PERCEPTIONS OF OKLAHOMA RESIDENTS TOWARD THE EXPERIMENT STATION FUNCTION OF THE OKLAHOMA STATE UNIVERSITY DIVISION OF AGRICULTURE

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TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Since the passage of the Hatch Act of 1887, experiment stations have operated in conjunction with land grant institutions across this nation in providing vital research in agriculture to benefit millions of people. The Oklahoma State University is one example of a land grant institution which conducts research through the agricultural research station concept. The research arm, the Agricultural Experiment Station, at Oklahoma State University is a broad-based research program with goals which are to support the agricultural industry of the state and to improve the social and economic status of the people in Oklahoma.

Colvard (1) indicated:

> The great challenge to our universities is to engage actively in research, to discover and measure the forces which create our progress and change, to suggest opportunities for adjustments to those people involved, and to build up a sufficient backlog of knowledge to keep this nation strong in a time when the whole world is becoming research minded. Research is the fountainhead of our progress. We must have more of it (p. 18).

It would seem, according to Colvard, that the progress of the nation depends upon research and that quality research is dependent upon the universities. Whatley (2), Director of Experiment Station Research at Oklahoma State University, stated:

> The ultimate beneficiary of this research is the consuming public benefiting from highly nutritious and healthful food, natural fibers for clothing, and quality forest products for homes, furniture, paper and other uses, all at reasonable cost (p. 1).

If Colvard and Whatley are correct in their analysis of the need for and benefit of research to the general public, it would seem reasonable to assume that the general public should have some perceived awareness of the agricultural research done in their state and, more precisely, awareness of the Agricultural Experiment Station research done in the Division of Agriculture at Oklahoma State University because of its impact and economic importance to the quality of life of all Oklahomans.

Governor James B. Hunt (3, p. 4) of North Carolina indicated, "The contributions of agricultural research to our national well-being represent one of the greatest success stories in the history of civilization. It is a story that has largely been untold." The attitude expressed by Governor Hunt seems to state that the agricultural experiment station research story has not been very well told.

Statement of the Problem

Some have suggested that the experiment station is a secluded entity, "a story untold," and therefore, it is not available to the general public. Because of this, the general awareness and understanding of the function of the experiment station might be low among the people it strives to serve. This expressed attitude seems to give importance to determining the perceived awareness of the experiment station by the Oklahoma public. Given the goals of the experiment station, a perceived awareness study of the people of Oklahoma toward the Oklahoma State University Experiment Station would lend some justification and/or accountability to the program of research.

Purpose of the Study

The primary purpose of this study was to determine a base-line perceptional awareness by Oklahoma residents of the Agricultural Experiment Station in the Division of Agriculture at Oklahoma State University and to compare that perceived awareness among groups comprising different incomes, job classifications, ages, racial/ethnic backgrounds, sex categories, and education of the general public of Oklahoma.

Research Hypotheses of the Study

In order to accomplish the purpose of this study, the following research hypotheses were developed:

1. The level of awareness of the Oklahoma State University Experiment Station increases as the income of the general public of Oklahoma increases.

2. The level of awareness of the Oklahoma State University Experiment Station increases as the age of the general public of Oklahoma increases.

3. The level of awareness of the Oklahoma State University Experiment Station is higher among the general public of Oklahoma whose occupation was agriculture or agricultural related as compared to Oklahomans whose occupation was business or labor.

4. The level of awareness of the Oklahoma State University Experiment Station is higher among Oklahomans who perceived a direct involvement with agriculture than those Oklahomans who perceived no involvement with agriculture.

5. The level of awareness of the Oklahoma State University Experiment Station increases as the number of years of schooling increase.

6. The level of awareness of the Oklahoma State University Experiment Station is higher among white majority residents than other minority, racial/ethnic groups.

7. The level of awareness of the Oklahoma State University Experiment Station is highest among male members of the Oklahoma population.

8. Residents of Oklahoma who perceived food prices to be higher without agricultural research were more aware of the Oklahoma State University Experiment Station than those Oklahomans who perceived prices to be lower.

9. Residents of Oklahoma who perceived that the Oklahoma public had a large amount of input in determining agricultural research efforts at the Oklahoma State University Experiment Station had a higher level of awareness than those who perceived low public inputs.

10. The percentage of Oklahomans who indicated awareness, at any level, of the Oklahoma State University Experiment Station identified reading to be their main source of information concerning research at Oklahoma State University.

11. Residents of Oklahoma whose occupation was agriculture or agricultural related used research more times than residents involved in business or labor occupations.

Rationale for the Study

The primary aim of the Hatch Act of 1887 was to provide each state with an agricultural experiment station. Congress declared that experiment stations were created "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects

connected with agriculture" (4, p. 404). Each of the states accepted the challenge and determined to meet the intentions of the Hatch Act. Today, those attitudes are still prevalent.

This rationale is apparent in the 1979 annual report of the Oklahoma Agricultural Experiment Station which stated that:

> Problem-solving is the name of the game at the Oklahoma Agricultural Experiment Station (OAES). The major purpose of the facility is to serve the people of the state, who often bring problems to OAES personnel. The people, through advisory committees, help evaluate needs and establish priorities for the researchers.
>
> Serving the people of Oklahoma means helping to provide an adequate supply of high quality food and other farm products. It means assisting agricultural industries, with a goal of good financial returns from agriculture. It means encouraging wise use of natural resources, for the benefit of both the public and the agricultural industries (2, p. 1).

The purpose is further defined by a recent publication of the North Carolina Agricultural Experiment Station which stated that "the mission of the station is to service and support the citizens of the state, their industry and agriculture, their environment, and their educational, social and governmental institutions (3, p. 5).

Anderson (5) draws a clear focus on the university's responsibility:

> . . . a major university has a responsibility to extend itself beyond the campus. The university is a resource that belongs to the people and it should be concerned with extending its service to every citizen of the state. We must realize that we cannot be all things to all people, but we should strive to develop those areas in which an excellence can be achieved that will produce benefits in terms of our citizens' needs. . . . Priorities must be established in terms of the needs of society (p. 108).

Considering the importance of serving the people, meeting their needs, and the requirement of diffusing the research station findings

among the people, the question that arises is: Are we informing the people we are serving?

Neville P. Clark (6), Director of the Texas Agricultural Experiment Station, said:

> Communicating the research results to the various publics is a continuing priority for the Texas Agricultural Experiment Station, the state's agricultural agency. These publics include potential users such as mass media representatives, agricultural producers, agri-business and other industries, scientists, county extension agents, extension specialists, and the general public.
>
> The overall information program is designed to keep everyone informed about the progress and status of the station's research programs and to help maintain an awareness of current technology . . .
>
> All the communication efforts are designed to help Texans understand science and research better (p. 29).

It is apparent that land grant institutions are concerned with "supporting, benefiting, and informing" the public which they strive to serve. With all these efforts and concerns, the question still unanswered is: Are we keeping the general public informed--are they aware?

Because of the attitude expressed by Hunt (3) and others, it was important to undertake a base-line research effort in order to establish the awareness of the experiment station as perceived by the people it serves. It was felt that answering the question, "Is the general public aware?" was timely and appropriate as we begin a new decade in agriculture and agricultural research in Oklahoma.

Assumptions and Limitations of the Study

Assumptions

For the purpose of this study, the following assumptions were made:

1. People from all socio-economic levels in Oklahoma have access

to a telephone or telephone service. Those excluded from the telephone survey would be lower socio-economic and minority ethnic groups.

2. The telephone survey instrument adequately assessed the awareness of individuals toward the experiment station at the Oklahoma State University.

3. Individuals represented among occupational classifications were representative of others in that same classification.

Limitations

The following limitations of the study were recognized:

1. The population of this study was restricted to the state of Oklahoma.

2. In order for an individual to be included in the sample, they would have to have access to a telephone, be listed in a directory of telephone numbers in their community, and not had telephone service interrupted in their area for any great length of time.

3. Individuals who had new listings of unlisted numbers were automatically excluded from the sample.

Definition of Terms

In order to avoid possible misinterpretation and to enhance continuity, the following words are defined:

Awareness: Aware usually implies vigilance in observing or in drawing inferences from what one sees, hears, etc. Awareness in the context of this study will indicate an expressed knowledge of the Oklahoma State University Experiment Station possibly acquired through reading, hearing, or personal observation.

Agricultural Experiment Station: In accordance with the Hatch Act:

> That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments . . . bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories (4, p. 404).

The agricultural experiment station is the research arm of the Division of Agriculture at Oklahoma State University.

Perception: A direct acquaintance with anything through the senses which indicates knowledge or understanding of objects recognized through those senses.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to present a brief review of literature of the history of the Experiment Station and, specifically, the history of the Experiment Station at Oklahoma State University. Additional sections in the review, the Experiment Station and Resident Instruction, the Experiment Station and the People, and a brief review of indirectly related research, were included for clarification in defining the purpose of this study.

History of the Experiment Station

No one other element in history has played such a major role in man's development and progress than agriculture. Agricultural research has been the key to man's survival since he began to depend on the land for food and clothing. According to VandeBerg (8, p. 1), "History clearly shows that no country, no industry, no agriculture, no people can develop and progress without a major commitment to research and its practical application--education!" The progress and growth of agriculture has in turn depended on research. That research has in part come from the establishment of agricultural research stations.

Several acts played key roles in the establishment and development of the agricultural experiment station. The legislation which was passed in the late 1800's would play a vital role in determining how

agriculture would progress and what role experimentation would play in that progress.

The agricultural experiment stations had their beginning in the Organic Act of 1862. The Act of May 15, 1862, which established the United States Department of Agriculture, was the first major step in providing research and research stations to help American farmers. The importance of the United States Department of Agriculture is outlined by VandeBerg (8) in A Report of the National Extension Committee on Organization and Policy.

> The USDA played a very significant role in bringing about an affluent and educated American society. That department's initial functions of research and extension were and are highly accepted by the public, as evidenced by the 3,000 counties of the nation which have provided increasing financial support since the beginning.
>
> From its beginning, the core of the USDA was the research and extension education function. This education brought to the people on the land productivity, efficiency, hope and improved quality of life.
>
> The only lasting influence to help people improve their lot is a combination of sound, practical ideas and understanding put to use (pp. 1-2).

From the impetus of USDA legislation, the Morrill Act of July 2, 1862, donated public lands for establishing colleges of Agriculture and Mechanical Arts. According to a United States Department of Agriculture (9) publication on State Agricultural Experiment Stations:

> . . . the Morrill Act became the first Federal legal authority under which the cooperative features of today's nationwide agricultural research system was to develop. In the framework thus established, it became possible to cultivate further the concept that the problems of farming were primarily problems of man understanding nature. To do the latter required scientific knowledge. And to acquire and interpret scientific knowledge in the light of the many localized farm problems, required a new kind and quality of education. The land-grant institutions were established to provide such education and training (p. 3).

Once the land-grant institutions were established and the need for a better understanding of agricultural research applied to the local farming need was apparent, land-grant institutions took on a broader role. This need was recognized and supported in A History of Research Policy and Procedure by the Cooperative State Experiment Station Service by the United States Department of Agriculture (9).

> The necessity confronting the land-grant colleges was the solution of agricultural problems. For many years farmers had heard the word 'experimentation'.
>
> The modern type of agricultural experiment station, although of European parentage, . . . was perfected in the United States under the USDA--land-grant system. It represents a combination of systematic research carried on by qualified scientists in a laboratory, combined where necessary with extensive and repeated field trials, and wide dissemination of findings through scientific publication and demonstration of new practices accruing from the research. This organizational pattern of experiment stations grew out of the discussions of the agricultural societies and subsequently out of the debates and trials of the early land-grant institutions (p. 4).

It was the Hatch Act of 1887 that established and granted appropriations for the system of experiment stations across the nation. The act was accepted and passed in the House, but it was in the Senate that the act encountered difficulties. After fiery debate in January of 1887, and several amendments later, the Hatch Act was passed and became law on March 2, 1887. "The Hatch Act produced the land-grant college stations and, in the process, a new president for Federal-State cooperation in agricultural research" (4, p. 52).

The importance of the relationship between the Federal and State agencies was apparent in the wording of the Hatch Act:

> Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific

> investigation and experiment regarding the principles and applications of agricultural science, there shall be established, under direction of the college or colleges or agricultural department of colleges in each state or territory established, or which may hereafter be established, in accordance with the provisions of an act approved July second, eighteen hundred and sixty-two, entitled 'An Act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts,' or any of the suppliments to said act, a department to be known and designed as an agricultural experiment station: . . . (p. 404).

The importance of the Hatch Act is still relevant to our society today just as it was in 1887. Speaking to members of the USDA Joint Council on April 10, 1979, Congressman E. de la Garza of Texas, as quoted by VandeBerg (8), said:

> Wide recognition of the importance of agriculture to mankind's future is developing rapidly, not only in the field row but in the city streets. Much less recognized are the problems of and limitations to substantially increasing output in the ways of the past. We must concentrate on efficiency of agriculture. We must find new ways to get more from each acre at less cost--whether measured in dollars, energy, or some other methods. Simply put, we must make reasonable additional investments in research so that major breakthroughs can be made.
>
> As this nation enters its third century, it is evident that agriculture will continue to contribute greatly to the economic stability of the nation. By the turn of the century we will have less prime agricultural land available, the same amount of fresh water will fall from the skies, yet we will need to produce a third more food for our domestic needs, find ways to dispose of millions of tons of solid waste each year and conserve the natural resources at our disposal. Furthermore, burgeoning world populations and rising affluence will create opportunities for increased agricultural export. Therefore, we must improve the efficiency of American agriculture if we expect to meet our needs and capitalize on the opportunities available to us. Obviously, this will demand that we make additional investments in agriculture research and education programs (p. 4).

This attitude and commitment expressed by Congressman de la Garza was voiced by President Carter, in his March 27, 1979, message to the Congress transmitting a science and technology policy for the future:

> The health of our economy has been especially tied to science and technology; they have been key factors in generating growth, jobs, and productivity through innovation . . . basic research also is the forerunner of new inventions, advances in health care, nutrition and agricultural production, many new products of commerce, and new technologies for defense, space, energy, and environmental protection.
>
> The partnership between the federal government and universities needs renewed attention. . . . We must allow flexibility both for the government agencies and for the research institutions. . . . Few state and local governments alone can support the research and development needed to mount a broad-scale effort at problem solving.
>
> Finally, if we are to make the best use of our scientific and technological progress, we must maintain continuity and consistency in our support and policies. This nation's scientific capability is the greatest in the world, but it will not remain so in an environment of uncertainty and changing priorities and policies. We must recognize that it takes many years to train new scientists and to complete some research projects.
>
> The Congress and the Administration must join in recognizing the long-term nature of many research and development activities. Together we must provide the necessary assurances and commitments (8, pp. 4-5).

The current and continuing importance of experiment station research was evident in subsequent legislation following the Hatch Act of 1887. The subsequent legislation was enacted to expand and define the role of the station in land-grant institutions. Such acts as Adams Act, 1906; Purnell Act, 1925; Bankhead-Jones Act, 1935; Research and Marketing Act, 1946; Agricultural Trade Development and Assistance, 1954; Food and Agriculture Act of 1977; and others have increased appropriations of funds and authorized research with foreign countries in order to increase the effectiveness and impact of the experiment station on the lives of the people it strives to serve.

A Brief History of the Experiment Station at Oklahoma State University

After the Hatch Act of 1887 was passed, it was only a few short years until the Agricultural and Mechanical College at Stillwater was established. The establishment of the college and Oklahoma Experiment Station were simultaneous in 1891.

Neal (10), in the first Oklahoma Experiment Station Bulletin, outlined carefully the detailed organization and the proposed lines of investigation of which the station would be involved. Gilmore (12) wrote:

> The general basic structure for the program of the Oklahoma station took shape during the last years of the nineteenth century. Activities seemed to have followed closely the intent and letter of the Hatch Act, the interests and points of view of the staff, and the wishes of farmers for quick answers to their problems (pp. 22-23).

The problems of the farmers during the early years of the experiment station encompassed wide variations in farming practice. As a result of this, the emphasis during the beginning years of the Oklahoma station was directed toward diversified farming rather than the specialized farming. Some of the early trials were conducted on forest and fruit tree varieties. As the need for more investigations grew so did the size and variety of trials conducted by the Oklahoma Experiment Station. The experiments were broadened to include vegetables, wheat, and grasses.

There was a constant need for buildings and laboratories. The first money provided came on June 30, 1892. "The station had $3,000 for the construction of buildings, a sum which allowed for the erection of an office and residence for the director, a chemistry laboratory,

stables and store houses, and a cottage for a farm superintendent" (11, p. 7).

The early years were not totally without blemish. Internal problems and legislative investigation caused a dark period for the station. President Alvord (11) implied that the college was one of those involved in using funds for instructional purposes rather than for research.

The years from 1900 to 1920 saw additional growth and new areas of research begun. Some of the changes which resulted during these years were the direct reflection of legislation such as the Adams Act, the Smith-Hughes Act, and the Smith-Lever Act. (A more detailed review of the impact of the Smith-Lever Act can be found in the section described as a brief review of indirectly related research.)

The development of the Oklahoma State Experiment Station during the twenties, thirties, and forties was described by Gilmore (12):

> . . . was directly related to the additional national legislation in each of those decades and to the amounts of direct appropriations from the state legislature. The Purnell Act, the Bankhead-Jones Act, and the Agricultural Research and Marketing Act each provided research orientation, allowed for expansion of the staff, contributed to the procurement of added facilities, and were responsible for a number of important research accomplishments. Research interests and research facilities were greatly expanded. Investigations included all of Oklahoma, except the Panhandle with its own experiment station, through the use of pilot farms and special stations located in the special farming regions of the state (p. 288).

The fifties and sixties saw more advancement and significant developments such as the discovery of a vaccine for anaplasmosis. The second Hatch Act provided more funds for expansion and more experimentation.

The Experiment Station has continued to grow and develop and to provide more benefits to the consumer. The influence of the Oklahoma

Experiment Station was best described by Gilmore (12) in his conclusion concerning the history of the Oklahoma Experiment Station:

> The Oklahoma Agricultural Experiment Station has been an important division of the college and university. Its field of usefulness has centered in the advancement of knowledge through systematic experimentation and investigation (p. 289).
>
> Despite inadequate financial support, political manipulation, and occasional misplaced research emphasis, the Oklahoma Agricultural Experiment Station has done an admirable service for agriculture in the state and region. With further expansion and larger perspective, the station can provide even greater service (p. 296).

Through this brief review of the history of the Experiment Station, it was apparent that station research was always concerned with improving the quality of life and increasing the benefits to the consumers in Oklahoma. Gilmore (12, p. 296) reported, "Research activities of recent years have been of a nature to serve the general public as well as the farming community."

The question we must ask as we enter the 1980's is: Is the general public in Oklahoma aware of the Experiment Station's efforts to serve their needs?

The Experiment Station and Resident Instruction

The teaching function is central to any institution of higher education. The concept of higher education constitutes in-depth study based in part on research and its application. This interaction is the basis for new knowledge. The land-grant institution would be included in this interaction between research and instruction. Anderson (4), Director, Mississippi Agricultural and Forestry Experiment Station, said:

> An excellent teaching program is central to a mission of a land-grant university. Research and service are complementary and necessary activities, and a major university must also develop excellence in these areas to enhance the vitality of the

> undergraduate teaching program. Furthermore, great emphasis should be placed on the development of excellence in graduate education, and the graduate programs should go hand in hand with the research efforts (p. 108).

The coordination of research and instruction are evinced in the opinions of such men as Colvard (1), President, Mississippi State University, when he stated:

> The very fact that we have colleges of agriculture makes the assumption that research, resident teaching and extension in agriculture should be coordinated . . . many of our research scientists and teachers hold joint appointments [which] argues that most of us think this plan has merit and that coordination is involved (pp. 69-70).

The relationship between research and teaching was apparent during early legislation. Legislation establishing the 1890 land-grant institutions provided, through the so-called Granger Amendment, instructional aids to the college instructional program. This same spirit of cooperation between the functions of research, instruction, and extension is defined by the United States Department of Agriculture's (13) Evaluation of Economic and Social Consequences of Cooperative Extension Programs:

> The colleges of agriculture at all land-grant institutions, and the colleges of home economics at many of them, have a three-fold function--the academic affairs division to provide the resident teaching of undergraduate, graduate, and special program students; the Extension division for off-campus instruction; and the research program for the development and evaluation of knowledge and technology.
>
> Cutting across these three divisions of work are subject matter departments with each department carrying out the three functions of research, Extension, and resident instruction (p. 13).

One of the goals of resident instruction at Oklahoma State University's Division of Agriculture is to foster the pursuit of knowledge through the interaction of rational inquiry, discourse, and research (14).

In summary, the cooperative relationship between the research program and instruction was described best by Anderson (5) who said:

> The research program can and does contribute greatly to the teaching effort through the sharing of equipment purchased for use in the various research programs. Generally, the experiment station director or the department head has more discretionary money than the dean. In the purchase of research equipment, a special effort should be made to purchase equipment that will have utility in both the teaching and research programs.
>
> The research effort benefits from being associated with teaching for a number of other reasons: we are able to attract many competent staff to research we would not be able to if we were not associated with the teaching effort; graduate students contribute greatly to the research program and if we did not have a teaching program, there would not be a graduate program; research flourishes best in an academic environment and if we were not associated with the academic program, we simply would have more difficulty in creating that environment.
>
> Teaching and research are compatible and interdependent. They flourish best in an environment which recognizes flexibility at the departmental level. The department is where the action is in both teaching and research, and we must create and maintain an environment which is conducive to both (p. 109).

What benefit is the relationship between the research and instruction functions in land-grant institutions? It seems that the most beneficial aspects of this relationship would be to the people of the states in which land-grant institutions strive to serve. The unanswered question posed by this relationship asks: Is the Oklahoma public aware of the contribution of research to the state, its institutions of higher learning, and its people?

The Experiment Station and the People

The service aspect of the experiment station as stated in the Hatch Act, "in order to aid in acquiring and diffusing among people of the United States useful and practical information on subjects connected with agriculture" (4. p. 404), has always been of primary importance to the

experiment stations. This importance was underscored by section four of the above-mentioned act:

> That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the state or territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit (4, p. 404).

A major area of concern of state experiment stations recognized from the beginning was that the communication of research results were a vital part of each station's responsibility. In the first annual report of 1883, by Sturtevant, as reported by the United States Department of Agriculture (9) in A History of Research Policy and Procedures, he indicated:

> The province of an agricultural experiment station is not so much the discovery of new facts as it is the testing of applications and the theory of relations. Its ultimate object is to give expression to values which shall assist the farmer in the largest sense in meeting and overcoming the various obstacles which arise in the practice of his pursuit. . . . The duties of an agricultural experiment station comprise dissemination as well as investigation. To bring its experiments before the public, not alone through its annual report, but as well in other ways, is a duty that could not be neglected (p. 143).

In order to avoid negligence in getting the results before the public, many studies have been conducted on publications and their usefulness. In 1940, Director Fred Griffee, of the Maine Agricultural Experiment Station, reported in A History of Research Policy and Procedures (9), undertook a nation-wide survey of experiment station publications. The following suggestions were compiled from 51 stations:

> That encouragement be given for the standardization of station publications and that fewer types be published. The list is (a) Annual Report, (b) Bulletin, (c) Technical Bulletin, (d) Special Reports, (e) Regulatory Bulletin, (f) Miscellaneous Bulleting, (g) Journal type, and (h) Periodical type.

> That the numbers of copies printed of each bulletin be sufficient to supply the needs of the people who can be served from the standpoint of the best interest in agriculture.
>
> That the station mailing list should include the name of every farmer in the state who desires his name included; or, some other means be devised to make it possible for any farmer to obtain any bulletin he can use to advantage.
>
> That bulletins be sent only on request, except to college and station libraries, public libraries, county agents, agricultural teachers in high schools, foreign libraries, and such individuals and agencies as is required by Federal Acts.
>
> That a news story accompany bulletins sent to newspapers.
>
> The inclusion of United States Department of Agriculture publications in Station lists should be a matter for the two agencies to work out cooperatively.
>
> Joint publications of the experiment station and extension service can be an asset to both agencies (p. 150).

As a result of these early studies, directors of the experiment stations were advised in 1959 "that scientific research in various phases relating to agricultural communications had been given project status" (9, p. 151). This increase in project status and public relations gave rise to new endeavors by experiment station personnel to get their message to the people.

> The founders of the experiment station movement insisted on popular publications in part because those leaders accepted the reality that the stations required public support. The role of 'public relations,' i.e., the interplay between direction of tax-supported institutions and the tax-paying public in influencing the selection and guidance of research activities, is a subject that requires separate study and treatment (9, p. 152).

This idea of public relations became even more prominent with the organization and growth of the land-grant colleges. As the land-grant institutions grew and their service to the public were expanded, the need for a more informed public made publicity essential.

In 1920, Director F. D. Farrell reported: "In order to place the results of station work effectively before the public and to keep it advised of what is being done, it is believed that more definite provision for publicity might often be made with advantage" (9, p. 154). Director Farrell pointed to the fact that there were varying degrees of support for experiment stations among the states. He listed some facts that had a bearing on the question of popularizing experiment stations. He made the following conclusion:

> However irksome it may be to station people to take the pains consciously to popularize experiment station work, the necessity of doing it seems inescapable. To secure the desired popularization requires the devotion of time, effort, and money to activities which are in no sense experimentation or research. If these activities are neglected, we cannot be sanguine about the future of our experiment stations. We are confronted by facts which may be distasteful to many of us, but our duty as servants of American agriculture is perfectly clear.
>
> It is doubtful whether the American people ever make a better investment than they make when they appropriate funds to support agricultural experiment stations. But this fact is unknown to most of the people for whom and by whom the stations are maintained. We need to take advantage of every opportunity to impress the public with the facts. This probably cannot be done by any single method. . . . The public can be relied upon to support an institution which it is convinced it wants (9, p. 154).

The importance of experiment stations as perceived by the American public is often questioned. Rummell of Ohio addressed this question:

> Surveys among farm families have shown that they do not fully appreciate agricultural research and what institutions do it. Urban residents still look upon research as another farm subsidy. They do not appreciate the fact that research is an investment that pays rural America, it is true, but at the same time, all citizens benefit by abundant, economical food and fiber (9, p. 175).

Several economic impact studies have shown that research is an investment and the returns to the American public are of extreme benefit

to rural and urban citizens. Researchers such as White and Havlicek (15); Evenson, Waggoner, and Ruttan (16); Araji, Sim, and Gardner (17); and Havlich and Otto (18) have shown that the nature of agricultural research is such that transfers between states and regions of experimental results make it difficult for the consumers to understand the benefits to them personally. The benefits are in such small amounts that the consumer cannot feel the connection.

"When dealing with intangibles such as improving individuals and quality of life," Havlicek and Otto (18, p. 5) indicated, "it is difficult to ascribe the monetary benefits from this type of research." These types of intangibles make it even more difficult to evaluate the awareness of individuals as to the need and contribution agricultural research has had on their individual lives. Araji, Sim, and Gardner (18, p. 968) reported "20% to 60% of the expected returns to public investment in agricultural research will not be realized without extension involvement." It is evident from these types of data that the communication of agricultural research is essential for a better understanding of the impact on each consumer.

Rummell goes on to say:

> . . . there are more communication tools today (as compared with the days when the Morrill and Hatch Acts were signed) to tell the story of agricultural education and research to the public. Surveys among farm families indicate the farm publications, state and national, are the principal sources of information to change farm practices. Extension agents, experiment station publications, field days and demonstrations have likewise been important. Newspapers, radio and television are newer media and likewise helpful, although to a lesser degree.
>
> Agricultural colleges and experiment stations may well take frequent self-appraisal, to see ourselves as others see us. We do not hit the target as often as we dream. This inbound flow of communication is as important on this two-way

> public relations street as what we send out to the public (9, p. 176).

The important questions which must be asked are: Do people appreciate the results of agricultural experimentation on their lives? Are they aware of the experiment station and its impact on their lives? These questions are concerns which are expressed by many and need answers. In a centennial publication of the Agricultural Experiment Station (19) by Kansas State University, they asked:

> How many Kansans are really aware of the extent of the influence of Kansas Agriculture, and indirectly, if not directly, of agricultural research, on the lives of people, nationwide and world-wide? . . . to understand and appreciate the experimentation process, to know how research and land use complement each other, to become conscious of the influence of agricultural pursuits on all our lives--whether we live on a Kansas farm or work in the tallest office building in New York City . . . (n.p.).

The Texas Agricultural Experiment Station expresses the same concern:

> . . . to keep everyone informed about the progress and status of the station's research programs and to help maintain an awareness of current technology . . . the communication efforts are designed to help Texans understand science and research better (6, p. 39).

In a study by Gilmore (12), it was pointed out that:

> Although the Oklahoma Agricultural Experiment Station had contributed much to the prosperity of the state . . . and despite the fact that agricultural research was viewed by the general public as important . . . the general public were not aware of direct effects of research on the consumer's standard of living (p. 286).

Indirectly Related Studies

A significant development for the Experiment Station came on May 8, 1914, with the passage of the Smith-Lever Act. One of the major responsibilities of the Smith-Lever Act was to transmit information to the

public. That responsibility was clear in the wording of the Act: that in order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same. There may be inaugurated (in conjunction with the Land-Grant Colleges) agricultural extension work which shall be carried on in cooperation with the United States Department of Agriculture.

The goal was to deliver to the people the information provided through research in order to implement that research into practical application. In a Report of the Joint USDA-NASULGC Extension Study Committee, it was said the Smith-Lever Act established a nation-wide system, subject to state variation, by which knowledge could be transmitted from researchers directly to the people (21). It provided that the people served should be encouraged to put knowledge to use in a practical manner.

The relationship between the Experiment Station and the extension service has been invaluable in achieving the goals set out by statutes and legislative policy. A report by Hoffert (22), entitled The American States and the Cooperative Extension Service, said one of the basic principles which has directed the development and expression of the "Extension Idea" is that the Extension Service is to be research based, addressing people's problems with the relevant assistance of the most up-to-date investigations of the University. Through the years, this principle has guided Extension programs and the people who implemented them. The history of the Extension Service is marked by a succession of problems ultimately solved or limited by the application of research

based information delivered to the people of the 50 states in their local communities by various Extension programs.

This relationship was defined further in a Report of the Joint USDA-NASULGC Extension Study Committee (21). If the cooperative Extension Service is to effectively perform a broadened program function, it is imperative that all research at the university be available to Extension. Likewise, Extension will be responsible to the university to provide advice regarding problems on which research is needed.

University research must be attuned to needs of people. Extension personnel can be extremely important both in communicating the research results to the public and in attuning the university staff to research needed by the public.

This relationship between the Experiment Station and Cooperative Extension Service was used in an effort to identify studies of awareness, impact, or perceptions of general publics toward the Cooperative Extension Service and/or Experiment Station to support the objectives of this study.

Several studies were identified which were indirectly related to the objectives of this study. Researchers such as Slocum (23), Coleman (24), and Nielson and Crosswhite (25) examined the relationship of contact, knowledge, and level of contacts with the extension service. The conclusions reached by Nielson and Crosswhite (25) indicated that the more informed the farmer or individual was with the program the more involved the individual would be in the program. Slocum (23), in a research investigation of individuals having low contact with Extension, discerned that:

1. Men with low Extension contact had the following characteristics:

a. Lower educational levels,

b. Lower economic status,

c. Lower levels of living,

d. Lower formal social participation,

e. Lower informal social participation,

f. Lower use of other sources of information,

g. Had no children at home,

h. Depended only partially on farming for a living.

2. Women with low Extension contact had the following characteristics:

a. Lower economic status,

b. Lower formal social participation,

c. Had young children at home.

In a study by Coleman (24), analyzing factors influencing Extension contact, it was concluded that:

1. Nine out of 10 persons recalled having heard about Extension but only 3 out of 10 were able to recall the name of the agricultural agent.

2. Less than one-half of the households had had a direct contact with the Extension program.

3. Three-fifths of the smaller farmers had never had contact with the county agricultural agents as compared with only one-fifth of the larger farmers who had not had contact, thus showing a direct correlation between size and contact.

4. Amount of participation in local organization (outside of Extension) had a direct correlation with the amount of Extension contact.

The findings of Coleman (24) were summarized as follows: The data indicated that there is a direct association between education and the extent of contact with the Extension program--in other words, the persons already best educated are the ones most often reached by Extension, and those presumably most in need of Extension services are least often reached.

Through studies like these it could be assumed that awareness of a program has some influence on the use of that program. The awareness of a program would give indications as to the purpose of those programs as perceived by the public. In a study by Lawson (26), cotton farmers were asked the purpose of the Cooperative Extension Service as an organization. Lawson found that Extension involvement and education was significantly associated with understanding the purpose of Extension work. Lawson stated that the younger, more involved, higher educated, and larger farm operators tend to see Extension's purpose as interpreting results of research; while the farmers who see Extension's purpose as providing answers to specific problems tend to be older, less well educated, smaller farm operators, and not too highly involved with Extension.

The close relationship between the Cooperative Extension Service and the Agricultural Experiment Station causes questions to be asked concerning the research station and its availability to the public and the usefulness of the information to the public. Does the Agricultural Experiment Station have the same level of involvement as the Cooperative Extension Service based on demographic data such as age, income,

educational level, and relationship to agriculture? Do the people understand the function of the Agricultural Experiment Station? This is the basic question which must be answered: Are the people aware of the Agricultural Experiment Station?

Summary

The review of literature for this study contained sections on the History of the Experiment Station and the History of the Experiment Station at Oklahoma State University. In addition, sections were included on Experiment Station and Resident Instruction, the Experiment Station and the People, and a brief review of Indirectly Related Research.

The history of the Experiment Station has been a long beneficial history. The improvements in crop production, animal health and care, and advancements in technology to support agricultural industry have been phenomenal. The rapid developments and growth of the agricultural industry have resulted in American farmers not only being able to feed themselves but millions of others around the world. The contributions which can be tied directly to the Experiment Station research are too numerous to mention.

The main thrust of the experiment station nation-wide and in Oklahoma is to serve people for which it was created and for whom it was intended. The application of research results by farmers was the basic intent of legislation. In the beginning of the experiment station, one of the major goals was to provide local farmers, given local environmental conditions, the most practical information in order to increase production and profit. The result of this effort was to make available to the consumer (general public) cheaper, higher quality, and nutritious foods.

Agricultural experiment stations have accomplished that goal and extended the benefits of their experimentation to all people regardless of their relationship to agriculture.

In 1914, the Smith-Lever Act established the Cooperative Extension Service whose goal it was to deliver the results of experiment station research to the people of the state. Several studies have been done in regard to the effectiveness and perceptions of the clientele served by the Cooperative Extension Service. Those studies involved clientele such as cotton farmers, dairy farmers, and farmers in general. These studies identified several characteristics of clientele which were served by the extension service. The results are widely publicized and readily available and documented in this review of literature.

Through this review, it was determined that there was insufficient research in the area of general public perceptions, attitudes, and awareness toward the cooperative extension service and the agricultural experiment station.

The question which was apparent throughout the review of literature asked: Are the people aware of the agricultural experiment station, and more specifically, are the people of Oklahoma aware of the Oklahoma State University Agricultural Experiment Station?

CHAPTER III

DESIGN AND METHODOLOGY

The purpose of this chapter is to illustrate the methods used and the procedures followed in conducting this study. In order to collect data which would provide information relating to the purposes and objectives of this study, the sample was determined and the instrument was developed for data collection. A procedure was established for data collection and methods of data analyses were selected. Information was collected during the spring of 1980.

The design and methodology for this study was developed concurrently with two additional research efforts. This research was one part of a three-part research project. The telephone survey instrument developed for the project was designed concurrently to elicit information concerning Resident Instruction, Experiment Station, and Cooperative Extension in the Division of Agriculture at Oklahoma State University.

The Sample

The sample for this study was derived from the entire population of the State of Oklahoma. To accomplish the purpose of this study, it was considered unfeasible, from the standpoint of time and money, to attempt to survey the entire population. Therefore, a method for selecting a sample size for an infinitely large population (2.88 M) was obtained from Cochran (27), in his book entitled Sampling Techniques. The formula is:

$$n = \frac{\frac{t^2PQ}{d_2}}{1 + \frac{1}{N}\,\frac{t^2PQ}{d_2} - 1}$$

Due to the need for an accurate representation of the entire population a confidence level of .98 was chosen, which would allow generalization back to the population (State of Oklahoma). The formula showed a representative sample of 2,401 would provide the required sample size to insure the confidence interval needed.

Sampling Procedure

The sampling procedure selected was a stratified random sampling technique. The sample was stratified by county government funding patterns based on Cooperative Extension's funding criteria, geographical location, and county population (28).

The stratified random sample used to identify the sample of this study was a systematic stratification. The stratification was established in the following steps: Step one was to divide the state based on level of county government expenditures. According to Fairchild (28), counties are listed by county levels which are according to the funding support provided by county Cooperative Extension Programs.

Level I would be those counties recognized as providing the low levels of county government expenditures for county extension programs. Level II would be those counties contributing funds from county government programs greater than Level I but lower than the funds provided to county programs in Level III. Level IV which is composed of Oklahoma and Tulsa Counties contributes the highest amount of county government funds to cooperative extension programs in the state. Each level with

the exception of Level IV contains a total of 25 counties, Level IV contains only two counties. After each of the counties in the state were identified as to level of county government expenditures, they were marked accordingly.

The second step was to divide the state, using counties as units, into four geographical quadrants. Interstate 35, which approximately transects the geographical center of the state from the northern to southern borders, and Interstate 40, which approximately transects the geographical center of the state from its east to west borders, were used to establish the quadrants. The quadrant lines were modified according to county boundary lines to insure that entire county populations were within specific quadrants (see Appendix A). The quadrants were classified as the northwest (NW) quadrant, southwest (SW) quadrant, northeast (NE) quadrant, and the southeast (SE) quadrant. These quadrants were inclusive of all counties within the State of Oklahoma with the exception of Oklahoma and Tulsa Counties.

The two large urban areas, which represent Level IV, in the State of Oklahoma are Oklahoma City in Oklahoma County and Tulsa in Tulsa County. Both of these counties combined contained 35 percent of the total population of Oklahoma. Taking into consideration the high percentage of the urban population of the state and that Oklahoma and Tulsa Counties are the highest levels (IV) of county government expenditures for cooperative extension in the state, both counties were selected to be included in the sample regardless of geographical location.

In the final step, counties were identified in each quadrant in ascending order according to population. The population estimates for July 1, 1978, established by the Oklahoma Employment Security Commission

Research and Planning Division (29) were utilized for county populations. This was done for each of the first three levels (Levels I, II, and III) in each individual quadrant. For example, the NW quadrant was arranged in the following way:

Level I	Level II	Level III
1. Dewey 6,500	1. Custer 23,200	1. Garfield 63,200
2. Ellis 5,400	2. Logan 23,000	2. Canadian 51,000
3. Harper 5,000	3. Woodward 19,100	3. Texas 18,700
4. Roger Mills 4,600	4. Blaine 13,200	4. Kingfisher 14,700
5. Cimmaron 3,700	5. Woods 10,100	
	6. Major 8,300	
	7. Alfalfa 8,000	
	8. Grant 7,700	
	9. Beaver 7,000	

Each of the counties in each level within the quadrant was assigned a number starting with the number one for the largest county and ending with the largest number assigned to the county with the smallest population. The table of random numbers from Bartz (30) was used to select one county from each level which would represent the level population in the sample.

The total number of counties to be included in the sample for this study was 14--three counties from each quadrant plus Oklahoma and Tulsa Counties. Each quadrant contained one county representing each of the three levels of funding and Oklahoma and Tulsa Counties represented all the Level IV counties in the state.

In order to determine proportionally the individuals to be drawn from each county, the total state population and the total population of each level in the state was utilized. The state and county population were based on estimates of the Oklahoma Employment Security Commission's (29) July 1, 1978, population report. The total population (2.88 million) was used as the divisor and the total population of all Level I

counties was used as the dividend. The resulting percentage was the percentage of the population in Oklahoma represented by all Level I counties:

$$\frac{\text{233,700 State Population All Level I Counties}}{\text{2.88 Million State Population}} = \text{\% Population in Level I Counties}$$

That percentage of all Level I counties was multiplied by the total sample size (2,401) to arrive at the 192.07 individuals which represented the total number of individuals selected for all Level I counties in the state. A Level I county was randomly chosen to represent each of the four quadrants in the state. The total population of those four Level I counties would represent the total sample of all Level I counties in the state. The total population of the four randomly chosen Level I counties would be used in the following formula, as a divisor, to determine the proportional number of individuals to be selected for each Level I county within quadrants. For example (Nowata County):

$$\frac{\text{10,800 Total Population Nowata County}}{\text{30,800 Total Population of Four Level I Randomly Chosen Counties}} = \text{35.06\% of Level I Sample}$$

The percentage computed from the formula for each of the randomly selected Level I counties, representing each quadrant, was multiplied by the total Level I sample size (192.07) to determine the number of individuals selected in each Level I county. For example:

$$\text{35.06\% of Sample Nowata County} \times \text{192.07 Level I Sample Size} = \text{67.35 Individuals Selected from Nowata County}$$

The 67.35 determined the individuals from that county to represent a proportional population by quadrant and by level.

The same procedure was used to determine the random sample of individuals in each of the counties selected for the study. The resulting

proportional sample can be seen in Table I by counties and by levels for the entire sample population (2,401).

Random Selection of Individuals

The random selection of the individuals from the identified quadrants and counties was done by the use of telephone exchanges in each of the counties. A complete up-to-date library of all the telephone books in the State of Oklahoma, including Southwestern Bell Telephone and several independent companies, was used to aid in the selection of the individuals who comprised the sample.

A study by Perl (31, p. 5) indicated, "in 1960 and 1965, and to a lesser extent in 1958, the characteristics of those with and without telephones have been extensively examined." The data indicated that 80.6 percent of households had telephones in 1965, as compared with 74.8 percent in 1960. The effect of income on the likelihood of telephone availability appears most pronounced in the lower income range but this effect diminishes steadily as the level of income increases. Perl also indicated, "between 1960 and 1965, the number of households with telephones increased in almost every category with the greatest increases occurring in the lowest income categories" (p. 6). In 1970, based on the U.S. Department of Commerce, Bureau of the Census, it was reported that 17.2 percent of the people in the United States had access to telephone service. The difference between 1960 and 1970 shows a percentage point gain of 12.4 percent. The resulting change between the years of 1970 and the date of this study one can only postulate. It would appear an increase would be an appropriate assumption.

TABLE I

SAMPLE SIZE BY COUNTY BY LEVEL

County	Sample Size by County	Level	Sample by Level
Atoka	72	1	
Cimarron	23	1	192
Harmon	29	1	
Nowata	68	1	
Craig	93	2	
Major	49	2	408
Pontotoc	188	2	
Washita	78	2	
Garfield	299	3	
Grady	175	3	973
Muskogee	317	3	
Pittsburg	182	3	
Oklahoma	461	4	828
Tulsa	367	4	
Total	2,401		2,401

Each telephone book which was identified as part of a selected random sample county and of the proper telephone exchange was included in the random sampling of individuals. The books were individually logged as to the beginning page number of each book with phone numbers on it and ending page number included in the white pages, columns per page, and lines per column. This information was delivered to the computer programmer who initiated a random number selection process which selected a sample according to the above mentioned criteria. The towns, cities, and communities identified in each randomly selected county were determined by the 1970 census report.

When selecting the random sample the computer was programmed to oversample to insure that appropriate numbers would be available when numbers were selected from designated phone books. Appropriate numbers were residential phones of Oklahoma residents excluding business, church, and other organizational listings not classified as a home residence. When a randomly selected number was a business or organizational phone it was replaced with the next random number on the computer listing. This procedure was continued until the appropriate sample size for each sample county was selected. Once the calling began numbers not in service or numbers which were called three times with no answer were replaced with a random number until the appropriate number of calls were made. An appropriate call was one in which contact with a potential respondent was made and the individual was given an opportunity to respond to the telephone survey.

Selection and Development of the Instrument

In the preparation of an instrument to meet the objectives of the

study, the first step was to review and evaluate the instruments used in related studies.

It is important to note that the instrument developed for this study would be one of a three-part data gathering instrument. The instrument was designed to obtain data for the three major areas of the Division of Agriculture: Resident Instruction, the Cooperative Extension Service, and the Oklahoma Agricultural Experiment Station. The instrument would obtain data for a base-line study of the awareness of the general public of Oklahoma toward the Division of Agriculture at Oklahoma State University. This study was one segment of the overall thrust for which the instrument was developed.

From this review it was determined that a combination of components from other instruments would be needed to meet the objectives established. The instrument to be developed would need to contain general questions that would obtain the perceptions of individuals toward the function of the Experiment Station in the Division of Agriculture at Oklahoma State University.

In analyzing various data gathering instruments, the questionnaire and interview were determined the most appropriate to meet the study objectives. Wallace (32) provided the following information regarding questionnaires:

> Although mail questionnaires are often the most practical and economical method of obtaining data, some investigators hesitate to employ them because they tend to yield a low percentage of returns and relatively incomplete responses (p. 40).

If questionnaires are well constructed, and the cover letters well written, researchers have said that an adequate response rate should be expected. According to Levine and Gordon (33), the degree to which a

questionnaire elicits the desired information depends considerably upon the manner in which it is constructed. Despite the most diligent effort in respondent preparation and questionnaire design, a considerable number of respondents will fail to respond to the initial mailing. Researchers have stated that first mailings will generally produce a percentage of return up to 40 percent. Other researchers consider 40 percent an optimistic percentage, with 20 to 30 percent more realistic.

Interviews are conducted orally, in-person, and utilize a questionnaire for each member of the sample. The interview is most appropriate for asking questions which cannot effectively be structured into a multiple-choice format. The flexibility of the interview provides an advantage over the questionnaire, yet the interview is generally expensive and time-consuming, and usually involves smaller samples. Research has shown that the interview provides a higher response rate and more accurate and honest responses than do questionnaires.

Due to the expense and time required to conduct personal interviews, this method was deleted from consideration. Yet, the high response rate provided by the use of the interview prompted a look at using the telephone survey interview as a method of data gathering. In several research studies conducted by the Oklahoma State Department of Vocational-Technical Education, the use of the telephone interview provided response rates of 93 and 95 percent.

Based on this information, it was determined that the telephone survey interview would provide the most accurate and high response rate, even though it might mean a higher expense than the mailed survey.

After determining the telephone survey interview as being the most appropriate method of data gathering, several steps were taken to make

the instrument applicable for use in assessing the perceptions of people in Oklahoma toward the Oklahoma State University Experiment Station.

The first step in the preparation of the interview schedule was to compile a list of general questions that were relevant to determining the awareness toward the Oklahoma State University Experiment Station. These questions were derived from related studies and interviews with the Associate Director of the Oklahoma State University Experiment Station, the Assistant Director, and other faculty members of Oklahoma State University. Input regarding the questions to be used in the interview schedule was utilized from these interviews and revisions made accordingly.

The next step was to contact individuals in the Departments of Statistics, Sociology, and Agricultural Economics for their input concerning the questions being used and their knowledge of utilizing the survey-interview method. Several changes and additions were suggested by these indivduals.

The third step was to make the necessary revisions and then test the applicability and continuity of the questions to be used. The questions were used in a mock interview in a graduate research class. The class then provided their comments regarding the questions and the use of the interview schedule. Several valid comments and questions were raised by the class. This allowed the strengthening of several areas within the interview schedule.

The fourth step was to provide a copy of the interview schedule, with revisions made, to the Associate Director of the Oklahoma State University Experiment Station for his reactions and comments.

The next step was to take into consideration the comments and suggestions made for improving the interview schedule. The interview schedule was then again used in a mock interview with an adult education class. Comments were provided by class members regarding the order in which the questions were placed. These comments were analyzed and revisions were made.

The sixth step included having the interview schedule typed and copies given to the Dean of Agriculture, the Associate Director of the Experiment Station, and to members of the researcher's graduate committee to gain their final approval. Upon receiving additional comments, the interview schedule was considered ready for use.

The seventh step was to make appointments with several staff members of the Oklahoma State Department of Vocational-Technical Education. These individuals provided information on the utilization of the telephone survey-interview and how to incorporate the interview schedule designed for this study into the telephone survey. The successes and failures experienced by these individuals were invaluable in designing the final form of the interview schedule.

The eighth step was to develop a system for coding each of the questions on the interview schedule. The coding was needed to provide a method of ease and consistency in key punching answer sheets for the interview schedule. To accomplish this, an interview schedule containing a built-in coding system was developed.

Throughout the process of developing the interview schedule, the length of the instrument was of concern. Several individuals felt that it would be extremely difficult to get people to provide needed information if the interview schedule was too long. The length of the interview

was carefully considered in its preparation. The interview survey was designed to require a minimum amount of the respondent's time and yet provide the needed information. It was felt that the final interview survey could be completed in less than 10 minutes.

The ninth and final step included conducting a telephone survey, using the interview schedule, on 20 randomly selected residents of Payne County. The method of random selection was the same as described in an earlier segment of this chapter.

In its final form, the instrument contained three parts--Resident Instruction, Cooperative Extension, and Oklahoma State University Experiment Station--consisting of 35 items or questions. Most of the questions utilized the forced-response format with a "don't know/not sure" option. This format allows data of a quantitative nature to be obtained, thereby facilitating analysis of the data. The final form of the instrument survey may be found in Appendix A.

The portion of the instrument survey used for this study contained eight questions relating to the Oklahoma State University Experiment Station and nine questions pertaining to the respondent's personal demographic data. The 17 questions were developed in the following areas:

1. Questions relating to the level of awareness of the respondents to the Oklahoma State University Experiment Station.

2. Questions designed to determine the value of agricultural research and the amount of input the Oklahoma public has in the research efforts of the Oklahoma State University Experiment Station.

3. A question designed to determine the respondent's main source of information about agricultural research at Oklahoma State University.

4. Questions concerning the respondent's personal data, such as age, income, size of household, occupation, etc.

Analysis of Data

The population of this study was a stratified random sample of residents of the State of Oklahoma with access to telephone service. The data obtained from the telephone survey provided the following information: (1) the level of awareness of respondents about the Oklahoma State University Experiment Station, (2) the method by which the respondents obtained research information, (3) the value of agricultural research in regard to food prices, (4) the amount of input the Oklahoma public has in determining the agricultural research efforts at Oklahoma State University as perceived by the respondent, and (5) the demographic data of each respondent.

Awareness was determined by assigning weighted values to each question identified as a level of being aware. Each question had only one possible answer which contributed to the respondent's total awareness with the exception of question 20 which was a two-part question. The questions used in determining each respondent's total awareness were identified as questions 19, 20, 21, 22, and 23 of the survey instrument. Question 19, "Were you aware that Oklahoma State University has agricultural research throughout the State of Oklahoma?" was a "yes, no" answer with the answer "yes" contributing one point for awareness and the answer "no" receiving no points. This question was considered the base-level of awareness for any respondents.

Question 20, "Where is the closest O.S.U. agricultural research farm to your location?" was in essence a two-part question. If a

respondent identified one of the 16 specific research farms he would receive one point for location and one point for a specific research farm location. However, if a respondent could not identify a specific research farm location but could identify a research plot or project they would receive one point for location. For example, O.S.U. research signs are placed along highways, on farms, or designated research locations identifying research plots or projects being conducted in that specific area. Any respondents who could identify one of these locations would receive one point toward his total awareness.

Question 21, "Have you or anyone you know taken a field trip or tour to an O.S.U. Agricultural Research Farm?" was scored one point for a "yes" answer and no points for a "no" answer. Question 22, "Have you or anyone you know used O.S.U. Agricultural Research results on their farm or home grounds?" was scored one point for "yes" and no points for a "no" response.

Question 23, "How many times have you personally used agricultural research?" was weighted, one point, for one time used; two points, for two to three times used; and three points, for four or more times used. The highest possible total awareness value for any one respondent was eight. The respondents were allowed one answer per question, with the exception of question 20 where two answers were possible. The questions, possible answers, and weighted values are available in Table II.

The demographic data obtained consisted of the respondents' income, age, occupation, involvement in agriculture, how they were involved, highest grade completed in school, racial/ethnic group, and sex.

To aid in clarity and understanding, questions 30 through 32 were used to define each respondent's occupation and their perceived

TABLE II

WEIGHTED AWARENESS SCORES BY QUESTION

	Possible Answers	Weighted Values
19. Were you aware that Oklahoma State University has agricultural research farms throughout the State of Oklahoma?	Yes	1
	No	0
20a. Where is the closest O.S.U. research farm to your location?	Location	1
	Don't know	0
20b. Identify a specific research farm location.	Stillwater	1
	Woodward	1
	Mangum	1
	Altus	1
	Tipton	1
	Fort Cobb	1
	Lahoma	1
	El Reno	1
	Chickasha	1
	Stratford	1
	Sparks	1
	Pawhuska	1
	Bixby	1
	Haskell	1
	Idabell	1
	Lamar	1
21. Have you or anyone you know taken a field trip or tour to an O.S.U. agricultural research farm?	Yes	1
	No	0
22. Have you or anyone you know used O.S.U. agricultural research results on their farm or home grounds?	Yes	1
	No	0
23. How many times have you personally used agricultural research?	1 time	1
	2-3 times	2
	4 or more	3

Total possible awareness = 8.

*The questions are numbered according to the question number in the actual survey instrument, see Appendix A.

involvement in agriculture. Question 30 was asked each respondent to determine their present occupation. Their response was recorded and marked in one of the following categories: (1) Agriculture, (2) Agricultural Related, (3) Business, and (4) Labor. The respondents were asked question 31 to determine if they perceived themselves involved in agriculture in any way. If the response to question 31 was "yes" they were asked to respond to question 32 to further define their involvement in (1) part-time farming, (2) gardening, (3) agri-business, and (4) others, which includes any other agricultural activity identified by the respondent.

The information obtained from the telephone survey was classified as nominal and ordinal and, therefore, utilized as discrete data.

The information collected from the survey instrument was key-punched on International Business Machine (IBM) cards and a Statistical Analysis System (S.A.S.) 76 program was utilized in the statistical analysis.

The statistical program utilized by S.A.S. was a frequency procedure and the Chi-square option. The frequency procedure provided

> . . . one way to n-way frequency and cross-tabulation tables. Tables can be produced for either numeric or character variables. A weighting variable can be specified.
>
> The Chi-square option can be specified for two-way to n-way tables. When it appears, the Chi-square statistic, its degrees of freedom, and its significance probability are printed below two-way tables (including two-way tables representing a level of one or more other variables) (34, p. 120).

The accumulated awareness scores for each respondent were totaled and frequency counts taken. Those compiled levels of awareness were then compared among groups of respondents categorized by demographic data to determine if differences occurred among the groups. In order to

determine the differences among groups, the Chi-square statistic was utilized. According to Bartz (30, p. 294), the Chi-square is "a technique that can be used to determine whether there is a significant difference between some theoretical or expected frequencies and the corresponding observed frequencies in two or more categories." The formula for the Chi-square statistic is:

$$X^2 = \Sigma \frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}}$$

If significant differences were found in the contingency tables, the significant differences would be interpreted as "either a significant difference between levels of one of the variables or as a significant relationship between the two variables" (p. 300).

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this chapter is to describe the awareness of the Agricultural Experiment Station in the Division of Agriculture at Oklahoma State University by residents of Oklahoma. In addition, it describes base-line data for future research efforts involving awareness, impact, and usefulness of the experiment station. Finally it analyzes the data, presents the results, and interprets the results regarding the previously stated null hypotheses.

Data collected in this study was based on a stratified random sample of 2,401 Oklahoma residents. The characteristics of the 2,401 Oklahoma residents who responded to the telephone survey are reported in the first section of this chapter. Those characteristics are reported in frequency distributions. In the second section of this chapter, the frequency distributions of responses to each question in the survey instrument are presented. In the final section, the levels of awareness of groups categorized by demographic characteristics, value questions related to food prices and research input, and methods respondents used to obtain research results were compared. In addition, the numbers of times respondents used research were compared by occupations. The data were reported and described through frequency distribution tables and graphic summaries. Relationships between variables were determined by Chi-square

statistics. Cells which made up certain levels of awareness, income, occupation, race, and age were combined to insure expected cell sizes greater than five.

Background of the Sample

The population of this study included residents of Oklahoma 18 years of age and older, having access to telephone service, and having their telephone number listed in a published telephone directory in Oklahoma. The stratified random sample of 2,401 individuals was drawn from 14 counties throughout the state. The counties and the number of individuals from each county are shown in Table III.

Of the 2,401 individuals contacted during the telephone survey, 1,662 individuals, 69.4 percent, cooperated and responded to the 35 item survey instrument.

General Characteristics of Respondents

The telephone survey instrument contained nine questions designed to obtain personal information from each individual concerning their household income, age, number of people in household, occupation, involvement in agriculture, how involved, educational level, race/ethnic group, and sex. In responding to the survey, not all questions were answered by all respondents; therefore, the "N" of different tables may vary somewhat.

In Table IV, the number (N) and percentage (%) of respondents in each level of household income are presented. Fourteen hundred and sixty-one individuals responded to the household income question. Of these 1,461 individuals, 66 percent had incomes below $20,000.

TABLE III

SUMMARY OF COUNTIES AND NUMBER OF INDIVIDUALS PER COUNTY IN SAMPLE

Counties	Individuals/County
1. Atoka	72
2. Cimarron	23
3. Craig	93
4. Garfield	299
5. Grady	175
6. Harmon	29
7. Major	49
8. Muskogee	317
9. Nowata	68
10. Oklahoma	461
11. Pittsburg	182
12. Pontotoc	188
13. Tulsa	367
14. Washita	78
Total Individuals	2,401

Twenty-nine percent had incomes of less than $10,000 and five percent had incomes in excess of $50,000. According to the Oklahoma Employment Security Commission Research and Planning (29), the median income of Oklahoma residents is $12,172. This compared closely with data obtained and reported in Table IV.

TABLE IV

DISTRIBUTION OF RESPONDENTS BY HOUSEHOLD INCOME LEVEL

Household Income	Frequency Distribution N	%
Less than $5,000	199	13.62
$5,000 to $10,000	225	15.40
$10,000 to $15,000	274	18.75
$15,000 to $20,000	267	18.28
$20,000 to $25,000	183	12.53
$25,000 to $50,000	237	16.22
Over $50,000	76	5.20
Total Responses	1,461	100.00

Presented in Table V are the age categories of 1,566 respondents, by number and percentage. Fourteen percent of the respondents were 18 to 24 years of age. The 35 to 49 age group represented the highest percentage (24.07) of respondents in any age category. Forty-two percent of the respondents were over the age of 50. The Oklahoma Employment Security

Commission Research and Planning (29) reported in 1978 that the 20 to 44 age group made up 33.9 percent of the state population. The 45 to 64 age group accounted for 20.4 percent and 65 and over contributed 12.3 percent to the state population by age groups. Again, this information compares rather closely to the data obtained from the respondents.

TABLE V

DISTRIBUTION OF RESPONDENTS BY AGE CATEGORY

Age	Frequency Distribution N	%
18 to 24	220	14.05
25 to 34	315	20.12
35 to 49	377	24.07
50 to 62	307	19.60
Over 63	347	22.16
Total Responses	1,566	100.00

Size of household is reported in Table VI. The data reported by 1,593 respondents indicated that 50.98 percent maintained households of no more than two people. Only 11.55 percent had households of over five people.

Thirteen hundred and eighty-seven individuals responded to occupation. The frequency distribution is found in Table VII. Business and labor accounted for 90.84 percent of the individuals responding. Only

TABLE VI

DISTRIBUTION OF RESPONDENTS BY NUMBER IN HOUSEHOLD

Number in Household	Frequency Distribution N	%
1	251	15.76
2	561	35.22
3	315	19.77
4	282	17.70
5	117	7.35
6	48	3.01
7	8	.50
8	5	.31
9	6	.38
Total Response	1,593	100.00

TABLE VII

DISTRIBUTION OF RESPONDENTS BY OCCUPATION

Occupations	Frequency Distribution N	%
Agriculture	100	7.21
Agriculture Related	27	1.95
Business	459	33.09
Labor	801	57.75
Total Responses	1,387	100.00

9.16 percent of the respondents were classified as agriculture or agriculture related occupations.

Presented in Table VIII are the responses of 1,597 individuals and their perceived involvement in agriculture. Seven hundred and thirty-nine or 46.27 percent of the respondents perceived themselves involved in agriculture; whereas, 858 or 53.73 percent perceived no involvement in agriculture.

TABLE VIII

DISTRIBUTION OF RESPONDENTS BY AGRICULTURE INVOLVEMENT

Agriculture Involvement	Frequency Distribution	
	N	%
Yes	739	46.27
No	858	53.73
Total Responses	1,597	100.00

The frequency distribution of how respondents were involved in agriculture is reported in Table IX. Seven hundred and thirty-two respondents reported how they were involved. Of that 732, 56.97 percent were involved in some form of gardening. Twenty-four percent were involved in part-time farming. The category of "other" was composed of respondents involved in some type of full-time production agriculture. They represented 12.29 percent of the total (732) respondents. Agricutural business contributed 6.15 percent of 45 individuals to the total distribution.

TABLE IX

DISTRIBUTION OF RESPONDENTS BY HOW INVOLVED IN AGRICULTURE

How Involved	Frequency Distribution N	%
Part-Time Farming	180	24.59
Gardening	417	56.97
Agricultural Business	45	6.15
Other	90	12.29
Total Responses	732	100.00

In Table X, the number and percentage of respondents by education is reported. One hundred and eighty-five respondents, or 11.69 percent, had zero to eight years of high school. It should be noted that 30.28 percent of the respondents had one to four years of college and 7.65 percent had more than four years of college. Over 37 percent of the 1,582 respondents had some college training.

Sixteen hundred and four individuals responded to race/ethnic group, and the frequency distributions are reported in Table XI. The table indicated 91.27 percent of the respondents were white. Blacks and Indians represented 4.68 percent and 3.24 percent of the distribution, respectively. Oklahoma population estimates in 1978 by the Oklahoma Employment Security Commission Planning and Research (29) indicated 88.8 percent, 6.9 percent, and 4.0 percent of the population were white, black, and Indian, respectively. This corresponded to the distribution of respondents by race/ethnic group almost exactly.

TABLE X

DISTRIBUTION OF RESPONDENTS BY EDUCATIONAL LEVEL

Education	Frequency Distribution N	%
0 to 8 Years		11.69
1 to 2 Years High School		7.90
3 to 4 Years High School		42.48
1 to 2 Years College		16.31
3 to 4 Years College		13.97
Over 4 Years College		7.65
Total Responses		100.00

TABLE XI

DISTRIBUTION OF RESPONDENTS BY RACE/ETHNIC GROUP

Race	Frequency Distribution N	%
White	1464	91.27
Black	75	4.68
Indian	52	3.24
Asian or Pacific Islander	2	.125
Hispanic	9	.56
Other	2	.125
Total Responses	1604	100.000

Table XII indicated a total response of 1,637 individuals. The distribution consisted of 62.86 percent females and 37.14 percent males. The state estimates by the Oklahoma Employment Security Commission (29) in regard to percentage of population by sex reported 51.5 percent of the population was female and 48.5 percent was male. Therefore, the sex distribution of the respondents was somewhat heavy with females when compared to the general public of Oklahoma.

TABLE XII

DISTRIBUTION OF RESPONDENTS BY SEX CLASSIFICATION

Sex	Frequency Distribution	
	N	%
Female	1,029	62.86
Male	608	37.14
Total Response	1,637	100.00

Responses to Experiment Station Questions

In order to ascertain the awareness of the general public of Oklahoma toward the Oklahoma Experiment Station, several questions were developed and included as part of the three-part survey questionnaire. In total, eight questions constituted the experiment station section of the questionnaire. The questions were numbered 19 through 26, consecutively (see Appendix B).

Five questions were developed with weighted values to distinguish between levels of awareness among responses of the respondents. Tables XIII through XVIII report the frequency distribution of respondents to each question.

In Table XIII the frequency distribution is reported for the following question, "Were you aware that Oklahoma State University has agricultural research farms throughout the State of Oklahoma?" Over 65 percent of the individuals responding indicated an awareness of Oklahoma State University Experiment Station farms existing throughout the state. The remaining 34.56 percent indicated no awareness.

TABLE XIII

DISTRIBUTION OF RESPONDENTS PERCEPTION OF THE EXISTENCE OF RESEARCH FARMS

Existence of Research Farms	Frequency Distribution	
	N	%
Yes	1,070	65.44
No	565	34.56
Total Responses	1,635	100.00

Responses to the question, "Where is the closest O.S.U. agricultural research farm to your location?" are reported in Table XIV. Eleven hundred and eight individuals responded to the question. Thirty-four percent identified a research location.

TABLE XIV

DISTRIBUTION OF RESPONDENTS BY RESEARCH LOCATION

Research Location	Frequency Distribution N	%
Location	373	33.66
Don't Know	735	66.34
Total Responses	1,108	100.00

Of the 373 respondents who identified a location in Table XIV, 306 identified a specific location of a research farm. Table XV reports these results. Of 16 specific research farm locations, 14 were identified by the respondents. Of the specific locations identified, Chickasha (21.89 percent), Lahoma (21.57 percent), Stillwater (19.93 percent), El Reno (8.17 percent), and Bixby (7.52 percent) contributed 78.58 percent of all responses to the question.

Responses to Question 21, "Have you or anyone you know taken a field trip or tour to an O.S.U. Agricultural Research Farm?" are presented in Table XVI. Approximately 23 percent of the respondents had taken or knew of someone who had taken a field trip to an O.S.U. research farm. Conversely, 77 percent had not taken or knew of anyone who had taken a trip.

In Table XVII, 28.09 percent of the individuals responding to the question, "Have you or anyone you know used O.S.U. Agricultural Research results on their farm or home grounds?" indicated they had used or knew someone who had used research results. Seventy-two percent responded "no" to the question.

TABLE XV

DISTRIBUTION OF RESPONDENTS IDENTIFICATION OF SPECIFIC RESEARCH FARM LOCATIONS

Specific Location	Frequency Distribution N	%
Stillwater	61	19.93
Woodward	4	1.31
Mangum	10	3.27
Altus	9	2.94
Tipton	3	.98
Fort Cobb	3	.98
Lahoma	66	21.57
El Reno	25	8.17
Chickasha	67	21.89
Stratford	16	5.23
Sparks	2	.65
Pawhuska	16	5.23
Bixby	23	7.52
Haskell	0	.00
Idabell	0	.00
Lamar	1	.33
Total Responses	306	100.00

TABLE XVI

DISTRIBUTION OF RESPONDENTS BY VISITS TO RESEARCH FARMS

Visit to Research Farm	Frequency Distribution	
	N	%
Yes	251	22.65
No	857	77.35
Total Responses	1,108	100.00

TABLE XVII

DISTRIBUTION OF RESPONDENTS' USE OF RESEARCH RESULTS

Use of Agricultural Research Results	Frequency Distribution	
	N	%
Yes	446	28.09
No	1,142	71.91
Total Responses	1,588	100.00

The last question which contributed to the respondent's total awareness was, "How many times have you personally used agricultural research?" Two hundred and eighty-four individuals responded to the question. Of that 284 individuals, 75.70 percent had used research twice or more. Thirty-nine percent had used agricultural research four or more times.

The frequency distribution in Table XIX indicated 1,056, or 65.18 percent of the individuals responding, perceived food prices would be

TABLE XVIII

DISTRIBUTION OF RESPONDENTS BY NUMBER OF TIMES RESEARCH USED

Number of Times Research Used	Frequency Distribution	
	N	%
One Time	69	24.30
Two to Three Times	105	36.97
Four or More Times	110	38.73
Total Responses	284	100.00

TABLE XIX

DISTRIBUTION OF RESPONDENTS' PERCEPTION OF THE EFFECT OF AGRICULTURAL RESEARCH ON FOOD PRICES

Prices of Food	Frequency Distribution	
	N	%
Higher	1,056	65.18
Lower	171	10.56
Don't Know/Not Sure	393	24.26
Total Responses	1,620	100.00

higher if there had not been agricultural research. Three hundred and ninety-three, or 24.26 percent, reported they were not sure what effect the lack of agricultural research would have had on food prices. Note that only 10.56 percent of the respondents felt that no agricultural research would result in lower food prices.

Respondents were asked to identify where their main source of information about agricultural research at O.S.U. came from: reading, hearing, or personal observation. The results are found in Table XX. Sixteen hundred and seventeen responded to the question. Reading accounted for 42.49 percent, hearing for 29.31 percent, personal observation for 11.63 percent, and 16.57 percent were not sure or did not know where their main source of information came from concerning agricultural research at O.S.U.

TABLE XX

DISTRIBUTION OF RESPONDENTS' SOURCES OF INFORMATION ABOUT AGRICULTURAL RESEARCH AT O.S.U.

Source of Information	Frequency Distribution	
	N	%
Reading	687	42.49
Hearing	474	29.31
Personal Observation	188	11.63
Don't Know/Not Sure	268	16.57
Total Responses	1,617	100.00

Once respondents identified the main source of their information concerning agricultural research they were asked to further define that main source into a specific source. For example, the main source "reading" was further defined into specific source areas such as magazines, newspapers, fact sheets, and others. The frequency distribution of specific sources is available in Table XXI. Twelve hundred and eighty-seven reported a specific source used to obtain information concerning research at O.S.U.

Of the total respondents (1,287), the three highest ranked specific sources for obtaining research information were reading newspapers (28.75 percent), reading magazines (15.85 percent), and hearing from a friend (13.75 percent).

Of the 178 individuals who identified personal observation as their main source of information about agricultural research, 93 individuals made their personal observation on a farm and an additional 28 individuals made their observation on an O.S.U. Research Farm.

The last question in the experiment station section of the questionnaire was "How much input do you think the Oklahoma public has had in determining agricultural research efforts at O.S.U.?" The respondents could select from four possible answers: large, small, none, or don't know/not sure. Table XXII presents the frequency distribution of 1,618 responses to the question. Eighteen percent indicated a large amount of input as compared to 19.59 percent who indicated a small amount of research input by the Oklahoma public. The majority of respondents, 59.46 percent, said they did not know or were not sure if the Oklahoma public had input in determining research efforts at O.S.U.

TABLE XXI

DISTRIBUTION OF RESPONDENTS' SPECIFIC SOURCES OF INFORMATION ABOUT O.S.U. RESEARCH

Specific Sources	Frequency Distribution N	%
Reading:		
Magazines	204	15.85
Newspapers	370	28.75
Fact Sheets	70	5.44
Other	9	.70
Hearing:		
Radio	90	6.99
Television	122	9.48
Friend	177	13.75
County Agent	38	2.95
Other	29	2.25
Personal Observation:		
On a Farm	93	7.23
Garden Plot	19	1.48
O.S.U. Research Farm	28	2.18
Other	38	2.97
Total Responses	1,287	100.00

TABLE XXII

DISTRIBUTION OF RESEARCH INPUT BY RESPONDENTS

Research Input	Frequency Distribution	
	N	%
Large	296	18.29
Small	317	19.59
None	43	2.66
Don't Know/Not Sure	962	59.46
Total Responses	1,618	100.00

Awareness of Respondents

This section presents the awareness of the Agricultural Experiment Station by respondents of this study and presents the statistical analysis of the data. The data are presented in tables and graphic representations (figures) and are included to aid the reader in the analysis.

In addition, this section provides the Chi-square statistic as the method of analysis to test the null hypotheses outlined in Chapter III. It should be noted that the awareness cells in the tables were combined to insure proper expected cell sizes for statistical comparison purposes. Awareness cells were combined in the following way: awareness equal to zero was no awareness; awarenesses equal to one, two, or three were combined and considered low awareness; awarenesses equaling four and five were combined and considered average awareness; awarenesses equaling six, seven, and eight were combined and considered high awareness. Also, cells of other variables such as occupations, age, and household income

were combined where necessary for statistical comparisons following the same type of procedure. The tables reported the uncombined cells.

Awareness of Experiment Station by Income Levels of Respondents

The null hypothesis states: There is no relationship between an awareness of the experiment station and household incomes among the general public of Oklahoma.

The data in Table XXIII shows the level of awareness compared to the distribution of respondents by household income. Of 1,461 individuals who responded, 1,040 or 71.18 percent indicated an awareness of the experiment station. Of those 1,040 individuals, 756 or 51.75 percent scored less than four awareness points. Eight percent of the respondents scored six or more awareness points and this was considered to be a high level of awareness.

The Chi-square value was significant indicating a relationship between awareness and income. Therefore, the null hypothesis was rejected.

The research hypothesis states the level of awareness of the Oklahoma State University Experiment Station increases as the income of the general public of Oklahoma increases. The research hypothesis was accepted based on the significant difference and Figure 1.

It should be noted in Figure 1 that there are differences among awareness levels according to income. The data in Figure 1 are derived from Table XXIII. The high income group has the highest percentage of individuals with a high level of awareness. Conversely, the low income group has the highest percentage of individuals with no awareness and the lowest percentage of individuals with a high level of awareness.

TABLE XXIII

AWARENESS OF EXPERIMENT STATION BY INCOME LEVEL OF RESPONDENTS

Level of Awareness	Distribution by Income														Total	
	< 5,000		5,000 to 10,000		10,000 to 15,000		15,000 to 20,000		20,000 to 25,000		25,000 to 50,000		> 50,000			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	83	5.68	86	5.89	91	6.73	64	4.38	46	3.15	39	2.67	12	0.82	421	28.82
1	68	4.65	72	4.93	80	5.48	89	6.09	42	2.87	69	4.72	14	0.96	434	29.71
2	14	0.96	13	0.89	26	1.78	24	1.78	20	1.64	27	1.37	9	1.85	133	9.10
3	19	1.30	27	1.85	30	2.05	34	2.33	35	2.40	34	2.33	10	0.68	189	12.94
4	7	0.48	7	0.48	20	1.37	16	1.10	14	0.96	13	0.89	10	0.68	87	5.95
5	3	0.21	10	0.68	12	0.82	16	1.10	9	0.62	20	1.37	7	0.48	77	5.27
6	1	0.07	4	0.27	8	0.55	5	0.34	7	0.48	13	0.89	4	0.27	42	2.87
7	2	0.14	3	0.21	4	0.27	10	0.68	6	0.41	12	0.82	7	0.48	44	3.01
8	2	0.14	3	0.21	3	0.21	9	0.62	4	0.27	10	0.68	3	0.21	34	2.33
Totals	199	13.62	225	15.40	274	18.75	267	18.28	183	12.53	237	16.22	76	5.20	1461	100.00

$X^2 = 83.72$, df = 6, $p < .0001$. The Chi-square value was calculated by combining cells within the variables of awareness and income into a 4 x 3 contingency table as reflected in Figure 1.

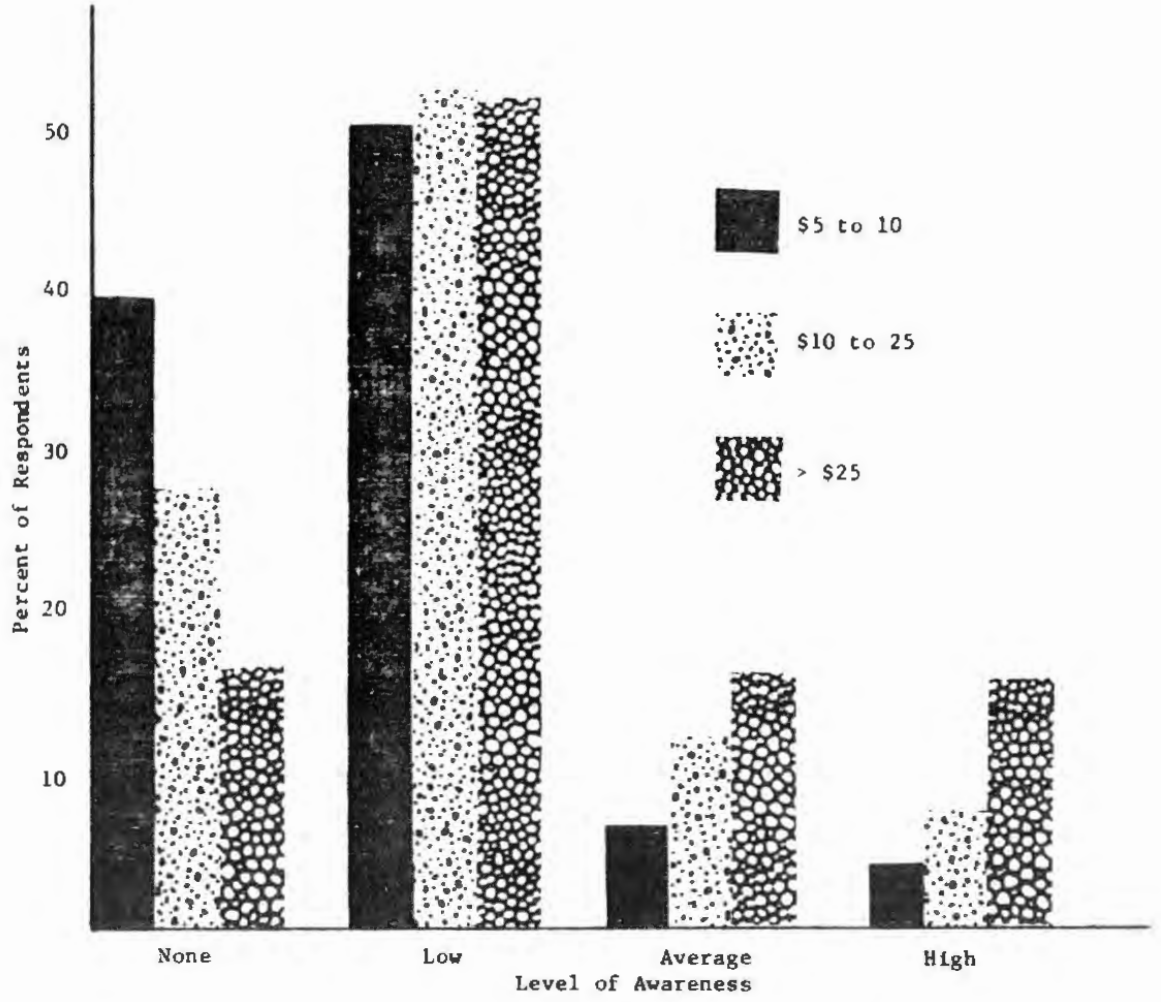

Figure 1. Awareness of Respondents by Income Level

The cell which contributed the largest value to the total Chi-square reflected the fact that more respondents with high incomes also had a higher awareness of the experiment station than was to be expected by chance. The value contributed by this cell was 21.1 of the total Chi-square value of 83.72.

Awareness of Experiment Station
by Age Category

The null hypothesis states: There is no relationship between an awareness of the Oklahoma experiment station and age categories among the general public of Oklahoma.

The results of Oklahoma residents' distribution by age as compared to levels of awareness of experiment station are reported in Table XXIV. Seventy percent of the respondents regardless of age were aware of the experiment station. Fifty-one percent were considered to have low awareness levels; whereas, 7.02 percent scored six or more awareness points and were classified in the high level of awareness.

The calculated Chi-square value of 33.68 was significant at the .0001 level. As a result, the null hypothesis was rejected. This indicated a relationship between levels of awareness of experiment station and ages of Oklahoma residents.

Due to the rejection of the null hypothesis, the difference in the awareness levels of the experiment station among the ages of Oklahoma residents was investigated in Figure 2. The percent of individuals having no awareness was least among the 35 to 49 age group. However, the 35 to 49 age group had the greatest percentage of individuals in the high level of awareness. The reverse of that relationship was observed in the

TABLE XXIV

AWARENESS OF EXPERIMENT STATION BY AGE CATEGORY OF RESPONDENTS

Level of Awareness	Distribution by Age										Total	
	18-24		25-34		35-49		50-62		> 63			
	N	%	N	%	N	%	N	%	N	%	N	%
0	94	6.00	95	6.07	97	6.19	64	4.09	114	7.28	464	29.63
1	60	3.83	89	5.68	104	6.64	98	6.26	111	7.09	462	29.50
2	16	1.02	36	2.30	31	1.98	32	2.04	31	1.98	146	9.32
3	26	1.66	50	3.19	47	3.00	42	2.68	35	2.23	200	12.77
4	8	0.51	13	0.83	29	1.85	22	1.40	19	1.21	91	5.81
5	7	0.45	17	1.09	22	1.40	20	1.28	13	0.83	79	5.05
6	2	0.13	2	0.13	20	1.28	12	0.77	8	0.51	44	2.81
7	3	0.19	9	0.57	18	1.15	7	0.45	8	0.51	45	2.87
8	4	0.26	4	0.26	9	0.57	10	0.64	8	0.51	35	2.24
Totals	220	14.05	315	20.12	377	24.07	307	19.60	347	22.16	1566	100.00

$X^2 = 33.68$, df = 6, $p < .0001$. The Chi-square value was calculated by combining cells within the variables of awareness and age into a 4 x 3 contingency table as reflected in Figure 2.

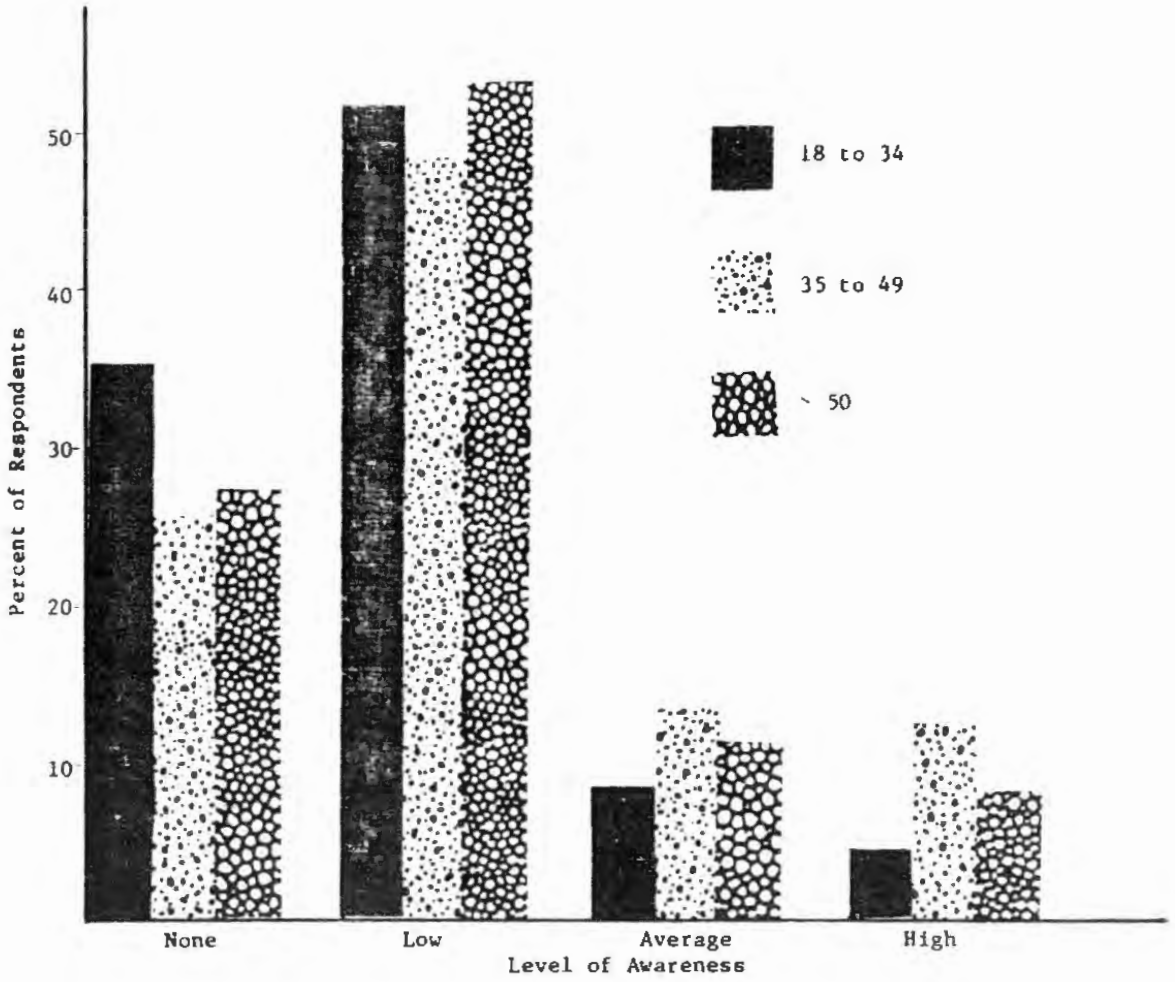

Figure 2. Awareness of Respondents by Age Category

18 to 34 age group. The highest percentage of individuals with no awareness were those individuals greater than 50 years of age. As a result of the graphic presentation provided in Figure 2, the research hypothesis which stated "The level of awareness of the Oklahoma State University Experiment Station increases as the age of the general public of Oklahoma increases" was rejected.

The largest contribution to the total Chi-square value was found in the fact that the 35 to 49 age group had more respondents with a high awareness of the experiment station than could be expected by chance. The cell contributed 9.9 to the total Chi-square value of 33.68.

Awareness of Experiment Station by Occupation

The null hypothesis states: There is no relationship between an awareness of the Oklahoma experiment station and occupations among the general public of Oklahoma.

One hundred and twenty-seven respondents were in agriculture or agriculture-related occupations and 1,260 individuals were involved in business-labor occupations. Ninety-nine percent of the agriculture or agriculture-related occupations were aware of the experiment station. This compared to 71.88 percent of the business and labor occupations. This data is found in Table XXV.

There was a relationship between agriculture or agriculture related occupations and business or labor occupations and an awareness of the experiment station. This was evidenced by a calculated Chi-square value of 135.34 which was significant at the .001 level. Therefore, the null hypothesis was rejected.

In Figure 3, a graphic presentation of the relationship of awareness

TABLE XXV

AWARENESS OF EXPERIMENT STATION BY OCCUPATION OF RESPONDENTS

Level of Awareness	Distribution by Occupation								Total	
	Agriculture		Agriculture Related		Business		Labor			
	N	%	N	%	N	%	N	%	N	%
0	10	0.72	5	0.36	120	8.65	270	19.47	405	29.02
1	20	1.44	2	0.14	131	9.44	256	18.46	409	29.49
2	4	0.29	3	0.22	48	3.46	72	5.19	127	9.16
3	13	0.94	1	0.07	71	5.12	93	6.71	178	12.83
4	14	1.01	2	0.14	28	2.02	37	2.67	81	5.84
5	10	0.72	2	0.14	28	2.02	32	2.31	72	5.19
6	9	0.65	3	0.22	14	1.01	14	1.01	40	2.88
7	12	0.87	3	0.22	11	0.79	18	1.30	44	3.17
8	8	0.58	6	0.43	8	0.58	9	0.65	31	2.24
Totals	100	7.21	27	1.95	459	33.09	801	57.75	1387	100.00

$X^2 = 135.345$, df = 3, $p < .0001$. The Chi-square was calculated by combining cells within the variables of awareness and ocupation into a 4 x 2 contingency table as reflected in Figure 3.

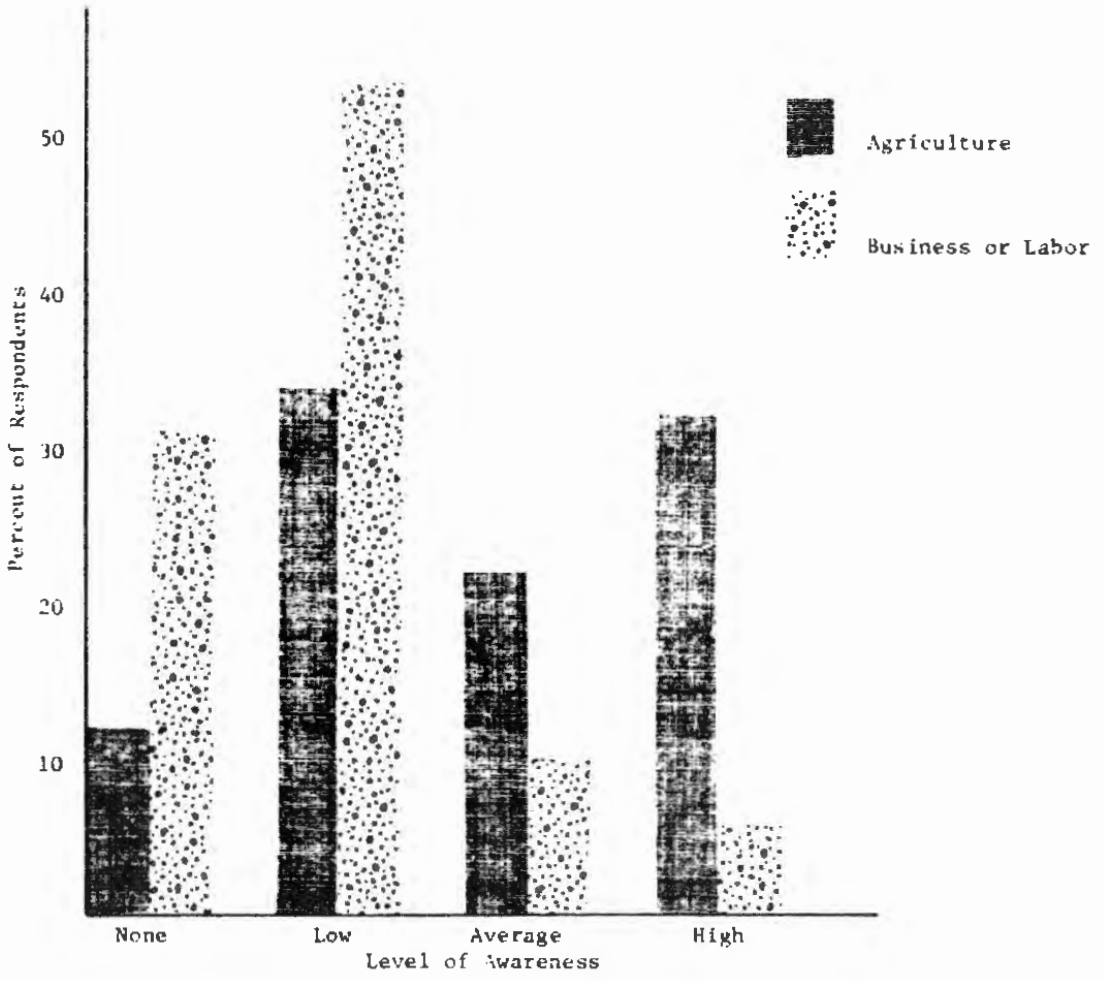

Figure 3. Awareness of Respondents by Occupation

and occupations was presented. It was apparent that the level of awareness of the Oklahoma State University experiment station was higher among agricultural occupations than among business and labor occupations. As a result, the research hypothesis was accepted. It should be pointed out that 32.28 percent of the agricultural occupations scored six or more awareness points and were considered high awareness. The business and labor occupations accounted for 5.87 percent within the high level of awareness.

Awareness of Experiment Station by Respondents' Perceived Involvement in Agriculture

The null hypothesis states: There is no relationship between an awareness of the Oklahoma experiment station and perceived involvement or non-involvement in agriculture among the general public of Oklahoma.

The data in Table XXVI compared the level of awareness of experiment station to frequency distributions of the respondents' perceptions of their involvement or non-involvement in agriculture. Forty-six percent (739) perceived themselves involved in agriculture and 53.73 percent (858) perceived themselves as having no involvement in agriculture. Of 739 individuals indicating involvement, 81.19 percent were aware of the experiment station. This compared to 61.07 percent of the 858 individuals not involved in agriculture who were aware of the experiment station. Of the total respondents (1,597) reported regardless of involvement, 70.38 percent were aware of the experiment station.

The Chi-square value of 158.21 in association with a probability of .0001 indicates a relationship between the level of awareness and the

TABLE XXVI

AWARENESS OF EXPERIMENT STATION BY RESPONDENTS' PERCEIVED INVOLVEMENT IN AGRICULTURE

Level of Awareness	Distribution by Agriculture Involvement				Total	
	Involved		Not Involved			
	N	%	N	%	N	%
0	139	8.70	334	20.91	473	29.62
1	197	12.34	277	17.35	474	29.68
2	67	4.20	81	5.07	148	9.27
3	113	7.08	91	5.70	204	12.77
4	58	3.63	32	2.00	90	5.64
5	61	3.82	22	1.38	83	5.20
6	37	2.32	7	0.44	44	2.75
7	37	2.32	9	0.56	46	2.88
8	30	1.88	5	0.31	35	2.19
Totals	739	46.27	858	53.73	1597	100.00

$X^2 = 158.21$, df = 3, $p < .0001$. The Chi-square was calaculated by combining cells within the variable awareness to make a 4 x 2 contingency table as reflected in Figure 4.

perceived involvement of Oklahoma residents with agriculture. Therefore, the null hypothesis was rejected.

The research hypothesis states: The level of awareness of the experiment station is higher among Oklahomans who perceived a direct involvement with agriculture than Oklahomans who perceived no involvement with agriculture.

The graphic presentation in Figure 4 depicts the relationship stated in the research hypothesis. Therefore, the research hypothesis was accepted. The data in Figure 4 was derived from Table XXVI.

Respondents' Awareness of Experiment Station by How Involved

Once respondents indicated a perceived involvement in agriculture, that perception was pursued in order to determine how those respondents were involved in agriculture. The data was used as support and clarification for respondents' perceived involvement in agriculture. No hypothesis was tested for the data "how involved." The response to "how involved" is presented as a distribution of respondents by awareness in Table XXVII.

It was determined from the data that 56.97 percent of the total respondents (732) were involved in gardening and 24.59 percent were part-time farmers. In addition, 12.29 percent comprised the category "other" and 6.15 percent were involved in agri-business. Eighty-one percent of those 732 individuals were aware of the experiment station. The individuals who scored either one, two, or three awareness points comprised 51.37 percent, or 376 individuals, of the total 732 respondents. Nearly

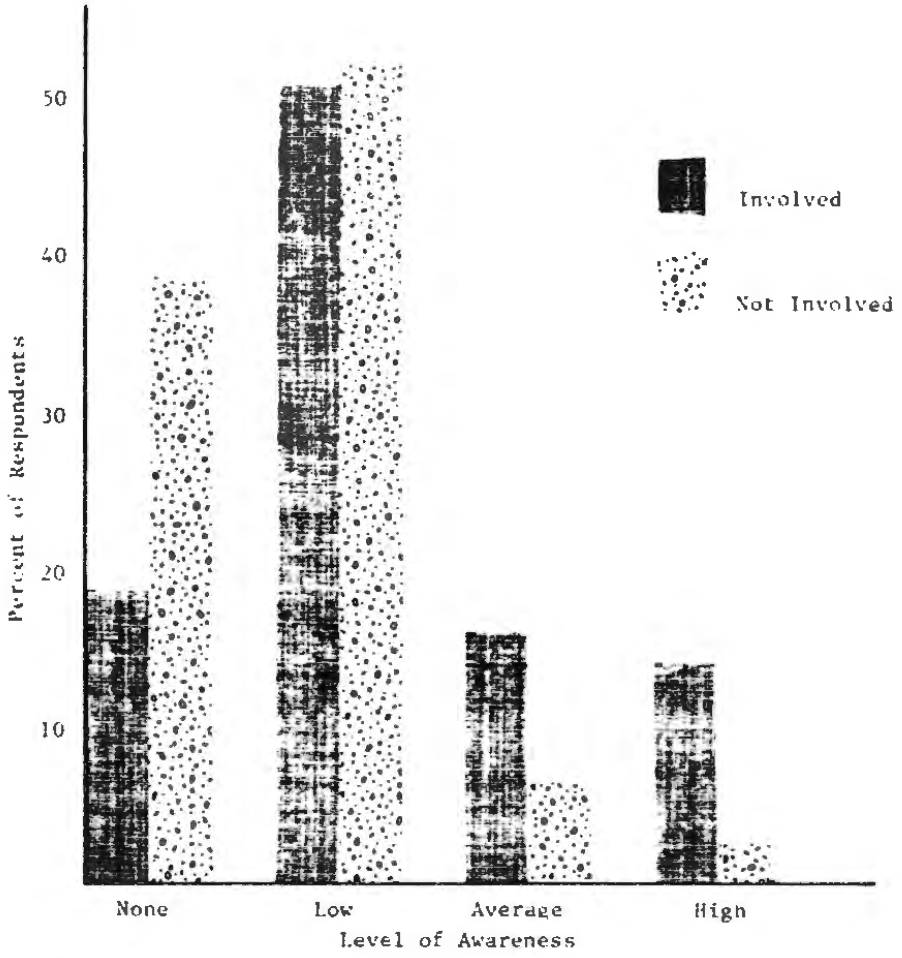

Figure 4. Awareness by Respondents' Involvement in Agriculture

TABLE XXVII

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY HOW INVOLVED

Level of Awareness	Distribution by How Involved								Total	
	Part-Time Farming		Gardening		Agri-Business		Other			
	N	%	N	%	N	%	N	%	N	%
0	32	4.37	83	11.34	6	0.82	17	2.32	138	18.85
1	34	4.64	137	18.72	7	0.96	20	2.73	198	27.05
2	15	2.05	38	5.19	3	0.41	10	1.37	66	9.02
3	26	3.55	72	9.84	9	1.23	5	0.68	112	15.30
4	17	2.32	26	3.55	3	0.41	12	1.64	58	7.92
5	20	2.73	27	3.69	5	0.68	8	1.09	60	8.20
6	15	2.05	12	1.64	4	0.55	5	0.68	36	4.92
7	11	1.50	13	1.78	5	0.68	5	0.68	34	4.64
8	10	1.37	9	1.23	3	0.41	8	1.09	30	4.10
Totals	180	24.59	417	56.97	45	6.15	90	12.29	732	100.00

$X^2 = 42.996$, df = 9, $p < .0001$. The Chi-square was calculated by combining cells within the variable awareness to make a 4 x 4 contingency table as reflected in Figure 5.

14 percent scored six or more awareness points and were considered within the high level of awareness.

The Chi-square value of 42.996 was significant at the .0001 level. The high significance level would indicate a relationship of awareness of experiment station among how respondents were involved in agriculture.

Data in Figure 5 demonstrates the fact that individuals involved in agri-business had the lowest percentage of people with no awareness and the highest percentage of individuals with high awareness of the experiment station.

Respondents' Awareness of Experiment Station by Educational Level

The data in Table XXVIII was used to test the hypothesis that there is no relationship between an awareness of the experiment station and education among the residents of Oklahoma.

The distribution in the table represents the responses of 1,582 individuals. Forty-two percent had three to four years of high school while 37.92 percent had college training. Over 70 percent of the 1,582 respondents were aware of the experiment station.

The Chi-square value in association with the probability of .0001 indicates a strong relationship between the level of awareness and the educational level among Oklahoma residents. Therefore, the null hypothesis was rejected.

The strong positive relationship apparent in Figure 6 indicated that the research hypothesis which states that an increase in level of awareness of experiment station was associated with an increase in education was accepted.

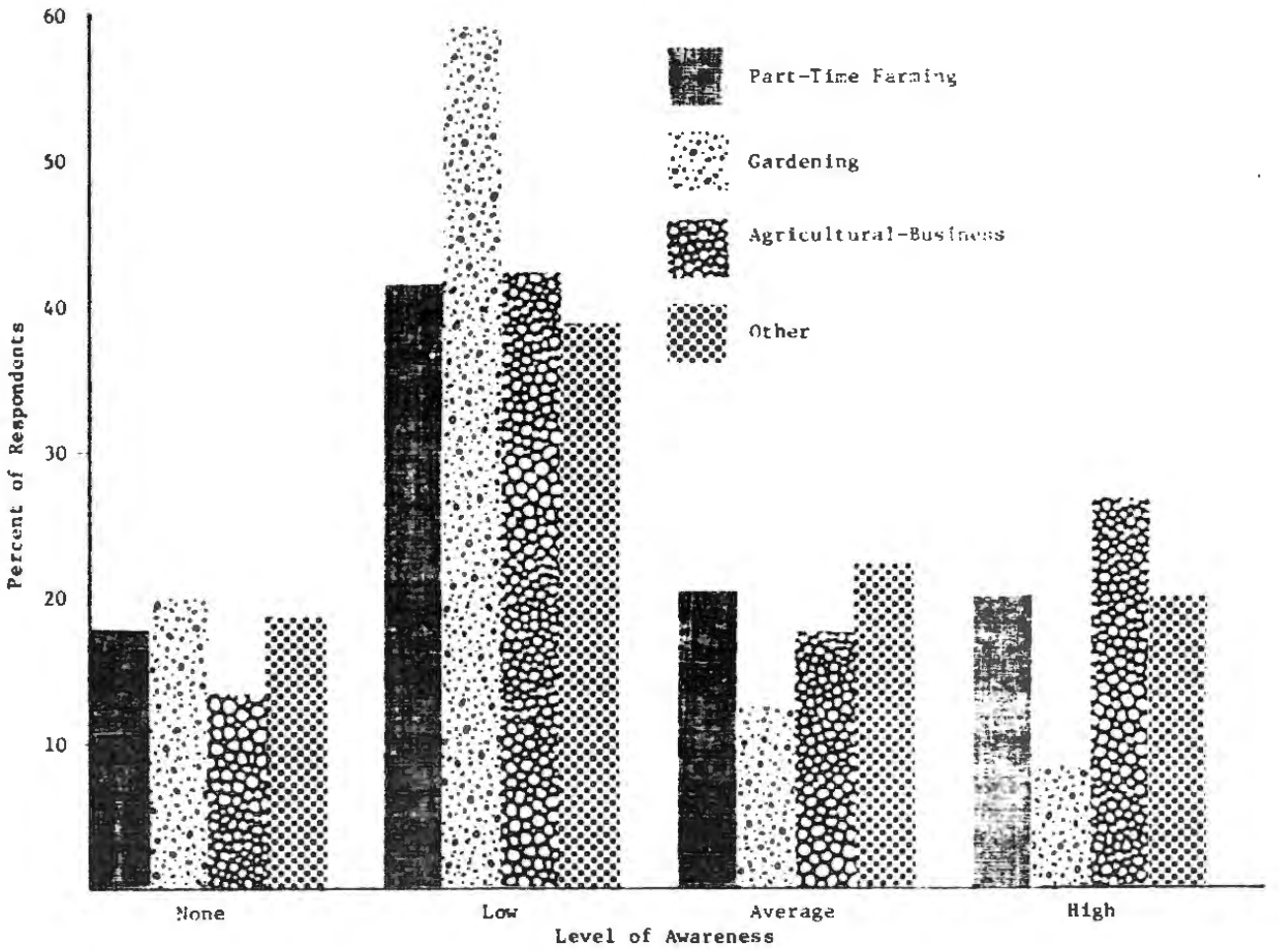

Figure 5. Awareness of Respondents by How Involved in Agriculture

TABLE XXVIII

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY EDUCATIONAL LEVEL

Level of Awareness	Distribution by Education													
	0-8		1-2 High School		3-4 High School		1-2 College		3-4 College		> 4 College		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	81	5.12	53	3.35	216	13.65	55	3.48	48	3.03	14	0.88	467	29.52
1	65	4.11	35	2.21	204	12.90	80	5.06	60	3.79	29	1.83	473	29.90
2	10	0.63	8	0.51	64	4.05	35	2.21	16	1.01	14	0.88	147	9.29
3	14	0.88	14	0.88	83	5.25	39	2.47	29	1.83	19	1.20	198	12.52
4	8	0.51	7	0.44	31	1.96	10	0.63	25	1.58	11	0.70	92	5.81
5	4	0.25	5	0.32	26	1.64	17	1.07	19	1.20	12	0.76	83	5.25
6	1	0.06	2	0.13	20	1.26	6	0.38	6	0.38	6	0.38	41	2.59
7	2	0.13	0	0.00	16	1.01	9	0.70	11	0.70	8	0.51	46	2.91
8	0	0.00	1	0.06	12	0.76	7	0.44	7	0.44	8	0.51	35	2.21
Totals	185	11.69	125	7.90	672	42.98	258	16.31	221	13.97	121	7.65	1582	100.00

$X^2 = 114.75$, df = 15, $p < .0001$. The Chi-square value was calculated by combining cells within the variable awareness to make a 4 x 6 contingency table as reflected in Figure 6.

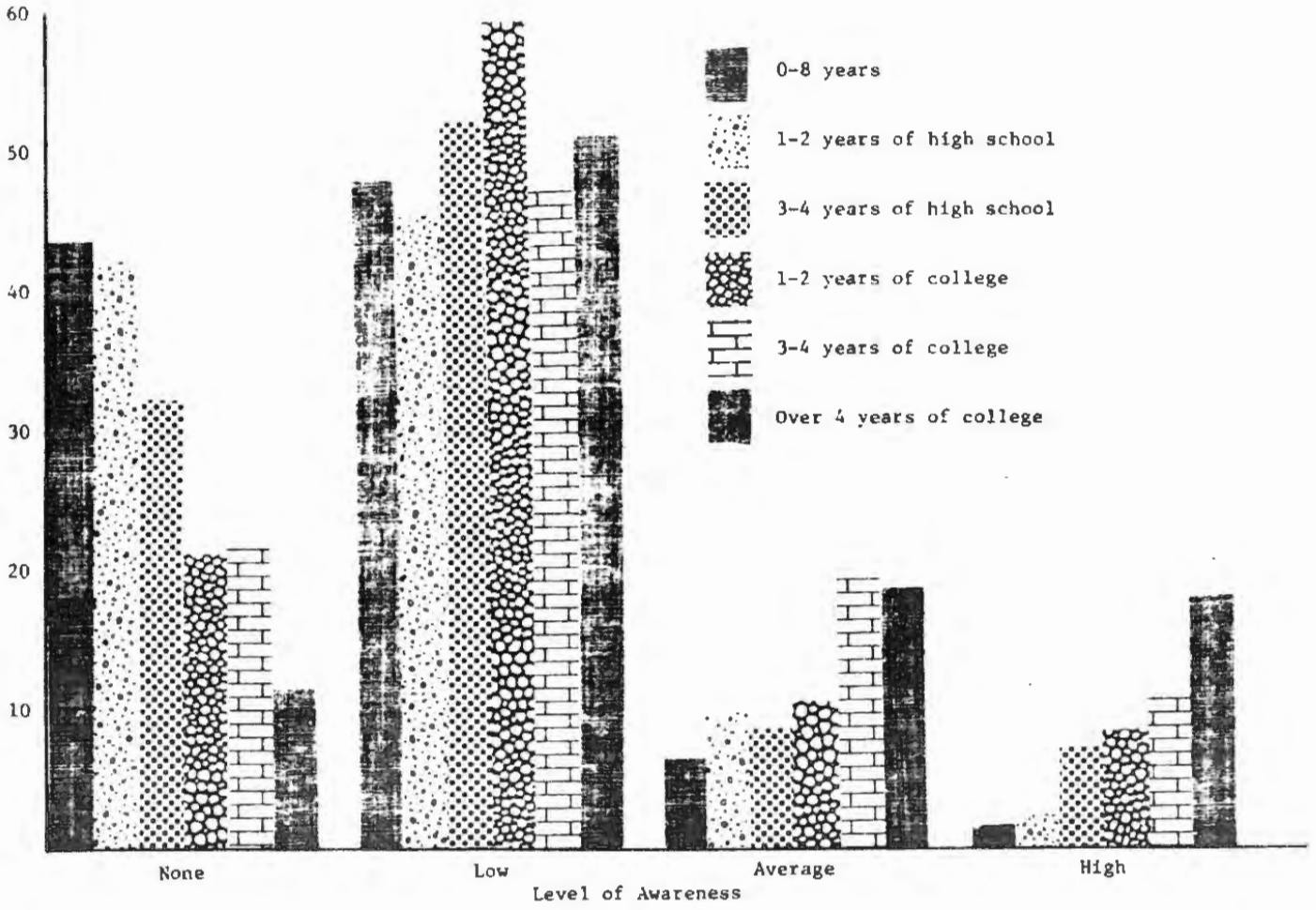

Figure 6. Awareness of Respondents by Educational Level

Respondents' Awareness of Experiment Station by Race

The null hypothesis states: There is no relationship between racial/ethnic groups and an awareness of the Oklahoma experiment station.

The data in Table XXIX revealed that 91.27 percent of the respondents were white, compared to 4.68 percent black and 3.74 percent Indian. Other racial groups contributed .80 percent of the 1,604 individuals responding. The highest percentage (50.67) of individuals with no awareness were black. Whites had the lowest percentage (28.48) of individuals with no awareness of experiment station. However, the derived data indicated that the white race had the highest percentage of individuals (8.06) with a high level of awareness.

A Chi-square probability of .0158 indicated a significant relationship between awareness and racial/ethnic groups. Therefore, the null hypothesis was rejected.

When considering the relationship after graphing the derived data from the table, the resulting relationship can be observed in Figure 7. Taking into consideration the research hypothesis which indicated that the white majority had a higher awareness of the experiment station than other minority groups, the hypothesis would be accepted.

Respondents' Awareness of Experiment Station by Sex Classification

The data in Table XXX was analyzed in regard to the hypothesis that there is no relationship between male and female Oklahomans and an awareness of the Oklahoma experiment station.

TABLE XXIX

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY RACE

Level of Awareness	Distribution by Race/Ethnic Group												Total	
	White		Black		Indian		Asian		Hispanic		Other			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	417	26.00	38	2.37	18	1.12	0	0.00	5	0.31	1	0.06	479	29.86
1	439	27.37	22	1.37	12	0.76	2	0.12	1	0.06	0	0.00	476	29.68
2	139	8.67	3	0.19	5	0.31	0	0.00	1	0.06	0	0.00	148	9.73
3	188	11.72	4	0.25	9	0.56	0	0.00	1	0.06	1	0.06	203	12.65
4	90	5.61	2	0.12	1	0.06	0	0.00	0	0.00	0	0.00	93	5.80
5	73	4.55	3	0.19	4	0.25	0	0.00	1	0.06	0	0.00	81	5.05
6	40	2.49	1	0.06	2	0.12	0	0.00	0	0.00	0	0.00	43	2.68
7	44	2.74	1	0.06	1	0.06	0	0.00	0	0.00	0	0.00	46	2.87
8	34	2.12	1	0.06	0	0.00	0	0.00	0	0.00	0	0.00	35	2.18
Totals	1464	91.27	75	4.68	52	3.24	2	0.12	9	0.56	2	0.12	1604	100.00

$X^2 = 20.36$, df = 9, $p < .0158$. The Chi-square value was calculated by combining cells within the variables race and awareness to make a 4 x 4 contingency table as reflected by Figure 7.

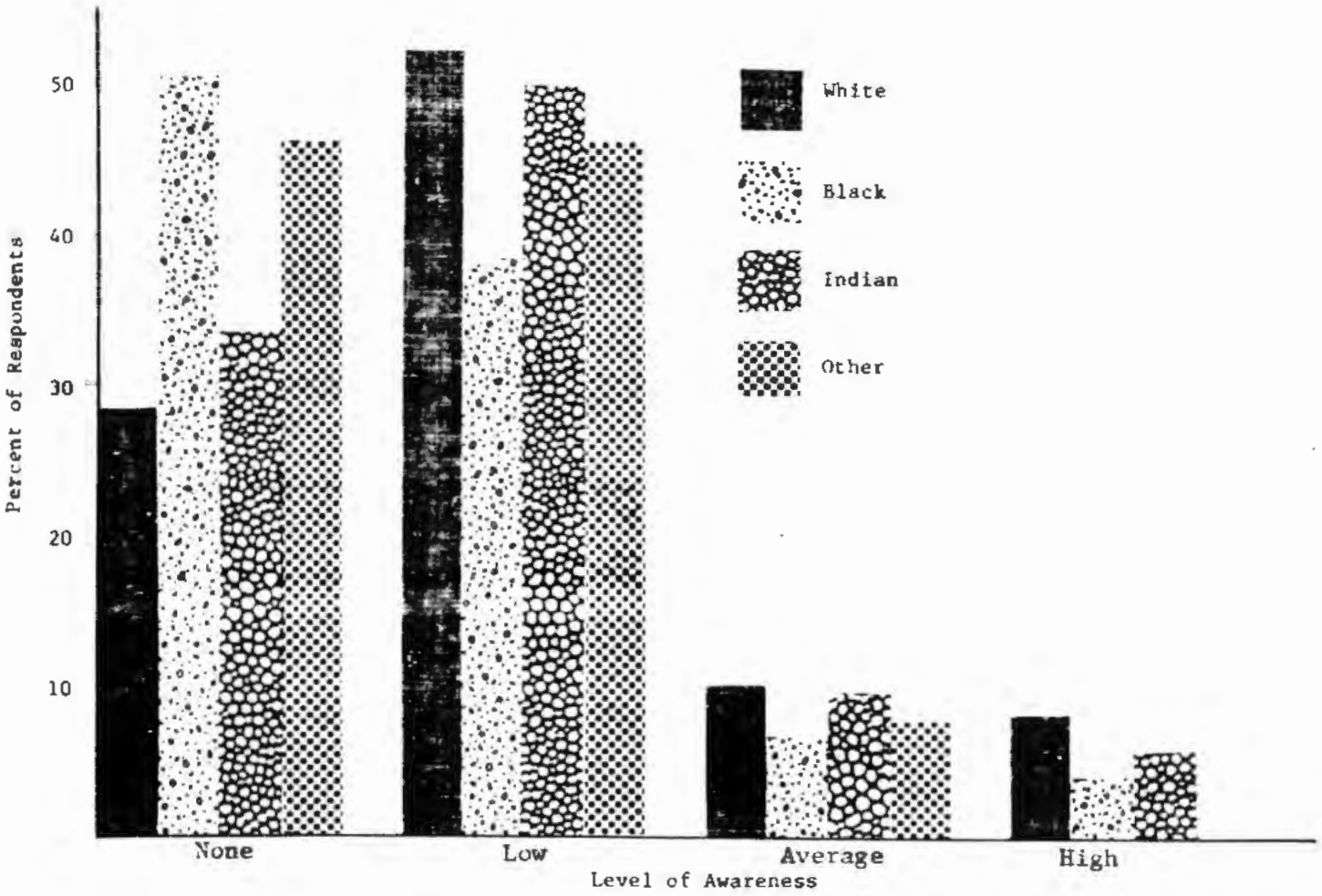

Figure 7. Awareness of Respondents by Race

TABLE XXX

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY SEX CLASSIFICATION

Level of Awareness	Distribution by Sex				Total	
	Female		Male			
	N	%	N	%	N	%
0	337	20.59	164	10.02	501	30.60
1	309	18.88	175	10.69	484	29.57
2	98	5.99	50	3.05	148	9.04
3	120	7.33	83	5.07	203	12.40
4	59	3.60	34	2.08	93	5.68
5	46	2.81	37	2.26	83	5.07
6	24	1.47	20	1.22	44	2.69
7	22	1.34	24	1.47	46	2.81
8	14	0.86	21	1.28	35	2.14
Totals	1029	62.86	608	37.14	1637	100.00

$X^2 = 16.78$, df = 3, $p < .0008$. The Chi-square value was calculated by combining the cells of the variable awareness creating a 4 x 2 contingency table as reflected in Figure 8.

Information provided in the table showed that 62.86 percent of the 1,637 respondents were female and 37.14 percent were male. Sixty-nine percent of the individuals (1,637) had some awareness of the experiment station. Fifty-one percent accumulated between 1 to 3 awareness points and were considered to have a low awareness. One hundred and twenty-five had a high level of awareness or had accumulated 6 to 8 awareness points.

Thirty-two percent of the females had no awareness of the experiment station compared to 26.97 percent of the males. The high awareness level (6 to 8 awareness points) was comprised of 5.83 percent female and 10.69 percent male.

From a Chi-square value of 16.783 and a probability of .0008 it was concluded that a strong relationship does in fact exist between awareness and sex. Therefore, the null hypothesis was rejected.

The graphic representation of the relationship awareness by sex is presented in Figure 8. The figure indicates that the research hypothesis, the level of awareness of experiment station among males is higher than among females, was accepted.

Respondents' Awareness of Experiment Station by Perceptions of Food Prices

The null hypothesis tested in Table XXXI is that there is no relationship between food prices and an awareness of the Oklahoma experiment station among Oklahoma residents.

Table XXXI revealed the data for 1,618 Oklahoma residents who responded to the question concerning agricultural research and food prices. Note that 1,056 individuals (65.19 percent), whether they were aware or not, perceived food prices to be higher without agricultural research.

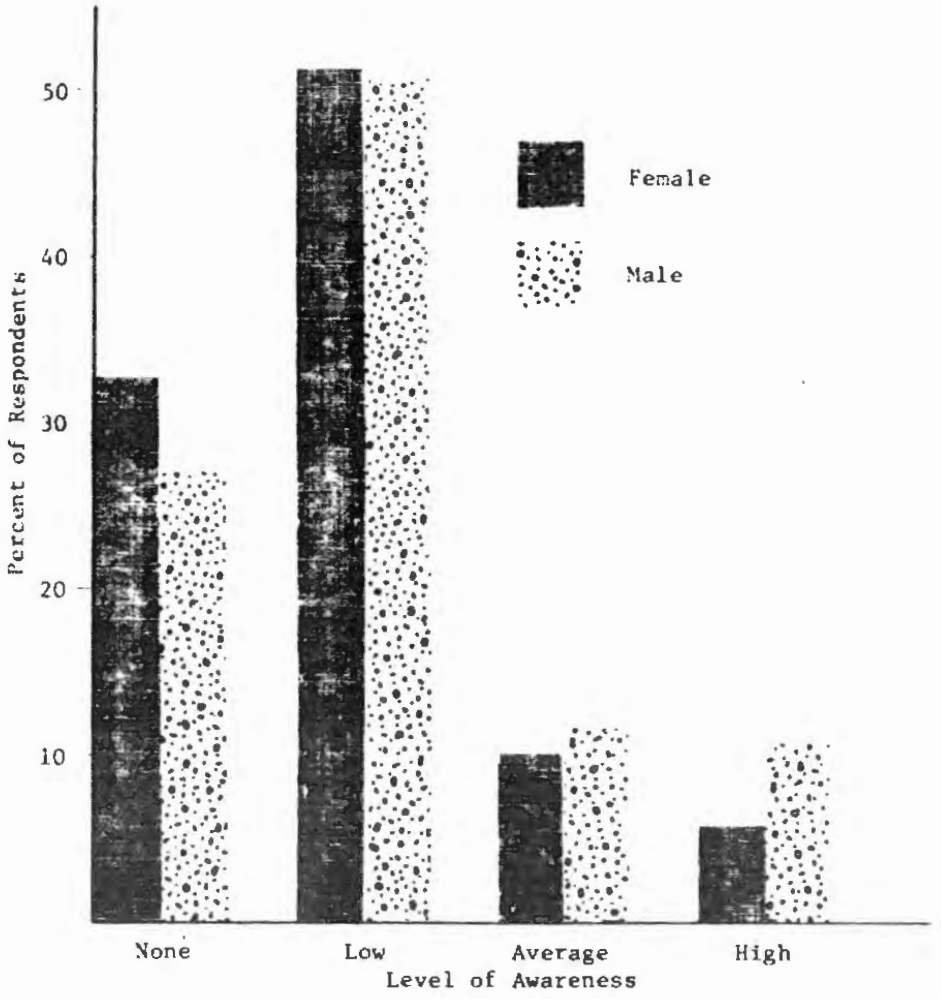

Figure 8. Awareness of Respondents by Sex

TABLE XXXI

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY FOOD PRICES

Level of Awareness	Distribution by Prices						Total	
	Higher		Lower		Don't Know			
	N	%	N	%	N	%	N	%
0	290	17.90	56	3.46	144	8.89	490	30.25
1	305	18.83	62	3.83	114	7.04	481	29.69
2	99	6.11	12	0.74	37	2.28	148	9.14
3	134	8.27	17	1.05	50	3.09	201	12.41
4	71	4.38	6	0.37	15	0.93	92	5.68
5	60	3.70	6	0.37	17	1.05	83	5.12
6	35	2.16	5	0.31	5	0.31	45	2.78
7	36	2.22	2	0.12	8	0.49	46	2.84
8	26	1.60	5	0.31	3	0.19	34	2.10
Totals	1056	65.18	171	10.56	393	24.26	1620	100.00

$X^2 = 25.71$, df = 6, $p < .0003$. The Chi-square values were calculated by combining cells within the variable awareness creating a 4 x 3 contingency table as reflected in Figure 9.

Three hundred and ninety-three individuals were not sure what food prices would be if there had not been research in agriculture.

The Chi-square value of 25.706 was significant at the .0003 level and indicated a relationship between awareness and food prices. Therefore, the null hypothesis was rejected.

Figure 9 provides a graphic presentation of derived data from Table XXXI and exhibits the relationship in the research hypothesis. The research stated, residents of Oklahoma who perceived food prices to be higher without agricultural research were more aware of the experiment station than Oklahomans who perceived prices to be lower. The research hypothesis was accepted.

Respondents' Awareness of Experiment Station by Amount of Research Input

Data in Table XXXII was used to test the hypothesis that there is no relationship between the amount of research input by Oklahomans in determining research efforts at Oklahoma State University and an awareness of the experiment station among Oklahoma residents.

Respondents were asked to indicate how much input the Oklahoma public had in determining agricultural research efforts at Oklahoma State University. Sixteen hundred and eighteen individuals responded by indicating large amounts of input, small amounts of input, none, and don't know/not sure. The data revealed 18.29 perceived large amounts of input, 19.59 percent indicated small amounts, 2.66 percent responded more, and the majority of respondents (59.46 percent) did not know or were not sure.

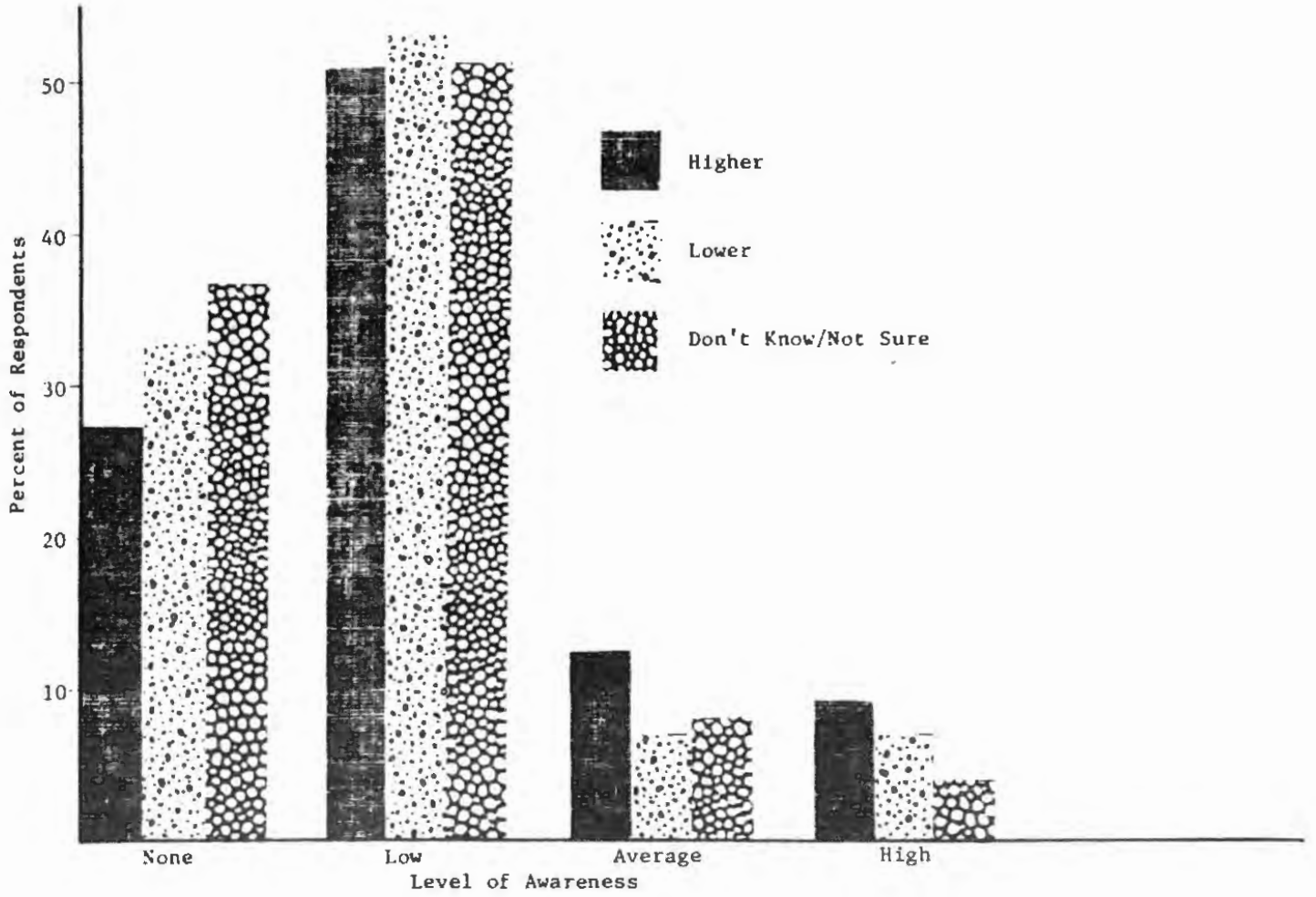

Figure 9. Awareness of Respondents by Food Prices

TABLE XXXII

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY AMOUNT OF RESEARCH INPUT

Level of Awareness	Distribution by Research Input: Large N	Large %	Small N	Small %	None N	None %	Don't Know N	Don't Know %	Total N	Total %
0	37	2.29	59	3.65	17	1.05	372	22.99	485	29.98
1	74	4.57	87	5.38	15	0.93	301	29.48	477	29.48
2	31	1.92	31	1.92	4	0.25	83	5.13	149	9.21
3	49	3.03	53	3.28	2	0.12	101	6.24	205	12.67
4	28	1.73	27	1.67	2	0.12	36	2.22	93	5.75
5	30	1.85	21	1.30	2	0.12	30	1.85	83	5.13
6	14	0.87	12	0.74	1	0.06	18	1.11	45	2.78
7	16	0.99	14	0.87	0	0.00	16	0.99	46	2.84
8	17	1.05	13	0.80	0	0.00	5	0.31	35	2.16
Totals	296	18.29	317	19.59	43	2.66	962	59.46	1618	100.00

$X^2 = 162.43$, df = 9, $p < .0001$. The Chi-square value was calculated by combining cells within the variable awareness to create a 4 x 4 contingency table as reflected by Figure 10.

Percentage of respondents based on awareness scores was 29.98 percent no awareness, 51.36 percent low awareness (1 to 3 points scored on awareness), 10.88 percent average awareness (4 to 5 points), and 7.79 percent high awareness (over 6 awareness points).

A Chi-square value of 162.43 was significant at the .0001 level. Therefore, a strong relationship was apparent and the null hypothesis rejected.

Through further investigation of derived data in Table XXXII, the research hypothesis was accepted. This data was recorded in Figure 10. The research hypothesis described the relationship to show that Oklahomans who perceived large amounts of input in determining research efforts at Oklahoma State University had a higher level of awareness than those perceiving small inputs.

From the figure it is apparent that the percentage of Oklahomans with no awareness was lowest among the group perceiving large inputs in determining research efforts at O.S.U. The opposite of that exists at high awareness levels. The highest percentage of individuals with high awareness perceived large inputs to research efforts at O.S.U.

Respondents' Awareness of Experiment Station by Source of Obtaining Research Information

The null hypothesis states that there is no relationship between an awareness of the Oklahoma experiment station and the method Oklahomans obtain research information.

Forty-two percent of the respondents in Table XXXIII indicated reading to be their main source of obtaining research information. Hearing contributed 474 individuals or 29.31 percent of the total respondents to

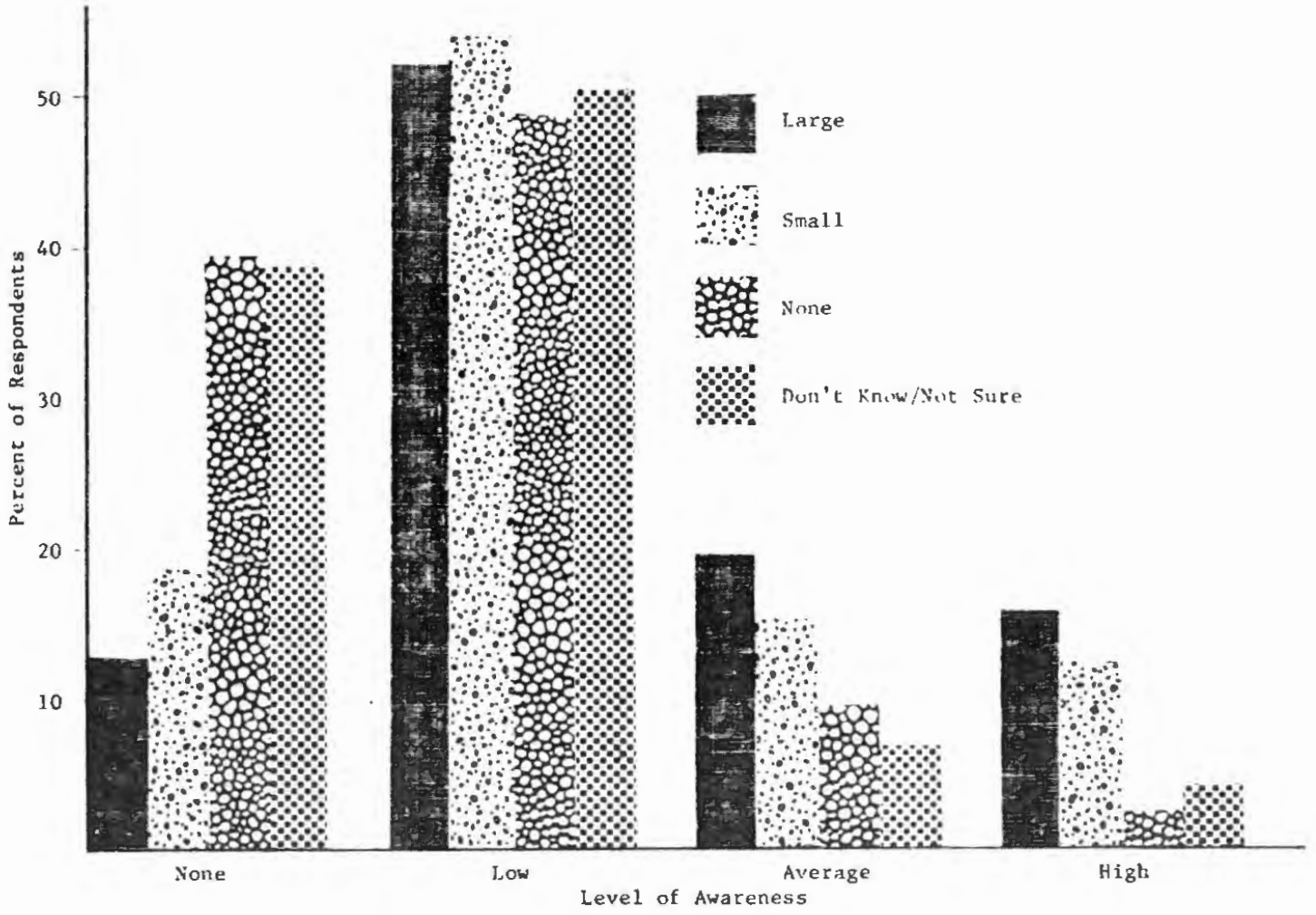

Figure 10. Awareness of Respondents by Research Input

TABLE XXXIII

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY SOURCE OF OBTAINING RESEARCH INFORMATION

Level of Awareness	Distribution by Source								Total	
	Reading		Hearing		Personal Observation		Don't Know			
	N	%	N	%	N	%	N	%	N	%
0	144	8.91	109	6.74	45	2.78	186	11.05	484	29.93
1	230	14.22	151	9.34	44	2.72	55	3.40	480	29.69
2	69	4.27	54	3.34	10	0.62	15	0.93	148	9.15
3	85	6.26	75	4.64	35	2.16	9	0.56	204	12.62
4	47	2.91	28	1.73	15	0.93	2	0.12	92	5.69
5	42	2.60	28	1.73	13	0.80	0	0.00	83	5.13
6	29	1.79	11	0.68	4	0.25	1	0.06	45	2.78
7	27	1.67	11	0.68	8	0.49	0	0.00	46	2.84
8	14	0.87	7	0.43	14	0.87	0	0.00	35	2.17
Totals	687	42.49	474	29.31	188	11.63	268	16.57	1617	100.00

$X^2 = 267.43$, df = 9, $p < .0001$. The Chi-square value was calculated by combining cells within the variable awareness to create a 4 x 4 contingency table as reflected in Figure 11.

the distribution by source. Personal observation accounted for 11.63 percent of the total individuals responding.

Of the 1,617 individuals responding to the question, regardless of level of awareness, 42.49 percent used reading as their main source of information in obtaining research information.

Of respondents who indicated a low awareness (832) of the Experiment Station 46.15 percent read, 33.65 percent heard, 10.70 percent used personal observation, and 9.50 percent were not sure of where they obtained their research information. Of those individuals in the high level of awareness 55.56 percent read, 23.02 percent heard, 20.63 percent by personal observation, and 0.79 percent were not sure where they obtained research information. Note the change in percentage of individuals among low awareness levels (10.70 percent) and high awareness levels (20.63 percent) who used personal observation to obtain research information.

The Chi-square value of 267.43 was significant at the .0001 level which indicated a relationship between the variables of awareness and source of obtaining research information. Therefore, the null hypothesis was rejected.

Figure 11 illustrates graphically the relationship of respondents' awareness by the source from which they obtained research information. It is apparent that a higher percentage of respondents with low awareness used "hearing" as their source for obtaining research information. On the other hand, as levels of awareness increase to average or high awareness, the main source for obtaining research information was personal observation. Due to the relationship illustrated in Figure 11, the research hypothesis which stated that Oklahomans who indicated an awareness

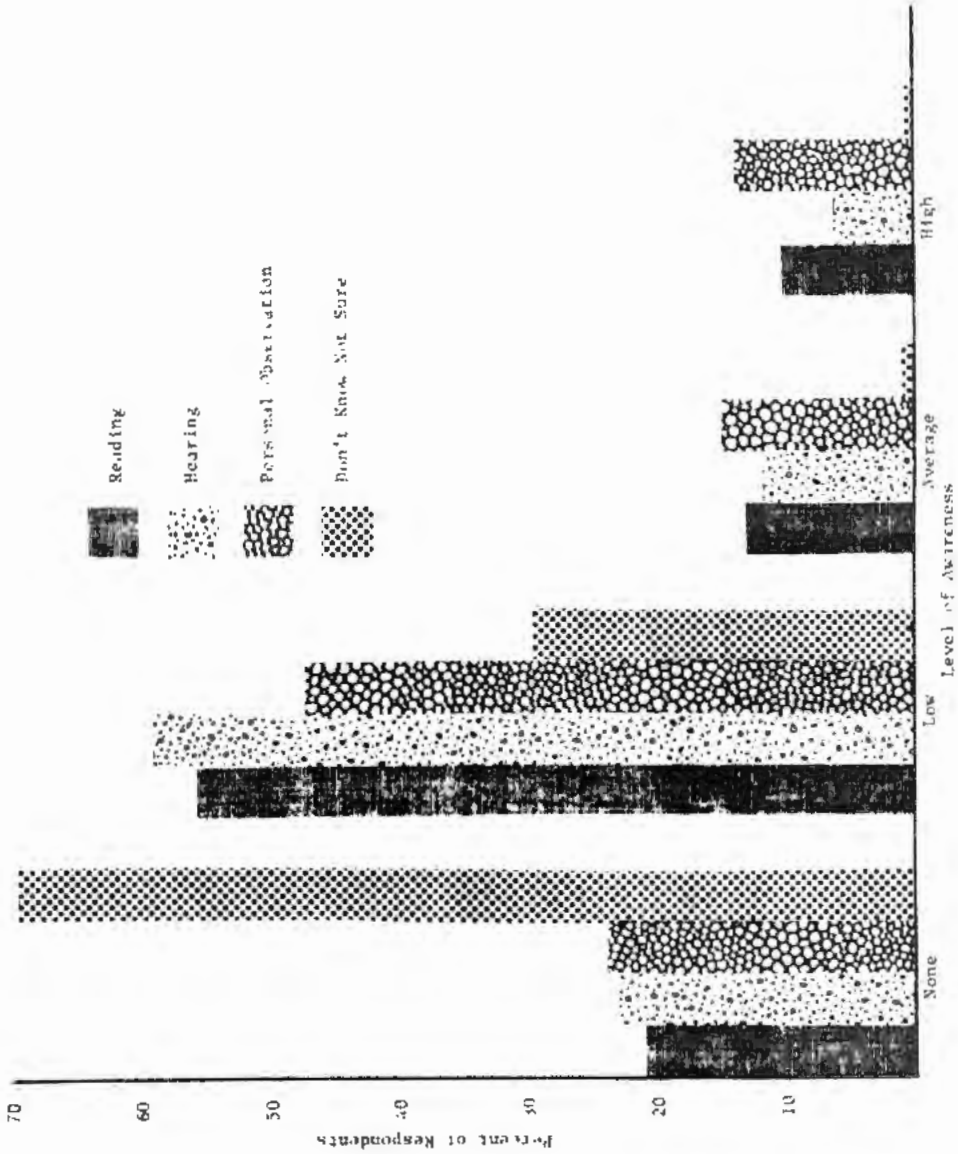

Figure 11. Awareness of Respondents by Source of Research

of the Experiment Station identified the main source of obtaining research information at any level of awareness to be reading was rejected.

Respondents' Awareness of Experiment Station by Specific Source Used to Obtain Research Information

After responses to the question concerning where respondents' main source of information about research was obtained they were asked to define their main source further by indicating a specific source. No attempt was made to test a hypothesis concerning specific sources but only as additional information in support and for the clarification of the main sources used by respondents. In Table XXXIV the data represents the distribution of those specific sources.

Taking into consideration the total number of respondents (1,287) by all specific sources reported, reading newspapers represented 28.75 percent (or 370 individuals) who used this specific source for obtaining research information. Nearly 14 percent of the total (or 117 individuals) heard about research from a friend. Of the 1,287 respondents, 2.18 percent (or 28 individuals) made personal observations of research on O.S.U. research farms.

The total individuals (725) who had a low level of awareness indicated that 32.14 percent of those individuals read newspapers to obtain research information and 14.34 percent read magazines. Those respondents who were of high awareness levels (122) indicated that 19.62 percent read magazines where 18.03 percent read newspapers. It should be noted that use of newspapers and magazines reverses between low and high awareness levels among respondents.

TABLE XXXIV

RESPONDENTS' AWARENESS OF EXPERIMENT STATION BY SPECIFIC SOURCE OF OBTAINING RESEARCH INFORMATION

Level of Awareness	Distribution by Specific Source																									
	Reading								Hearing										Personal Observation							
	Magazines		Newspapers		Fact Sheets		Other		Radio		TV		Friend		County Agent		Other		Farm		Garden		OSU Farm		Other		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	39	3.03	86	6.68	9	0.70	1	0.08	27	2.10	28	2.18	38	2.95	3	0.23	7	0.54	22	1.71	8	0.62	2	0.16	9	0.70	279	21.68
1	69	5.36	138	10.72	14	1.09	1	0.08	32	2.49	53	4.12	55	4.27	3	0.23	7	0.54	25	1.94	4	0.31	4	0.31	11	0.85	416	32.32
2	11	0.85	48	3.73	7	0.54	2	0.16	8	0.62	13	1.01	24	1.86	5	0.39	2	0.16	4	0.31	0	0.00	0	0.00	4	0.31	128	9.95
3	24	1.86	47	3.65	5	0.39	1	0.08	10	0.78	14	1.09	30	2.33	12	0.93	5	0.39	17	1.32	4	0.31	6	0.47	6	0.47	181	14.06
4	19	1.48	16	1.24	8	0.62	0	0.00	6	0.47	5	0.39	12	0.93	3	0.23	2	0.16	7	0.54	2	0.16	3	0.23	6	0.23	86	6.68
5	18	1.40	13	1.01	8	0.62	1	0.08	3	0.23	4	0.31	7	0.54	6	0.47	3	0.23	8	0.62	0	0.00	2	0.16	2	0.16	75	5.83
6	7	0.54	11	0.85	8	0.62	2	0.16	2	0.16	2	0.16	5	0.39	1	0.08	1	0.08	1	0.08	0	0.00	2	0.16	0	0.00	42	3.26
7	11	0.85	7	0.54	9	0.70	0	0.00	1	0.08	3	0.23	5	0.39	1	0.08	1	0.08	3	0.23	1	0.08	3	0.23	1	0.08	46	3.57
8	6	0.47	4	0.31	2	0.16	1	0.08	1	0.08	0	0.00	1	0.08	4	0.31	1	0.08	6	0.47	0	0.00	6	0.47	2	0.16	34	2.64
Totals	204	15.85	370	28.75	70	5.44	9	0.70	90	6.99	122	0.48	177	13.75	38	2.95	29	2.23	93	7.23	19	1.48	28	2.18	38	2.95	1287	100.00

$X^2 = 136.46$, df = 39, p .0001. The Chi-square value was calculated by combining cells within the variable awareness to create a 4 x 4 contingency table as reflected in Figure 12.

In considering the responses of the 725 individuals in the low awareness level, in regard to the source presonal observation, 6.34 percent obtained information concerning research on farms whereas 1.38 percent obtained information from O.S.U. research farms. The high awareness group (122 individuals) reversed that relationship with 9.02 percent obtaining information from O.S.U. research farms and 8.20 percent obtaining their information from other farms.

Respondents' Occupations by Number of Times Research Used

The null hypothesis states that there is no relationship between occupations and the number of times research is used among the residents of Oklahoma.

Of the 254 respondents who had used agricultural research, 63 were involved in agricultural occupations and 191 were involved in business or labor occupations as reported by the data in Table XXXV.

The respondents with agricultural occupations had increasing percentages of people as the number of times research was used. Nineteen percent had used research once, 28.57 percent had used research two or three times, and 52.38 percent had used research more than four times. In comparison, respondents in the business and labor occupations, 26.18 percent of the 191 individuals used research one time, 41.36 percent used research two or three times, and 32.46 percent used research more than four times.

The value of the Chi-square was 8.042 and was found to be significant at the .0179 level. Therefore, the null hypothesis was rejected.

TABLE XXXV

RESPONDENTS' OCCUPATION BY NUMBER OF TIMES RESEARCH USED

Occupations	Distribution by Times Used Research: 1 Time %	1 Time N	2-3 Times %	2-3 Times N	> 4 Times %	> 4 Times N	Total %	Total N
Agriculture and Agriculture Related	12	4.72	18	7.09	33	12.99	63	24.80
Business and Labor	50	19.69	79	31.10	62	24.41	191	75.20
Total Responses	62	24.41	97	38.19	95	37.40	254	100.00

$X^2 = 8.042$, df = 2, $p < 0179$. The Chi-square value was calculated by combining cells within the variable occupation to create a 2 x 3 contingency table as reflected in Figure 12.

Figure 12 used derived data to graphically represent the relationship between occupations and the number of times research was used. The relationship exhibited in the figure resulted in the rejection of the following research hypothesis: Residents of Oklahoma whose occupation was agriculture or agriculture related used research more times than residents involved in business or labor occupations. Note that business and labor occupations consistently have higher percentages of respondents using research in the categories "one time" and "two to three times" than does agriculture or agriculture related occupations. Only in the category of "greater than four times" do respondents with agricultural occupations use research more often than those with business and labor occupations.

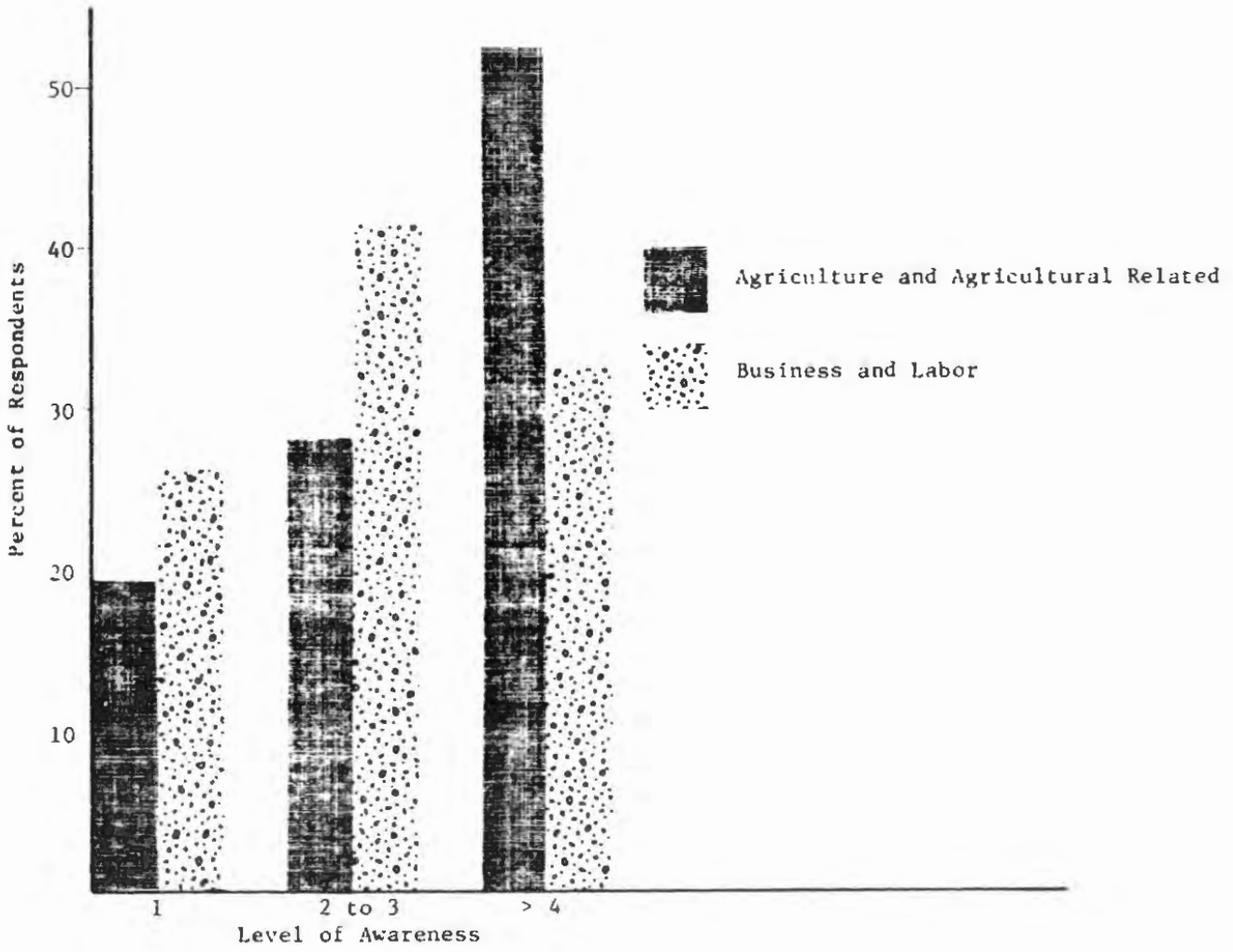

Figure 12. Respondents' Occupation by Times Used Research

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The intent of this chapter was to present concise summaries of the following topics: purpose of the study, rationale for the study, design of the study, and the major findings of the research. Through a detailed inspection of these topics, conclusions and recommendations were presented based on the analysis of the data.

Purpose of the Study

The primary purpose of this study was to determine a baseline awareness of the Oklahoma residents in reference to the Agricultural Experiment Station in the Division of Agriculture at Oklahoma State University and to compare that perceived awareness among groups comprising different income, age, occupation, agricultural involvement, education, racial/ethnic groups, and sex categories of residents of Oklahoma.

Rationale of the Study

The declaration given by Congress when it passed the Hatch Act was to furnish practical information on subjects connected with agriculture and diffuse that information among the people of these United States.

The Experiment Station was designed to provide practical information to all people requiring such information based on the need of their geographic surroundings and environmental conditions.

The importance of meeting the needs of the people, serving their particular interests, and diffusing the results of experiment station research among the people it serves has given reason to ask: Are the people that are being served informed? Clark (5) indicated providing information to the public is a continuing priority. He also indicated that the information program is to provide people with the progress and status of the station. This effort is to help maintain an awareness of technology.

The problem which is faced by the Experiment Station is the question: Are the people being served? It was considered timely and appropriate as we begin a new decade in agriculture and agricultural research in Oklahoma to answer that question.

Research must be conducted to answer questions, give direction, and provide relative measures of accountability to the Experiment Station and their relationship to the public they serve.

Design of the Study

Following a review of literature and research indirectly related to the study, procedures were established to satisfy the purpose of the study.

The population of the state of Oklahoma was used to obtain the sample for this study. The sampling procedure was a stratified random sample technique. Stratification of the sample was based upon the level of county government expenditures provided to Cooperative Extension programs,

geographical location, and the total county population estimates for 1978. The sample consisted of 14 Oklahoma counties.

The individuals who made up the sample for this study were selected by randomly sampling a complete up-to-date list of telephone directories which were inclusive of all 14 counties. Each telephone book was logged into a computer program by first and last white page numbers, number of columns per page, and number of lines per column. By means of this computer program, a random selection of telephone numbers was made. These numbers were called to reach potential respondents. Two thousand four hundred and one individuals were utilized for this study.

The data for this study were collected using a telephone survey-interview. The questionnaire developed consisted of a three-part survey instrument plus an additional section which gained demographic data for each respondent. This study utilized the demographic data and the experiment station segment of the instrument; two parallel studies utilized other portions of the data gathered. The questionnaire contained a total of 35 individual questions, six questions applied directly to the experiment station, and eight were demographic data. The six questions dealing with Experiment Station determined an awareness level, by weighted values, for each respondent plus two questions on the value of the Experiment Station research and one question on methods used by respondents in obtaining research information.

The telephone survey was conducted during the spring of 1980. One thousand six hundred and thirty-two individuals cooperated and provided responses to the survey.

The data obtained from the instrument were keypunched on the IBM cards and a SAS (Statistical Analysis System) program was used in

calculating frequency and Chi-square values on the data. Numerical and percentage calculations were obtained from the computer program. The Chi-square analysis was used to determine if significant relationships occurred between awareness and demographic variables. The Chi-square statistic was used in order to determine if rejection or acceptance of the null hypotheses was appropriate.

Major Findings of the Study

The major findings of this study were divided into five sections. They were as follows:

1. Characteristics of Respondents.
2. Distribution of Respondents by Awareness Questions.
3. Awareness by Demographic Characteristics of Respondents.
4. Awareness by Perceived Food Prices, Perceived Research Input, and Source of Research Information.
5. Occupation of Respondents Compared to Number of Times Research Used.

Characteristics of Respondents

General characteristics of respondents in this study indicated a large majority had incomes of less than $20,000. A high percentage of household incomes fell below the $10,000 per year range.

Ages of respondents revealed that the smallest group responding to the survey were from 18 to 24 years of age. Over 40 percent were over the age of 50.

Oklahoma residents in this study indicated that over one-half of the households surveyed maintained two or less persons per household.

Only a small percentage had more than five individuals per household.

When occupations were analyzed over 90 percent of the respondents were involved in business or labor occupations. The remaining respondents were in occupations classified as either agriculture or agricultural related.

When respondents were asked to indicate involvement in agriculture nearly half of the 1,597 respondents perceived themselves involved in agriculture. After determining those individuals involved in agriculture, that group was asked to specify how they were involved. The majority specified involvement in agriculture through gardening. Almost 25 percent were involved in part-time farming. The smallest involvement came in the area of "other" (agricultural production) and agricultural business.

Over one-third of the respondents had some college training. The largest group of respondents indicated they had completed three or four years of high school.

Whites made up the vast majority (91.27 percent) of individuals among racial groups responding. The remaining racial/ethnic groups contributed small percentages of those responding. Following white respondents, blacks, Indians, and others made up the remaining respondents, respectively.

Females represented a majority (62.86 percent) of the individuals cooperating in the telephone survey.

Distribution of Respondents by Awareness Questions

Questions 19 through 23 provided information concerning the level

of awareness of respondents to the Experiment Station (see Appendix B).

Awareness scores were determined by weighted values applied to each individual question (19 through 23) which was designated as contributing to a respondent's total awareness. Respondents scored in a range of zero awareness to eight (high awareness). When Chi-square values were calculated awareness cells were combined. A score of zero awareness was no awareness; cells with awareness scores of one, two, or three were combined and designated low awareness; cells with awareness scores of four or five were combined and designated average awareness. The same procedure was followed for cells with awareness scores of six, seven, or eight, which were designated high awareness.

Respondents were asked to respond to the question: Were you aware that Oklahoma State University has agricultural research farms existing throughout the state? More than 65 percent of the Oklahoma residents responding were aware of the existence of research farms.

When the respondents indicated an awareness of the existence of research farms throughout the state they were asked if they could identify a research location close to them. One-third of the respondents knew a research location. The three specific locations which were identified more often than any other research farms in the state were Chickasha (21.89 percent), Lahoma (21.57 percent), and Stillwater (19.93 percent). More than 22 percent of those responding had taken or knew of someone who had taken a field trip or tour to an O.S.U. research farm.

The use of research was determined by asking if they had used or knew of someone who had used O.S.U. research results. One-fourth of the respondents had used or knew someone who had used research results.

The last question which contributed to awareness scores of respondents asked respondents: How many times have you personally used agricultural research? The respondents who had used research indicated 75 percent had used agricultural research more than twice personally.

The distribution of respondents' level of awareness scores are presented in Table XXXVI. In addition, Table XXXVI presented respondents' level of awareness scores in combined levels as they were used for the Chi-square analysis.

TABLE XXXVI

SUMMARY OF RESPONDENTS BY LEVELS OF AWARENESS

Levels of Awareness	Distribution N	%	Combined Levels for Analysis	Distribution N	%
0	520	31.29	None	520	31.29
1	486	29.24			
2	149	8.96	Low	840	50.54
3	205	12.33			
4	93	5.60	Average	176	10.59
5	83	4.99			
6	45	2.71			
7	46	2.77	High	126	7.58
8	35	2.11			
Total	1,662	100.00		1,662	100.00

Over one-half of the respondents had low awareness of the Oklahoma State University Experiment Station. Only seven and one-half percent scored six or more awareness points and were considered to have high awareness. A majority (68.71 percent) of all respondents had some awareness of the experiment station.

Three additional questions were asked of each respondent, these questions did not contribute to awareness scores. The findings of those questions were based on the value judgements of the respondents.

In response to the question of how respondents perceived food prices if there had not been any agricultural research, a large majority (65.18 percent) perceived prices would be higher without agricultural research. One-fourth of the individuals responding did not know or were not sure what the effect of no agricultural research would have on food prices. An additional question was asked to determine what sources respondents used to obtain research information. The major source indicated by respondents was reading, followed by hearing, then personal observation.

The respondents were asked to define further their main source of obtaining research information into specific sources. The three highest percentage specific sources were 28.75 percent reading newspapers, 15.85 percent reading magazines, and 13.75 percent heard about research from a friend.

The final question in the Experiment Station section of the questionnaire asked respondents: How much input do you think the Oklahoma public has in determining agricultural research efforts at O.S.U.? The greatest portion (59.56 percent) of those responding indicated they did not know or were not sure how much input the public had in determining

research efforts. The remaining respondents were almost equally divided between large and small amounts of input by the Oklahoma public.

This study attempted to determine the level of awareness of the residents of Oklahoma in regard to the Oklahoma State University Experiment Station. In order to assist in determining levels of awareness held by Oklahomans, the following research hypotheses were developed:

1. The level of awareness of the Oklahoma State University Experiment Station increases as the income of the general public of Oklahoma increases. (This hypothesis was accepted.)

2. The level of awareness of the Oklahoma State University Experiment Station increases as the age of the general public of Oklahoma increases. (This hypothesis was rejected.)

3. The level of awareness of the Oklahoma State University Experiment Station is higher among agriculture and agricultural related occupations than business or labor occupations held by the general public of Oklahoma. (This hypothesis was accepted.)

4. The level of awareness of the Oklahoma State University Experiment Station is higher among Oklahomans who perceived a direct involvement with agriculture than those Oklahomans who perceived no involvement with agriculture. (This hypothesis was accepted.)

5. The level of awareness of the Oklahoma State University Experiment Station increases as the number of years of education increases. (This hypothesis was accepted.)

6. The level of awareness of the Oklahoma State University Experiment Station is higher among white majority residents than other minority, racial/ethnic groups. (This hypothesis was accepted.)

7. The level of awareness of the Oklahoma State University Experiment Station is highest among male members of the Oklahoma population. (This hypothesis was accepted.)

8. Residents of Oklahoma who perceived food prices to be higher without agricultural research were more aware of the Oklahoma State University Experiment Station than those Oklahomans who percieved prices to be lower. (This hypothesis was accepted.)

9. Residents of Oklahoma who perceived that the Oklahoma public had a large amount of input in determining agricultural research efforts at Oklahoma State University Experiment Stations had a higher level of awareness than those who perceived small public inputs. (This hypothesis was accepted.)

10. The percentage of Oklahomans who indicate awareness, at any level, of the Oklahoma State University Experiment Station, identify the method of reading to be their main source of information concerning research at Oklahoma State University. (This hypothesis was rejected.)

11. Residents of Oklahoma whose occupation was agriculture or agricultural related used research more times than residents involved in business or labor occupations. (This hypothesis was rejected.)

Awareness by Demographic Characteristics of Respondents

It was found that the income of Oklahoma residents was a determining factor in the level of awareness by Oklahoma residents. Those who had higher incomes were found to have higher levels of awareness. Age was found not to have an influence in levels of awareness among residents of Oklahoma.

Agriculture and agricultural related occupations were found to have an effect upon the levels of awareness in that awareness was higher among agricultural occupations than among business and labor occupations.

Based upon the research hypotheses it was found that level of awareness was influenced by the respondent's being involved in agriculture. In addition to involvement, it was found that education was a determining factor in the awareness of the Oklahoma State University Experiment Station by Oklahoma residents. Those who had higher educational levels were more aware of the experiment station.

It was also determined through the findings that race was an influence upon the awareness of Oklahoma residents. Sex was also found to have an effect upon levels of awareness by Oklahoma residents. Males had a higher awareness of the experiment station than females.

Awareness by Food Prices, Research Input and Sources of Research Information

The level of awareness was a determining factor in how Oklahomans perceived food prices and the amount of input Oklahomans had in determining research efforts at Oklahoma State University.

All levels of awareness were not influenced by reading as the main source used by Oklahomans in obtaining research information.

Occupations of Respondents Compared to Number of Times Research Used

Findings of this study indicated type of occupation was an influencing factor in determining the number of times research was used. It was found that business and labor occupations used research more often

than agriculture and agricultural related occupations. Only when research was used greater than four times did agriculture or agricultural related occupations use research more often than business and labor occupations.

Conclusions

The analysis of data and subsequent findings were the basis for the following conclusions:

1. Based upon the finding that the 35 to 49 age group had the highest awareness followed by the over 50 group with the 18 to 34 group least aware, the hypothesis that awareness increased with age had to be rejected. The conclusion was that the middle age group respondents had the greatest awareness with less awareness among the older and younger age groups.

2. As the age of Oklahoma residents increases an increase in the levels of awareness does not occur. The 35 to 49 age group has the highest percentage of respondents with average or high awareness levels. The over 50 age group is generally of a lower awareness than the 35 to 49 age group.

3. Oklahoma residents whose occupation is agriculture or agricultural related are more aware than Oklahomans with business or labor occupations.

4. Oklahomans who perceive themselves involved with agriculture are more aware of the Oklahoma State University Experiment Station than those who perceived no involvement.

5. Awareness of the Oklahoma State University Experiment Station has a direct relationship with the educational level of Oklahoma residents. The higher the levels of education the higher the level of awareness of Oklahoma residents.

6. Based on the findings that white residents are more aware than any other racial/ethnic group and that the percentage of respondents in all racial categories closely approximated the percentages represented in Oklahoma. It was concluded that race is a determining factor in the awareness of respondents toward the Oklahoma State University Experiment Station.

7. Male residents have a higher awareness of the Experiment Station than female residents of Oklahoma. Although females were the largest percentage of respondents in the study, it was apparent they were of low awareness concerning the agricultural experiment station.

8. Residents of Oklahoma who were more aware of the Experiment Station perceived a greater benefit from agricultural research and its effect upon the price of food.

9. It was concluded that Oklahoma residents really did not know or were not sure of the amount of input the public had in determining research efforts at Oklahoma State University. However, those who felt the public had a large amount of input in determining agricultural research efforts at O.S.U. were more aware of the experiment station.

10. Based upon the findings, reading was identified by respondents as the primary source of obtaining research information. It was also found that respondents rely upon reading newspapers the majority of the time in securing their research information. It was also apparent that reading magazines and hearing from a friend about research contributes to respondents' awareness. It was also concluded from the findings that respondents with higher levels of awareness utilize personal observation as their major source for obtaining research information.

11. There was a direct relationship between occupations and the number of times research is used by the residents of Oklahoma. It was

concluded that respondents in business and labor occupations generally use research more often than agriculture and agricultural related occupations. Agricultural occupations have the higher percentage of respondents who use research more than four times.

12. In general, residents with high awareness were white males between the ages of 35 to 49 who were college trained and had higher than median incomes. They were also involved in agriculture or agricultural related occupations. Individuals with high awareness used personal observation to secure information concerning research at O.S.U. and felt food prices would be higher had we not had agricultural research. They also felt that Oklahomans had a large amount of input in determining research efforts at Oklahoma State University.

Recommendations

As a result of the conclusions drawn from the analysis and interpretation of data, the following recommendations are made:

1. The Oklahoma State University Experiment Station should develop a comprehensive public relations program to inform specific segments of the Oklahoma public such as low income groups, groups with low levels of educational attainment, minority groups, and residents below the age of 35 and over 50, as to the benefit and value of agricultural research.

2. Based on the conclusion that reading was the major source respondents used in obtaining research information and television represents a source which is available to large masses of people, public relations programs should be developed to utilize mass media especially newspapers, magazines, and television to inform the public.

3. It was concluded that the majority of respondents did not know or were not sure of the amount of input the public had in determining

research efforts at Oklahoma State University. Based upon that conclusion, the Experiment Station should develop a program to involve a large segment of Oklahomans in determining research efforts at O.S.U. Special attention should be given to low income, minority groups, and occupations other than agriculture or agricultural related.

4. Based upon the conclusion that the largest segment of Oklahoma residents are involved in business or labor occupations and that they use research more often than any other group, a specific effort should be made to inform the business and labor industries of Oklahoma as to services and contributions made to them by the Experiment Station. Research which has impact upon business and labor should be published in business and labor magazines and journals.

5. It was apparent in the findings and conclusions that residents with high awareness used personal observation to obtain research information. Based upon that conclusion, the Oklahoma State University Experiment Station should endeavor to involve more Oklahomans in tours and field trips to research farms throughout the state.

6. The Experiment Station should provide agricultural programs to young people in public schools of Oklahoma to better inform them of the benefit and value of agricultural research to them. It would be recommended that video programs, educational materials, and/or experiment station staff, when available, be used in these educational programs.

Recommendations for Additional Research

The following recommendations are made in regard to additional research. The recommendations are judgements based on having conducted the study and on the examination of the findings of the study. The recommendations are in two parts: (1) Methodology and (2) Additional Research.

Methodology

1. In using a telephone survey, callers should receive intensive training in obtaining information from potential respondents and should have a comprehensive understanding of the questionnaire instrument used for data collection.

2. A systematic procedure should be developed to insure proportional representation of male and female respondents.

3. As further research is developed, consideration should be given to separating the functions of instruction, extension, and research into individual units instead of one large unit for inquiry purposes.

Additional Research

1. There should be continued research on the impact and usefulness of Experiment Station research on specific segments of Oklahoma residents: minority groups, low income groups, those with low educational attainment, residents over 50 and under 35 years of age, and business and labor occupations.

2. A more comprehensive study involving residents from all 77 counties in Oklahoma should be conducted and the results compared with the findings of this study.

3. Additional research should be conducted to identify additional variables which have impact on levels of awareness of Oklahoma residents.

4. Specific research should be conducted to investigate the nature, extent, and potential for mass media upon the awareness of Oklahoma residents in regard to Experiment Station research.

5. Research should be conducted on the feasibility of developing curriculum materials for grades K-8 in the public schools of Oklahoma to inform young people of the contribution of agricultural research and the Experiment Station on the lives of Oklahomans.

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APPENDIXES

APPENDIX A

COUNTY LEVEL AND GEOGRAPHIC LOCATION

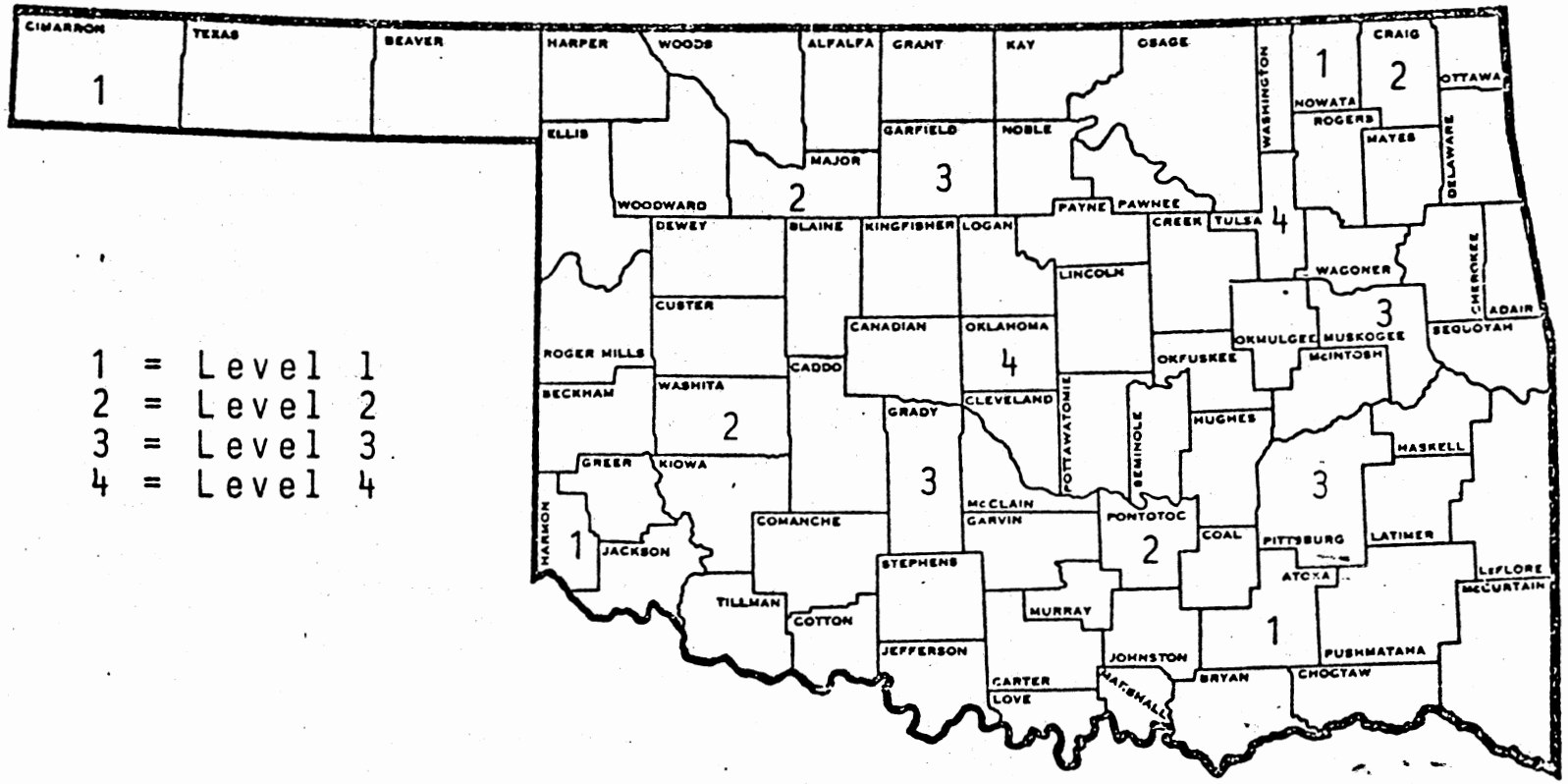

Figure 13. County Level and Geographic Location

APPENDIX B

INSTRUMENT

COUNTY _____ DATE _____ TIME _____ NUMBER _____

1. Hello_____, my name is _____and I am with Oklahoma State University at Stillwater. May we have a few minutes of your time to ask you a few questions concerning "agriculture" at O.S.U.?

1 [1 Yes / 2 No----Thank you, Good-bye.]

2. Have you ever been on the Oklahoma State University campus?

2 [1 Yes / 2 No----Move to Question #4.]

3. Have you been on the O.S.U. campus for an agricultural event?

3 [1 Yes / 2 No]

4. Do you know of anyone who has studied agriculture at O.S.U.?

4 [1 Yes / 2 No]

5. Can you identify any of the subjects offered in agriculture at O.S.U.? Which subjects?

1 Don't Know/Not Sure--Move to Question #7.

5-19
- 02 Ag Communications/Journalism
- 03 Ag Economics
- 04 Ag Education
- 05 Ag Engineering
- 06 Agronomy
- 07 Animal Science
- 08 Biochemistry
- 09 Entomology
- 10 Forestry
- 11 Horticulture
- 12 Plant Pathology
- 13 Mech Ag
- 14 Pre-Vet
- 15 Other_____

6. How would you rate instruction in agriculture at Oklahoma State University?

20 [1 High / 2 Low / 3 Don't Know/Not Sure]

7. Do you have an agriculture extension office in your county?

21 [1 Yes / 2 No]

8. Have you or any member of your family ever been involved with or been a member of:

22-24
- 1 Yes 4-H youth program
- 2 Yes Extension homemaker's club
- 3 Yes Other agricultural or related extension groups

9. Have you ever had any contact with or heard of the following extension personnel in your county?

25-28
- 1 Yes _____agricultural agent
- 2 Yes _____home economist
- 3 Yes _____4-H agent
- 4 Yes Raymond Kaye, Extension Horticulture Specialist

10. Have you ever contacted the county extension office for any information?

29 [1 Yes / 2 No----Move to Question #14]

11. How was the contact made?

30 [1 Called / 2 Written / 3 Personal contact]

12. Have you participated in any meetings sponsored by the ag extension service?

31 [1 Yes / 2 No----Move to Question #14.]

13. How valuable was the information you received at these meetings?

32 [1 Valuable / 2 No Value / 3 Not Sure]

14. Do you read news columns written by extension agents?

33 [1 Yes / 2 No]

15. Do you listen to radio or watch T.V. programs by extension personnel?

34 [1 Yes / 2 No]

16. Have you or any member of your family provided exhibits for a county or state fair?

35 [1 Yes / 2 No / 3 Don't Know/Not Sure]

17. Would you like to receive information about the extension programs available to you?

36 [1 Yes / 2 No]

18. Do you think increased funding for the Oklahoma Cooperative Extension Service would be beneficial to the people of Oklahoma?

37 [1 Yes / 2 No]

19. Were you aware that Oklahoma State University has agricultural research farms throughout the state of Oklahoma?

38 [1 Yes / 2 No----Move to Question #22.]

20. Where is the closest O.S.U. agricultural research farm to your location?

39 [1 Location / 2 Do not know]

40-41

03	Stillwater	11	Chickasha
04	Woodward	12	Stratford
05	Mangum	13	Sparks
06	Altus	14	Pawhuska
07	Tipton	15	Bixby
08	Fort Cobb	16	Haskell
09	Lahoma	17	Idabel
10	El Reno	18	Lamar

21. Have you or anyone you know taken a field trip or tour to an O.S.U. Agricultural Research Farm?

42 [1 Yes / 2 No]

22. Have you or anyone you know used O.S.U. Agricultural Research results on their farm or home grounds?

43 [1 Yes / 2 No----Move to Question #24.]

23. How many times have you personally used agricultural research?

44 [1 One time / 2 Two to three times / 3 Four or more times]

24. If there were no agricultural research, would food prices be higher or lower?

45 [1 Higher / 2 Lower / 3 Don't Know/Not Sure]

25. Where has your main source of information about agriculture research at O.S.U. come from: reading, hearing, or personal observation?

46-48

1 Reading
- 11 Magazines
- 12 Newspaper
- 13 Fact Sheets
- 14 Other_____

2 Hearing
- 21 Radio
- 22 Television
- 23 Friend
- 24 County Agent
- 25 Other_____

3 Personal Observation
- 31 On a farm
- 32 Garden plot
- 33 O.S.U. Research Farm
- 34 Other_____

4 Don't Know/Not Sure

26. How much input do you think the Oklahoma public has had in determining agricultural research efforts at O.S.U.?

49 [1 Large / 2 Small / 3 None / 4 Don't Know/Not Sure]

_____, I would like to ask some questions about you. This information will be kept in strictest confidence.

27. Of the following ranges, which one most closely approximates the total gross income of your household?

50
1 Less than $5,000
2 5,000 to 10,000
3 10,000 to 15,000
4 15,000 to 20,000
5 20,000 to 25,000
6 25,000 to 50,000
7 Over 50,000

28. What year were you born?

51
1 18-24, 1958-1962
2 25-34, 1946-1955
3 35-49, 1931-1945
4 50-62, 1918-1930
5 63 or over, before 1917

29. How many people reside in your household?

52
1 1 6 6
2 2 7 7
3 3 8 8
4 4 9 9 or more
5 5

30. What is your occupation?

_____

53
1 Agriculture
2 Agriculture Related
3 Business
4 Laborer

31. Are you involved in agriculture in any way?

54
1 Yes
2 No----Move to Question #33.

32. How are you involved?

55
1 Part-time farming
2 Gardening
3 Agri-business
4 Other_____

33. What is the highest grade you have completed in school?

56
1 0-8 years
2 1-2 years of high school
3 3-4 years of high school
4 1-2 years of college
5 3-4 years of college
6 Over 4 years of college

34. With which racial/ethnic group do you belong to?

57
1 Caucasian/White
2 Black
3 Indian (American or Alaskan)
4 Asian or Pacific Islander
5 Hispanic (Spanish origin)
6 Other_____

35. What is your sex?

58
1 Female
2 Male

_____, thank you very much for your time. This information will be a benefit to our study. Thanks again. Good-bye.

VITA[2]

Calvin Wesley Holley, III

Candidate for the Degree of

Doctor of Education

Thesis: PERCEPTIONS OF OKLAHOMA RESIDENTS TOWARD THE EXPERIMENT STATION FUNCTION OF THE OKLAHOMA STATE UNIVERSITY DIVISION OF AGRICULTURE

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Lawton, Oklahoma, June 18, 1947, son of Calvin Wesley Holley, Jr., and Evelen Juanita Metcalf.

Education: Graduated from Lawton Senior High School, Lawton, Oklahoma, May, 1965; received the Bachelor of Science degree from Oklahoma State University in 1970 with a major in Agricultural Education; received the Master of Science degree from Oklahoma State University, July, 1972, with a major in Agricultural Education; completed requirements for the Doctor of Education degree at Oklahoma State University in July, 1980.

Professional Experience: Vocational agriculture instructor, Stilwell, Oklahoma, November, 1971, to June, 1973; vocational agriculture and cooperative education instructor, Paducah, Texas, August, 1973, to June 1974; manager and buyer, Baker Company, August, 1974, to June, 1975; vocational agriculture instructor, Oklahoma City, Oklahoma, July, 1975, to June, 1978; graduate research and teaching assistant at Oklahoma State University, August, 1978, to present.

Organizations: Member of American Vocational Association; member of Oklahoma Vocational Association; member of Oklahoma Vocational Agriculture Teachers Association; member National Vocational Agricultural Teachers Association; member of Alpha Tau Alpha; and member of Phi Delta Kappa.