

**PERCEPTIONS AND ATTITUDES OF SELECTED  
SWINE PRODUCERS AND NON SWINE  
PRODUCERS CONCERNING CERTAIN  
SOCIAL AND ENVIRONMENTAL  
ISSUES**

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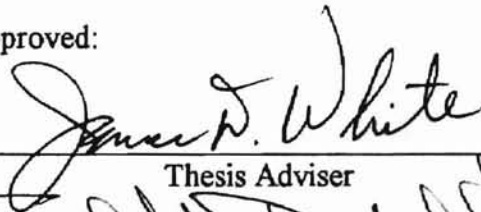
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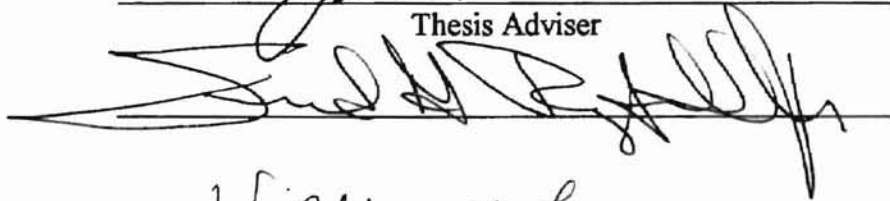
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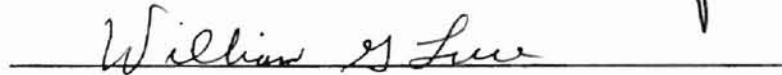
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## CHAPTER I

### INTRODUCTION

Because of the available feed grains, a climate conducive to livestock feeding, domestic and export demand for fresh chilled pork, available venture capital for constructing processing plants, and an ideal geographic location, the swine production industry in Oklahoma has grown dramatically. Bringing to this state the greatest economic boom in agriculture since statehood (Daily Oklahoman, May 18, 1997, p. A1). The swine industry has generated between 45 to 87 million dollars per year in gross income as one of the smaller agricultural industries in the state for a number of years. Traditionally, Oklahoma ranked 23rd to 26th among the states in producing approximately .5 percent of the hogs in the United States; however, in 1997 Oklahoma increased to ninth place (National Agricultural Statistics Service 1997). Since 1991, the Oklahoma swine industry has grown tremendously. The United States Department of Agriculture recently reported that an estimate of Oklahoma's hog and pig inventory reflects a 514 percent increase in numbers between 1991 and 1996. December 1, 1991 and 1996 inventories were 190,000 and 1,370,000 head respectively. Oklahoma's breeding herd inventory increased from 35,000 to 180,000 from December 1, 1992 to March 1, 1997 (a 514% increase) (Oklahoma Ag Statistics 1997).

A portion of this growth can be attributed primarily to two factors. The most important may be the passage of Senate Bill 518 in April, 1991, which removed some of the restrictions to corporate farming or contract swine production in Oklahoma. Several corporate swine operators including Tyson Foods, Cargill, Pig Improvement Company, Dekalb, Hitch Enterprises, Vall Company, Murphy Family Farms, and Seaboard Corporation have continued to position themselves for corporate production and contract swine production enterprises, pork processing facilities, and secondary industries related to the industry. The heart of cattle country, Oklahoma seems to be an ideal location because many packing plants of any size are in the midwest. As a result, to ship pork to Dallas, Houston, Phoenix, Las Vegas, or California, pork and pork products must pass Oklahoma facilities and travel many miles out of the way (Daily Oklahoman, May 18, 1997, p. A 26). Oklahoma also provides a suitable climate, the remoteness, cheaper land costs, lower labor costs, and the interest of many Oklahoma producers to become a part of a contract production industry that provides capital resources and advanced technology (Williams, 1994).

This tremendous growth potential in swine production has raised several questions and issues relating to the environment and a way of life that the people of Oklahoma enjoy. Producers and nonproducers alike are experiencing problems and concerns that have never arisen before.

The expansion of swine production in Oklahoma as well as similar production operations has been accompanied by many problems and concerns. The attitudes of individuals not involved in the swine industry concerning the social and environmental issues related to the industry growth seem to be in conflict with attitudes and perceptions

of producers and those involved in the swine industry in Oklahoma, particularly in the largest producing areas. Air quality, water pollution, corporate farming, nuisance problems, odor, aesthetic value of land, and neighbor relations are only a few of the problems on which producers and nonproducers seem to disagree. These conflicts concerning attitudes and perceptions will have a direct affect on the growth potential of the swine industry in Oklahoma. The future of the swine industry in Oklahoma may depend upon the attitudes and perceptions held by the producers and nonproducers concerning these social and environmental issues involved with large swine production units. For this reason, it was necessary to assess the attitudes and perceptions of swine producers and nonproducers in Oklahoma as they pertain to selected social and environmental issues.

#### Statement of the Problem

The expansion of swine production in Oklahoma is accompanied by many problems and concerns. The attitudes of individuals not involved in the swine industry concerning the social and environmental issues related to the industry growth seem to be in conflict with attitudes and perceptions of producers and those involved in the swine industry in Oklahoma, particularly in the largest producing areas. Air quality, water pollution, corporate farming, nuisance problems, odor, aesthetic value of land, and neighbor relations are only a few of the problems on which producers and nonproducers seem to disagree. These conflicts concerning attitudes and perceptions will have a direct affect on the growth potential of the swine industry in Oklahoma. The future of the swine industry in Oklahoma may depend upon the knowledge and perceptions held by the

producers and nonproducers concerning these social and environmental issues involved with large swine production units. As a result, it was important to assess the attitudes and perceptions of swine producers and nonproducers as they pertain to selected social and environmental issues, in order that educational programming may be developed to bring about better relations between the two groups. Also, it was important to acquire an accurate perception as possible concerning how people feel about the industry and its impact on the environment and traditional values in Oklahoma.

### Rationale of the Study

Because of the rapid growth in the swine industry and the social and environmental heritage associated with traditional production agriculture in Oklahoma; many citizens throughout the state have opposed “the idea of change” concerning corporate farms, erosion of the family farm concept, the in migration of new ethic groups, and pollution of ground water sources. As a result, the general public, independent operators and corporate firms are raising legitimate concerns regarding market access, land values, competition with corporate resources, odors, water, air quality, pollution of ground water aquifers, housing additions adjacent to confinement feeding operations, liability and tort, use of restrictions/regulations to inhibit free enterprise, etc. Therefore, it was deemed appropriate to conduct a study that examined the perceptions of both producers and nonproducers in the four Oklahoma communities with the largest swine populations regarding their impressions of the social and environmental concerns impacting the changing swine industry.

## Purpose of the Study

The purpose of this study was to describe attitudes and perceptions of selected swine producers and nonproducers representing four Oklahoma communities with the largest swine populations regarding certain social and environmental issues impacting the changing swine industry.

## Objectives

In order to accomplish the purpose of the study, the following objectives were established:

1. To describe selected demographic characteristics of swine producers and nonproducers selected exclusively from four Oklahoma communities.
2. To determine attitudes and perceptions of swine producers toward selected social and environmental issues relating to the changing swine industry.
3. To determine the perceptions of non swine producers toward selected social and environmental issues relating to the changing swine industry.
4. To compare attitudes of swine producers with those of nonproducers concerning their perceptions of social and environmental issues regarding the swine industry in their respective communities.



## Scope of the Study

The scope of this study included independent swine producers, contract producers and/or employees of corporate production units as well as non swine producers who were citizens of or near the Hennessey, Holdenville, Guymon, and Poteau communities.

## Definitions

The following terms were presented as they apply to this study.

Changing Swine Industry - refers to the recent dramatic growth and changes in the infrastructure of the swine industry in Oklahoma.

Corporate Production Unit - corporation which is formed for the purpose of farming, ranching or leasing any interest in land to be used in the business of farming or ranching.

Environmental Issues - any issues dealing with air quality, water quality, animal disposal, odor, or soil quality as it relates to swine production units.

Nuisance Law - a law used to protect individual property rights and resolve disputes stemming from activities causing unreasonable and substantial interference with another's quiet use and enjoyment of property.

Purposive Sampling - Kerlinger (1973) explained purposive sampling as a type of non-probability sampling, which is characterized by the use of judgment, experience, and deliberate effort to obtain representative samples by including presumably typical areas or groups in the sample (p. 129).

Social Issues - any issues dealing with nuisance, location, property value, corporate production, or aesthetic value of land as it relates to swine production units.

Swine Producer - as it is used in this study refers to individuals who have one or more female swine in production.

and financial economy. The rapid growth of pork production in the state has  
increased employment, and greater personal income.

By 1977 reported the gross income from hogs in

## CHAPTER II

### REVIEW OF LITERATURE

#### Introduction

The purpose of this chapter was to present a review of literature which the author deemed relevant to the study. This review was divided into the following sections: (1) History and Economics of the Oklahoma Swine Industry; (2) Potential Changes and Growth; (3) Social and Environmental Issues; and a (4) Summary.

#### History and Economics of the Oklahoma Swine Industry

Swine production has always been a small but important part of the agricultural industry in Oklahoma. However, a rapidly changing Oklahoma swine industry has evolved from family farming operations with a few sows to a corporate intensive production system with the latest technologies and large quantities of pigs.

Meyer (1991) in a National Pork Producers Council report looked at traditional production areas in the state and the change which was slowly taking place.

Swine production in Oklahoma has been primarily located in the central, north central, and northwestern areas of the state, although hogs are produced in all 77 counties. Otto (1994) further emphasized the importance of the pork industry as a major economic

activity in the Oklahoma economy. The rapid growth of pork production in the state has resulted in more economic activity, increased employment, and greater personal income.

Oklahoma Farm Statistics (April 1997) reported the gross income from hogs was 321.8 million dollars in 1997 which is up 66 percent from one year ago.

The above figures by themselves represent a sizable volume of economic activity. They represent only a portion of the total economic activity stimulated by the pork producing sector. An estimated 6,270 jobs and 188.7 million dollars of personal income will be generated in Oklahoma from the pork industry.

Ward (1993, p. 12) stated that "A lot more smaller family hog producing operations are going by the wayside. It is more costly for packers to procure live animals from smaller units. Now that packers have option to go to larger ones, they will put an emphasis there." According to Ward, people who are not large independent producers may not have the capital resources to expand and remain viable.

The swine industry in Oklahoma has always been small as compared to other agricultural entities in the economy. Over the past few years, particular regions of the state have experienced tremendous growth.

Because of the changes Oklahoma's pork industry has been challenged with, there have been questions as to how the market will be strengthened. A response to this question may mean that more hogs indicate additional and advanced technologies in the areas of handling and processing are needed. In return, additional jobs in Oklahoma agribusiness will be made available. Oklahoma's hog producing industry was relatively small. In 1992, processing plants in the state processed 197,000 head of hogs, which is approximately 45 percent of the state's marketing.

Luce and Williams (1997) stated that the establishment of a major pork slaughtering and processing facility at Guymon, Oklahoma, by the Seaboard Corporation has helped to relieve the marketing problem of not having a major swine slaughtering facility in Oklahoma. The recent purchase and operation of the former Wilson hog slaughtering and processing facility located in Marshall, Missouri, by Cargill, Inc. has also bolstered the marketing situation for Oklahoma produced hogs. In the past few years, it was necessary to market many Oklahoma produced hogs in the states of Iowa, Mississippi, and Nebraska which were distant locations to production sources and resulted in increased product costs, primarily due to transportation (Luce & Williams, 1997).

The Oklahoma pork industry is continually changing. The phenomenal changes continue to effect the state's economy dramatically. McMahon (1994) in a magazine article addressed Oklahoma's potential for increased pork demands to boost the state's economy. Oklahoma has become so intent on attracting hog operations, the Oklahoma Department of Commerce advertises for new swine businesses. After all, growth in the swine population helps diversify the states' income, which is heavily based on oil and cattle. The drop in oil prices set in motion the move to find development alternatives.

## Changes and Growth Potential

The trend in the Oklahoma swine industry today is one of change and mobility. Most of these changes are a result of new operations, increasing numbers, and increased interest in swine production and pork processing by corporate entities. All of these changes have increased the potential for growth in the swine industry in Oklahoma. The future direction of the swine industry is of keen interest and concern to pork producers, allied industries, policy makers, and consumers.

U.S. pork production is shifting into the hands of fewer, larger producers with closer ties to processors and consumers. Some responsibility for these changes in the nation's second largest meat industry, are today's discriminating consumers. Consumers are demanding pork to be packaged in a manner that makes it easier for the consumer to visually examine the product with regard to color, texture, and trimness, while maintaining product quality with the attributes of flavor, tenderness, and juiciness. Furthermore, health conscious consumers not only want less fat, but they also demand nutritive values of the product be printed on the label. To stay abreast of consumer trends and desires, the industry in many ways discontinued producing pork in the more traditional ways. The magnitude of structural change alone in the pork industry has resulted in a more integrated industry of fewer, larger operations with closer market ties to pork producers.

Williams and Luce (1997) conducted a prospectus of the swine industry and revealed that several different firms have made large commitments to increased pork production and processing in Oklahoma. These firms include:

Bar-D Swine - has established four company owned finishing houses, each with a 1,000 head capacity near the community of Eakly. Bar-D has 16 contract 1,000 head finishing houses planned which are currently under construction or already stocked and one 2,400 sow confinement building under construction.

Cargill - located in the Poteau area has 22,000 sows out on contract in 500 to 580 sow units.

Cimarron Pork - located in Logan County has two 1,200 feeder pig producing sow units. This company also has future expansion plans which include a 1,400 sow outdoor unit.

Dekalb Swine Breeders, Inc. - has located production and contract units in Texas and Beaver Counties in Oklahoma. The company owns five nucleus breeding or multiplying herds that house 6,250 sows total in the Texas and Beaver county areas. One of these herds is in partnership with Farmland Industries. There are also three contract finishers that have the capacity to finish approximately 9,600 pigs at this time. Dekalb's expansion plans are to secure additional finishing contracts.

Farmland Industries Inc. - has located swine production units in the southwestern part of the state. They have one 2,400 sow contract farrowing unit and one off-site nursery for the pigs produced in the farrowing units. They also have ten contract gilt finishing confinement units with approximately 9,600 head total. There are also five contract intensive outdoor management farrowing units with 300 sows each.

Hanor Corporation - located in the Fairview area has one 2,500 sow terminal multiplier with off-site nursery and finishing. Hanor Inc. also has one 200 head boar stud and one 2,000 head gilt developer. There is one 12,000 sow multiplier unit consisting of

eight nurseries with approximately 64,000 pigs total and ten finishing sites with a capacity for 8,000 head at each site. Hanor's future plans include building another 12,000 sow herd complex.

Hitch Pork Producers - in Guymon have six 2,500 sow farrow to finish units located at three different locations.

Hudson Foods - located in Colcord has one 900 sow farrow to finish unit.

Land O' Lakes - is planning to establish facilities in two different Oklahoma locations. One site, planned for the community of Hinton is expected to consist of four 4,200 sow confinement herds and nurseries.

In the Balko area, plans are underway for four 2,600 sow confinement herds and nurseries.

Murphy Family Farms - located near Laverne has one 15,000 gilt feeding complex and is stocking a 11,000 sow farrowing complex. Murphy Family Farms has plans to build a 3,400 sow nucleus herd complex, as well as the intent to establish contract nurseries with local farmers.

Pig Improvement Company - located near the Hennessey and Fairview areas has four 3,400 sow multiplier herds with off-site nurseries and off-site finishing units. The PIC group also has located one 1,650 sow nucleus heard and one 140 boar AI stud unit in Hennessey.

Seaboard Farms - has located in the Guymon area. This corporation owns a total of 33,500 sows with plans on having 40,000 sows in Oklahoma. They have nursery units with a total capacity of 104,000 head. Seaboard Farms owns 439 growing-finishing units, they contract 41 barns, and lease 28 barns. Each of the previous facilities



mentioned has a 960 head capacity. Also owned by Seaboard Farms is one boar stud, a feedmill with another under construction, and a packing plant with the capacity to slaughter four million head of hogs annually.

Tyson Foods, Inc. - has company-owned farms and contract feeder pig operations in three different areas of the state. Tyson also has farrowing and grower contract producers located across the state line in Arkansas. Tyson Foods, Inc. has twenty-two privately owned farms producing hogs on contract in McCurtain County. Thirteen of these operations are farrowing operations and nine are finishing units. These units consist of over 4,000 sows under contract producing approximately 72,000 feeder pigs per year. The finishing contractors located in McCurtain County feed out approximately 78,125 pigs per year on finishing contracts.

Tyson Foods, Inc. also has a large number of hogs located in the Holdenville, Oklahoma area. In Holdenville, Tyson owns several company controlled facilities that house a total of 8,939 sows. There are three nucleus breeding herd farms that have 2,339 sows total. Tyson also has three multiplying farms with 6,075 sows total, four boar test stations, nine off-site nursery facilities for pig production, one artificial insemination stud, a feedmill, and a training facility and research farm. Several off-site facilities have been established for contract production in the Holdenville area as well. Tyson has 34,000 sows out on contract with herd sizes ranging from 300 to 2,400 sows. Four contract finishing farms exist in this area producing 84,480 hogs annually. There are future plans for an additional 26,000 sows on contract within a 40 mile radius of Holdenville giving this area a total of 60,000 sows on contract. Also, there are plans by Tyson for seven additional company operated off-site nurseries.

In Adair and Delaware Counties, Tyson Foods has established one boar stud consisting of 385 boars. There are 3,000 sows and 16 finishing floors totaling 6,400 hogs.

Vall Company - located in Texhoma has five 2,400 farrow to finish units and one feedmill. They have plans to expand to 24,000 sows.

### Social and Environmental Issues

In addressing social and environmental issues, Safley (1993) stated:

Agriculture can have, with achievable developments, the capability to supply moderate growth output levels of food, feed, and fiber products for the U.S. to 2010 while also maintaining or enhancing the environment affected by agricultural production. The environmental implications toward continued growth in the level of output from the U.S. agricultural sector of the economy is not dependent simply upon growth, per se; rather they are dependent upon those current and emerging trends which will characterize the agricultural production systems of the future. Livestock production is a major component of agriculture in the United States. However, the livestock industry faces significant environmental challenges. The challenges have risen from increased awareness/desire by the public for aesthetic and environmental protection and from the changing structure of the livestock industry itself. On the other hand, fewer people in the U.S. are directly involved with animal agriculture and there is less sensitivity to the environmental problems that livestock producers face. However, there is a trend to develop larger, more sophisticated livestock production facilities. In many cases, regional livestock densities may become quite large. Livestock producers must employ methods for managing waste materials in a manner which will reduce the potential of offensiveness and environmental degradation (p. 156).

The expansion of the swine industry in Oklahoma has been recognized as a current and emerging trend in agricultural production. This massive growth has prompted much concern about social and environmental issues that accompany large scale swine/pork production operations.

According to the National Pork Producers Council (1994), "the pork industry has recognized the role that pork producers must play as members of the agricultural community in protecting our environment. Exhaustion of our natural resources for short-term profit is not in the long-term interest of agriculture or society. Pork producers have expressed that environmental issues will present some of the greatest challenges to the U.S. pork industry in history during the next three years, according to a recent telephone survey conducted by the Gallop Organization. On the national level, 37 percent of the producers surveyed said environmental issues would be the greatest challenge facing the pork industry. In a another question, 41 percent of the producers stated that environmental issues will be one of the greatest challenges they face in their individual states." (Rayfield, 1995, p. 20)

Air quality is an important component of the environmental factors related to the pork industry. Air quality and odors are a major concern for those associated with swine operations, as well as those outside of production and processing who come in contact with the industry.

According to a new release in the Stillwater NewsPress on June 26, 1994, Rodrick Mackie, a microbiologist at the University of Illinois, described the pig as "that indefatigable and unsavory engine of pollution" (p. 1E). The news release also cited James Prah, a research psychologist for the Environmental Protection Agency, as saying "We're dealing with complex issues that don't just come down to, 'Does it smell bad.' This is going to be one of the biggest issues in deterring the expansion of hog farming" (p. 1E). Prah (1994) also reported one study found downwind neighbors of a large North Carolina swine operation were more tense, depressed, angry, and confused than the average person (p. 1E). Kelley Donham, director for the Center of Agriculture Safety and Health at the University of Iowa (1994), further stated; "one of the more than 100 components of hog odors, hydrogen sulfide gas has claimed 19 lives and caused more than one million dollars in health problems alone in Iowa during the past eight years. The

deaths come from high concentration of hydrogen sulfide gas (H<sub>2</sub>S) associated with manure pits. Exposure can cause people to stop breathing in a matter of seconds” (p. 1E).

Taylor (1991) recognized that the presence of odor is an inherent characteristic of livestock production. The detection of odor does not per se constitute air pollution. Air quality and odors inside and around swine operations are inherent problems because there are no reliable standards or methods for measuring odors. Producers should attempt to minimize odors through quality system design and management. The air quality composition inside and around swine buildings should not exceed recommended levels for swine health, worker safety and individuals located close to the operation (p. 30).

The National Pork Producers Council (1994) stated:

Producers have a responsibility to manage their systems to minimize odor and the impact of their operations on their neighbors. Producers who demonstrate adoption of and use of generally accepted air quality procedures should be afforded some degree of protection for their operations and their ability to produce pork. We believe decisions related to air quality, whether made by government or producers, should be based on sound scientific research. Realizing the subjective nature of odor, any effort to quantify odor should employ scientifically acceptable methods. To successfully ensure a healthy environment for themselves, their employees and animals; producers need rapid distribution of technical information and results from research being conducted in this area (p. 7).

A second environmental issue that has received much attention from producers and nonproducers alike is the concept of water quality. Many people perceive swine production operations to be major contributors to water quality problems which are being pinpointed in areas of the United States where there are large concentrations of swine operations. Water quality is one of the major thrusts targeted by the National Pork Producers Association for education and research.

Klausner (1991) in addressing animal waste and water pollution stated:

Animal waste can contribute to the problem of water pollution in a variety of ways. Excessive plant nutrient loads can upset the balance of ecological systems in our water bodies by causing excessive plant growth, general degradation of the oxygen supply in the water and in extreme cases, even fish kills. Pathogens, toxic substances, and chemical additives which may be present in animal waste, can have a grave effect on both man and animals using manure polluted water. Quite often, visual inspection of a stream or lake is sufficient to see the degradation in water quality and realize the importance of pollution control (p. 36).

Animal wastes from confined livestock feeding operations have been designated as one of the country's three main agricultural pollution problems. Animal waste is not limited in scope; it affects air, land, and water. Water pollution results when water infiltrates a manure mass and carries dissolved and suspended materials to the surface water causing fish kills and contaminating receiving waters.

Dominick (1971) has stated:

Animal wastes have become a pollution source for the same reason that other forms of environmental degradation have arisen. Animal waste related water pollution problems have been caused primarily by rapid growth of large, confined animal feeding operations during the past decade. This trend will continue because the increased population will create an increase in both per capita consumption of meat and in the meat yields from concentrated feeding operations. The thrust of water pollution problems concerning animal waste management is in the confined feeding area (p. 48).

Soil quality and application of wastes have also been pinpointed as important environmental concerns associated with swine production. According to the Environmental Guide to Quality Pork Production (1994), soil and site factors are extremely critical to swine production units. Site selection is important to ensure sufficient space to organize manure into surface water or ground water. Coarse textured soils, wells, streams, ponds, sinkholes, and sites underlain by limestone formations continue to provide site problems for swine producers.

The issues of aesthetics and neighbor relations have become closely related to the swine production industry. Brock (1994) recently cited a situation in which a family in South Dakota lost their swine production unit due to the fact that their neighbors objected to the noise and smell of the operation. This incident was uncharacteristic of rural South Dakota, where neighborliness is wide spread. In their county, the largest city had a population of only 1,000 people.

Pigs have been a problem in parts of Oklahoma where citizens were concerned with environmental problems associated with swine production. According to a July 16, 1994 news article in the Tulsa World, a concerned party stated;

“There might be a shedding of blood in Major County if this issue is to be resolved” concerning the establishment of a large corporate swine production unit in the Fairview, Oklahoma area. A Hennessey, Oklahoma resident was quoted as saying in the same article “It is enough to make you sick when the wind comes this way” when asked about a swine production unit near his home (Rayfield, 1995, p. 27).

### Summary

This chapter has provided background information concerning the following three major categories 1) Oklahoma Swine Industry: History and Economics, 2) Changes and Growth Potential, and 3) Social and Environmental issues.

The swine production industry has always been a small but important part of the agricultural sector in Oklahoma. The state has enjoyed much success in the purebred swine production and show pig industry along with commercial farrow to finish and feeding operations. The number of swine farms has decreased in Oklahoma, but the overall size of the remaining operations continue to grow.

The Oklahoma swine industry has enjoyed unprecedented growth in recent years. This growth can be attributed to the interest of corporate entities to locate production units, contract feeders, feed mills, and processing facilities in Oklahoma. This growth continues to be a major catalyst for the Oklahoma swine industry today. The growth of the industry has increased the public's awareness of social and environmental issues that accompany swine production.

The literature revealed much evidence that indicates the general public and those not involved with swine production are primarily and genuinely concerned about social and environmental issues with the changing swine industry in Oklahoma.

In order for the swine industry to develop a positive image in the minds of consumers and continue to have a decided impact in American agriculture, much work and research remains to be accomplished. Doing a better job in developing facilities, site selection, waste management, and public relations, as well as developing the perceptions of both producers and the public alike concerning societal and environmental concerns are a must in creating a positive image.



attitudes of swine producers with those of nonproducers  
regarding the changing swine industry.

## CHAPTER III

### METHODOLOGY

The purpose of this chapter was to describe the methods and procedures used to conduct the study. The primary purpose of this study was to assess swine producers and non swine producers attitudes and perceptions of the swine industry in their community giving particular regard to social and environmental issues.

In order to accomplish the purpose it was necessary to determine a population and develop an instrument which would acquire the needed information required to fulfill the study objectives. A procedure for data collection was established and methods of data analysis were selected.

In order to accomplish the purpose of the study, the following objectives were established:

1. To describe selected demographic characteristics of swine producers and nonproducers selected exclusively from four Oklahoma communities.
2. To determine attitudes and perceptions of swine producers toward selected social and environmental issues relating to the changing swine industry.
3. To determine the perceptions of non swine producers toward selected social and environmental issues relating to the changing swine industry.



4. To compare attitudes of swine producers with those of nonproducers concerning their perceptions of social and environmental issues regarding the swine industry in their respective communities.

#### Institutional Review Board (IRB)

Federal regulations and Oklahoma State University policy require review and approval of all research studies that involve human subjects before investigators can begin their research. The Oklahoma State University Office of University Research Services (IRB) conducts this review to protect the rights and welfare of human subjects involved in biomedical and behavioral research. In compliance with the aforementioned policy, this study received the proper surveillance and was granted permission to proceed. This research was assigned the following research project number: AG-97-021. A copy of the IRB approval form is presented at the end of this document in Appendix C.

#### Population

The population for this study consisted of swine producers who had at least one female swine in production and non swine producers. Each of these two groups represented the same four communities which consisted of Hennessey, Holdenville, Guymon, and Poteau. These four areas were deemed appropriate since they were the production localities with the largest concentrations of swine in Oklahoma. The production population was determined from a combination of swine producer directories including the Oklahoma Pork Council Directory, Purebred Swine Breeders Directory, OSU Animal Science Swine Directory, and the Oklahoma Cooperative Extension Service

producer lists. These were reviewed and a purposive sample of 20 swine producers were randomly selected, while a purposive sample of 40 nonproducers was also randomly selected using telephone directories from each of the four areas. The method of selection for both groups was taken from Dillman (1978). A systematic sample was taken from the directories, starting at the beginning of the directory and taking every ninth name. An assumption was made that there was no periodic repetition of people with certain characteristics in the listings that coincided with the sample interval. Five swine producers representing each of the four communities and ten non swine producers from each of the representative areas of large swine population concentrations made up the purposive sample.

Sixty surveys were completed indicating a 100% response rate.

#### Development of the Instrument

Various methods of data collection were considered and the telephone survey was determined to be the most appropriate to satisfy the objectives of the study. The large geographic area made personal interviews unfeasible and the small sample number made the mail questionnaire too risky as far as response rate was concerned, as well as being too time consuming to incorporate into the study. In developing the instrument to satisfy the objectives of the study, the first step was to review and evaluate instruments used in related studies. Those specifically reviewed included those developed by Rayfield (1995) and Bergman (1982).

Upon completion of the review of selected questionnaires, the researcher and thesis advisor complied and revised questions addressing major societal and

environmental issues. These questions relative to social and environmental issues impacting the changing swine industry in Oklahoma addressed corporate farming, location, social issues, swine producer and non swine producer demographics, and environmental issues.

An initial set of questions was reviewed by faculty members from the Department of Agricultural Education, Communications and 4-H Youth Development, and Animal Science in the College of Agricultural Sciences and Natural Resources at Oklahoma State University. After suggestions and revisions had been implemented, the survey instrument consisted of 33 questions.

The survey consisted of 31 forced response type items and two open-ended questions for the respondents to be able to verbally express their opinions. Response items included selecting the most appropriate responses using nominal, interval, and “Likert-type” scales.

In their Guide to Sensible Surveys, Orlich, Clark, Fagan, and Rust (1975) addressed the use of appropriate scales for soliciting forced responses. Orlich, et al. (1975) indicated a working knowledge of applicable scales would aid in designing questions to acquire reliable and useful information. The scales included:

*Nominal Scales.* One type of forced response question represents the nominal or ‘naming’ scale. The response categories of a nominal item are basically non-numerical in their relationship. This scale identifies rather than measures. Questions representing a nominal scale are usually designed to gather factual (objective) information about the respondents (p. 37).

*Ordinal Scales.* The ordinal scale represents another type of forced response question and is generally used to gather both factual information and respondent opinion. The ordinal scale indicates a rank order relationship among the response categories of a question; however, it does not reveal how much difference there is between the categories (p. 38).

*Interval Scales.* The most sophisticated scale used by survey researchers is the interval scale. The term 'interval' connotes a rank order relationship and equal differences between categories. The latter characteristic distinguishes the interval from the ordinal scale (p. 42).

*Likert Scales.* The most widely used ordinal scale among survey researchers is called the Likert Scale, named after the founder, Rensis Likert. Questions which require rating usually represent Likert Scales. Such scales, used primarily for assessing opinions, are usually composed of five or more response categories e.g., Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree, or some such continuum (p. 40).

The first section of the instrument included ten questions which were designed to gather information about the swine producers' operations and to determine the length of time in which the respondents had lived in the community in which they currently reside. This information was collected using forced response items that utilized an interval scale, "yes" and "no" responses and non-numerical items which were both ascertained using nominal scales. An open-ended question was asked to determine how the respondents became aware of the swine production facilities in their area. The second section of the survey addressed the producers' and the non swine producers' attitudes and perceptions toward corporate farming issues, social issues, and environmental issues in the community in which they currently reside. This part of the survey contained 16 questions. Respondents were asked to respond to a "Likert-type" scale involving a forced choice of one of four levels of agreement: 1) "Strongly Disagree," 2) "Disagree," 3) "Agree," and 4) "Strongly Agree." The final part of the survey, part three, included five questions which were designed to gather demographic information about the 60 respondents. This information was collected using force response items that utilized an interval scale, "yes" and "no" responses and non-numerical items which were ascertained

using nominal scales. One open ended question was asked in this part to gather more information about the respondents' opinions and perceptions dealing with environmental issues regarding the swine industry in their respective community.

To report and numerically describe the data, the participants' responses concerning the categories/levels of agreement were obtained via a "Likert-type" scale, numerical values were assigned and a range of real limits established for the levels of agreement. Those limits are described in Table I.

TABLE I  
A DISTRIBUTION OF ASSIGNED NUMERICAL VALUES AND REAL  
LIMITS BY CATEGORIES OF AGREEMENT

Categories	Numerical Value	Real Limits
Strongly Agree	4	3.50-4.00
Agree	3	2.50-3.49
Disagree	2	1.50-2.49
Strongly Disagree	1	1.00-1.49

#### Collection of the Data

Telephone surveys (See Appendix A) were conducted May 7 and 8, 1997 to all 40 of the selected non swine producers and on May 20, 1997 to the 20 selected swine producers. A total of 60 surveys were completed with all (100%) having usable responses. In an attempt to eliminate any bias in the survey, the researcher hired trained graduate students to conduct the telephone surveys.

## Analysis of Data

The study population of swine producers and non swine producers all had the opportunity to participate in the study; therefore, descriptive statistics were used to describe information/data in terms of the aggregate as well as specific elements.

Hoshmand in his treatment of descriptive statistics stated:

Agricultural scientists and managers alike collect data for decision making purposes. Mostly, the data are obtained from samples and are usually unorganized. To make a decision from an unorganized set of data is very difficult. It is therefore necessary to condense large sets of data into an ordered array. An ordered array is a listing of sampled observations from the smallest value to the largest (p.16).

The data can also be presented in a frequency distribution, which involves group data that can be easily visualized. Frequency distributions give both the value for the observations and their frequency of occurrence (p. 18).

Descriptive statistics included calculated means, frequency distributions, percentages, and standard deviations. The t-test for statistical significance was used to test for significant difference between the two independent groups. Significance was set at  $\alpha = 0.05$ . "The use of t-tests was explained by Popham (1973) as a method to determine just how great the difference between two means must be for it to be judged significant, or a significant departure from differences, which might be expected from chance alone" (p. 124-125). Runyon and Haber (1971) elaborating concerning the differences between means from two independent samples stated:

Most behavioral research involves the comparison of two or more samples to determine whether or not these samples might have reasonably been drawn from the same population. If the means of two samples differ, must we conclude that these samples were drawn from two different populations (p. 194).

Whereas, Snedecor and Cochran (1967) in addressing the issue of groups of unequal size indicated “unequal numbers are common in comparisons made from survey data” (p. 104). They further expressed “in planned experiments, equal numbers are preferable, being simpler to analyze and more efficient, but equality is sometimes impossible or inconvenient to attain” (p. 104). However, there are occasions when the number of representatives for a particular group are much smaller in size relative to the overall population or a research effort with unequal numbers such as this study is set up deliberately to compare attitudes and perceptions among selected swine producers and non swine producers in four Oklahoma communities.

## Demographic Characteristics

you to assist selected demographic information

### CHAPTER IV

#### FINDINGS

The major purpose of this chapter was to assess the perceptions and attitudes of swine producers and non swine producers regarding social and environmental issues relating to the swine industry in the respective communities in which they currently reside. A telephone survey was conducted to determine the attitudes and perceptions of the purposive sample which consisted of a total of 60 individuals; both swine producers and non swine producers. Twenty swine producers; five from each of the following communities: Hennessey, Holdenville, Guymon, and Poteau and 40 non swine producers; 10 from each of the communities previously listed. Their inputs were presented in sections dealing with: Introductory Responses, Demographic Characteristics, Attitudes and Perceptions of Corporate Swine Farming, and Attitudes and Perceptions of Social and Environmental Issues. The data were organized according to and corresponded with the objectives of the study.



### Demographic Characteristics (30%) respondents were in

Tables II through VI were developed to report selected demographic information. As shown in Table II, 27 (45%) of the respondents were female, while the other 33 (55%) were male.

TABLE II  
A DISTRIBUTION OF NON SWINE PRODUCERS AND SWINE PRODUCERS BY GENDER

Gender	Non Swine Producer		Producer		Total	
	Frequency (N=40)	Percent (%)	Frequency (N=20)	Percent (%)	Frequency (N=60)	%
Female	26	65	1	5	27	45
Male	14	35	19	95	33	55

Table III was developed to illustrate a distribution by age of the respondents. The largest group of non swine producer respondents was in the 71 years and over age range and this consisted of nine (22.5%) respondents. The second largest group was in the age range of 41-45 and 46-50 and included 10 (25%) respondents, five (12.5%) from each group. Eight (20%) respondents reported their age as 18-25 or 51-55, four (10%) from each group. Six (15%) non swine producers were in the 56-60 and 66-70 age categories, three (7.5%) from each group. Six (15%) respondents made up the 26-30, 31-35, and 61-65 age groups, two (5%) from each group. Only one (2.5%) respondent was in the 36-40 age group. In addition, the data in Table III revealed of the 20 swine producers

responding, seven (35%) were 36-40 years of age, while six (30%) respondents were in the 26-30 and 56-60 age groups, three (15%) from each group. Those in the 18-25, 31-35, and 46-50 age ranges consisted of six (30%) respondents, two (10%) each. Only one (5%) respondent was identified in the 51-55 age range. There were no swine producers in the 41-45, 61-65, 66-70, or the 71 years and older age ranges.

TABLE III  
A DISTRIBUTION OF RESPONDENTS BY AGE

Age	Non Swine Producer		Producer		Total	
	Frequency (N=40)	Percent (%)	Frequency (N=20)	Percent (%)	Frequency (N=60)	%
18-25	4	10	2	10	6	10
26-30	2	5	3	15	5	8.3
31-35	2	5	2	10	4	6.7
36-40	1	2.5	7	35	8	13.3
41-45	5	12.5	-	-	5	8.3
46-50	5	12.5	2	10	7	11.7
51-55	4	10	1	5	5	8.3
56-60	3	7.5	3	15	6	10
61-65	2	5	-	-	2	3.3
66-70	3	7.5	-	-	3	5
71 years and over	9	22.5	-	-	9	15

The data in Table IV illustrated the respondents' awareness to the prominence of swine production in their community. Of the 40 non swine producers, 33 (83%) knew they lived in a prominent swine producing area of Oklahoma, while 19 (95%) of the 20 swine producers said "yes", they realized the prominence of the swine industry in their community.

TABLE IV

A DISTRIBUTION OF RESPONDENTS BY WHETHER OR NOT THEY WERE AWARE OF PROMINENCE OF THE SWINE INDUSTRY IN THEIR RESPECTIVE COMMUNITIES

	<u>Non Swine</u> <u>Producers</u>		<u>Producers</u>		<u>Total</u>	
	Frequency (N=40)	Percent (%)	Frequency (N=20)	Percent (%)	Frequency (N=60)	%
Yes	33	83	19	95	52	86
No	7	17	1	5	8	14

The data in Table V reflected the number of years the respondents had resided in the community in which they were currently living. It was determined that 24 (60%) of the non swine producers had resided in their community for over 20 years, while 10 (25%) respondents, have been in their respective community for 8-15 years, and three (7.5%) comprised those who had lived in their community for 4-7 years. However, two (5%) had resided in their community for 1-3 years and one (2.5%) indicated 1-3 years. By comparison, the largest group of swine producers, six (30%) had resided in their community for 4-7 years, while five (25%) respondents had lived in their respective communities for 8-15 years and five (25%) had also been in their respective community for over 20 years. On the other hand, two (10%) had lived in their respective community for less than one year, while two (10%) had only lived in their community 1-3 years.

TABLE V

A DISTRIBUTION OF RESPONDENTS BY LENGTH OF TIME THEY  
HAVE RESIDED IN THEIR RESPECTIVE COMMUNITY

Length of Time	Non Swine Producers		Producers		Total	
	Frequency (N=40)	Percent (%)	Frequency (N=20)	Percent (%)	Frequency (N=60)	%
Less than one year	1	2.5	2	10	3	5
1-3 years	2	5	2	10	4	7
4-7 years	3	7.5	6	30	9	15
8-15 years	10	25	5	25	15	25
16-20 years	-	-	-	-	-	-
Over 20 years	24	60	5	25	29	48

Another demographic descriptor, distribution of the highest level of educational attainment was represented in Table VI. As the data indicated, 23 (62%), a rather large group of non swine producing respondents had received a GED or were high school graduates. However, two (5%) nonproducer respondents had earned Master of Science degrees and four (11%) had completed baccalaureate programs. In addition, four nonproducers had completed less than a high school diploma and four (11%) also indicated the "other" category. On the other hand, the data in Table VI revealed nine (45%) of the swine producers had earned a Bachelor of Science degree, while six (30%) had obtained a GED or were high school graduates. Three (15%) indicated "other" and had completed an Associate degree. In addition, one (5%) indicated they had received a Master of Science degree and one (5%) respondent listed Doctorate as their highest level of formal education.

TABLE VI

A DISTRIBUTION OF NON SWINE PRODUCERS AND SWINE  
PRODUCERS BY HIGHEST LEVEL OF EDUCATION

Length of Time	<u>Non Swine</u> <u>Producers</u>		<u>Producers</u>		<u>Total</u>	
	Frequency (N=37)	Percent (%)	Frequency (N=20)	Percent (%)	Frequency (N=57)	%
Less Than High School Diploma	4	11	6	30	10	18
High School Graduate or GED	23	62	-	-	23	40
Bachelor of Science Degree	4	11	9	45	13	23
Master of Science Degree	2	5	1	5	3	5
Doctoral Degree	-	-	1	5	1	2
Other	4	11	3	15	7	12

#### Characteristics of Swine Producers

The data shown in Table VII revealed that nine (45%) percent of the swine operations in Guymon, Hennessey, Holdenville, and Poteau were independent operations which were family or privately owned, while five (25%) percent were held by corporate entities. The data also indicated that six (30%) of the contract operations were owned or operated by private individuals.

TABLE VII

## A DISTRIBUTION OF SWINE PRODUCERS BY OWNERSHIP ARRANGEMENT

Ownership Arrangement	Frequency (N=20)	Percentage (%)
Family or Privately Owned, Independent	9	45
Family or Privately Owned, Contract	6	30
Corporate Production Unit, Manager or Employee	5	25

The data revealed in Table VIII represents the two largest groups in terms of type of operation. Over 50 percent of the producers indicated they were involved with sow operations producing nursery or feeder pigs, while five (25%) indicated they conducted a combination type of operation. Two (10%) purebred swine producers indicated their operations were primarily for show pig production. One (5%) producer was helping their children with a 4-H or FFA project, while one (5%) was carrying on a commercial farrow to finish operation, and another one (5%) was conducting a finishing operation.

TABLE VIII

## A DISTRIBUTION OF PRODUCERS BY TYPE OF SWINE PRODUCTION UNIT

Type of Production Unit	Frequency (N=20)	Percentage (%)
4-H or FFA Project (For their own child)	1	5
Purebred Swine for Show Pig Production	2	10
Commercial Farrow to Finish	1	5
Sow Operation Producing Nursery or Feeder Pigs	10	50
Finishing Operation	1	5
Combination	5	25

The information provided in Table IX represented a distribution of swine producers by the size of their production units. Seven (35%) respondents indicated they farrowed 1201 or more sows in their operations, while five (25%) of the producers said their operations consisted of 301-600 sows. The 601-1200 sow category involved three (15%) operations, whereas there were also only three (15%) producers with 25 sows or less and one (5%) respondent had 51-100 sows.

TABLE IX

A DISTRIBUTION OF PRODUCERS BY NUMBER OF PRODUCING FEMALES IN OPERATION

Number of Producing Females	Frequency (N=20)	Percentage (%)
25 Sows or Less	3	15
26-50 Sows	-	-
51-100 Sows	1	5
101-300 Sows	-	-
301-600 Sows	5	25
601-1200 Sows	3	15
1201 Sows or More	7	35

The data in Table X described the number of hogs marketed annually. The data showed that 15 (75%) production units marketed over 10,001 or more hogs annually. However, two (10%) producers represented the other extreme; marketing 250 hogs or less annually. One (5%) producer each represented groups marketing 251-500, 1,001-10,000, and 5,001-10,000 hogs annually.

TABLE X

A DISTRIBUTION OF PRODUCERS BY NUMBER OF HOGS  
MARKETED ANNUALLY

Number of Hogs Marketed Annually	Frequency (N=20)	Percentage (%)
250 or Less	2	10
251-500	1	5
501-1,000	-	-
1,001-2,500	1	5
2,501-5,000	-	-
5,001-10,000	1	5
10,000 or More	15	75

#### Corporate Issues

The data shown in Table XI was designed to summarize and provide an overview of the perceptions and attitudes of swine producers and nonproducers participating in this study concerning corporate farming issues impacting the swine industry. The study participants were asked to respond to four questions addressing corporate concerns on a "Likert-type" scale using the categories of agreement: "Strongly Agree," "Agree," "Disagree," and "Strongly Disagree." The statement having the highest overall level of agreement among both swine producers and non swine producers was "Corporate involvement/investment in swine production will enhance job opportunities in my community" with all 20 (100%) swine producers either "Agreeing" or "Strongly Agreeing" that swine production does enhance jobs in their communities, while 35 (88%) of the non swine producers either "Agreed" or "Strongly Agreed." The mean score



derived from the responses of the 20 swine producers participating in this study was 3.53 which was in the "Strongly Agree" category while the mean score for the 40 non swine producers was 2.97 in the "Agree" category of agreement. The standard deviations among the two groups was minimal with 0.12 for the swine producers and 0.13 for non swine producers. The t-statistic for the two independent groups was 3.01 which was statistically different at the .05 level of probability.

The data further revealed "Corporate involvement will strengthen the export demand for pork and pork products," especially in the mind of producers. Ninety-five percent of the producers indicated they believe corporate involvement will strengthen export demand, while only 71 percent of the non swine producers either "Agreed" or "Strongly Agreed." However, twenty percent of the nonproducers "Disagreed" with the idea that corporate involvement would increase exports. Both producers and nonproducers were in the "Agree" category; however, there was considerable difference in the perceptions held about "Corporate impact on exports" between the two independent groups. The mean score calculated from the swine producers responses was 3.42, almost in the "Strongly Agree" category, while the nonproducers had a score of 2.64 which was slightly above the "Disagree" grouping. Furthermore, the t-test confirmed the significant difference in the means with a t-statistic of 3.75 at the .05 level of probability.

The two independent groups were more in agreement concerning the statement, "Corporate involvement increases the likelihood of legal implications and governmental regulations related to swine production units." Both the swine producers and nonproducers were in the "Agree" category as indicated by the data illustrated in Table XI. Ninety percent of the swine producers either "Agreed" or "Strongly Agreed" with

this statement, which was evident at the calculated mean score of 3.21. On the other hand, 86 percent of the nonproducers also "Agreed" or "Strongly Agreed" and exhibited a derived mean score of 2.90. The t-statistic determined was 1.52 which did not reveal a significant difference in the two mean scores.

The big discrepancy between the two groups concerning corporate involvement was the statement "Corporate involvement will eventually decrease the number of family owned swine operations in Oklahoma." While the swine producers "Disagreed" with the statement, the nonproducers from the four selected communities "Agreed." The mean scores of 1.79 for the producer group and 2.67 for the nonproducers was readily reflected by 65 percent of the swine producers either "Disagreeing" or "Strongly Disagreeing," while on the other hand, 65 percent of the nonproducers "Agreed" or "Strongly Agreed." The magnitude of the difference was reflected in the significant difference determined between the two means with a t-statistic of -3.33 at the .05 level of probability.

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TABLE XI

A SUMMARY OF THE RESPONDENTS' EXTENT OF AGREEMENT REGARDING  
CONCERNS ASSOCIATED WITH CORPORATE ISSUES

Statement/Response Group	Distribution of Respondents by Level of Agreement										Mean	Category of Agreement	SD	t-statistic	Probability Level	
	Strongly Agree		Agree		Disagree		Strongly Disagree		Non Respondents							
	N	%	N	%	N	%	N	%	N	%						
Corporate involvement will eventually decrease the number of family owned swine operations in Oklahoma																
Producer	1	5	4	20	5	25	8	40	2	10	1.79	Disagree	0.24	-3.33	.002*	
Non Producers	8	20	18	45	9	23	3	8	2	4	2.67	Agree	0.17			
Corporate involvement will strengthen export demand for pork and pork products																
Producers	8	40	11	55	1	5	-	-	-	-	3.42	Agree	0.12	3.75	.0004*	
Non Producers	3	8	25	63	8	20	2	5	2	4	2.64	Agree	0.14			
Corporate involvement/investment in swine production will enhance job opportunities in my community																
Producers	10	50	10	50	-	-	-	-	-	-	3.53	Strongly Agree	0.12	3.01	.004*	
Non Producers	8	20	27	68	2	5	2	5	1	2	2.97	Agree	0.13			
Corporate involvement increases the likelihood of legal implications and governmental regulations related to swine production units																
Producers	6	30	12	60	2	10	-	-	-	-	3.21	Agree	0.14	1.52	.136	
Non Producers	7	18	27	68	3	8	1	3	1	3	2.90	Agree	0.15			

## Social Issues

The data summarized in Table XII addressed the impact of the changing swine industry on selected social factors and issues. The data revealed concerning the statement "Having a swine operation on or near my property causes problems for me in the community," indicates how far apart producers and nonproducers are in their perceptions and attitudes about issues impacting property values. The mean responses disclosed the reality between the two groups with the swine producers "Disagreeing" and having a mean score of 1.74 and nonproducers "Agreeing" with a mean of 2.87. Sixty-eight percent of the nonproducers either "Agreed" or "Strongly Agreed," while 85 percent of the producers "Disagreed" or "Strongly Disagreed" with the statement. It was apparent from the results that there was a significant difference in the two independent groups with this issue. The calculated t-statistic was -4.50 at the .05 level of probability, indicating it was highly significant.

The data describing the statement "Manure, odors, and other swine wastes seem to be offensive to me and my neighbors," indicated another situation where perceptions concerning property values seem to bring a wide range of differences in opinion. Ninety percent of the swine producers either "Disagreed" or "Strongly Disagreed" with the statement, whereas 80 percent of the nonproducers "Agreed" or "Strongly Disagreed." The mean responses of the two groups quickly illustrated the magnitude of the difference in perceptions with the producers having a mean score of 2.05 in the "Disagree" category and the nonproducers "Agreeing" and a mean of 3.13. The t-statistic of -5.63 was obviously significant at the .05 level of probability.

TABLE XII

A SUMMARY OF THE RESPONDENTS' EXTENT OF AGREEMENT REGARDING  
CONCERNS ASSOCIATED WITH SOCIAL ISSUES

Statement/Response Group	Distribution of Respondents by Level of Agreement										Mean	Category of Agreement	SD	t-statistic	Probability Level	
	Strongly Agree		Agree		Disagree		Strongly Disagree		Non Respondents							
	N	%	N	%	N	%	N	%	N	%						
Having a swine operation on or near my property causes problems for me in the community																
Producers	1	5	2	10	8	40	9	45	-	-	1.74	Disagree	0.20	-4.50	.000*	
Non Producers	14	35	13	33	10	25	1	3	2	4	2.87	Agree	0.17			
Manure, odors, and other swine waste seem to be offensive to me and/or my neighbors																
Producers	1	5	1	5	16	80	2	10	-	-	2.05	Disagree	0.14	-5.63	.000*	
Non Producers	16	40	16	40	7	18	-	-	1	2	3.13	Agree	0.14			
Isolation of my own or my neighbors' swine operation would reduce public criticism concerning the production unit																
Producers	1	5	9	45	9	45	1	5	-	-	2.47	Disagree	0.16	-1.47	.15	
Non Producers	4	10	29	73	4	10	1	3	1	4	2.79	Agree	0.14			
Swine operations located adjacent to public thoroughfares or high traffic areas should be required to erect visual barriers to reduce the likelihood of public criticism																
Producers	1	5	7	35	9	45	2	10	1	5	2.36	Disagree	0.17	-1.84	.08	
Non Producers	5	12	17	43	18	45	-	-	-	-	2.67	Agree	0.11			

TABLE XII (Continued)

Statement/Response Group	Distribution of Respondents by Level of Agreement										Mean	Category of Agreement	SD	t-statistic	Probability Level	
	Strongly Agree		Agree		Disagree		Strongly Disagree		Non Respondents							
	N	%	N	%	N	%	N	%	N	%						
Instead of large production units with high concentrations of animals in one area, producers should be required to develop smaller production units located over a larger area at several locations																
Producers	3	15	5	25	7	35	4	20	1	5	2.37	Disagree	0.23	-0.16	.87	
Non Producers	5	13	13	33	16	40	1	3	4	11	2.28	Disagree	0.18			
Your community and neighbors perceive that today's modern swine industry provides economic benefits to the community																
Producers	6	30	13	65	1	5	-	-	-	-	3.26	Agree	0.13	1.995	.05*	
Non Producers	8	20	24	60	5	13	-	-	3	7	2.87	Agree	0.16			
What are your perceptions of the swine industry in your community?																
Producers	16	80	4	20	-	-	-	-	-	-	3.79	Strongly Agree	.096	4.93	.000	
Non Producers	9	23	26	65	2	5	2	5	1	2	3.03	Agree	0.13			

In looking at this issue from a different perspective, swine producers and nonproducers in the four selected communities were somewhat closer together as revealed by the mean scores even though they were identified in different categories of agreement. The statement "Isolation of my own or my neighbors' swine operations would reduce criticism concerning the production unit," in Table XII indicated mean scores of 2.47 and 2.79 for the swine producers and nonproducers, respectively. Even though the t-statistic was -1.47, there was not a significant difference in the magnitude of the two means. The swine producers were equally split with 50 percent either "Strongly Agreeing" or "Agreeing" and 50 percent "Disagreeing" or "Strongly Disagreeing." On the other hand 83 percent of the nonproducers either "Strongly Agreed" or "Agreed." Furthermore, the data shown in Table XII concerning the statement "Swine operations located adjacent to public thoroughfares or high traffic areas should be required to erect visual barriers to reduce the likelihood of public criticism," illustrated that the swine producers and nonproducers continued to disagree. Fifty-five percent of the producers either "Disagreed" or "Strongly Disagreed," while 20 percent of the swine producers chose not to respond for some reason. The choice of the swine producers reflected a mean response of 2.36 which was in the "Disagree" category, whereas the nonproducers as a group "Agreed" with the statement which depicted a mean score of 2.67. Fifty-five percent of the nonproducers "Agreed" "Erecting visual barriers would reduce the likelihood of public criticism." Even though the t-statistic was -1.84, it did not indicate a significant difference. However, it seemed to trend in that direction illustrating similarities of the other social issues addressed in Table XII.

The statement of "Instead of large production units with high concentrations of animals in one area, producers should be required to develop smaller production units located over a large area at several locations," shown in Table XII indicated both groups agreed to "Disagree" with this statement. Fifty-five percent of the swine producers either "Disagreed" or "Strongly Disagreed" with the idea of "smaller units over a larger area," while 40 percent of the nonproducers "Disagreed" and only three percent "Strongly Disagreed." The mean scores observed were similar with mean responses of 2.37 and 2.28 for the producers and nonproducers, respectively, and both groups in the "Disagree" category of agreement. The t-statistic of -0.16 did not indicate a significant difference at the  $\alpha = .05$  level of probability.

The data in Table XII revealed how the swine producer respondents and nonproducers felt about the statement "My community and neighbors perceive that today's modern swine industry provides economic benefits to the community." With both groups of respondents in the "Agree" category, 95 percent of the producers either "Agreed" or "Strongly Disagreed," while 80 percent of the non swine producers "Agreed" or "Strongly Agreed." The respective mean scores of 3.26 for the producers and 2.87 for the non swine producers obviously put both groups in the "Agree" category; however, when the two mean responses were compared, they were not as similar as observation might lead one to think. The t-statistic of 1.995 at the .05 level of probability indicated a rather strong trend toward being significantly different.

The statement "What are your perceptions of the swine industry in your community," summarized the perceived benefits of the industry to the community in Table XII. As one would suspect, the producers had a positive image of the benefits



derived by the community from the industry. Eighty percent of the swine producers “Strongly Agreed” that the industry was a positive force in the community which was verified with a mean score of 3.79. Even though 88 percent of the nonproducers either “Agreed” or “Strongly Agreed,” only 23 percent “Strongly Agreed” which was indicative of the 3.03 mean response observed. The t-statistic of 4.93 illustrated the level of significance revealed when comparing the two means.

### Environmental Issues

The data summarized in Table XIII indicated the extent of agreement between the swine producers and nonproducers concerning environmental issues impacting the changing swine industry. The swine producer and nonproducer responses to the statement “Confinement swine operations are major contributors to water pollution,” revealed that the two groups were almost “poles” apart. All (100%) of the producers either “Disagreed” or “Strongly Disagreed” with the perceived image the industry has in water pollution, while on the other hand, 71 percent of the nonproducers “Agreed” or “Strongly Agreed.” The response of both groups was confirmed in the mean scores, 1.37 and 2.69, exhibited with the producers “Strongly Disagreeing” and the nonproducers “Agreeing” which was indicative of the t-statistic of -6.05 and the difference in the response of the two groups being highly significant.

Responses to the statement “Animal waste in a major source of the pollution in the rivers and streams located in my community,” indicated that the two groups were somewhat more agreeable, which was revealed in the observed mean scores of 1.37 and “Strongly Disagree” by the swine producer and 2.31 in the “Disagree” category for the

nonproducers. All (100%) of the swine producers either "Disagreed" or "Strongly Disagreed" with the statement, while only 43 percent of the nonproducers "Disagreed" or "Strongly Disagreed." As indicated by the t-statistic of -4.59, the difference between the mean responses of the two groups was highly significant. The responses to "Producers who pollute streams with animal waste should be financially penalized," as revealed by the data in Table XIII indicated that swine producers and nonproducers were in "agreement." The mean score, 3.11 and 3.08, illustrated that the responses of both groups were similar. Eighty-eight percent of the nonproducers and 85 percent of the swine producers either "Agreed" or "Strongly Agreed" with the statement "financially penalizing producers polluting streams with animal waste." A comparison of the means of the two independent groups did not reveal a significant difference. In addition, the data shown in Table XIII indicated again that both swine producers and nonproducers "Agreed" with a statement similar in context, "Producers who dispose of dead animals incorrectly should be financially penalized." The mean scores, 3.21 and 3.44, illustrated the extent of agreement between the two groups. Ninety-six percent of the nonproducers and 90 percent of the swine producers "Agreed" that "disposing of dead animal incorrectly should merit a financial penalty." Even though the t-statistic was negative, -1.70, a comparison of the two means did not reveal a significant difference. However, both swine producers and nonproducers "Disagreed" with the statement "Swine operations are the major contributors of air quality problems in my community." Eighty-five percent of swine producers and 64 percent of the nonproducers either "Disagreed" or "Strongly Disagreed" that "swine operations were major contributors to air quality

problems.” Even though the mean scores, 1.79 and 2.41, were in the “Disagree” category, a comparison of the two groups revealed the means were significantly different with a t-statistic of -2.93 at the alpha level of .05 probability. In another air quality statement, “Swine odors and air quality problems present health risks to the citizens of my community,” the swine producer respondents and the nonproducer respondents were not alike in the extent of their disagreement. While the swine producers “Strongly Disagreed” with the statement and revealed a mean score of 1.42, the mean score of 2.12 among the nonproducers indicated they were primarily in the “Disagree” category as a group. The magnitude of the difference between the two groups was revealed by the fact 95 percent of the swine producers either “Disagreed” or “Strongly Disagreed” while only 66 percent of the nonproducers “Disagreed” or “Strongly Disagreed.” However, 20 percent of the nonproducers actually “Agreed” with the statement. As observed in Table XIII, a comparison of the means associated with the two independent groups indicated they were significantly different.

TABLE XIII

A SUMMARY OF THE RESPONDENTS' EXTENT OF AGREEMENT REGARDING  
CONCERNS ASSOCIATED WITH ENVIRONMENTAL ISSUES

Statement/Response Group	Distribution of Respondents by Level of Agreement										Mean	Category of Agreement	SD	t-statistic	Probability Level	
	Strongly Agree		Agree		Disagree		Strongly Disagree		Non Respondents							
	N	%	N	%	N	%	N	%	N	%						
Confinement swine operations are major contributors to water pollution																
Producers	-	-	-	-	16	40	24	60	-	-	1.37	Strongly Disagree	0.11	-6.05	.000*	
Non Producers	9	25	19	48	8	18	1	3	3	8	2.69	Agree	0.17			
Farm animal waste is a major source of pollution in the rivers and streams in your community																
Producers	-	-	-	-	8	40	12	60	-	-	1.37	Strongly Disagree	0.11	-4.59	.000*	
Non Producers	5	13	14	35	15	38	2	5	3	8	2.31	Disagree	0.19			
Producers who pollute streams with animal waste should be financially penalized																
Producers	5	25	12	60	2	10	1	5	-	-	3.11	Agree	0.17	-0.12	.91	
Non Producers	11	28	24	60	3	8	2	4	-	-	3.08	Agree	0.13			
Producers who dispose of dead animals incorrectly should be financially penalized																
Producers	5	25	13	65	2	10	-	-	-	-	3.21	Agree	0.12	-1.70	.096	
Non Producers	19	48	19	48	2	4	-	-	-	-	3.44	Agree	.096			

TABLE XIII (Continued)

Statement/Response Group	Distribution of Respondents by Level of Agreement										Mean	Category of Agreement	SD	t-statistic	Probability Level
	Strongly Agree		Agree		Disagree		Strongly Disagree		Non Respondents						
	N	%	N	%	N	%	N	%	N	%					
Swine operations are the major contributors of air quality problems in your community															
Producers	-	-	3	15	10	50	7	35	-	-	1.79	Disagree	0.16	-2.93	.006*
Non Producers	5	13	9	23	24	60	2	4	-	-	2.41	Disagree	0.14		
Swine odors and air quality problems present health risks to the citizens of my community															
Producers	-	-	-	-	10	50	9	45	1	5	1.42	Strongly Disagree	0.14	-3.36	.001*
Non Producers	3	8	8	20	23	58	3	8	2	6	2.12	Disagree	0.15		

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

##### Introduction

The purpose of this chapter was to present a summary of the study problem and its environment, the design and conduct of the study, and the major findings. Also presented are conclusions and recommendations which were based upon analysis and summarization of data collected and upon observations and impressions resulting from the design and conduct of this study.

##### Purpose of the Study

The purpose of this study was to describe attitudes and perceptions of selected swine producers and nonproducers representing four Oklahoma communities with the largest swine populations regarding certain social and environmental issues impacting the changing swine industry.

## Objectives

In order to accomplish the purpose of the study, the following objectives were established:

1. To describe selected demographic characteristics of swine producers and nonproducers selected exclusively from four Oklahoma communities.
2. To determine attitudes and perceptions of swine producers toward selected social and environmental issues relating to the changing swine industry.
3. To determine the perceptions of non swine producers toward selected social and environmental issues relating to the changing swine industry.
4. To compare attitudes of swine producers with those of nonproducers concerning their perceptions of social and environmental issues regarding the swine industry in their respective communities.

## Design and Conduct of the Study

Various methods of data collection were considered and the telephone survey was determined to be the most appropriate to satisfy the objectives of the study. The large geographic area made personal interviews unfeasible and the small sample number made the mail questionnaire too risky as far as the response rate was concerned, as well as being too time consuming.

A three part telephone survey was conducted to gather information from 40 non swine producers and 20 swine producers in Hennessey, Holdenville, Guymon, and Poteau, Oklahoma. Ten non swine producers from each community were randomly

selected using telephone directories. Five swine producers were randomly selected using swine producer directories from the Oklahoma Pork Council, Purebred Swine Producers, and the OSU Extension producer list. The 20 swine producers and 40 non swine producers made up the purposive sample in the four Oklahoma communities of this study.

Part one of the survey instrument consisted of six questions designed to obtain demographic information about the 60 respondents, as well as five additional questions to determine swine production characteristics among producer groups. Levels of agreement, between non swine producers and swine producers, concerning a series of statements was used as a means for assessing perceptions and attitudes relating to corporate involvement, selected social issues, and environmental issues. In this part of the instrument, respondents were asked to respond to 16 questions using a "Likert-type" scale with four choices; 1) "Strongly Agree," 2) "Agree," 3) "Disagree," 4) "Strongly Disagree."

The surveys were pre-tested by a panel of experts with regard to content to avoid any bias the researcher might convey. Sixty responses were obtained for a 100 percent response rate during the survey period which ranged from early to mid-May 1997. Since the pre-determined number of responses had been received, the researcher entered the data using an Excel spreadsheet format. The data were then analyzed. Descriptive statistics and the t-test were utilized to accomplish the objectives of the study. Therefore, treatments applied to the data were those designed to calculate standard deviations, means, frequencies, percentages, rank orders, and the t-test for comparing the two independent groups.



## Major Findings of the Study

Characteristics of the Respondents. The respondents to the study included 40 (100%) non swine producers and 20 (100%) swine producers, for a total of 60. Fifty-five percent of the total respondents were male. When the group was divided, 35 percent of the non swine producers and 95 percent of the swine producers were male, while 65 percent of the nonproducers and five percent of the producers were female. The age range of 36 to 40 encompassed 38 percent of the total who responded. The 36 to 40 age range included 35 percent of the producers, while only three percent of the nonproducers were 36-40 years of age. Forty-eight percent of the respondents have resided in the communities in which they currently live for more than 20 years. Sixty percent of the non swine producers had lived in the community in which they currently reside for over twenty years.

Almost 49 percent of the total respondents were high school graduates or had earned their GED, including 58 percent of the non swine producers and 30 percent of the swine producers. Almost 22 percent of the respondent group had earned a baccalaureate degree.

The respondents did realize they resided in a major pork producing area of Oklahoma, with over 86 percent responding “yes.”

Corporate Issues. Two statements received a mean response of “Agree” by respondents of both groups. These were, “Corporate involvement will strengthen export demand for pork and pork products,” and “Corporate involvement and/or investment in swine production will enhance job opportunities in your community.” The overall mean

response to these statements were 3.03 and 3.05 respectively. It was determined there was a high rate of consistency between both of the groups in rating this statement. The statement which received the lowest overall mean score, 2.22, or “Disagree,” was “Will corporate involvement eventually decrease the number of family owned swine operations in Oklahoma?”

Social Issues. There were five statements in this area which received an overall “Agree” rating. However, there were two statements the two groups rated as “Disagree.” The statements were: “Having a swine operation on or near my property causes problems for you in the community,” and “Instead of large production units with high concentrations of animals in one area, producers should be required to develop smaller production units located over a larger area at several locations.” In the first statement, there was a small difference among the two groups with an overall mean response of 2.30. The second statement was similar with little notable difference among the groups and an overall mean of 2.32. The question, “What are your perceptions of the swine industry in your community,” received the highest mean score from the swine producers in the survey. The mean was 3.78 with 80 percent indicating the swine industry “is a positive influence in this community.”

Environmental Issues. There was little agreement among the total group of respondents to the statement, “Swine odors and air quality problems present health risks to the citizens of your community.” The overall mean score was 1.77, with the non swine producers rating the statement at 2.12 and producers at 1.42, respectively. The statement, “Swine operations are the major contributors of air quality problems in your community,”

also was rated as “Disagree.” The overall mean was 2.09 with the non swine producers’ mean at 2.41 and the swine producers’ at 1.78. The remaining four statements of this section were rated as “Agree.” The highest mean score for non swine producing respondents was in this section. Question twenty-five which stated, “Producers who dispose of dead animals incorrectly should be financially penalized,” received an overall rating of “Agree,” but the non swine producers’ mean was considerably higher at 3.43.

### Conclusions

Examination and interpretation of the major findings provided the opportunity for the author to draw the following conclusions:

1. Both non swine producers and swine producers in Hennessey, Holdenville, Guymon, and Poteau realize they do live in a “boom” economy in their respective communities which is largely due to dramatic changes in Oklahoma’s swine industry. It was apparent that the typical resident has also resided in the community in which they currently reside for 20 years or more.
2. The typical operating arrangement regarding swine operations in the four communities tend to be family or privately owned operations working under contractual agreements with corporate firms.
3. Swine production units among the producer respondents in the four communities seem to be primarily farrowing operations which produce nursery or feeder pigs.
4. The typical production unit among the producer respondents in this study tends to farrow more than 1200 sows and market over 10,000 hogs annually.

5. Swine producers and non swine producers alike seem to agree that corporate involvement in the swine industry will strengthen export demand for pork and pork products, and will enhance job opportunities in their communities.
6. On the other hand, it was apparent that swine producers and non swine producers tend to believe corporate involvement in swine production will increase the likelihood of legal implications and governmental regulations related to swine production units.
7. Both swine producers and non swine producers apparently agree that isolating production units with visual barriers will not reduce public criticism.
8. Both swine producers and non swine producers seem to agree that the perceptions in their communities and among their neighbors indicate today's modern swine industry provides economic benefits to the community.
9. It was obvious that non swine producers and swine producers vary greatly in their attitudes toward environmental issues regarding swine operations being contributors to water pollution.
10. As a result of the findings, it could be stated that non swine producers feel farm animal wastes are a major source of pollution in the rivers and streams near their communities, while swine producers do not perceive swine wastes to be a pollutant in rivers and streams.
11. It was apparent that both non swine producers and swine producers share the same opinion regarding whether or not producers should be financially penalized if they pollute rivers and streams or dispose of dead animals improperly.

12. As a result of the findings, both non swine producers and swine producers share the opinion that swine operations are not major contributors of air quality problems in the four selected Oklahoma communities.

### Recommendations

The subsequent recommendations were based on the results, inferences, and insight of conducting the study.

1. It is recommended that research based information and educational program opportunities continue to be provided to keep producers and nonproducers alike informed concerning high profile issues impacting the changing swine industry in Oklahoma. Since both producers and nonproducers have access to research based information through the Oklahoma Cooperative Extension Service; it is the opinion of the author that Cooperative Extension with its mission of education can and should be the primary provider of educational programming to the public concerning major problems and issues impacting the swine industry and local communities near large concentrations of swine operations.

2. To aid in developing a cohesive relationship among non swine producers and swine producers, an educational program with curricula pertaining to environmental issues should be delivered and encouraged throughout the state and particularly in the major pork producing counties.

3. Regarding the study's findings concerning perceptions and attitudes of non swine producers and swine producers as they relate to social and environmental issues, it

is essential that producer organizations develop materials to convey and promote benefits and values of the swine industry in their respective communities.

4. It was apparent that non swine producers perceive the swine industry in their community to be an environmental threat; therefore, a concentrated effort by the swine producers to educate the public and develop environmental stability is needed to secure a healthy perception of the industry.

5. According to the findings, non swine producers have relatively strong opinions concerning financial penalties assessed swine producers for improper waste management. It is recommended existing regulations be enforced regarding this issue, as well as a greater effort being put forth by the producers in preventing waste management problems.

6. It was apparent that producers and industry representatives should make a concentrated effort to develop a public relations program targeted at improving the image of the swine industry from a social and environmental perspective.

#### Recommendations for Further Research

It is the author's opinion that further study concerning the perceptions and attitudes of non swine producers and swine producers be addressed.

1. Additional study should be conducted toward identifying the most effective methods of providing producer education in respect to the changing swine industry in Oklahoma.

2. It would be beneficial to conduct a similar study in the states surrounding Oklahoma which have also experienced extraordinary growth in swine numbers. Understanding how attitudes and perceptions vary, would aid in the development of a

national data base concerning the modern swine industry involving constituent groups and would allow producers and nonproducers to work together in developing a more positive image of the industry.

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APPENDIXES

ANALYSIS OF THE DATA

APPENDIX A

TELEPHONE SURVEY

**1. Are you involved in production agriculture or agribusiness?**

Yes - production,  Yes - agribusiness,  No - neither

*(If no is answered, skip to question #3)*

**2. Are you a swine producer?**

Yes,  No

**3. Do you know that you live in a prominent swine producing area of Oklahoma?**

Yes,  No

**4. What is the length of time that you have resided in the community in which you currently live?**

Less than one year

1-3 years

4-7 years

8-15 years

16-20 years

over 20 years

**5. How did you become aware of the swine production facilities in your area?**

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*(If the respondent is a non swine producer, go to the text in the box)*

**6. Number of years involved in swine production?**

Less than one

1-5

6-10

11-15

16-20

21 years or more

**7. What is the ownership arrangement regarding your swine operation?**

Family/privately owned, Independent

Family/privately owned, Contract

Corporate production unit, Manager/employee

**8. Type of swine production unit?**

4-H or FFA project (youth)

Purebred swine/show pig production

Commercial farrow to finish

Sow operation producing nursery or feeder pigs

Finishing operation

Combination

**9. Size of the production unit?**

- 25 sows or less  
 26-50 sows  
 51-100 sows  
 101-300 sows  
 301-600 sows  
 601-1200 sows  
 1201 sows or more

**10. Number of hogs marketed annually?**

- 250 or less  
 251-500  
 501-1,000  
 1,001-2,500  
 2,501-5,000  
 5,001-10,000  
 10,001 or more

Before asking the next question, I want to explain a little more about the purpose of this research study. In recent years the Oklahoma swine industry has grown tremendously. Tonight, we want to ask your opinion of some corporate farming issues, to find out what you feel is most important.

Please respond to the following questions by answering strongly disagree, disagree, agree, or strongly agree. This is the first question of this section.

***Corporate Involvement*****11. Will corporate involvement eventually decrease the number of family owned swine operations in Oklahoma?**

SD  D  A  SA

**12. Corporate involvement will strengthen export demand for pork and pork products?**

SD  D  A  SA

**13. Corporate involvement/investment in swine production will enhance job opportunities in your community?**

SD  D  A  SA

**14. Corporate involvement increases the likelihood of legal implications and governmental regulations related to swine production units?**

SD  D  A  SA

***Social Issues*****15. Having a swine operation on or near your property causes problems for you in the community?**

SD  D  A  SA

16. Manure, odors, and other swine waste seem to be offensive to you and/or your neighbors?

SD  D  A  SA

17. Isolation of your own or your neighbor's swine operation would reduce public criticism concerning the production unit?

SD  D  A  SA

18. Swine operations located adjacent to public thoroughfares or high traffic areas should be required to erect visual barriers to reduce the likelihood of public criticism.

SD  D  A  SA

19. Instead of large production units with high concentrations of swine in one area, producers should be required to develop smaller production units located over a larger area at several locations?

SD  D  A  SA

20. Your community and neighbors perceive that today's modern swine industry provides economic benefits to the community?

SD  D  A  SA

21. What are your perceptions of the swine industry in your community? (Read the choices)

- It's a positive influence in this community  
 Some benefit to the community  
 No benefit to the community  
 It creates a negative image for our community

### ***Environmental Issues***

22. Confinement swine operations are major contributors to water pollution.

SD  D  A  SA

23. Farm animal waste is a major source of pollution in the rivers and streams located in your community.

SD  D  A  SA

24. Producers who pollute streams with animal waste should be financially penalized.

SD  D  A  SA

25. Producers who dispose of dead animals incorrectly should be financially penalized.

SD  D  A  SA

26. Swine operations are the major contributors of air quality problems in your community.

SD  D  A  SA

**27. Swine odors and air quality problems present health risks to the citizens of your community.**

SD  D  A  SA

**28. Do you have any further comments about environmental issues regarding the swine industry in Oklahoma?**

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*The next few questions are personal and your responses will be kept strictly confidential!*

**29. What is your age?**

- 18-25  
 26-30  
 31-35  
 36-40  
 41-45  
 46-50  
 51-55  
 56-60  
 61-65  
 66-70  
 71 years & over

**30. What is your primary occupation:**

- Production Agriculture  
 Medicine  
 Law  
 Education  
 Engineering  
 Oil & Gas  
 Builder/Developer  
 Agribusiness  
 Other (Specify) \_\_\_\_\_

**31. Level of formal education?**

- Less than high school diploma  
 HS graduate, GED equivalent  
 BS degree  
 MS degree  
 Doctorate  
 Other, (Specify) \_\_\_\_\_

**32. Ethnic background?**

- Caucasian
- African American
- Native American
- Asian
- Hispanic
- Other, specify

*And the last question:*

**33. Gender:**

- Male
- Female

Thank you very much for participating in this research study!



...the ... ..

**APPENDIX B**

**RESPONDENT COMMENTS**

Do you have any further comments about environmental issues regarding the swine industry in Oklahoma?

### Producers

“I think that providing more education will help improve the public’s perception of the swine industry.”

“Producers do a very good job of responsibly handling waste and odor.”

“I think that large corporate hog farms should develop digester systems to eliminate odor and waste problems.”

“Oklahoma swine producers have implemented the best management practices today. There is a lot of mistruth in the media. Producers wouldn’t jeopardize their own families just to raise hogs.”

“I understand the need to regulation, but I am afraid of being overregulated.”

“The Agriculture industry has been subject to a lot of criticism. Not only the animal feeding industry needs to be looked at.”

“The land is a gift of God. Why would we do something to intentionally harm it.”

### Nonproducers

“I don’t think swine odor is a problem. The chicken houses are worse.”

“Corporate farms should be regulated against.”

“The water supply is being ruined by leaking lagoons.”

“I am glad the legislature is trying to regulate swine farms.”

“I am afraid the swine farms will cause drinking water problems.”

“If hog farms are going to relocate, regardless where, they should be responsible citizens.”

Do you have any further comments about environmental issues regarding the swine industry in Oklahoma?

### Producers

"I think that providing more education will help improve the public's perception of the swine industry."

"Producers do a very good job of responsibly handling waste and odor."

"I think that large corporate hog farms should develop digester systems to eliminate odor and waste problems."

"Oklahoma swine producers have implemented the best management practices today. There is a lot of mistruth in the media. Producers wouldn't jeopardize their own families just to raise hogs."

"I understand the need to regulation, but I am afraid of being overregulated."

"The Agriculture industry has been subject to a lot of criticism. Not only the animal feeding industry needs to be looked at."

"The land is a gift of God. Why would we do something to intentionally harm it."

### Nonproducers

"I don't think swine odor is a problem. The chicken houses are worse."

"Corporate farms should be regulated against."

"The water supply is being ruined by leaking lagoons."

"I am glad the legislature is trying to regulate swine farms."

"I am afraid the swine farms will cause drinking water problems."

"If hog farms are going to relocate, regardless where, they should be responsible citizens."

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL

OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD  
HUMAN SUBJECTS REVIEW

Date: 05-02-97

IRB#: AG-97-021

Proposal Title: SWINE PRODUCERS AND NON SWINE PRODUCERS  
AND ATTITUDES TOWARD SELECTED SOCIAL AND  
ENVIRONMENTAL ISSUES REGARDING THE OKLAHOMA SWINE  
INDUSTRY

Principal Investigator(s): James D. White, Tracie M. Goodnight

Reviewed and Processed as: Exempt

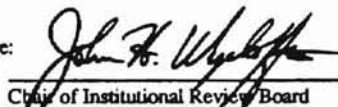
Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD  
AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING  
THE APPROVAL PERIOD.  
APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR  
PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE  
SUBMITTED FOR BOARD APPROVAL.  
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR  
APPROVAL.

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Comments, Modifications/Conditions for Approval or Disapproval are as follows:

Signature:



Chair of Institutional Review Board

cc: Tracie M. Goodnight

Date: May 6, 1997

VITA

Tracie Marie Goodnight

Candidate for the Degree of

Master of Science

Thesis: PERCEPTIONS AND ATTITUDES OF SELECTED SWINE PRODUCERS  
AND NON SWINE PRODUCERS CONCERNING CERTAIN SOCIAL AND  
ENVIRONMENTAL ISSUES

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Lafayette, Indiana on July 26, 1972, the daughter of Bernie and Sandy Goodnight.

Education: Graduated from Clinton Prairie High School, Frankfort, Indiana in May, 1990; received Associate of Science degree in Agricultural Business from Lake Land College, Mattoon, Illinois in May 1992, received Bachelor of Science degree in Agricultural Communications from Purdue University, West Lafayette, Indiana in May 1995. Completed the requirements for the Master of Science degree with a major in Agricultural Education at Oklahoma State University, Stillwater, Oklahoma in August, 1997.

Professional Experience: Research Assistant, Department of Agricultural Education, Communications, and 4-H Youth Development, Oklahoma State University, August 1996 to August 1997; Teaching Assistant, Department of Agricultural Education, Communications and 4-H Youth Development, Oklahoma State University, August 1996 to May 1997; Field Staff Representative, Ag Youth magazine, Sentinel, Oklahoma, September 1995 to July 1996; Production Assistant, Seedstock Edge magazine - publication of the National Swine Registry, West Lafayette, Indiana, May 1995 to December 1995; Student News Writer, Purdue University Agricultural Communications Service, West Lafayette, Indiana, December 1994 to December 1995; Media Relations Assistant, Indiana State Fair Commission, Indianapolis, Indiana, May 1994 to August 1994; Farm

Broadcast Intern, Agri America Broadcasting Network, Indianapolis, Indiana, May 1993 to August 1993; Farrowing Assistant Manager, Bobtown Pigs, Inc., Seymour, Indiana, May 1992 to January 1993; Farrowing and Nursery Manager, Ivan Miller & Sons, Inc., Nokomis, Illinois, August 1991 to December 1991; Youth Ambassador, Indiana Pork Producers Association, Indianapolis, Indiana, December 1991 to December 1992.

Professional Memberships: American Association for Agricultural Education, Alpha Tau Alpha, Collegiate FFA, Agricultural Education Graduate Student Association, National Agricultural Communicators of Tomorrow Association.