A CRITICAL ANALYSIS OF THE SHORT-COURSE SYSTEM IN SELECTED FACETS OF EXTENSION ANIMAL SCIENCE TEACHING AND PROGRAM PLANNING

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PREFACE

Extension teachers are constantly challenged with the problem of selecting an appropriate and effective teaching method, or combination of methods, best suited to do a particular teaching job with specific audiences under specific circumstances.

The purpose of this study is to critically evaluate and measure the effectiveness of the short-course system in teaching selected facets of beef-cattle management to adult, voluntary-attendance audiences under informal conditions. Effectiveness of teaching is measured by gains in knowledge of short-course participants and in management changes in selected sample operations as determined by direct-interview technique.

The writer wishes to express his appreciation and sincere thanks to his adviser, Dean H. E. Sorenson, under whose supervision this thesis was planned, conducted, and completed. His entire committee, composed of Dean H. E. Sorenson, Dr. Paschal Twyman, Dr. James Tarver, and Dr. William Rambo, has been a source of guidance, encouragement, and invaluable constructive criticism in the preparation and completion of this thesis.

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CHAPTER I

INTRODUCTION

As agriculture becomes more complex and problems of adjustment more acute, it becomes increasingly more important to know more about the educational methods and processes which lead people to accept new and research-proven ideas and to adopt them into their individual enterprises.[1] Extension teachers are constantly challenged with the problem of selecting an appropriate and effective teaching method, or combination of methods, best suited to do a specific teaching job with specific audiences under specific circumstances.[2]

Considerable extension education research has identified the relative effectiveness of various media as tools for conveying vital research information into actual application.[3] Nickell[4] measured knowledge gained from a six-lesson series concerning homemaking. Knox[5] conducted

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[1]G. M. Bohlen and G. M. Beal, How Farm People Accept New Ideas, Extension Special Report No. 15, Iowa State University (Ames, 1962), pp. 3-11.

[2]Meredith C. Wilson and Gladys Gallup, Extension Teaching Methods, U.S.D.A. Extension Service Circular 495 (Washington, 1955), p. 3.

[3]Review of Extension Research, January through December, 1961, U.S.D.A. Extension Service Circular 541 (September, 1962).

[4]E. Nickell, "A Study to Determine Homemakers' Gain in Knowledge as a Result of Attending Six Meetings on Adjusting Homemaking to Today's Living" (unpub. report, Michigan State University, 1961), pp. 42-48.

[5]J. W. Knox, "Relative Value of Mass Media in Extension" (unpub. M.S. thesis, Colorado State University, 1961), pp. 17-31.

a study in which he ranked mass-media effectiveness as teaching media. Edwards[6] studied the comparative effectiveness of the lecture, bulletin, film, and television in presenting research findings. Many studies have attempted to identify the source of information gained by farmers and homemakers, i.e., radio, television, professional workers, magazines, etc.

Further research has shown the steps in the diffusion process by which people accept new ideas[7] and has suggested the existing inter-relationships between sources of teaching information and the adoption process.[8] Only limited work is reported in the literature concerning the tested effectiveness of a "short-course-integrated" or "in-depth"[9] approach to extension teaching.

Relyea[10] conducted a personal-interview study of the educational value and farmer interest in a two-meeting series concerning intensified training in soils management. He reported all groups were favorable to this educational method.

Based on Oklahoma pilot studies conducted by this writer, it has been concluded that a relatively new approach to extension teaching, i.e.,

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[6]W. P. Edwards, "A Comparison of the Effectiveness of the Lecture, Bulletin, Film, and Television in Presenting Research Findings" (unpub. M.S. thesis, University of Wisconsin, 1961), pp. 97-98.

[7]Bohlen and Beal, The Diffusion Process, Extension Special Report No. 18, Iowa State University (Ames, 1962), pp. 2-6.

[8]J. J. Robert, "An Evaluation of Selected Teaching Methods in Getting a New Farm Practice Adopted in St. Landry Parish" (unpub. M.S. thesis, Louisiana State University, 1961), pp. 14-19.

[9]John R. Schlender, "Teaching In-Depth," Professional Outlook, Kansas Epsilon Sigma Phi (July, 1963).

[10]A. J. Relyea, "Depth Training in Soils Management" (unpub. M.S. thesis, Michigan State University, 1962), pp. 1-70.

the short-course system, is superior to the "one-meeting" method of teaching. It is, essentially, a series of lessons concerning one subject area, planned and co-ordinated with local leaders, and designed to assist in solving problems within the subject area. It approaches subject matter with considerable depth and with uppermost consideration to practical problem solving. It embraces fundamentals of sound program development, staff utilization, methods of audio and visual teaching, program evaluation and revision. The objectives of such an approach represent creating an awareness of need for technological advancements, presenting data and information for use in wise decision making, and providing profit-making opportunities for producers in the application and use of research-proven principles taught.[11]

Short courses have taken many forms and patterns. New Mexico, Kentucky, Washington,[12] and other states have used an approach consisting of two or more days' duration at one or more central locations. Subject matter is varied to particular needs. Despite differences in the mechanics involved and disciplines involved, the basic technique remains on a somewhat similar plane, i.e., "depth in teaching."

The short-course method has been born of necessity when one considers high investment costs and narrowing of profit margins. Most farm people feel they need to know a "lot about a little" rather than a "little about a lot."

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[11]William Zmolek, M. D. Whiteker, and C. E. Summers, "Livestock Enterprise Schools," a presentation in the Extension Section, American Society of Animal Science, Chicago, Illinois, November, 1962.

[12]Stockman's Handbook, Washington State University Stockman's Short Course (Pullman, 1963), p. 1.

The greatest challenge of agriculture of the future is to insure that food and fiber will be available at decreasing costs, with minimum strain on our land resources, manpower, capital, and in accordance with the nutritional needs of the people. This means increased efficiency in all phases of agriculture.[13]

Education is a quest, not an accomplishment. It has no location in space nor limited duration in time. It is everywhere and anywhere that one wants to search for it, and the search fortunately has no ending.[14] Based on this concept, the short-course system is a means and not an end to education for the beef-cattle producer.

Statement of the Problem

This study was conducted to critically evaluate and test the effectiveness of the short-course system in teaching beef-cattle management and related information to adult, voluntary-attendance audiences under informal conditions. The effectiveness is measured by gains in knowledge of short-course participants determined by pretests and posttests related to the three-series short course and by changes in management practices in ten selected sample operations at each short-course location. Changes made in practice usage were measured by a pre-short-course personal interview and a four-month, post-short-course personal interview. All interviews were conducted by this writer.

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[13] R. M. Bethke, "Progress Depends Upon Research," J. Animal Sci., (1955) 14:292.

[14] V. A. Rice, "Education--Ends and Means," J. Animal Sci., (1963) 22:232.

Coded pretests given were designed to measure five divisions of subject matter within the broad subject area of beef-cattle management. The divisions were economics, breeding, feeding, management, and disease and parasite control. The test was a multiple-choice, objective-type instrument pretested for reliability and validity upon trained and untrained subjects. Coded posttests given were exact duplications of the pretest initially administered. Appendix B presents a duplication of pretest and posttest instruments with correct responses checked.

A further problem consideration was to obtain opinions, concepts, and ideas from beef-cattle producers to serve as directional guides to future Extension Animal Science teaching programs. Such data were obtained from unsigned, unidentified evaluation sheets prepared by the writer and completed by short-course students at the end of the final session. Appendix E presents a tabulation of the responses obtained from various short-course locations.

Need for the Study

In the final analysis, the man on the farm or ranch is the "Boss" of public agricultural workers, such as research or extension specialists. As specialization, larger units, and greater volume have appeared on the changing agricultural scene, our image of the "Boss" also has changed. Today's "Boss" is not symbolized by Norman Rockwell's painting of the man with the pitch fork, but rather he is a specialist, a mass producer, a businessman, a shrewd operator who is eminently well informed in his field.[15] Because of the changing clientele and their needs, it is obvious

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[15]Bethke, "Looking Into the Future," J. Animal Sci., (1955) 18:478.

that new and supposedly better teaching methods must be critically evaluated if the Cooperative Extension Service is to retain a leadership role in American agriculture.

The adage expressed by Charles Kettering seems applicable--"You can't push on something that is already going faster than you are." By similar analogy, the changing scene in agriculture demands that the Cooperative Extension Service stay ahead of the changing needs of producers.

The need for the study is threefold:

1. To determine teaching effectiveness and interpretation of research information as measured by knowledge gained by short-course students. The extension worker at any level of responsibility, county agent, home agent, associate or assistant agent, specialist or administrator, has long been known as an interpreter of research knowledge for farms and homes. Dr. Seaman A. Knapp,[16] the father of the Cooperative Extension Service, stated that good interpreters were much harder to find than good researchers or practitioners. Dr. Glen Frank, former president of the University of Wisconsin, said, "The future of America is in the hands of two men--the investigator and the interpreter. The investigator advances knowledge and the interpreter advances progress."

2. To measure acceptance and application of knowledge gained by means of selected personal interviews. The gap between the discovery of research information and its utilization in the field has long presented a challenge to extension specialists. Unused research recommendations have no productive value, thus the scope of this study includes an attempt to measure actual utilization of principles and practices learned.

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[16]Joseph C. Bailey, Seaman A. Knapp, Schoolmaster of American Agriculture (New York, 1931), p. 34.

3. To secure producer opinion concerning the total short-course program that may serve as program-planning guides for future work. The proper use of past experience serves as prologue to future programs. Confidential and unsigned evaluation forms provide an objective means of meeting the requirements for this need.

Background Information

As previously mentioned, only limited studies of extension teaching methods appear in the literature. Many of the studies pertain to conventional extension methods or a comparison of methods both within the United States and in foreign-service contracts with many underdeveloped nations of the world[17] and in other foreign areas.[18]

One of the great strengths of America lies in its strong agriculture. The final outcome of past world conflicts has been highly dependent upon the ability of the American farmer to produce food and fiber in abundance. One of the several reasons for strength in agriculture has been the existence of the Cooperative Extension Service, whose inception with the Smith-Lever Act of 1914 provided:

> ...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 connection with the college or colleges in each State now receiving, or which may hereafter receive the benefits of the land-grant act of 1862 and of the Morrill college endowment

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[17] S. Bani-Saor, "The Mass Communication Media in Iran--Their Contribution Toward Achievement of Agricultural Extension Work and Development" (unpub. M.S. thesis, University of Wisconsin, 1961), pp. 125-129.

[18] G. E. Jones, "Sources of Information and Advice Available to United Kingdom Farmers: Description and Appraisal" (unpub. paper, University of Nottingham, 1962), pp. 1-13.

> act of 1890, agricultural extension work which shall be carried on in cooperation with the United States Department of Agriculture...
>
> That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State agricultural college or colleges receiving the benefits of this act.[19]

America's extension education has won international recognition among other countries of the world. Today 46 other friendly countries of the world have adopted or are being taught American extension principles.

Peoples and philosophies the world over that counter our democratic ideals highly covet our agricultural strength and "know-how." In effect, the defensive strength of any nation could be proportional to the strength of its agriculture.

By similar analogy, Oklahoma's strength lies in its agricultural industry. Agriculture is Oklahoma's number one industry.[20] The most important segment of Oklahoma's agriculture is beef cattle, when measured in comparative terms of economic value and income-producing potential. Cattle numbers have been increasing three to four per cent annually since 1950, reaching an all-time high of 4,029,000 head on January 1, 1964. Of this number, over ninety-two per cent are beef cattle. With the utilization of 26 million acres (of the state's total land area of 44 million

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[19]A. C. True, A History of Agricultural Extension Work in the United States 1785-1923 (Washington, 1928), p. 114.

[20]George Abshier and Houston Ward, What Agriculture Means to Oklahoma, Oklahoma State University Cooperative Extension Service Leaflet L-70 (Stillwater, 1961).

acres) for grazing purposes, it is obvious that extension workers would select the area of beef-cattle management as a vital educational need in terms of relative importance of the state's animal enterprises. The summer and fall drouth of 1963 proved to be a further need for the subject of beef-cattle management to be explored and taught "in-depth" to short-course audiences.

In further considering limited studies concerning extension teaching methods, Wilson and Gallup[21] summarized many studies in which they observed that indirect influences, such as the examples of friends and neighbors, meetings, farm visits by specialists, were reported more frequently by farmers as having influenced new-practice adoption. The significance of multiple contacts was also emphasized.

Lionberger[22] studied the sources of effective information used by low-income farmers. The rank order of their most important sources was reported as: newspapers, farm journals, neighbors and friends, radio broadcasts, letters and visits from county agents, Production Marketing Administration offices, and farm bulletins.

Hallenbeck[23] calls attention to the need for the selection of a particular method for a particular problem in adult education. He concluded: (1) when the problem of method is solved, the problem of technique arises, (2) that method is concerned with how best to do a

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[21]Wilson and Gallup, p. 50.

[22]H. F. Lionberger, Sources and Use of Farm and Home Information by Low-Income Farmers in Missouri, University of Missouri Agricultural Experiment Station Bulletin (Columbia, 1951), pp. 8-15.

[23]Wilbur C. Hallenbeck, "Methods and Techniques in Adult Education in U.S.E.S.C.O.," Adult Education: Current Trends and Practices (New York, 1949), pp. 77-87.

particular adult-education job and technique with how to carry out the method selected, and (3) the adult educator, after clarifying purpose, must be able to select successfully from the vast array of available methods and to execute method through technique.

Today's farmers are highly specialized, highly trained, highly mechanized, heavily invested individuals compared to yesterday's counterpart, or his foreign competitors. He succeeds or fails not on the volume of his operation but upon the keen and wise utilization of his managerial skills. Upon this concept lies further background reasoning for the decision of Extension Animal Science personnel and cooperating groups to embark upon intensive short-course approaches to Extension Animal Science teaching.

Public institutions seldom make sudden, sweeping changes in their goals, methods or services. But in perspective from one point in time to another, dramatic adjustments sometimes appear.[24] Such might appear to be the case with respect to the "short-course" approach to Extension Animal Science teaching. This study attempted to evaluate by objective and empirical criteria this system of teaching.

Design of the Study

This study was designed with four major objectives in mind:

1. To determine the effectiveness of the short-course system of Extension Animal Science teaching as a way of teaching beef-cattle management and related information.

2. To show the interrelationships of program development at all

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[24] An Extension Service in Transition 1956-1960, Iowa State University Cooperative Extension Service, MA-954 (Ames, 1960), p. 6.

levels to the effectiveness of the short-course teaching system.

3. To determine the effectiveness of the short-course system in relation to changes in managerial practices as related to acceptance and use of proven practices.

4. To obtain opinions, concepts, and ideas from beef-cattle producers to serve as a directional guide to future Animal Science Extension teaching programs.

By design, the independent variables involved in this study are the subject-matter materials prepared by the various short-course staff members and the information, ideas, and concepts taught in the short-course programs. Mediating or intermediate variables include: location of short-course centers within the state; age and educational background of beef-cattle producers; their length of experience; size and type of their operation; and the amount of time devoted to the operation. Dependent variables are: the pretest and posttest scores made by producers prior to and following short-course instruction; pre- and post-interview scores of selected producers; and evaluation forms completed by all short-course participants.

An intervening variable is the unknown influence of other media or stimuli during the measurement periods concerning the area of beef-cattle management.

The research design included the development and use of a pretest and posttest instrument designed to measure knowledge gained in five facets of beef-cattle-management knowledge. Four selected or experimental short-course locations used raised the question that the population sampled might not be representative of the total population, thus two additional locations were added for comparative or control purposes.

Pretests only were administered at control locations.

An interview instrument designed and used both preceding and four months following the short-course program series attempted to evaluate knowledge gain in terms of practice adoption.

A "temperature chart" or evaluation check sheet served to obtain producer opinion and ideas concerning the short-course program series. Such data will serve as valuable program-planning guides.

Scope of the Study

The study has been limited to determination of short-course effectiveness as measured by knowledge gain, practice utilization, and producer opinion concerning the overall program.

The study was conducted at four selected or experimental locations or areas within the state, i.e., Duncan, Claremore, Tishomingo, and Fairview. Control or comparative areas used for pretesting purposes included Pawnee and Okemah.

Extension Animal Science workers constantly face the challenge of finding, using, improving, and evaluating existing teaching methods. One purpose of this study has been to secure empirical evidence concerning the "short-course" system or approach.

Hypotheses

The writer developed the following hypotheses for consideration in this study:

1. Beef-cattle producers will show statistically significant increase in factual knowledge of management practices based on pretest and posttest measurements as the result of the three-series short-course instruction.

2. Beef-cattle producers who complete the training-program series will make changes in management practices and procedures based on a comparison of their operation prior to and four months following the training series.

Further observations from these data should show that:

Subject-matter instruction can successfully be taught "in-depth" to various groups regardless of age, educational background, length of experience, type or size of operation, and amount of time devoted to their operation.

Beef-cattle producers will offer critical, yet objective and constructive evaluation data, provided their identity can remain anonymous.

Limitations

There will be no control over educational materials from sources other than short-course influence. It was anticipated, however, that such influence would not confound data gathered.

It is realized that variation in teacher ability and effectiveness was evident. Through use of the same staff at all locations, this variable was partially controlled.

The results obtained are applicable only to the universe and within the subject-matter group sampled. Generalization of result data to other fields and areas cannot be considered valid.

It is recognized that the limited time period of four months between personal interviews greatly limits the scope of practice-adoption measurements. The time allotted for this study made mandatory the limited time observation. It is not possible to absolutely demonstrate that the sample used in this study represents the total population, but it is drawn from the group to which the results of this study will be applied.

Identification of Terms

Certain frequently used terms in this dissertation require specific definition. These terms are:

1. The "short-course" system of Extension Animal Science teaching is broader in scope than any one method. It is a carefully planned and co-ordinated set of twelve lessons presented in a series of four lessons per meeting on a selected given night during the week for three consecutive weeks. The time lapse between the initial and final session for any given location was, therefore, two weeks. Organization and planning include prior approval and acceptance by a local cattlemen's committee at each short-course location. Presentations were highly visualized with charts, slides, and films. Presentations include both formal lectures and question-and-answer periods for each lesson.

2. Beef producers are the operators, owners, and/or owner-operators of ranches or beef-cattle-producing units. In the main, their operations consisted of cow-calf or feeder-calf production units with a few feedlot, stocker-feeder, or post-weaning feeding production units represented. The subject-matter design emphasized the cow-calf operation, which includes the management of the beef-cow unit through the phases of breeding, gestation, lactation, and the production of calves up to weaning time, or approximately seven months of age.

3. Beef-cattle management includes those practices, procedures, and ways of conducting the operation that are of significance in terms of optimum profits or benefits to the management and ownership.

4. Scores represent the beef-cattle producers' level of knowledge of beef-cattle management information. Scores were determined by the number of correct answers made on both pretest and posttest scores representing respectively knowledge levels prior to and at the end of the experiment. Knowledge gains represent total change between pretest and posttest performance. Pre- and post-interview scores represent respectively the interviewer's or this writer's evaluation of the producer's extent of knowledge and full utilization of selected, economically important managerial practices into his operation.

5. Subject-matter variables include the sub-division of the total pretest and posttest scores. They are, namely, economics, breeding, feeding, management, and disease and parasite control. They represent the subject-matter areas taught in the short-course programs within the broad scope of beef-cattle-management information.

6. Classification variables include the sub-classes into which short-course students were divided. They represent "census-type" data and include: age, education, length of experience, size of operation in total cow numbers, type of operation, and amount of time devoted to the beef-cattle operation.

7. Experimental locations include the four Oklahoma short-course centers in which short courses were conducted and pretest and posttest measurements taken. They include: 1) Duncan, 2) Claremore, 3) Tishomingo, and 4) Fairview.

8. Control locations include the two Oklahoma areas in which short-course-type meetings were held, and only pretest measurements were taken. These were: 5) Pawnee and 6) Okemah. Pretest scores were used to show control location similarities and differences compared to experimental locations.

Organization of the Study

Chapter I consists of a brief review or introduction of the problem for study, its background, need, design, scope and limitations, hypotheses to be tested, and identification of terms.

Chapter II outlines the procedures used for carrying the research design and the development of the four instruments used for gathering the data.

Chapter III contains data analysis and results or findings regarding the effectiveness of the short-course system or method of teaching beef-cattle-management information as measured by knowledge gains.

Chapter IV catalogs and shows performance according to various classification variables, such as age, educational background, length of experience, size and type of operation, and the amount of time devoted to the operation.

Chapter V presents data analysis of selected individual interviews and implications concerning their meaning in terms of actual management practice utilization.

Chapter VI considers interpretation of data from evaluation forms completed by short-course students.

Chapter VII contains discussions and conclusions drawn from Chapters III, IV, V, and VI. A summary and recommendations are also listed in Chapter VII.

CHAPTER II

PROCEDURE

The purpose of this chapter is to present the methodology used in designing, investigating, and analyzing the problem under study.

The study was designed to accomplish a critical evaluation of the short-course system in selected facets of Extension Animal Science teaching and program planning.

Selection of Control and Experimental Locations

Few adult-education programs are effective unless they serve local or "felt" needs.[1] Based on this theory or supposition, a subject-matter planning meeting was held in early July, 1963, involving only the teaching staff for the proposed short-course programs. A proposed program schedule or outline was cooperatively drafted, at which time each teacher was requested to develop an outline of the ideas proposed to present within the scheduled framework and within his individual lesson presentation.

The proposed program schedule and individual lesson outlines were mailed to county agents at four locations within the state as suggested by Extension District Supervisors. The locations were selected for their high county beef-cow populations as well as the surrounding county cow

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[1] J. L. Mathews, National Inventory of Extension Methods of Program Determination, U.S.D.A. Extension Service Circular 477 (Washington, 1952), pp. 1-18.

populations. This made each location a desirable potential area center in terms of reaching a sizeable number of short-course participants.[2] County agents were asked to solicit the advice and guidance of their cattlemen's committee relative to their desire to schedule the proposed short course. Acceptance was unanimous at all locations, and detailed planning sessions were scheduled with each local committee, at which time program changes and desires were incorporated into the general plan.

Next, in the program-development phase, an attempt was made to establish dates and a calendar schedule as shown in Appendix C.

County agents in the various area short-course centers provided necessary leadership for arranging classroom and meal facilities, handling meal costs and other expense items, handling local publicity and enrollments, and inviting producers and professional workers. Without such local organization, the programs would have had far less attendance and support; and on an area basis might have completely failed.

Meanwhile, each short-course teacher was preparing in written form his detailed presentation for editing, prior publication, and eventual distribution during short-course sessions.

Control locations were randomly selected from a group of meeting centers previously scheduled for a similar type of program. By comparison and subsequent analysis of control and experimental location test results, the assumption was made that experimental locations would represent sample populations no different from a common population to which results and conclusions from this study would apply. Results of

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[2]Hallenbeck, pp. 77-87.

the comparisons are to be found in Chapter III. Only pretests were administered in the two control locations.

Selection of the Interview Sample

Ten randomly selected[3] beef-cattle producers were interviewed from the anticipated audience attendance at each of the short-course centers. The interviews were all conducted by this writer, accompanied by a county extension agent in the respective locations. An inventory was made of each interviewed person's beef-cattle program while soliciting his opinion and counsel concerning the short-course program. It is felt that the producers interviewed represented a cross section of short-course participants. Appendix D contains the interview instrument used.

Development of Testing and Grouping Instruments

From the edited and detailed written presentation material furnished by each short-course teacher, test questions concerning key points in the material were constructed by the writer. The questions were phrased for use in an objective, multiple-choice or multiple-response manner in which respondents could simply choose one or more correct answers from three or more available choices. Special emphasis was made to achieve clarity in question meaning and understanding. Principles of test construction were observed as outlined by Garrett.[4] Particular consideration was given to construct the overall test and the various segments representing subject-matter variables or divisions with a sufficient degree of

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[3]G. W. Snedecor, Statistical Methods (5th ed., Ames, 1956), p. 7.

[4]Henry E. Garrett, Testing for Teachers (New York, 1959), pp. 193-199.

difficulty so that even excellent students would likely not score above 80 (converted from raw score to a percentage basis) in order to have room for growth from pretest to posttest time. As shown in Basic Data Table I in Appendix A, a pretest raw-score range from a low of 64 to a high of 102 indicates virtual achievement of this goal regarding test construction, as well as giving an index of the variability of the total sample. No one made a perfect score on pretest or posttest performance.

The difference of 1.35 between mean pretest scores and a small standard error of the mean suggests a homogeneous sample composition as reflected by pretest performance. Similar comparison of posttest mean scores and standard errors indicates comparable performance between experimental locations.

A check sheet was devised to group persons enrolled in the short-course program according to four divisions or categories with respect to age, educational background, experience in the beef-cattle industry, size of operation, and time devoted to the operation. Type of operation was divided into three classification groups. Appendix B contains copies of the grouping check sheet.

The purpose of securing such a breakdown of data on each audience or location was deemed to be helpful in planning future programs through more exact audience identification. Analysis determinations also included percentage calculations of each category division within each location for comparative use. Basic Data Tables IV through X in Appendix A show these comparisons.

A comparison of such classification-variable data with recent Oklahoma Agricultural Census data considers the identification of the experimental sample population with the total population.

Philosophy and Conditioning Used in Administering Tests and Completing Interviews

The rationale expressed at pretest time was one of eliciting the cooperation of each short-course respondent in order that the test score could serve as a directional guide to each teacher within the various subject areas, and also in order that the level of presentation could be governed by total test response and performance. Short-course students responded favorably to the appeal for help and assistance in developing better current and future short-course sessions and seemed to forget or did not realize they were being tested for any other purpose. No respondent knew at pretest time that he would be given an identical posttest or that calculated knowledge gains would be determined.

Each student at pretest time was assured that no one was trying to embarrass him by asking for name identification on the test. He was urged both orally and in writing not to sign his name. Coding to insure matching of individual pretest and posttest instruments and to assure students of their non-identity was accomplished by attaching a small white card containing a code number to each pretest instrument. Each pretest was coded with the same number as the attached card. Each respondent was advised to detach the card and place it in his wallet. It was explained that the card and number would be needed on the final short-course night. No further explanation was given.

At posttest time each respondent was asked to produce his white card and copy the number in the blank space provided on the posttest. Surprisingly few cards were lost. Respondents were then told that a part of the short-course total program evaluation would be determined by the

differences in pretest and posttest scores. They were urged to participate in the test program in order that a better evaluation of the total short-course program could be made.

A motivational factor that promoted favorable or satisfactory test attitudes in the students was the promise of furnishing them (at final meeting time) marked, corrected copies of the test for take-home use. The interest or curiosity factor of each student plus the possibility of self-correcting his opinions proved to make the test instrument a teaching means or method as well as a measurement device. Appendix B contains a correctly marked pretest and/or posttest answer sheet.

Program mechanics, teaching materials, or procedures included:

1. Providing a copy of each presentation for students as take-home, permanent file information. Take-home materials were designed to take the student deeper into each subject if he desired to explore it.
2. Fortifying each presentation with audio and visual materials. Public-address sound systems provided ease of listening regardless of one's position in the classroom. Thermofax projectors and transparencies, together with slides and movies, provided visual learning opportunities.
3. Dividing each of the three sessions by an evening mealtime, which not only seemed to provide a setting for congeniality and exchange of ideas but provided opportunity for some to visit with and question university personnel serving as teachers.
4. Providing ample time for question periods following each formal presentation, as well as an informal, personal-contact question opportunity at the end of each of the

three short-course sessions. These periods often lasted an additional hour or more.

As should be true with all adult, voluntary-education classes, students were advised that the taking of tests was voluntary; although as previously mentioned, an appeal was made for group help in program planning. It was also stressed that test scores would remain forever unidentifiable to any individual or person. Despite efforts to avoid it, a considerable number of students did not volunteer to participate in the test program. For lack of a more adequate descriptive term, such students are termed as "drop-outs," although they did, for the most part, attend all sessions. They were simply not included in the study. It must be remembered that many people who have long been separated from any formal type of education are antagonistic to the idea of taking a test. The reasons for the attrition are as follows: the voluntary nature of the test, elimination of county agents and other professional workers from official testing procedures, loss of code cards, and absence at one or more sessions of the short course. Only persons who attended all three short-course sessions were included in the study. The attrition or drop-out percentage (those not taking tests), as shown in Table I, ranges from a low of 50 per cent at Tishomingo to 68.7 per cent at Claremore. Possible reasons for the high attrition rate at Tishomingo is suggested by a study of data which reveal that 40 per cent of the Tishomingo students were 50 years of age or older contrasted to 21.5 per cent in the same grouping at Duncan, 28.6 per cent at Claremore, and 29.5 per cent at Fairview. It seems feasible that older men would be less likely to volunteer for testing.

TABLE I

COMPARISON OF ATTRITION AT FOUR SHORT-COURSE LOCATIONS

Location	Total Attendance*	Total Taking Only One Test	Per Cent Of Total	Total Taking Both Tests	Per Cent Of Total
Duncan	198	192	96.9	130	65.7
Claremore	112	83	74.1	77	68.7
Tishomingo	130	100	76.9	65	50.0
Fairview	90	79	87.8	61	67.8
Total	530	454	85.7	333	62.8

*excluding professional workers

A further reason to explain Tishomingo's high attrition rate is suggested in a comparison of size of beef-cattle operations. A high of 12.3 per cent of the Tishomingo students owned 250 cows or more, compared to 6.1 per cent, 3.9 per cent, and 6.5 per cent at Duncan, Claremore, and Fairview, respectively. It is possible that larger operators tend to feel more independent and, therefore, do not wish to submit to test procedures.

Statistical Analysis

The data obtained were subjected to statistical analysis to determine significance. Pretest and posttest instruments were coded by this writer, and the coded data were punched on individual IBM cards at the Oklahoma State University Computing Center.

For clarity of description and ease in reading, the data gathered can be classified into four areas and reported accordingly. These classifications are: (1) Analysis of Knowledge Gained Data, (2) Comparison of Pretest and Posttest Performance by Six Classification Variables, (3) Analysis of Interview Data, and (4) Tabulation of Evaluation Forms.

Analysis of Knowledge Gained Data

In Tables II, III, and IV in Chapter III, a tabular comparison of pretest and posttest scores in all locations combined presents an overview of completed data concerning knowledge gains. Tabulations were divided into five subject-matter areas or variables; namely, economics, breeding, feeding, management, and disease and parasite control.

Analysis of variance was used to test differences between means for pretest and posttest scores. Tukey's D Test for comparison of significance of difference between means was employed for data that were arranged in a randomized block or matched group design. Another reason for use of analysis of variance is that it provides less risk of a type I error, the error of rejecting a true null hypothesis of no difference between means.[5]

The use of the analysis of variance technique to assess the significance of difference among means is based on the general requirement of: (1) independence of variance estimates, (2) normality of sampled populations, and (3) homogeneity of their variances.[6]

Tukey's D Test was used to determine significance of difference between means.[7] Actually, if there is only one degree of freedom for lot means, as in this study of matched pairs, then the square root of F=t or the significance as measured by F could be as reliable as the t or D test.[8]

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[5]John G. Peatman, Introduction to Applied Statistics (New York, Evanston, and London, 1963), p. 327.

[6]Ibid., p. 329.

[7]Snedecor, p. 251.

[8]Ibid., p. 256.

Comparison of Pretest and Posttest Performance by Six Classification Variables

One facet in the processing of these data was to obtain pretest and posttest score comparisons of both total and individual experimental locations by age, educational background, length of experience in the beef-cattle business, the size of operation in cow numbers, type of operation, and length of time per year devoted to beef-cattle operations. The comparisons obviously can be used in planning future extension programs in short-course teaching. A major purpose of any consideration of this type is to provide insight for present and future direction.

The data obtained by the six classifications named were compared with 1960 Oklahoma Agricultural Census data for comparison similarities and differences in order to determine nearness of the sampled population to the normal state beef-producer population. Both considerations seem applicable in Extension Animal Science program planning.

Analysis of Interview Data

Pre- and post-interview scores were determined by this writer. The scores of each operation were ranked on a continuum scale from 1 to 5.

Although accurate assessment was extremely difficult, extreme care was taken to retain objectivity and accuracy as conveyed through the information exchange.

The interview data were tested by use of the Mann-Whitney U Test, as described by Siegel,[9] to give the reader a determination of significance between pre- and post-interview scores. It was used to analyze

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[9]Sidney Siegel, Non-Parametric Statistics for the Behavioral Sciences (New York, 1956), pp. 116-127.

subject-matter-division comparisons and further on an item-by-item basis for within-division comparison. The Mann-Whitney U Test is one of the most powerful of the non-parametric tests and offers particular analysis value for research in cases where it is necessary to avoid t-test assumptions concerning ordinal data.

Tabulation of Evaluation Forms

Evaluation forms were used to obtain a quick determination of the climate of various phases of the short-course program. They were tabulated and appear in Appendix E in this report. They have utility in planning and execution of future short-course work.

CHAPTER III

RESULTS OBTAINED FROM DATA ANALYSIS OF KNOWLEDGE GAINED

In this chapter the scores made concerning knowledge gained will be examined. The findings are organized to present:

1. A tabular comparison, expressed as a percentage, of pretest scores made by short-course students at all experimental and control locations.
2. A tabular comparison, expressed as a percentage, of posttest scores made by all short-course students at all experimental locations.
3. A comparison of mean percentage gains shown in five selected variables in beef-cattle-management programs at all experimental locations.
4. A determination for test of significance by means of analysis of variance.

Pretest Score Comparison

A total of 440 short-course participants completed pretests, including 333 students at the four experimental locations and 107 at the two control locations.

One of the assumptions made in this investigation was that the experimental locations represented a random sample of a common population to

which the results of the study could apply. An attempt to answer this question was the inclusion of two control locations in which pretest scores could be compared. Basic Data Table II in Appendix A offers a means of total score comparisons within and between both experimental and control short-course centers. This table also offers subject-matter score comparisons. When total scores are examined, it is noted that they are very similar. Only 2.74 percentage points represent the spread or distance between the highest and lowest total score of all six locations.

A logical assumption is, therefore, that pretest results demonstrate the conclusion that all experimental locations are similar. On this basis, they are then suitable for posttest use in the study, since their basic knowledge of beef-cattle management is similar as measured through the test instruments used.

Statistical analysis by means of analysis of variance appears in Table II. In comparing all location pretest scores, the analysis shows no significance when comparing the lower calculated F value of .80 to the tabulated F value of 2.71 at the 5 per cent level.

A comparison of D values[1] for locations calculated by means of Tukey's Test, indicates no significant difference among means of total test scores as the calculated D value of 38.18 exceeds all values of difference between means.

It was thus a logical assumption that comparison between pretest and posttest scores for total knowledge gained would be an adequate yardstick of measurement, since the base point or benchmark was statistically similar.

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[1]Snedecor, p. 252.

A comparison of variable differences does show significant difference indicated by the higher calculated F value of 5.27 compared to the tabular value of 2.87 at the 5 per cent level.

TABLE II

ANALYSIS OF VARIANCE COMPARISON OF EXPERIMENTAL AND CONTROL LOCATION PRETEST SCORES

Source	Degrees of Freedom	Sums of Squares	Mean Squares
Locations	5	170.0	34.0
Variables	4	893.0	223.2
Error	20	847.0	42.38
Total	29	1910.0	

Calculated F = $\frac{\text{Location M.S}}{\text{Error M.S}} = \frac{34.0}{42.38} = .80$ Tabular F = 2.71@5%

Calculated F = $\frac{\text{Variable M.S}}{\text{Error M.S}} = \frac{223.2}{42.38} = 5.27$ Tabular F = 2.87@5%

TUKEY'S D TEST

Locations:	$\bar{X}$	$\bar{X}$-44.58	$\bar{X}$-45.2	$\bar{X}$-47.7	$\bar{X}$-48.2
2	50.18	6.26	5.60	4.98	1.98
3	48.2	4.28	3.62	3.0	.50
6	47.7	3.78	3.12	2.5	
5	45.2	1.28	.62		
4	44.58	.66			
1	43.92				

D = $\bar{S}_{\bar{x}}Q$ (from Table 10.6.1 Snedecor)

D = 38.18 - Therefore, since the D value exceeds all value comparison differences, locations do not differ significantly.

Posttest Score Comparison

The short-course program offered the same subject-matter program at all locations, and for the most part the same group of instructors presented the material. The time factor was the same in all locations with a one-week time interval between sessions or a total of two weeks' time period between the beginning and the terminal session of the three-week series.

Although the pretest inventory indicated a similar performance level among students at different locations, one could not expect comparable performance in gains of knowledge nor a similar posttest performance level at all of the four schools. Differences did result in posttest score performance.

Basic Data Table III in Appendix A exhibits evidence of the closeness of total scores in posttest performance at the different locations. Under three percentage points separate the lowest posttest score of 67.88 at Claremore from the highest score of 71.56 at Tishomingo. Comparison of these scores to the average of 69.22 also shows a close arrangement of total scores. Variation is again noted within the subject-matter variables tested when comparing locations to each other or to the variable average. For example, in disease control, a range of 32.2 points exists between a low of 45.4 at Duncan and a high of 77.6 at Tishomingo. Similarly, in feeding information, 14.2 points separate Duncan and Fairview. Management scores at Duncan are 11.5 percentage points below the composite average and approximately 15.4 points lower than other locations. These differences seem to indicate differences in audiences with respect to their interest in a particular area.

Table III reports statistical analysis results of posttest performance comparison by means of analysis of variance.

TABLE III

ANALYSIS OF VARIANCE POSTTEST COMPARISON
OF EXPERIMENTAL LOCATIONS

Source	Degrees of Freedom	Sums of Squares	Mean Squares
Locations	3	480.9	160.3
Variables	4	600.1	150.0
Error	12	474.1	39.56
Total	19	1555.8	

Calculated $F = \frac{\text{Location M.S}}{\text{Error M.S}} = \frac{160.3}{39.56} = 4.05$ Tabular F=3.26@5%

Calculated $F = \frac{\text{Variables M.S}}{\text{Error M.S}} = \frac{150.0}{39.56} = 3.79$ Tabular F=3.11@5%

The analysis of variance and comparison among total posttest score means indicates statistically significant difference among final posttest scores at the different locations and also with respect to student performance in the different subject-matter variables.

Comparison of Mean Percentage Gains

Since pretest scores at all locations were similar and posttest scores showed differences, it is then in order to analyze and compare net gains for similarities and differences. Table IV presents these comparisons.

TABLE IV

MEAN PERCENTAGE GAINS SHOWN IN FIVE SELECTED VARIABLES IN BEEF-CATTLE-MANAGEMENT PROGRAMS

No.	Place	Economics	Breeding	Feeding	Management	Disease	Total
1	Duncan	7.33	20.18	24.67	20.5	24.6	21.52
2	Claremore	10.00	25.45	22.33	17.94	4.2	19.02
3	Tishomingo	11.33	21.54	33.0	20.56	31.2	25.2
4	Fairview	27.33	19.54	30.67	19.56	19.6	21.84
	Average for All Locations	14.0	21.68	27.67	19.65	19.9	21.9

It is encouraging to note that knowledge was increased in all areas at all locations. It is difficult to assess in a quantitative manner as to the amount of gain that is classified as poor, good, or excellent. It was the concern of the writer that a measurement system be employed that would permit a reliable growth estimate or that would provide a means of measuring the change without reaching either the lower or upper limit of the scale. Such was realized in the measurement system used.

The variability in knowledge gained probably reflects variation in interest levels. Such is possibly true in the case of feeding information, which represents the highest gain level of 27.67 points, compared to a low of 14 per cent for economics. Drouth conditions and increased feed costs coupled with a more factual approach could account for the interest in feeding information. Conversely, however, a considerable amount of criticism was expressed by students concerning the comparative difficulty of the genetics information presented, yet test performance disclaims both the difficulty and interest factors.

In addition to the interest factor, an important comparison is available in the disease phase of subject matter. Percentage gains

were 24.6, 4.2, 31.2, and 19.6 at Duncan, Claremore, Tishomingo, and Fairview, respectively. The low gain at Claremore in this phase of subject matter is attributed to the fact that due to illness of the instructor, this topic was not discussed in the same manner as was done at other locations.

Statistical analysis in Table V supports the viewpoint that the results obtained are greater than those that would likely occur due to chance effects when 20 of the 24 gain comparisons are significant at the P .01 level and two are significant at P .05. Thus, the change could be considered due to the short-course instruction or treatment and its previously expressed limitations. In addition to providing a visual comparison and identification of significance, Table V offers helpful program-planning data. Future program emphasis can be initiated in terms of these results.

TABLE V

A COMPARISON OF RAW MEAN SCORE CHANGES AND ANALYSIS OF VARIANCE AT ALL EXPERIMENTAL LOCATIONS

Variable	LOCATION				Average For All Locations
	Duncan	Claremore	Tishomingo	Fairview	
Economics	.22*	.30*	.34*	.82**	.336*
Breeding	2.22**	2.80**	2.37**	2.15**	2.385**
Feeding	4.04**	3.35**	4.95**	4.60**	4.235**
Management	3.38**	2.87**	3.29**	3.13**	3.168**
Disease	1.23**	.21	1.65**	.98**	1.018**
Total	10.76**	9.51**	12.60**	10.92**	10.95**

* P .05
** P .01

CHAPTER IV

A COMPARISON OF SHORT-COURSE STUDENTS ACCORDING TO SIX CLASSIFICATION VARIABLES

The classification variables referred to in the title of this chapter are age, education, length of experience, size of beef-cattle operation, type of beef-cattle operation, and time devoted to the operation.

Extension workers are continually faced with the problem of planning, preparing, and conducting programs with inadequate knowledge of the public or publics served. Program effectiveness is often proportional to the ability to tailor programs to audience needs. Thus, information which identifies or categorizes audiences is very helpful in program planning and execution.

The make-up of any audience with respect to the variables cited above is never completely known. One purpose of this study was to obtain a sample of the cited census-type data in order that extension programs in Animal Science might be better tailored to specific audience and area needs.

Age

Of particular interest is the age characteristics shown in Table VI. The last line of this table shows considerable similarity in the sample determined by this study and the Oklahoma Census[1] data.

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[1]U. S. Bureau of the Census, U. S. Census of Agriculture: 1959, Vol. 1, Counties, Part 36, Oklahoma (Washington, 1961), p. 7.

TABLE VI

AGE COMPARISON OF SHORT-COURSE STUDENTS
AT VARIOUS LOCATIONS

Location	No.	34 and Under	35-49	50-64	65 and Over
		Per Cent			
Duncan	130	25.4	53.1	19.2	2.3
Claremore	77	24.7	46.7	20.8	7.8
Tishomingo	65	20.0	40.0	33.8	6.2
Fairview	61	18.0	52.5	24.6	4.9
Pawnee	62	12.9	29.1	40.3	17.7
Okemah	45	15.6	35.6	33.2	15.6
Average of Total	440	19.4	42.5	28.7	9.1
1959 Okla. Census	-	11.2	73.4*		15.4

*1959 Oklahoma Census, Table 4, lists age divisions of 35 to 44, 45 to 54, and 55 to 64; thus these were combined for comparative purposes.

Although it is seldom completely possible to direct extension programs individually to specific age groups, it is helpful to know the general age make-up of any potential audience. For example, the data show that 42.5 per cent of all short-course audiences are between the ages of 34 and 49, with slightly over 9 per cent in the over-65 age bracket. In the main, then, extension audiences in beef-cattle work could be expected to be interested in long-range programs relating to their own operations and would likely be favorable to Animal Science extension and research effort because of personal interest and need.

There is much variation observed when comparing age differences. For example, only 2.3 per cent of the Duncan audience were age 65 and over, while nearly 18 per cent of the Pawnee audience were within this age grouping. Conversely, nearly twice as many farmers under age 34 were included

in the Claremore and Duncan groups as were included in the Pawnee and Okemah groups.

Education

Educational background of the sampled group revealed a higher percentage of college graduates (nearly one-third of total) in the sampled group than ordinarily anticipated in farmer groups. This seems to support the idea that with the changing agricultural scene, the farmer must be better trained to cope with the complexities of agricultural problems at all levels. Table VII presents a tabular comparison of data regarding educational background.

TABLE VII

EDUCATION COMPLETION OF SHORT-COURSE STUDENTS AT VARIOUS LOCATIONS

Location	No.	Less Than 8th	9-12	Some College	College Grad.
		Per Cent			
Duncan	130	4.6	47.7	19.2	28.5
Claremore	77	10.4	38.9	16.9	33.8
Tishomingo	65	3.1	24.5	26.2	46.2
Fairview	61	1.6	42.6	26.3	29.5
Pawnee	62	25.8	45.2	22.5	6.5
Okemah	45	11.1	44.4	20.0	24.5
Average of Total	448	9.4	40.6	21.9	31.5

Over one-half of the total audience groups have experienced some formal college study. An additional 40.6 per cent had some high school training. Such information sharply refutes the common idea that extension programs should be geared to a tenth-grade level. This study on "in-depth" short-course work would indicate that college work at the

junior level, properly presented, could be assimilated by audiences similar to those taught in the study. Further evidence that supports this statement is found in the education section of Basic Data Table V in Appendix A, in which those participants with an eighth-grade education or less began and ended the series at lower levels than the more highly educated participants, yet they made a greater total gain in knowledge. College graduates made higher initial and terminal test scores but made only about one-half of the net gain achieved by their eighth-grade companions. Such data seem to support the idea that this form of teaching is effective across the board for all educational levels.

Experience

Table VIII offers information concerning experience levels of short-course students. In a sense, the general information contained in this tabulation parallels that presented in Table VI on age comparison. It is logical to assume that the older a given producer is, the greater the length of his experience. From both a program-planning and presentation standpoint, it is supporting information to know that 45 per cent of the group has had 10 to 24 years' experience in the beef-cattle business. This implies that they are receptive to new information because of their having experienced good and bad business years.

In comparing test performance, the 10- to 24-year experience group made the highest initial and final test scores. Their total gains score, however, was approximately two-thirds that of the most experienced group.

TABLE VIII

EXPERIENCE LEVELS OF SHORT-COURSE STUDENTS AT VARIOUS LOCATIONS

Location	No.	Under 10 yrs.	10-24 yrs.	24-34 yrs.	Over 35 yrs.
		Per Cent			
Duncan	130	28.5	49.2	11.5	10.8
Claremore	77	40.3	42.8	6.5	10.4
Tishomingo	65	24.5	46.2	23.1	6.2
Fairview	61	21.3	44.3	22.9	11.5
Pawnee	62	9.7	43.5	29.1	17.7
Okemah	45	31.2	44.4	11.1	13.1
Average of Total	444	25.9	45.1	17.4	11.6

Size of Operation

Size in a beef-cow operation can be measured by several ways, i.e., land area, amount of capital investment, and number of cows. It was felt that the latter provided a better tool for use in extension program planning and also avoided getting into the personal financial business of the producer. Even though land values and carrying capacities for grazing purposes vary, it is commonly agreed that each beef cow in a herd represents an investment of approximately $1,000. Poorer land, although cheaper in price, requires a greater acreage to support an animal unit. Conversely, better land with a greater stocking rate potential is higher in price and value. Thus the approximate herd size of short-course students is of value in the long-range program planning of extension teaching.

Table IX shows a herd-size comparison.

TABLE IX

SIZE OF BEEF-CATTLE OPERATIONS OWNED OR OPERATED BY SHORT-COURSE STUDENTS

Location	No.	Under 100 Cows	100-249	250-499	500 and Over
		Per Cent			
Duncan	130	73.9	20.0	4.6	1.5
Claremore	77	75.3	20.8	3.9	0.0
Tishomingo	65	60.0	27.7	10.8	1.5
Fairview	61	72.2	21.3	4.9	1.6
Pawnee	62	46.8	41.9	9.7	1.6
Okemah	45	68.9	24.5	4.4	2.2
Average for Total	440	66.2	26.0	6.4	1.4

Comparable test gains occurred (see Basic Data Table IV in Appendix A) in all size groups with the exception of the 500-cow-and-over unit, in which case only 1.2 per cent of the total 333 producers were grouped. It should be noted that 71.2 per cent of the total number of participants were included in the under-100-cow size units. Again, program planning and implementation must be considered in light of findings such as this.

Type of Operation

To some degree, the type of beef-cattle operation is important in terms of educational program emphasis. In the main, there are far more commercial units than registered operations within the boundaries of Oklahoma. Many units, however, represent a combination of purebred and commercial programs. Table X shows approximately 62 per cent as commercial herds, with 29 per cent representing combination units, and 9 per cent representing purebred units.

TABLE X

CLASSIFICATION OF SHORT-COURSE STUDENTS
BY TYPE OF OPERATION

Location	No.	Purebred	Commercial	Both
		Per Cent		
Duncan	130	7.7	68.5	23.8
Claremore	77	10.4	53.2	36.4
Tishomingo	65	13.8	55.4	30.8
Fairview	61	6.6	62.3	31.1
Pawnee	62	6.5	61.3	32.2
Okemah	45	11.1	68.9	20.0
State Average	440	9.3	61.6	29.1

Time Devoted to Operation

The effect of off-farm work is not completely known in terms of its relationship to efficiency in a beef-cattle program, since many combinations of part-time work exist. It seems logical to assume that programs would be more difficult to design to serve the needs of a high part-time area such as Duncan (see Table XI), in which 71.5 per cent of the total attending were part-time workers. There are nearly twice as many part-time producers in the Duncan area as there are in the Pawnee and Fairview areas. The average of all locations exceeds 53 per cent for off-farm work.

TABLE XI

CLASSIFICATION OF SHORT-COURSE STUDENTS
BY TIME DEVOTED TO OPERATION

Location	No.	1-99 Days	100-199 Days	200-250 Days	Subtotal of Part-time	Subtotal of Full-time
		Per Cent				
Duncan	130	30.0	17.7	23.8	71.5	28.5
Claremore	77	20.8	9.1	23.4	53.3	46.7
Tishomingo	65	15.4	21.5	23.1	60.0	40.0
Fairview	61	13.1	13.1	13.1	39.3	60.7
Pawnee	62	4.8	6.5	25.8	37.1	62.9
Okemah	45	24.5	17.7	15.6	57.8	42.2
Average for Total	440	18.1	14.3	20.8	53.2	46.8
U.S. Census		50.0	15.3	34.7	(200 or more days)	

Performance of Short-Course Students

By Classification Variables

A look at the overall performance of students trained in this study is helpful with respect to analysis of the teaching method used. Basic Data Table V provides opportunity for comparison of these variables when all experimental locations are considered. Basic Data Tables VI, VII, VIII, IX, X, and XI in Appendix A provide a similar basis for comparison by locations in the order of Duncan, Claremore, Tishomingo, Fairview, Pawnee, and Okemah.

When comparing all locations grouped together (Basic Data Table V) or at any separate location, specific patterns seem evident as follows:

1. Older men began the course less informed but learned more than younger men. This suggests that subject matter was presented at a comprehensible level for all age groups.

2. College graduates made higher initial test scores but made less total performance gain than groups of lesser education. Conversely, men with eighth-grade educations made the lowest initial scores but achieved the highest gains in knowledge as measured by the test instrument. Again, this suggests subject-matter clarity and presentation at understandable levels for both groups.
3. More experienced cattlemen gained more knowledge, while men of lesser experience gained less knowledge. Total final scores were quite similar. This idea complements the thoughts projected in 1 and 2 in that the older, more experienced man with less education gained more. Age and experience are correlated, while in general the older man had less formal education opportunity.
4. It would appear that the larger operator, through perhaps both experience and necessity, knew more about his business as measured by initial scores and, consequently, made less growth or gain than the initially lesser informed. The smaller operator would naturally be more dependent on other income sources and thus not as well informed concerning beef cattle. The pressures of drouth costs, etc., could account for his interest in the short-course program and his desire to secure more information in an attempt to increase his profits.
5. Performance scores seem to indicate slightly higher gain by commercial operators. This is possibly best explained by the fact that much of the subject-matter material was designed for application under a commercial operation. Much of the information

was applicable, however, and of interest and value to the registered breeder, as indicated by test scores.

6. Considerable variation among test scores and gains is evident when comparing differences in time devoted to the operation. However, if all part-time operators were grouped, it is evident that their performance gain would almost parallel that of full-time producers.

CHAPTER V

ANALYSIS AND INTERPRETATION OF INDIVIDUAL INTERVIEW DATA

One of the hypotheses set forth in Chapter I was that beef-cattle producers who complete the training program series will make changes in management practices and procedures based on a comparison of their operation prior to and four months following the training series. The null hypothesis is that changes will not be made. Appendix D presents the interview instrument used in this study.

Oral interviews were conducted by this writer at the farm or ranch. Pre-interviews were made approximately one week prior to the short-course starting date. Post-interviews were accomplished approximately four months following the terminal short-course session.

The interview instrument is divided into three major subject-matter areas with appropriate subdivisions. Major areas include: Breeding and selection practices, herd health, and feeding and management. The subdivisions included varying numbers of questions, with each question offering varying answers based on a continuum ranked descriptively as never, seldom, usually, nearly always, and always. Each descriptive term was correspondingly rated 1, 2, 3, 4, and 5 in order to provide numerical comparative measurement criteria.

Upon completion of interview schedules, data were examined, tabulated, and comparisons made for evidence of specific change in management

practices. The following procedures were used to analyze data: (1) Raw scores were converted to T-scores[1] in order to provide ordination, (2) the sign test[2] was employed to identify and determine significance of changes, and (3) the Mann-Whitney U Test[3] ranked ordinal items for non-parametric comparative purposes. The conversion of raw scores to T-scores in the interview data is a part of Basic Data Table XI in Appendix A.

Changes in Management Practices

Data presented in Table XIV compare the number and percentage of beef producers who changed their management practices during the four months' pre- and post-interview period. The results of the sign test provide statistical evidence of significance of change which indicates a probability of chance occurrence far below the .01 level.

TABLE XIV

POINT CHANGES MADE IN INTERVIEW SCORES AT EXPERIMENTAL LOCATIONS AS DETERMINED BY THE SIGN TEST

Change in Post-Interview Score as Compared with the Pre-Interview Score	Duncan	Claremore	Tishomingo	Fairview
Number scores increasing	10	9	9	8
Number scores decreasing	0	0	0	0
Number scores with no change	0	1	1	2
Per cent scores increasing	100	90	90	80
Per cent scores decreasing	0	0	0	0
Per cent scores with no change	0	0	0	0
Z score	3.48*	3.33*	3.33*	3.48*

*p .01

[1]Garrett, Statistics in Psychology and Education (New York, 1958), pp. 306-313.

[2]Siegel, pp. 68-75.

[3]Ibid., pp. 116-127.

Of particular descriptive value is the gain distribution of scores shown in Table XV, in which the ranking of each point score for each location is shown.

TABLE XV

CHANGE IN SCORES EXPRESSED IN DEVIATION OF POST-INTERVIEW SCORES FROM PRE-INTERVIEW SCORES

Increase of Post-Interview Scores Over Pre-Interview Scores		Duncan	Claremore	Tishomingo	Fairview
Raw Score	T-Score		Number of Scores		
11 or more	65 or more	1	0	1	2
10	60	0	2	1	1
9	56	2	0	1	0
8	54	0	1	1	1
7	51	2	0	2	1
6	47	1	3	1	2
5	44	1	0	0	0
4	43	0	1	0	0
3	42	0	1	0	0
2	40	1	1	0	1
1	34	2	0	2	0
	Total	10	9	9	8

In Table XV a comparison of the range of raw scores from 0 to 13 (13 points) and of the T-scores from 34 to 67 (33 points) is shown, which demonstrates the wider spacing and the non-ordinal and non-additive nature of the interview test scores. The information presented shows the score distribution at the various locations and makes no attempt to catalog the subject-matter nature of the achieved changes. Other tabular data attempt to identify the subject-matter subdivision in which the various changes occurred.

Determination of Interview Results by Use of the Mann-Whitney U Test

The calculations made concerning the Mann-Whitney U Test are to be found in Basic Data Table XII in Appendix A. This test was used as an alternative to the t test since it does not have the restrictive assumptions and requirements associated with the t test. Assumptions of the t test are: (1) The observations must be independent and drawn from a normally distributed population, (2) the variables must be measured in an interval scale, and (3) the means must be additive and/or in a sense the elements are parametric. The Mann-Whitney U Test permits transformation of non-parametric and non-additive data into an ordinal measurement. This test also was used since this phase of the study employs small sample numbers.

Table interpretation of the calculated Mann-Whitney U Test z value permits rejection of the Null hypothesis at probability less than .00003. This offers statistical evidence that our hypothesis is correct in that beef-cattle producers who have experienced the short-course series will make changes in their management practices.

Other Interview Interpretations

An examination of data presented in Table XVI and the interview instrument in Appendix D shows that the changes made in management practices were limited to four specific areas, i.e., (1) increase in understanding and use of heritability factors in selecting replacement stock, (2) provision of adequate protein for lactating cows, (3) consideration and use of cost per pound of digestible protein in purchase of supplement, and (4) the use of "balanced-ration" information in feed utilization.

Changes did not occur in other practice areas, although many producers indicated plans for various changes when seasonal factors, economic and climatic conditions, and associated time factors made such changes feasible. In the main, the changes made were those within the possibility and feasibility realm during the short, four-month period of the study and during the overwintering period.

TABLE XVI

AREAS AND AMOUNT OF CHANGE IN INTERVIEW SCORES*

	No. of Points Changed			
	Duncan	Claremore	Tishomingo	Fairview
I. BREEDING AND SELECTION PRACTICES				
A. Bulls (Question 5)	18	14	19	17
B. Heifers				
C. Culling Cows				
D. Breeding Practices				
II. HERD HEALTH				
III. FEEDING AND MANAGEMENT				
A. Calving Time				
B. Birth to Weaning				
(Question 4)	18	15	13	20
(Question 7)	12	18	26	20
C. Dry Cows				
(Question 3)	10	8	4	5
Total	58	55	62	62

*See Interview Instrument in Appendix C.

Limitations of Interview Phase of this Study

The acid test of any educational program lies in the utility of the material taught. Learning merely for the sake of learning has no effect on the profit side of the beef-cattle ledger. Information learned must be put to use in order for financial remuneration to accrue. In most

educational fields, the results are often intangible and of necessity must remain so for lack of reliable, objective measurements designed to convert them into tangible terms. In many fields of education, the educator's responsibility ends with the skillful transfer and teaching of information. The responsibility for use of facts and concepts learned usually lies with the student. Such analogy seems to apply in the case of Cooperative Extension workers; in fact, the Smith-Lever Act of 1914,[4] which created this arm of the land-grant college triad, states that "...the cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations... and imparting information," etc. Nevertheless, as teachers and seekers of knowledge, we cannot afford to fear results that might be obtained from studies extending into practice-adoption or field-utilization levels. Pre-inventory scores obtained provide valuable criteria in extension program planning, as they provide an objective and reliable inventory level of beef-cattle management practices in current use.

It is realized that a number of limitations affected the results obtained in the inventory phase of this study. They are:

1. The time limitations of this study made a full-scale measurement of practice adoption virtually impossible. For maximum objectivity in this regard, a full calendar year was needed. The four months' interval between pre- and post-interview periods represented only the winter and early spring season.
2. Many practice changes could not feasibly have been made during this season of the year, thus only an indication of intention

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[4]True, p. 114.

to change could be obtained. The intentions, however, were not concrete evidence of change and were not reported in this study. Many beef producers have good intentions regarding various changes but just don't get them done.

3. A serious limitation to this phase of the study is the difficulty of accuracy and objectivity in evaluation through the interview. All interviewed persons, in order to establish repose, were made aware of the identity and title of the interviewer. Knowing this person to be one charged with public responsibility in the beef-cattle subject-matter field, the tendency seemed to be great toward questioning the interviewer concerning subject-matter information. Thus, the problem of this writer, the interviewer, was to maintain courtesy and attempt to secure, as well as provide, information.
4. One obvious deficiency of the interview instrument is that it allows little "growth-space" for the producer who, by initial interview determination, is using most of the good practices listed. Such was the case of some of the interview samples.
5. No attempt was made to select or to classify interviewed persons into relative speed of adoption, i.e., innovators, early adoption, average or late adopters, as described by Lionberger[5] in his descriptive factors involved in the acceptance of new ideas and practices by individuals. More realistic evaluation might have been possible through a more extensive interview program and through a study classifying interviewed persons

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[5]Lionberger, "Individual Adoption Behavior," Journal of Cooperative Extension, I (Fall, 1963), pp. 157-166.

in terms of individual speed and pattern of adoption.

6. Knowledge gained does not necessarily mean that attitudes will be changed. Slowness to change seems to be the inherent nature of many people. Most people actually change habits and patterns slowly. Change is somewhat like law, it is evolutionary in nature rather than revolutionary. There may, perhaps, be no such thing as instant practice adoption, or at least it is a rare occurrence. Change can be no faster than what is in the minds of people. Change suggests fear for the complacent, but by contrast it represents challenge for the progressive leader or the innovator.

CHAPTER VI

INTERPRETATION OF EVALUATION FORMS

Appendix E expresses tabulated data on evaluation forms at the four experimental short-course locations. Table XVII enumerates a composite listing of all locations.

Near unanimous approval of the short-course programs is evidenced by the fact that 91.6 per cent of all respondents reported programs as good. When rating the total short-course effort, 88.6 per cent expressed it as good, and 11.1 per cent expressed a fair rating. Only .3 of one per cent rated the work as poor. The high percentage requests for more subject-matter information also expresses approval. These data further clearly identify areas, namely genetics, in which the complaints dictate the need for less-difficult and less-technical presentations.

Further study of Table XVII supports the thought that notebook materials were offered at the correct level, when 94 per cent so indicated. Subject-matter presentations, properly planned and fortified by visual aids, were reported good by 83.6 per cent, while nearly 15 per cent felt they were too long.

Of special interest is the observation that nearly 60 per cent of the students affirmed the idea that more short-course testing and evaluation was in order. This repudiates the thoughts held by this writer that most students opposed the testing program.

A correlation of interest is observed in the fact that 98.4 per cent of the students desired more feeding information. This seems to complement

net knowledge performance gains on tests so reported in Chapter III, wherein a gain of nearly 28 per cent resulted in the feeding phase of the test instrument. Management interests were reflected similarly by 92.2 per cent requesting more information in this area, coupled with a 21.68 per cent net knowledge gain.

TABLE XVII

TABULATION OF STUDENT EVALUATION INSTRUMENTS OF ALL EXPERIMENTAL LOCATIONS

	Good		Too Long		Too Detailed	
	No.	% of Total	No.	% of Total	No.	% of Total
1. Programs	358	91.6	12	3.1	21	5.3
2. Subject-matter presentations	321	83.6	57	14.8	6	1.6
3. Notebook materials	346	94.0	6	1.7	16	4.3

	Good		Fair		Poor	
	No.	% of Total	No.	% of Total	No.	% of Total
4. Short course as a whole	335	88.6	42	11.1	1	.3

	More		Less	
	No.	% of Total	No.	% of Total
5. More or less time should be given to:				
Group questions and answers	186	88.2	25	11.8
Individual informal visiting	75	48.4	80	51.6
Beef-cow economics	188	89.1	23	10.9
Tax considerations	150	76.9	45	23.1
Animal-breeding programs	164	78.8	44	21.2
Feeding problems	243	98.4	4	1.6
Herd-management pointers	226	92.2	19	7.8
Performance-testing work	116	66.3	59	33.7
Bull selection	201	87.8	28	12.2
Performance & progeny testing work	118	67.0	58	33.0
Cow productivity--culling and selecting	222	93.3	16	6.7
Disease and parasites	203	85.3	17	14.7
Range and pasture problems	223	92.9	17	7.1
Short-course testing & evaluation	88	58.7	62	41.3

Information obtained from an unsigned report of individuals after immediate completion of a training series seems to reflect true, individual thinking and provide a reliable composite of group thinking.

It is realized that, as with any voluntary act or program, not everyone complied with the request to complete an evaluation sheet; nor did those who complied complete all parts of the form. Despite this fact, the information contained can be helpful in future planning of programs in various general and specific ways. Evaluation forms infer the following:

1. More opportunity should be provided to answer individual questions, either or both by providing opportunity for written "hand-in" questions or by devoting more time from each presentation for questions. This thought is supported by 186 voting (totaling all locations) for more time, compared to 25 suggesting less question time.
2. Less time should be allowed for mealtime break used for both meal purposes and informal visiting. Such consideration is expressed by approximately 48 per cent for and 52 per cent against (total response).
3. Subject-matter areas previously used should continue to be emphasized, using all known methods of visual presentation for purposes of simplification and clarity.
4. Additional sessions need to be considered in an effort to expand the program to requested areas of need.
5. Prior program planning with local committees is desirable, as time and travel permit, in order to tailor programs to

local desires and needs. This represents a basic concept in program planning.

6. Panel discussions, composed of leading and successful local producers and moderated by a trained educator and technical subject-matter specialist, may have possibilities to achieve desired goals.
7. More variety should be offered by including a session on each of the systems of beef production; namely, cow-calf, stocker-feeder, feedlot programs, etc.
8. Handout materials should be prepared in a bound textbook form.
9. A small enrollment fee to pay local meal and program costs should be continued. There seems to be more value attached to things that cost even a small amount than something received gratis.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Recent studies have shown the results of individual and combinations of mass-media methods in extension teaching and their subsequent effect on practice adoption. Extension teachers are constantly challenged with the problem of selecting an appropriate and effective teaching method, or combination of methods, best suited to do a specific job with a specific audience under specific circumstances. They are, likewise, continually challenged concerning program evaluation and the need for wise and efficient planning to insure maximum effectiveness in future programs.

The short-course system, a carefully planned and conducted "in-depth" series approach, has recently received wide acclaim as a superior extension teaching method.

In this study, a critical and empirical analysis was made of the short-course system in teaching beef-cattle management to adult, voluntary-attendance audiences under informal conditions at four experimental and two control locations. Total performance and subject-matter subdivision effectiveness were measured by gains in knowledge of short-course students determined by pretests and posttests related to the three-series short course and by changes in management practices in ten selected operations at each experimental location. Management changes were measured by a pre-short-course personal interview and a four-month post-short-course

interview. Knowledge gains were statistically analyzed for significance by means of analysis of variance and application of Tukey's D Test for comparison among means. Interview data change was subjected to the Sign test and the Mann-Whitney U Test for determination of Statistical significance.

To provide direction and guidance for future program planning and short-course teaching, opinions, concepts, and ideas of short-course students were obtained by means of unsigned evaluation instruments.

In making the study, the writer was also interested in obtaining various classification data for the purpose of achieving greater objectivity and precision in program planning. Such information included: age, education, experience, operational size, type, and time utilization groupings.

Procedure and Instrumentation

Experimental and control locations were determined, at random, by the writer using Extension District Supervisor guidance, along with county and area beef-cow populations as guiding criteria. Short-course teachers cooperatively developed the short-course series program plan and outline, which was subjected to area adaptation and revision by local cattlemen's committees and extension workers. Ten interview samples were randomly selected from anticipated audience attendance pre-enrollment at each of four experimental locations. Pre- and post-interviews were accomplished in an attempt to measure practice adoption.

Test instruments designed to measure subject-matter knowledge gained and practices integrated into operational use were designed by the writer and subjected to careful examination and constructive criticism by trained

and untrained subjects prior to actual test administration.

An opinion-gathering evaluation instrument was also designed and administered at the terminal short-course session to obtain producer opinions concerning specific and general considerations of the program.

In the sample, from a total of 530 students in attendance, 440 cooperated in the voluntary testing program completing pretests, including 333 at experimental and 107 at control locations.

Conclusions

The findings of this study support the hypotheses under consideration as follows:

1. Beef-cattle producers showed statistically significant increase in factual knowledge of subject-matter management practices based on pretest and posttest measurements as a result of the three-series short-course instruction.
2. Selected beef-cattle producers who completed the training series made significant changes in management practices and procedures based on interview comparisons of their operation prior to and four months following the training series.
3. Beef-cattle producers offered constructive program-directing criticism by means of unsigned evaluation instruments.
4. "In-depth" subject-matter instruction was successfully taught to students of varying age, experience, educational background, and operational size, type, and time utilization. Evidence to support this thought is presented by descriptive tabulations of knowledge gain comparison of the various determined classifications.

Recommendations

The implications drawn from the data presented in this study must be viewed in light of the limitations of the study. The results obtained are applicable to the universe and within the subject-matter group sampled. Generalization of findings to other fields and areas may not provide comparable results, and at best the results obtained should be considered as indicators or trends rather than definite or absolute criteria. Further experimental studies providing comparable data are needed to support these findings in terms of generalization and greater scope of application.

These data reveal significant evidence that this particular short-course series was an effective teaching method at all locations tested. They further reveal statistically significant gains in nineteen of the twenty subject-matter comparisons when the four experimental locations are pooled. This method of instruction was equally effective with beef-cattle producers of different age groups, levels of education and experience, type and size of operations, varying degrees of time devoted to their operations, and from varying locations within the state.

The informal evaluation provides evidence of widespread general acceptance of the short-course method, as well as directional guides to future program planning in the same and related areas.

The findings of this study will have value proportional to their use and application in similar and related fields. The extension specialists' search for better and proven methods of teaching is ever present in order to meet the challenge of filling the gap between research and enterprise use. The search for scientifically-proven superior methods fortunately has no ending, since education itself is continuous and non-ending--a quest and not an accomplishment.

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APPENDIX A

BASIC DATA TABLE I

A COMPARISON OF VARIABILITY IN DISTRIBUTION OF TOTAL TEST SCORES IN BOTH EXPERIMENTAL AND CONTROL LOCATIONS

Location	No. of Students	PRETEST Low	High	Range	Mean	S.D.[1]	S.E.[2]
Duncan	130	67	99	32	83.5	7.85	.688
Claremore	77	64	102	38	84.43	8.88	1.01
Tishomingo	65	68	99	31	83.18	7.78	.965
Fairview	61	71	95	24	83.54	6.19	.793
Pawnee	62	69	101	32	83.42	7.23	.918
Okemah	45	68	98	30	84.53	8.05	1.2

Location	No. of Students	POSTTEST Low	High	Range	Mean	S.D.[1]	S.E.[2]
Duncan	130	77	105	28	94.26	6.31	.553
Claremore	77	79	105	26	93.94	7.63	.869
Tishomingo	65	76	106	30	95.78	6.96	.863
Fairview	61	76	104	28	94.46	6.63	.849
Pawnee	62	--	---	--	-----	----	----
Okemah	45	--	---	--	-----	----	----

Lowest Possible Raw Score = 60
Highest Possible Raw Score = 110

1. Standard Deviation
2. Standard Error of Mean

BASIC DATA TABLE II

MEAN COMPARISON OF EXPERIMENTAL AND CONTROL GROUP PRETEST SCORES*

Variable Tested	EXPERIMENTAL GROUPS Location 1	2	3	4	Average	CONTROL GROUPS Location 5	6	Average
Economics	61.0	61.0	59.0	50.33	57.03	50.0	65.33	57.66
Breeding	39.1	37.81	42.9	41.28	40.27	47.09	38.18	42.63
Feeding	38.1	47.6	39.6	44.06	42.34	45.93	48.13	47.03
Management	40.2	55.1	53.37	54.0	50.65	36.56	41.5	39.03
Disease	41.2	49.4	46.4	33.2	42.55	41.0	45.4	43.2
Total Score	47.0	48.86	46.36	47.08	47.32	46.84	49.1	47.95

*Expressed on a percentage basis

Locations

1. Duncan
2. Claremore
3. Tishomingo
4. Fairview
5. Pawnee
6. Okemah

BASIC DATA TABLE III

MEAN COMPARISON OF EXPERIMENTAL GROUP POSTTEST SCORES*

Variable Tested	LOCATIONS				Average
	Duncan	Claremore	Tishomingo	Fairview	
Economics	68.33	71.0	70.33	77.66	71.83
Breeding	59.3	63.26	64.44	60.82	61.95
Feeding	60.43	69.93	72.6	74.73	69.42
Management	58.14	73.0	73.93	73.56	69.65
Disease	45.4	53.6	77.6	52.80	57.35
Total Score	68.52	67.88	71.56	68.92	69.22

*Expressed on a percentage basis

BASIC DATA TABLE IV

PRETEST AND POSTTEST PERFORMANCE OF SHORT-COURSE ENROLLEES AT FOUR SELECTED OKLAHOMA EXPERIMENTAL LOCATIONS ACCORDING TO VARIOUS CLASSIFICATIONS*

	No. In Group	Per Cent of Total Group	Percentage Scores Pretest	Posttest	Gain
			AGE		
Under 34 yrs.	76	22.9	48.34	66.30	17.96
34-49	163	48.9	49.68	67.78	18.10
50-65	78	23.4	42.6	66.58	23.98
65 and over	16	4.8	37.86	65.74	27.88
	333	100.0			
			EDUCATION		
Less than 8th	17	5.2	32.1	66.1	34.0
9-12	134	40.2	41.58	64.64	23.06
Some College	71	21.3	48.38	68.92	20.54
College Grad.	111	33.3	55.64	72.18	16.54
	333	100.0			
			EXPERIENCE IN BEEF-CATTLE BUSINESS		
Under 10 yrs.	97	29.2	45.7	66.22	20.52
10-24	154	46.2	50.06	69.12	19.06
25-34	49	14.7	47.26	66.21	18.95
35 and over	33	9.9	38.54	65.80	27.26
	333	100.0			
			SIZE OF BEEF-CATTLE OPERATION		
Under 100 cows	237	71.2	47.38	69.02	21.64
100 to 249 cows	73	21.9	44.24	66.62	23.38
250 to 499 cows	19	5.7	51.88	72.10	20.22
500 cows and over	4	1.2	61.00	71.50	10.50
	333	100.0			
			TYPE OF BEEF-CATTLE OPERATION		
Purebred or Regist.	31	9.3	48.12	68.18	20.06
Commercial	204	61.3	31.06	56.10	25.04
Both	98	29.4	48.50	69.02	20.52
	333	100.0			
			TIME DEVOTED TO BEEF-CATTLE OPERATION		
1-99 days	72	21.6	44.32	66.00	21.68
100-199 days	53	15.9	41.80	66.40	24.60
200-250 days	72	21.6	27.24	66.86	29.62
Full time	136	40.9	42.93	68.39	25.46
	333	100.0			

*Duncan, Claremore, Tishomingo, Fairview

BASIC DATA TABLE V

PRETEST AND POSTTEST PERFORMANCE OF SHORT-COURSE ENROLLEES AT DUNCAN, OKLAHOMA, ACCORDING TO VARIOUS CLASSIFICATIONS

	No. In Group	Per Cent of Total Group	Percentage Scores Pretest	Posttest	Gain
			AGE		
Under 34 yrs.	33	25.4	51.14	64.36	13.22
34-49	69	53.1	49.30	68.58	19.28
50-65	25	19.2	36.16	66.40	30.24
65 and over	3	2.3	30.00	67.40	37.40
	130	100.0			
			EDUCATION		
Less than 8th	6	4.6	27.66	62.66	35.0
9-12	62	47.7	41.04	61.70	20.66
Some College	25	19.2	51.6	67.36	15.76
College Grad.	37	28.5	56.32	71.30	14.98
	130	100.0			
			EXPERIENCE IN BEEF-CATTLE BUSINESS		
Under 10 yrs.	37	28.5	44.80	64.64	19.84
10-24	64	49.2	51.08	68.18	17.10
25-34	15	11.5	46.40	67.20	20.80
35 and over	14	10.8	35.72	64.72	29.00
	130	100.0			
			SIZE OF BEEF-CATTLE OPERATION		
Under 100 cows	96	73.9	45.76	68.0	22.24
100 to 249 cows	26	20.0	45.84	66.3	20.46
250 to 499 cows	6	4.6	63.00	77.34	14.34
500 cows and over	2	1.5	61.00	71.00	10.00
	130	100.0			
			TYPE OF BEEF-CATTLE OPERATION		
Purebred or Regist.	10	7.7	48.0	67.6	19.6
Commercial	89	68.5	46.38	68.48	22.1
Both	31	23.8	50.58	68.65	18.07
	130	100.0			
			TIME DEVOTED TO BEEF-CATTLE OPERATION		
1-99 days	39	30.0	40.68	63.0	22.32
100-199 days	23	17.7	34.26	65.66	34.26
200-250 days	31	23.8	34.52	60.06	25.54
Full time	37	28.5	38.26	67.94	29.68
	130	100.0			

BASIC DATA TABLE VI

PRETEST AND POSTTEST PERFORMANCE OF SHORT-COURSE ENROLLEES AT CLAREMORE, OKLAHOMA, ACCORDING TO VARIOUS CLASSIFICATIONS

	No. In Group	Per Cent of Total Group	Percentage Scores Pretest	Posttest	Gain
		AGE			
Under 34 yrs.	19	24.7	42.0	59.68	17.68
35-49	36	46.7	54.72	71.88	17.16
50-65	16	20.8	46.88	66.50	19.62
65 and over	6	7.8	38.0	62.0	24.00
	77	100.0			
		EDUCATION			
Less than 8th	8	10.4	39.0	65.74	26.74
9-12	30	38.9	43.2	64.06	20.86
Some College	13	16.9	46.76	66.67	19.91
College Grad.	26	33.8	59.3	72.96	13.66
	77	100.0			
		EXPERIENCE IN BEEF-CATTLE BUSINESS			
Under 10 yrs.	31	40.3	47.54	64.64	17.10
10-24	33	42.8	53.7	70.50	16.80
25-34	5	6.5	44.4	68.0	23.60
35 and over	8	10.4	36.76	60.0	23.24
	77	100.0			
		SIZE OF BEEF-CATTLE OPERATION			
Under 100 cows	58	75.3	51.96	68.86	16.90
100 to 249 cows	16	20.8	38.76	59.50	20.74
250 to 499 cows	3	3.9	42.67	65.30	22.63
500 cows and over	0	0.0	00.00	00.00	00.00
	77	100.0			
		TYPE OF BEEF-CATTLE OPERATION			
Purebred or Regist.	8	10.4	46.0	64.5	18.5
Commercial	41	53.2	44.04	67.64	23.6
Both	28	36.4	50.0	66.96	16.96
	77	100.0			
		TIME DEVOTED TO BEEF-CATTLE OPERATION			
1-99 days	16	20.8	48.26	66.72	18.46
100-199 days	7	9.1	47.14	54.58	7.44
200-250 days	18	23.4	56.56	73.08	16.52
Full time	36	46.7	45.66	67.25	21.60
	77	100.0			

BASIC DATA TABLE VII

PRETEST AND POSTTEST PERFORMANCE OF SHORT-COURSE ENROLLEES AT TISHOMINGO, OKLAHOMA, ACCORDING TO VARIOUS CLASSIFICATIONS

	No. In Group	Per Cent of Total Group	Percentage Scores Pretest	Posttest	Gain
		AGE			
Under 34 yrs.	13	20.0	47.7	75.0	27.3
34-49	26	40.0	47.38	74.38	27.0
50-65	22	33.8	45.18	66.72	21.54
65 and over	4	6.2	38.5	69.00	30.5
	65	100.0			
		EDUCATION			
Less than 8th	2	3.1	38.0	68.42	30.42
9-12	16	24.5	36.72	62.88	26.16
Some College	17	26.2	44.80	72.8	28.0
College Grad.	30	46.2	54.26	74.54	20.28
	65	100.0			
		EXPERIENCE IN BEEF-CATTLE BUSINESS			
Under 10 yrs.	16	24.5	41.50	70.0	28.5
10-24	30	46.2	46.4	66.94	20.54
25-34	15	23.1	52.94	67.46	14.52
35 and over	4	6.2	41.00	78.00	37.00
	65	100.0			
		SIZE OF BEEF-CATTLE OPERATION			
Under 100 cows	39	60.0	48.3	72.8	24.5
100 to 249 cows	18	27.7	42.4	69.44	27.04
250 to 499 cows	7	10.8	43.14	69.42	26.28
500 cows and over	1	1.5	64.0	76.0	12.0
	65	100.0			
		TYPE OF BEEF-CATTLE OPERATION			
Purebred or Regist.	9	13.8	51.12	69.56	18.44
Commercial	36	55.4	47.38	73.28	25.90
Both	20	30.8	42.4	69.4	27.0
	65	100.0			
		TIME DEVOTED TO BEEF-CATTLE OPERATION			
1-99 days	10	15.4	49.0	72.0	23.00
100-199 days	14	21.5	48.0	72.58	24.58
200-250 days	15	23.1	52.4	74.80	22.40
Full time	26	40.0	41.0	69.0	28.0
	65	100.0			

BASIC DATA TABLE VIII

PRETEST AND POSTTEST PERFORMANCE OF SHORT-COURSE ENROLLEES AT FAIRVIEW, OKLAHOMA, ACCORDING TO VARIOUS CLASSIFICATIONS

	No. In Group	Per Cent of Total Group	Percentage Scores Pretest	Posttest	Gain
		AGE			
Under 34 yrs.	11	18.0	51.64	73.46	21.82
34-49	32	52.5	46.68	68.50	21.82
50-65	15	24.6	45.06	66.80	21.74
65 and over	3	4.9	44.66	67.34	22.68
	61	100.0			
		EDUCATION			
Less than 8th	1	1.6	28.0	70.0	42.0
9-12	26	42.6	44.08	68.70	24.62
Some College	16	26.3	48.50	69.12	20.62
College Grad.	18	29.5	51.22	69.00	17.78
	61	100.0			
		EXPERIENCE IN BEEF-CATTLE BUSINESS			
Under 10 yrs.	13	21.3	49.08	69.84	20.76
10-24	27	44.3	48.66	72.08	23.42
25-34	14	22.9	43.14	63.14	20.00
35 and over	7	11.5	44.86	67.72	22.86
	61	100.0			
		SIZE OF BEEF-CATTLE OPERATION			
Under 100 cows	44	72.2	44.14	68.06	23.92
100 to 249 cows	13	21.3	50.30	72.16	21.86
250 to 499 cows	3	4.9	59.34	74.67	15.33
500 cows and over	1	1.6	58.0	68.0	10.0
	61	100.0			
		TYPE OF BEEF-CATTLE OPERATION			
Purebred or Regist.	4	6.6	46.0	74.0	28.0
Commercial	38	62.3	45.78	67.26	21.48
Both	19	31.1	49.90	72.22	22.32
	61	100.0			
		TIME DEVOTED TO BEEF-CATTLE OPERATION			
1-99 days	8	13.1	48.0	71.26	23.26
100-199 days	8	13.1	47.76	68.76	21.00
200-250 days	8	13.1	46.0	64.50	18.50
Full time	37	60.7	46.70	69.40	22.70
	61	100.0			

BASIC DATA TABLE IX

PRETEST SCORES OF SHORT-COURSE ENROLLEES
AT PAWNEE, OKLAHOMA, ACCORDING
TO VARIOUS CLASSIFICATIONS

	No. In Group	Per Cent of Total Group	Pretest Score
		AGE	
Under 34 yrs.	8	12.9	53.76
34-39	18	29.1	49.88
50-65	25	40.3	45.36
65 and over	11	17.7	40.20
	62	100.0	
		EDUCATION	
Less than 8th	16	25.8	40.0
9-12	28	45.2	46.72
Some College	14	22.5	50.28
College Grad.	4	6.5	60.50
	62	100.0	
		EXPERIENCE IN BEEF-CATTLE BUSINESS	
Under 10 yrs.	6	9.7	58.34
10-24	27	43.5	47.4
25-34	18	29.1	41.56
35 and over	11	17.7	50.54
	62	100.0	
		SIZE OF BEEF-CATTLE OPERATION	
Under 100 cows	29	46.8	41.86
100 to 249 cows	26	41.9	50.84
250 to 499 cows	6	9.7	53.66
500 cows and over	1	1.6	54.00
	62	100.0	
		TYPE OF BEEF-CATTLE OPERATION	
Purebred or Regist.	4	6.5	61.50
Commercial	38	61.3	46.64
Both	20	32.2	44.20
	62	100.0	
		TIME DEVOTED TO BEEF-CATTLE OPERATION	
1-99 days	3	4.8	56.67
100-199 days	4	6.5	53.50
200-250 days	16	25.8	43.64
Full time	39	62.9	48.26
	62	100.0	

BASIC DATA TABLE X

PRETEST SCORES OF SHORT COURSE-ENROLLEES
AT OKEMAH, OKLAHOMA, ACCORDING
TO VARIOUS CLASSIFICATIONS

	No. In Group	Per Cent of Total Group	Pretest Score
		AGE	
Under 34 yrs.	7	15.6	56.28
34-49	16	35.6	55.62
50-65	15	33.2	45.60
65 and over	7	15.6	40.00
	45	100.0	
		EDUCATION	
Less than 8th	5	11.1	40.40
9-12	20	44.4	43.90
Some College	9	20.0	47.34
College Grad.	11	24.5	63.82
	45	100.0	
		EXPERIENCE IN BEEF-CATTLE BUSINESS	
Under 10 yrs.	14	31.2	42.72
10-24	20	44.4	57.50
25-34	5	11.1	42.0
35 and over	6	13.3	41.67
	45	100.0	
		SIZE OF BEEF-CATTLE OPERATION	
Under 100 cows	31	68.9	45.3
100 to 249 cows	11	24.5	56.9
250 to 499 cows	2	4.4	54.0
500 cows and over	1	2.2	70.0
	45	100.0	
		TYPE OF BEEF-CATTLE OPERATION	
Purebred or Regist.	5	11.1	33.6
Commercial	31	68.9	50.7
Both	9	20.0	52.0
	45	100.0	
		TIME DEVOTED TO BEEF-CATTLE OPERATION	
1-99 days	11	24.5	49.1
100-199 days	8	17.7	41.0
200-250 days	7	15.6	45.43
Full time	19	42.2	53.06
	45	100.0	

BASIC DATA TABLE XI

CONVERSION OF RAW SCORES TO T-SCORES*
INTERVIEW SCHEDULE

Test Score	f	Cum. f	Cumulative Frequency Score + ½ of Given Score	Per Cent	T-Score
13	1	36	35.5	98.6	72
12	1	35	34.5	95.9	67
11	1	34	33.5	93.0	65
10	5	33	30.5	84.7	60
9	3	28	26.5	73.6	56
8	3	25	23.5	65.2	54
7	5	22	19.5	54.2	51
6	7	17	13.5	37.5	47
5	1	10	9.5	26.4	44
4	1	9	8.5	23.6	43
3	1	8	7.5	20.8	42
2	3	7	5.5	15.2	40
1	4	4	2.0	5.5	34

N = 36

*Henry F. Garrett, Statistics in Psychology and Education (New York, 1958), pp. 307-311.

BASIC DATA TABLE XII

CALCULATIONS BY USE OF THE
MANN-WHITNEY U TEST*

$$U = n_1 n_2 + \frac{n_1(n_1 + 1)}{2} - R_1$$

$$= (36)(36) + \frac{36(37)}{2} - 264.5$$

$$= 1296 + 666 - 264.5$$

$$= 1697.5$$

$$Z = \frac{U - \frac{n_1 n_2}{2}}{\sqrt{\frac{(n_1)(n_2)\ (n_1 + n_2 + 1)}{12}}}$$

$$= \frac{1697.5 - \frac{1296}{2}}{\sqrt{\frac{(1296)\ (73)}{12}}} = \frac{1049.5}{\sqrt{7884}}$$

$$= \frac{1049.5}{88.7}$$

$$= 11.7$$

Observed value of U has an associated probability less than α value, thus reject H_0 in favor of H_1.

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*Sidney Siegel, Non-Parametric Statistics for the Behavioral Sciences (New York, 1956), pp. 116-127.

BASIC DATA TABLE XIII

IBM CODE SHEET

Name of Project: Short Course on Beef Cattle Date: November 11, 1963

Project Leader: William F. Taggart Dept. No.: 2455

No. of Cards: Project No.: 40702

Initial Column	Final Column	No. of Cols.	Item	Remarks
1	2	2	Identification Number	
3	3	1	Age Group	
4	4	1	Education Group	
5	5	1	Experience Group	
6	6	1	Size of Operation	
7	7	1	Type of Operation	
8	8	1	Time Devoted to Operation	
9	9	1	Question 1	
10	10	1	Question 2	
11	11	1	Question 3	
12	12	1	Question 4	
13	13	1	Question 5	Question
14	14	1	Question 6	Code:
15	15	1	Question 7	Correct Code=2
16	16	1	Question 8	Wrong Code=1
17	17	1	Question 9	
18	18	1	Question 10	
19	19	1	Question 11	
20	20	1	Question 12	
21	21	1	Question 13	
22	22	1	Question 14	
23	23	1	Question 15	
24	24	1	Question 16	
25	25	1	Question 17	

BASIC DATA TABLE XIII (Continued)

IBM CODE SHEET

Name of Project: Date:

Project Leader: Dept. No.:

No. of Cards: Project No.:

Initial Column	Final Column	No. of Cols.	Item	Remarks
26	26	1	Question 18	
27	27	1	Question 19	
28	28	1	Question 20	
29	31	3	Question 21	
32	34	3	Question 22	
35	37	3	Question 23	
38	40	3	Question 24	
41	43	3	Question 25	
44	48	5	Question 26	
49	53	5	Question 27	
54	58	5	Question 28	
59	63	5	Question 29	
64	68	5	Question 30	
69	69	1	Total Score (Economics Questions)	X_1
70	71	2	Total Score (Breeding Questions)	X_2
72	73	2	Total Score (Feeding Questions)	X_3
74	75	2	Total Score (Management Questions)	X_4
76	77	2	Total Score (Disease Questions)	X_5
78	80	3	Total Score (All Questions)	X_6

APPENDIX B

A SURVEY TO GUIDE THE DEVELOPMENT OF

BETTER LIVESTOCK EXTENSION PROGRAMS IN BEEF-CATTLE MANAGEMENT

(To be completed by all persons enrolled in the short-course program)

Please check your age grouping:

Under 34 _____
35 to 49 _____
50 to 65 _____
65 and over _____

Please check the column that represents the amount of school work you have completed:

Less than 8th grade _____
9th through 12 grade _____
Some college work _____
College graduate _____

Please check the bracket that most nearly represents your length of experience in the beef-cattle business:

Under 10 years _____
10 to 24 years _____
25 to 34 years _____
35 years and over _____

Please check the grouping that most nearly describes the size of your beef-cattle operation:

Under 100 cows _____
100 to 249 cows _____
350 to 499 cows _____
500 cows and over _____

Type of operation: (check one)

Registered or purebred _____
Commercial _____
Combination of both _____

Please check the grouping that represents your situation:

I devote full time to my beef-cattle operation _____

I devote only part time to my beef-cattle operation _____
Amount of off-farm work:

1 to 99 days _____
100 to 199 days _____
200 to 250 days _____

BEEF-CATTLE-MANAGEMENT TEST

Instructions: Do not sign your name to this quiz.

There is only one correct answer for each question. Circle the correct answer.

1. In the past 10 years, when considering all costs, the return for labor and management per cow from the average producer would more likely be:

   __X__ a. $25

   _____ b. $45

   _____ c. $65

2. A partial budget is:

   __X__ a. A tool or means of measuring and considering contemplated courses of action

   _____ b. A type of record system necessary for analysis of the enterprise

   _____ c. To determine total returns from a course of action

3. In the final economic analysis, any beef-cattle operator is mainly concerned with:

   __X__ a. The net return for his labor and management

   _____ b. The better use of record keeping systems fixed

   _____ c. Reducing overhead fixed costs

4. The actual meaning of heritability is:

   __X__ a. The actual difference between two individuals that is due to genetic make-up

   _____ b. The genetic influence a sire expresses on his offspring

   _____ c. The total difference between individuals

5. A good understanding of heritability estimates permits the beef-cattle producer to:

   __X__ a. Estimate the possible magnitude or scope and rate that improvements can be made in a breeding program

   _____ b. Make sure that environmental effects are omitted from selection of replacement animals

_____c. Increase the percentage of inheritance for most important economic traits

6. Functionally, total herd improvement for certain important traits can be made _____% faster through bull selections than through cow selection and culling.

_____a. 50

__X__b. 300 to 500

_____c. 100

7. For his own use and information, a breeder could progeny test his bulls in service by:

_____a. Allotting each bull to select cow groups in the herd and obtaining calf weaning and carcass data

_____b. Allotting each bull 30 cows of known ancestry and pedigree

__X__c. Allotting each bull to a similar group of cows and obtaining offspring performance and carcass data

8. Heifer replacements in a commercial beef feeder-calf producing herd should be made on the following basis:

_____a. Visual appraisal

__X__b. Performance records, visual appraisal, and pedigree consideration

_____c. Mainly on visual appraisal and on production records of the herd

9. In a commercial feeder-calf producing herd it is better to:

__X__a. Arrange a breeding program so that calves will be dropped within a 6- to 8-week period either in the spring or fall

_____b. Plan for calves to come over a 6-month or longer time

_____c. Plan the breeding program to correspond to the predominate pattern of the area

10. The average calf-crop percentage considering all beef herds is:

_____a. 92%

_____b. 80%

__X__c. 86%

11. In the long-range view, beef producers in Oklahoma must _____ brucellosis.

    _____a. Control

    __X__b. Eradicate

    _____c. Continue to live with

12. Experimental work at Ft. Reno shows that calving heifers first as two year olds (when compared to first calving as 3 year olds) will:

    _____a. Reduce the cow's production

    _____b. Has an adverse effect on the life span

    __X__c. Results in greater total lifetime production and profit

13. The weakest link in the chain of beef production is:

    _____a. Market fluctuation

    __X__b. Low cow productivity

    _____c. High cost of feeds

14. The cheapest source of energy for cattle is usually:

    __X__a. Hay or roughage

    _____b. Silage

    _____c. Cottonseed meal or 20% cubes

15. The best source of protein for ruminants is:

    _____a. Soybean meal or cottonseed meal

    _____b. A mixture of oil meals

    __X__c. There is no best single source

16. Pound for pound, a 20% protein cube contains _____ energy than a 41% protein product.

    __X__a. More

    _____b. Less

    _____c. Approximately the same amount

17. An economically and nutritionally sound rule for purchasing protein for the beef cow-calf program is:

_____a. To purchase a combination of energy and protein supplement

_____b. To consider lowest cost per ton for the feed

__X__c. To consider cost per pound of digestible protein

18. The major supplemental minerals needed by the beef cow on Oklahoma ranches are:

__X__a. Salt, calcium, and phosphorous

_____b. Trace minerals, salt, calcium, and phosphorous

_____c. Limestone, bone meal, and cobalt

19. The main vitamin deficiency in beef-cattle winter feeding is:

_____a. B_{12}

__X__b. A

_____c. A and E

20. Cow feed costs represent _____% of the cost of producing a weaner calf.

_____a. 30

_____b. 60

__X__c. 70

Note: One or more answers may be correct in the last ten questions. Check the correct answers.

21. In a spring calving program we can expect that:

__X__a. Cows will winter more cheaply than fall-calving cows

__X__b. A higher % calf crop can normally be expected

_____c. Calves will normally sell at higher prices than fall-dropped calves

22. In a fall calving program we can expect that:

__X__a. A heavier calf will be weaned

_____b. It costs less to produce the calves

__X__c. This program fits a "two-way" or fat-slaughter program better than spring calving

23. As concerns efficiency in winter feeding and management of the cow herd, it is true that:

__X__ a. Spring-calving cows may lose 20% of their body weight during the winter and recover it on summer pasture

_____ b. Females on too high a level of nutrition will live longer than those on a medium level

__X__ c. Replacement heifers should gain from 75 to 100 lbs. during the first winter as weaner calves

24. Whether or not to use salt to limit protein intake for cows depends upon:

__X__ a. The difficulty of hand feeding

__X__ b. The added cost of the salt and mixing

_____ c. The danger of injury to the cow

25. Implanting suckling calves results in:

__X__ a. 20- to 28-lbs. increase in weaning weight

__X__ b. Buyer resistance in many cases

_____ c. Reduced efficiency of the calf in the feed lot

26. Returns on a beef cow-calf operation depend upon:

_____ a. Number of calves dropped

__X__ b. Weaning weight

__X__ c. Feed costs and labor costs

__X__ d. Market grade and value of the calves

__X__ e. Number of calves weaned

27. Anaplasmosis:

__X__ a. Is transmitted by horseflies and mosquitoes

__X__ b. May be spread by ticks, hornflies, and stableflies

__X__ c. May be spread by vaccination, dehorning, and castration

__X__ d. Is caused by a very tiny parasite which destroys red blood cells

_____ e. Can be eradicated by treatment with antibiotics

28. Genes:

__X__ a. Occur in pairs in cell nuclei

__X__ b. Are transmitted from parent to offspring singly

__X__ c. Are actually hereditary units through which life is transmitted from one generation to another

__X__ d. Exist in different forms

_____ e. Forms are all alike

29. In calculating energy in beef-cow rations, certain feed substitutions can be made. Check the following substitutions that are true. Leave the false statements blank or unmarked.

__X__ a. One pound of grain will substitute for 3 pounds of roughage.

__X__ b. Eight pounds of alfalfa hay is equal to 5 pounds of prairie hay plus 3 pounds of 32% cubes.

__X__ c. A pound of 20% cubes contains more energy value than a pound of 32% cubes.

_____ d. A pound of cottonseed cake contains more energy value than a pound of 20% cattle cubes.

__X__ e. Dry, mature beef cows need about 9 pounds of T.D.N. or energy per day.

30. Check the true statements. Leave the false statements blank.

__X__ a. One should purchase protein on the basis of the per-pound cost of digestible protein.

__X__ b. Cows can synthesize all vitamins with the exception of Vitamin A.

__X__ c. Two hours of grazing every other day on lush, green winter pasture will take care of a mature beef cow's protein and Vitamin A requirements.

_____ d. Calves should be creep fed through the winter.

__X__ e. Mature cows going into the winter in normal flesh can lose up to 20% of their body flesh without harmful effects.

APPENDIX C

BEEF CATTLE MANAGEMENT

SHORT COURSE

Fairgrounds

Duncan, Oklahoma

Stephens County and Surrounding Counties

November 7, 14, 21, 1963

Local County Agent to be Program Chairman
Enrollment Fee (to be determined locally--fee depends on local meal costs, etc. No speaker fees or instructional costs)

First Meeting

(November 7, 1963)

Afternoon

5:00-6:30 p.m.

Enrollment and Announcements	Ed Gregory Stephens County Agent
What We Hope to Learn	Bill Taggart Ext. Livestock Specialist O.S.U.
1. Economics of a Beef Cow-Calf Program and Stocker-Feeder Programs	Cecil Maynard Ext. Economist Farm Management, O.S.U.

Investment Costs, Requirements, Alternatives, etc.
Use of Actual Operation Cost and Returns Records
Accounting Systems

Dinner - 6:30-7:30 p.m.

7:30-9:30 p.m.

1. Tax Considerations in the Beef Business	Jack Reeder, C.P.A. Duncan, Oklahoma
2. Credit Considerations in the Beef Business	Harley Custer, President National Credit Corp. Okla. City Stockyards

Second Meeting

(November 14, 1963)

5:00-6:30 p.m.

1. Cow-Calf Breeding Programs . . . . . Dr. Richard Willham
   A. H. Department, O.S.U.

   Population Genetics, Heritability Estimates, etc.

Dinner - 6:30-7:30 p.m.

7:30-9:30 p.m.

1. Bulls--How Much Can You Spend for a Good One? . . . . . Charles Pratt
   Ext. Livestock Specialist
   O.S.U.

   Bull Selection--Performance, Pedigree, Visual
   Carcass Improvements
   Progeny Test Possibilities

2. Importance of Production in the Beef Cow . . . . . Clyde Reed
   Ext. Livestock Specialist
   O.S.U.

   Selecting Heifer Replacements--Visual, Performance, and Pedigree
   Culling the Cow Herd--Regularity of Reproduction
   Performance Testing--Seasonality of Calving

Third Meeting

(November 21, 1963)

5:00-7:00 p.m.

1. Winter Feeding Problems . . . . . Bill Taggart
   Ext. Livestock Specialist
   O.S.U.

   Protein Feeding and Cost Comparisons
   Creep Feeding?

2. A Quick Look at the Main Beef-Cattle Diseases and Parasite Problems in Oklahoma . . . . Dr. Jerry Young
   Ext. Entomologist, O.S.U.

3. Grassland Management for the Beef Program . . . . . Clarence Bunch
   Ext. Range Specialist, O.S.U.

Dinner - 7:00-8:00 p.m.

8:00-9:30 p.m.

1. Cow-Herd Management . . . . . Dr. Bill Pope
   A. H. Department, O.S.U.

   Establishment of the Cow Herd
   Management at Calving Time
   Age at First Calving--Fall vs. Spring Calving
   Nutrition and Management from Birth to Weaning
   Management at Weaning

2. Close of Short Course . . . . . Bill Taggart
   Ext. Livestock Specialist
   O.S.U.

BEEF CATTLE MANAGEMENT

SHORT COURSE

Fairgrounds

Claremore, Oklahoma

November 12, 19, and 26, 1963

Local County Agent to be Program Chairman
Enrollment Fee (to be determined locally--fee depends on local meal costs, etc. No speaker fees or instructional costs)

First Meeting

(November 12, 1963)

Afternoon

4:00-5:30 p.m.

Enrollment and Announcements	Bill Whitenton Rogers County Agent
What We Hope to Learn	Bill Taggart Ext. Livestock Specialist O.S.U.
1. Economics of a Beef Cow-Calf Program and Stocker-Feeder Programs	Cecil Maynard Ext. Economist Farm Management, O.S.U.

Investment Costs, Requirements, Alternatives, etc.
Use of Actual Operation Cost and Returns Records
Accounting Systems

Dinner

6:30-8:30 p.m.

1. Credit Considerations in the Beef Business	George Reid Liberty National Bank Oklahoma City
2. Tax Considerations in the Beef Business	Bill House Cedar Vale, Kansas Income Tax Consultant and Vice-President, Kansas Livestock Assn. and American Hereford Assn.

Second Meeting

(November 19, 1963)

4:00-5:30 p.m.

1. Cow-Calf Breeding Programs . . . . . Dr. Richard Willham
   A. H. Department, O.S.U.

   Population Genetics, Heritability Estimates, etc.

Dinner

6:30-8:30 p.m.

1. Bulls--How Much Can You Spend for a Good One? . . . . . Charles Pratt
   Ext. Livestock Specialist
   O.S.U.

   Bull Selection--Performance, Pedigree, Visual
   Carcass Improvements
   Progeny Test Possibilities

2. Importance of Production in the Beef Cow . . . . . Clyde Reed
   Ext. Livestock Specialist
   O.S.U.

   Selecting Heifer Replacements--Visual, Performance, Pedigree
   Culling the Cow Herd--Regularity of Reproduction
   Performance Testing--Seasonality of Calving

Third Meeting

(November 26, 1963)

4:00-6:00 p.m.

1. Winter Feeding Problems . . . . . Bill Taggart
   Ext. Livestock Specialist
   O.S.U.

   Protein Feeding and Cost Comparisons
   Creep Feeding?

2. A Quick Look at the Main Beef-Cattle Diseases and Parasite Problems in Oklahoma . . . . Dr. Jerry Young
   Ext. Entomologist, O.S.U.

3. Grassland Management for the Beef Program . . . . . Clarence Bunch
   Ext. Range Specialist, O.S.U.

Dinner

7:00-8:30 p.m.

1. Cow-Herd Management . . . . . Dr. Bill Pope
   A. H. Department, O.S.U.

   Establishment of the Cow Herd
   Management at Calving Time
   Age at First Calving--Fall vs. Spring Calving
   Nutrition and Management from Birth to Weaning
   Management at Weaning

2. Close of Short Course . . . . . Bill Taggart
   Ext. Livestock Specialist
   O.S.U.

BEEF CATTLE MANAGEMENT

SHORT COURSE

Murray State College

Tishomingo, Oklahoma

November 6, 13, and 20, 1963

Local County Agent to be Program Chairman
Enrollment Fee (to be determined locally--fee depends on local meal costs, etc. No speaker fees or instructional costs)

First Meeting

(November 6, 1963)

Afternoon

4:00-5:30 p.m.

Enrollment and Announcements	Clarence Ryan Johnston County Agent
What We Hope to Learn	Bill Taggart Ext. Livestock Specialist O.S.U.
1. Economics of a Beef Cow-Calf Program and Stocker-Feeder Programs	Cecil Maynard Ext. Economist Farm Management, O.S.U.

Investment Costs, Requirements, Alternatives, etc.
Use of Actual Operation Cost and Returns Records
Accounting Systems

Dinner

5:30-6:30 p.m.

1. Credit Considerations in the Beef Business	Harley Custer, President National Credit Corp. Okla. City Stockyards
2. Tax Considerations for the Cowman	Flynn Stewart, C.P.A. Wichita, Kansas President, Texas Angus Association

Second Meeting

(November 13, 1963)

4:00-5:30 p.m.

1. Cow-Calf Breeding Programs . . . . . Dr. Richard Willham
   A. H. Department, O.S.U.

   Population, Genetics, Heritability, Estimates, etc.

Dinner

6:30-8:30 p.m.

1. Bulls--How Much Can You Spend for a Good One? . . . . . Charles Pratt
   Ext. Livestock Specialist
   O.S.U.

   Bull Selection--Performance, Pedigree, Visual
   Carcass Improvements
   Progeny Test Possibilities

2. Importance of Production in the Beef Cow . . . . . Clyde Reed
   Ext. Livestock Specialist
   O.S.U.

   Selecting Heifer Replacements--Visual, Performance, and Pedigree
   Culling the Cow Herd--Regularity of Reproduction
   Performance Testing--Seasonality of Calving

3. Tishomingo Bull Test Program . . . . Dr. Jerry Martin
   Murray State College

Third Meeting

(November 20, 1963)

4:00-6:00 p.m.

1. Winter Feeding Problems . . . . . Bill Taggart
   Ext. Livestock Specialist
   O.S.U.

   Protein Feeding and Cost Comparisons
   Creep Feeding?

2. A Quick Look at the Main Beef Cattle Diseases and Parasite Problems in Oklahoma . . . . Dr. Wiley Wolfe
   Head of Veterinary Clinic
   O.S.U.

3. Weed and Brush Control in Grassland . . . . . Clarence Bunch
Ext. Range Specialist
O.S.U.

Dinner

7:00-8:30 p.m.

1. Cow-Herd Management . . . . . Dr. Bill Pope
A. H. Department, O.S.U.

Establishment of the Cow Herd
Management at Calving Time
Age at First Calving--Fall vs. Spring Calving
Nutrition and Management from Birth to Weaning

2. Close of Short Course . . . . . Bill Taggart
Ext. Livestock Specialist
O.S.U.

BEEF CATTLE MANAGEMENT

SHORT COURSE

City Auditorium

City Hall

Fairview, Oklahoma

For Major County and Surrounding Counties

November 11, 18, and 25, 1963

Local County Agent to be Program Chairman
Enrollment Fee ($6.00 per individual or $11.00 per couple--fee is to be used for local expenses including meal costs. No speaker fees or instructional costs)

First Meeting

(November 11, 1963)

Afternoon

5:00-6:30 p.m.

Enrollment and Announcements	Harold Miller Major County Agent
What We Hope to Learn	Bill Taggart Ext. Livestock Specialist O.S.U.
1. Economics of a Beef Cow-Calf Program and Stocker-Feeder Programs	Cecil Maynard Ext. Economist Farm Management, O.S.U.

Investment Costs, Requirements, Alternatives, etc.
Use of Actual Operation Cost and Returns Records
Accounting Systems

Dinner - 6:30-7:30 p.m.

7:30-9:30 p.m.

1. Credit Considerations in the Beef Business	George Reid, Vice-President Agricultural Activities Liberty National Bank Oklahoma City

2. Tax Considerations in the Beef Business . . . . . A. H. Burns
Sankrausse Accts. of Enid

Second Meeting

(November 18, 1963)

5:00-6:30 p.m.

1. Cow-Calf Breeding Programs . . . . . Dr. Richard Willham
A. H. Department, O.S.U.

Population Genetics, Heritability Estimates, etc.

Dinner - 6:30-7:30 p.m.

7:30-9:30 p.m.

1. Bulls--How Much Can You Spend for a Good One? . . . . . Charles Pratt
Ext. Livestock Specialist
O.S.U.

Bull Selection--Performance, Pedigree, Visual
Carcass Improvements
Progeny Test Possibilities

2. Importance of Production in the Beef Cow . . . . . Clyde Reed
Ext. Livestock Specialist
O.S.U.

Selecting Heifer Replacements--Visual, Performance, and Pedigree
Culling the Cow Herd--Regularity of Reproduction
Performance Testing--Seasonality of Calving

Third Meeting

(November 25, 1963)

5:00-7:00 p.m.

1. Winter Feeding Problems . . . . . Bill Taggart
Ext. Livestock Specialist
O.S.U.

Protein Feeding and Cost Comparisons
Creep Feeding?

2. A Quick Look at the Main Beef-Cattle Diseases and Parasite Problems in Oklahoma . . . . Dr. Jerry Young
   Ext. Entomologist, O.S.U.

3. Grassland Management for the Beef Program . . . . . Clarence Bunch
   Ext. Range Specialist

Dinner - 7:00-8:00 p.m.

8:00-9:30 p.m.

1. Cow-Herd Management . . . . . Dr. Bill Pope
   A. H. Department, O.S.U.

   Establishment of the Cow Herd
   Management at Calving Time
   Age at First Calving--Fall vs. Spring Calving
   Nutrition and Management from Birth to Weaning
   Management at Weaning

2. Close of Short Course . . . . . Bill Taggart
   Ext. Livestock Specialist
   O.S.U.

APPENDIX D

A SURVEY TO GUIDE THE DEVELOPMENT

OF

BETTER LIVESTOCK EXTENSION PROGRAMS

IN

BEEF-CATTLE MANAGEMENT

Name _____ Address _____

Please check your age grouping:

Under 35 _____ 51 to 65 _____
35 to 50 _____ Over 65 _____

Please check the column that represents the amount of school work you have completed:

Less than 8th grade _____ College graduate _____
9th through 12th grade _____ Some college work _____

Please check the bracket that most nearly represents your length of experience in the beef-cattle business:

Under 10 years _____ 26 to 35 years _____
10 to 25 years _____ Over 35 years _____

Please check the grouping that most nearly describes the size of your beef-cattle operation:

Under 100 cows _____ 251 to 500 cows _____
101 to 250 cows _____ Over 500 cows _____

Type of operation: (check one)

Registered or purebred _____
Commercial _____
Combination of both _____
Full-time operator _____
Part-time operator _____

I. BREEDING AND SELECTION PRACTICES	Never 1	Seldom 2	Usually 3	Nearly Always 4	Always 5
A. SELECTION OF BULLS FOR HERD IMPROVEMENT					
1. Selects replacement bulls on basis of visual appraisal.	___	___	___	___	___
2. Selects replacement bulls on basis of pedigree.	___	___	___	___	___
3. Selects replacement bulls on basis of performance records.	___	___	___	___	___
4. In addition to other listed criteria, selects replacement bulls on basis of sire progeny test and carcass results.	___	___	___	___	___
5. Understands and uses knowledge of heritability factors in selecting replacement stock	___	___	___	___	___
6. Uses a progeny test program to test bulls in service by allotting them to a similar group of cows in order to give each bull a fair test. In testing a new bull, allots him the same kind of cows allotted the old bull.	___	___	___	___	___
7. When a superior bull is discovered, mates him to top-producing cows.	___	___	___	___	___
8. Follows a program of post-weaning feed testing and weighing bull calves for better selection.	___	___	___	___	___
B. SELECTION OF REPLACEMENT HEIFERS					
1. Selects replacement heifers on the basis of visual appraisal.	___	___	___	___	___
2. Selects replacement heifers on basis of pedigree information.	___	___	___	___	___

	Never 1	Seldom 2	Usually 3	Nearly Always 4	Always 5
3. Selects replacement heifers on basis of performance records.	___	___	___	___	___
4. Keeps an accurate set of performance records on own herd.	___	___	___	___	___
5. Selects heifers for mothering and milking ability.	___	___	___	___	___
C. CULLING THE COW HERD					
1. Culls cows at 10 to 12 years of age or as soon as body and physical breakdown require culling.	___	___	___	___	___
2. Culls cows for such unsoundness as bad eyes, udders, poor conception, etc.	___	___	___	___	___
3. Culls cows on the basis of performance records.	___	___	___	___	___
4. Identifies or brands cows for easy age identification.	___	___	___	___	___
D. BREEDING PRACTICES					
1. Breeds for grouping of calves within a short period rather than year-round calving.	___	___	___	___	___
2. Controls breeding dates to insure maximum calf weaning weights for his ranch and area of state. (i.e., seasonality of calving)	___	___	___	___	___
Fall calving program _____ Spring calving program _____ Combination of both _____					
3. Calves heifers as 2-year-olds in order to obtain maximum lifetime production. (based on Ft. Reno research)	___	___	___	___	___

	Never 1	Seldom 2	Usually 3	Nearly Always 4	Always 5
4. Pregnancy tests cows and otherwise closely checks and records regularity of production on each cow.	___	___	___	___	___
5. Feeds properly during breeding, gestation, and lactation.	___	___	___	___	___
6. Has a 90% or better calf crop.	___	___	___	___	___
II. HERD HEALTH - DISEASE AND PARASITE CONTROL					
1. Follows a sound program of dehorning, castration, etc.	___	___	___	___	___
2. Follows a sound program of vaccination for bangs, lepto, black leg, malignant edema, and other needed disease prevention vaccines.	___	___	___	___	___
3. Uses rubbing posts or other appropriate control measures for all external parasite control.	___	___	___	___	___
4. Treats cattle properly for internal parasites.	___	___	___	___	___
5. Uses systemics.	___	___	___	___	___
6. Has branding program and brand properly registered.	___	___	___	___	___
7. Follows proper precautions for disease control. Isolates sick animals, uses veterinary services, etc.	___	___	___	___	___
III. FEEDING AND MANAGEMENT PRACTICES					
A. AT CALVING TIME					
1. At calving time, sees that heifers are in strong condition and average fleshing, not too nourished.	___	___	___	___	___
2. Checks pastures at least twice daily during calving season.	___	___	___	___	___

	Never 1	Seldom 2	Usually 3	Nearly Always 4	Always 5
3. Keeps first-calf heifers close to Hq. for close observation.	___	___	___	___	___
4. Gives cow assistance at calving time (if needed).	___	___	___	___	___
5. Naval cord of new-born calf treated with iodine.	___	___	___	___	___
6. Sees that cow expels placental membranes within 12 hours after calving for prompt rebreeding.	___	___	___	___	___
B. FROM BIRTH TO WEANING					
1. Provides adequate nutrition for cows during lactation.	___	___	___	___	___
2. Maintains heifers in moderate condition for best milk production.	___	___	___	___	___
3. Provides creep feed for calves from heifers, older cows, during drouth periods, and other recommended situations.	___	___	___	___	___
4. Provides 2 to 2½# of 41% protein supplement (or its equivalent) for lactating cows on dry native winter range.	___	___	___	___	___
5. Provides adequate energy feed for lactating cows.	___	___	___	___	___
6. Follows Ft. Reno recommendations for levels of wintering (or fall-calving cows).	___	___	___	___	___
7. Considers cost per pound of digestible protein as a basis for purchasing and using supplemental protein.	___	___	___	___	___
8. Provides adequate and clean water supply.	___	___	___	___	___

	Never 1	Seldom 2	Usually 3	Nearly Always 4	Always 5
9. Implants calves on pasture with low level of stilbestrol.	___	___	___	___	___
C. DRY COWS					
1. Provides 1 to 1½# of 41% protein supplement (or its equivalent for dry cows on dry native winter range.	___	___	___	___	___
2. Uses proper feed substitution for energy feeds--i.e., 3# silage = 1# hay 3# alfalfa hay = 1# 41% C.S.M., etc. Feeds cattle for minimum expense and maximum production.	___	___	___	___	___
3. Understands and uses a balanced ration using available feeds considering weather conditions.	___	___	___	___	___

APPENDIX E

Duncan

EVALUATION OF BEEF-CATTLE-MANAGEMENT SHORT COURSE

DO NOT SIGN THIS FORM

We need your frank opinion of this short-course program. We are not hunting compliments, but rather are interested in improving future programs. Please give your honest appraisal.

1. Programs were:

   Good 113 Too long 4 Too detailed 9

2. Subject-matter presentations were:

   Good 94 Too difficult 29 Too elementary 4

3. Notebook materials were:

   Good 108 Too difficult 3 Too lengthy 9

4. The short course as a whole was:

   Good 109 Fair 14 Poor

5. More or less time should have been given to:

	More	Less
Group questions and answers	65	8
Individual informal visiting	27	24
Beef-cow economics	67	7
Tax considerations	52	13
Animal-breeding programs	52	16
Feeding problems	77	1
Herd-management pointers	74	6
Performance-testing work	39	17
Bull selection	80	8
Carcass and progeny testing work	40	20
Cow productivity--culling and selecting	68	4

	More	Less
Diseases and parasites	58	7
Range and pasture problems	76	6
Short-course testing and evaluation	30	17

6. What suggestions do you have for general improvement of this short course?

*/		
2	2.	Held each year or more.
	3.	More short courses.
2	4.	Use more time.
13	5.	Genetics sessions were over the head of the groups.
	6.	Too many genes and not enough on feed.
3	7.	Better explanation of care of livestock for parasites.
	8.	More emphasis on disease control.
	9.	Reduce explanations and ideas to simplest possible terms.
9	10.	Middle program was very dull and difficult to understand.
3	11.	Should use more visual aids.
	12.	More practical application of genetics.
3	13.	Less time spent talking about performance testing and genetics.
	14.	More time given to importance of grade of beef cow and selecting heifers.
	15.	Speakers should talk in more common language.
2	16.	Attention to area or particular part of state and pasture conditions.
	17.	Use of more slides in progeny and genes programs.
	18.	Start meetings later.
	19.	Discussion of buying calves or steers vs cows from a profit standpoint.
2	20.	Cover less in more time.
	21.	More on trace minerals and iodine.
2	22.	More time for group questions.
	23.	Different beef productions to fit one individual need.

*/ Number of times suggestions were given

Claremore

EVALUATION OF BEEF-CATTLE-MANAGEMENT SHORT COURSE

DO NOT SIGN THIS FORM

We need your frank opinion of this short-course program. We are not hunting compliments, but rather are interested in improving future programs. Please give your honest appraisal.

1. Programs were:

Good 81 Too long 1 Too detailed 6

2. Subject-matter presentations were:

Good 76 Too difficult 11 Too elementary 0

3. Notebook materials were:

Good 80 Too difficult 1 Too lengthy 1

4. The short course as a whole was:

Good 71 Fair 15 Poor 0

5. More or less time should have been given to:

	More	Less
Group questions and answers	33	10
Individual informal visiting	19	18
Beef-cow economics	45	4
Tax considerations	47	6
Animal-breeding programs	44	11
Feeding problems	58	2
Herd-management pointers	47	8
Performance-testing work	34	10
Bull selection	46	9
Carcass and progeny testing work	30	11
Cow productivity--culling and selecting	53	5

	More	Less
Diseases and parasites	56	3
Range and pasture problems	45	9
Short-course testing and evaluation	25	14

6. What suggestions do you have for general improvement of this short course?

*/
1. Not enough time to cover all the problems.
2. Work on a program that would put detailed records of actual operations with college supervision to show herd improvement, production improvements and net gains in actual operations and a net gain in profit.

3 3. More time for actual feeding and beef-production economics.

6 4. Keep programs on cattlemen's level.

4 5. Genetics portion was too complicated for most present.

6. More information on improved pasture program instead of native grass.

7. More "plain talk" suggestions on the subject of more profit from beef.

2 8. Parts should be directed to people who are actually working in agriculture instead of college students who are studying it.

2 9. More detailed material on financing and financial requirements of the beef-cattle operation.

2 10. More pointers on herd management.

11. Make course longer.

12. More information on experimental work at college and Ft. Reno.

13. Hold course at least twice a year.

3 14. Give more practice examples of what actual ranches are doing.

15. More direct questions and answers.

16. Very little gained from the grassland management or credit consideration portions of program.

17. Have more on "Diseases and Parasites."

5 18. More than three meetings covering more on each subject.

19. Handouts should be incorporated into a single pamphlet.

20. More printed material for reference use.

Suggestions for short courses:

1. Marketing of Heavy Feeder Calves
2. Feedlot Operations in Oklahoma
3. Purebred Herefords

*/ Number of times suggestions were given

Tishomingo

EVALUATION OF BEEF-CATTLE-MANAGEMENT SHORT COURSE

DO NOT SIGN THIS FORM

We need your frank opinion of this short course program. We are not hunting compliments, but rather are interested in improving future programs. Please give your honest appraisal.

1. Programs were:

   Good 103 Too long 7 Too detailed 9

2. Subject-matter presentations were:

   Good 98 Too difficult 9 Too elementary 1

3. Notebook materials were:

   Good 100 Too difficult 2 Too lengthy 4

4. The short course as a whole was:

   Good 96 Fair 10 Poor 1

5. More or less time should have been given to:

	More	Less
Group questions and answers	55	4
Individual informal visiting	20	28
Beef-cow economics	49	11
Tax considerations	40	16
Animal-breeding programs	51	11
Feeding problems	78	2
Herd-management pointers	73	4
Performance-testing work	31	24
Bull selection	55	8
Carcass and progeny testing work	36	18
Cow productivity--culling and selecting	76	5

	More	Less
Diseases and parasites	68	4
Range and pasture problems	77	1
Short-course testing and evaluation	21	22

6. What suggestions do you have for general improvement of this short course?

*/		
3	2.	More time for questions.
	3.	Economics topic too elementary for group.
	4.	Tax discussion too long.
	5.	Enrollment cost too high.
14	6.	Another short course at least once a year, preferably more often.
11	7.	More sessions like the last one.
3	8.	More information on recent findings in research projects.
4	9.	More on economics
3	10.	More emphasis on economic problems.
2	11.	More on credits and financing.
11	12.	More sessions than three.
	13.	More practical work on selection.
2	14.	Questions, except general ones, should be asked after session closes.
	15.	Continue to take program to people.
	16.	Some way to get a higher per cent of cattle operators present.
	17.	Include social security tax matters.
	18.	Combine with your graphs and tables pictures of animals which are mentioned under the particular test conditions.
	19.	More questions; more attention to questions by speakers.
13	20.	Simplify discussion on genes; too difficult for average cattleman.
3	21.	More individual time with the instructors.
	22.	More parts and information on improved grasses, both summer and winter to help produce more beef on less feed.
	23.	Cover one phase such as breeding, feeding, management, etc., in more detail and have a different emphasis each year.
6	24.	Covered everything too fast.
	25.	Panel discussions.
	26.	Spend more time on feeding and brush control.
	27.	More emphasis on breeding-herd management, especially the bull with information as to selection of cows.
	28.	More information on carcass quality.
	29.	More time spent on steer and stocker operations.
4	30.	Speakers should be given more time.
	31.	First two sessions were too complicated for average rancher.
2	32.	Use more props or visuals on breeding.
	33.	Bull selection discussion too long.
	34.	Too much repeat on information by speakers.
	35.	Evaluate each session separately.
	36.	More definite about feeding procedures, rations, and ranch management.

*/

2 37. Sessions too long.
38. One major subject per session; one speaker per session.
39. Repeat on questions that are asked.
40. Specific economic problems.

*/ Number of times suggestions were given

Fairview

EVALUATION OF BEEF-CATTLE-MANAGEMENT SHORT COURSE

DO NOT SIGN THIS FORM

We need your frank opinion of this short-course program. We are not hunting compliments, but rather are interested in improving future programs. Please give your honest appraisal.

1. Programs were:

   Good 61 Too long 0 Too detailed 2

2. Subject-matter presentations were:

   Good 53 Too difficult 8 Too elementary 1

3. Notebook materials were:

   Good 58 Too difficult 0 Too lengthy 2

4. The short-course as a whole was:

   Good 59 Fair 3 Poor 0

5. More or less time should have been given to:

	More	Less
Group questions and answers	33	3
Individual informal visiting	9	10
Beef-cow economics	27	1
Tax considerations	11	10
Animal-breeding programs	17	6
Feeding problems	30	0
Herd-management pointers	32	1
Performance-testing work	12	8
Bull selection	20	3
Carcass and progeny testing work	12	9
Cow productivity--culling and selecting	25	2

	More	Less
Diseases and parasites	21	3
Range and pasture problems	25	1
Short-course testing and evaluation	12	9

6. What suggestions do you have for general improvement of this short course?

*/
1 1. More producers should take the course.
2. Interest more cattlemen in attending this course.
2 3. Short course to be held more often.
4. Cattle on wheat pasture should have been discussed much more.
5. Short courses should be promoted in all parts of the state.
6. Should be held annually at least.
7. Subject-matter presentations were not complete enough at times.
1 8. Meetings start too early.
9. Second and third night programs were a great deal more help to me.
6 10. Five or six meetings to cover same amount of material.
11. Discussion on genetics was too advanced for about 90 per cent of the group; some of the other discussions could have had more background.
12. More down-to-earth facts that each person could use.
13. Use more information about beef-cattle supplementing diversified farming rather than the range type of cattle. Planned planted pastures for summer grazing.
14. More actual participation of group in solving a given problem.
15. Have one session where panel of successful, experienced cattlemen are open for questions or tell of their know-how.
16. More stress on general management and more emphasis on grazing.
17. Too technical to follow rapidly; some parts were difficult; more on practical side.

Suggestions for short courses:

1. Talk on artificial insemination
2. Wheat and other crop farm using beef cows to use the layout ground; small amount of grass; wheat pasture; etc.
3. Crop breeding information

*/ Number of times suggestions were given

VITA

William F. Taggart

Candidate for the Degree of

Doctor of Education

Thesis: A CRITICAL ANALYSIS AND EVALUATION OF THE SHORT-COURSE SYSTEM IN SELECTED FACETS OF EXTENSION ANIMAL SCIENCE TEACHING AND PROGRAM PLANNING

Major Field: Administration

Biographical:

Personal Data: Born near Holden, Missouri, April 18, 1919, the son of William Calvin and Mary Finis Taggart.

Education: Attended rural grade schools in Cimarron County, located in the Oklahoma Panhandle; graduated from the Plainview High School, Griggs, Oklahoma, in 1938; attended Panhandle A. and M. College, 1940-1942; received the Bachelor of Science degree from Oklahoma State University with a major in Animal Husbandry, in August, 1947; attended Colorado State University and the University of Arkansas for graduate work; received the Master of Science degree from Oklahoma State University in August, 1958; attended Oklahoma State University for additional graduate work in Animal Nutrition, 1960-1961; completed the requirements for the Doctor of Education degree in August, 1964.

Professional Experience: Served in the United States Army Air Force, 1942-1945; Assistant County Agent, Duncan, Oklahoma, 1947-1949; County Agent, Taloga, Oklahoma, 1949-1951; County Agent, Woodward, Oklahoma, 1951-1958; Associate Extension Livestock Specialist, Oklahoma State University, 1958-1962; Extension Livestock Specialist and Project Leader, Oklahoma State University, 1962 to present time.

Organizations: Phi Kappa Phi, Phi Delta Kappa, Oklahoma Education Association, American Society of Animal Science.