.0	8.4	5.6
No (N=32)		1.8	0.6	3.5	2.8	3.1
Total (N=50)		2.2	0.6	5.5	5.5	4.0
Newsletters	F value =	0.45[b]	.07[b]	1.79[b]	.20[b]	1.08[b]
Yes (N=40)		2.3	0.7	6.1	5.8	4.3
No (N=10)		1.8	0.6	3.0	4.3	2.6
Total (N=50)		2.2	0.6	5.5	5.5	4.0

[a]Calculated value significant at .05 level.

[b]Calculated value not significant at .05 level.

attended 2.2 Extension meetings, attended 0.6 Extension soybean meetings, made 5.5 visits to the Extension Office, made 5.5 telephone calls to the Extension Office, and received 4.0 farm visits from Extension Agents.

Data presented in Table VIII indicate that producers who received soybean production and marketing information from each of the sources of information (i.e., Extension Agents, soybean buyer, soil conservation representatives, Extension bulletins or publications, commercial bulletins, farm magazines, daily newspapers, radio, television, field days or tours, and newsletters) also attended more Extension meetings, attended more Extension soybean meetings, made more visits to the Extension Office, made more telephone calls to Extension Office, and received more farm visits from Extension Agents than those who did not use the listed sources of information, except for the three areas (i.e., those attending Extension meetings and not using the soybean buyer, those attending Extension soybean meetings and not using the soybean buyer, and those attending Extension meetings and not using the television as a source of information). However, when tested by the F test, 14 of the 55 tests of significance achieved the .05 level. As expected, there was a significant relationship between the number of Extension meetings attended (i.e., both the number of total Extension meetings attended and the number of Extension soybean meetings attended) by the producers who used the Extension Agents, as well as those who used the Extension bulletins or publications as a source of information. The number of visits which soybean producers made to the Extension Office also was significantly related to the use of Extension

Agents, soil conservation representatives, Extension bulletins or publications, commercial bulletins and field days or tours as a source of information. The number of telephone calls producers made to the Extension Office was significantly related only to securing information from the Extension Agents and from soil conservation representatives. It also was shown by the data that there was a significant relationship between the number of farm visits received by the producers from Extension Agents and their use of the soil conservation representatives, Extension bulletins or publications, commercial bulletins and daily newspapers as a source of information.

In general, these data show that the soybean producers who had a greater number of Extension contacts also had a tendency to use other agencies, bulletins, pamphlets, and so forth, as sources of information. However, a fairly high percentage of the soybean producers were not contacting Extension Agents or using other agricultural agencies or other sources of information.

IX. RELATIONSHIP BETWEEN THE NUMBER OF CONTACTS SOYBEAN PRODUCERS MADE WITH EXTENSION AND SELECTED QUANTITATIVE VARIABLES

In this section, data are presented regarding the relationships between the number of contacts Fayette County soybean producers made with Extension over a 12-month period and selected quantitative variables regarding the producers' size of farm operation, their soybean practice adoption scores, their score on sources used to secure information about soybean production, percentage of their soybean land tested in 1975, their soybean yield in 1975 and age of the soybean producers.

The Pearson Correlation Coefficient (r) was used to test these relationships. Coefficients were computed between each of the 11 selected quantitative variables and the five variables regarding the number of contacts made through all types of Extension meetings, soybean production meetings, visits and telephone calls to the Extension Office, and the number of farm visits by Extension Agents to the producer's farm. Correlation coefficients and significance levels are shown between each of the variables. The .05 level was accepted as being significant.

Total Acres Farmed

Data presented in Table IX show that the number of all Extension meetings attended by the soybean producer was not significantly related to the total number of acres managed by the producer. The total number of soybean meetings attended, the number of visits to the Extension Office, the number of telephone calls to the Extension Office, and the number of farm visits made by Extension Agents to the producer's farm were significantly related to the total number of acres managed by those soybean producers interviewed. Producers who managed more total acres also attended significantly more Extension soybean meetings, made more visits and telephone calls to the Extension Office and received more farm visits by Extension Agents. Thus, soybean producers who managed larger acreage also made more Extension contacts.

Total Acres of Cropland Farmed

Like the total acres farmed, the total number of Extension meetings attended was not significantly related at the .05 level of probability to the number of total acres of cropland farmed by the soybean producer.

TABLE IX

RELATIONSHIP BETWEEN THE NUMBER OF CONTACTS SOYBEAN PRODUCERS HAD WITH EXTENSION AND SELECTED QUANTITATIVE VARIABLES

Quantitative Variables	Ext. Meetings Attended				Contacts to Ext. Office				Contacts by Ext. Agents	
	Total		Soybean		Visits		Calls		Farm Visits	
	r	P	r	P	r	P	r	P	r	P
Total Acres Farmed	.13	.19	.30	.02	.32	.01	.39	.002	.31	.02
Total Acres of Cropland Farmed	.09	.27	.28	.03	.29	.02	.28	.02	.38	.003
Acres of Soybeans Harvested-1975	.09	.26	.23	.05	.25	.04	.25	.04	.35	.007
Acres Planted on Bottom Lands	.09	.27	.26	.03	.35	.007	.22	.05	.51	.001
Acres Planted on Hill Lands	.04	.40	.17	.13	.16	.13	.23	.06	.23	.05
Total Score on Nine Soybean Production Practices	.10	.24	.04	.39	.08	.29	.22	.06	.06	.33
Total Score on 10 Sources of Information from Consultants	.13	.18	.17	.12	.44	.001	.27	.03	.45	.001
Total Score on 11 Sources of Information from Mass Contacts	.27	.03	.44	.001	.55	.001	.32	.01	.54	.001
Percentage of Soybean Land Tested for 1975 Crop	.49	.001	.37	.004	.26	.03	.31	.02	.32	.01
Soybean Yield	.19	.09	-.14	.16	.09	.26	-.01	.47	.10	.24
Age of Respondent	-.40	.002	-.39	.002	-.47	.001	-.13	.19	-.47	.001

However, there was a significant relationship between the number of Extension soybean meetings attended, the number of visits, as well as telephone calls to the Extension Office and the number of farm visits by Extension Agents, and the total number of cropland acres farmed. Thus, soybean producers who operated more acres of cropland also attended more Extension soybean meetings, made more visits and telephone calls to the Extension Office, and received more farm visits by Extension Agents.

Acres of Soybeans Harvested in 1975

As shown in Table IX, the total number of Extension meetings attended by the soybean producers was not significantly related to the number of acres of soybeans harvested in 1975. The number of Extension soybean meetings attended by the producers, the number of office visits and number of office calls and number of farm visits by Extension Agents to the producers were significantly related to the number of acres of soybeans harvested in 1975. Producers who harvested more acres of soybeans in 1975 also significantly attended more soybean Extension meetings, made more visits and telephone calls to the Extension Office, and received more farm visits by Extension Agents.

Acres Planted on Bottom Lands

The number of Extension soybean meetings attended, the number of visits and telephone calls to the Extension Office, and the number of farm visits to the producers by the Extension Agents were all significantly related to the number of bottom land acres planted in soybeans by the producers. However, the number of all Extension meetings

attended was not significantly related to the number of acres planted in the bottoms.

Soybean producers who planted more soybeans on bottom land also attended significantly more Extension soybean meetings, made more visits and office telephone calls to Extension Office and received more farm visits by Extension Agents.

Acres Planted on Hill Lands

The number of acres of soybeans planted on hill lands was not significantly related to the number of Extension meetings attended (i.e., total or soybean), nor to the number of contacts made to the Extension Office (i.e., visits or telephone calls). However, there was a significant relationship between the farm visits received by the producers from the Extension Agents and the number of acres planted on the hill lands. Thus, producers who planted more soybeans on hill land also received more visits by Extension Agents.

Total Score on Nine Soybean Production Practices

There were no significant relationships between the total score on nine soybean production practices used by the producers and the total number of Extension meetings attended, the number of soybean meetings attended, the number of visits to the Extension Office, the number of telephone calls to the Extension Office, or the number of farm visits received by the producers from the Extension Agents. Thus, it is shown that producers who contacted Extension most frequently were not necessarily those who were using the largest number of the recommended soybean production practices.

Total Score on 10 Sources of Information from Consultants

Data presented in Table IX (p. 62) show that neither the total number of Extension meetings, nor the number of soybean meetings attended by the producers, was significantly related to producer's score on the total number of the different sources used to obtain soybean information.

The number of office visits and telephone calls made to the Extension Office by the producers were significantly related to their scores on the number of sources used to secure information about soybean production. Producers who used more sources to secure information were also making significantly more visits and telephone calls to the Extension Office. The number of farm visits producers received from Extension Agents was also significantly related to the producer's use of other sources of soybean information. Thus, producers who had a high contact rate with Extension also has a high exposure to representatives of other agricultural agencies.

Total Score on 11 Sources of Information from Mass Contacts

The total number of Extension meetings attended, the number of soybean meetings attended, the number of visits to the Extension Office, the number of telephone calls to the Extension Office, the number of farm visits producers received from Extension Agents were all significantly related to the producer's score on the sources of information used by soybean producers. Thus, producers who secured information from other sources also had more Extension contacts.

Percentage of Soybean Land Tested for 1975 Crop

When tested at the .05 level of probability, it was found that the percentage of soybean land tested for the 1975 crop was significantly related to the number of Extension contacts (i.e., total Extension meetings attended, soybean meetings attended, visits to Extension Office, telephone calls to the Extension Office, and farm visits by Extension Agents) made by the soybean producer. Therefore, producers who tested more of their soybean lands also made a significantly greater number of Extension contacts.

Soybean Yield

The number of Extension meetings attended (i.e., both total and soybean), contacts with the County Extension Office (i.e., both visits and telephone calls), and the number of farm visits made to the producers by the Extension Agents were not significantly related to their soybean yield. Even though they were not significant, the number of soybean meetings attended and the number of telephone calls made by the producers to the Extension Office had a negative coefficient when tested with their soybean yield. This would indicate that soybean producers who had problems in the production of soybeans (i.e., low yield) had made a larger number of contacts with Extension Agents than those who had higher soybean yields.

Age of Respondent

The Pearson Correlation Coefficient was found to be negative when the age of the respondent was related to the total number of Extension

contacts made, the number of soybean meetings attended, the number of visits to the Extension Office, the number of telephone calls to the Extension Office, and the number of farm visits which the Extension Agents made to the producer. When tested at the .05 level of probability, it was found that the number of Extension meetings attended (i.e., both total and soybean), the number of visits to the Extension Office and the number of farm visits made by the Extension Agents were significantly related to the producer's age. Thus, as the producer's age increased, he tended to make significantly fewer Extension contacts. The number of telephone calls to the Extension Office was not significantly related to the producer's age. Thus, as the producer's age increased, he tended not to make a significant decrease in the number of telephone calls to the Extension Office.

CHAPTER III

SUMMARY OF MAJOR FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

This study was conducted to help the Extension Agent in Fayette County plan and conduct a more effective Extension program. It was believed that information from this study would aid in providing better service to the people in order to improve their production and standards of living.

I. PURPOSE AND SPECIFIC OBJECTIVES

Purpose

The purpose of this study was to determine the relationship between the characteristics of soybean producers, their farming operations and their use of recommended management practices and their participation in the Extension program.

Specific Objectives

The specific objectives of this study were:

1. To characterize soybean producers in Fayette County as to their personal characteristics, characteristics of their farm and its management, the extent to which they were using recommended soybean production and management practices, and their participation in the Extension program.

2. To determine the influence of selected characteristics of soybean producers and their farm operation upon the number of contacts they had made with the Agricultural Extension Service.
3. To determine the influence of Extension contacts upon the production and marketing practices used by the soybean producers.
4. To determine the relationship between the soybean producers' use of selected sources of information and the number of contacts they had with Extension Agents.

II. METHOD OF ANALYSIS

Fifty producers were randomly selected from the Fayette County Extension Service's mailing list of all known producers of soybeans in Fayette County. The "nth" number method of sampling was used to select the producers to be interviewed.

An interview survey schedule was developed (Appendix) and 50 producers were visited and personally interviewed by the researcher, who also was the Assistant Extension Agent. All interviews were made from the period immediately following harvesting in 1975 until April 1976.

The data were coded and punched on computer cards. Computations were made by the University of Tennessee Computer Center. The analysis of variance F test statistic was used to determine the association between each dependent variable and each of the independent variables. F values which achieved the .05 level of probability were accepted as being statistically significant. Numbers, percentages, means, highs, lows, and ranges were computed and inserted where it was deemed appropriate.

III. MAJOR FINDINGS

Relationship between Major Occupation and Extension Participation

1. The producer's major occupation (full-time versus part-time farmer) was significantly related to the total number of Extension meetings which he attended. Part-time farmers tended to attend fewer Extension meetings than did the full-time farmers.
2. The producer's major occupation was not significantly related to the number of soybean meetings attended, the number of visits to the Extension Office, the number of office calls, or the number of farm visits by the Extension Agents.

Relationship between Major Source of Income and Extension Participation

1. The producer's source of income was not significantly related to the number of Extension meetings attended, visits or telephone calls to Extension Office or farm visits by agents. However, producers whose major source of income was from cotton had a tendency to make more contacts with Extension.

Relationship between Recommended Soybean Production Practices and Extension Participation

1. Soybean producers who fertilized and limed according to a soil test attended a significantly higher number of Extension meetings than those who did not.
2. The practice of fertilizing and liming according to a soil test was not significantly related to the number of contacts to the

Extension Office or to the contacts by the Extension Agents. However, producers who used this practice also made more contacts to the Extension Office and received more visits by agents.

3. The practice of planting soybeans between April 15 and June 15 was not significantly related to the number of Extension contacts. Seventy percent of the producers planted all of their soybeans within the recommended range.
4. Soybean producers who planted a recommended variety made a significantly higher number of visits to the Extension Office and received a significantly higher number of visits by Extension Agents than those who did not.
5. The practice of planting a recommended variety was not significantly related to the number of Extension meetings attended or to the number of telephone calls to the Extension Office.
6. The practice of using inoculant on seeds planted where soybeans had not been grown in three to five years was not significantly related to the number of Extension meetings attended, the number of contacts to the Extension Office or the number of visits by Extension Agents. Ninety-four percent of the producers were using this practice.
7. The practice of treating seeds with molybdenum when grown on soils with a pH of 6.5 or below or the first year limestone was applied was not significantly related to the number of Extension meetings attended, the number of contacts to the Extension

Office or the number of visits by Extension Agents. Eighty-eight percent of the producers used this practice.

8. The practice of using herbicides according to recommendations was not significantly related to the number of Extension meetings attended, the number of contacts to the Extension Office, or the number of contacts by Extension Agents. However, those who used the recommended practice tended to make more contacts with Extension.

Relationship between Having an Established System of Soil Testing and Extension Participation

1. Soybean producers who had an established system of soil testing attended a significantly higher number of all Extension meetings, a significantly higher number of soybean meetings, and made a significantly higher number of visits to the Extension Office.
2. Soybean producers who had an established system of soil testing did not make a significantly higher number of telephone calls to the Extension Office nor did they receive a significantly higher number of visits by agents than those who did not. However, there was a tendency for those having a system to make a higher number of contacts.

Relationship between the Practice of Using a Moly-Inoculant and Extension Participation

1. The use of a moly-inoculant was not significantly related to the number of Extension meetings attended, the number of

contacts to the Extension Office nor to the number of contacts made to producers by the Extension Agents.

Relationship between the Application of Either a Pre-Plant or Pre-Emergence and a Post-Emergence Herbicide and Extension Participation

1. The application of either a pre-plant or pre-emergence and a post-emergence herbicide was not significantly related to the number of Extension meetings attended, the number of contacts made to the Extension Office, or to the number of contacts by Extension Agents.

Relationship between the Method of Applying Post-Emergence Herbicides and Extension Participation

1. The method of applying post-emergence herbicides was significantly related to both the number of visits and the number of telephone calls which the producer made to the Extension Office. Producers who used the direct and not recommended over-the-top application tended to make the most contacts to the Extension Office.
2. The method of applying post-emergence herbicides was not significantly related to the number of Extension meetings attended nor to the number of contacts by Extension Agents.

Relationship between Major Sources of Soybean Production and Marketing Information and Extension Participation

1. Few significant relationships were found between the soybean producer's major sources of information other than Extension

(i.e., soybean buyer, S.C.S. Representative, Commercial bulletin, farm magazines, daily newspapers, radio, T.V., field days or tours or newsletters) and Extension participation. However, soybean producers who used other major sources of information also had more contacts with Extension (i.e., Extension meetings, telephone calls to Extension Office, and farm visits by Extension Agents).

IV. IMPLICATIONS AND RECOMMENDATIONS

The results of these findings give evidence that Extension Agents in Fayette County have made a large number of contacts with soybean producers through Extension meetings, office visits, telephone calls, and farm visits. It was found that those producers who frequently contacted the Extension Office also used other sources of information. For this reason it is important that Extension Agents continue to maintain a favorable working relationship with other agri-businesses, agencies and associations.

It was also noted that producers who frequently contacted the Extension Service for advice did not possess characteristics unique from those who contacted Extension less frequently. However, the data showed that larger soybean producers made more frequent contacts with Extension. Thus, it would seem even more important that the Extension Service continue to serve all soybean producers as courteously, completely and efficiently as possible. Moreover, greater emphasis should be placed on Extension Agents reaching those producers who are less reluctant to contact the Extension Service.

It is believed that data in this study further support the idea that the influence of Extension in regard to the rate of diffusion of an innovation at any given time or stage of adoption is difficult to measure and is not necessarily in a direct relationship with the efforts put forth by the Agent (8:259-260). Most of the relationships between the use of the recommended production practices and Extension contacts were not significant at the .05 level of probability simply because most of the producers were already using them. This high rate of adoption of the recommended practices was probably influenced by the efforts of Agents in years past, since soybeans have been grown in Fayette County for more than two decades. Then it would seem evident that agents should spend less time on adoption of older recommended practices with the exception of weed control. Since only 20 percent of the producers were using herbicides according to recommendations, greater emphasis should be made to increase the adoption of this practice.

Even though Extension Agents made a large number of contacts which could be measured, there was a vast number which could not be counted and often the producer himself did not realize that he had been indirectly influenced by Extension. These indirect influences could be the results of producers talking among friends, neighbors or representatives of other agencies, or by simply observing others' work who had contacted Extension for advice and information. This, then, would reinforce the idea that more field days or result demonstrations within the county would be a way to further diffuse information among producers.

V. RECOMMENDATIONS FOR FURTHER STUDY

1. A similar study should be conducted over a period of years in Tennessee counties to determine the effects of Extension teaching methods (i.e., Extension meetings, office visits and telephone calls, and farm visits) upon new production practices, rather than ones that have been recommended for some time.
2. Similar studies should be conducted in Tennessee to determine the effects of Extension teaching upon adoption of practices in other farm enterprises.

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APPENDIX

The Agricultural Extension Service

University of Tennessee

Fayette County Tennessee

SOYBEAN PRODUCTION SURVEY

Date of Interview: _____

Producer's Name: _____

Producer's Address: _____

Producer's Phone Number: _____

Place of Interview: _____

Name of Interviewer: _____

THE AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE

Fayette County

SOYBEAN PRODUCTION SURVEY

INTRODUCTION: I am helping with a survey of Fayette County soybean producers. The purpose of the survey is to obtain information to use in planning programs helpful to soybean producers. The answers you give will be added to those given by other soybean producers who are being interviewed to get a more complete picture of the soybean situation. Could I have a little of your time to go over these questions?

1. What is your major occupation?
   a. Full-time farmer____
   b. Part-time farmer____
   c. Business (specify)____
   d. Professional (specify)____
   e. Wage earner____
   f. Housewife or widow____
   g. Retired____
   h. Other____

2. Approximately how many acres do you farm?
   a. Total acres____
   b. Cropland acres____

3. How many acres of soybeans did you plant in 1975?
   ____acres. What percent of these did you harvest?_____%

4. How much of the harvest acreage was owned? ____ acres.
   rented ____ acres. shared ____ acres.

5. How many acres were planted in the bottoms? ____ acres
   Hills ____ acres.

6. Is income from soybeans your major source of farm income?
   yes____ no ____

7. If your answer to question #6 is no, what is your major source of income?_____.

TO THE INTERVIEWER: The purpose of the next question is to find out if the respondent:

1. is aware of certain recommended practices.
2. is aware, but does not plan to try them.
3. is aware and plans to try them.
4. has tried them, but is not using this year.
5. is using on <u>part</u> of soybean crop this year.
6. is using on <u>all</u> of soybean crop this year.

INTERVIEWER WILL ASK APPROPRIATE QUESTIONS TO OBTAIN THE ANSWERS

8. Soybean Production Practices:

	Unaware of practice	Aware but does not plan to try it	Aware and plans to try it	Has tried but not using in 1975	Used on part of crop in 1975	Used on all of crop in 1975
a. Prepared initial seedbed in fall or early spring. (Pub 421)						
b. Fertilized and limed according to soil test recommendations. (Pub 421 & 381)						
c. Planted soybeans between April 15 and June 15 (EC 829)						
d. Planted a soybean variety or varieties recommended for 1975. (Pub. 378)						
e. Used the recommended seeding rate. (Pub 378)						
f. Used inoculate on seeds on land where soybeans have not been grown in 3 to 5 years. (EC 829)						
g. Treated seeds with molybdenum when grown on soils with a pH of 6.5 or below or first year limestone was applied. (EC 829)						
h. Used herbicides according to recommendations. (Pub 626)						
i. Harvested beans when moisture was between 12 percent and 13.5 percent (EC 829)						

9. With whom have you talked or consulted about your soybean production?

	Yes	No
a. Extension Agent(s)		
b. Extension Specialist		
c. Soybean Buyer		
d. SCS Representative		
e. FHA Representative		

	Yes	No
f. Equipment Dealer?		
g. Farm Supply Dealer		
h. Banker or PCA Repres.		
i. Neighbor, Friends, Other Farmers		
j. Other (specify)_____		

10. From which of the following sources did you receive useful information concerning your soybean production and marketing?

	Yes	No		Yes	No
a. Extension bulletins or publication			f. Monthly or other newspapers		
b. Commercial bulletins			g. Radio		
c. Farm magazines			h. Television		
d. Daily newspapers			i. Farm meetings		
e. Weekly newspapers			j. Field days or tours		
			k. Newsletters		

11. What percent of your soybean land did you soil test? ___ percent.

12. Have you established a regular system of soil testing your soybean land? yes___ no ___

13. Who made the soil test? U.T.___ Other (Specify)_____.

14. Did you fertilize according to soil test recommendations? yes___ no ___. lime? yes ___ no ___

15. If the pH was under 6.5, did you use molybdenum? yes___ no ___.

16. How many weeks ahead of planting did you begin seedbed preparation for your 1975 soybean crop? ____ weeks

17. Did you plant on smooth seed bed? yes___ no___

18. What type of equipment was used in initial seedbed preparation? chisel plow___ moldboard___ disk___

19. Where did you purchase your seed? Dealer___ wholesaler___ Other___

20. Where was the seed registered? _____. Certified? _____ Other _____

21. How many weeks ahead of planting did you purchase your seeds? ____ weeks

22. Did you inoculate your seeds for land that soybeans have not been grown on for 3 or more years? yes___ no___

23. Did you use a moly-inoculant mixture? yes___ no___

24. What size planter did you use? Two-row___ Four-row___ Six-row___ Eight-row___

25. What width row did you plant? 38 inch___ 40 inch___ drilled___ broadcast___

26. How many seed did you plant per foot of row? ____ seeds

27. How many plants emerged per foot of_____plants.

28. About how deep did you generally plant your seed? 3/4"____
1"____ 1-1/2"____ 2"____

29. Did you apply a pre-plant herbicide? yes___ no___

30. If answer to question #29 is yes, how did you incorporate it?
Do-All___ Disk___ Other (Specify)_____

31. Was a pre-emergence herbicide used? yes___ no___

32. Was a post-emergence herbicide used? yes___ no___. If yes, how was it applied? a. direct application___percent____
b. over-top application___percent___

33. If an over-top application method was used do you feel that your yield was reduced? yes___ no___

34. Did you calibrate your sprayer for:
a. pre-plant yes___ no___ # of times___
b. pre-emerge yes___ no___ # of times___
c. post-emerge yes___ no___ # of times___

35. Were certain herbicides used for specific weeds? yes___ no___

36. How would you rate your broadleaf weed control? excellent___
good___ fair___ poor___

37. How would you rate your grass control? excellent___ good___
fair___ poor___

38. If cultivated what was the height of the plants at first cultivation? 2-3"___ 3-5"___ 5-8"___ 8-12"___

39. Did you spray for soybean diseases? yes___ no___. If yes what percent? ___%. Was there a yield increase? yes___ no___

40. Was lodging a problem? yes___ no___

41. Do you own your own combine? yes___ no___

42. If no, how was payment made?
a. Portion of yield___ c. Payment by acre___
b. Payment by bushels___ d. Other (Specify)_____

43. Did this payment include transporting beans to market?
yes___ no___

44. What size combine did you use? Two-row___ Four-row___ Six-row___

45. How were your beans marketed?
    a. Percent contracted for harvest delivery___
    b. Percent contracted for future deliveries___
    c. Percent sold at harvest___
    d. Percent stored___
    e. Other___

46. What was your average yield? ____bushels

47. What was your most limiting factor for good soybean production?
    labor___ capital___ weed control___ nematodes___ soil fertility___
    weather___ other (specify)____

48. Age of respondent? ____years

49. What was the highest level of formal education that you received?
    a. Grade school___
    b. Junior high school___
    c. High school___
    d. College undergraduate___
    e. College graduate___
    f. Master's degree___
    g. Doctor's degree___

TO THE INTERVIEWER: The next few questions deal with the types and numbers of contacts the soybean producer had with county Extension Agents during the past 12 months. Actual numbers (i.e., zero through highest) should be recorded for each type of contact the producer made with Extension.

50. Number of contacts producer had with county Extension Agents:
    a. Number of Extension meetings attended: ___Extension meetings on all subjects.
    b. Number of Extension meetings attended where soybean production was discussed: ___Extension meetings on soybean production.
    c. Number of visits made to the county Extension Office: ___ visits.
    d. Number of telephone calls made to the county Extension Office: ___ telephone calls.
    e. Number of farm visits received by the soybean producer from all county Extension Agents: ___ visits from Extension Agents.

51. How helpful has Extension been to you in soybean production?
    a. Very helpful___
    b. Helpful___
    c. Not very helpful___
    d. No help at all___

52. In your opinion how could Extension be of greater benefit to you?

_____

_____

VITA

Jamieson Herman Jenkins, the son of Mr. and Mrs. J. H. Jenkins, was born in Hardeman County, Tennessee, on October 10, 1946. He attended Grand Junction High School and graduated in May 1964.

He attended Bethel College in 1965, and completed the requirements for a Bachelor of Science degree in Agriculture at the University of Tennessee at Martin in December 1969.

Upon completing his active duty tour in 1970 in the Tennessee National Guard, in which he served for seven years, he taught one year of high school and two and one-half years of junior high school in Grand Junction. After working as an Extension trained cotton scout for two summers in Fayette County, he took the position of Assistant Extension Agent in the county and in 1976 became the Extension Leader.

He is married to the former Jean Yarbrough of Whiteville, Tennessee, and they have two children, Elisha Carol (age 4 years) and Eric Jamieson (age 2 years).