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RELATIONSHIPS BETWEEN TENNESSEE FEEDER PIG PRODUCERS' PERSONAL CHARACTERISTICS, TYPE OF FARM OPERATIONS, CONTACTS WITH EXTENSION AGENTS, AND THEIR USE OF SELECTED SWINE MANAGEMENT PRACTICES

A Thesis

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ABSTRACT

The purpose of this study was to characterize feeder pig producers according to their personal characteristics, and their type of operation as related to their use of selected management practices, and their contacts with Extension. Data were collected through personal interviews with 1,167 randomly selected feeder pig producers in 75 Tennessee counties using the 1987 Swine Interview Schedule. Producers surveyed had a minimum of five sows. The data were coded and processed for computer analysis and computations at the University of Tennessee Computing Center. The chi square test was used to determine the strength of relationship between the dependent and independent variables. Chi square values which achieved the .05 probability level were accepted as significant.

Major findings included the following:

1. The average age of the feeder pig producers was 48 years, with about 67 percent being part-time producers.

2. Fifty-three percent of producers attended at least one Extension swine meeting, while over 82 percent visited the Extension office at least once.

3. Over 90 percent of feeder pig producers used the following six management practices: dewormed sows, treated sows for external parasites, the addition of medication in sows gestation and lactation ration, the use of medication in pigs weaning ration, gave iron shots to pigs, and clipped needle teeth.

4. Full-time feeder pig producers attended more Extension swine meetings, received more visits from Extension agents, and had more total contacts with Extension than did part-time producers.

5. Producers 48 years old or under had more contacts with Extension through telephone calls made to the Extension office and had more total contacts with Extension than did producers 49 or over.

6. Feeder pig producers with six or more total contacts with Extension were more likely to use each of ten selected management practices than were producers with five or less contacts.

7. Full-time feeder pig producers were more likely than part-time producers to vaccinate sows for leptospirosis, treat sows for lice, use medication and antibiotics in water, give iron shots to pigs, and creep feed baby pigs.

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CHAPTER I

THE PROBLEM AND ITS SETTING

I. INTRODUCTION

Swine production continues to play a major role in Tennessee Agriculture. For many farmers, the swine enterprise has provided the cash flow that greatly compliments their other enterprises. These farmers have faced a great deal of change over the years. As a whole, the number of swine producers has decreased and the size of operations has increased. With this increase in size has come the need for more use of technological advances.

Swine production is carried on in all parts of Tennessee. The three common production systems are feeder-pig, feeder-pig to finish, and farrow to finish. Each of these production systems has different requirements for management, labor, financing, and facilities. In general, the farrow to finish and feeder pig to finish operations tend to be in the western portion of the state and feeder pig operations tend to be in the central and eastern portion of the state. Perhaps the best way to identify a reason for this placement of types of operations is to identify requirements of each operation. In general, farrow to finish and feeder pig to finish operations require a great deal of grain and investment in facilities as compared to feeder pig operations that tend to be more labor intensive. West Tennessee is the only portion of the state that produces the volume of grain to support finishing operations. In addition, the number of full-time

farmers is larger in West Tennessee. Feeder pig producers tend to be small part-time farmers or farmers with diversified operations that combine various species of livestock with row crops and forage crops. The farmers of central and eastern Tennessee were closely fall into feeder pig systems as they have labor available but cannot support the capital investments of finishing operations (17).*

Marketing is a key component of all farming operations. The first organized feeder pig sale was held in 1957 in Sevierville, Tennessee. The first sale to be held in Cookeville was in 1958. These sales were organized to provide producers the opportunity to group their pigs with those of other producers in sufficient quantity to attract competitive buyers. Presently there are thirteen regular feeder pig sales in Tennessee. These sales are strategically located across the state so that all producers in Tennessee have access to one (15).

From the conception of organized sales, the University of Tennessee Agricultural Extension Service has assumed a major leadership role in promoting and developing this industry. At most of the sales, the local Extension agent serves as the sales manager and coordinates with sale barn officials the day to day operations of the sale. Other agents actively promote the sales close to them. In addition, local Extension agents coordinate psuedorabies testing programs as part of the eradication programs mandated by Tennessee law. After the producers' herd is tested the local agent will issue

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*Numbers in parenthesis refer to alphabetically listed sources in the bibliography.

a marketing card that is required before the producers can sell through a local sale.

Past contributions to the swine industry by the Agricultural Extension Service have been numerous. Many facilities have been built with instruction and design from Extension personnel (3). Also, the quality of breeding stock has been improved by the use of performance tested boars. Extension has taken the lead in the state's testing program. The future will require even more input to maintain the profitability of production. Todays production costs and marketing opportunities have produced narrow profit margins. Consumers are more health conscious and demand high quality, low fat pork profits. The Agricultural Extension Service will be challenged to conduct educational programs which show producers that they can produce the type of products demanded by consumers and do so economically.

This study will assess the characteristics of Tennessee swine producers, their use of health management practices, and their contact with the Extension Service. Levels of production and adoption of management practices will be evaluated to determine their relationships to the producers characteristics and extension contacts.

II. NEED FOR THE STUDY

The Extension Service was established by the Smith Lever Act. Its charge was to provide the latest in research based information to the nations farmers. Although types and numbers of farmers have changed, the basic charge for Extension still exists.

The 1987 swine survey was a continuation of self study programs conducted by Extension. It was analyzed to ascertain producers level of production and extent of adoption of approved management practices. The information derived from this study will serve as benchmarks for local extension personnel as they develop and implement education programs targeted for Tennessee feeder pig producers.

III. PURPOSE OF THE STUDY

The purpose of this study was to characterize Tennessee feeder pig producers according to their personal characteristics, and their type of operation as related to their use of selected management practices and their contacts with Extension.

The specific objectives of the study were:

1. To identify the characteristics of feeder pig producers and their operations and to identify the number and type of contacts they had with Extension.

2. To determine to what extent feeder pig producers were using selected management practices.

3. To determine the relationships between the feeder pig producers' farming status and the number and type of contacts with Extension.

4. To determine the relationships between the feeder pig producers' age and the number and type of contacts with Extension.

5. To determine the relationships between the feeder pig producers' education and the number and type of contacts with Extension.

6. To determine the relationships between the feeder pig producers' operation size and the number and type of contacts with Extension.

7. To determine the relationships between the total number of contacts feeder pig producers had with Extension and their use of ten selected management practices.

8. To determine the relationships between the feeder pig producers' farming status and their use of ten selected management practices.

9. To determine the relationships between the feeder pig producers' age and their use of ten selected management practices.

10. To determine the relationships between the feeder pig producers' education and their use of ten selected management practices.

11. To determine the relationships between the feeder pig producers' operation size and their use of ten selected management practices.

IV. DEFINITION OF TERMS

1. A feeder pig is a young pig, either borrow or gilt, weighing between 30 and 90 pounds and has been weaned from its mother.

2. A feeder pig producer is a person receiving part or all of his income from the sale of feeder pigs.

3. An Extension contact is used to refer to the number of Extension meetings attended, the number of visits to the Extension

office, the number of telephone calls to the Extension office, or farm visits received by the producer over a 12 month period.

4. A personal characteristic of a producer is used to refer to the age of the producer, the producer's education level, and the producer's employment status, i.e., part-time versus full-time.

5. A recommended management practice is a procedure or task that has been researched and proven to be profitable if performed on a regular basis.

V. LIMITATIONS OF THE STUDY

This study will be limited to data from the 1987 swine survey conducted by the University of Tennessee Agricultural Extension Service. The number and type of producers was determined by those present in each county. Producers with less than five sows were not interviewed or surveyed.

VI. METHODS AND PROCEDURES

Development of Survey Instrument

The survey was developed by the University of Tennessee Agricultural Extension Service swine specialist staff in cooperation with the staff members of Agricultural and Extension Education staff.

Description of Instrument

The instrument was comprehensive and asked producers to identify their level of production, their use of management practices including nutrition and health, their Extension contacts, and their personal characteristics.

Population

The population of this study was feeder pig producers in 75 counties in Tennessee that had at least five sows.

Selection of Sample

Producers were selected for sampling from the county list of feeder pig producers. Extension agents interviewed 15 swine producers for the first 50 producers and five additional interviews for each additional 50 producers in the county to a maximum of 25 interviews. The (n^{th}) number method of selection was used to identify those producers to be surveyed.

Analysis of Data

All data were computerized with the analysis being completed by the Computer Center of the University of Tennessee. The statistical test used to determine relationships were the chi square test. A probability level of .05 was considered to be significant.

CHAPTER II

REVIEW OF RELATED STUDIES

A number of studies have been conducted to determine the relationship between producer characteristics, extension contacts, and the application of management practices. These studies have been conducted not only with swine producers specifically but also on many other related agricultural enterprises.

This chapter contains information from past studies as is related to:

1. Characteristics of Tennessee feed pig producers,
2. Characteristics of Tennessee agricultural producers,
3. Relationship between personal characteristics of Tennessee feed pig producers, Extension contacts, and use of management practices, and
4. Relationship between personal characteristics of Tennessee agricultural producers, Extension contacts, and use of management practices.

I. CHARACTERISTICS OF TENNESSEE FEEDER PIG PRODUCERS

Reaves (13), in a 1988 study of feeder pig producers in District I of Tennessee, found that 59 percent of the producers were from 36 to 59 years old. The mean age was 48.8 years. Reaves also found that 80 percent of the producers surveyed had a high school education or less, and 64 percent were part-time farmers.

Chadwell (3), in a 1983 study of feeder pig producers in Tennessee, found that the largest group of respondents, 39.8 percent, were between the ages of 36 and 50. The smallest group, just over 21 percent, were 35 years old or younger. Chadwell, like Reaves, found that about 80 percent of producers had a high school education or less. He found that 57.5 percent of the producers were part-time producers.

Gordon (4), in a 1977 survey of Haywood County feeder pig producers, found that 60 percent of producers were part-time farmers. He also found that only 40 percent or producers listed feeder pigs as a major source of farm income.

Chadwell (3) found that 79 percent of producers did not vaccinate their sow herds for parvovirus, and that 66.3 percent of feeder pig producers did not treat for rhinitis. However, he found that only 6.0 percent of producers did not deworm their sows and 5.0 percent did not treat for lice control.

Reaves (13) found that 50 percent of producers in District I did not vaccinate sows for leptospirosis and 56 percent of feeder pig producers did not vaccinate sows for parvovirus. Only 2 percent of producers did not treat sows for internal parasites and 4 percent did not treat for lice control.

McLemore's (8) 1979 study of Tennessee swine producers had similar findings with 54 percent treating for leptospirosis and 57 percent of feeder pig producers vaccinated sows for parvovirus. Five percent treated for internal parasites and lice control.

II. CHARACTERISTICS OF TENNESSEE AGRICULTURAL PRODUCERS

Lovely (5), in a 1979 study of beef producers in Campbell County, found that 58 percent were full-time producers.

Lumpkin (6), in a 1985 study of Tennessee beef producers, found that 54 percent were full-time producers.

Walker (16), in a 1985 study of Tennessee beef producers, found that only 42 percent of producers farmed on a full-time basis. He also found that 48 percent of the farmers' major source of farm income was derived from beef cattle.

Beeler (1), in a 1986 study involving beef producers, found that 51 percent of his respondents were full-time producers.

Walker (16) found that 82 percent of beef producers were deworming cows yearly and 68 percent were also treating cattle for lice control.

Lovely (5) found that 68 percent of beef producers were using lice and grub control, and 85 percent dewormed their cattle yearly.

Matthews (7), in a 1986 Lawrence County study, found that the reasons reported most often by producers to explain why cattlemen do not adopt more recommended practices were: (1) lack of time and labor, (2) too small a margin of profit, and (3) lack of technical knowledge.

III. RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS OF TENNESSEE FEEDER PIG PRODUCERS, EXTENSION CONTACTS AND THEIR USE OF MANAGEMENT PRACTICES

Chadwell (3) found full-time and part-time producers did differ significantly in the number of contacts they had with Extension through

swine meetings, telephone calls, and farm visits received from agents. The producers who were full-time attended significantly more Extension swine meetings, made more visits and telephone calls to the Extension office, and received more visits from Extension agents. The producers with more contacts with Extension were more likely to use recommended management practices.

Blair (2), in a 1987 study of farrow-to-finish operations in Tennessee, found age and level of education to be significantly related to the number and types of contacts swine producers had with Extension agents. Younger farmers attended more swine meetings and visited the county Extension office more often than older farmers. Farmers who had some college education were more likely to attend Extension swine meetings than those who did not.

Perry (12), in a 1980 study of Tennessee swine producers, found that application of recommended practices was significantly related to the number of Extension contacts. The more contacts the producers had with Extension, the more likely the application of recommended practices was to be higher.

Patterson (11), in a 1988 study of swine producers, found younger producers tended to vaccinate their sows more frequently for leptospirosis, rhinitis, and parvovirus. Younger producers also used antibiotics in water, gave iron shots more frequently, clipped needle teeth, and disinfected farrowing quarters more often than the older producers.

Gordon (4) reported the number of contacts producers had with Extension were significantly associated with their use of 5 of 21

recommended swine management practices. Producers using the recommended practices had a larger number of Extension contacts than did producers not using the practices.

IV. RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS OF TENNESSEE AGRICULTURAL PRODUCERS, EXTENSION CONTACTS AND THEIR USE OF MANAGEMENT PRACTICES

Myers (9), in a 1989 study of Tennessee beef producers, found full-time beef producers to be more likely than part-time beef producers to use five of the eight recommended feed management practices. He also reported beef cattle producers with 40 cows or more to be more likely than producers with 40 cows or less to use five of the recommended feeding management practices.

Walker (16) found large beef producers to be significantly more likely to have more Extension contacts than small producers.

Officer (10), in a 1987 study of Tennessee soybean producers, reported that a significant relationship existed between the number of contacts producers had with Extension and their use of 22 of 33 production practices. Producers using the recommended practices had a larger number of Extension contacts than did producers not using the practices.

Rutter (14), in a 1982 study of Tennessee beef producers, reported a significant relationship between the total number of Extension contacts beef producers had and their use of 13 recommended practices. In each case, beef producers who used the practices had made

significantly more total contacts with Extension agents during the previous 12 months.

V. CHAPTER SUMMARY

Past studies have revealed that certain relationships do exist between producer characteristics, application of management practices, and Extension contacts. Feeder pig producers tend to be part-time farmers with a majority having a high school education or less. There also is a trend for larger producers to have more education. The larger, full-time producers and the younger, higher educated producers have more contacts with Extension. A positive relationship exists between Extension contacts and the application of management practices. Similarly, younger and larger producers are also more likely to apply management practices.

CHAPTER III

CHARACTERIZATION OF TENNESSEE FEEDER PIG PRODUCERS AND THEIR OPERATION

This chapter presents characterizations of Tennessee feeder pig producers and their farm operations. Section I presents data regarding the characteristics of the feeder pig producer's operation and the number and type of contacts the producer had with the Agricultural Extension Service. Section II presents data regarding the use of swine management practices recommended by the Extension Service.

I. CHARACTERISTICS OF TENNESSEE FEEDER PIG PRODUCERS, THEIR FARM OPERATION, AND NUMBER AND TYPES OF EXTENSION CONTACTS

This section presents findings (Table 1) regarding the characteristics of feeder pig producers, and the number and types of contacts with the Agricultural Extension Service over the last twelve months. Frequencies and percentages are used to summarize findings.

Selected Characteristics of Producer

The first four variables in Table 1 deal with the selected characteristics of the feeder pig producers with regard to their farming status, age, education, and size of operation.

TABLE 1. Selected Characteristics of Tennessee Feeder Pig Producers, Their Farm Operation, and Number and Types of Extension Contacts

Selected Characteristics of Producers and Extension Contacts	Number (N=1167)*	Percent
SELECTED CHARACTERISTICS		
Farming Status		
Full-time farm	380	33.2
Part-time farm	765	66.8
Age of Producer		
48 or under	558	48.9
49 or over	584	51.1
Mean = 48.38		
Education Level of Producer		
High school or less	941	83.1
College	191	16.9
Size of Operation		
20 or less	913	78.2
21 or over	254	21.8
Mean = 20.18		
EXTENSION CONTACTS		
Extension Swine Meeting Attended		
Not any	549	47.0
One or over	618	53.0
Mean = .75		
Extension Office Visited		
Not any	205	17.6
One or over	962	82.4
Mean = 1.87		
Telephone Calls Made to Extension Office		
Not any	321	27.5
One or over	846	72.5
Mean = 2.58		
Farm Visits Received From Extension Agents		
Not any	321	27.5
One or over	846	72.5
Mean = 1.27		

*Total number of producers was 1,167, all questions were not answered by all producers.

Farming status. Full-time farmers totaled 380, or 33.2 percent, with the majority of those responding, 66.8 percent or 765, being part-time farmers.

Age of producer. The average or mean age of the survey population was 48.38. Almost 49 percent (558) were under 48.

Education level of producer. Almost 83 percent of the feeder pig producers surveyed had obtained a high school education or less. About 17 percent had attended college.

Size of operation. Most of the 1,167 feeder pig producers who answered this question were small producers; 913, or 78.2 percent, owned 20 or less sows; and 254, or 21.8 percent, owned 21 or more.

Extension Contacts

The last four variables in Table 1 attempt to characterize the feeder pig producers by the number of contacts made through the last 12 months with the Agricultural Extension Service through Extension swine meetings attended, visits to the Extension office, telephone calls to the Extension offive over the last 12 months, and Extension farm visits received.

Extension swine meeting attended. Forty-seven percent (549) of producers surveyed did not attend an Extension swine meeting over the last 12 months, while 53 percent (618) producers attended at least one.

Extension office visited. About 82 percent of feeder pig producers visited the Extension office at least once in the last 12 months.

Telephone calls made to Extension office. About 27 percent of the feeder pig producers surveyed made no telephone calls to the Extension office during the past year. The remaining 83 percent made one or more telephone calls to the Extension office over the last 12 months.

Farm visits received from Extension agents. About 73 percent of feeder pig producers received at least one visit from the Extension agent in the last 12 months.

II. TENNESSEE FEEDER PIG PRODUCERS' USE OF MANAGEMENT PRACTICES

This section presents findings (Table 2) regarding the use of fifteen management practices by Tennessee feeder pig producers. The total number and percent of producers responding to each question is used to help summarize the use of these practices.

Management Practices

Sows vaccinated for leptospirosis. Over 70 percent (825) of the producers vaccinated for leptospirosis, while 29.3 percent, or 342 producers, did not vaccinate.

TABLE 2. Tennessee Feeder Pig Producers' Use of Selected Management Practices

Management Practices	Number (N=1167)*	Percent
Sows Vaccinated for Leptospirosis		
No	342	29.3
Yes	825	70.7
Sows Vaccinated for Rhinitis		
No	686	58.8
Yes	481	41.2
Sows Vaccinated for Parvovirus		
No	631	54.1
Yes	536	45.9
Boars Vaccinated for Parvovirus		
No	689	59.0
Yes	478	41.0
Sows Treated for Internal Parasites		
No	54	4.6
Yes	1112	95.4
Sows Treated for Lice		
No	70	6.1
Yes	1085	93.9
Medication Used in Water		
No	979	83.9
Yes	188	16.1
Sulfa Used in Water		
No	1087	93.1
Yes	80	6.9
Antibiotics Used in Water		
No	1010	86.5
Yes	157	13.5
Medication Used in Sows' Gestation and Lactation Ration		
No	17	1.5
Yes	1150	98.5
Medication Used in Pigs' Weaning Ration		
No	24	2.1
Yes	1143	97.9
Iron Shots Given to Pigs		
No	117	10.0
Yes	1050	90.0
Needle Teeth Clipped		
No	5	.4
Yes	1162	99.6
Feed Increased to Pregnant Sows		
No	227	19.5
Yes	937	80.5
Creep Fed Baby Pigs		
No	197	16.9
Yes	970	83.1

*Total number of producers was 1,167, all questions were not answered by all producers.

Sows vaccinated for rhinitis. Six hundred eighty-six, or 58.8 percent, did not vaccinate their sow herd for rhinitis with 41.2 percent (481) vaccinating at least once.

Sows vaccinated for parvovirus. Six hundred thirty-one, or 54.1 percent, did not vaccinate sows for parvovirus while 536, or 45.9 percent, did vaccinate at least once.

Boars vaccinated for parvovirus. Fifty-nine percent (689) did not vaccinate boars for parvovirus with the remaining 41 percent, or 478 producers, vaccinating at least once.

Sows treated for internal parasites. Over 95 percent, or 1,112 producers, followed the recommended practice of deworming sows at least once yearly. Only 54 producers, or 4.6 percent, did not deworm at least once.

Sows treated for lice. Six percent of the feeder pig producers surveyed did not treat their sow herds for lice. One thousand eighty-five, or 93.9 percent, did treat sows for lice control.

Medication used in water. Of the 1,167 producers surveyed, about 84 percent did not add medication in water for the treatment of disease while 16 percent did follow the practice of adding medication to water.

Sulfa used in water. A large majority of the producers, 93.1 percent, did not use sulfa in the drinking water.

Antibiotics used in water. One thousand ten, or 86.5 percent, of the producers surveyed did not use antibiotics in drinking water while the remaining 157, or 13.5 percent, did use antibiotics.

Medication used in sow's gestation and lactation ration. A strong majority (1,150 producers) used medication in sow's gestation and lactation ration with only 1.5 percent, (17 producers) not adopting this practice.

Medication used in pig's weaning ration. Only 2 percent (24) of the producers did not use medication in pig's weaning ration while 1,143, or 97.9 percent, did.

Iron shots given to pigs. Producers who gave baby pigs iron shots numbered 1,050, or 90 percent. Those not giving iron shots totaled 117, or 10 percent.

Needle teeth clipped. Only 5, or 0.4 percent, of the 1,167 producers surveyed did not clip baby pig's needle teeth.

Feed increased to pregnant sows. Only 19.5 percent of producers did not increase the amount of feed fed to pregnant sows. Nine hundred thirty-seven, or 80.5 percent, did follow the recommended practice of increasing the amount of feed fed to pregnant sows.

Creep fed baby pigs. Of the 1,167 producers surveyed, 970, or 83.1 percent, creep fed their baby pigs as compared to 16.9 percent (197) who did not.

III. CHAPTER SUMMARY

The average age of producers was 48 years of age with about 67 percent being part-time farmers. Only about 17 percent were college graduates and 78 percent were small operators with 20 sows or less.

Fifty-three percent attended at least one Extension meeting during the last 12 months. Over 82 percent of the producers visited the Extension office at least once. Almost 73 percent made one or more telephone calls to the Extension office. Also, almost 73 percent were visited by the Extension agent at least once.

Over one-third, or 6 of the 15, management practices recommended by the Extension Service were used by less than 50 percent of the producers. These were vaccinating sows for rhinitis, vaccinating sows and boars for parvovirus, the use of medication in water, the use of sulfa in water, and the use of antibiotics in water. Over 90 percent used the following six practices: (1) wormed sows once or more per year, (2) treated sows for external parasites, (3) the addition of medication in sow's gestation and lactation rations, (4) the use of medication in pig's weaning ration, (5) iron shots given to pigs, and (6) clipped needle teeth.

CHAPTER IV

RELATIONSHIP BETWEEN THE SELECTED CHARACTERISTICS OF FEEDER PIG PRODUCERS, THEIR SIZE OF OPERATION, TYPE OF CONTACTS WITH EXTENSION, AND USE OF SELECTED MANAGEMENT PRACTICES

This chapter presents findings regarding relationships between selected characteristics of feeder pig producers, the number of sows in breeding herd, the number and types of Extension contacts over the last 12 months, and the use of selected management practices. Five characteristics of feeder pig producers were studied: (1) farming status, (2) producers' age, (3) producers' education, (4) the number of sows in breeding herd, and (5) the use of selected management practices.

These variables were studied to determine the characteristics of feeder pig producers who had contacts with Extension and those who did not. Data were collected on five Extension contact variables which included number of Extension swine meetings attended, number of visits to Extension office, number of telephone calls to Extension office, number of farm visits received from Extension agents, and the total number of Extension contacts. The chi square test was used to determine strengths of relationships between dependent and independent variables. Data were summarized in four tables. Each table constitutes a section.

I. FARMING STATUS OF FEEDER PIG PRODUCERS AND THE NUMBER AND TYPE OF CONTACTS THEY HAD WITH EXTENSION

Findings regarding the relationship between feeder pig producers' farming status and the number and type of contacts made with Extension are presented in Table 3. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Farming Status and Swine Meetings Attended

Data in Table 3 indicate that about 60 percent of the full-time feeder pig producers attended one or more swine meetings over the last 12 months as compared to about 48 percent of the part-time producers. The chi square test indicated a significant relationship between farming status and the number of swine meetings attended. Full-time feeder pig producers were more likely to attend swine meetings than were part-time producers.

Farming Status and Visits to Extension Office

Almost 83 percent of full-time feeder pig producers made one or more visits to the Extension office over the last 12 months compared to nearly 82 percent of part-time producers. Although the data did show a tendency for a greater proportion of the full-time than the part-time producers to have visited the Extension office one or more times, the differences were not significant. Therefore, full-time feeder pig producers were no more likely than part-time producers to have visited the Extension office.

TABLE 3. Relationships Between the Farming Status of Feeder Pig Producers and the Number and Type of Contacts They Had With Extension

Extension Contacts	Farming Status (N=1,167)*			
	Full-Time		Part-Time	
	Number	Percent	Number	Percent
Extension Swine Meeting Attended				
Not any	151	39.7	395	51.6
One or more	229	60.3	370	48.4
TOTAL	380	100.0	765	100.0
Statistical Test: $X^2 = 13.93$ $p < 0.01$				
Extension Office Visited				
Not any	65	17.1	140	18.3
One or more	315	82.9	625	81.7
TOTAL	380	100.0	765	100.0
Statistical Test: $X^2 = 0.17$ $p = 0.68$				
Telephone Calls Made to Extension Office				
Not any	105	27.6	215	28.1
One or more	275	72.4	550	71.9
TOTAL	380	100.0	765	100.0
Statistical Test: $X^2 = 0.17$ $p = 0.68$				
Farms Visits Received From Extension Agent				
Not any	81	21.3	238	31.1
One or more	299	78.7	527	68.9
TOTAL	380	100.0	765	100.0
Statistical Test: $X^2 = 11.64$ $p < 0.01$				
Total Number Extension Contacts				
Not any	164	45.2	411	55.0
One or more	199	54.8	336	45.0
TOTAL	363	100.0	747	100.0
Statistical Test: $X^2 = 9.09$ $p < 0.01$				

*Total number of producers was 1,167, all questions were not answered by all producers.

Farming Status and Telephone Calls to Extension Office

Seventy-two percent of the full-time feeder pig producers made one or more telephone calls to the Extension office over the last 12 months compared to almost 72 percent of part-time producers. Although the data did show a tendency for a greater proportion of the full-time than the part-time producers to have called the Extension office, the differences were not significant. Therefore, full-time producers were no more likely than part time producers to have called the Extension office.

Farming Status and Farm Visits Received From Extension Agents

Nearly 79 percent of full-time feeder pig producers received one or more farm visits from Extension agents as compared to almost 69 percent of part-time producers. The chi square test indicated a significant relationship between farming status and the number of farm visits received from Extension agents. Full-time producers were more likely to receive farm visits from Extension agents than were part-time producers.

Farming Status and Total Number Extension Contacts

Almost 55 percent of full-time feeder pig producers had one or more total Extension contacts as compared to 45 percent of part-time producers. The chi square test indicated a significant relationship between farming status and the total number of Extension contacts. Full-time producers were more likely to have Extension contacts than were part-time producers.

II. AGE OF FEEDER PIG PRODUCERS AND THE NUMBER AND TYPE OF CONTACTS THEY HAD WITH EXTENSION

Findings regarding the relationship between feeder pig producers' age and the number and type of contacts made with Extension over the last 12 months are presented in Table 4. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Producers' Age and Swine Meetings Attended

Data in Table 4 indicate that about 52 percent of feeder pig producers 48 or under, as well as producers 49 or over, attended one or more Extension swine meeting over the last 12 months. There was almost no difference in the percent of producers attending swine meetings. Therefore, producers 48 or under were no more likely to attend Extension swine meetings than were producers 49 or over.

Producers' Age and Visits to Extension Office

Almost 84 percent of feeder pig producers 48 or under made one or more visits to the Extension office as compared to about 80 percent of producers 49 or over. Although the data did show a tendency for a greater proportion of the producers 48 or under to have visited the Extension office one or more times, the differences were not significant. Therefore, producers 48 or under were no more likely than producers 49 or over to have visited the Extension office.

TABLE 4. Relationships Between the Age of Feeder Pig Producers and the Number and Type of Contacts They Had With Extension

Extension Contacts	Producers' Age (N=1,167)*			
	48 or Under		49 or Over	
	Number	Percent	Number	Percent
Extension Swine Meeting Attended				
Not any	266	47.7	280	47.9
One or more	292	52.3	304	52.1
TOTAL	558	100.0	584	100.0
Statistical Test: $X^2 = 0.00$ $p = 0.97$				
Extension Office Visited				
Not any	90	16.1	115	19.7
One or more	468	83.9	469	80.3
TOTAL	558	100.0	584	100.0
Statistical Test: $X^2 = 2.22$ $p = .14$				
Telephone Calls Made To Extension Office				
Not any	141	25.3	180	30.8
One or more	417	74.7	404	69.2
TOTAL	558	100.0	584	100.0
Statistical Test: $X^2 = 4.08$ $p = .04$				
Farm Visits Received From Extension Agent				
Not any	146	26.2	172	29.5
One or more	412	73.8	412	70.5
TOTAL	558	100.0	584	100.0
Statistical Test: $X^2 = 1.38$ $p = .24$				
Total Number Extension Contacts				
Not any	262	48.3	313	55.2
One or more	280	51.7	254	44.8
TOTAL	542	100.0	567	100.0
Statistical Test: $X^2 = 4.96$ $p = 0.03$				

*Total number of producers was 1,167, all questions were not answered by all producers.

Producers' Age and Telephone Calls to Extension Office

Almost 74 percent of feeder pig producers 48 or under made one or more telephone calls to the Extension office compared to about 69 percent of producers 49 or over. The chi square test indicated a significant relationship between producers' age and telephone calls made to Extension. Producers 48 or under were more likely than producers 49 or over to call the Extension office.

Producers' Age and Farm Visits Received From Extension Agent

Almost 74 percent of producers 48 or under received one or more farm visits from Extension agents as compared to about 71 percent of producers 49 or over. Although the data did show a tendency for a greater proportion of the producers 48 or under than the producers 49 or over to receive farm visits from Extension agents, the differences were not significant. Therefore, producers 48 or under were no more likely than producers 49 or over to receive farm visits from Extension agents.

Producers' Age and Total Number of Extension Contacts

Almost 52 percent of producers 48 or under had one or more total Extension contacts as compared to almost 45 percent of producers 49 or over. The chi square test indicated a significant relationship between farming status and the total number of Extension contacts. Producers 48 or under were more likely than producers 49 or over to have Extension contacts.

III. FEEDER PIG PRODUCERS' LEVEL OF EDUCATION AND THE NUMBER AND TYPE OF CONTACTS THEY HAD WITH EXTENSION

Findings regarding the relationship between feeder pig producers' level of education and the number and type of contacts made with Extension over the last 12 months are presented in Table 5. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Producers' Education Level and Swine Meetings Attended

Data in Table 5 indicate that almost 70 percent of feeder pig producers with college education attended one or more swine meetings as compared to about 49 percent of the producers with high school education or less. The chi square test indicated a significant relationship between producers' education level and the number of swine meetings attended. Producers with college education were more likely to attend swine meetings than were producers with high school education or less.

Producers' Education Level and Visits to Extension Office

Eighty-eight percent of feeder pig producers with college education made one or more visits to the Extension office compared to almost 81 percent of producers with high school education or less. The chi square test indicated a significant relationship between education level and visits to the Extension office over the last 12

TABLE 5. Relationships Between Feeder Pig Producers' Level of Education and the Number and Type of Contacts They Had With Extension

Extension Contacts	Producers' Education (N=1,167)*			
	High School or Less		College	
	Number	Percent	Number	Percent
Extension Swine Meeting Attended				
Not any	485	51.5	58	30.4
One or more	456	48.5	133	69.6
TOTAL	941	100.0	191	100.0
Statistical Test: $X^2 = 27.68$ $p < 0.01$				
Extension Office Visited				
Not any	181	19.2	23	12.0
One or more	760	80.8	168	88.0
TOTAL	941	100.0	191	100.0
Statistical Test: $X^2 = 5.08$ $p < 0.01$				
Telephone Calls Made to Extension Office				
Not any	292	31.0	24	12.6
One or more	649	69.0	167	87.4
TOTAL	941	100.0	191	100.0
Statistical Test: $X^2 = 25.99$ $p < 0.01$				
Farm Visits Received From Extension Agent				
Not any	290	30.8	26	13.6
One or more	651	69.2	165	86.4
TOTAL	941	100.0	191	100.0
Statistical Test: $X^2 = 22.51$ $p < 0.01$				
Total Number Extension Contacts				
Not any	290	30.8	26	13.6
One or more	651	69.2	165	86.4
TOTAL	941	100.0	191	100.0
Statistical Test: $X^2 = 39.95$ $p < 0.01$				

*Total number of producers was 1,167, all questions were not answered by all producers.

months. Producers with college education were more likely to visit the Extension office than were producers with high school education or less.

Producers' Education Level and Telephone Calls to Extension

About 87 percent of feeder pig producers with college education made one or more calls to the Extension office compared to 69 percent of producers with high school education or less. The chi square test indicated a significant relationship between producers' education level and telephone calls to the Extension office. Producers with college education were more likely to make telephone calls to Extension office than were producers with high school education or less.

Producers' Education Level and Farm Visits Received From Extension Agent

About 86 percent of feeder pig producers with college education received one or more visits from Extension agents as compared to about 69 percent of producers with high school education or less. The chi square test indicated a significant relationship between producers' education level and farm visits received from Extension agents. Producers with college education were more likely to receive farm visits from Extension agents than were producers with high school education or less.

Producers' Education Level and Total Number Extension Contacts

About 86 percent of feeder pig producers with college education had more than one total Extension contacts as compared to about 69 percent of producers with high school education or less. The chi square test indicated a significant relationship between producers' education level and the total number of Extension contacts. Producers with college education were more likely to have Extension contacts than were producers with high school education or less.

IV. NUMBER OF SOWS IN FEEDER PIG PRODUCERS' HERD AND THE NUMBER AND TYPE OF CONTACTS THEY HAD WITH EXTENSION

Findings regarding the relationship between feeder pig producers' number of sows and the number and types of contacts made with Extension over the last 12 months are presented in Table 6. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Number of Sows and Swine Meetings Attended

Data in Table 6 indicate that 74 percent of feeder pig producers with 21 sows or over attended one or more swine meetings over the last 12 months as compared to about 47 percent of the producers with 20 sows or less. The chi square test indicated a significant relationship between producers' number of sows and the number of swine meetings attended. Producers with 21 sows or over were more likely to attend swine meetings than were producers with 20 sows or less.

TABLE 6. Relationships Between the Number of Sows in Herd and the Number and Type of Contacts Feeder Pig Producers Had With Extension

Extension Contacts	Number of Sows (N=1,167)*			
	20 or Less		21 or Over	
	Number	Percent	Number	Percent
Extension Swine Meeting Attended				
Not any	483	52.9	66	26.0
One or more	430	47.1	188	74.0
TOTAL	913	100.0	754	100.0
Statistical Test: $X^2 = 56.72$ $p < 0.01$				
Extension Office Visited				
Not any	178	19.5	27	10.6
One or more	735	80.5	227	89.4
TOTAL	913	100.0	254	100.0
Statistical Test: $X^2 = 10.18$ $p < 0.01$				
Telephone Calls Made To Extension Office				
Not any	275	30.1	46	18.1
One or more	638	69.9	208	81.9
TOTAL	913	100.0	254	100.0
Statistical Test: $X^2 = 13.78$ $p < 0.01$				
Farm Visits Received From Extension Agent				
Not any	284	31.1	37	14.6
One or more	629	68.9	217	85.4
TOTAL	913	100.0	254	100.0
Statistical Test: $X^2 = 26.44$ $p < 0.01$				
Total Number Extension Contacts				
Not any	504	57.7	73	30.4
One or more	369	42.3	167	69.6
TOTAL	873	100.0	240	100.0
Statistical Test: $X^2 = 55.17$ $p < 0.01$				

*Total number of producers was 1,167, all questions were not answered by all producers.

Number of Sows and Visits to Extension Office

About 89 percent of feeder pig producers with 21 sows or over made one or more visits to the Extension office as compared to almost 81 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between producers' number of sows and the number of visits made to the Extension office. Producers with 21 sows or over were more likely to visit the Extension office than were producers with 20 sows or less.

Number of Sows and Telephone Calls to Extension Office

Almost 82 percent of feeder pig producers with 21 sows or over made one or more telephone calls to the Extension office as compared to nearly 70 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between producers' number of sows and the number of calls to the Extension office. Producers with 21 sows or over were more likely to call the Extension office than were producers with 20 sows or less.

Number of Sows and Farm Visits Received From Extension Agents

About 85 percent of feeder pig producers with 21 sows or over received one or more farm visits from Extension agents as compared to almost 69 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between producers' number of sows and the number of farm visits received from Extension

agents. Producers with 21 sows or over were more likely to receive farm visits from Extension agents than were producers with 20 sows or less.

Number of Sows and Total Number of Extension Contacts

Almost 70 percent of feeder pig producers with 21 sows or over had one or more Extension contacts as compared to about 42 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between producers' number of sows and the total number of Extension contacts. Producers with 21 sows or over were more likely than producers with 20 sows or less to have contacts with Extension.

V. TOTAL NUMBER OF CONTACTS FEEDER PIG PRODUCERS MADE WITH EXTENSION AND THEIR USE OF TEN SELECTED MANAGEMENT PRACTICES

Findings regarding the relationship between the total number of contacts feeder pig producers made with Extension over the last 12 months and their use of ten selected management practices. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Number of Extension Contacts and Sows Vaccinated for Leptospirosis

Data in Table 7 indicate that almost 80 percent of feeder pig producers who had 6 or more contacts with Extension over the last

TABLE 7. Relationships Between Total Number of Contacts Feeder Pig Producers Made With Extension and Their Use of Ten Selected Management Practices

Management Practices	Total Number Extension Contacts			
	5 or Less		6 or More	
	Number	Percent	Number	Percent
	(N=1167)*			
Sows Vaccinated for Leptospirosis				
No	215	37.3	110	20.5
Yes	362	62.7	426	79.5
Statistical Test: $X^2 = 36.85$ $p < 0.01$				
Sows Vaccinated for Rhinitis				
No	391	67.8	263	49.1
Yes	186	32.2	273	60.9
Statistical Test: $X^2 = 39.32$ $p < 0.01$				
Sows Vaccinated for Parvovirus				
No	361	62.6	238	44.4
Yes	216	37.4	298	55.6
Statistical Test: $X^2 = 36.15$ $p < 0.01$				
Boars Vaccinated for Parvovirus				
No	390	67.6	262	48.9
Yes	187	32.4	274	51.1
Statistical Test: $X^2 = 39.13$ $p < 0.01$				
Sows Treated for Internal Parasite				
No	40	6.9	14	2.6
Yes	537	93.1	521	97.4
Statistical Test: $X^2 = 10.28$ $p < 0.01$				
Sows Treated for Lice				
No	51	8.9	19	3.6
Yes	522	91.1	511	96.4
Statistical Test: $X^2 = 12.21$ $p < 0.01$				
Medication Used in Water				
No	515	89.3	420	78.4
Yes	62	10.7	116	21.6
Statistical Test: $X^2 = 23.25$ $p < 0.01$				
Antibiotics Used in Water				
No	527	91.3	441	82.3
Yes	50	8.7	95	17.7
Statistical Test: $X^2 = 19.33$ $p < 0.01$				
Iron Shots Given to Pigs				
No	76	13.2	28	5.2
Yes	501	86.8	508	94.8
Statistical Test: $X^2 = 19.79$ $p < 0.01$				
Creep Fed Baby Pigs				
No	121	21.0	168	12.7
Yes	456	79.0	468	87.3
Statistical Test: $X^2 = 12.95$ $p < 0.01$				

*Total number of producers was 1,167; however, all questions were not answered by all producers.

12 months vaccinated their sows for leptospirosis as compared to nearly 63 percent of producers who had 5 or less contacts with Extension. The chi square test indicated a significant relationship between total number of Extension contacts and vaccination for leptospirosis. Producers who had 6 or more contacts with Extension were more likely than producers with 5 or less contacts to vaccinate their sows for leptospirosis.

Number of Extension Contacts and Sows Vaccinated for Rhinitis

Almost 61 percent of feeder pig producers who had 6 or more contacts with Extension vaccinated their sows for rhinitis as compared to about 32 percent of producers who had 5 or less contacts with Extension. The chi square test indicated a significant relationship between total number of Extension contacts and vaccination for rhinitis. Producers who had 6 or more contacts with Extension were more likely than producers with 5 or less contacts to vaccinate their sows for leptospirosis.

Number of Extension Contacts and Sows Vaccinated for Parvovirus

Almost 56 percent of feeder pig producers who had 6 or more contacts with Extension vaccinated their sows for parvovirus as compared to about 37 percent of producers who had 5 or less contacts with Extension. The chi square test indicated a significant relationship between total number of Extension contacts and vaccination of sows for parvovirus.

Producers with 6 or more contacts with Extension were more likely than producers with 5 or less contacts to vaccinate their sows for parvovirus.

Number of Extension Contacts and Boars Vaccinated for Parvovirus

About 51 percent of feeder pig producers with 6 or more total contacts with Extension vaccinated their boars for parvovirus as compared to about 32 percent of producers with 5 or less contacts. The chi square test indicated a significant relationship between total number of Extension contacts and vaccination of boars for parvovirus. Producers with 6 or more contacts with Extension were more likely to vaccinate their boars for parvovirus.

Number of Extension Contacts and Sows Treated for Internal Parasites

About 97 percent of feeder pig producers with 6 or more total Extension contacts treated their sows for internal parasites as compared to about 93 percent of producers with 5 or less contacts. The level of practice use was high for both groups. The chi square test indicated the small difference to be significant. A greater proportion of producers with 6 or more Extension contacts than producers with 5 or less contacts treated their sows for internal parasites.

Number of Extension Contacts and Sows Treated for Lice

About 96 percent of feeder pig producers with 6 or more total Extension contacts treated their sows for lice as compared to 91

percent of those with fewer contacts. The level of practice use by both groups was relatively high. The chi square test indicated the difference to be significant. A greater proportion of producers with 6 or more contacts with Extension than producers with 5 or less contacts treated their sows for lice.

Number of Extension Contacts and Use of Medication in Water

Almost 22 percent of feeder pig producers with 6 or more total contacts with Extension used medication in water as compared to nearly 11 percent of producers with 5 or less contacts. The level of practice use was relatively low for both groups. The chi square test indicated a significant relationship between total number of contacts with Extension and the use of medication in water. Producers with 6 or more contacts with Extension were more likely than producers with 5 or less contacts to use medication in water.

Number of Extension Contacts and Use of Antibiotics in Water

About 18 percent of feeder pig producers with 6 or more total Extension contacts used antibiotics in water as compared to nearly 9 percent of producers with 5 or less contacts. The level of practice use by both groups was relatively low. The chi square test indicated a significant relationship between total number of contacts with Extension and the use of antibiotics in water. Producers with 6 or more contacts with Extension were more likely than producers with 5 or less contacts to use antibiotics in water.

Number of Extension Contacts and Iron Shots Given to Pigs

About 95 percent of feeder pig producers with 6 or more contacts with Extension gave iron shots to their pigs as compared to nearly 87 percent of producers with 5 or less contacts. The level of practice use was relatively high for both groups. The chi square test indicated a significant relationship between total number of contacts with Extension and iron shots given to pigs. A greater proportion of producers with 6 or more contacts with Extension gave their pigs iron shots than did producers with 5 or less contacts with Extension.

Number of Extension Contacts and Creep Feeding Baby Pigs

About 87 percent of feeder pig producers with 6 or more total contacts with Extension creep fed their baby pigs as compared to 79 percent of producers with 5 or less contacts. The chi square test indicated a significant relationship between total number of Extension contacts and creep feeding of baby pigs. Producers with 6 or more contacts with Extension were more likely than producers with 5 or less contacts to creep feed baby pigs.

VI. CHAPTER SUMMARY

Full-time and part-time feeder pig producers did differ significantly in the number of contacts they had with Extension through Extension swine meetings attended, farm visits received from Extension

agents, and the total number of Extension contacts. Full-time producers had more contacts with Extension than part-time producers. Full-time and part-time producers did not differ as to the number of visits made to the Extension office and the number of telephone calls to the Extension office.

Feeder pig producers 48 or under and 49 or over differed significantly in the number of contacts they had with Extension through telephone calls made to the Extension office and the total number of Extension contacts. Producers 48 or under had more contacts with Extension. Producers 48 or under and 49 or over did not differ as to the number of Extension swine meetings attended, the number of visits to the Extension office, and the number of farm visits received from Extension agents.

Feeder pig producers with college education and high school education or less differed significantly in all types of contacts with Extension. Producers with college education attended more Extension swine meetings, visited the Extension office more, called the Extension office more, received more visits from Extension agents, and had more total contacts with Extension.

Feeder pig producers with 21 sows or more and producers with 20 sows or less differed in all types of contacts with Extension. Producers with 21 sows or more attended more Extension swine meetings, visited the Extension office more, called the Extension office more, received more visits from Extension agents, and had more total contacts with Extension.

Feeder pig producers with 6 or more total contacts with Extension differed significantly with producers with 5 or less contacts in the use of all ten selected management practices. Producers with 6 or more total contacts were more likely to vaccinate the sows for leptospirosis, rhinitis, and parvovirus, vaccinate their boars for parvovirus, and treat their sows for internal parasites and lice. Producers with 6 or more contacts were also more likely to use medication and antibiotics in water, give iron shots to their pigs, and creep feed their baby pigs.

CHAPTER V

RELATIONSHIPS BETWEEN PRODUCER CHARACTERISTICS, NUMBER OF SOWS IN HERD, AND THEIR USE OF SELECTED MANAGEMENT PRACTICES

This chapter presents findings regarding relationships between selected characteristics of the producers, the number of sows in herd, and their use of selected management practices. The producers' selective characteristics studied were farming status, producers' age, and producers' education. These variables were studied to determine relationships with the use of the selected management practices. Data were collected on ten variables which include sows vaccinated for leptospirosis, sows vaccinated for rhinitis, sows vaccinated for parvovirus, boars vaccinated for parvovirus, sows treated for internal parasites, sows treated for lice, use of medication in water, use of antibiotics in water, iron shots given to pigs, and creep fed baby pigs. The chi square test was used to determine strengths of relationships between dependent and independent variables. Data were summarized in four tables. Each table constitutes a section.

I. PRODUCERS' FARMING STATUS AND THEIR USE OF TEN SELECTED MANAGEMENT PRACTICES

Table 8 presents findings regarding the relationship between feeder pig producers' farming status and their use of ten selected management practices. The number and percent of producers

TABLE 8. Relationships Between Farming Status of Feeder Pig Producers and Their Use of Ten Selected Management Practices

Management Practices	Farming Status			
	Full-Time		Part-Time	
	Number	Percent	Number	Percent
	(N=1167)*			
Sows Vaccinated for Leptospirosis				
No	88	23.2	247	32.3
Yes	292	76.8	518	67.7
Statistical Test: $X^2 = 9.79$ $p < 0.01$				
Sows Vaccinated for Rhinitis				
No	224	58.9	449	58.7
Yes	156	41.1	316	41.3
Statistical Test: $X^2 = 0.00$ $p = 0.99$				
Sows Vaccinated for Parvovirus				
No	195	51.3	422	55.2
Yes	185	48.7	343	44.8
Statistical Test: $X^2 = 1.36$ $p = 0.24$				
Boars Vaccinated for Parvovirus				
No	214	56.3	461	60.3
Yes	166	43.7	304	39.7
Statistical Test: $X^2 = 1.47$ $p = 0.22$				
Sows Treated for Internal Parasites				
No	12	3.2	42	5.5
Yes	368	96.8	722	94.5
Statistical Test: $X^2 = 2.59$ $p = 0.10$				
Sows Treated for Lice				
No	14	3.8	55	7.2
Yes	358	96.2	707	92.8
Statistical Test: $X^2 = 4.63$ $p = 0.03$				
Medication Used in Water				
No	302	79.5	655	85.6
Yes	78	20.5	110	14.4
Statistical Test: $X^2 = 6.55$ $p < 0.01$				
Antibiotics Used in Water				
No	308	81.1	680	88.9
Yes	72	18.9	85	11.1
Statistical Test: $X^2 = 12.52$ $p < 0.01$				
Iron Shots Given to Pigs				
No	26	6.8	83	10.8
Yes	354	93.2	682	89.2
Statistical Test: $X^2 = 4.28$ $p = 0.04$				
Creep Fed Baby Pigs				
No	46	12.1	147	19.2
Yes	334	87.9	618	80.8
Statistical Test: $X^2 = 8.66$ $p < 0.01$				

*Total number of producers was 1,167; however, all questions were not answered by all producers.

responding are given for each variable as well as the chi square value and the probability level.

Farming Status and Sows Vaccinated for Leptospirosis

Data in Table 8 indicate that almost 77 percent of full-time feeder pig producers vaccinated their sows for leptospirosis as compared to almost 68 percent of the part-time producers. The chi square test indicated a significant relationship between producers' farming status and vaccination for leptospirosis. Full-time producers were more likely to vaccinate their sows for leptospirosis than were part-time producers.

Farming Status and Sows Vaccinated for Rhinitis

About 41 percent of full-time as well as part-time feeder pig producers vaccinated their sows for rhinitis. When tested by chi square test, the difference was not significant. Therefore, full-time producers were no more likely than part-time producers to have vaccinated their sows for rhinitis.

Farming Status and Sows Vaccinated for Parvovirus

Almost 49 percent of full-time feeder pig producers vaccinated their sows for parvovirus compared to almost 45 percent of the part-time producers. Although the data did show a tendency for

a greater proportion of the full-time than the part-time farmers to have vaccinated their sows for parvovirus, the differences were not significant. Therefore, full-time producers were no more likely than part-time producers to have vaccinated their sows for parvovirus.

Farming Status and Boars Vaccinated for Parvovirus

Almost 44 percent of full-time feeder pig producers vaccinated their boars for parvovirus as compared to almost 40 percent of part-time producers. Although the data did show a tendency for a greater proportion of the full-time producers than the part-time producers to have vaccinated their boars for parvovirus, the difference was not significant. Therefore, the full-time feeder pig producers were no more likely than part-time producers to have vaccinated their sows for parvovirus.

Farming Status and Sows Treated for Internal Parasites

Almost 97 percent of full-time feeder pig producers treated their sows for internal parasites as compared to about 95 percent of part-time producers. Data indicated that both groups had a high level of adoption, but when tested by chi square test, the difference was not significant. Full-time feeder pig producers were no more likely than part-time producers to treat their sows for internal parasites.

Farming Status and Sows Treated for Lice

About 96 percent of full-time feeder pig producers treated their sows for lice as compared to almost 93 percent of part-time producers. The chi square test indicated a significant relationship between producers' farming status and treatment of sows for lice. Full-time producers were more likely to treat their sows for lice than were part-time producers.

Farming Status and Use of Medication in Water

About 21 percent of full-time feeder pig producers were using medication in water as compared to about 14 percent of part-time producers. Although level of practice use by both full-time and part-time producers were relatively low, when tested by the chi square test the differences were significant. Full-time producers were more likely to use medication in water than were part-time producers.

Farming Status and Use of Antibiotics in Water

Almost 19 percent of full-time feeder pig producers used antibiotics in water as compared to about 11 percent of part-time producers. Although level of practice use by both full-time and part-time producers was relatively low, when tested by chi square analysis the differences were significant. Therefore, full-time producers were more likely to use antibiotics in water than were part-time producers.

Farming Status and Iron Shots Given to Pigs

About 93 percent of full-time feeder pig producers gave iron shots to their pigs as compared to about 89 percent of part-time feeder pig producers. The chi square test indicated a significant relationship between farming status and whether or not they gave iron shots to their pigs. Full-time producers were more likely to give iron shots to their pigs than were part-time producers.

Farming Status and Creep Fed Baby Pigs

Almost 88 percent of full-time feeder pig producers creep fed their baby pigs as compared to about 81 percent of part-time producers. The chi square test indicated a significant relationship between feeder pig producers' farming status and creep feeding of baby pigs. Full-time producers were more likely to creep feed their baby pigs than were part-time producers.

II. PRODUCERS' AGE AND THEIR USE OF TEN SELECTED MANAGEMENT PRACTICES

Table 9 presents findings regarding the relationship between feeder pig producers' age and their use of ten selected management practices. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Producers' Age and Sows Vaccinated for Leptospirosis

Data in Table 9 indicate that about 76 percent of feeder pig producers 48 years old or under vaccinated their sows for leptospirosis

TABLE 9. Relationships Between Feeder Pig Producers' Age and Their Use of Ten Selected Management Practices

Management Practices	Producers' Age			
	48 or Under		49 or Over	
	Number	Percent	Number	Percent
	(N=1167)*			
Sows Vaccinated for Leptospirosis				
No	130	23.3	203	34.8
Yes	428	76.7	381	65.2
Statistical Test: $X^2 = 17.60$ $p < 0.01$				
Sows Vaccinated for Rhinitis				
No	313	56.1	356	61.0
Yes	245	43.9	228	39.0
Statistical Test: $X^2 = 2.59$ $p = 0.11$				
Sows Vaccinated for Parvovirus				
No	276	49.5	339	58.0
Yes	282	50.5	245	42.0
Statistical Test: $X^2 = 8.12$ $p < 0.01$				
Boars Vaccinated for Parvovirus				
No	297	53.2	375	64.2
Yes	261	46.8	209	35.8
Statistical Test: $X^2 = 13.77$ $p < 0.01$				
Sows Treated for Internal Parasites				
No	23	4.1	30	5.1
Yes	535	93.9	553	94.9
Statistical Test: $X^2 = 0.46$ $p = 0.50$				
Sows Treated for Lice				
No	32	5.8	36	6.2
Yes	520	94.2	543	93.8
Statistical Test: $X^2 = 0.03$ $p = 0.86$				
Medication Used in Water				
No	450	80.6	505	86.5
Yes	108	19.4	79	13.5
Statistical Test: $X^2 = 6.66$ $p < 0.01$				
Antibiotics Used in Water				
No	470	84.2	576	88.4
Yes	88	15.8	68	11.6
Statistical Test: $X^2 = 3.78$ $p = 0.05$				
Iron Shots Given to Pigs				
No	48	8.6	62	10.6
Yes	510	91.4	522	89.4
Statistical Test: $X^2 = 1.11$ $p = 0.29$				
Creep Fed Baby Pigs				
No	74	13.3	120	20.5
Yes	484	86.7	464	79.5
Statistical Test: $X^2 = 10.23$ $p < 0.01$				

*Total number of producers was 1,167; however, all questions were not answered by all producers.

as compared to about 65 percent of producers 49 years old or over. The chi square test indicated a significant relationship between feeder pig producers' age and vaccination for leptospirosis. Producers 48 years old or under were more likely to vaccinate their sows for leptospirosis than were producers 49 years old or over.

Producers' Age and Sows Vaccinated for Rhinitis

Almost 44 percent of feeder pig producers 48 years or under vaccinated their sows for rhinitis as compared to 39 percent of producers 49 years old or over. Although the data did show a tendency for a greater proportion of the producers 48 years old or younger to have vaccinated their sows for rhinitis, the differences were not significant. Producers 48 years old or younger were no more likely than producers 49 years old or older to vaccinate their sows for rhinitis.

Producers' Age and Sows Vaccinated for Parvovirus

About 51 percent of feeder pig producers 48 years old or under vaccinated their sows for parvovirus as compared to 42 percent of producers 49 years old or over. The chi square test indicated a significant relationship between producers' age and the vaccination of sows for parvovirus. Producers 48 years old or under were more likely to vaccinate their sows for parvovirus than were feeder pig producers 49 years old or over.

Producers' Age and Boars Vaccinated for Parvovirus

Almost 47 percent of feeder pig producers 48 years old or under vaccinated their boars for parvovirus as compared to almost 36 percent of feeder pig producers 49 years old or over. The chi square statistical analysis indicated a significant relationship between feeder pig producers' age and vaccination of boars for parvovirus. Producers 48 years old or under were more likely to vaccinate their boars for parvovirus than were producers 49 years old or over.

Producers' Age and Sows Treated for Internal Parasites

Almost 96 percent of feeder pig producers 48 years old or under treated their sows for internal parasites as compared to almost 95 percent of producers 49 years old or over. Data indicate that both groups had a high level of adoption of this practice, but when tested by chi square test the difference was found to not be significant. Producers 48 years old or under were no more likely than producers 49 years old or over to treat their sows for internal parasites.

Producers' Age and Sows Treated for Lice

Almost 94 percent of feeder pig producers 48 years old or under as well as producers 49 years old or over treated their sows for lice. When tested by chi square test, the difference was not significant. Therefore, producers 48 years old and under were no more likely than producers 49 years old or over to treat their sows for lice.

Producers' Age and Use of Medication in Water

About 19 percent of feeder pig producers 48 years old or under were using medication in water as compared to almost 14 percent of feeder pig producers 49 years of age or older. Although level of practice use by both producers 48 years old or under and 49 years old or older was relatively low, when tested by chi square test the differences were significant. Therefore, producers 48 years old or under were more likely than producers 49 years old or over to use medication in water.

Producers' Age and Use of Antibiotics in Water

About 16 percent of feeder pig producers 48 years old or under used antibiotics in water as compared to almost 12 percent of feeder pig producers 49 years old or over. Although level of practice use by both producers 48 years old or under and 49 years old or over was relatively low, when tested by chi square test the differences were significant. Therefore, feeder pig producers 48 years old or under were more likely than producers 49 years old or over to use antibiotics in water.

Producers' Age and Iron Shots Given to Pigs

About 91 percent of feeder pig producers 48 years old or under gave iron shots to their pigs as compared to about 89 percent of producers 49 years old or over. Data indicate that both groups

had a high rate of adoption, but when tested by chi square test, the difference was not significant. Producers 48 years old or under were no more likely than producers 49 years old or over to give iron shots to their pigs.

Producers' Age and Creep Fed Baby Pigs

Almost 87 percent of feeder pig producers 48 years old or under creep fed their baby pigs as compared to nearly 80 percent of producers 49 years old or over. When tested by chi square test, the differences were significant. Producers 48 years old or under were more likely than producers 49 years old or over to creep feed their baby pigs.

III. PRODUCERS' EDUCATION AND THEIR USE OF TEN SELECTED MANAGEMENT PRACTICES

Table 10 presents findings regarding the relationship between feeder pig producers' education and their use of ten selected management practices. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Producers' Education and Sows Vaccinated for Leptospirosis

Data in Table 10 indicate that almost 86 percent of feeder pig producers with college education vaccinated their sows for leptospirosis as compared to nearly 68 percent of feeder pig producers with high school education or less. When tested by chi square test, the

TABLE 10. Relationships Between Feeder Pig Producers' Education and Their Use of Ten Selected Management Practices

Management Practices	Producers' Education			
	High School or Less		College	
	Number	Percent	Number	Percent
	(N=1167)*			
Sows Vaccinated for Leptospirosis				
No	302	32.1	27	14.1
Yes	639	67.9	164	85.9
Statistical Test: $X^2 = 23.97$ $p < 0.01$				
Sows Vaccinated for Rhinitis				
No	583	62.0	80	41.9
Yes	358	38.0	111	58.1
Statistical Test: $X^2 = 25.54$ $p < 0.01$				
Sows Vaccinated for Parvovirus				
No	540	57.4	69	36.1
Yes	401	42.6	122	63.9
Statistical Test: $X^2 = 28.02$ $p < 0.01$				
Boars Vaccinated for Parvovirus				
No	583	62.0	80	62.4
Yes	358	38.0	110	57.6
Statistical Test: $X^2 = 24.22$ $p < 0.01$				
Sows Treated for Internal Parasites				
No	48	5.1	5	2.6
Yes	893	94.9	185	97.4
Statistical Test: $X^2 = 1.64$ $p = 0.20$				
Sows Treated for Lice				
No	58	6.2	9	4.7
Yes	872	93.8	102	95.3
Statistical Test: $X^2 = 0.41$ $p = 0.52$				
Medication Used in Water				
No	800	85.0	146	76.4
Yes	141	15.0	45	23.6
Statistical Test: $X^2 = 7.89$ $p < 0.01$				
Antibiotics Used in Water				
No	821	87.2	155	81.2
Yes	120	12.8	36	18.8
Statistical Test: $X^2 = 4.47$; $p = 0.03$				
Iron Shots Given to Pigs				
No	101	10.7	7	3.7
Yes	84	89.3	184	96.3
Statistical Test: $X^2 = 8.39$ $p < 0.01$				
Creep Fed Baby Pigs				
No	172	18.3	19	9.9
Yes	769	81.7	172	90.1
Statistical Test: $X^2 = 7.27$ $p < 0.01$				

*Total number of producers was 1,167; however, all questions were not answered by all producers.

differences were significant. Producers with college education were more likely than producers with high school education or less to vaccinate their sows for leptospirosis.

Producers' Age and Sows Vaccinated for Rhinitis

About 58 percent of feeder pig producers with college education vaccinated their sows for rhinitis as compared to 38 percent of producers with high school or less. When tested by the chi square test, the differences were significant. Producers with college education were more likely than producers with high school education or less to vaccinate their sows for rhinitis.

Producers' Age and Vaccination of Sows for Parovirus

About 64 percent of feeder pig producers with college education vaccinated their sows for parvovirus as compared to almost 43 percent of producers with high school or less. When tested by chi square test, the differences were significant. Producers with college education were more likely than producers with high school education or less to vaccinate their sows for parvovirus.

Producers' Education and Boars Vaccinated for Parvovirus

Almost 58 percent of feeder pig producers with college education vaccinated boars for parvovirus as compared to 38 percent of producers with high school education or less. When tested by chi square test,

the differences were significant. Feeder pig producers with college education were more likely than producers with high school education or less to vaccinate their boars for parvovirus.

Producers' Education and Sows Treated for Internal Parasites

About 97 percent of feeder pig producers with college education treated sows for internal parasites as compared to almost 95 percent of producers with high school education or less. Data indicate that both groups had a high level of adoption, but when tested by chi square test, the difference was not significant. Producers with college education were no more likely than producers with high school education or less to treat their sows for internal parasites.

Producers' Age and Sows Treated for Lice

About 95 percent of feeder pig producers with college education treated sows for lice as compared to almost 94 percent of feeder pig producers with high school education or less. Data indicate that both groups had a high level of adoption, but when tested by chi square test the differences were not significant. Producers with college education were no more likely than producers with high school education or less to treat their sows for lice.

Producers' Education and Use of Medication in Water

Almost 24 percent of feeder pig producers with college education used medication in water as compared to 15 percent of producers with

high school or less. Although level of practice use by both producers with college education and high school or less was relatively low, when tested by chi square test the differences were significant. Producers with college education were more likely than producers with high school education or less to use medication in water.

Producers' Education and Use of Antibiotics in Water

Almost 19 percent of feeder pig producers with college education used antibiotics in water as compared to nearly 13 percent of feeder pig producers with high school or less. Although level of practice use by both producers with college education and high school or less was relatively low, when tested by chi square test the differences were significant. Producers with college education were more likely than producers with high school or less to use antibiotics in water.

Producers' Education and Iron Shots Given to Pigs

About 96 percent of feeder pig producers with college education gave iron shots to pigs as compared to about 89 percent of feeder pig producers with high school or less. When tested by chi square test, the differences were significant. Producers with college education were more likely than producers with high school education or less to give iron shots to pigs.

Producers' Education and Creep Fed Baby Pigs

Almost 91 percent of feeder pig producers with college education as compared to nearly 82 percent of feeder pig producers with high school or less creep fed baby pigs. When tested by chi square test, the differences were significant. Producers with college education were more likely than producers with high school or less to creep feed their baby pigs.

IV. NUMBER OF SOWS IN PRODUCERS' HERD AND THEIR USE OF TEN SELECTED MANAGEMENT PRACTICES

Table 11 presents findings regarding the relationship between the number of sows in feeder pig producers' herd and their use of ten selected management practices. The number and percent of producers responding are given for each variable as well as the chi square value and the probability level.

Size of Operation and Sows Vaccinated for Leptospirosis

Data in Table 11 indicate that almost 94 percent of feeder pig producers with 21 sows or over vaccinated their sows for leptospirosis as compared to about 64 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between producers' size of operation and vaccination for leptospirosis. Feeder pig producers with 21 sows or more were more likely than producers with 20 sows or less to vaccinate their sows for leptospirosis.

TABLE 11. Relationships Between Number of Sows in Feeder Pig Producers' Herd and Their Use of Ten Selected Management Practices

Management Practices	Size of Operation			
	20 or Less		21 or Over	
	Number	Percent	Number	Percent
	(N=1167)*			
Sows Vaccinated for Leptospirosis				
No	326	35.7	16	6.3
Yes	587	64.3	238	93.7
Statistical Test: $X^2 = 81.53$ $p < 0.01$				
Sows Vaccinated for Rhinitis				
No	582	63.7	104	40.9
Yes	331	36.3	150	59.1
Statistical Test: $X^2 = 41.70$ $p < 0.01$				
Sows Vaccinated for Parvovirus				
No	352	60.5	79	31.1
Yes	361	39.5	175	68.9
Statistical Test: $X^2 = 67.79$ $p < 0.01$				
Boars Vaccinated for Parvovirus				
No	589	64.5	100	39.4
Yes	324	35.5	154	60.6
Statistical Test: $X^2 = 50.91$ $p < 0.01$				
Sows Treated for Internal Parasites				
No	51	5.6	3	1.2
Yes	861	94.4	251	98.8
Statistical Test: $X^2 = 7.78$ $p < 0.01$				
Sows Treated for Lice				
No	63	7.0	7	2.8
Yes	843	93.0	242	97.2
Statistical Test: $X^2 = 5.18$ $p = 0.02$				
Medication Used in Water				
No	800	87.6	179	70.5
Yes	113	12.4	75	29.5
Statistical Test: $X^2 = 41.99$ $p < 0.01$				
Antibiotics Used in Water				
No	818	89.6	192	75.6
Yes	95	10.4	62	24.4
Statistical Test: $X^2 = 32.28$ $p < 0.01$				
Iron Shots Given to Pigs				
No	112	12.3	5	2.0
Yes	801	87.7	249	98.0
Statistical Test: $X^2 = 22.24$ $p < 0.01$				
Creep Fed Baby Pigs				
No	181	19.8	16	6.3
Yes	732	80.2	238	93.7
Statistical Test: $X^2 = 24.95$ $p < 0.01$				

*Total number of producers was 1,167; however, all questions were not answered by all producers.

Size of Operation and Sows Vaccinated for Rhinitis

About 59 percent of producers with 21 sows or more vaccinated their sows for rhinitis as compared to about 36 percent of producers with 21 sows or less. The chi square test indicated a significant relationship existed between producers' size of operation and vaccination for rhinitis. Feeder pig producers with 21 sows or more were more likely than producers with 20 sows or less to vaccinate their sows for rhinitis.

Size of Operation and Sows Vaccinated for Parvovirus

Almost 69 percent of feeder pig producers with 21 sows or more vaccinated their sows for parvovirus as compared to nearly 40 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between feeder pig producers' size of operation and vaccination for parvovirus. Producers with 21 sows or more were more likely than producers with 20 sows or less to vaccinate their sows for parvovirus.

Size of Operation and Boars Vaccinated for Parvovirus

Almost 61 percent of feeder pig producers with 21 sows or more vaccinated their boars for parvovirus as compared to almost 36 percent of feeder pig producers with 20 sows or less. The chi square test indicated a significant relationship between feeder pig producers'

size of operation and vaccination for parvovirus. Producers with 21 sows or more were more likely than producers with 20 sows or less to vaccinate their boars for parvovirus.

Size of Operation and Sows Treated for Internal Parasites

Almost 99 percent of feeder pig producers with 21 sows or more treated their sows for internal parasites as compared to about 94 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between feeder pig producers' size of operation and treatment of sows for internal parasites. Feeder pig producers with 21 or more sows were more likely than producers with 20 sows or less to treat their sows for internal parasites.

Size of Operation and Sows Treated for Lice

About 97 percent of feeder pig producers with 21 sows or more treated their sows for lice as compared to 93 percent of producers with 20 sows or less. The chi square test indicated a significant relationship between feeder pig producers' size of operation and treatment of their sows for lice. Producers with 21 sows or more were more likely than producers with 20 sows or less to treat their sows for lice.

Size of Operation and Use of Medication in Water

Almost 30 percent of feeder pig producers with 21 sows or more were using medication in water as compared to about 12 percent of

producers with 20 sows or less. Although level of practice use by both groups was relatively low, when tested by chi square test the differences were significant. Producers with 21 sows or more were more likely than producers with 20 sows or less to use medication in water.

Size of Operation and Use of Antibiotics in Water

About 24 percent of feeder pig producers with 21 sows or more used antibiotics in water as compared to about 10 percent of feeder pig producers with 20 sows or less. Although level of practice use by both groups was relatively low, when tested by chi square test the differences were significant. Producers with 21 sows or more were more likely than producers with 20 sows or less to use antibiotics in water.

Size of Operation and Iron Shots Given to Pigs

Ninety eight percent of feeder pig producers with 21 sows or more gave iron shots to pigs as compared to about 88 percent of feeder pig producers with 20 sows or less. Data indicated that both groups had a relatively high level of adoption of this practice. When tested by chi square test, the differences were significant. Producers with 21 sows or more were more likely than producers with 20 sows or less to give iron shots to their pigs.

Size of Operation and Creep Fed Baby Pigs

Almost 94 percent of feeder pig producers with 21 sows or more creep fed their baby pigs as compared to about 80 percent of feeder pig producers with 20 sows or less. The chi square test indicated a significant relationship between feeder pig producers' size of operation and creep feeding of baby pigs. Feeder pig producers with 21 sows or more were more likely than producers with 20 sows or less to creep feed their baby pigs.

V. CHAPTER SUMMARY

Findings presented in Chapter V are summarized under four subsections: (1) Producers' Farming Status and Their Use of Ten Selected Management Practices, (2) Producers' Age and Their Use of Ten Selected Management Practices, (3) Producers' Education and Their Use of Ten Selected Management Practices, and (4) Number of Sows in Producers' Herd and Their Use of Ten Selected Management Practices.

Producers' Farming Status and Their Use of Ten Selected Management Practices

Full-time feeder pig producers were more likely than part-time producers to: (1) vaccinate sows for leptospirosis, (2) treat sows for lice, (3) use medication and antibiotics in water, (4) give iron shots to pigs, and (5) creep feed baby pigs.

Producers' Age and Their Use of Ten Selected Management Practices

Feeder pig producers 48 or under were more likely than producers 49 or over to: (1) vaccinate sows for leptospirosis and parvovirus,

(2) vaccinate boars for parvovirus, (3) use medication and antibiotics in water, and (4) creep feed baby pigs.

Producers' Education and Their Use of Ten Selected Management Practices

Feeder pig producers with college education were more likely than producers with high school education or less to: (1) vaccinate sows for leptospirosis, rhinitis, and parvovirus, (2) vaccinate boars for parvovirus, (3) use medication and antibiotics in water, (4) give iron shots to pigs, and (5) creep feed baby pigs.

Number of Sows in Producers' Herd and Their Use of Ten Selected Management Practices

Feeder pig producers with 21 sows or over were more likely than producers with 20 sows or less to: (1) vaccinate sows for leptospirosis, rhinitis, and parvovirus, (2) vaccinate boars for parvovirus, (3) treat sows for internal parasites and lice, (4) use medication and antibiotics in water, (5) give iron shots, and (6) creep feed baby pigs.

CHAPTER VI

SUMMARY OF MAJOR FINDINGS

The major findings of this study are summarized in this chapter. The chapter is divided into five sections relating to the purposes and objectives, methods of investigation, major findings, implications and recommendations, and recommendations for further study.

I. PURPOSE AND SPECIFIC OBJECTIVES

Purpose

The purpose of this study is to characterize feeder pig producers according to their personal characteristics, their type of operation as related to their use of selected management practices, and their contacts with Extension.

Specific Objectives

1. To identify the characteristics of feeder pig producers and their operations and to identify the number and type of contacts they had with Extension.

2. To determine to what extent feeder pig producers are using selected management practices.

3. To determine the relationship between the feeder pig producers' farming status and the number and type of contacts with Extension.

4. To determine the relationship between the feeder pig producers' age and the number and types of contacts with Extension.

5. To determine the relationship between the feeder pig producers' education and the number and type of contacts with Extension.

6. To determine the relationship between the feeder pig producers' operation size and the number and type of contacts with Extension.

7. To determine the relationship between the total number of contacts feeder pig producers had with Extension and their use of ten selected management practices.

8. To determine the relationship between the feeder pig producers' farming status and their use of ten selected management practices.

9. To determine the relationship between the feeder pig producers' age and their use of ten selected management practices.

10. To determine the relationship between the feeder pig producers' education and their use of ten selected management practices.

11. To determine the relationship between the feeder pig producers' operation size and their use of ten selected management practices.

II. METHOD OF INVESTIGATION

The population for this study was Tennessee feeder pig producers with at least five sows. A total of 1,167 producers in 75 counties were surveyed by their local Extension Agents.

Producers were selected for sampling from the county list of feeder pig producers. Extension agents used the (N^{th}) method of selection to identify from 15 to 25 producers to be interviewed.

The 1987 Tennessee Swine Survey was developed by the University of Tennessee, Agricultural Extension Service specialist staff in the Animal Science and Agricultural and Extension Education departments.

The data were coded and processed for computer analysis. The University of Tennessee Computing Center made the computations. The chi square test was used to determine strengths of the relationship between dependent and independent variables. Chi square values which achieved the .05 probability level was chosen as being statistically significant.

III. MAJOR FINDINGS

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

Characteristics of Tennessee Feeder Pig Producers and Contacts with Extension

The average age of producers was 48 years with about 67 percent being part-time producers. Only about 17 percent were college graduates, and 78 percent were small operators with 20 sows or less.

Fifth-three percent attended at least one Extension swine meeting over the last 12 months. Over 82 percent of the producers visited the Extension office at least once. Almost 73 percent made one or more telephone calls to the Extension office. Also, almost 73 percent were visited by the Extension agent at least once.

Use of Management Practices

Over one-third or 6 of the 15 management practices recommended by the Extension Service was used by less than 50 percent of the producers. These were: (1) vaccinating sows for rhinitis, (2) vaccinating sows for parvovirus, (3) vaccinating boars for parvovirus, (4) the use of medication in water, (5) the use of sulfa in water, and (b) the use of antibiotics in water. Over 90 percent used the following six practices: (1) wormed sows once or more per year, (2) treated sows for external parasites, (3) the addition of medication in sows gestation and lactation ration, (4) the use of medication in pigs weaning ration, (5) iron shots given to pigs, and (6) clipped needle teeth.

Relationship Between the Selected Characteristics of Feeder Pig Producers, Their Size of Operation, Type of Contacts With Extension, and Use of Selected Management Practices

Full-time and part-time feeder pig producers did differ significantly in the number of contacts they had with Extension through Extension swine meetings attended, farm visits received from Extension agents, and the total number of Extension contacts. Full-time producers had more contacts with Extension than part-time producers. Full-time and part-time producers did not differ as to the number of visits made to the Extension office and the number of telephone calls to the Extension office.

Feeder pig producers 48 or under and 49 or over differed significantly in the number of contacts they had with Extension through telephone calls made to the Extension office and the total number of Extension contacts. Producers 48 or under had more contacts with Extension. Producers 48 or under and 49 or over did not differ as to the number of Extension swine meetings attended, the number of visits to the Extension office, and the number of farm visits received from Extension agents.

Feeder pig producers with college education and high school education or less differed significantly in all types of contacts with Extension. Producers with college education attended more Extension swine meetings, visited the Extension office more, called the Extension office more, received more visits from Extension agents, and had more total contacts with Extension.

Feeder pig producers with 21 sows or more and producers with 20 sows or less differed in all types of contacts with Extension over the past 12 months. Producers with 21 sows or more attended more Extension swine meetings, visited the Extension office more, called the Extension office more, received more visits from Extension agents, and had more total contacts with Extension.

Feeder pig producers with six or more total contacts with Extension differed significantly with producers with five or less contacts in the use of all ten selected management practices. Producers with six or more total contacts were more likely to vaccinate their sows for leptospirosis, rhinitis and parvovirus,

vaccinate their boars for parvovirus, and treat their sows for internal parasites and lice. Producers with six or more contacts were also more likely to use medication and antibiotics in water, give iron shots to their pigs, and creep feed their baby pigs.

Relationships Between Producer Characteristics, Number of Sows in Herd, and Their Use of Selected Managment Practices

Full-time feeder pig producers were more likely than part-time producers to: (1) vaccinate sows for leptospirosis, (2) treat sows for lice, (3) use medication and antibiotics in water, (4) give iron shots to pigs, and (5) creep feed baby pigs.

Feeder pig producers 48 or under were more likely than producers 49 or over to: (1) vaccinate sows for leptospirosis and parvovirus, (2) vaccinate boars for parvovirus, (3) use medication and antibiotics in water, and (4) creep feed baby pigs.

Feeder pig producers with college education were more likely than producers with high school education or less to: (1) vaccinate sows for leptospirois, rhinitis, and parvovirus, (2) vaccinate boars for parvovirus, (3) use medication and antibiotics in water, (4) give iron shots to pigs, and (5) creep feed baby pigs.

Feeder pig producers with 21 sows or over were more likely than producers with 20 sows or less to: (1) vaccinate sows for leptospirosis, rhinitis, and parvovirus, (2) vaccinate boars for parvovirus, (3) treat sows for internal parasites and lice, (4) use

medication and antibiotics in water, (5) give iron shots, and (6) creep feed baby pigs.

IV. IMPLICATIONS AND RECOMMENDATIONS

Based upon the findings of this study, the following implications and recommendations are suggested:

1. The majority of feeder pig producers were part-time producers with 20 sows or less. Many of these producers are employed off the farm. Extension must be persistent in conducting programs that meet the needs of these individuals. Also, Extension agents should alter the time of program delivery as much as possible to correspond with the clientele's work schedule.

2. Only 53 percent of feeder pig producers attended at least one Extension swine meeting in the last 12 months. These meetings serve as an excellent delivery vehicle for Extension education programs. Extension agents should continually strive to plan educational meetings which meet the needs of their clientele and then attempt to increase awareness and attendance at these meetings.

3. Feeder pig producers with six or more total contacts with Extension were more likely than producers with five or less contacts to use the ten selected management practices. This would indicate that repetition of programs emphasizing the importance of certain practices is necessary before practice adoption takes place. Extension must develop program schemes that address this need of the clientele to have ideas and concepts to be repeated often and consistently.

V. RECOMMENDATION FOR FURTHER STUDY

1. Similar studies should be conducted periodically to identify characteristics of feeder pig producers, their contacts with Extension, and their use of selected management practices. This information is necessary for Extension agents to plan and implement educational programs that meets the need of their county clientele.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Beeler, Mark Lee. "Relationship Between Tennessee Beef Cattle Producers' Use of Recommended Production Practices and Characteristics of the Producers, Their Farm Operation, and Contacts with County Extension Agents." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1986.

2. Blair, Ronald E. "Selected Farm Characteristics of Tennessee Farrow to Finish Swine Producers and Their Use of Selected Production Practices in Relationship to Extension Contacts and Farmer Employment Status." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1978.

3. Chadwell, James Scott. "Selected Characteristics of Tennessee Feeder Pig Producers and Their Use of Recommended Swine Management Practices in Relation to the Number of Contacts Producers had with County Extension Agents." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1987.

4. Gordon, Michael E. "Relationship Between Number of Contacts Haywood County, Tennessee Feeder Pig Producers had with the Agricultural Extension Service and Management of Their Feeder Pig Operations." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1977.

5. Lovely, Ralph A. "Production and Management Practices of Beef Cattle Producers in Campbell County, Tennessee." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1975.

6. Lumpkin, Jimmy J. "Relationships Between Certain Tennessee Cow-Calf Producers and Farm Characteristics and Their Use of Recommended Practices." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1985.

7. Mathews, James Thomas. "Characteristics of Lawrence County Beef Producers and Their Farms, Management Practices of Lawrence County Beef Producers, Factors Influencing Beef Management Practice Adoption by Lawrence County Beef Producers." Unpublished special problem in lieu of Thesis, The University of Tennessee, Knoxville, 1968.

8. McLemore, Marcus F. "Selected Farm Characteristics of Swine Producers in Tennessee and Their Use of Recommended Production Practices in Relationship to the Number of Contacts Producers had with County Extension Agents." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1979.

9. Myers, John Wesley. "Relationships Between Tennessee Beef Cattle Producers Personal and Farm Operation Characteristics and Their Use of Recommended Feeding Management Practices. Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1989.

10. Officer, Stephen Levon. "Relationship Between Characteristics of Soybean Production in Tennessee, the Number of Contacts the Producer had with Extension, and Their Use of Certain Production Practices." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1987.

11. Patterson, Jerry Thomas. "Relationships Between Feeder Pig Producers Personal and Farm Operation Characteristics and Use of Recommended Swine Production Practices." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1988.

12. Perry, James Dewayne. "Relationships Between Characteristics of Tennessee Swine Producers, Number of Contacts They Had With County Agricultural Extension Agents and the Number of Recommended Swine Production Practices Adopted." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1980.

13. Reaves, James Edward. "Selected Characteristics and Comparison of Tennessee Feeder Pig Producers in District I and Other Extension Districts as to Their Personal and Farm Characteristics, Use of Selected Production Practices and Contacts Producers Had With Extension." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1988.

14. Rutter, Floyd David. "Relationships Between Characteristics of Beef Producers, Their Production Operations and Their Use of Management Practices and the Number of Contacts They Had With Extension." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1982.

15. The University of Tennessee Extension Service. "Summary of 1989 Tennessee Feeder Pig Sales." Memograph, College of Agriculture, Knoxville, 1985.

16. Walker, Stephen Edward. "Relationships Between Selected Characteristics of Tennessee Beef Producers and Their Use of Health Management Practices and the Number and Type of Extension Contacts." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1988.

17. Yabaya, Solomon Ahyuwa. "Relationships Between the Frequency of Contacts Corn Producers in Tennessee Had With County Extension Agents and Their Adoption of Eight Corn Production Practices." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1978.

VITA

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During three summers of his college years, he was employed with Soil Conservation Service (SCS), as a student trainee. Following graduation from college, he worked for two years as a soil conservationist with SCS.

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He is married to the former Sharon Gay Walker of Carthage, Tennessee, and has two daughters, Terra Rose age four years, and Kayla Paige age two years.