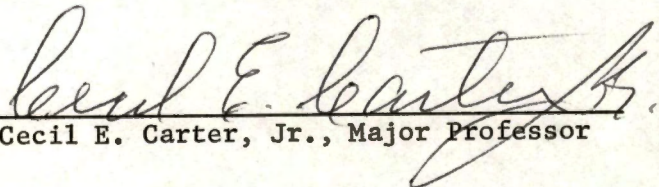
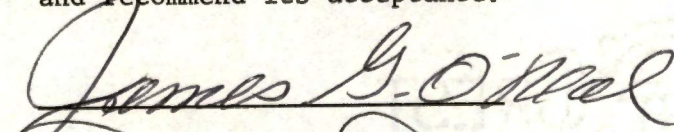
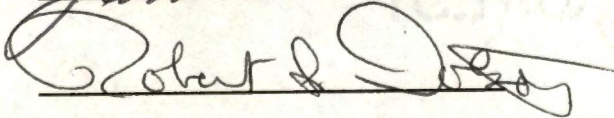


To the Graduate Council:

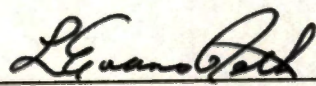
I am submitting herewith a thesis written by James DeWayne Perry entitled "Relationships Between Characteristics of Tennessee Swine Producers, Numbers of Contacts They Had With County Agricultural Extension Agents and Numbers of Recommended Swine Production Practices Adopted." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Extension.


Cecil E. Carter, Jr., Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:


Vice Chancellor
Graduate Studies and Research

I am submitting herewith a thesis written by James Hobbins Berry entitled "Relationship between Characteristics of Tennessee River Forests, the Age of Succession and the Degree of Deviation from Successional Stages and the Effect of Fire on the Development of the Forest". The thesis was prepared at the University of Tennessee, Knoxville, Tennessee, under the supervision of Dr. J. W. Brown.

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RELATIONSHIPS BETWEEN CHARACTERISTICS OF TENNESSEE SWINE
PRODUCERS, NUMBERS OF CONTACTS THEY HAD WITH COUNTY
AGRICULTURAL EXTENSION AGENTS AND NUMBERS OF
RECOMMENDED SWINE PRODUCTION
PRACTICES ADOPTED

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

James DeWayne Perry

June 1980

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ABSTRACT

The purpose of this study was to characterize Tennessee swine producers, and determine the relationship between the number of contacts producers had with Agricultural Extension agents and their use of recommended swine production practices. Eighteen hundred and seventy-nine swine producers were randomly selected and personal interviews were conducted by county Extension agents. Interview schedules were developed by The University of Tennessee Extension Swine Specialists and the Agricultural Extension Education Department and agents conducted the survey during the fall of 1979. Information recorded included the farm characteristics of the swine producers, their use of recommended swine practices, and the number of contacts the producers had with the Extension office over a 12-month period.

The data were coded and punched on computer cards, and computations were made by The University of Tennessee Computing Center. One way analysis of variance F-test and the chi square test were used to determine the significance and strength of the relationship between the dependent and independent variables. The .05 probability level was accepted as significant.

Major findings included the following:

1. The average swine producer surveyed had farrowed 45 litters and raised 275 pigs to weaning during the previous 12-month period.
2. Over 38% of the swine producers had not attended any Extension meetings and 6.2% had had no contacts with Extension through any of the

contact methods (i.e., meetings, office visits, telephone calls, or farm visits) during the previous 12 months.

3. Fourteen of the 18 recommended swine production practices were used by at least 50% of the producers. Over 30% of the swine producers said pig scours was their most serious pig production problem.

4. Producers' use of nine of the 18 recommended swine production practices was significantly related to each type of Extension contact and to the total number of contacts producers had with Extension agents over a 12-month period. Only two practices were not significantly related to at least one type of Extension contact (i.e., worming weaned pigs and treating pigs for lice).

5. The use of 13 of the 14 recommended pig production practices was significantly related to the type of swine operation (feeder pig or farrow-to-finish). A larger percentage of the farrow-to-finish producers used each of these 13 practices when compared to feeder pig producers.

6. A significantly larger percentage of the full time farmers than of the part time farmers were farrow-to-finish producers.

7. Farrow-to-finish producers made significantly more contacts with Extension than did feeder pig producers.

Implications and recommendations also were made.

TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND ITS SETTING	1
Introduction.	1
Need for the Study.	2
Purpose of the Study.	2
Related Studies	3
Limitations of the Study.	7
Method of Investigation	7
Definition of Terms	9
II. STUDY FINDINGS.	10
Characteristics of Swine Producers and Their Farm Operation	11
Extension Contacts by Swine Producers	16
Use of Recommended Swine Production Practices	19
Relationships Between Characteristics of Swine Operations and Extension Contacts.	26
Relationships Between Recommended Swine Practices Used and the Number of Extension Contacts.	31
Relationships Between Farming Status and the Use of Recommended Practices and Type of Operation (Feeder Pig or Farrow-to-Finish).	53
Relationships Between the Number of Extension Contacts and the Type of Operation (Feeder Pig or Farrow-to- Finish)	65
III. SUMMARY OF MAJOR FINDINGS	69
Purposes and Specific Objectives.	69
Method of Investigation	70
Major Findings.	71
Implications and Recommendations.	80
Recommendations for Further Study	81
BIBLIOGRAPHY.	82
APPENDIX.	85
VITA.	91

LIST OF TABLES

TABLE	PAGE
I. Characteristics of Swine Producers and Their Farm Operation	12
II. Extension Contacts by Swine Producers.	17
III. Use of Recommended Swine Production Practices.	20
IV. Relationships Between Characteristics of Swine Operations and Extension Contacts.	27
V. Relationships Between Recommended Swine Practices Used and the Number of Extension Contacts.	32
VI. Relationships Between Farming Status and the Use of Recommended Practices and Type of Operation (Feeder Pig or Farrow-to-Finish)	54
VII. Relationships Between the Number of Extension Contacts and the Type of Operation (Feeder Pig or Farrow-to-Finish)	66



CHAPTER I

THE PROBLEM AND ITS SETTING

I. INTRODUCTION

The swine industry, nationally and in Tennessee, has made tremendous progress in recent years. Breeding programs have increased the yield of lean cuts by 10% per hog, and farmers have realized the potential savings in feed efficiency and labor offered by confinement facilities (12:133)*.

Swine is an important part of Tennessee's agriculture industry ranking fifth among agricultural enterprises with cash receipts of \$165,229,000 in 1978 or 10.2% of the state's agricultural receipts (8). Tennessee has moved from sixteenth to thirteenth, nationally, in hog production with about 2% of the nation's total swine population (7).

In Tennessee the Agricultural Extension Service has played an important role in the progress made by the swine industry as evidenced by the hundreds of swine facilities across the state built according to The University of Tennessee Extension recommendations.

Tennessee's swine industry has traditionally been that of producing feeder pigs. The trend today, however, is toward more farrow-to-finish operations. This offers the producer the profits of both the feeder pig producer and the farmer who feeds purchased pigs. Also, the farrow-to-finish producer benefits from increased efficiency found in

*Numbers in parentheses refer to alphabetically listed items in the Bibliography; those after the colon refer to page numbers.

pigs that have not had to cope with the stresses of shipping, different environments, and peck order fighting that occurs when strange hogs are mixed. This increased efficiency is often worth eight to ten dollars per head (7).

This study was concerned with characterizing swine producers by the size of their operation, use of recommended production practices, and contacts with the Extension office, and to determine the inter-relationship among these variables.

II. NEED FOR THE STUDY

The purpose of the Agricultural Extension Service is to provide educational information to farmers and homemakers. Like most government agencies, the Extension Service is striving for increased accountability to taxpayers, legislators and others.

To conduct an educational program, it is first necessary to know what areas of a subject need emphasis and improvement. This study was needed to assist county Extension agents in evaluating their county programs and in determining priorities and direction for future educational programs.

III. PURPOSE OF THE STUDY

The purposes of this study were to characterize swine producers and their operation as to size, type of operation, production efficiency factors, farming status, number of contacts with Extension, use of Extension recommended swine production practices and to determine the inter-relationships among these variables.

The specific objectives were:

1. To characterize the swine producers and their operations as to size, type of operation, production efficiency factors, farming status, number of contacts with Extension, and use of Extension recommended swine production practices.
2. To determine the relationship between characteristics of swine operations, and the number of contacts producers had with Extension.
3. To determine the relationship between the use of recommended swine production practices and the number of contacts producers had with Extension.
4. To determine the relationship between the number of swine production practices used and the type of operation (feeder pig or farrow-to-finish) and farming status.
5. To determine the relationship between the number of Extension contacts and the type of operation (feeder pig or farrow-to-finish).

IV. RELATED STUDIES

Several studies have been made concerning the influence of the characteristics of producers and their contacts with Extension on the use of recommended practices by producers.

Abstracts of related literature cited are reported under the following headings: (1) relationship between characteristics of farming operations and Extension contacts, (2) relationship between characteristics of farming operation and the use of recommended practices,

and (3) relationship between Extension contacts and the use of recommended practices.

Relationship Between Characteristics of the Farming Operation and Extension Contacts

Arnett's study in Wilson County in 1973 showed a tendency for full time farmers to visit the county Extension office more than part time farmers, however, the relationship was not significant (1). This study also revealed that the number of office visits made by Wilson County farmers were significantly related to their participation in Extension meetings.

Pat Freeman's study of Grade A dairy farmers in 1978 showed that the number of Extension contacts had a significant positive relationship with the size of the operation (3).

Jamieson Jenkins found in his study of soybean producers in 1975 that full time farmers attended significantly more Extension meetings than part time farmers (5).

In 1977 Michael Gordon's study showed that the number of contacts feeder pig producers had with Extension was significantly related to the size of the operation, with larger producers having more contacts with Extension. Also, producers with plans to expand their swine operation made significantly more contacts with Extension than those producers who did not have plans for expansion (4).

Solomon Yabaya, in his 1978 study of Tennessee corn producers, found that producers who had more contacts with Extension had significantly more acreage and yield for both grain and silage than those who had fewer contacts (14).

McLemore found in his statewide study of Tennessee swine producers in 1975 that the number of females farrowing twice per year and the number of pigs raised to weaning were significantly related to the total number of Extension contacts. The producers who had more females to farrow twice and who raised more pigs had more total Extension contacts (6).

Thomas Cary, in his 1975 study, found that the majority of the Extension Leaders surveyed were following recommended procedures for conducting the practice checklist surveys in their counties (2).

Relationship Between Characteristics of Farming Operations and Recommended Practices

Freeman found that larger farmers used significantly more recommended practices than dairymen with smaller herds and farms (3). Also, dairymen whose herds had higher milk production averages and higher silage yields used significantly more recommended practices than those farmers who had low herd averages and low silage yields.

Gordon's study showed that the age of farmers was not significantly related to their adoption of recommended production practices. In this study, farmers with college training used a higher percentage of recommended production practices than those producers whose education ended at high school (4).

A nationwide study by Wilson and Gallup of research relating to education, revealed a significant relationship between the size of the farm and the number of recommended practices used by producers. The producers who operated larger farms used more recommended production practices than those who farmed on a smaller scale (13).

This study also showed a significant relationship between the farmer's socioeconomic status and his use of recommended production practices. Farmers higher on the socioeconomic scale used a larger number of practices.

Relationship Between Extension Contacts and the Use of Recommended Practices

Arnett found that the number of office visits and telephone calls made to the county Extension office was significantly related to the major farm enterprise (1). Dairy and tobacco farmers made more contacts with Extension than did swine, sheep and poultry farmers. Another finding from Arnett's study was that the farmers with higher gross incomes and higher tobacco yields, made significantly more contacts with Extension.

Freeman found in his study that the number of Extension contacts with dairymen was significantly related to the total number of recommended dairy management practices used (3). This study also showed a significant positive relationship between contacts with Extension and the farmers' use of recommended record keeping practices.

Jenkins found a significant positive relationship between soybean producer's contacts with Extension and their use of the recommended practice of liming and fertilizing by soil test recommendations.

Jenkins' (53) as well as Solomon's (14), study did not show significant relationships between Extension contacts and the use of recommended practices in most cases. This was contributed to the fact that most of the recommended crop production practices have been recommended for several years and most producers were already using them.

Wilson and Gallup found that approximately 14.6% of the practice adoption by farmers was due to the meetings they attended (13). Six percent of the practice changes were due to office calls, and 13% of the practice changes were a result of farm visits by agents.

McLemore found that the total number of contacts with Extension was significantly related to the producer's use of 23 of the 25 recommended practices included in his survey (6). Producers with the most contacts used more of the recommended practices. The only recommended swine production practices that were not found to be significantly related to the number of contacts with the Extension office were (1) preventing pig anemia, and (2) keeping the farrowing house clean, dry, etc.

V. LIMITATIONS OF THE STUDY

This study was limited to data available in the 1979 University of Tennessee Agricultural Extension Service Swine Survey, conducted in the fall of 1979. The data were obtained by Extension agents who conducted personal interviews with 1879 swine producers. The number of producers interviewed varied from county to county, depending on the number of swine producers in the county.

VI. METHOD OF INVESTIGATION

The population of this study included feeder pig and market hog producers in Tennessee. County Extension agents collected the data through personal interviews and returned the completed surveys to the Agricultural Extension Education Office.

The Extension agents were instructed to interview both feeder pig and farrow-to-finish producers. The recommended sample size for each county was as follows:

1. Interview fifteen feeder pig producers for the first fifty producers and five additional interviews for each additional fifty producers to a maximum of twenty-five interviews with feeder pig producers.

2. Interview ten farrow-to-finish producers or all farrow-to-finish producers in counties with less than ten producers.

The "nth" number technique was to be used to identify producers to be surveyed. Alternates were selected to replace those producers who, for good reasons, could not be interviewed. Producers with less than five sows were not included in the survey.

The survey instrument was developed by The University of Tennessee Agricultural Extension Specialist staff in the Swine and Agricultural Extension Departments.

The survey was conducted by agents in the participating counties through personal interviews. The completed surveys were then returned to the Agricultural Extension Education Office for analysis.

The data were coded and punched on computer cards. Computations were made by The University of Tennessee Computing Center. The one way analysis of variance F-test and the chi square test were used to determine probability levels and strength of the relationship between dependent and independent variables. The .05 probability level was accepted as significant.

VII. DEFINITION OF TERMS

Annual Plan of Work (POW) - The written end product of county Extension planning.

Extension Contact - The number of Extension meetings attended, number of telephone calls to the Extension office, number of visits to the Extension office, or the number of farm visits received by the swine producer over a 12-month period.

Practice - A research verified and commonly accepted procedure or task, which, if performed correctly and on a regular basis, will increase or help insure a desired outcome or return.

Swine Producers - Individuals making all or part of their farming income from the production of swine for sale. They constitute the target audience for this study.

CHAPTER II

STUDY FINDINGS

The findings of this study were organized into seven tables with each table constituting a section. Selected variables were discussed under subheadings within a section.

Section I presents findings regarding the characteristics of swine operations.

Section II presents findings regarding the number of Extension meetings attended, number of visits to the Extension office, the number of telephone calls to the Extension office, and the number of farm visits received by swine producers.

Section III presents findings regarding the numbers and percents of swine producers using each recommended swine production practice.

Section IV presents findings regarding the relationship between selected characteristics of the swine producers (i.e., farming status, size, method of marketing, and feeding facilities) and the number of contacts with Extension through meetings, office visits, telephone calls, farm visits, and total Extension contacts in a 12-month period.

Section V presents findings regarding the relationship between recommended swine production practices (e.g., vaccinating for leptospirosis) and the number of contacts with Extension through meetings, office visits, telephone calls, farm visits received, and total Extension contacts.

Section VI presents findings regarding the relationship between the farming status and the use of the recommended pig production practices and the types of swine operations (feeder pig or farrow-to-finish).

Section VII presents findings regarding the relationship between the number of contacts with Extension through meetings, office visits, telephone calls, farm visits, and total Extension contacts and the type of operation (feeder pig or farrow-to-finish).

I. CHARACTERISTICS OF SWINE PRODUCERS

AND THEIR FARM OPERATION

Table I presents nine quantitative variables which tend to characterize the swine producers and their farm operations. The total number and percent of producers are given for each variable. The mean, low, and high are given where they apply.

Number of Sows Farrowed Once

Table I shows that 35.1% of the 1841 producers surveyed did not farrow any sows just one time. Producers who had 1 to 10 sows farrowing once made up the largest group or 42.8% while those farrowing 11 to 20 sows and 21 sows and over made up 11.3% and 10.8%, respectively. The mean number of sows farrowed once was 9.2 while the largest producer had 350 sows to farrow once.

Number of Sows Farrowed Twice

Eight percent of the 1868 producers surveyed did not have any sows to farrow twice. The largest group was those producers with 1 to

TABLE I
CHARACTERISTICS OF SWINE PRODUCERS
AND THEIR FARM OPERATION

Name of Variable	Number of Producers	Percent of Producers
<u>Number of sows farrowed once</u>		
Not any	646	35.1
1-10	788	42.8
11-20	208	11.3
21-over	199	10.8
Total	1841	100.0
Mean = 9.2 Low = 0.0 High = 350.0		
<u>Number of sows farrowed twice</u>		
Not any	153	8.2
1-10	885	47.2
11-20	424	22.9
21-over	406	21.7
Total	1868	100.0
Mean = 17.9 Low = 0.0 High = 450.0		
<u>Number of pigs raised to weaning</u>		
Not any	52	2.8
1-60	202	10.8
61-120	484	25.9
121-180	430	23.0
181-500	465	24.9
501-1000	155	8.3
1001-over	80	4.3
Total	1868	100.0
Mean = 274.9 Low = 0.0 High = 8500.0		
<u>Number of pigs marketed as feeders</u>		
Not any	294	15.9
1-60	300	16.3
61-120	483	26.1
121-200	378	20.3
201-500	291	15.7
501-1000	78	4.3
1001-over	26	1.4
Total	1850	100.0
Mean = 162.9 Low = 0.0 High = 7150.0		

TABLE I (Continued)

Name of Variable	Number of Producers	Percent of Producers
<u>Number of pigs marketed for slaughter</u>		
1-10	144	18.8
11-70	183	24.1
71-200	165	21.7
201-500	154	20.1
501-over	115	15.3
Total	761	100.0
Mean = 122.1 Low = 1.0 High = 7400.0		
<u>Farming status</u>		
Full Time	890	49.3
Part Time	916	50.7
Total	1806	100.0
<u>Feed slaughter hogs in buildings or on ground</u>		
Building	274	42.7
Ground	367	57.3
Total	641	100.0
<u>Method of marketing hogs</u>		
Packer	256	41.5
Buying Station	175	28.4
Stockyard	186	30.1
Total	617	100.0
<u>Sell by grade and yield</u>		
Don't sell to packer	234	43.3
Direct buying	233	43.1
Grade and yield	74	13.6
Total	541	100.0

10 sows which made up 47.2%. Producers with 11 to 20 sows made up 22.9% and those with over 21 sows farrowing twice made up 21.7% of the total. The mean number of sows farrowed twice per producer was 17.9 while the low was 0 and the high was 450 sows.

Number of Pigs Raised to Weaning

Fifty-two (2.8%) of the 1868 producers surveyed did not raise any pigs to weaning. These producers probably did not own sows for the 12-month period included in the survey. Those who raised 60 to 120 pigs made up 10.8% of the total, while those who raised 61 to 120 made up the largest group, or 25.9%. Producers raising 121 to 180 pigs made up 23.0%, those with 181 to 500 made up 24.9%, producers with 501 to 1000 accounted for 8.3%, and 4.3% of the producers raised over 1001 pigs to weaning age. The mean number of pigs raised to weaning by producers was 274.9 pigs while the low was 0 and the high was 8500 pigs raised to weaning.

Number of Pigs Marketed as Feeders

Almost 16% of the swine producers surveyed did not market any pigs as feeders. Over 16% marketed 1 to 60 pigs, while 26%, the largest group, marketed 61 to 120 pigs. There were 378 producers or 20.3% selling from 121 to 200, 15.7% sold 201 to 500, 4.3% sold 501 to 1000 pigs, and 1.4% sold over 1001 feeder pigs. The mean number of pigs raised to weaning was 162.9, while the low was 0 and the high was 7150 feeder pigs sold.

Number of Pigs Marketed for Slaughter

Almost 19% of the 761 slaughter hog producers sold 1 to 10 hogs for slaughter while those selling 11 to 70 hogs were the largest group making up 24.1%. The group selling 71 to 200 hogs made up 21.7%, those selling 201 to 500 accounted for 20.1% and 15.3% of the producers sold over 501 hogs. The mean number of slaughter hogs sold was 122.1, while the low was 0 and the high was 7400 slaughter hogs sold.

Farming Status

Eight hundred and ninety producers (49.3%) indicated their farming status as full time. The other 50.7% were part time farmers.

Feed Slaughter Hogs in Buildings or on Ground

Over 42% of the 641 swine producers surveyed were feeding their hogs in a building. The other 57.3% fed their hogs on the ground.

Method of Marketing Hogs

Over 41% of the 617 swine producers surveyed sold their hogs to a packer while 28.4% sold to buying stations and 30.1% sold to stockyards.

Sell by Grade and Yield

Some 43.3% of the 541 swine producers surveyed did not sell their hogs to a packer, 43.1% sold by direct buying, and 13.6% sold by grade and yield.

II. EXTENSION CONTACTS BY SWINE PRODUCERS

Table II presents five quantitative variables which tend to characterize the swine producers by their number of contacts with the Agricultural Extension Service through Extension meetings, office visits, telephone calls, farm visits, and total Extension contacts. The total number of producers and the percent of producers are given for each variable. The mean, low and high also are given.

Number of Extension Meetings Attended

Seven hundred and twenty-seven (38.7%) of the swine producers surveyed did not attend any Extension meetings. Thirty-nine percent of the producers attended 1 or 2 meetings while 23.3% attended 3 or more meetings. The mean number of meetings attended was 1.7, the low was 0 and the high was 65.0.

Number of Visits to Extension Office

Four hundred and sixteen (22.2%) of the producers surveyed did not make any visits to the Extension office. Over 51% made 1 to 4 visits, 22.5% made 5 to 12 visits, and 3.7% made 13 or more visits to their county Extension office. The mean number of office visits per producer was 2.9, the low was 0 and the high was 98.0.

Number of Telephone Calls to Extension Office

Over 25% of the swine producers surveyed did not make any telephone calls to the Extension office. Over 48% of the producers made 1 to 4 telephone calls, 22.4% made 5 to 12 telephone calls, and 4.3% made 13 or more telephone calls to the county Extension office. The

TABLE II
EXTENSION CONTACTS BY
SWINE PRODUCERS

Name of Variable	Number of Producers	Percent of Producers
<u>Number of Extension meetings attended</u>		
Not any	727	38.7
1-2	732	39.0
3-over	418	22.3
Total	1877	100.0
Mean = 1.7 Low = 0.0 High = 65.0		
<u>Number of visits to Extension office</u>		
Not any	416	22.2
1-4	968	51.6
5-12	422	22.5
13-over	72	3.7
Total	1878	100.0
Mean = 2.9 Low = 0.0 High = 98.0		
<u>Number of telephone calls to Extension office</u>		
Not any	471	25.1
1-4	904	48.2
5-12	420	22.4
13-over	80	4.3
Total	1875	100.0
Mean = 3.7 Low = 3.0 High = 60.0		
<u>Number of farm visits received from Extension agents</u>		
Not any	450	24.0
1-3	961	51.3
4-12	413	22.0
13-over	51	2.7
Total	1875	100.0
Mean = 2.8 Low = 0.0 High = 31.0		

TABLE II (Continued)

Name of Variable	Number of Producers	Percent of Producers
<u>Total number of Extension contacts</u>		
Not any	116	6.2
1-5	605	32.2
6-20	873	46.5
20-over	285	15.1
Total	1879	100.0
Mean = 11.1 Low = 0.0 High = 396.0		

mean number of telephone calls made per producer was 3.7 while the low was 0 and the high was 60 telephone calls.

Number of Farm Visits Received from Extension Agents

Twenty-four percent of the producers surveyed did not receive any farm visits from Extension agents. Over 51% of the producers received 1 to 3 visits, 22% received 4 to 12 visits, and 2.7% received 13 or more visits from Extension agents. The mean number of farm visits received was 2.8 for each producer while the low was 0 and the high was 31.0.

Total Number of Extension Contacts

Only 6.2% of the producers surveyed did not have any Extension contacts during the 12-month period. Over 32% had 1 to 5 contacts, 46.5% had 6 to 20 contacts and 15.1% had over 20 contacts. The mean number of total Extension contacts was 11.1, while the low was 0 and the high was 396 total contacts.

III. USE OF RECOMMENDED SWINE PRODUCTION PRACTICES

Table III presents data regarding swine producer's use of 18 recommended swine production practices, their most troublesome pig production problem, and the total number of pig production practices used. The number and percent of producers using each practice is reported.

Vaccination for Leptospirosis

Nine hundred and twenty (50.1%) of the producers vaccinated their sows for leptospirosis. The other 49.9% did not use the recommended practice.

TABLE III
USE OF RECOMMENDED SWINE
PRODUCTION PRACTICES

<u>Recommended Production Practice</u>	<u>Number of Producers</u>	<u>Percent of Producers</u>
<u>Vaccination for leptospirosis</u>		
No	919	49.9
Yes	920	50.1
Total	1839	100.0
<u>Vaccination for erysipelas</u>		
No	1153	62.8
Yes	683	37.2
Total	1836	100.0
<u>Vaccination for atrophic rhinitis</u>		
No	1473	80.2
Yes	364	19.8
Total	1837	100.0
<u>Feed dry sows as recommended</u>		
No	406	22.2
Yes	1420	77.8
Total	1826	100.0
<u>Worm sows before farrowing</u>		
No	395	21.4
Yes	1447	78.6
Total	1842	100.0
<u>Treat sows for lice</u>		
No	352	19.1
Yes	1487	80.9
Total	1839	100.0
<u>Wash sows prior to farrowing</u>		
No	1331	72.7
Yes	501	27.3
Total	1832	100.0
<u>Increase feed to pregnant sows</u>		
No	338	18.4
Yes	1498	81.6
Total	1836	100.0

TABLE III (Continued)

<u>Recommended Production Practice</u>	<u>Number of Producers</u>	<u>Percent of Producers</u>
<u>Clip pig's needle teeth</u>		
No	557	30.4
Yes	1278	69.6
Total	1835	100.0
<u>Vaccinate pigs for atrophic rhinitis</u>		
No	1537	83.6
Yes	301	16.4
Total	1838	100.0
<u>Feed nursing sows</u>		
No	271	14.9
Yes	1550	85.1
Total	1821	100.0
<u>Give pigs iron shots</u>		
No	558	33.3
Yes	1120	66.7
Total	1678	100.0
<u>Creep feed pigs</u>		
No	176	9.6
Yes	1663	90.4
Total	1839	100.0
<u>Clean farrowing quarters</u>		
No	650	36.2
Yes	1148	63.8
Total	1798	100.0
<u>Most serious pig production problem</u>		
Pig scours	541	30.9
Small litters	276	15.8
Uneven birth weight of pigs	254	14.5
Sows failing to milk	168	9.6
Downer sows	17	1.0
Sows failing to breed	128	7.3
Other	364	20.9
Total	1748	100.0
<u>Worm pigs during finishing period</u>		
No	30	4.8
Yes	593	95.2
Total	623	100.0

TABLE III (Continued)

<u>Recommended Production Practice</u>	<u>Number of Producers</u>	<u>Percent of Producers</u>
<u>Feed weaned pigs 16% protein</u>		
No	85	13.6
Yes	539	86.4
Total	624	100.0
<u>Treat weaned pigs for lice</u>		
No	71	11.2
Yes	561	88.8
Total	632	100.0
<u>Feed antibiotics during finishing period</u>		
No	153	24.4
Yes	475	75.6
Total	628	100.0
<u>Total number pig production practices used</u>		
0	38	2.1
1	15	0.8
2	27	1.4
3	54	2.9
4	111	5.9
5	125	6.7
6	185	9.9
7	184	9.8
8	229	12.2
9	221	11.8
10	211	11.2
11	167	8.9
12	158	8.4
13	96	5.1
14	55	2.9
Total	1876	100.0

Vaccination for Erysipelas

Six hundred and eighty-three (37.2%) of the producers surveyed vaccinated their sows for erysipelas. The other 62.8% did not use the recommended practice.

Vaccination for Atrophic Rhinitis

Only 364 (19.8%) of the 1837 producers sampled vaccinated their sows for atrophic rhinitis. The other 80.2% did not use the recommended practice.

Feed Dry Sows as Recommended

Fourteen hundred and twenty (77.8%) of the 1826 producers surveyed followed recommended practices for feeding dry sows. The other 22.2% did not follow the recommended practice.

Worm Sows Before Farrowing

Fourteen hundred and forty-seven (78.6%) of the 1842 producers surveyed wormed their sows before farrowing. The other 21.4% did not use this recommended practice.

Treat Sows for Lice

Fourteen hundred and eighty-seven (80.9%) of the 1839 producers surveyed treated their sows for lice. The other 19.1% did not use this practice.

Wash Sows Prior to Farrowing

Only 501 (27.3%) of the 1832 producers washed their sows before farrowing. The other 72.7% did not wash their sows.

Increase Feed to Pregnant Sows

Most of the 1836 producers surveyed increased feed to sows before farrowing. Only 18.4% of the producers were not following this practice.

Clip Pig's Needle Teeth

Over 69.6% of the 1835 producers were using the recommended practice of clipping needle teeth. The other 30.4% did not use the practice.

Vaccinate Pigs for Atrophic Rhinitis

Only 16.4% of the 1838 swine producers surveyed vaccinated their pigs for atrophic rhinitis. The other 83.6% did not use the practice.

Feed Nursing Sows

Over 85% of the 1821 swine producers fed their sows as recommended while they were nursing pigs. The other 14.9% did not follow recommended feeding practices for their nursing sows.

Give Pigs Iron Shots

The majority (66.7%) of the producers gave their pigs iron shots. Thirty-three percent of the 1678 producers surveyed did not use this practice.

Creep Feed Pigs

Over 90% of the 1839 producers indicated that they provided creep feed for their pigs. The other 9.6% did not use the practice.

Clean Farrowing Quarters

Eleven hundred and forty-eight (63.8%) of the 1798 swine producers surveyed properly cleaned their farrowing facilities between groups of sows. The other 36.2% did not use this practice.

Most Serious Pig Production Problem

Five hundred and forty-one (30.9%) of the swine producers surveyed said their most serious problem in the production of pigs was pig scours. Small litters was the second most serious problem with 15.8% of the producers. Other answers and the percentage of response were uneven birth weight of pigs, 14.5%, sows failing to milk, 9.6%, downer sows, 1.0%, and sows failing to breed, 7.3%. About 21% indicated other problems.

Worm Pigs During Finishing Period

Over 95% of the swine producers who finish hogs wormed their pigs during the finishing period. The other 4.8% of the 623 producers surveyed did not use the practice.

Feed Weaned Pigs 16% Protein Ration

Five hundred and thirty-nine of the 624 swine producers surveyed were feeding a 16% protein ration to their pigs. The other 13.6% were not using the practice.

Treat Weaned Pigs for Lice

Over 88% of the 632 swine producers surveyed indicated that they treated their pigs for lice as recommended. Some 11.2% did not treat their hogs for lice.

Feed Antibiotics During Finishing Period

Four hundred and seventy-five (75.6%) of the swine producers surveyed fed antibiotics to their hogs during the finishing period. The other 24.4% did not use the practice.

Total Number of Pig Production Practices Used

Thirty-eight (2.1%) of the 1876 producers did not use any of the 14 recommended pig production practices, while 2.9% of the producers used all 14 of the practices. Over 60% of the producers used 8 to 14 of the practices, while only 29.7% used less than 7 of the practices.

IV. RELATIONSHIPS BETWEEN CHARACTERISTICS OF SWINE OPERATIONS AND EXTENSION CONTACTS

Table IV presents data regarding the relationship between the characteristics of the swine producers' operation and the number of contacts they had with Extension over a 12-month period. The characteristics of the producers' operation including size, farming status, type of feeding facility, and marketing methods are compared to the number of Extension contacts, which are dependent variables. Five contact methods were analyzed including: (1) number of Extension meetings attended, (2) number of visits to the Extension office, (3) number of telephone calls to the Extension office, (4) number of farm visits received from Extension agents, and (5) total Extension contacts.

Farming Status and Number of Extension Contacts

Eight hundred and ninety producers (49%) gave their farming status as full time. The other 51% of the producers surveyed were

TABLE IV

RELATIONSHIPS BETWEEN CHARACTERISTICS OF SWINE
OPERATIONS AND EXTENSION CONTACTS

Characteristic of Swine Operations	Mean Number of Extension Contacts in 1979				
	Extension Meetings	Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
<u>Full Time - Part Time</u>					
<u>Farmers</u>					
Full Time (N = 890)	2.1	3.3	4.5	3.5	13.5
Part Time (N = 916)	1.2	2.5	3.1	2.2	10.0
	$\bar{F} = 67.9$ $p < .05$	$\bar{F} = 20.3$ $p < .05$	$\bar{F} = 34.1$ $p < .05$	$\bar{F} = 55.2$ $p < .05$	$\bar{F} = 20.2$ $p < .05$
<u>Feed Slaughter Hogs in</u>					
<u>Building or on Ground</u>					
Building (N = 274)	2.8	4.1	6.5	4.7	18.4
Ground (N = 367)	2.0	3.2	3.9	3.3	12.5
	$\bar{F} = 14.1$ $p < .05$	$\bar{F} = 5.4$ $p < .05$	$\bar{F} = 23.2$ $p < .05$	$\bar{F} = 13.6$ $p < .05$	$\bar{F} = 23.1$ $p < .05$
<u>Method of Marketing Hogs</u>					
Packer (N = 256)	2.4	4.0	6.1	4.2	17.1
Buying Station (N = 175)	3.0	3.3	4.7	4.3	15.3
Stockyard (N = 186)	1.9	3.0	3.9	3.1	12.0
	$\bar{F} = 7.6$ $p < .05$	$\bar{F} = 2.6$ $p > .05$	$\bar{F} = 5.7$ $p < .05$	$\bar{F} = 3.7$ $p < .05$	$\bar{F} = 5.7$ $p < .05$

TABLE IV (Continued)

Characteristic of Swine Operations	Extension Meetings	Mean Number of Extension Contacts in 1979			
		Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
Sell by Grade and Yield					
Don't Sell to Packer (N = 234)	2.3	3.1	3.9	3.7	13.0
Direct Buying (N = 233)	2.3	3.5	5.1	3.3	14.6
Grade - Yield (N = 74)	3.0	5.2	8.9	6.3	23.5
	$\bar{F} = 2.8$ $p > .05$	$\bar{F} = 5.6$ $p < .05$	$\bar{F} = 15.1$ $p < .05$	$\bar{F} = 11.9$ $p < .05$	$\bar{F} = 12.9$ $p < .05$

part time farmers. The full time farmers had 13.5 total contacts with Extension compared to 10 total contacts for the part time producers. Full time producers attended more Extension meetings, made more visits and telephone calls to the Extension office and received more farm visits from Extension agents than part time producers. These observed differences in Extension contacts were significant when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the swine producers' farming status. Full time farmers attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, received more farm visits from Extension agents and had more total Extension contacts than part time farmers.

Feed Slaughter Hogs in Buildings and Number of Extension Contacts

Two hundred and seventy-four (43%) of the 641 producers surveyed finished their hogs in buildings. The other 367 producers fed their hogs on the ground. The producers who used confinement feeding facilities had 18.4 total Extension contacts compared to 12.5 total contacts for those who fed hogs on the ground. Producers who fed in confinement also attended more Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from Extension agents. These observed differences in the number of Extension contacts were significant when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the type of feeding facility used by producers. Swine producers who used buildings or confinement feeding facilities attended significantly more Extension meetings, made more

visits and telephone calls to the Extension office, received more farm visits from Extension agents, and had more total Extension contacts than producers who fed their hogs on the ground.

Method of Marketing Hogs and Number of Extension Contacts

Two hundred and fifty-six producers (41%) indicated that they marketed their hogs directly to the packer, while 28% sold to buying stations, and 31% sold to stockyards. Producers who marketed their hogs through the packer had 17.1 total Extension contacts compared to 15.3 and 12.0 contacts for those selling to buying stations and stockyards, respectively. The swine producers who sold to buying stations attended 3.0 Extension meetings compared with 2.4 and 1.9 meetings attended by those selling to the packer and to stockyards. The swine producers who sold to the packer had more contacts with Extension through office visits, telephone calls, and total Extension contacts than those who sold to buying stations or stockyards. Producers who sold to buying stations attended more Extension meetings than those selling to the packer or to stockyards. These observed differences in Extension contacts were significant when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the producers' method of marketing. Producers who marketed through the packer made more telephone calls to the Extension office, received more farm visits from agents, and had more total Extension contacts than producers who sold at buying stations or at the stockyards. Producers who sold at buying stations attended a larger number of Extension meetings than those selling to packers or at the stockyards.

Sell by Grade and Yield and Number of Extension Contacts

Only seventy-four (14%) of the 541 producers surveyed sold their hogs on grade and yield programs. However, producers who sold on grade and yield programs had 23.5 total contacts with Extension compared to 14.6 and 13.0 contacts for those selling by direct buying and those not selling to a packer. The producer who sold on grade and yield programs had more contacts with Extension through meetings, office visits, telephone calls, and farm visits. These observed differences in the number of Extension contacts were significant when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the producers' method of selling his hogs. Producers who sold their hogs on grade and yield had a larger number of contacts with Extension through office visits, telephone calls, farm visits, and total Extension contacts than producers who sold by direct buying or who did not sell to a packer.

V. RELATIONSHIPS BETWEEN RECOMMENDED SWINE PRACTICES USED AND THE NUMBER OF EXTENSION CONTACTS

This section presents data regarding the relationship between the use of recommended swine production practices and the number of Extension contacts. Table V groups producers according to their use of the recommended swine production practices. The mean number of Extension contacts for each group is broken down as follows into (1) number of Extension meetings attended, (2) number of visits to the Extension office, (3) number of telephone calls to the Extension office, (4) number of farm visits received from agents, and (5) total Extension contacts.

TABLE V

RELATIONSHIPS BETWEEN RECOMMENDED SWINE PRACTICES USED
AND THE NUMBER OF EXTENSION CONTACTS

Recommended Swine Practices	Extension Meetings	Mean Number of Extension Contacts in 1979			Total Extension Contacts
		Office Visits	Telephone Calls	Farm Visits	
<u>Vaccination for leptospirosis</u>					
No (N = 919)	1.2	2.5	3.1	2.5	9.6
Yes (N = 920)	2.1	3.2	4.4	3.1	13.9
	$\bar{F} = 65.3$ $p < .05$	$\bar{F} = 12.7$ $p < .05$	$\bar{F} = 30.9$ $p < .05$	$\bar{F} = 12.5$ $p < .05$	$\bar{F} = 29.2$ $p < .05$
<u>Vaccination for erysipelas</u>					
No (N = 1153)	1.3	2.6	3.1	2.4	10.0
Yes (N = 683)	2.2	3.3	4.8	3.5	14.7
	$\bar{F} = 64.7$ $p < .05$	$\bar{F} = 14.7$ $p < .05$	$\bar{F} = 49.3$ $p < .05$	$\bar{F} = 30.3$ $p < .05$	$\bar{F} = 32.8$ $p < .05$
<u>Vaccination for atrophic rhinitis</u>					
No (N = 1473)	1.5	2.7	3.3	2.6	10.5
Yes (N = 364)	2.4	3.7	5.5	3.7	16.7
	$\bar{F} = 46.8$ $p < .05$	$\bar{F} = 19.2$ $p < .05$	$\bar{F} = 53.8$ $p < .05$	$\bar{F} = 21.9$ $p < .05$	$\bar{F} = 37.4$ $p < .05$

TABLE V (Continued)

Recommended Swine Practices	Extension Meetings	Mean Number of Extension Contacts in 1979			
		Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
<u>Feed dry sows</u>					
No (N = 406)	1.4	2.9	3.5	2.9	10.6
Yes (N = 1420)	1.7	2.9	3.8	2.8	12.1
	$\bar{F} = 3.7$ $p < .05$	$\bar{F} = 0.7$ $p > .05$	$\bar{F} = 3.2$ $p < .05$	$\bar{F} = 3.6$ $p < .05$	$\bar{F} = 2.2$ $p > .05$
<u>Worm sows before farrowing</u>					
No (N = 395)	1.4	2.5	3.0	2.6	10.3
Yes (N = 1447)	1.7	3.0	3.9	2.9	12.2
	$\bar{F} = 5.4$ $p < .05$	$\bar{F} = 5.2$ $p < .05$	$\bar{F} = 10.0$ $p < .05$	$\bar{F} = 1.2$ $p > .05$	$\bar{F} = 3.6$ $p > .05$
<u>Treat sows for lice</u>					
No (N = 352)	1.5	2.5	3.1	2.5	11.6
Yes (N = 1487)	1.7	3.0	3.9	2.9	11.8
	$\bar{F} = 2.1$ $p > .05$	$\bar{F} = 3.0$ $p > .05$	$\bar{F} = 7.0$ $p < .05$	$\bar{F} = 2.4$ $p > .05$	$\bar{F} = 0.0$ $p > .05$
<u>Wash sows prior to farrowing</u>					
No (N = 1331)	1.5	2.7	3.3	2.6	10.9
Yes (N = 501)	2.1	3.5	5.0	3.6	14.2
	$\bar{F} = 26.6$ $p < .05$	$\bar{F} = 14.7$ $p < .05$	$\bar{F} = 43.3$ $p < .05$	$\bar{F} = 12.9$ $p < .05$	$\bar{F} = 13.9$ $p < .05$

TABLE V (Continued)

Recommended Swine Practices	Extension Meetings	Mean Number of Extension Contacts in 1979			
		Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
<u>Increase feed to pregnant sow</u>					
No (N = 338)	1.5	2.7	3.1	2.8	11.5
Yes (N = 1498)	1.7	2.9	3.9	2.8	11.8
	$\bar{F} = 1.8$ $p > .05$	$\bar{F} = 1.0$ $p > .05$	$\bar{F} = 7.2$ $p < .05$	$\bar{F} = 0.0$ $p > .05$	$\bar{F} = 0.1$ $p > .05$
<u>Clip pig's needle teeth</u>					
No (N = 557)	1.2	2.4	3.0	2.3	9.4
Yes (N = 1278)	1.9	3.1	4.1	3.1	12.8
	$\bar{F} = 20.6$ $p < .05$	$\bar{F} = 6.7$ $p < .05$	$\bar{F} = 9.1$ $p < .05$	$\bar{F} = 7.9$ $p < .05$	$\bar{F} = 8.3$ $p < .05$
<u>Vaccinate pigs for atrophic rhinitis</u>					
No (N = 1537)	1.5	2.7	3.4	2.6	10.8
Yes (N = 301)	2.6	3.7	5.6	4.1	16.5
	$\bar{F} = 71.4$ $p < .05$	$\bar{F} = 17.6$ $p < .05$	$\bar{F} = 49.9$ $p < .05$	$\bar{F} = 36.8$ $p < .05$	$\bar{F} = 28.1$ $p < .05$
<u>Feed nursing sows</u>					
No (N = 271)	1.2	2.1	2.4	2.1	7.8
Yes (N = 1550)	1.8	3.0	4.0	3.0	12.5
	$\bar{F} = 14.9$ $p < .05$	$\bar{F} = 12.4$ $p < .05$	$\bar{F} = 22.6$ $p < .05$	$\bar{F} = 12.4$ $p < .05$	$\bar{F} = 17.4$ $p < .05$

TABLE V (Continued)

Recommended Swine Practices	Extension Meetings	Mean Number of Extension Contacts in 1979			
		Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
<u>Give pigs iron shots</u>					
No (N = 558)	1.2	2.5	2.9	2.4	9.7
Yes (N = 1120)	2.0	3.3	4.4	3.2	13.7
	$\bar{F} = 50.6$ $p < .05$	$\bar{F} = 13.7$ $p < .05$	$\bar{F} = 30.4$ $p < .05$	$\bar{F} = 16.8$ $p < .05$	$\bar{F} = 18.6$ $p < .05$
<u>Creep feed pigs</u>					
No (N = 176)	1.0	1.9	2.6	2.3	7.8
Yes (N = 1663)	1.7	3.0	3.9	2.9	12.2
	$\bar{F} = 16.3$ $p < .05$	$\bar{F} = 11.7$ $p < .05$	$\bar{F} = 9.6$ $p < .05$	$\bar{F} = 4.1$ $p < .05$	$\bar{F} = 10.3$ $p < .05$
<u>Clean farrowing quarters</u>					
No (N = 650)	1.6	2.6	2.9	2.8	10.5
Yes (N = 1148)	1.8	3.1	4.3	2.9	12.8
	$\bar{F} = 3.7$ $p > .05$	$\bar{F} = 5.1$ $p < .05$	$\bar{F} = 32.8$ $p < .05$	$\bar{F} = 0.2$ $p > .05$	$\bar{F} = 7.2$ $p < .05$
<u>Most serious pig production problem</u>					
Pig scours (N = 541)	1.8	2.8	3.5	2.8	10.8
Small litters (N = 276)	1.5	2.9	3.4	2.7	12.2
Uneven birth weight (N = 254)	1.5	2.5	3.3	2.4	10.4
Sows failing to milk (N = 168)	2.0	3.1	4.2	3.5	15.0

TABLE V (Continued)

Recommended Swine Practices	Extension Meetings	Mean Number of Extension Contacts in 1979			
		Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
<u>Most serious pig production problem (continued)</u>					
Downer sows (N = 17)	2.9	3.8	5.2	3.1	15.0
Sows failing to breed (N = 128)	1.8	3.2	4.3	2.8	12.2
Other (N = 364)	1.4	2.9	3.8	3.0	11.3
	$\bar{F} = 3.2$ $p < .05$	$\bar{F} = 0.8$ $p > .05$	$\bar{F} = 1.5$ $p > .05$	$\bar{F} = 1.7$ $p > .05$	$\bar{F} = 1.7$ $p > .05$
<u>Worm pigs during finishing period</u>					
No (N = 30)	1.7	3.4	5.7	3.5	14.3
Yes (N = 593)	2.4	3.6	5.0	4.0	15.2
	$\bar{F} = 2.1$ $p > .05$	$\bar{F} = 0.05$ $p > .05$	$\bar{F} = 0.3$ $p > .05$	$\bar{F} = 0.3$ $p > .05$	$\bar{F} = 0.1$ $p > .05$
<u>Feed weaned pigs 16% protein</u>					
No (N = 85)	2.0	3.5	4.3	2.9	12.6
Yes (N = 539)	2.5	3.6	5.2	4.1	15.5
	$\bar{F} = 3.0$ $p > .05$	$\bar{F} = .02$ $p > .05$	$\bar{F} = 1.3$ $p > .05$	$\bar{F} = 5.1$ $p < .05$	$\bar{F} = 2.5$ $p > .05$

TABLE V (Continued)

Recommended Swine Practices	Extension Meetings	Mean Number of Extension Contacts in 1979			
		Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
<u>Treat weaned pigs for lice</u>					
No (N = 71)	2.4	4.4	6.3	3.8	16.9
Yes (N = 561)	2.4	3.4	4.9	3.9	14.8
	$F = 0.0$ $p > .05$	$F = 2.3$ $p > .05$	$F = 2.7$ $p > .05$	$F = 0.0$ $p > .05$	$F = 1.1$ $p > .05$
<u>Feed antibiotics during finishing period</u>					
No (N = 153)	1.9	3.0	3.8	3.6	12.3
Yes (N = 475)	2.6	3.7	5.4	4.0	16.0
	$F = 6.9$ $p < .05$	$F = 2.9$ $p > .05$	$F = 6.3$ $p < .05$	$F = 1.1$ $p > .05$	$F = 6.3$ $p < .05$
<u>Total number pig production practices used</u>					
0 (N = 38)	1.2	2.3	3.7	3.8	11.1
1 (N = 15)	0.2	0.7	1.0	1.8	3.7
2 (N = 27)	1.0	1.6	1.1	1.9	5.6
3 (N = 54)	0.8	1.6	1.9	2.4	6.7
4 (N = 111)	1.4	2.6	3.3	2.6	9.9
5 (N = 125)	0.8	2.1	2.6	2.0	7.5
6 (N = 185)	1.4	2.7	2.9	2.5	12.0
7 (N = 184)	1.4	2.7	2.9	2.3	9.2
8 (N = 229)	1.4	2.3	3.1	2.4	9.6
9 (N = 221)	1.6	3.1	3.5	2.7	10.9
10 (N = 211)	2.0	3.3	4.5	3.4	13.7

TABLE V (Continued)

Recommended Swine Practices	Extension Meetings	Mean Number of Extension Contacts in 1979			
		Office Visits	Telephone Calls	Farm Visits	Total Extension Contacts
<u>Total number pig production practices used (continued)</u>					
11 (N = 167)	2.0	3.2	3.9	3.1	14.4
12 (N = 158)	2.2	3.2	5.1	3.2	13.6
13 (N = 96)	3.1	4.3	7.2	5.0	20.6
14 (N = 55)	3.1	4.3	7.2	3.9	19.6
	$\bar{F} = 9.5$ $p < .05$	$\bar{F} = 3.6$ $p < .05$	$\bar{F} = 9.5$ $p < .05$	$\bar{F} = 4.5$ $p < .05$	$\bar{F} = 5.5$ $p < .05$

Vaccination for Leptospirosis and Number of Extension Contacts

Nine hundred and twenty (50%) of the 1839 producers surveyed vaccinated their sows for leptospirosis. Producers who vaccinated for leptospirosis had almost 14 total contacts with Extension over a 12-month period, as compared to less than 10 total Extension contacts for the producers who did not use this practice. Producers who were using this recommended practice attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from Extension agents than did those producers who were not vaccinating their sows for leptospirosis. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of vaccinating sows for leptospirosis. Swine producers who vaccinated their sows for leptospirosis attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from agents than producers who did not use the practice.

Vaccination for Erysipelas and Number of Extension Contacts

Only 683 (37%) of the 1836 producers surveyed vaccinated their sows for erysipelas. The producers who vaccinated for erysipelas had almost 15 total Extension contacts compared to 10 total contacts for those not using the practice. Producers who were using this recommended practice attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office and received a

larger number of farm visits from Extension agents than did those producers who were not vaccinating their sows for erysipelas. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of vaccinating sows for erysipelas. Swine producers who vaccinated sows for erysipelas attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from agents than producers who did not use the practice.

Vaccination for Atrophic Rhinitis and Number of Extension Contacts

Three hundred and sixty-four (20%) of the producers surveyed vaccinated their sows for atrophic rhinitis. Producers who vaccinated for atrophic rhinitis had 16.7 total Extension contacts compared to 10.5 contacts for the producers who did not use the practice. Producers using this recommended practice attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from Extension agents than did those producers who were not vaccinating their sows for atrophic rhinitis. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of vaccinating sows for atrophic rhinitis. Swine producers who vaccinated their sows for atrophic rhinitis attended

significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from agents than those who did not use this practice.

Feed Dry Sows and Number of Extension Contacts

Fourteen hundred and twenty of the 1836 producers surveyed followed recommended practices for feeding dry sows. Producers who used this practice had 12.1 total contacts with Extension compared to 10.6 contacts for producers who did not follow Extension recommendations for feeding dry sows. Producers who were using this recommended practice also attended more Extension meetings and made more telephone calls to the Extension office. Producers who were not following recommended practices of feeding dry sows received slightly more farm visits and made the same number of office visits as producers who used the practice. These observed differences in the number of Extension meetings attended, number of telephone calls made to the Extension office, and number of farm visits received from agents were found to be significant (i.e., .05 level) when tested by the F -test. Therefore, there was a significant relationship between the number of Extension meetings attended, telephone calls made to the Extension office, and farm visits received. Swine producers who followed recommended practices for feeding dry sows attended significantly more Extension meetings and made more telephone calls to the Extension office than those who did not use this practice. Producers who did not follow recommended practices for feeding dry sows received significantly more farm visits from Extension agents than producers who followed this recommended practice.

Worm Sows Before Farrowing and Number of Extension Contacts

One thousand four hundred and forty-seven (78%) of the producers surveyed used the recommended practice of worming sows before farrowing. Producers who wormed their sows as recommended had 12.2 total contacts with Extension compared to 10.3 contacts for those producers who did not use the practice. Producers who wormed their sows as recommended attended more Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from agents than producers who did not use this practice. However, when the data were analyzed with the F-test, significant differences were found only with the number of Extension meetings attended and the number of visits and telephone calls to the Extension office. Therefore, there was a significant relationship between the number of Extension meetings attended, the number of visits and telephone calls to the Extension office and the use of the recommended practice of worming sows before farrowing. Swine producers who wormed their sows before farrowing attended significantly more Extension meetings and made more visits and telephone calls to the Extension office than those who did not use this practice.

Treat Sows for Lice and Number of Extension Contacts

Fourteen hundred and eighty-seven (19%) of the swine producers surveyed used the recommended practice of treating sows for lice. Producers who treated their sows for lice had slightly more contacts with Extension for each type of contact. The largest differences was observed in the number of telephone calls made to the Extension office, where producers who treated sows for lice made 3.9 telephone calls compared to 3.1 telephone calls for producers not using the practice.

This observed difference in the number of telephone calls to the Extension office was found to be significant when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of telephone calls made to the Extension office and the use of the recommended practice of treating sows for lice. Producers who treated their sows for lice made a significantly larger number of telephone calls to the Extension office than those not using the practice.

Wash Sows Prior to Farrowing and Number of Extension Contacts

The majority (73%) of the producers surveyed did not use the recommended practice of washing their sows before farrowing. Producers who washed their sows prior to farrowing had 14.2 total contacts with the Extension office compared to 10.9 contacts for producers not using the practice. The 501 producers who washed their sows prior to farrowing attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from Extension agents than did those producers who did not wash their sows prior to farrowing. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of washing sows before farrowing. Swine producers who washed their sows before farrowing attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a

larger number of farm visits from agents than producers who did not use this practice.

Increase Feed to Pregnant Sows and Number of Extension Contacts

Eighty-two percent of the 1836 producers surveyed followed recommendations for feeding pregnant sows. Producers who followed the recommended practice of increasing feed to pregnant sows the last three weeks before farrowing had the same or slightly more of each type of Extension contact. The largest difference was observed in the number of telephone calls to the Extension office, where those producers using the practice made 3.9 calls compared to 3.1 calls for those not using the practice. The observed difference in the number of telephone calls to the Extension office was found to be significant when tested by the analysis of variance F-test. Telephone calls were the only type of contact that differed significantly. Therefore, there was a significant relationship between the number of telephone calls made to the Extension office and the use of the recommended practice of increasing feed to pregnant sows before farrowing. Producers who increased feed to pregnant sows before farrowing made a significantly larger number of telephone calls to the Extension office than those who did not use the practice.

Clip Pig's Needle Teeth and Number of Extension Contacts

Sixty-eight percent of the swine producers surveyed used the recommended practice of clipping the needle teeth of baby pigs. Producers who used this practice had 12.8 total Extension contacts compared to 9.4 contacts for those who did not clip needle teeth of baby

pigs. Producers who clipped the needle teeth of baby pigs attended more Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from agents than those who did not use this practice. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of clipping needle teeth of baby pigs. Swine producers who used the recommended practice of clipping needle teeth of baby pigs attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from agents than producers who did not use the practice.

Vaccinate Pigs for Atrophic Rhinitis and Number of Extension Contacts

Only 16% of the producers surveyed used the recommended practice of vaccinating pigs for atrophic rhinitis. The producers who used this practice had 16.5 total Extension contacts compared to 10.8 total Extension contacts for those not vaccinating pigs for atrophic rhinitis. Producers who vaccinated their pigs for atrophic rhinitis attended more Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from Extension agents than did those producers who did not vaccinate their pigs for atrophic rhinitis. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the

recommended practice of vaccinating pigs for atrophic rhinitis. Swine producers who vaccinated their pigs for atrophic rhinitis attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from agents than producers who did not use this practice.

Feed Nursing Sows and Number of Extension Contacts

Fifteen hundred and fifty of the 1821 producers surveyed used recommended methods of feeding sows while nursing pigs. Producers who used this recommended practice had 12.5 total contacts with Extension compared to less than 8 contacts for those who did not feed sows as recommended. Producers who fed their sows as recommended attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from Extension agents than producers who did not feed sows as recommended while they were nursing pigs. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of feeding sows properly while they were nursing pigs. Swine producers who followed recommendations for feeding sows attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from Extension agents than producers who did not use this practice.

Give Pigs Iron Shots and Number of Extension Contacts

Sixty-seven percent of the 1678 producers who responded to this question used the recommended practice of giving iron shots to baby pigs raised in confinement. This question did not apply to those producers not using confinement farrowing facilities. Producers who gave their pigs iron shots had 13.7 total Extension contacts compared to 9.7 contacts for those who did not use this practice. Producers who used the recommended practice of giving iron shots to pigs raised in confinement attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from Extension agents than did those producers who did not give pigs iron shots. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of giving pigs iron shots. Swine producers who gave their pigs iron shots attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from agents than those producers who did not use this practice.

Creep Feed Pigs and Number of Extension Contacts

Ninety percent of the producers surveyed used the recommended practice of creep feeding baby pigs. Swine producers who provided creep feed for their pigs had 12.2 total Extension contacts compared to 7.8 contacts for those who did not use the practice. Producers who used the recommended practice of providing creep feed for their pigs

attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office and received a larger number of farm visits from Extension agents than those who did not use this practice. These observed differences in the number of Extension contacts were found to be significant (i.e., .05 level) when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the use of the recommended practice of creep feeding pigs. Swine producers who provided creep feed for their pigs attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from Extension agents than producers who did not use the practice.

Clean Farrowing Quarters and Number of Extension Contacts

A majority (64%) of the swine producers surveyed used the recommended practice of cleaning farrowing facilities between litters. The 1148 producers who used this practice had 12.8 total Extension contacts compared to 10.5 contacts for those who did not use this practice. Producers who cleaned their farrowing facilities attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from Extension agents. However, when these observed differences in the number of Extension contacts were tested with the analysis of variance F-test, significant differences were found only in the number of visits and telephone calls to the Extension office and the total Extension contacts. Therefore, there was a significant relationship between the number of visits and telephone calls to the Extension office and the

total Extension contacts and the use of the recommended practice of cleaning farrowing quarters between litters. The strongest relationship was between the number of telephone calls to the Extension office and the use of the practice where the F -value was 32.8 compared to the F -value of 5.1 for office visits and 7.2 for total contacts. Swine producers who cleaned their farrowing facilities between litters made more visits and telephone calls to the Extension office and had more total Extension contacts, than producers who did not use this practice.

Most Serious Pig Production Problem and Number of Extension Contacts

Seventeen hundred and forty-eight producers responded to this question which was designed to find which problems are most serious in the production of feeder pigs. Five hundred and forty-one producers (31%) responded that pig scours was most troublesome in their operation. Other problems experienced and the number of producers who considered them as their most serious were small litters (276), uneven birth weight of pigs (254), sows failing to milk (168), sows failing to breed (128), downer sows (17), and other (364). Producers whose most serious problems were sows failing to milk and downer sows had the most total Extension contacts with 15 total contacts each. When tested by the F -test, the only method of contact significantly different was the number of Extension meetings attended. Therefore, there was a significant relationship between the number of Extension meetings attended and the producer's most serious pig production problem.

Worm Pigs During Finishing Period and Number of Extension Contacts

Ninety-five percent of the producers surveyed used the recommended practice of worming pigs during the finishing period. The producers who wormed their pigs during the finishing period had 15.2 total contacts with Extension compared to 14.3 contacts for those who did not use the practice. Producers who wormed their pigs during finishing attended a larger number of Extension meetings, made more visits and telephone calls to the Extension office and received more farm visits from Extension agents than producers who did not use the practice. However, when these observed differences in the number of Extension contacts were tested by the analysis of variance F-test, there were no significant differences. Therefore, the relationship between the number of Extension contacts and the use of the recommended practice of worming pigs during the finishing period was not significant at the .05 level. There was not a significant difference in the number of Extension contacts made by producers who wormed pigs during the finishing period and those who did not worm their pigs during the finishing period.

Feed Weaned Pigs 16% Protein Ration and Number of Extension Contacts

Eighty-five percent of the swine producers surveyed fed weaned pigs a 16% protein ration. The producers who fed a 16% protein ration to weaned pigs had 15.5 total Extension contacts compared to 12.6 total contacts for those who did not use the practice. Swine producers who fed a 16% protein ration attended more Extension meetings, made more visits and telephone calls to the Extension office and received a larger number of farm visits from Extension agents than those who did not use the practice. However, when these observed differences in the number

of Extension contacts were tested with the analysis of variance F-test, the only type of contact with a significant difference was the number of farm visits received. Therefore, there was a significant relationship between the number of farm visits received from Extension agents and the use of the recommended practice of feeding weaned pigs a 16% protein ration. Swine producers who fed their weaned pigs a 16% protein ration received significantly more farm visits from Extension agents than those who did not use this practice.

Treat Weaned Pigs for Lice and Number of Extension Contacts

Eighty-nine percent of the swine producers surveyed used the recommended practice of treating weaned pigs for lice. Producers who treated their weaned pigs for lice had 14.8 total Extension contacts compared to 16.9 total contacts for those who did not use the practice. Producers who treated their weaned pigs for lice had the same or fewer of each of the methods of Extension contact (Extension meetings, office visits, telephone calls, and farm visits) when compared to those who did not use the practice. When tested with the analysis of variance F-test, these observed differences were not significant at the .05 level. Therefore, there was no significant relationship between the number of Extension contacts and the use of the recommended practice of treating weaned pigs for lice. There was not a significant difference in the number of Extension contacts made by producers who treated their weaned pigs for lice and those who did not use this recommended practice.

Feed Antibiotics During Finishing Period and Number of Extension

Contacts

Four hundred and seventy-five (76%) of the 628 swine producers surveyed fed antibiotics to hogs during the finishing period. Producers who fed antibiotics had 16.0 total contacts with Extension as compared to 12.3 contacts for those who did not use this practice. Producers who fed antibiotics during finishing attended more Extension meetings, made more visits and telephone calls to the Extension office, and received more farm visits from Extension agents than those who did not use the practice. However, when these observed differences in Extension contacts were tested with the analysis of variance F-test, significant differences were found only for the number of Extension meetings attended, number of telephone calls made to the Extension office, and total Extension contacts. Therefore, there was a significant relationship between the number of Extension meetings attended, number of telephone calls made to the Extension office and the total Extension contacts and the use of the recommended practice of feeding antibiotics during the finishing period. Swine producers who fed antibiotics during finishing attended significantly more Extension meetings, made more telephone calls to the Extension office, and had more total Extension contacts than those who did not use the practice.

Total Number of Pig Production Practices Used and Number of Extension

Contacts

Only fifty-five (3%) of the 1876 producers surveyed used all fourteen of the pig production practices recommended. However, 61% of the producers used the majority (8 or more) of the recommended swine

production practices. Producers who used 0 to 6 of the recommended practices had 54.5 total Extension contacts compared to almost twice that number, or 102.4 total contacts for the producers who used 8 to 14 of the practices. The producers who used a larger number of the recommended pig production practices also attended more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from Extension agents than producers who used fewer practices. These observed differences in the number of Extension contacts were found to be significant when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension contacts and the total number of recommended pig production practices used by producers. The swine producers who used more of the 14 pig production practices attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, received more farm visits from Extension agents and had more total Extension contacts than those producers who used a lesser number of the recommended practices.

VI. RELATIONSHIPS BETWEEN FARMING STATUS AND THE USE OF
RECOMMENDED PRACTICES AND TYPE OF OPERATION
(FEEDER PIG OR FARROW-TO-FINISH)

Table VI presents data regarding the relationship between the farming status of swine producers and their use of recommended pig production practices and the two types of swine operations (feeder pig or farrow-to-finish). The number and the percentage of full time and part time farmers is given. Also given is the number and percentage of

TABLE VI

RELATIONSHIPS BETWEEN FARMING STATUS AND THE USE OF
RECOMMENDED PRACTICES AND TYPE OF OPERATION
(FEEDER PIG OR FARROW-TO-FINISH)

Farming Status and Practices Used	Producers Using the Practice			
	Feeder Pig		Farrow-to-Finish	
	Number	Percent	Number	Percent
<u>Vaccination for leptospirosis</u>	475	42.7%	447	61.2%
	$\chi^2 = 59.7, df = 1, p < 0.05$			
<u>Vaccination for erysipelas</u>	357	32.2%	328	45.0%
	$\chi^2 = 30.5, df = 1, p < 0.05$			
<u>Vaccination for atrophic rhinitis</u>	180	16.2%	186	25.5%
	$\chi^2 = 23.4, df = 1, p < .05$			
<u>Feed dry sows</u>	831	75.1%	592	80.9%
	$\chi^2 = 8.7, df = 2, p < .05$			
<u>Worm sows before farrowing</u>	856	76.9%	594	81.1%
	$\chi^2 = 4.5, df = 1, p < .05$			
<u>Treat sows for lice</u>	878	79.0%	612	83.7%
	$\chi^2 = 6.0, df = 1, p < .05$			
<u>Wash sows before farrowing</u>	273	24.6%	229	31.5%
	$\chi^2 = 10.2, df = 1, p < .05$			
<u>Increase feed to pregnant sow</u>	872	78.8%	629	85.9%
	$\chi^2 = 14.6, df = 1, p < .05$			

TABLE VI (Continued)

Farming Status and Practices Used	Producers Using the Practice			
	Feeder Pig		Farrow-to-Finish	
	Number	Percent	Number	Percent
<u>Clip pig's needle teeth</u>	737	65.3%	543	73.2%
	$\chi^2 = 12.8, df = 2, p < .05$			
<u>Vaccinate pigs for atrophic rhinitis</u>	138	12.4%	164	22.4%
	$\chi^2 = 31.4, df = 1, p < .05$			
<u>Feed nursing sows</u>	904	82.3%	649	89.4%
	$\chi^2 = 16.7, df = 1, p < .05$			
<u>Give pigs iron shots</u>	622	62.3%	501	73.4%
	$\chi^2 = 21.7, df = 1, p < .05$			
<u>Creep feed pigs</u>	999	89.9%	667	91.2%
	$\chi^2 = 0.75, df = 1, p > .05$			
<u>Clean farrowing quarters</u>	658	61.0%	492	68.1%
	$\chi^2 = 9.3, df = 1, p < .05$			
<u>Most serious pig production problem</u>				
Pig scours	321	30.7%	220	31.2%
Small litters	180	17.2%	96	13.6%
Uneven birth weight	146	14.0%	109	15.5%
Sows failing to milk	87	8.3%	82	11.6%
Downer sows	13	1.2%	4	0.6%
Sows failing to breed	74	7.1%	54	7.7%
Other	224	21.4%	140	19.9%
	$\chi^2 = 11.6, df = 6, p > .05$			
<u>Farming status</u>				
Full time farmers	421	38.8%	469	64.8%
Part time farmers	664	61.2%	255	35.2%
	$\chi^2 = 116, df = 1, p < .05$			

producers who used each recommended production practice. The data were statistically analyzed by the chi square (x^2) test and the results were significant at the .05 level.

Vaccination for Leptospirosis and Type of Operation

Four hundred and seventy-five (42.7%) of the feeder pig producers used the recommended practice of vaccinating pigs for leptospirosis. This compares to 447 (61.2%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of farrow-to-finish producers vaccinated their sows for leptospirosis than did feeder pig producers. These observed differences in the use of the practice of vaccinating sows for leptospirosis between feeder pig and farrow-to-finish producers were significant when tested by x^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of vaccinating sows for leptospirosis. The recommended practice of vaccinating sows for leptospirosis was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Vaccination for Erysipelas and Type of Operation

Three hundred and fifty-seven (32.2%) of the feeder pig producers vaccinated their sows for erysipelas compared to 328 (45%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers vaccinated their sows for erysipelas than did feeder pig producers. These observed differences in the use of the practice of vaccinating sows for erysipelas between feeder pig and farrow-to-finish producers were significant

when tested by x^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of vaccinating sows for erysipelas. The recommended practice of vaccinating sows for erysipelas was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Vaccination for Atrophic Rhinitis and Type of Operation

One hundred and eighty (16.2%) of the feeder pig producers vaccinated their sows for atrophic rhinitis, compared to 186 (25.5%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers vaccinated their sows for atrophic rhinitis than did feeder pig producers. These observed differences in the use of the practice of vaccinating sows for atrophic rhinitis between feeder pig and farrow-to-finish producers were significant when tested by x^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of vaccinating sows for atrophic rhinitis. The recommended practice of vaccinating sows for atrophic rhinitis was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Feed Dry Sows and Type of Operation

Eight hundred and thirty-one (75.1%) feeder pig producers fed their dry sows as recommended compared to 592 (80.9%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers fed their dry sows

as recommended than did feeder pig producers. These observed differences in the use of the practice of feeding dry sows as recommended between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at two degrees of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the practice of properly feeding dry sows. Recommended practices for feeding dry sows were used by significantly more farrow-to-finish producers than feeder pig producers.

Worm Sows Before Farrowing and Type of Operation

Eight hundred and fifty-six (76.9%) of the feeder pig producers wormed their sows before farrowing compared to 594 (81.1%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers wormed their sows before farrowing than did feeder pig producers. These observed differences in the use of the practice of worming sows before farrowing between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of worming sows before farrowing. The recommended practice of worming sows before farrowing was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Treat Sows for Lice and Type of Operation

Eight hundred and seventy-eight (79%) of the feeder pig producers treated their sows for lice compared to 612 (83.7%) of the farrow-to-

finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers treated their sows for lice than did feeder pig producers. These observed differences in the use of the practice of treating sows for lice between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of treating sows for lice. The recommended practice of treating sows for lice was used by a significantly larger percentage of the farrow-to-finish producers than feeder pig producers.

Wash Sows Before Farrowing and Type of Operation

Two hundred and seventy-three (24.6%) of the feeder pig producers washed their sows before farrowing compared to 229 (31.5%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers washed their sows before farrowing than did feeder pig producers. These observed differences in the use of the practice of washing sows before farrowing between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of washing sows before farrowing. The recommended practice of washing sows before farrowing was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Increase Feed to Pregnant Sows and Type of Operation

Eight hundred and seventy-two (78.8%) of the feeder pig producers increased feed to pregnant sows as recommended before farrowing compared to 629 (85.9%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers increased feed to pregnant sows before farrowing than did feeder pig producers. These observed differences in the use of the practice of increasing feed to pregnant sows before farrowing between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of increasing feed to pregnant sows before farrowing. The recommended practice of increasing feed to sows before farrowing was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Clip Pig's Needle Teeth and Type of Operation

Seven hundred and thirty-seven (65.3%) of the feeder pig producers clipped the needle teeth on their baby pigs compared to 543 (73.2%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers clipped pig's needle teeth than did feeder pig producers. These observed differences in the use of the practice of clipping pig's needle teeth between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at two degrees of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of clipping pig's needle teeth. The

recommended practice of clipping pig's needle teeth was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Vaccinate Pigs for Atrophic Rhinitis and Type of Operation

One hundred and thirty-eight (12.4%) of the feeder pig producers vaccinated their pigs for atrophic rhinitis compared to 164 (22.4%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers vaccinated their pigs for atrophic rhinitis than did feeder pig producers. These observed differences in the use of the practice of vaccinating pigs for atrophic rhinitis between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of vaccinating pigs for atrophic rhinitis. The recommended practice of vaccinating pigs for atrophic rhinitis was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Feed Nursing Sows and Type of Operation

Nine hundred and four (82.3%) of the feeder pig producers fed nursing sows as recommended compared to 649 (89.4%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers were feeding nursing sows as recommended than were feeder pig producers. These observed differences in the use of the practice of feeding nursing sows as recommended between feeder pig and farrow-to-finish producers were significant

when tested by x^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of feeding nursing sows the recommended quality and quantity of feed. The recommended practice of feeding nursing sows was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Give Pigs Iron Shots and Type of Operation

Six hundred and twenty-two (62.3%) of the feeder pig producers gave pigs iron shots compared to 501 (73.4%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers were giving iron shots than were feeder pig producers. These observed differences in the use of the practice of giving pigs iron shots between feeder pig and farrow-to-finish producers were significant when tested by x^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of giving pigs iron shots. The recommended practice of giving pigs iron shots was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Creep Feed Pigs and Type of Operation

Nine hundred and ninety-nine (89.9%) of the feeder pig producers provided creep feed for pigs compared to 667 (91.2%) of the farrow-to-finish producers who used the practice. These data indicate that a slightly larger percentage of the farrow-to-finish producers were providing creep feed for pigs than were feeder pig producers. These

observed differences in the use of the practice of providing creep feed for pigs were not significant at the .05 level when tested by χ^2 at one degree of freedom. Therefore, there was not a significant relationship between the type of swine operation and the use of the recommended practice of providing creep feed for pigs.

Clean Farrowing Quarters and Type of Operation

Six hundred and fifty-eight (61%) of the feeder pig producers cleaned their farrowing quarters between litters compared to 492 (68.1%) of the farrow-to-finish producers who used the practice. These data indicate that a larger percentage of the farrow-to-finish producers were cleaning their farrowing quarters between litters than were feeder pig producers. These observed differences in the use of the practice of cleaning farrowing quarters between litters between feeder pig and farrow-to-finish producers were significant when tested by χ^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the use of the recommended practice of cleaning farrowing quarters between litters. The recommended practice of cleaning farrowing quarters between litters was used by a significantly larger percentage of farrow-to-finish producers than feeder pig producers.

Most Serious Pig Production Problem and Type of Operation

The most serious pig production problem for feeder pig and farrow-to-finish producers was pig scours which plagued 30.7% of the feeder pig and 31.2% of the farrow-to-finish producers. A larger percentage of feeder pig producers were experiencing problems with small

litters and downer sows than were farrow-to-finish operations. A larger percentage of the farrow-to-finish operations had problems with uneven birth weight of pigs, sows failing to milk and sows failing to breed than did feeder pig producers. These observed differences in the type of pig production problems experienced by feeder pig and farrow-to-finish producers were not significant at the .05 level when tested by χ^2 at six degrees of freedom. Therefore, there was not a significant relationship between the type of swine operation (i.e., feeder pig or farrow-to-finish) and the most serious problems encountered in the production of pigs.

Farming Status and Type of Operation

Four hundred and twenty-one (38.8%) of the full time farmers produced feeder pigs while 61.2% of the part time farmers' swine operations consisted of feeder pigs. Over 64% of the full time farmers operated on a farrow-to-finish basis compared to 35.2% of the part time farmers who finished their pigs. These data indicate that a larger percentage of full time farmers finish their pigs while the majority of the part time producers sell their pigs as feeders. These observed differences between the farming status and the type of swine operation were significant at the .05 level when tested by χ^2 at one degree of freedom. Therefore, there was a significant relationship between the type of swine operation and the farming status. A significantly larger percentage of the full time producers finished their pigs than did part time farmers.

VII. RELATIONSHIPS BETWEEN THE NUMBER OF EXTENSION
CONTACTS AND THE TYPE OF OPERATION
(FEEDER PIG OR FARROW-TO-FINISH)

Table VII presents data regarding the relationship between the number of Extension contacts through meetings, office visits, telephone calls, farm visits, and total Extension contacts in a 12-month period and the type of swine operation (i.e., feeder pig or farrow-to-finish). The mean number of contacts are given for each contact method. The data were tested by the analysis of variance F-test and were significant at the .05 level.

Extension Meetings and Type of Operation

Feeder pig producers attended 1.3 Extension meetings compared to 2.2 meetings attended by farrow-to-finish producers. These data indicate that farrow-to-finish producers attended more Extension meetings than did feeder pig producers. These observed differences in meetings attended were significant at the .05 level when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension meetings attended and the type of swine operation. Farrow-to-finish producers attended a significantly larger number of Extension meetings than feeder pig producers.

Extension Office Visits and Type of Operation

Feeder pig producers made 2.5 visits to the county Extension office compared to 3.4 visits by farrow-to-finish producers. These data indicate that farrow-to-finish producers made more visits to the Extension office than did feeder pig producers. These observed differences

TABLE VII

RELATIONSHIPS BETWEEN THE NUMBER OF EXTENSION CONTACTS
AND THE TYPE OF OPERATION (FEEDER PIG OR
FARROW-TO-FINISH)

Type of Extension Contacts	Type of Swine Operation	
	Feeder Pig Mean Contacts	Farrow-to-Finish Mean Contacts
Extension Meetings	1.3	2.2
	$\underline{F} = 75.7, p < .05$	
Office Visits	2.5	3.4
	$\underline{F} = 25.7, p < .05$	
Telephone Calls	3.0	4.8
	$\underline{F} = 59.7, p < .05$	
Farm Visits	2.3	3.7
	$\underline{F} = 57.2, p < .05$	
Total Extension Contacts	9.8	14.7
	$\underline{F} = 35.7, p < .05$	

in the number of office visits were significant at the .05 level when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of Extension office visits made and the type of swine operation. Farrow-to-finish producers made significantly more visits to the county Extension office than feeder pig producers.

Telephone Calls to the Extension Office and Type of Operation

Feeder pig producers made 3.0 telephone calls to the county Extension office compared to 4.8 telephone calls for the farrow-to-finish producers. These data indicate that farrow-to-finish producers made more telephone calls to the Extension office than did feeder pig producers. These observed differences in the number of telephone calls were significant when tested by the analysis of variance F-test. Therefore, there was a significant relationship between the number of telephone calls to the Extension office by swine producers and their type of operation. Farrow-to-finish producers made significantly more telephone calls to the Extension office than did feeder pig producers.

Farm Visits Received From Extension Agents and Type of Operation

Feeder pig producers received 2.3 farm visits from Extension agents compared to 3.7 visits received by the farrow-to-finish producers. These data indicate that farrow-to-finish producers received more farm visits from Extension agents than did feeder pig producers. These observed differences in farm visits received were significant when tested by the analysis of variance F-test at the .05 level. Therefore, there was a significant relationship between the number of farm visits

received from Extension agents and the type of swine operation. Farrow-to-finish producers received significantly more farm visits from Extension agents than did feeder pig producers.

Total Extension Contacts and Type of Operation

Feeder pig producers made 9.8 total contacts with Extension compared to 14.7 contacts made by farrow-to-finish producers. These data indicate that farrow-to-finish producers made more total contacts with Extension than did feeder pig producers. These observed differences in total Extension contacts were significant when tested by the analysis of variance F-test at the .05 level. Therefore, there was a significant relationship between the total contacts with Extension and the type of swine operation. Farrow-to-finish producers made significantly more total Extension contacts than did feeder pig producers.

CHAPTER III

SUMMARY OF MAJOR FINDINGS

I. PURPOSES AND SPECIFIC OBJECTIVES

Purposes

The purposes of this study were to characterize swine producers and their operation as to size, type of operation, production efficiency factors, farming status, number of contacts with Extension, use of Extension recommended swine production practices and to determine the relationships between these factors.

Specific Objectives

The specific objectives of this study were:

1. To characterize the swine producers and their operations as to size, type of operation, production efficiency factors, farming status, number of contacts with Extension, and use of Extension recommended swine production practices.
2. To determine the relationship between characteristics of swine operations, and the number of contacts with Extension.
3. To determine the relationship between the use of recommended swine production practices and the number of contacts with Extension.
4. To determine the relationship between farming status and the use of recommended swine production practices and the type of operation (feeder pig or farrow-to-finish).

5. To determine the relationship between the number of Extension contacts and the type of operation (feeder pig or farrow-to-finish).

II. METHOD OF INVESTIGATION

The population of this study included feeder pig and market hog producers in Tennessee. County Extension agents collected the data through personal interviews and returned the completed surveys to the Agricultural Extension Education Office.

The Extension agents were instructed to interview both feeder pig and farrow-to-finish producers. The recommended sample size for each county was as follows:

1. Interview fifteen feeder pig producers for the first fifty producers and five additional interviews for each additional fifty producers to a maximum of twenty-five interviews with feeder pig producers.

2. Interview ten farrow-to-finish producers or all farrow-to-finish producers in counties with less than ten producers.

The "nth" number technique was to be used to identify producers to be surveyed. Alternates were selected to replace those producers who, for good reasons, could not be interviewed. Producers with less than five sows were not included in the survey.

The survey instrument was developed by The University of Tennessee Agricultural Extension Specialist staff in the Swine and Agricultural Extension Departments.

The survey was conducted by agents in the participating counties through personal interviews. The completed surveys were then returned to the Agricultural Extension Education Office for analysis.

Method of Analysis

The data were coded and punched on computer cards. Computations were made by The University of Tennessee Computing Center. The one way analysis of variance F-test and the chi square test were used to determine the strength of the relationship between dependent and independent variables. The .05 probability level was accepted as significant.

III. MAJOR FINDINGS

Major findings were classified and presented under headings related to the objectives of the study.

Characteristics of Swine Operations in 1979

1. Almost 43% of the producers farrowed 1 to 10 sows one time within a 12-month period. The number of sows farrowed once ranged from a low of 0 to a high of 350. The mean number of females farrowed once was 9.2 sows.

2. Forty-seven percent of the producers farrowed 1 to 10 sows twice within a 12-month period. The number of sows farrowed twice ranged from a low of 0 to a high of 450 sows. The mean number of females farrowed twice was 17.9 sows.

3. Almost 26% of the producers raised 61 to 120 pigs to weaning. The number of pigs raised to weaning ranged from 0 for the low to a high of 8500 pigs. The mean number of pigs raised to weaning was 275 pigs.

4. Over 26% of the producers marketed 1 to 60 pigs as feeders. The number of pigs raised to weaning ranged from a low of 0 to a high of 7150 pigs sold. The mean number of pigs sold as feeders was 163 pigs.

5. Over 24% of the farrow-to-finish producers sold 11 to 70 hogs for slaughter. Over 15% sold more than 500 slaughter hogs. The mean number of slaughter hogs sold was 122 while the low was 0 and the high was 7400 hogs sold.

6. Over 49% of the producers were full time farmers. The other 50.7% were part time farmers.

7. About 42% of the farrow-to-finish producers fed their hogs in a building, while 57.3% fed their hogs on the ground.

8. Some 41% of the farrow-to-finish producers sold their hogs to a packer, while 28.4% sold to buying stations and 30.1% sold to stockyards.

9. Only 13.6% of the farrow-to-finish producers sold their hogs on a grade and yield program, while 43.1% sold by direct buying and 43.3% did not sell to a packer.

Extension Contacts Made by Producers in 1979

1. Over 38% of the swine producers did not attend any Extension meetings, 39% attended 1 or 2 meetings, and 23.3% attended 3 or more meetings. The mean number of meetings attended by swine producers was 1.7 while the low was 0 and the high was 65 Extension meetings attended.

2. Over 22% of the producers did not make any visits to the Extension office. About 51% of the producers made 1 to 4 visits, 22.5% made 5 to 12 visits, and 3.7% made 13 or more visits to the county

Extension office. The mean number of office visits per producer was 2.9, the low was 0, and the high was 98.

3. Over 25% of the swine producers did not make any telephone calls to the Extension office, but 48% made 1 to 4 calls and 22.4% made 5 to 12 telephone calls. The mean number of telephone calls was 3.7 while the low was 0 and the high was 60 telephone calls.

4. Twenty-four percent of the swine producers did not receive any farm visits from Extension agents, but 51% received 1 to 3 visits. The mean number of farm visits received was 2.8 per producer while the low was 0 and the high was 31 farm visits.

5. Only 6.2% of the swine producers did not have any Extension contacts. Over 32% had 1 to 5 contacts and 46.5% had 6 to 20 contacts. The mean number of contacts was 11.1 while the low was 0 and the high was 396 total contacts.

Use of Recommended Swine Production Practices in 1979

1. Only four of the recommended swine production practices were not used by at least 50% of the producers. Those used by less than 50% included vaccination for erysipelas, vaccination for atrophic rhinitis, wash sows prior to farrowing, and vaccination of pigs for atrophic rhinitis.

2. Over thirty percent of the swine producers said pig scours was their most serious pig production problem. Small litters and uneven birth weight of pigs ranked second and third in order of importance.

3. Over 60% of the swine producers used 8 to 14 of the recommended pig production practices. Almost three percent used all 14 of

the pig production practices while only 2.1% did not use any of the recommended practices.

Relationship Between the Number of Contacts Producers had with Extension and Characteristics of Their Swine Operation

1. Full time and part time farmers did differ significantly in terms of the number of contacts they had with Extension through meetings, office visits, telephone calls, farm visits and total Extension contacts. Swine producers who were full time farmers attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, received more farm visits from Extension agents, and had more total Extension contacts than part time farmers.

2. Swine producers who fed their hogs in buildings did differ significantly from those producers who fed their hogs on the ground in terms of the number of Extension contacts. Producers who fed their hogs in buildings attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, received more farm visits from Extension agents, and had more total Extension contacts than producers who fed their hogs on the ground.

3. Significant relationships were found between the producers' method of marketing hogs (i.e., packer, buying station, stockyard) and the number of Extension contacts. Producers who marketed directly to the packer made a larger number of telephone calls to the Extension office, received more farm visits from Extension agents, and had more total Extension contacts than those who marketed through buying stations or stockyards. Producers who marketed through buying stations

attended more Extension meetings than those who marketed through a packer or to stockyards.

4. Swine producers who marketed their hogs on a grade and yield program did differ significantly from producers who sold by direct buying or who did not sell to a packer in terms of the number of Extension contacts. Producers who sold their hogs on grade and yield made more visits and telephone calls to the Extension office, received more farm visits, and had more total Extension contacts than those who sold by direct buying or who did not sell to a packer.

Relationship Between Recommended Swine Production Practices Used and the Number of Extension Contacts

1. There was a significant relationship between the use of nine of the recommended swine production practices and the number of contacts with Extension through meetings, office visits, telephone calls, and the total number of Extension contacts. These practices were:

- (a) Vaccination for leptospirosis,
- (b) Vaccination for erysipelas,
- (c) Vaccination for atrophic rhinitis,
- (d) Wash sows prior to farrowing,
- (e) Clip pigs' needle teeth,
- (f) Vaccinate pigs for atrophic rhinitis,
- (g) Feed nursing sows as recommended,
- (h) Give pigs iron shots, and
- (i) Creep feed nursing pigs.

The swine producers who used these nine practices (i.e., each practice) attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, and received a larger number of farm visits from Extension agents resulting in more total Extension contacts than those producers who did not use these practices.

2. The swine producers who were using the recommended practices of treating sows for lice and increasing feed to pregnant sows, did differ significantly from those not using these practices in terms of the number of telephone calls to the Extension office. Those producers who treated their sows for lice and who increased feed to pregnant sows before farrowing made significantly more telephone calls to the Extension office than those who did not use these practices.

3. The swine producers who followed recommendations for feeding dry sows did differ significantly from those not using this practice in terms of the number of contacts with Extension through meetings, telephone calls, and farm visits received. The producers who fed their dry sows as recommended attended significantly more Extension meetings and made more telephone calls to the Extension office than those not using this practice. However, producers who did not feed dry sows as recommended received significantly more farm visits from Extension agents than producers who used this practice.

4. The swine producers who used the recommended practice of worming sows before farrowing did differ significantly from those not using these practices in terms of the number of Extension contacts through meetings, office visits, and telephone calls. Producers who

wormed their sows before farrowing attended a significantly larger number of Extension meetings and made more visits and telephone calls to the Extension office than those who did not use the practice.

5. The swine producers who followed Extension recommendations for cleaning farrowing quarters between litters did differ significantly from those not using the practice in terms of the number of contacts with Extension through office visits and telephone calls, and total Extension contacts. The producers who properly cleaned their farrowing quarters made significantly more visits and telephone calls to the Extension office and had significantly more total contacts with Extension than those producers who did not use the practice.

6. The swine producers who used the recommended practice of feeding antibiotics during the finishing period did differ significantly from those not using this practice in terms of the number of contacts with Extension through meetings, telephone calls, and total Extension contacts. The producer who fed antibiotics during the finishing period attended significantly more Extension meetings, made more telephone calls, and had more total Extension contacts than those not using this practice.

7. The swine producers who used the recommended practice of feeding weaned pigs a 16% protein ration did differ significantly from those not using the practice in terms of the number of farm visits received from Extension agents. The producers who fed weaned pigs a recommended 16% protein ration received significantly more farm visits from Extension agents than did those producers not using the practice.

8. The swine producers who used the recommended practices of worming weaned pigs and treating pigs for lice did not differ significantly from those who did not use the practices in terms of the numbers of Extension contacts.

9. The total number of recommended practices used by producers was significantly related to the number of contacts with Extension through meetings, office visits, telephone calls, farm visits received from agents, and total Extension contacts. Producers who used more of the recommended practices attended significantly more Extension meetings, made more visits and telephone calls to the Extension office, received more farm visits from Extension agents, and had more total Extension contacts than producers who used fewer practices.

10. Thirty-one percent of the swine producers indicated that their most serious pig production problem was pig scours. The next most serious problems were small litters and uneven weight of pigs at birth. A significant relationship was found between the responses to this pig production problem question and the number of Extension meetings attended by producers.

Relationships Between Farming Status and Use of Recommended Practices and Type of Operation (Feeder Pig or Farrow-to-Finish)

1. There was a significant relationship between the use of 13 of the 14 recommended swine production practices and the type of swine operation (feeder pig or farrow-to-finish). These practices were:

- (a) Vaccination for leptospirosis,
- (b) Vaccination for erysipelas,
- (c) Vaccination for atrophic rhinitis,

- (d) Feed dry sows,
- (e) Worm sows before farrowing,
- (f) Treat sows for lice,
- (g) Wash sows before farrowing,
- (h) Increase feed to pregnant sows,
- (i) Clip pig's needle teeth,
- (j) Vaccinate pigs for atrophic rhinitis,
- (k) Feed nursing sows,
- (l) Give pigs iron shots, and
- (m) Clean farrowing quarters.

Each of these 13 practices was used by a significantly larger percentage of farrow-to-finish than feeder pig producers.

2. There was no significant difference between the use of the practice of creep feeding pigs by feeder pig or farrow-to-finish producers.

3. The most serious pig production problem for feeder pig and farrow-to-finish producers was pig scours. However, the differences in responses to the pig production problems were not significant between feeder pig and farrow-to-finish producers.

4. Full time and part time farmers did differ significantly as to their type of swine operation. A significantly larger percentage of the full time farmers were farrow-to-finish operators.

Relationships Between Numbers of Extension Contacts and Types of Operation (Feeder Pig or Farrow-to-Finish)

Farrow-to-finish producers did differ significantly from feeder pig producers in the numbers of contacts they made with Extension.

Farrow-to-finish producers, when compared to feeder pig producers, made significantly more contacts with Extension through meetings, office visits, telephone calls, farm visits, and total Extension contacts.

IV. IMPLICATIONS AND RECOMMENDATIONS

Based upon the findings of this study, the implications and recommendations below are drawn.

1. Almost 30% of the swine producers surveyed used less than 7 of the 14 recommended pig production practices. There was a significant positive relationship between the use of 9 of the 18 recommended production practices and Extension contacts. Therefore, efforts should be made to contact those people who are not using recommended practices.

2. Only 6.2% of the swine producers had no contacts with Extension through one or more of the contact methods (i.e., meetings, office visits, telephone calls, or farm visits). Although the percentage of the population that is not being reached seems small, the highly significant relationship between Extension contacts and practice use would indicate the need to reach this group.

3. Significantly more of the farrow-to-finish producers used each of 13 of the 14 recommended pig production practices when compared to feeder pig producers. Farrow-to-finish farmers also made a significantly larger number of contacts with Extension during the 12-month period when compared to feeder pig producers. Since farrow-to-finish producers tended to be larger farmers and full time farmers, it would seem that extra Extension efforts should be directed toward the smaller, part time farmer who primarily produces feeder pigs.

V. RECOMMENDATIONS FOR FURTHER STUDY

Similar studies should routinely be conducted in all work areas to determine points needing emphasis in Extension educational programs for planning, implementation and reporting purposes.

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APPENDIX

THE UNIVERSITY OF TENNESSEE AGRICULTURAL EXTENSION SERVICE

1979 SWINE SURVEY

Feeder Pig and Slaughter Hog Production

Name of Producer _____ Address _____

1 Card Number
(1)

(2) (3) (4) County _____ Date _____

0 0 Respondent Number
(5) (6)

Part I: Pig Production

Note: Part I is to be completed for both the feeder pig producers and the farrow-to-finish producers.

A. General

1. Over the past 12-months how many females actually farrowed:

(7) (8) (9) a. Once? (Actual number)

(10) (11) (12) b. Twice? (Actual number)

- (13) (14) (15) (16) 2. Over the past 12-months, how many pigs were raised to weaning? (Actual number)

3. How many pigs were marketed:

(17) (18) (19) (20) a. As feeders? (Actual number)

(21) (22) (23) (24) b. For slaughter? (Actual number)

- (25) (26) (27) 4. At what weight do you normally sell your pigs? (Actual weight)

- (28) 5. Are you a full time or a part time farmer?
(1 = Full time, 2 = Part time)

B. Lead Questions and Recommended Pig Production Practices

Note: Agent should record producer's response to the Lead question in the blank provided, then decide whether or not the recommended practice was followed.

1. Lead question for Practice #1: a) Do you vaccinate sows for Leptospirosis? ___ no, ___ yes b) How often do you vaccinate sows for Leptospirosis? _____ times/year

(29)

Practice #1: Vaccinate sows twice per year for Leptospirosis (1 = no, 2 = yes)

2. Lead questions for Practice #2: a) Do you vaccinate sows for Erysipelas? ___ no, ___ yes b) How often do you vaccinate sows for Erysipelas? _____ times per year

(30)

Practice #2: Sows vaccinated twice per year for Erysipelas (1 = no, 2 = yes)

3. Lead questions for Practice #3: Do you vaccinate sows for Atrophic Rhinitis? ___ no, ___ yes b) How often do you vaccinate sows for Atrophic Rhinitis? _____ times per year

(31)

Practice #3: Vaccinate sows twice per year for Atrophic Rhinitis (1 = no, 2 = yes)

4. Lead questions for Practice #4: How many pounds of feed per day are fed to dry sows during summer months? _____ pounds per day b) How many pounds of feed per day are fed to dry sows during winter months? _____ pounds per day

(32)

Practice #4: Feed dry sows 4 to 5 pounds per day in the summer and 6 to 7 pounds per day in winter (1 = no, 2 = yes)

5. Lead questions for Practice #5: Do you worm sows before farrowing? ___ no, ___ yes

(33)

Practice #5: Worm sows before farrowing (1 = no, 2 = yes)

6. Lead questions for Practice #6: Do you treat sows for lice prior to farrowing? ___ no, ___ yes

(34)

Practice #6: Treat sows for lice before each farrowing (1 = no, 2 = yes)

7. Lead question for Practice #7: Do you wash your sows before each farrowing? ___ no, ___ yes

(35)

Practice #7: Wash sows prior to each farrowing (1 = no, 2 = yes)

8. Lead questions for Practice #8: a) Do you increase the amount of feed fed to pregnant sows 2 to 3 weeks before farrowing? ___ no, ___ yes b) How many pounds of feed are given sows each day 2 to 3 weeks prior to farrowing? _____ pounds feed per day

(36)

Practice #8: Increase the amount of feed fed pregnant sows 2 to 3 weeks before farrowing (1 = no, 2 = yes)

9. Lead questions for Practice #9: a) Do you clip each pig's needle teeth? ___ no, ___ yes b) When do you clip needle teeth? _____ days old

(37)

Practice #9: Clip pig's needle teeth (1 = no, 2 = yes)

10. Lead questions for Practice #10: a) Do you vaccinate pigs for Atrophic Rhinitis? ___ no, ___ yes b) How many times are pigs vaccinated for Atrophic Rhinitis? _____ times

(38)

Practice #10: Vaccinate pigs twice for Atrophic Rhinitis (1 = no, 2 = yes)

11. Lead question for Practice #11: How many pounds of feed per day are fed to nursing sows? _____ pounds per day

(39)

Practice #11: Nursing sows fed recommended pounds of feed per day (1 = no, 2 = yes)

12. Lead question for Practice #12: Are pigs farrowed in confinement given Iron Shots? ___ no, ___ yes

(40)

Practice #12: Give Iron Shots within three (3) days to pigs farrowed in confinement (1 = no, 2 = yes)

13. Lead question for Practice #13: Do you Creep Feed your pigs? ___ no, ___ yes

(41)

Practice #13: Feed pigs an 18 to 20% Creep Feed (1 = no, 2 = yes)

14. Lead question for Practice #14: Do you thoroughly clean the farrowing quarters after sows are removed? ___ no, ___ yes

(42)

Practice #14: Thoroughly clean farrowing quarters after sows are removed (1 = no, 2 = yes)

C. Pig Production Problem

(43) During the past 12 months, what do you consider the one most serious problem you have had in the production of feeder pigs? (1 = pig scours, 2 = small litters, 3 = uneven weight of pigs at birth, 4 = sows fail to milk, 5 = downer sows, 6 = sows fail to breed, 7 = other)

D. Number of Contacts Feeder Pig and Slaughter Hog Producers Had with Extension Agents

Note: This section is to be completed for each swine producer interviewed in this survey (i.e., the feeder pig producers and the slaughter hog producers)

- | | | |
|------|------|--|
| (44) | (45) | 1. How many Extension meetings of all types did you attend during the previous 12 months?
(Actual number) |
| (46) | (47) | 2. How many visits did you make to the Extension office during the past 12 months?
(Actual number) |
| (48) | (49) | 3. How many telephone calls did you make to the Extension office during the past 12 months?
(Actual number) |
| (50) | (51) | 4. How many farm visits did you receive from Extension agents during the past 12 months?
(Actual number) |

Part II: Slaughter Hog Production - from Weaning to Market

Note: Part II is to be completed for farrow-to-finish producers only (e.g. this excludes producers who finish purchased pigs only and those who produce feeder pigs only)

A. General

- | | | | |
|------|--|------|--|
| (52) | 1. Do you feed hogs in a building or on the ground? (1 = Building, 2 = Ground) | | |
| (53) | (54) | (55) | 2. At what weight do you sell your slaughter hogs? (Actual pounds) |
| (56) | 3. How do you market your hogs? (1 = Packer, 2 = Hog buying station, 3 = Stock yard) | | |

- (57) 4. If slaughter hogs are sold to a packer, do you sell by direct buying or on the basis of grade and yield? (1 = Don't sell to packer, 2 = Direct buying, 3 = Grade and yield)

B. Lead Questions and Recommended Slaughter Hog Production Practices

1. Lead question for Practice #1: Do you worm your pigs during the finishing period?
 ___ no, ___ yes

(58) Practice #1: Worm pigs early during finishing period (1 = no, 2 = yes)

2. Lead question for Practice #2: What percent protein do you feed the pigs from weaning to 125 pounds? _____ Percent Protein

(59) Practice #2: Feed pigs 16 percent protein from weaning to at least 100 - 125 pounds (1 = no, 2 = yes)

3. Lead questions for Practice #3: a) Do you treat pigs for lice after weaning age?
 ___ no, ___ yes b) How often do you treat them? _____ Times

(60) Practice #3: Treat weaned pigs for lice (1 = no, 2 = yes)

4. Lead question for Practice #4: Do you feed antibiotics during the finishing period?
 ___ no, ___ yes

(61) Practice #4: Feed antibiotics during the finishing period (1 = no, 2 = yes)

VITA

James DeWayne Perry was born April 28, 1953, to Mr. and Mrs. James W. Perry of Awalt, Franklin County, Tennessee. He began his formal education at Winchester Springs Elementary School and attended high school at Franklin County High School and graduated in 1971.

He attended The University of Tennessee at Knoxville in 1971 and completed the requirements for a Bachelor of Science Degree in Animal Science in 1974. Along with his studies, he was a member of the live-stock judging team, Alpha Zeta Honorary Fraternity, Gamma Sigma Delta, and the Block and Bridle Club.

He was employed as an Assistant Extension Agent in Williamson County, Tennessee, in December, 1974.

He is married to the former Beverly Ann Caldwell of Estill Springs, Tennessee, and they have one daughter, Mandy Lynn (age 2 years).

He is a member of the Franklin Jaycees and the Epworth United Methodist Church.