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A study of relationships between selected factors and performance ratings of Tennessee agricultural extension agents

Srinivasulu Madras Sundaraj

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To the Graduate Council:

I am submitting herewith a thesis written by Srinivasulu Madras Sundaraj entitled "A study of relationships between selected factors and performance ratings of Tennessee agricultural extension agents." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Extension.

Robert S. Dotson, Major Professor

We have read this thesis and recommend its acceptance:

L. H. Dickson, C. C. Chamberlain

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

December 4, 1962

To the Graduate Council:

I am submitting herewith a thesis written by Srinivasulu Madras Sundaraj entitled "A Study of Relationships Between Selected Factors and Job Performance Ratings of Tennessee County Agricultural Extension Agents." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Extension.

Robert L. Johnson
Major Professor

We have read this thesis and
recommend its acceptance:

Lewis S. Dickson
Chamberlain

Accepted for the Council:

Hilton A. Smith
Dean of the Graduate School

A STUDY OF RELATIONSHIPS BETWEEN SELECTED FACTORS
AND JOB PERFORMANCE RATINGS OF TENNESSEE
COUNTY AGRICULTURAL EXTENSION AGENTS

A Thesis
Presented to
the Graduate Council of
the University of Tennessee

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
Srinivasulu Madras Sundaraj
December 1962

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CHAPTER I

INTRODUCTION

One of the basic factors making for effective job performance is adequate training. Basically, the effective management of human resources begins with attention to the selection of qualified persons who have the potentialities for the development of the necessary skills and abilities to do the job. It then proceeds to the development of the necessary skills and abilities for satisfactory job performance through the use of adequate in-service training procedures.

Halsey defined effective supervision as consisting of a number of things, including the selection of the right person for each job, the arousing in each person of an interest in his work and teaching him how to do it, the measuring and rating of performance to be sure that teaching has been fully effective, administering correction where this is found to be necessary and transferring to more suitable work or dismissing those for whom this proves ineffective, commending whatever merit is merited and rewarding for good work, and finally, fitting each person harmoniously into the working group--all done fairly, patiently and tactfully so that each person is caused to do his work skillfully, accurately, intelligently, enthusiastically and completely. (14:6) *

The gap that exists between the preservice preparation received

*Numbers in parentheses refer to numbered references in the bibliography; those after the colon are page numbers.

by the county agricultural Extension worker in undergraduate course work and the demands of his Extension job is being increasingly recognized by Extension administrators, supervisors and other administrative officers of the various Land-Grant institutions. This increasingly large discrepancy between preservice preparation and professional need points to the potential value of vigorous efforts in providing appropriate future pre-service training and graduate study, as well as needed in-service or on the job training, for all Extension personnel.

Currently one of the most important tasks of administrative and supervisory leadership in the Cooperative Extension Service is to identify strong and weak points in agent performance. Relation of job performance review to selected factors, such as grade point averages in specific areas of college training, the numbers of credit hours completed in social sciences, education and technical agriculture or home economics, number of years of experience has yet to be critically investigated. The aim of such endeavors is to develop an effective long-term program for the recruitment and professional improvement of effective personnel.

The 1960 and 1961 performance reviews for all county staff members in the Tennessee Agricultural Extension Service, University of Tennessee, represented such efforts in the direction of personnel development, and provided opportunity for the study of possible relationships existing between selected factors, such as those mentioned above and total average two-year job performance ratings of Tennessee County Agricultural Extension workers for the purpose of identifying significant factors which could have potential administrative and supervisory utility as predictors of proficient job performance by prospective Tennessee County Extension workers

and, also, as indicators of training needed by present staff members.

I. STATEMENT OF THE PROBLEM

This study was formulated to make an exploratory investigation of the possibilities of using selected factors, such as highest degree attained, total credit hours of study completed in specific areas, total average grade point earned at undergraduate and graduate levels, and in specific areas of study, as measures of probable Extension job performance on the basis of their significance.

II. NEED FOR THE STUDY

One of the most important functions of Extension administration and supervision is to attract and secure the services of capable and well-trained workers. The progress likely to be made by the Extension service in the future depends largely upon the calibre of the workers recruited.

(24:40)

To achieve maximal effective utilization of personnel resources requires that each applicant's competencies and potentialities be in line with present and future job requirements and opportunities for further professional development. It is not effective management of human resources to employ a man for a job which he can just barely do; neither is it effective management of human resources to employ a man to do a job which he can do "without half trying." (21:107) The employment process in such instances becomes one of trying to determine the job for which there is the closest compatibility between the applicant's competencies and potentialities and the continuing requirements of the job.

A recent five-year projection of the numbers of employees of State Extension Services was made by the Division of Field Studies and Training of the Federal Extension Service. It estimated that the total number employed by the Extension services in the United States will increase from approximately 14,000 at the present time to 18,000 by 1965. This means that from 400 to 500 new workers will be needed annually to fill the positions created by an expanding organization. In addition some 1,500 to 1,600 employees will be needed each year to fill vacancies resulting from resignations, retirements and deaths. This adds up to an annual need for approximately 2,000 new workers for each of the next ten years. Based on the above assumptions, although each state's manpower needs will vary depending upon its turnover of personnel and its plans for expansion, on the average, each state would need to recruit 41 workers each year.

(24:41)

Under these circumstances it is apparent that Tennessee Agricultural Extension Service administration and supervision would find it useful to have identified for their use in county Extension worker recruitment and training any factors that might be found to be significantly related to probable job performance. Identification of such measures also would lay the groundwork for further research aimed at the eventual development of an effective performance prediction formula, index or indices for possible use in counselling with and selecting prospective Extension workers.

III. HYPOTHESES

Null Hypotheses to be Tested

The hypotheses tested in this investigation were formulated as

Null hypotheses. This was done in order to facilitate testing by the application of appropriate statistical treatment. Barr, Davis and Johnson make the following statement concerning the formulation of a hypothesis:

The hypothesis to be tested by an experiment must be rigorous and exact; it must have testability. It is a requisite of science. Its content must be capable of being refuted if it is to have a scientific meaning. This sort of hypothesis has come to be known as NULL HYPOTHESIS. In this form, an hypothesis is never confirmed, but it may be rejected. An experiment permits the facts of observation to refute the null hypothesis. (3:229)

In null form, then, the general hypothesis of the present study was that specified linear (16 variables below included) and quadratic (variables 1, 2, 9 and 16 below included), multiple regression equations of the forms indicated in the Design of the Study (Chapter III), the following named independent variables are not significantly related to the overall total average two-year job performance ratings of county agricultural and home demonstration Extension workers in Tennessee:

1. Highest degree attained and/or work completed above highest degree
2. Total years of Extension experience served
3. Total credit hours of undergraduate social study course work completed
4. Total average grade point earned in undergraduate social study course work
5. Total credit hours of undergraduate technical agriculture or home economics course work completed.
6. Total average grade point earned in undergraduate technical course work
7. Total credit hours of undergraduate educational course work completed
8. Total average grade point earned in undergraduate educational course

work

9. Total average undergraduate grade point earned
10. Total credit hours of graduate social study course work completed
11. Total average grade point earned in graduate social study course work
12. Total credit hours of graduate technical course work completed
13. Total average grade point earned in graduate technical course work
14. Total credit hours of graduate educational course work completed
15. Total average grade point earned in graduate educational course work
16. Total average graduate grade point earned.

Individual components of the general hypothesis will be referred to as component null hypotheses throughout the remainder of the body of this thesis.

IV. SCOPE OF THE STUDY

A comprehensive survey of the college transcripts, biographical data sheets and performance review rating sheets of the 229 Cooperative Extension Workers in Tennessee for whom complete data were available, was made to isolate the significant factors with respect to differences in the amounts and kinds of preparation and experience among the Extension agents who performed at different levels of job proficiency for the two year period 1960-1961.

The use of multiple regression equations for identifying factors of potential use in predicting job performance of extension workers was explored for each of five sets of observations, including all data; Extension districts represented, degrees held and work beyond the highest degree; undergraduate college from which graduated, and sex of workers.

Exploratory prediction formulas were formulated for study use and partially tested as a basis for further research aimed at eventual development of an effective Tennessee county Extension worker performance prediction formula or index.

V. LIMITATIONS

Available research in the area of study is somewhat limited. Little, if any, research has been undertaken to predict the job performance of county Extension workers with the use of grade point averages and total hours completed in selected courses of study as the bases of measurement.

Work has been done in the general area of developing predictive indices for the use by various groups of educators. Some similar research also is reported by those conducting studies of personnel of the armed forces.

This study is limited to an exploratory attempt to identify the relationships between selected factors and average job performance ratings of Tennessee County Agricultural Extension workers with special reference being given to the kinds of preparation and experience they had received prior to service.

VI. DEFINITIONS OF TERMS

A number of terms used in this thesis need clarification. In order to establish a common ground for understanding, the terms are defined below.

Extension Job Performance Review

The term refers to the Extension employee rating system used in Tennessee whereby the county worker and his superior annually consider the effectiveness of the agent's performance for the year and agree on ratings for 53 separate performance items.

It removes personal bias as much as practicable and yet helps tell a person how well he is performing his job. It lets him evaluate his progress in seven designated major areas of responsibility.

Much of the literature currently available in the area of job performance review substitutes for that term others such as merit-rating, personnel evaluation or performance evaluation. The term, job performance review, has come into increasing use in educational circles in recent years. For purposes of this study, merit rating, performance evaluation, personnel appraisal and personnel evaluation will be considered to be synonymous with job performance review.

Grade Point

This term designates degree of accomplishment or quality of work, whereas "total hours completed" designates amount or quantity.

College achievement is evaluated in letter symbols each of which in University of Tennessee terms carries a numerical value in grade points as follows: 1) four points for A; 2) three points for B; 3) two points for C; 4) one point for D, and 5) no points for F.

Grade Point Average

It was computed for the study by dividing the total number of grade points earned for completion of undergraduate or graduate courses in a

given category by the total number of credits attempted.

Total Average Grade Point

This term represents the total average grade point earned for all college courses completed by an individual either at the undergraduate or graduate level.

Performance Prediction Formula

This term refers to a regression equation developed and used for purposes of predicting the probable future performance of present and/or prospective Extension or other personnel.

Social Studies Courses

This term for purposes of the study includes: 1) political science; 2) sociology (including rural and other); 3) psychology; 4) anthropology; 5) geography, and 6) economics (including agricultural and other).

Technical Courses

This term for purposes of the study includes: 1) animal sciences; 2) agricultural engineering; 3) agronomy; 4) animal husbandry--veterinary science; 5) dairying; 6) food technology; 7) horticulture, 8) forestry; 9) poultry; 10) home economics; 11) foods; 12) home management; 13) related arts and crafts; 14) nutrition, and 15) textiles and clothing.

Educational Courses

This term includes: 1) agricultural education; 2) agricultural Extension education; 3) home demonstration methods, and 4) home economics education.

VII. ORGANIZATION OF THE STUDY

Chapter I consists of a brief review of the background of the problem, a short summary of the need for the study, statement of the hypotheses in null form to be tested, mention of the scope and certain limitations of the study, and definitions of terms used in the study.

Chapter II contains a review of the related literature on job description, preservice training and experience, job performance review, factors found to be useful for determining pre-service and in-service training needs, factors found to be useful for predicting probable job performance, and a brief summary.

Chapter III describes the design of the study and methods used.

Chapter IV contains the results and discussion under convenient headings and in summary.

Chapter V is a summary of the total study with a statement of conclusions and recommendations for use of the findings and for further research.

CHAPTER II

REVIEW OF LITERATURE

I. COUNTY EXTENSION WORKER JOB DESCRIPTION

Yoder defined job description as a summary of the most important features of the job in terms of its general nature and of the type of operative required to perform it in an efficient manner. (32:203)

The job description and accompanying standards of performance serve as a sound basis for personnel evaluation. Evaluation of performance is not possible unless there exists a clearly defined concept of the job, a concept shared by employer and employee. (24:67)

Smyth and Murphy stated that irrespective of the specific evaluation plan to be used, it is essential that jobs be "adequately described before any attempt is made to evaluate them." Defining what is expected from an employee on a specific job and observing the person in terms of this definition are accepted as necessary and important aspects of the evaluating procedure. (27:67)

Written job descriptions are considered useful in helping to indicate training needs of various groups of personnel in the Extension Service. In-service training is designed primarily to improve job performance. This fact points to the necessity for a thorough understanding as to the specific nature of the job for which training is being planned and conducted. To some extent they also have been useful in planning supervisory training. (26:8)

Creech (9:112) states that job descriptions disclose the specific tasks, duties, processes and responsibilities of jobs. In addition to this, they may describe the personal qualifications, including the skill, experience and training required of the persons who perform the duties of the jobs.

Job descriptions are prerequisites for all personnel policies in an organization. They presumably do the following: 1) provide basic facts with which to plan organizational structure; 2) indicate tasks allocated to each position, thus showing the inter-relation of jobs in the whole organization; 3) indicate personnel requirements for each job; 4) dictate standards for recruitment and selection; 5) provide valuable information with which to plan training programs; 6) show how performance in one job provides experience essential to other jobs, thus providing a basis for promotion; 7) provide facts for determining salaries based on tasks performed, personal requirements and responsibilities, 8) provide a basis for job evaluation, and 9) help prevent misunderstandings among workers.

Some of the tasks, usually included in a county Extension worker's job description are: 1) county Extension program planning; 2) county organization; 3) supervision of assigned phases of work; 4) responsibilities in personnel management; 5) staff working relationships; 6) certain aspects of policy making; 7) assistance in preparation of county Extension budgets, and 8) use of valid methods of research, decision making, teaching, evaluation, and reporting. (7:113)

Copies of proposed job descriptions for selected county Extension worker positions in the Tennessee Agricultural Extension Service are

included in Appendix A.

II. COUNTY EXTENSION WORKER STANDARDS OF PERFORMANCE

A set of performance standards is developed either from the job description or as a part of the job description. The performance standards are usually developed from statements describing the duties relating to the particular job. Tasks or duties are listed with a set of statements describing how well they should be done in order to maintain adequate standards relative to each task. (7:53)

Standards of performance are descriptions in terms of expected output on each job. They list the factors that are considered in determining compensation for all positions and create measures and scales for each factor. Standards of performance are devices which presumably provide for equitable evaluation of accomplishments of workers and furnish definite incentive to workers to "put first things first" in carrying out their responsibilities. (9:113)

Some of the performance requirements listed in proposed standards of performance for a Tennessee county Extension worker are: 1) to work under the supervision of the district agent and in accordance with the memorandum of understanding and provision of the Smith-Lever Act of 1914; 2) to serve as the district agent's representative on assigned administrative matters pertaining to the over-all Extension organization in the county and to contract for Extension work with the county commissioners; 3) to maintain and keep current a file of all policy statements, reapproved policies of the State University, state and federal government; 4) to prepare in cooperation with the district agents and the county

Extension staff a county budget to be submitted to the Board of County Commissioners; 5) to assist other agents and leaders to develop and evaluate county Extension work; 6) to provide leadership for and share with home demonstration agent and other staff members in the initiation of long-range planning, program development and projection; 7) to train and supply adequate leadership in setting up effective voluntary local leadership representative of all areas and major interests in the county; 8) to keep self current on scientific findings, new publications, and teaching techniques.

Copies of proposed standards of performance for selected county staff member positions in the Tennessee Agricultural Extension Service are included in Appendix C.

III. COUNTY EXTENSION WORKER JOB REQUIREMENTS

Job requirements spell out in sharp detail the characteristics an individual needs to have in order to perform effectively on his job.

Job requirements are derived from and based on job descriptions. They are reached by inferring what demands and how much, the job makes of an occupant.

One way to measure requirements is to determine the relationship between job effectiveness and a particular specification by statistical methods. If these two are closely correlated, then the specification or requirement is considered to be a legitimate one; if they are not, then the alleged specification is deemed not to be a legitimate one. (23:48)

In performance appraisal, job requirements or specifications can be used as the basic guide. Evaluations of each aspect of an employee's

performance can be preceded by a reference to job requirements. This puts the performance appraisal interview on an objective basis and provides a basis for determining possible areas of training need. (29:48)

In the hiring process job descriptions and job requirements are of equal value. We have to know what a job requires before we can look for clues or qualifications in applicants that indicate probable success.

Some of the job requirements for one Tennessee county Extension agent's position are: 1) B. S. degree in agriculture; 2) a comprehensive knowledge of the principles of adult and youth education and of teaching techniques that should be employed in a successful county program; 3) to work effectively with all members of the extension staff, rural and urban people, county governing bodies and other groups in the county; 4) the desire and ability to work harmoniously, effectively and objectively with people; 5) a minimum of three years of successful experience as an assistant or associate county agent, and 6) should possess a rural background. Farm rearing and 4-H and FFA experience are desirable.

Copies of the proposed job requirements for selected county staff members in the Tennessee Agricultural Extension Service are included in Appendix B.

IV. GENERAL CHARACTERISTICS OF JOB PERFORMANCE APPRAISAL

Yoder stated that the primary step and beginning function in a comprehensive program designed to maintain satisfactory relations in an organization is that of job analysis. It places responsibility throughout all phases of the productive organization at the same time that it critically

evaluates personnel requirements from the highest to the lowest ranks of employees.

Job analysis must be a highly objective process; no prejudice, preconception, or advance bias as to the worth of any position or employee has any place in it. At the same time, the process must be carried on with a keen regard for the feelings, ambitions and suspicions of employees, and it must have the cooperation and support of all department heads and supervisors, as well as the supervised. The personnel of the entire organization must be convinced of the fact that ultimate results will be beneficial rather than detrimental, which means that the purposes, methods and results deserve and require careful preliminary introduction and continued interpretation. (27:127)

Job analysis (or functional specifications), which includes job description, standards of performance and job requirements, establishes a system of positions and their accompanying definitions of authority, convey authorization to occupy these positions and provide the means by which position occupants may maintain themselves in these positions. (11:2)

V. PRE-SERVICE TRAINING

Training of personnel is one of the most widely recognized functions of modern organizations. Most larger organizations have developed and are constantly modifying training programs for their employees.

Pre-service training aims to develop the knowledge, attitudes and skills which will make for subsequent success in work and living.

The pre-service training of present Extension workers was done primarily by the various state Land-Grant colleges and universities. A bachelor's degree in agriculture or home economics is usually a pre-requisite for employment in agricultural and home economics Extension work. Pre-service training of the vast majority of present Extension workers, of course, was not specifically designed for the needs of the Extension service, but was generally broader and more varied. (9:110)

No separate courses in Agricultural Extension Education are offered at the undergraduate level at most Land-Grant universities. In states not having courses at the present time, pre-service training consists primarily of the state leaders counselling with college students who are prospective agents and helping them to select college courses which would likely be most helpful in preparing them for careers in Extension. Students who are desirable prospects for Extension work are urged by the state leaders to broaden their college programs and to develop a general background of knowledge which will prepare them for working with people. Also, the prospective agents are encouraged to attend and take part in various Extension activities to observe, first-hand the functioning of the organization. (9:73)

Pre-service training appears to be an important factor affecting the agent's performance of his work after employment. There is seen to be a relationship between the difficulty agents experience in performing tasks, their perception of how well or poorly they perform the task and training they have received relative to the specific tasks. Coffindafer's studies (8:8) revealed the following relationships between training and

job performance :

1. There was a relationship between training and difficulty as evidenced by the proportion of agents receiving training and who had difficulty in performing the tasks being smaller than the proportion of agents not having received training and having difficulty.

2. The proportion of agents trained in specific tasks and performing these tasks poorly was smaller than the proportion of agents not trained in the tasks and performing them poorly.

3. The proportion of agents not receiving training and performing tasks poorly was larger than the proportion trained performing tasks in all of twenty tasks selected for study of performance of home demonstration agents, in eighteen tasks selected for a study of performance of 4-H Club agents, and in eighteen tasks selected for study of performance of county agents.

It would appear from this and other studies that there is a necessity to set forth training experiences for Extension workers prior to and during their first year of experience in Extension employment relative to performance of specific tasks within their selected areas of Extension work.

VI. COUNTY EXTENSION WORKER JOB PERFORMANCE REVIEW

Evaluating the job performance of the county Extension agent is one of the most important tasks of the Extension supervisor. It is an integral part of Extension planning, teaching, supervision and administration.

Halsey says that service rating, or job performance review, may be defined as an orderly, systematic, and carefully considered analysis and evaluation of a person's services, involving self-evaluation and based on

both observation by the supervisor over a considerable period of time and a study of all available objective records of the performance and behavior of the staff worker. (14:136)

It begins with job analysis to obtain job descriptions and standards of performance and includes the process of relating the descriptions by some system designed to determine the relative value of the jobs or groups of jobs. Job evaluation is concerned with the job, since effort is made to evaluate the job done in each individual position not focussing on the personality of the individual worker. (7:13)

Performance review has a positive objective--that of developing personnel. It is the purpose of performance review to improve employees--to encourage them in those elements giving evidence of a strength and to aid them in all elements in which they show a weakness. As stated earlier, a sound performance review is based on accomplishment toward program objectives and not on personality factors. The end result of personnel development should be a more effective county Extension program. Performance review points out specific areas in which Extension agents excel or may be deficient rather than determining an over-all rating in such general terms as excellent, good, fair, or poor. It is a systematic relatively objective procedure for determining how well a person is performing on his job. It lets the person know where he stands and how well he is progressing.

Performance review is seen to help the agent do a better job by:

1. Increasing the worker's understanding of his job and his level of performance
2. Increasing the satisfaction agents experience on the job
3. Making it possible to assign personnel to the areas where

they can make the greatest contribution

4. Furnishing a basis for in-service training and guidance
5. Helping the agent to evaluate annually his own work. (19:1)

In 1962, sixteen states were known to be using appraisal instruments in evaluating county Extension personnel.

A conclusion which is apparent from a comparison of review forms used in 1956 with those in 1960 is that there were fewer content areas in 1960. Only 36 per cent of the appraisal forms developed since 1956 contain personal qualities as compared to 87 per cent on previous forms. A majority of the more recently developed instruments have been found to be completely devoid of personality items and consisted of factors on behavioral characteristics which tend to measure performance. This indicates a definite trend toward evaluation on actual performance. (1:24)

Casey (7:85) has identified by statistical tests the significant major areas together with a number of items under each of these areas for use in a performance review instrument. They are: 1) planning the county program; 2) carrying out the annual plan of work; 3) evidence of effective educational work; 4) working relationships; 5) public relations; 6) office management, and 7) professional improvement.

Fifty-three items grouped under these seven major areas were included in the instrument developed by Casey. Each is a pertinent, measurable or observable characteristic of the county Extension's worker's job and can apply irrespective of sex, or rank of position. Raters check one of seven rank positions on a scale provided for each item. Accompanying each continuum is a verbalization of what "below average," "average" and "outstanding" mean in terms of particular items as well as the point

equivalent of each.

From ratings received for each of the 53 items, a profile is constructed for each agent. Since emphasis is on identifying strong and weak points for purposes of commendation or suggesting remedial measures rather than an overall evaluation, item values are not usually summarized into a total score. However, the opportunity to so summarize them remains.

V. FACTORS USEFUL FOR DETERMINING TRAINING NEEDS

Pre-service

Very few previous studies have been undertaken in an attempt to determine the presence or absence of relationships between success of the county worker (in terms of job performance ratings) and academic achievement (in terms of hours completed and average grade points earned) and other related factors.

Warren (30:10) conducted a study based on an analysis of the courses taken by 35 agricultural agents considered to be the most successful county Extension agents in the Oklahoma Extension Service by their supervisors and administrators and of the courses taken by 35 agents considered to be the least successful. He found that the more successful group had taken a considerably larger number of total hours of course work, an average of 175, than had the less successful group with an average of only 135 semester credit hours completed. For this analysis, grades earned and background characteristics of the agents were not considered.

Posz (24:46) in a Michigan study, found that scholastic attainment was not positively correlated with the job success of county agents included in the study. A positive correlation, although not high, was found

however, between academic achievement and success among 4-H Club agents. Further, the Posz study failed to show any positive relationship between success on the job and the number of credit hours of work taken in technical agriculture.

Bramon (30:24) in an Oklahoma study, analyzed the courses taken by Extension workers in that state. He concluded that there was over-specialization in the technical fields, and that there was a corresponding lack of adequate training in the broad area of human relations. It was his considered opinion that most of the failures among Extension workers were due to lack of human understanding and cooperation rather than to any lack of technical knowledge. He felt that training in how to teach was at least as important as training in what to teach. He also believed that some general courses in psychology, philosophy and rural sociology would be of considerable benefit to Extension workers.

Nye (24:46) in a study of Extension workers in Missouri, found that a slightly higher percentage of those agents judged to be in the top one-third of all agents in the state, based on their job success as measured by a subjective supervisory rating, had grade point averages above 3.00 (where a grade of A equals 4.00) than was found to be true of agents in the bottom one-third.

The factors identified in the Extension studies cited above should be viewed in the light of the tentative nature of the findings. It would appear that further research is needed to substantiate the findings by determining the relationships between the several factors of formal pre-service preparation and the job performance ratings obtained by using a reasonably objective performance appraisal instrument.

In-service

Previous studies undertaken for analysis of training needs were mostly surveys of expressed training needs of Extension workers received in the form of answers to items in mail expressionnaires and opinion-type interviews held by research workers.

Some of the factors identified by such studies include the following. (10:2)

1. The more effective agents were found to have had more advanced college training since graduation from college. This suggests that the more effective agents might have been more concerned about further training and in keeping up with the changing times. It indicates the possible value accruing to Extension agents from in-service (formal graduate) training.

2. The more effective agents were found to have spent a greater amount of time in studying their county situations. They tended to assume positive leadership in county program planning, and used a larger, more representative formal planning group. They were found to have stated for their own guidance better, more clearly defined program and teaching objectives. They also were found to be using these objectives to a greater degree than were the less effective agents. These appear to be valid factors to consider in making decisions concerning in-service training program.

3. The more effective agents were found (a) to spend more time as "salesmen" of information and ideas, (b) to show evidence of more initiative and originality in convincing persons that they should take advantage of Extension educational service and (c) to be better able to

anticipate problems and suggest sound solutions which caused county people to seek their advice.

It appeared that social intelligence, mental intelligence and understanding in human relationships were highly important in making for successful county Extension work. Life is a good developer of social intelligence but courses in the social sciences have been found to facilitate development of social intelligence. It has been found that courses in group dynamics and dynamics of communication are of some help. (10:4)

From these and other studies, social sciences, group dynamics, psychology, and courses in communication emerge as important areas for the in-service training of county Extension workers.

These studies need to be substantiated by other studies of possible relationships existing between the quality, kind and amount of preparation received and the job performance ratings of Extension workers using more accurate and objective criteria for measurement.

VI. FACTORS USEFUL FOR PREDICTING PROBABLE JOB PERFORMANCE

The relationships between job performance ratings and selected factors such as total average undergraduate grade point, grade points in specific areas of training, hours of course work completed in selected areas of undergraduate or graduate curricula and years of Extension experience are yet to be critically investigated using data from college transcripts and job performance ratings obtained from relatively objective job performance appraisal instruments.

A noticeable limitation in the previous studies was the rather

subjective nature of the classification of county Extension workers into highly successful and unsuccessful groups. The criteria of efficiency in job performance were, in the main, judgments and ratings of supervisors, specialists and administrators, and in one study, opinions of farmers with no reliable evaluation instrument. Notwithstanding the tentative nature of the findings, such previous studies have laid the ground work for further research.

Austman and Duncan (2:5) in a Wisconsin study uncovered the following findings:

1. The agent's grade point average in high school was associated primarily with program development functions in a positive direction

2. The extent of beginning agent's participation in high school activities was correlated positively with the effective performance of four specific program development functions, two program implementation functions, evaluation of accomplishments and professional improvement

3. Scholastic achievement in college, which included grade point averages in the various disciplines, was quite highly associated in a positive direction with the effective performance of all six so-called program development and implementation function areas. (The greatest relationship appeared to be between college achievement and effective performance of specified program development functions followed closely by the effective performance of program implementation functions.)

4. Grade point averages in the humanities, agricultural courses, social sciences and in the college major field of study were the ones most frequently associated with performance scores.

Austman and Duncan recommended that a study of greater depth

should be made in a more restricted field so that a few of the factors which were most important might be identified. This kind of study should analyze the relationships of several factors by the calculation of multiple correlations in an attempt to identify the extent to which a combination of factors might contribute to job performance.

VII. SUMMARY OF THE LITERATURE REVIEW

The literature review of published and unpublished materials relevant to the study of relationships between selected factors and job performance ratings of county Extension workers permitted a comprehensive study of county extension worker job descriptions and methods of personnel appraisal. Personnel development procedures prevalent in the Extension organization such as pre-service and in-service training planning techniques and ways of identifying factors useful for predicting probable job performance also were reviewed.

It would appear from the review that the noticeable limitations in the research conducted so far focus mainly on two points, namely: 1) the subjective nature of classification of county Extension workers into so-called highly successful and unsuccessful groups without the use of a relatively objective appraisal instrument, and 2) the tentative nature of previous findings.

Research was therefore needed to substantiate the findings by the use of relatively objective appraisal instruments such as the one being used in Tennessee (see Appendix D).

It was further felt that a study of greater depth in a restricted

field should be done to analyze relationships between selected factors and job performance ratings of Extension workers by the calculation of multiple correlations in an attempt to identify the extent to which a combination of factors contributes to their job performance ratings.

No research was encountered dealing with development of an acceptable prediction formula or index for Extension use.

CHAPTER III

DESIGN OF THE STUDY AND METHODS USED

I. KINDS AND SOURCES OF DATA

The purpose of the study was to identify factors which might be related to county Extension agents job performance which might be of value for use in selection of personnel and development of effective training efforts. The study of relationships between the two-year average job performance ratings of Tennessee County Extension workers and selected factors (such as years of Extension experience, highest degree attained, grade point averages, and number of credit hours completed in social studies, education and technical agriculture or home economics courses), required basic data pertaining to job descriptions, standards of performance, job requirements, faculty biographical accounts, employment records, academic records and job performance review profiles for 1960 and 1961.

These data were obtained from the college transcripts, faculty biographical data sheets (see Appendix E), and performance review profiles of 229 Tennessee County Agricultural Extension Workers (see Appendix D).

II. COLLECTION OF DATA

Letters for the college transcripts were written to the registrars of different undergraduate universities where Tennessee county Extension workers had graduated. Biographical data were received from each of the

Extension workers in a form prepared for this purpose.

Performance review ratings were obtained for 229 Extension workers from the Director of the Tennessee Agricultural Extension Service.

The next step was to separate and properly prepare relevant data required for the study. The total average two-year job performance rating was obtained from worker performance profiles. The years of Extension experience served by each worker and the Tennessee Agricultural Extension district he represented (see Figure 1) were noted from the biographical data sheets. The total average undergraduate grade point and the hours of course work completed, grade point averages earned at undergraduate and graduate levels in three specific areas of college training (social studies, educational courses and technical agriculture or home economics) and names of undergraduate universities where studies were completed, were secured after a thorough examination of the college transcripts.

III. TREATMENT OF DATA

This study was concerned with the determination of the relationships between 16 independent variables and one dependent variable.

Multiple regression analysis was selected as an appropriate technique for evaluating these relationships.

Statistical techniques used in this thesis will, in general, follow the procedure of multiple regression analysis, discussed by Snedecor. (28:248)

The sixteen selected factors expressed as independent variables were:

- X_1 Highest degree attained and/or work completed above highest degree
- X_2 Total years of Extension experience served
- X_3 Total credit hours of undergraduate social study course work completed
- X_4 Total average grade point earned in undergraduate social study course work
- X_5 Total credit hours of undergraduate technical agriculture or home economics course work completed
- X_6 Total average grade point earned in undergraduate technical course work
- X_7 Total credit hours of undergraduate educational course work completed
- X_8 Total average grade point earned in undergraduate educational course work
- X_9 Total average undergraduate grade point earned
- X_{10} Total credit hours of graduate social study course work completed
- X_{11} Total average grade point earned in graduate social study course work
- X_{12} Total credit hours of graduate technical course work completed
- X_{13} Total average grade point earned in graduate technical course work
- X_{14} Total credit hours of graduate educational course work completed
- X_{15} Total average grade point earned in graduate educational course work
- X_{16} Total average graduate grade point earned.

The total average two-year job performance rating was used as the dependent variable. For purposes of this study, it was assumed that the job performance review instrument was valid, and that there were no differences of consequence between ratings made by supervisors in the different Tennessee Extension Districts.

An arbitrary scaling scheme was used for rating college (degree) work completed where points were assigned as follows: 1) one point for a bachelor's degree; 2) two points for work above the bachelor's degree but below the master's degree; 3) three points for a master's degree; 4) four points for work above the master's degree but below the doctoral level, and 5) five points for a doctor's degree.

The data were punched on IBM (International Business Machine) cards and converted for five different sets of observations as follows: 1) all observations combined; 2) observations by Tennessee Extension districts; 3) observations by degree work completed; 4) observations by undergraduate university, and 5) observations by sex of Extension workers.

Analysis of the data was done on an IBM 1620 Computer using a stepwise regression analysis program called STRAP developed by A. R. Colville and L. S. Holmes (see Appendix F). This program has the unique advantage of determining the relationships between a maximum of thirty-nine independent variables and 14 dependent variables at one step on 999 observations. For each step in the development of the regression equation, the following values were obtained:

1. The error of estimate of the dependent variable
2. The F ratio of the variable added to the equation at that step
3. The pure constant term
4. The regression coefficient of each of the variables in the equation
5. The standard errors of the regression coefficients
6. The residual sums of squares and cross products of all variables

7. Mean values and standard deviations of all variables
8. The simple correlation coefficients between all variables
9. Names of all variables
10. And the coefficient of multiple determination, R^2 , was given at the end of each analysis.

By choice of the computer operator, the following may be included in or excluded from the machine output:

1. The residual sums of squares, and cross products of all variables
2. The mean values and standard deviations of all variables
3. The simple correlation coefficients between all variables
4. The names of all the variables.

If desired, only the last step in the development of the regression equation may be included in the output.

The linear effect of the sixteen selected factors and quadratic effect of four of the sixteen selected factors with their F values were determined by the stepwise multiple regression analysis.

A partial analysis of variance showing source of variation, degrees of freedom and F ratio was used to determine the significance of the selected factors for each of the five different sets of observations for both the linear and quadratic effects mentioned above.

The .05 level of probability was selected for determination of the significance of the factors. Items significant at this level were discussed. Others were not.

The regression equation was fitted in each instance. The associations, whether positive or negative, of significant factors with job performance

ratings were interpreted from the output data.

A linear equation of the form

$$Y = A + B_1 X_1 + B_2 X_2 + \dots + B_{16} X_{16}$$

was fitted to the data to indicate the effect of the 16 selected independent variables upon the dependent variable, i.e., job performance ratings. Regression equations 1_L through 5_L shown in Tables I through V (see pages 37 - 41) follow this form for each of the five different sets of observations.

A quadratic equation of the form

$$Y = A + B_1 X_1 + B_{11} X_1^2 + B_2 X_2 + B_{22} X_2^2 + B_9 X_9 + B_{99} X_9^2 + B_{16} X_{16} + B_{1616} X_{16}^2$$

was fitted to the data to indicate the effect of four of the 16 selected independent variables upon the dependent variable, i.e., job performance ratings. Regression equations 1_Q through 5_Q shown in Tables VI through X (see pages 58 - 62) follow this form for each of the five different sets of observations.

Normally, diminishing returns are expected to begin to take effect at some stage for each increase in input. Therefore, regression coefficients of the linear effect might be expected to be positive and the coefficients of the quadratic effect expected to be negative or vice versa where this rule applies.

The coefficient of multiple determination, R^2 , is a measure of the total variance of Y that is explained by the selected variates. In this study, significant R^2 values ranged from .11 to .47, or the selected variates accounted for 11 to 47 per cent of the total variation in the

various analyses of variance of Extension workers' job performance ratings. The rest of the variation that was not accounted for by the independent variable in multiple regression analysis must be attributed to factors other than those considered in this study.

The significance of R^2 was determined by use of the F test according to the following ratio.

$$F^r = \frac{\frac{R^2}{r}}{\frac{1 - R^2}{n - r - 1}}$$

where R^2 is the coefficient of determination, r is the degrees of freedom associated with the regression and n is the number of observations.

The coefficient of multiple determination R^2 was indicated below each of the regression equations.

CHAPTER IV

RESULTS AND DISCUSSIONS

The purpose of this chapter is to present, analyze and discuss the results of the study under three main headings. The first will consider factors identified as measures of job performance ratings by means of linear effect in a multiple regression analysis, the second will consider factors identified as measures of job performance ratings by means of their quadratic effect in a multiple regression analysis, and the third will consist of a brief summary of all findings.

I. FACTORS IDENTIFIED AS MEASURES OF JOB PERFORMANCE RATINGS BY MEANS OF THEIR LINEAR EFFECT IN A MULTIPLE REGRESSION ANALYSIS

All Observations Combined

Table I shows the analysis of variance and the significance of each of the selected factors in regression equation 1_L for the linear effect.

Findings. Only one of the factors considered was identified as a measure. The findings were as follows:

1. Total credit hours of undergraduate educational course work completed was found to be significant at the .01 level of probability. No other factor in this analysis with all data was significant at either the .01 or .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings

TABLE I

THE SIGNIFICANCE OF THE LINEAR EFFECT OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY EXTENSION WORKERS USING ALL AVAILABLE DATA¹

Source of Variation	Degrees of Freedom	F Ratio
Total observations (N=229)		
Mean	1	
Regression	16	
X ₁ Degree rating assigned	1	0.89
X ₂ Years of Extension experience	1	2.75++
X ₃ Hours undergraduate social studies	1	3.32++
X ₄ Undergraduate social study grade point	1	2.52+
X ₅ Hours undergraduate technical courses	1	1.36+
X ₆ Undergraduate technical course grade point	1	0.01
X ₇ Hours undergraduate educational courses	1	8.09**
X ₈ Undergraduate educational course grade point	1	0.32
X ₉ Total average undergraduate grade point	1	3.07++
X ₁₀ Hours graduate social studies	1	1.46+
X ₁₁ Graduate social study grade point	1	1.07
X ₁₂ Hours graduate technical courses	1	0.77
X ₁₃ Graduate technical course grade point	1	0.00
X ₁₄ Hours graduate educational courses	1	0.74
X ₁₅ Graduate educational course grade point	1	0.17
X ₁₆ Total average graduate grade point	1	1.44+
Residual	212	

** Significant at the .01 level of probability

* Significant at the .05 level of probability

++ Significant at the .10 level of probability

+ Significant at the .25 level of probability

$$\begin{aligned}
 \text{Equation 1}_L \text{ was used where } \hat{Y} = & 4.5374 - 0.0941X_1 + 0.0046X_2 \\
 & - 0.0023X_3 - 0.1264X_4 - 0.0014X_5 \\
 & - 0.0048X_6 + 0.0041X_7 + 0.0179X_8 \\
 & + 0.2231X_9 - 0.0174X_{10} + 0.0269X_{11} \\
 & + 0.0037X_{12} - 0.0007X_{13} - 0.0082X_{14} \\
 & + 0.0129X_{15} + 0.0492X_{16}
 \end{aligned}$$

$$R^2 = 0.1167^*$$

TABLE II

THE SIGNIFICANCE OF THE LINEAR EFFECT OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF
TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND USING DATA BY
TENNESSEE EXTENSION DISTRICTS¹

Source of Variation	Degrees of Freedom	F Ratios					
		All Data ²	Dist. I	Dist. II	Dist. III	Dist. IV	Dist. V
Total observations		(N=229)	(N ₁ =57)	(N ₂ =52)	(N ₃ =36)	(N ₄ =23)	(N ₅ =52)
Mean Regression	1 16						
X ₁ Degree rating assigned	1	0.89	0.01	2.21+	0.71	0.52	0.29
X ₂ Years of Extension experience	1	2.75++	5.25*	0.05	2.10+	3.99++	0.01
X ₃ Hours undergraduate social studies	1	3.32++	1.40+	0.03	0.04	4.86++	2.36+
X ₄ Undergraduate social study grade point	1	2.52+	1.41+	1.65+	0.38	0.23	2.28+
X ₅ Hours undergraduate technical courses	1	1.36+	0.00	0.00	1.43+	1.34	3.40++
X ₆ Undergraduate technical course grade point	1	0.01	1.05	1.96+	0.09	0.47	0.61
X ₇ Hours undergraduate educational courses	1	8.09**	0.32	3.01++	0.09	0.19	0.02
X ₈ Undergrad. educational course grade point	1	0.32	0.19	0.01	2.43+	4.56++	0.72
X ₉ Total average undergraduate point	1	3.07++	1.31	0.71	2.13+	3.99++	5.20*
X ₁₀ Hours graduate social studies	1	1.36+	3.40++	0.96	1.80+	0.00	2.63+
X ₁₁ Graduate social study grade point	1	1.07	1.90+	0.03	0.51	1.77+	4.26*
X ₁₂ Hours graduate technical courses	1	0.77	2.17+	4.27*	0.83	0.40	0.24
X ₁₃ Graduate technical course grade point	1	0.00	0.02	0.19	2.30+	0.00	0.08
X ₁₄ Hours graduate educational courses	1	0.74	1.20	0.50	1.79+	0.00	0.15
X ₁₅ Graduate educational course grade point	1	0.17	6.86*	0.16	4.38*	0.36	0.21
X ₁₆ Total average graduate grade point	1	1.44+	1.44+	0.69	3.32++	0.34	0.60
Residual		df=212	df=40	df=35	df=19	df=6	df=35

** Significant at the .01 level of probability ++ Significant at the .10 level of probability
* Significant at the .05 level of probability + Significant at the .25 level of probability

¹Equation 2₁ was used in each instance with the results presented below.

$$\text{All Data: } \hat{Y} = 4.5374 - 0.0941X_1 + 0.0046X_2 - 0.0023X_3 - 0.1264X_4 - 0.0014X_5 - 0.0038X_6 \\ + 0.0041X_7 + 0.0179X_8 + 0.2231X_9 - 0.0174X_{10} + 0.0269X_{11} + 0.0037X_{12} \\ - 0.0007X_{13} - 0.0082X_{14} + 0.0129X_{15} + 0.0492X_{16} \quad \text{where } R^2 = 0.1167^*$$

$$\text{Dist. I: } \hat{Y} = 4.4827 - 0.0114X_1 + 0.0128X_2 - 0.0061X_3 - 0.1231X_4 - 0.0001X_5 - 0.1066X_6 \\ + 0.0019X_7 - 0.0167X_8 + 0.3365X_9 - 0.0296X_{10} - 0.0544X_{11} + 0.0190X_{12} \\ + 0.0080X_{13} - 0.0719X_{14} + 0.2263X_{15} - 0.1152X_{16} \quad \text{where } R^2 = 0.4114^{++}$$

$$\text{Dist. II: } \hat{Y} = 3.6849 + 0.5564X_1 - 0.0016X_2 - 0.0014X_3 - 0.0207X_4 + 0.0002X_5 + 0.1442X_6 \\ + 0.0079X_7 - 0.0071X_8 + 0.2480X_9 - 0.0337X_{10} + 0.0167X_{11} - 0.0210X_{12} \\ + 0.0506X_{13} - 0.0121X_{14} + 0.0264X_{15} - 0.1415X_{16} \quad \text{where } R^2 = 0.2883$$

$$\text{Dist. III: } \hat{Y} = 5.0828 - 0.5524X_1 + 0.0321X_2 - 0.0051X_3 + 0.1350X_4 + 0.0043X_5 + 0.0624X_6 \\ + 0.0021X_7 + 0.2134X_8 - 0.3844X_9 - 0.1475X_{10} - 0.1376X_{11} + 0.0570X_{12} \\ - 0.3159X_{13} - 0.0321X_{14} - 0.2017X_{15} + 0.4863X_{16} \quad \text{where } R^2 = 0.5622^+$$

$$\text{Dist. IV: } \hat{Y} = 5.0043 - 0.2923X_1 + 0.0233X_2 - 0.0069X_3 - 0.0607X_4 + 0.0013X_5 - 0.156X_6 \\ - 0.0037X_7 + 0.1602X_8 + 0.0192X_9 + 0.0000X_{10} + 0.0247X_{11} - 0.0191X_{12} \\ + 0.0000X_{13} + 0.0000X_{14} + 0.1535X_{15} + 0.1940X_{16} \quad \text{where } R^2 = 0.6944$$

$$\text{Dist. V: } \hat{Y} = 4.0037 - 0.0144X_1 + 0.0013X_2 - 0.0087X_3 - 0.3353X_4 - 0.0061X_5 + 0.0893X_6 \\ - 0.0013X_7 - 0.0567X_8 + 0.8421X_9 - 0.0170X_{10} + 0.1115X_{11} + 0.0055X_{12} \\ - 0.0221X_{13} - 0.0080X_{14} + 0.0463X_{15} + 0.0011X_{16} \quad \text{where } R^2 = 0.3698^+$$

²Nine observations were deleted in these analyses of data by districts since responsibilities of the personnel were area-wide instead of county. The nine observations are included in "All Data." 38

TABLE III

THE SIGNIFICANCE OF THE LINEAR EFFECT OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND USING DATA FOR THOSE HAVING LESS THAN A MASTER'S DEGREE OR A MASTER'S DEGREE OR MORE¹

Source of Variation	Degrees of Freedom	F Ratios		
		All Data (N=229)	Less than a Master's degree (N ₁ =206)	A Master's degree or more (N ₂ =23)
Total observations		(N=229)	(N ₁ =206)	(N ₂ =23)
Mean Regression	1 16			
X ₁ Degree rating assigned	1	0.89	6.76**	0.49
X ₂ Years of Extension experience	1	2.75++	1.62+	5.03++
X ₃ Hours undergraduate social studies	1	3.32++	2.51+	0.02
X ₄ Undergraduate social study grade point	1	2.52+	1.47+	0.28
X ₅ Hours undergraduate technical courses	1	1.36+	1.42	5.15++
X ₆ Undergraduate technical course grade point	1	0.01	0.00	0.36
X ₇ Hours undergraduate educational courses	1	8.09**	10.64**	4.07++
X ₈ Undergraduate educational course grade point	1	0.32	0.04	2.15
X ₉ Total average undergraduate grade point	1	3.07++	0.89	10.01*
X ₁₀ Hours graduate social studies	1	1.46+	0.70	0.23
X ₁₁ Graduate social study grade point	1	1.07	0.06	0.68
X ₁₂ Hours graduate technical courses	1	0.77	0.58	0.45
X ₁₃ Graduate technical course grade point	1	0.00	1.05	3.14+
X ₁₄ Hours graduate educational courses	1	0.74	1.01	0.75
X ₁₅ Graduate educational course grade point	1	0.17	0.79	0.34
X ₁₆ Total average graduate grade point	1	<u>1.44+</u>	<u>1.57+</u>	<u>0.17</u>
Residual		df=212	df=189	df=6

** Significant at the .01 level of probability ++ Significant at the .10 level of probability
* Significant at the .05 level of probability + Significant at the .25 level of probability

¹Equation 3_L was used in each instance with the results presented below.

$$\begin{aligned} \text{All Data: } \hat{Y} = & 4.5374 - 0.0941X_1 + 0.0046X_2 - 0.0023X_3 - 0.1264X_4 - 0.0014X_5 - 0.0043X_6 \\ & + 0.0041X_7 + 0.0179X_8 + 0.2231X_9 - 0.0174X_{10} + 0.0269X_{11} + 0.0037X_{12} \\ & - 0.0007X_{13} - 0.0082X_{14} + 0.0129X_{15} + 0.0492X_{16} \quad \text{where } R^2 = 0.1167* \end{aligned}$$

Less than a Master's degree:

$$\begin{aligned} \hat{Y} = & 5.0421 - 0.4386X_1 + 0.0035X_2 + 0.0025X_3 - 0.0981X_4 - 0.0016X_5 - 0.0031X_6 \\ & + 0.0059X_7 + 0.0063X_8 + 0.1519X_9 - 0.0164X_{10} - 0.0087X_{11} + 0.0033X_{12} \\ & + 0.0396X_{13} - 0.0234X_{14} + 0.0462X_{15} + 0.1149X_{16} \quad \text{where } R^2 = 0.1423* \end{aligned}$$

A Master's degree or more:

$$\begin{aligned} \hat{Y} = & 4.7468 - 0.4160X_1 + 0.0161X_2 - 0.0017X_3 - 0.0572X_4 - 0.0041X_5 - 0.3003X_6 \\ & - 0.0293X_7 + 0.1370X_8 + 0.8361X_9 - 0.0449X_{10} + 0.1287X_{11} + 0.0078X_{12} \\ & + 0.2905X_{13} + 0.0241X_{14} - 0.0711X_{15} + 0.3183X_{16} \quad \text{where } R^2 = 0.8165* \end{aligned}$$

TABLE IV

THE SIGNIFICANCE OF THE LINEAR EFFECT OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND USING DATA FOR THE UNIVERSITY OF TENNESSEE, TENNESSEE POLYTECHNIC INSTITUTE AND OTHER UNDERGRADUATE UNIVERSITIES ATTENDED¹

Source of Variation	Degrees of Freedom	F Ratios			
		All Data	University of Tennessee	Tennessee Polytechnic Institute	Other Undergraduate Universities
Total observations		(N=229)	(N ₁ =135)	(N ₂ =32)	(N ₃ =62)
Mean	1				
Regression	16				
X ₁ Degree rating assigned	1	0.89	0.26	0.45	3.66++
X ₂ Years of Extension experience	1	2.75++	1.26	2.14+	2.77+
X ₃ Hours undergrad. social studies	1	3.32++	0.00	4.75*	6.64*
X ₄ Undergrad. social study grade point	1	2.52+	0.73	2.47+	0.76
X ₅ Hours undergrad. technical courses	1	1.36+	2.50+	0.55	0.03
X ₆ Undergrad. technical course grade point	1	0.01	0.65	0.44	0.76
X ₇ Hours undergrad. educational courses	1	8.09**	0.05	8.02*	1.38+
X ₈ Undergrad. educational course grade point	1	0.32	1.11	0.03	5.21*
X ₉ Total average undergrad. grade point	1	3.07++	4.76*	6.13*	0.39
X ₁₀ Hours graduate social studies	1	1.46+	1.68+	2.62++	0.97
X ₁₁ Graduate social study grade point	1	1.07	0.29	0.35	5.81*
X ₁₂ Hours graduate technical courses	1	0.77	1.24	0.86	0.79
X ₁₃ Graduate technical course grade point	1	0.00	0.03	0.00	0.01
X ₁₄ Hours graduate educational courses	1	0.74	0.18	0.00	3.25++
X ₁₅ Graduate educational course grade point	1	0.17	0.14	0.00	1.01
X ₁₆ Total average graduate grade point	1	1.44+	11.47**	0.00	3.01++
Residual		df=212	df=118	df=15	df=45

** Significant at the .01 level of probability ++ Significant at the .10 level of probability
 * Significant at the .05 level of probability + Significant at the .25 level of probability

¹Equation 4₁ was used in each instance with the results presented below.

$$\hat{Y} = 4.5374 - 0.0941X_1 + 0.0046X_2 - 0.0023X_3 - 0.1264X_4 - 0.0014X_5 - 0.0048X_6 \\ + 0.0041X_7 + 0.0179X_8 + 0.2231X_9 - 0.0174X_{10} + 0.0269X_{11} + 0.0037X_{12} \\ - 0.0007X_{13} - 0.0082X_{14} + 0.0129X_{15} + 0.0492X_{16} \quad \text{where } R^2 = 0.1167^*$$

University of Tennessee:

$$\hat{Y} = 4.2880 - 0.0383X_1 + 0.0058X_2 + 0.0001X_3 - 0.0732X_4 + 0.0013X_5 - 0.0670X_6 \\ - 0.0009X_7 + 0.0320X_8 + 0.2510X_9 - 0.0229X_{10} + 0.0198X_{11} + 0.0063X_{12} \\ - 0.0062X_{13} - 0.0070X_{14} + 0.0113X_{15} + 0.0714X_{16} \quad \text{where } R^2 = 0.1786^{++}$$

Tennessee Polytechnic Institute:

$$\hat{Y} = 0.5070 + 0.3056X_1 + 0.078X_2 + 0.0231X_3 - 0.4010X_4 + 0.0041X_5 - 0.2748X_6 \\ + 0.0222X_7 - 0.0236X_8 + 1.4565X_9 + 0.0558X_{10} - 0.4308X_{11} - 0.0061X_{12} \\ + 0.0000X_{13} + 0.0000X_{14} + 0.0000X_{15} + 0.0000X_{16} \quad \text{where } R^2 = 0.6381^+$$

Other Undergraduate Universities:

$$\hat{Y} = 4.0338 + 0.9635X_1 + 0.0101X_2 - 0.0194X_3 + 0.0122X_4 - 0.0004X_5 + 0.0235X_6 \\ + 0.0063X_7 + 0.0617X_8 - 0.1767X_9 - 0.1184X_{10} + 0.0798X_{11} - 0.0534X_{12} \\ + 0.0979X_{13} - 0.0221X_{14} - 0.1769X_{15} + 0.2937X_{16} \quad \text{where } R^2 = 0.4709^{**}$$

TABLE V

THE SIGNIFICANCE OF THE LINEAR EFFECT OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF
TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND
USING DATA ACCORDING TO SEX OF WORKERS¹

Source of Variation	Degrees of Freedom	F Ratios		
		All Data (N=229)	Male Workers (N ₁ =164)	Female Workers (N ₂ =65)
Total observations				
Mean	1			
Regression	16			
X ₁ Degree rating assigned	1	0.89	0.55	0.54
X ₂ Years of Extension experience	1	2.75++	3.27++	5.71*
X ₃ Hours undergraduate social studies	1	3.32++	0.65	4.28*
X ₄ Undergraduate social studies grade point	1	2.52+	0.58	4.60*
X ₅ Hours undergraduate technical courses	1	1.36+	0.02	0.85
X ₆ Undergraduate technical course grade point	1	0.01	0.77	0.58
X ₇ Hours undergraduate educational courses	1	8.09**	5.90*	3.71++
X ₈ Undergraduate educational course grade point	1	0.32	0.07	0.32
X ₉ Total average undergraduate grade point	1	3.07++	0.80	0.37
X ₁₀ Hours graduate social studies	1	1.46+	0.35	1.23
X ₁₁ Graduate social study grade point	1	1.07	0.30	3.95++
X ₁₂ Hours graduate technical courses	1	0.77	0.27	1.42+
X ₁₃ Graduate technical course grade point	1	0.00	0.08	0.48
X ₁₄ Hours graduate educational courses	1	0.74	0.41	1.66+
X ₁₅ Graduate educational course grade point	1	0.17	0.08	0.36
X ₁₆ Total average graduate grade point	1	1.44+	8.97**	1.17
Residual		df=212	df=147	df=48

** Significant at the .01 level of probability

++ Significant at the .10 level of probability

* Significant at the .05 level of probability

+ Significant at the .25 level of probability

¹Equation 5_L was used in each instance with the results presented below.

$$\begin{aligned} \text{All Data: } \hat{Y} = & 4.5374 - 0.0941X_1 + 0.0046X_2 - 0.0023X_3 - 0.1264X_4 - 0.0014X_5 - 0.0048X_6 \\ & + 0.0041X_7 + 0.0179X_8 + 0.2231X_9 - 0.0174X_{10} + 0.0269X_{11} + 0.0037X_{12} - 0.0007X_{13} \\ & - 0.0082X_{14} + 0.0129X_{15} + 0.0492X_{16} \quad \text{where } R^2 = 0.1167* \end{aligned}$$

Female Workers:

$$\begin{aligned} \hat{Y} = & 5.2126 - 0.1564X_1 + 0.0220X_2 - 0.0155X_3 + 0.0400X_4 - 0.0012X_5 - 0.1158X_6 \\ & + 0.0071X_7 + 0.0532X_8 + 0.0328X_9 - 0.1433X_{10} + 1.1040X_{11} - 0.0477X_{12} + 0.1434X_{13} \\ & + 0.4576X_{14} - 0.9061X_{15} + 0.2568X_{16} \quad \text{where } R^2 = 0.4050 \end{aligned}$$

Male Workers:

$$\begin{aligned} \hat{Y} = & 4.3364 - 0.0982X_1 + 0.0072X_2 + 0.0021X_3 - 0.1153X_4 - 0.0002X_5 + 0.0335X_6 \\ & + 0.0037X_7 + 0.0098X_8 + 0.1210X_9 - 0.0138X_{10} + 0.0185X_{11} + 0.0037X_{12} + 0.0125X_{13} \\ & - 0.0050X_{14} + 0.0086X_{15} + 0.0700X_{16} \quad \text{where } R^2 = 0.1323+ \end{aligned}$$

of county workers in the Tennessee Agricultural Extension Service.

Therefore, the component null hypothesis stating that the total credit hours of undergraduate educational course work was not significantly related to the job performance rating was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1167 for the regression was found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings of Extension workers tended to increase with increases in the number of hours of completed undergraduate educational course work.

Observations by Tennessee Agricultural Extension Districts

Table II shows the analysis of variance and the significance of the selected factors. Data from Table I were included in Table II for convenience in visual comparison and inspection. Regression equation Z_L was computed for the linear effect of the 16 independent variables on the dependent variable for each of the five Tennessee Agricultural Extension Districts (see Figure 1, page 30).

Findings. Results were as follows:

1. In District I, two of the factors were identified as measures.
 - a) Total years of Extension experience served was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District I.

Therefore, component null hypothesis stating that the total years of Extension experience served was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings of workers in District I.

The R^2 of 0.1114 for the regression was not found to be significant at the required level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when the total years of Extension experience were high in District I.

b) Total average grade point earned in graduate educational course work was found to be significant at the .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District I.

Therefore, the component null hypothesis stating that the total average grade point earned in graduate educational course work was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1114 for the regression was not found to be significant at either the .01 or .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when total average grade points earned in graduate educational course work were high in District I.

2. In District II, only one of the factors considered was identified

as a measure.

a) Total credit hours of graduate technical course work completed was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District II.

Therefore, the component null hypothesis stating that the total credit hours of graduate technical course work completed was not significantly related to the job performance ratings was rejected.

The factor was negatively associated with the job performance ratings.

The R^2 of 0.2883 for the regression was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings of Extension workers tended to decrease with an increased number of completed graduate technical courses.

3. In District III, only one of the factors considered was identified as a measure.

a) Total average grade point earned in graduate educational course work was found to be significant at the .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District III.

Therefore, the component null hypothesis stating that the total average grade point earned in graduate educational course work was not significantly related to the job performance ratings was rejected.

The factor was found to be negatively associated with the job performance ratings.

The R^2 of 0.5622 for the regression was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be low when total average grade point earned in graduate educational course work was high in District III.

4. In District IV none of the factors considered was significant at the .05 level of probability.

No factor could be considered as a predictive measure of job performance ratings of Extension workers in District IV.

Therefore, the general null hypothesis that the selected factors were not significantly related to the job performance ratings were accepted.

5. In District V, two of the factors considered were identified as measures.

a) Total average undergraduate grade point was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District V.

Therefore, the component null hypothesis stating that the total average undergraduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.3698 for the regression was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job per-

formance ratings tended to be relatively high when total average undergraduate grade point was high.

b) Total average grade point earned in graduate social study course work was found to be significant at the .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District V.

Therefore, the component null hypothesis stating that the total average grade point earned in graduate social study course work was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.3698 for the regression was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when total average grade point earned in graduate social study course work was high.

Observations by Degree Work Completed

Table III shows the analysis of variance and the significance of each of the selected factors. Regression equation 3_L was computed for the linear effect of the 16 independent variables on the dependent variable, for observations according to those with less than a master's degree, and according to those with a master's degree and above.

1. In the group with less than a master's degree, two of the factors considered were identified as measures. Results were as follows:

a) Highest degree attained and/or work completed above highest

degree was found to be significant at the .01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers with less than a master's degree.

Therefore, the component null hypothesis stating that the highest degree attained or work completed above highest degree was not significantly related to the job performance ratings was rejected for this group.

The factor was found to be negatively associated with the job performance ratings for Extension workers with less than a master's degree.

The R^2 of 0.1423 was found to be significant at the required .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be reduced with increases in the amount of work completed above the bachelor's degree but below the master's degree by Extension workers.

b) The total credit hours of undergraduate educational course work completed was found to be significant at the .01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers with less than a master's degree.

Therefore, the component null hypothesis stating that the total credit hours of undergraduate educational course work completed was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1423 was found to be significant at the required .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to increase with an increased number of completed hours in undergraduate educational courses.

2. In the group with a master's degree or more, only one of the factors considered was identified as a measure.

a) Total average undergraduate grade point earned was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers with a master's degree or more.

Therefore, the component null hypothesis stating that the total average undergraduate grade point earned was not significantly related to the job performance ratings was therefore rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.8165 for the regression was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when the total average undergraduate grade point was high.

Observations by Undergraduate University

Table IV shows the analysis of variance and the significance of each of the selected factors. Regression equation 4_L was computed for the linear effect of the 16 independent variables on the dependent variable

for undergraduate universities from which degrees were received.

Findings. Results were as follows:

1. In the group of University of Tennessee graduates two of the factors considered were identified as measures. The findings were as follows:

a) Total average undergraduate grade point earned was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who had graduated from the University of Tennessee.

Therefore, the component null hypothesis stating that the total average undergraduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1786 was found not to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when the total average undergraduate grade point earned was high.

b) Total average graduate grade point earned was found to be significant at the .01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who had graduated from the University of Tennessee.

Therefore, the component null hypothesis stating that the total

average graduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1786 was found not to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when the total average graduate grade point earned was high.

2. In the group of Tennessee Polytechnic Institute graduates, three of the factors considered were identified as measures.

a) Total credit hours of undergraduate social study course work completed was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who had graduated from Tennessee Polytechnic Institute.

Therefore, the component null hypothesis stating that the total credit hours of undergraduate social study course work completed was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.6381 was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to increase with an increased number of completed

hours of undergraduate social study courses for Extension workers who were graduates of Tennessee Polytechnic Institute.

b) Total credit hours of undergraduate educational courses completed was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who were graduates of Tennessee Polytechnic Institute.

Therefore, the component null hypothesis stating that the total credit hours of undergraduate educational courses completed was not significantly related to the ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.6381 was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to increase with an increased number of completed hours of undergraduate educational courses for Extension workers who were graduates of Tennessee Polytechnic Institute.

c) Total average undergraduate grade point earned was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who were graduates of Tennessee Polytechnic Institute.

Therefore, the component null hypothesis stating that the total average undergraduate grade point earned was not significantly related to

the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.6381 was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when the total average undergraduate grade point was high.

3. In the group of graduates from other undergraduate university, three of the factors considered were identified as measures.

a) Total credit hours of undergraduate social study course work completed was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who had graduated from other undergraduate universities.

Therefore, the component null hypothesis stating that the total credit hours of undergraduate social study course work completed was not significantly related to the job performance ratings was rejected.

The factor was found to be negatively associated with the job performance ratings.

The R^2 of 0.4709 was found to be significant at the .01 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to decrease with an increase in the number of completed hours in undergraduate social study courses for Extension workers

from undergraduate university other than the University of Tennessee and Tennessee Polytechnic Institute.

b) Total average grade point in undergraduate educational courses earned was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who had graduated from other undergraduate universities.

Therefore, the component null hypothesis stating that the total average grade point in undergraduate educational courses earned was not significantly related to ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.4709 was found to be significant at the .01 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively higher when the total average grade point in undergraduate educational courses was higher for Extension workers from undergraduate universities other than the University of Tennessee and Tennessee Polytechnic Institute.

c) Total average grade point in graduate social study courses was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings for Extension workers from other undergraduate universities.

Therefore, the component null hypothesis stating that the total

average grade point in graduate social study courses was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.4709 was found to be significant at the .01 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively higher when the total average grade point in graduate social study courses was higher.

Observations by Sex of Extension Workers

Table V shows the analysis of variance and the significance of each of the selected factors. Regression equation 5_L was computed for the linear effect of the 16 independent variables on the dependent variable for observations by the sex of the Extension workers.

Findings. Results were as follows:

1. In the male group, two of the factors considered were identified as measures.

a) Total credit hours of undergraduate educational courses completed was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of male Extension workers in Tennessee.

Therefore, the component null hypothesis stating that the total credit hours of undergraduate educational courses was not significantly related

to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1323 was not found to be significant at the .05 level or probability.

On the basis of this analysis, it would appear that the job performance ratings tended to increase with an increase in the number of credit hours of undergraduate educational courses completed.

b) Total average graduate grade point earned was found to be significant at the .01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of male Extension workers in Tennessee.

Therefore, the component null hypothesis stating that the total average graduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings of male Extension workers.

The R^2 of 0.1323 was not found to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively higher when the total average graduate grade point earned was higher for male Extension workers in Tennessee.

2. In the female group, three of the factors considered were identified as measures.

a) Total years of Extension experience served was found to be

significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of female Extension workers in Tennessee.

Therefore, the component null hypothesis stating that the total years of Extension experience served was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings of female Extension workers.

The R^2 of 0.4050 was found not to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to increase with increases in the number of years of Extension experience for female Extension workers.

b) The total credit hours of undergraduate social studies completed was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of female Extension workers.

Therefore, the component null hypothesis stating that the total credit hours of undergraduate social studies completed was not significantly related to the job performance ratings was rejected.

The factor was found to be negatively associated with the job performance ratings.

The R^2 of 0.4050 was found not to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job per-

formance ratings tended to decrease with increases in the number of credit hours of undergraduate social study course work completed.

c) Total average grade point in undergraduate social study courses was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of female Extension workers.

Therefore, the component null hypothesis stating that the total average grade point in undergraduate social study courses was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.4050 was found not to be significant at the .05 level or probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively higher when the total average grade point in undergraduate social study courses was higher for the female Extension workers.

II. FACTORS IDENTIFIED AS MEASURES OF JOB PERFORMANCE RATINGS BY MEANS OF THEIR QUADRATIC EFFECT IN A MULTIPLE REGRESSION ANALYSIS

All Observations Combined

Table VI shows the analysis of variance and the significance of four of the 16 selected factors in regression equation 1_Q for quadratic effect.

TABLE VI

THE SIGNIFICANCE OF THE LINEAR AND QUADRATIC EFFECTS OF SELECTED
FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY
EXTENSION WORKERS USING ALL DATA¹

Source of Variation	Degrees of Freedom	F Ratio
Total observations (N=229)		
Mean	1	
Regression	8	
X ₁ Degree rating assigned (linear)	1	8.44**
X ₁ ² Degree rating assigned (quadratic)	1	4.08*
X ₂ Years of Extension experience (linear)	1	0.10
X ₂ ² Years of Extension experience (quadratic)	1	3.20++
X ₉ Total average undergraduate grade point (linear)	1	5.12*
X ₉ ² Total average undergrad. grade point (quadratic)	1	2.19+
X ₁₆ Total average graduate grade point (linear)	1	2.59+
X ₁₆ ² Total average graduate grade point (quadratic)	1	0.90
Residual	220	

** Significant at the .01 level of probability

* Significant at the .05 level of probability

++ Significant at the .10 level of probability

+ Significant at the .25 level of probability

¹Equation 1_Q was used.

$$\hat{Y} = 5.8472 + 1.1243X_1 - 0.2522X_1^2 + 0.0050X_2 + 0.0001X_2^2 \\ - 1.6926X_9 + 0.3369X_9^2 - 0.2416X_{16} + 0.0374X_{16}^2$$

$$R^2 = 0.1106**$$

TABLE VII

THE SIGNIFICANCE OF THE LINEAR AND QUADRATIC EFFECTS OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND USING DATA BY TENNESSEE EXTENSION DISTRICTS¹

Source of Variation	Degrees of Freedom	F Ratios ²					
		All Data	Dist. I	Dist. II	Dist. III	Dist. IV	Dist. V
Total observations		(N=229)	(N ₁ =57)	(N ₂ =52)	(N ₃ =36)	(N ₄ =23)	(N ₅ =52)
Mean	1						
Regression	8						
X ₁ Degree rating assigned (linear)	1	8.44**	0.12	1.35+	0.04	0.17	1.50+
X ₁ ² Degree rating assigned (quadratic)	1	4.08*	0.79	0.26	0.08	0.27	0.29
X ₂ Years of Extension experience (linear)	1	0.10	5.25*	1.03	0.45	3.07+	0.88
X ₂ ² Years of Extension experience (quadratic)	1	2.10++	0.51	0.17	0.43	4.01++	0.19
X ₉ Total avg. undergrad. grade point (linear)	1	5.12*	1.19	0.56	0.07	0.88	2.06+
X ₉ ² Total avg. undergrad. grade point (quadratic)	1	2.19+	0.04	0.65	0.32	4.89*	5.99*
X ₁₆ Total avg. graduate grade point (linear)	1	2.59+	0.63	1.50+	1.71+	0.00	0.10
X ₁₆ ² Total avg. grad. grade point (quadratic)	1	<u>0.90</u>	<u>0.24</u>	<u>1.85+</u>	<u>0.63</u>	<u>0.17</u>	<u>3.61++</u>
Residual		df=220	df=48	df=43	df=27	df=14	df=43

** Significance at the .01 level of probability ++ Significance at the .10 level of probability
 * Significance at the .05 level of probability + Significance at the .25 level of probability

¹Equation 2₀ was used in each instance with the results presented below.

$$\text{All Data: } \hat{Y} = 5.8472 + 1.1243X_1 - 0.2522X_1^2 + 0.0050X_2 + 0.0001X_2^2 - 1.6926X_9 + 0.3369X_9^2 - 0.2416X_{16} + 0.0374X_{16}^2 \quad \text{where } R^2 = 0.1106^{**}$$

$$\text{Dist. I: } \hat{Y} = 4.4571 - 0.6183X_1 + 0.1391X_1^2 + 0.0242X_2 - 0.0004X_2^2 + 0.3745X_9 - 0.0541X_9^2 + 0.0000X_{16} + 0.0175X_{16}^2 \quad \text{where } R^2 = 0.1468$$

$$\text{Dist. II: } \hat{Y} = 13.5254 - 8.5311X_1 + 1.7129X_1^2 - 0.416X_2 + 0.0014X_2^2 - 1.1237X_9 + 0.1414X_9^2 + 1.8202X_{16} - 0.2536X_{16}^2 \quad \text{where } R^2 = 0.1434$$

$$\text{Dist. III: } \hat{Y} = 5.2445 + 0.8294X_1 - 0.1571X_1^2 - 0.0336X_2 - 0.0008X_2^2 - 0.8005X_9 + 0.1276X_9^2 - 0.5592X_{16} + 0.1406X_{16}^2 \quad \text{where } R^2 = 0.1088$$

$$\text{Dist. IV: } \hat{Y} = 5.886 - 0.4165X_1 + 0.1222X_1^2 + 0.0515X_2 - 0.0011X_2^2 - 1.1611X_9 + 0.0239X_9^2 + 0.0148X_{16} - 0.0090X_{16}^2 \quad \text{where } R^2 = 0.4774$$

$$\text{Dist. V: } \hat{Y} = 7.6726 - 0.5755X_1 + 0.0935X_1^2 - 0.0243X_2 + 0.0009X_2^2 - 2.3341X_9 + 0.4979X_9^2 + 0.0821X_{16} + 0.0201X_{16}^2 \quad \text{where } R^2 = 0.2520$$

²Nine observations were deleted in these analyses of data by districts since responsibilities of the personnel were area-wide rather than county-wide. The nine observations are included in "All Data."

TABLE VIII

THE SIGNIFICANCE OF THE LINEAR AND QUADRATIC EFFECTS OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND USING DATA FOR THOSE HAVING LESS THAN A MASTER'S DEGREE OR A MASTER'S DEGREE OF MORE¹

Source of Variation	Degrees of Freedom	F Ratios		
		All Data (N=229)	Less than A Master's degree (N ₁ =206)	A Master's degree or more (N ₂ =23)
Total observations				
Mean	1			
Regression	8			
X ₁ Degree rating assigned (linear)	1	8.44**	0.00	2.48+
X ₁ ² Degree rating assigned (quadratic)	1	4.08*	1.73+	0.00
X ₂ Years of Extension experience (linear)	1	0.10	2.15+	5.59+
X ₂ ² Years of Extension experience (quadratic)	1	3.20++	0.39	0.03
X ₉ Total average undergraduate grade point (linear)	1	5.12*	0.37	1.43
X ₉ ² Total average undergraduate grade point (quadratic)	1	2.19+	2.37+	11.16**
X ₁₆ Total average graduate grade point (linear)	1	2.59+	0.25	0.40
X ₁₆ ² Total average graduate grade point (quadratic)	1	<u>0.90</u>	<u>9.26**</u>	<u>0.15</u>
Residual		df=220	df=197	df=14

** Significant at the .01 level of probability

* Significant at the .05 level of probability

++ Significant at the .10 level of probability

+ Significant at the .25 level of probability

¹Equation 3₀ was used in each instance with the results presented below.

$$\text{All Data: } \hat{Y} = 5.8472 + 1.1243X_1 - 0.2522X_1^2 + 0.0050X_2 + 0.0001X_2^2 - 1.6926X_9 + 0.3369X_9^2 \\ - 0.2416X_{16} + 0.0374X_{16}^2 \quad \text{where } R^2 = 0.1106^{**}$$

Less than a Master's degree:

$$\hat{Y} = 5.2200 + 0.0000X_1 - 0.1046X_1^2 + 0.0128X_2 - 0.0003X_2^2 - 0.4208X_9 + 0.0922X_9^2 \\ - 0.0756X_{16} + 0.0500X_{16}^2 \quad \text{where } R^2 = 0.0776^{++}$$

A Master's degree or more:

$$\hat{Y} = 6.0468 + 0.2024X_1 + 0.0000X_1^2 + 0.0201X_2 - 0.0001X_2^2 - 0.1208X_9 + 0.04783X_9^2 \\ - 0.1807X_{16} + 0.0529X_{16}^2 \quad \text{where } R^2 = 0.5965^{++}$$

TABLE IX

THE SIGNIFICANCE OF THE LINEAR AND QUADRATIC EFFECTS OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND USING DATA FOR THE UNIVERSITY OF TENNESSEE, TENNESSEE POLYTECHNIC INSTITUTE AND OTHER UNDERGRADUATE UNIVERSITIES ATTENDED¹

Source of Variation	Degrees of Freedom	F Ratios			
		All Data	University of Tennessee	Tennessee Polytechnic Institute	Other Undergraduate Universities
Total observations		(N=229)	(N ₁ =135)	(N ₂ =32)	(N ₃ =62)
Mean	1				
Regression	8				
X ₁ Degree rating assigned (linear)	1	8.44**	2.78++	0.23	1.60+
X ₁ ² Degree rating assigned (quadratic)	1	4.08*	0.93	0.00	0.63
X ₂ Years of Extension experience (linear)	1	0.10	2.61+	1.37	0.31
X ₂ ² Yrs. of Extension experience (quadratic)	1	3.20++	0.21	1.95+	1.43+
X ₉ Total avg. undergrad. grade point (linear)	1	5.12*	3.47++	0.74	1.65+
X ₉ ² Total avg. undergrad. gr. point (quadratic)	1	2.19+	1.52+	1.65+	0.04
X ₁₆ Total avg. graduate grade point (linear)	1	2.59+	4.66*	0.00	1.02
X ₁₆ ² Total avg. grad. grade point (quadratic)	1	<u>0.90</u>	<u>16.04**</u>	<u>1.77+</u>	<u>1.86+</u>
Residual		df=220	df=126	df=23	df=53

** Significant at the .01 level of probability

* Significant at the .05 level of probability

++ Significant at the .10 level of probability

+ Significant at the .25 level of probability

¹Equation 4Q was used in each instance with the results presented below.

$$\text{All Data: } \hat{Y} = 5.8472 + 1.1243X_1 - 0.2522X_2^2 - 0.0050X_2 + 0.0001X_2^2 - 1.6926X_9 + 0.3369X_9^2 \\ - 0.2416X_{16} + 0.0374X_{16}^2 \quad \text{where } R^2 = 0.1106^{**}$$

University of Tennessee:

$$\hat{Y} = 6.5290 - 0.6534X_1 + 0.1645X_1^2 + 0.0101X_2 - 0.0002X_2^2 - 1.2426X_9 + 0.2479X_9^2 \\ - 0.0538X_{16} + 0.0430X_{16}^2 \quad \text{where } R^2 = 0.2106^{**}$$

Tennessee Polytechnic Institute:

$$\hat{Y} = 4.4396 + 0.6306X_1 + 0.0000X_1^2 + 0.1921X_2 - 0.0071X_2^2 - 1.1376X_9 + 0.3421X_9^2 \\ + 0.0000X_{16} - 0.1792X_{16}^2 \quad \text{where } R^2 = 0.2352$$

Other Undergraduate Universities:

$$\hat{Y} = 4.8493 - 1.6413X_1 + 0.2535X_1^2 - 0.0167X_2 + 0.0008X_2^2 + 0.7174X_9 - 0.0762X_9^2 \\ - 0.2099X_{16} + 0.1500X_{16}^2 \quad \text{where } R^2 = 0.1367$$

TABLE X

THE SIGNIFICANCE OF THE LINEAR AND QUADRATIC EFFECTS OF SELECTED FACTORS ON JOB PERFORMANCE RATINGS OF TENNESSEE COUNTY EXTENSION WORKERS USING ALL DATA AND USING DATA ACCORDING TO SEX OF WORKERS¹

Source of Variation	Degrees of Freedom	F ratios		
		All Data	Male Workers	Female Workers
Total observations		(N=229)	(N ₁ =164)	(N ₂ =65)
Mean	1			
Regression	8			
X ₁ Degree rating assigned (linear)	1	8.44**	2.29+	0.15
X ₁ ² Degree rating assigned (quadratic)	1	4.08*	0.21	3.16++
X ₂ Years of Extension experience (linear)	1	0.10	4.83*	3.69++
X ₂ ² Years of Extension experience (quadratic)	1	3.20++	0.06	0.33
X ₉ Total average undergraduate grade point (linear)	1	5.12*	1.20	2.61+
X ₉ ² Total average undergraduate grade point (quadratic)	1	2.19+	0.48	0.05
X ₁₆ Total average graduate grade point (linear)	1	2.59+	3.84++	0.44
X ₁₆ ² Total average graduate grade point (quadratic)	1	<u>0.90</u>	<u>12.07**</u>	<u>0.57</u>
Residual		df=220	df=155	df=54

** Significant at the .01 level of probability

* Significant at the .05 level of probability

++ Significant at the .10 level of probability

+ Significant at the .25 level of probability

¹Equation 5_Q was used in each instance with the results presented below.

$$\text{All Data: } \hat{Y} = 5.8472 + 1.1243X_1 - 0.2522X_2^2 + 0.0050X_2 + 0.0001X_2^2 - 1.6926X_9 + 0.3369X_9^2 \\ - 0.2416X_{16} + 0.0374X_{16}^2 \quad \text{where } R^2 = 0.1106^{**}$$

Male Workers:

$$\hat{Y} = 5.4543 - 0.2075X_1 + 0.0473X_1^2 + 0.0102X_2 - 0.0001X_2^2 - 0.6843X_9 + 0.1419X_9^2 \\ - 0.1367X_{16} + 0.0593X_{16}^2 \quad \text{where } R^2 = 0.1417^{**}$$

Female Workers:

$$\hat{Y} = 6.0716 - 1.7440X_1 + 0.3890X_1^2 + 0.0395X_2 - 0.0006X_2^2 - 0.1662X_9 + 0.0505X_9^2 \\ - 0.3199X_{16} + 0.1359X_{16}^2 \quad \text{where } R^2 = 0.1623$$

Findings. Only one of the factors considered was identified as a measure. The findings were as follows:

1. Highest degree attained and/or work completed above highest degree was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers.

Therefore, the component null hypothesis that the highest degree and/or work done above the highest degree was not significantly related to the job performance ratings was rejected.

The factor was negatively associated with the job performance ratings.

The R^2 of 0.11066 for the regression was significant at the .05 level of probability.

On the basis of this analysis, it would appear that there was a limit beyond which acquisition of higher degrees did not greatly improve the job performance ratings of Extension workers within the range of data.

Observations by Tennessee Agricultural Extension Districts

Table VII shows the analysis of variance and the significance of each of the factors. Regression equation Z_Q was computed for quadratic effect of four of the 16 selected independent variables on the dependent variable for each of the five Tennessee Agricultural Extension Districts.

Findings. Results were as follows:

In Districts I, II and III, none of the factors considered was significant at either the .01 or .05 level of probability.

Therefore, all component null hypotheses here tested were accepted.

In District IV, total average undergraduate grade point earned was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District IV.

Therefore, the component null hypothesis stating that the total average undergraduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings. The R^2 of 0.4774 for the regression was not significant at the required level of probability.

On the basis of this analysis, it would appear that the job performance ratings of District IV Extension workers tended to be relatively high when the total average undergraduate grade point earned was high within the range of data.

In District V, total average undergraduate grade point earned was found to be significant at the required .05 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers in District V.

Therefore, the component null hypothesis stating that the total average undergraduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings. The R^2 of 0.2520 for the regression was not significant at the required .05 level of probability.

On the basis of this analysis, it would appear that the job

performance ratings of District V Extension workers tended to be relatively high when the total average undergraduate grade point earned was high within the range of data.

Observations by Degree

Table VIII shows the analysis of variance and the significance of each of the factors. Regression equation 3_Q was computed for quadratic effect of four of the 16 selected independent variables on the dependent variable for each degree status used.

Findings. Results were as follows:

1. In the group with less than a master's degree, total average graduate grade point earned was found to be significant at the .01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers with less than a master's degree.

Therefore, the component null hypothesis stating that the total average graduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.0776 for the regression was found not to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings of Extension workers with less than a master's degree tended to be relatively high when the total average graduate grade point

earned was high within the range of data.

2. In the group with a master's degree or above, total average undergraduate grade point earned was found to be significant at the .01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers with a master's degree or more.

Therefore, the component null hypothesis stating that the total average undergraduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.5965 was found not to be significant at the .05 level of probability.

On the basis of this analysis, it would appear that the job performance ratings of Extension workers with a master's degree or more tended to be relatively high when the total average undergraduate grade point earned was high within the range of data.

Observations by Undergraduate University

Table IX shows the analysis of variance and the significance of each of the selected factors. Regression equation 4_Q was computed for the quadratic effect of four of the 16 selected independent variables on the dependent variable for undergraduate university completed.

Findings. Results were as follows:

1. In the group of University of Tennessee graduates, total average graduate grade point earned was found to be significant at the

.01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of Extension workers who are graduates of the University of Tennessee.

Therefore, the component null hypothesis stating that the total average graduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1166 for the regression was found to be significant at the .01 level of probability.

On the basis of this analysis, it would appear that the job performance ratings tended to be relatively high when the total average graduate grade point earned was high within the range of data.

2. In the group of Tennessee Polytechnic Institute graduates, none of the factors considered was found to be significant at the .05 level of probability.

Therefore, no factor could be considered as a predictive measure of job performance ratings.

The component null hypotheses here tested were therefore accepted.

3. In the group of graduates of other undergraduate universities, no factor was found to be significant at the .05 level of probability. No factor could therefore be considered as a predictive measure of job performance ratings.

The component null hypotheses here tested were therefore accepted.

Observations by Sex of Extension Workers

Table X shows the analysis of variance and the significance of each of the selected factors.

Regression equation 5_Q was computed for the quadratic effect of four of the 16 selected independent variables on the dependent variable for sex of the worker.

Findings. Results were as follows:

1. In the male group, total average graduate grade point earned was found to be significant at the .01 level of probability. This would suggest that this factor should be considered as a predictive measure of job performance ratings of male Extension workers.

Therefore, the component null hypothesis stating that the total average graduate grade point earned was not significantly related to the job performance ratings was rejected.

The factor was found to be positively associated with the job performance ratings.

The R^2 of 0.1106 for the regression was found to be significant at the .01 level of probability.

On the basis of this analysis, it would appear that the job performance ratings of male Extension workers tended to be relatively high when the total average graduate grade point earned was high within the range of data.

2. In the female group, none of the factors considered was found to be significant at the .05 level of probability. No factor could therefore be considered as a predictive measure of job performance ratings for

female Extension workers.

Therefore, the component null hypotheses here tested were accepted.

III. SUMMARY OF FACTORS IDENTIFIED AS MEASURES OF JOB PERFORMANCE RATINGS

The statements listed below summarize the findings with reference to factors identified as measures of job performance ratings of county staff workers in the Tennessee Agricultural Extension Service by means of their linear and quadratic effects in multiple regression analysis for five different sets of observations.

By Means of Linear Effect of Sixteen Selected Factors

All Data. Major findings were as follows:

a) The hours of undergraduate educational course work completed was found to be significant at the .01 level of probability and, therefore, the factor was identified as a probable measure of job performance ratings for all observations combined.

Therefore, component null hypothesis number seven was rejected, and all other component null hypotheses were accepted.

The positive association of the factor with job performance ratings would indicate that the job performance ratings tended to increase with increases in the credit hours of completed undergraduate educational course work.

The Tennessee Extension Districts. Districts differed from one to another with respect to the factors that were identified as measures of job performance ratings in the following manner:

a) In District I, the years of Extension experience served and the total average graduate educational course grade point earned were found to be significant at the required .05 level of probability.

Therefore, component null hypotheses number two and fifteen were rejected, and all other component null hypothesis were accepted.

The positive association of these two factors indicated that job performance ratings tended to increase with increases in the number of years of Extension experience served and in the total average graduate educational course grade point earned by Extension workers in District I.

b) In District II, the total credit hours of graduate technical course work completed was found to be significant at the .05 level of probability.

Therefore, component null hypothesis number twelve was rejected and the other component null hypotheses were accepted.

The negative association of the factor with the ratings would indicate that the job performance ratings tended to decrease with increases in the credit hours of graduate technical course work completed by workers in District II.

c) In District III, the total average graduate educational course grade point was found to be significant at the .05 level of probability.

Therefore, component null hypothesis number fifteen was rejected and all other component null hypotheses were accepted.

The negative association of the factor and the ratings would indicate that ratings tended to decrease with increases in the average grade point earned in graduate educational courses by Extension workers in District III.

d) In District IV no factor was found to be significant at the required .05 level of probability, though several were significant at the .10 level.

Therefore, all sixteen component null hypotheses were accepted for District IV.

e) In District V, the total average undergraduate grade point and the total average graduate social study grade point were found to be significant at the required .05 level of probability.

Therefore component null hypotheses nine and eleven were rejected, and all other component null hypotheses were accepted.

The positive association of each of these factors with the ratings indicated that ratings tended to increase with increases in the total average undergraduate and graduate social study grade points for Extension workers in District V.

The Degree Ratings Assigned. Major findings were as follows:

a) In the group with less than a master's degree, the degree rating assigned was found to significant at the .01 level of probability.

Therefore, component null hypothesis number one was rejected.

The negative association of the factor and the ratings would indicate that there was a tendency for ratings to decrease as hours of graduate course work taken above bachelor's degree level and below master's degree level increased. It was suggested that the well-known demands of master's degree work might in part explain this occurrence.

Also, in the group with less than a master's degree, the total credit hours of undergraduate educational course work completed was found

to be significant at the .01 level of probability.

Therefore, component null hypotheses one and seven were rejected and other component null hypotheses were accepted.

The positive association of the factor and ratings would indicate that the job performance ratings of Extension workers with less than a master's degree classification tended to increase with increases in the number of credit hours of completed undergraduate educational course work.

b) In the group with a master's degree or above, the total average undergraduate grade point was found to be significant at the .05 level of probability.

Therefore, component null hypothesis number nine was rejected, and all other component null hypotheses were accepted.

The positive association would indicate that the job performance ratings of Extension workers with a master's degree or above tended to increase with increases in the total average undergraduate grade point.

Undergraduate university from which graduated. Major findings were as follows:

a) For the group of University of Tennessee graduates, the total average undergraduate grade point and the total average graduate grade point were found to be significant at the .05 and .01 levels of probability respectively.

Therefore, component null hypotheses nine and sixteen were rejected, and all other component null hypotheses were accepted for Extension workers from the University of Tennessee.

b) In the group of Tennessee Polytechnic Institute graduates, the total credit hours of undergraduate social study and educational course work completed, and the total average undergraduate grade point, were found to be significant at the required .05 level of probability.

Therefore, component null hypotheses three, seven and nine were rejected, and all other component null hypotheses were accepted.

The positive association of each of these three factors and the ratings would indicate that the job performance ratings tended to increase with increases in these factors for the Extension workers who were graduates from Tennessee Polytechnic Institute.

c) In the group of graduates from other universities, the total credit hours of undergraduate social study course work, the total average undergraduate grade point and the total average graduate social study grade point were found to be significant at the required level of probability.

Therefore, component null hypotheses three, nine and eleven were rejected and all other component null hypotheses were accepted.

The negative association of the total credit hours of undergraduate social study course work completed would seem to indicate that social study courses selected at undergraduate level at the universities involved may not have been suited to the needs of workers since ratings decreased as the factor increased.

The positive association of the total average undergraduate grade point and of the total average graduate social study grade point with the total average job performance rating would indicate that the ratings tended to increase with increases in either of the two factors for

Extension workers who had graduated from undergraduate universities other than the University of Tennessee or Tennessee Polytechnic Institute.

The sex of the Extension worker. Major findings were as follows:

a) In the male group, the total credit hours of undergraduate educational course work completed and the total average graduate grade point earned were found to be significant at the .05 and .01 levels of probability respectively.

Therefore, component null hypotheses seven and sixteen were rejected, and all other component null hypotheses were accepted.

The positive association of these factors and the ratings would indicate that the job performance ratings tended to increase with increases in either of these two factors.

b) In the female group, the years of Extension experience served, the total credit hours of undergraduate social study course work completed and the total average undergraduate social study grade point were found to be significant at the required .05 level of probability.

Therefore, component null hypotheses two, three and four were rejected, and all other component null hypotheses were accepted.

The positive association of the years of Extension experience served and of the total average undergraduate social study grade point earned with the ratings would indicate that the job performance ratings tended to increase with increases in either of these two factors for female Extension workers.

The total credit hours of social study course work completed was found to be negatively associated and this would suggest that many of

the social study courses selected at the undergraduate level might not have been suited to increasing job performance ratings of female Extension workers in Tennessee Agricultural Extension Service. Also, there is the likelihood that they were taken in lieu of home economics work.

The five most significant, positively associated and frequently occurring factors identified by means of the linear effect of the selected factors as measures of job performance ratings of Extension workers were as follows in order of importance: 1) total average undergraduate grade point earned; 2) credit hours of undergraduate educational course work completed; 3) years of Extension experience served; 4) total average graduate grade point earned, and 5) total average graduate social study grade point earned.

Table XI summarizes the significance, nature of association, place and frequency of occurrence of the linear effect of the sixteen selected factors on the total average two-year job performance ratings of the Extension workers whose data were included in the study.

F totals at the bottom and right side of the table give the numbers of items found significant for each set and the frequencies with which individual items were significant factors.

By Means of Quadratic Effect of Four of the Sixteen Selected Factors

All data. Major findings were as follows:

a) The degree rating assigned (quadratic) was found to be significant at the required level of probability. Therefore, component null hypothesis number one was rejected, and all other component null hypotheses here tested were accepted.

The Tennessee Extension districts. Major findings were as follows:

a) In Districts I, II and III, no factor was found to be significant at the required level of probability. Therefore, all component null hypotheses relevant for the quadratic effect were accepted.

b) In Districts IV and V, the total average undergraduate grade point earned (quadratic) was found to be significant at the .05 level of probability. Therefore, component null hypothesis number nine was accepted.

The degree ratings assigned. Major findings were as follows:

a) In the group with less than a master's degree, the total average graduate grade point earned (quadratic) was found to be significant at the .01 level of probability. Therefore, component null hypothesis number sixteen was rejected, and other component null hypotheses here tested were accepted for observations by workers with less than a master's degree.

b) In the group with a master's degree or above, the total average undergraduate grade point earned (quadratic) was found to be significant at the .01 level of probability. Therefore, component null hypothesis number nine was rejected, and other component null hypotheses tested here were accepted for observations by workers having a master's degree or above.

Undergraduate university from which graduated. Major findings were as follows:

a) In the group of University of Tennessee graduates, the total average graduate grade point (quadratic) was found to be significant at the .01 level of probability. Therefore, component null hypothesis number

sixteen was rejected, and the other component null hypotheses here tested were accepted for observations by workers who graduated from the University of Tennessee.

b) In the group of Tennessee Polytechnic Institute graduates and in the group graduating from other universities, no factor was found to be significant at the required .05 level of probability. All the component null hypotheses here tested were therefore accepted.

The sex of the Extension worker. Major findings were as follows:

a) In the male group, the total average graduate grade point earned was found to be significant at the .01 level of probability.

Therefore, component null hypothesis number sixteen was rejected and other component null hypotheses were accepted for observations by male Extension workers.

b) In the female group, no factor was found to be significant at the required .05 level of probability. Therefore, relevant component null hypotheses were accepted for observations of data by female Extension workers.

The two most significant, positively associated and frequently occurring factors identified by means of quadratic effect as measures of job performance ratings of Extension workers were the total average undergraduate graduate grade point and the total average graduate grade point earned.

Table XII summarizes the significance, nature of association, place and frequency of occurrence of the quadratic effect of four of the sixteen selected factors on the total average job performance ratings of Extension

workers whose data were included in the study.

F totals at the bottom and right side of the table give the numbers of items found significant (both linear and quadratic terms) for each set and the frequencies with which individual items were significant factors.

CHAPTER V

SUMMARY AND CONCLUSIONS

I. SUMMARY

One of the most important functions of Extension Administration and Supervision is that of attracting and securing the services of capable and well-trained county staff members. The achievement of maximal effective utilization of Extension personnel resources requires that each new Extension worker's competencies and potentialities be consistent with present and future job requirements and opportunities for further professional growth and development.

The 1960 and 1961 performance reviews for all county staff members in the University of Tennessee Agricultural Extension Service, represented efforts at personnel evaluation for the purpose of providing a basis for direction in the development of in-service training opportunities to fit the professional development of individual staff members. They also made data available for a study of the relationships existing between job performance ratings of Extension workers and the different kinds and amounts of preparation and other experiences staff workers had received prior to and in-service.

The identification of significant factors by such a study was seen to have the potential administrative and supervisory utility of providing predictors of effective job performance for use with prospective Tennessee County Extension workers and, also, of providing indicators of areas of

in-service training need for presently employed Extension workers in the state.

The nature of the study was an exploratory one to identify possible measures of job performance ratings.

Null Hypotheses Tested

In specified linear (all sixteen factors below) and quadratic (factors one, two, nine and sixteen below) multiple regression equations of the forms indicated in the Design of the Study (Chapter III), the following named independent variables are not significantly related to the overall total average two-year job performance ratings of county agricultural Extension workers in Tennessee:

1. Highest degree attained and/or work completed above highest degree
2. Total years of Extension experience served
3. Total credit hours of undergraduate social study course work completed
4. Total average grade point earned in undergraduate social study course work
5. Total credit hours of undergraduate technical agriculture or home economics course work completed
6. Total average grade point earned in undergraduate technical course work
7. Total credit hours of undergraduate educational course work completed
8. Total average grade point earned in undergraduate educational course work
9. Total average undergraduate grade point earned
10. Total credit hours of graduate social study course work completed
11. Total average grade point earned in graduate social study course work

12. Total credit hours of graduate technical course work completed
13. Total average grade point earned in graduate technical course work
14. Total credit hours of graduate educational course work completed
15. Total average grade point earned in graduate educational course work
16. Total average graduate grade point earned.

The sixteen components of the general hypothesis were referred to as component null hypotheses in the text.

The relevant data for the study were obtained from the college transcripts, faculty biographical data sheets, Performance Review Profiles, job descriptions, standards of performance and job requirements of the 229 Tennessee County Agricultural Extension workers for whom records were complete in October, 1962.

Multiple regression analysis was selected as an appropriate statistical technique for evaluating the relationships between job performance ratings and the sixteen selected factors.

Analysis of data was done on an IBM 1620 Computer using a step-wise regression analysis program called STRAP developed by A. R. Colville and L. S. Holmes.

The statistical procedures included:

1. A partial analysis of variance showing source of variation, degrees of freedom and F ratio to determine the significance of the selected factors for each of the five different sets of observations for both the linear and quadratic effects

2. Fitting of a regression equation for each set of observations and showing the regression coefficients and the R^2 for each equation

3. The .05 level of probability selected as the appropriate level

of probability were discussed.

Findings Regarding Hypotheses Tested

A. For the linear effect of sixteen selected factors on job performance ratings in five different sets of observations, it was found that:

1. For all observations combined, the total credit hours of undergraduate educational course work completed was significant at the .01 level of probability.

Therefore, component null hypothesis number seven was rejected for all observations combined. All other component null hypotheses were accepted for this set of observations.

2. For observations by Tennessee Extension Districts

a) In District I, the years of Extension experience served and the total average graduate educational course grade point earned were significant at the .05 level of probability.

Therefore, component null hypotheses two and fifteen were rejected, and all other component null hypotheses accepted for District I.

b) In District II, the total credit hours of graduate technical course work completed was significant at the .05 level of probability.

Therefore, component null hypothesis number twelve was rejected, and all other component null hypotheses accepted for District II.

c) In District III, the total average graduate educational course grade point earned was significant at the .05 level of probability.

Therefore, component null hypothesis number fifteen was rejected, and all other component null hypotheses accepted for District III.

d) For District IV, no factor was significant at the required

level of probability. The general null hypothesis was accepted for District IV.

e) In District V, the total average undergraduate grade point and the total average graduate social study grade point earned were significant at the .05 level of probability.

Therefore, component null hypotheses nine and eleven were rejected and all other component null hypotheses accepted for District V.

3. For observations by academic degrees attained

a) In the group with less than a master's degree, the degree rating assigned and the total credit hours of undergraduate educational course work completed were each significant at the .01 level of probability.

Therefore, component null hypotheses one and seven were rejected, and all other component null hypotheses accepted for this set of observations.

b) In the group with a master's degree or more, the total average undergraduate grade point earned was found to be significant at the .05 level of probability.

Therefore, component null hypothesis number nine was rejected, and all other component null hypotheses accepted for this set of observations.

4. For observations by undergraduate university attended

a) In the group graduated from the University of Tennessee, the total average undergraduate grade point and the total average graduate grade point earned were found to be significant at the .05 and .01 levels of probability respectively.

Therefore, component null hypotheses nine and sixteen were rejected, and all other component null hypotheses accepted for county Extension

workers who were graduates of the University of Tennessee.

b) In the group graduated from the Tennessee Polytechnic Institute, the total credit hours of undergraduate social studies completed, the total hours of undergraduate educational course work completed and the total average undergraduate grade point earned were significant at the required .05 level of probability.

Therefore, component null hypotheses three, seven and nine were rejected, and all other component null hypotheses accepted for Extension workers who were graduates of Tennessee Polytechnic Institute.

c) In the group graduated from other universities, the total credit hours of undergraduate social studies completed, the total undergraduate educational course grade point earned, and the total average graduate social study grade point earned were significant at the .05 level of probability.

Therefore, component null hypotheses three, eight and eleven were rejected, and all other component null hypotheses accepted for county Extension workers from undergraduate universities other than the University of Tennessee and Tennessee Polytechnic Institute.

5. For observations by sex of Extension workers

a) In the male group, the total credit hours of undergraduate educational course work completed and the total average graduate grade point earned were found to be significant at the .05 and .01 levels of probability, respectively.

Therefore, component null hypotheses seven and sixteen were rejected, and all other component null hypotheses accepted for male Extension workers.

b) In the female group, the years of Extension experience

served, the total credit hours of undergraduate social studies completed and the total average undergraduate social study grade point earned were significant at the required .05 level of probability.

Therefore, component null hypotheses two, three and four were rejected and all other component null hypotheses accepted for female Extension workers.

B. For the quadratic effect of four of the sixteen selected factors on job performance ratings in five different set os observations, it was found that:

1. For all observations combined, the degree rating was significant at the .05 level of probability.

Therefore, component null hypothesis number one was rejected, and the three other component null hypotheses here tested were accepted for this set of observations.

2. For observations by Tennessee Extension Districts

a) In Districts I, II and III, no factor was significant at the selected .05 level of probability.

Therefore, all four of the null hypotheses here considered were accepted for Districts I, II and III.

b) In both Districts IV and V, the total average undergraduate grade point earned was significant at the .05 level of probability.

Therefore, component null hypothesis number nine was rejected, and the other three component null hypotheses here tested were accepted for Extension Districts IV and V.

3. For observations by degrees attained

a) In the group with less than a master's degree, the total

average graduate grade point earned was significant at the .01 level of probability.

Therefore, component null hypothesis number sixteen was rejected and the other three component null hypotheses here tested were accepted for Extension workers with less than a master's degree.

b) In the group with a master's degree or above, the total average undergraduate grade point earned was significant at the .01 level of probability.

Therefore, component null hypothesis number nine was rejected and the other three component null hypotheses here tested were accepted for Extension workers with a master's degree or above.

4. For observations by undergraduate university attended

a) In the group graduated from the University of Tennessee, the total average graduate grade point earned was significant at the .01 level of probability.

Therefore, component null hypothesis number sixteen was rejected, and the other three component null hypotheses here tested were accepted for county Extension workers who were graduates of the University of Tennessee.

b) In the groups graduated from the Tennessee Polytechnic Institute and other undergraduate universities, no factor was found to be significant at the required .05 level of probability.

Therefore, all component null hypotheses here tested were accepted for county Extension workers who were graduates of Tennessee Polytechnic Institute and other undergraduate universities.

5. For observations by sex of Extension worker

a) In the male group, the total average graduate grade point earned was significant at the .01 level of probability.

Therefore, component null hypothesis number sixteen was rejected and the other three component null hypotheses here tested were accepted for male county Extension workers in Tennessee.

b) In the female group, no factor was found to be significant at the required .05 level of probability.

Therefore, all four component null hypotheses here tested were accepted for female Extension workers in Tennessee.

II. CONCLUSIONS

The conclusions based on this study are as follows:

1. Since the total average undergraduate grade point earned, the total credit hours of undergraduate educational course work completed, the years of Extension experience served, the total average graduate grade point earned and the total average graduate social study grade point earned were, in descending order of their importance, the five most significant and frequently occurring factors and that they were positively associated with the total average job performance ratings, it is concluded that these five factors out of the sixteen selected, may be accepted as predictors of the total two-year average job performance ratings of county Extension staff members used in this study.

2. Because different factors were found to be significant in each of the five Tennessee Extension Districts, it is concluded that the pre-

service and in-service training needs of the Extension workers would appear to vary by individual district.

3. Since the total credit hours of undergraduate educational course work completed was found to be highly significant for Extension workers with less than a master's degree and since it was positively associated with their job performance ratings, it is concluded that the factor is one adequate predictor of job performance ratings of Extension workers with less than a master's degree.

4. For extension workers with a master's degree or more, the total average undergraduate grade point earned was found to be highly significant and positively associated with the total average job performance ratings. It is therefore concluded that the total average undergraduate grade point earned is an effective predictor of job performance ratings for Extension workers with a master's degree or above.

5. Since the total average undergraduate and graduate grade points were found to be highly significant and positively associated with the total average job performance ratings of Extension workers who were graduates of the University of Tennessee, it is concluded that these two factors are effective predictors of job performance ratings of Extension workers who are graduates of the University of Tennessee.

6. Since the total credit hours of undergraduate social study and educational course work completed and the total average undergraduate grade point earned were found to be significant and positively associated with ratings, it is concluded that these factors are effective predictors of job performance ratings of Extension workers who graduated from Tennessee Polytechnic Institute.

7. Since the total credit hours of undergraduate social study course work completed, the total average undergraduate grade point and the total average undergraduate social study grade point earned were found to be significant for Extension workers from other undergraduate universities, it is concluded that these are effective predictors of job performance ratings for those Extension workers.

8. Since the total credit hours in undergraduate educational course work completed, the total average graduate grade point earned and years of Extension experience served were found to be highly significant and positively associated with the total average job performance ratings of male Extension workers, it is concluded that these factors are effective predictors of job performance ratings of male Extension workers in Tennessee.

9. With respect to female Extension workers, the years of Extension experience, the total credit hours of undergraduate social study course work completed and the total average undergraduate social study grade point were found to be significant, so it is concluded that these factors are effective predictors of job performance ratings of female Extension workers in Tennessee.

III. RECOMMENDATIONS

Recommendations which appear to be pertinent would include the following:

1. A further investigation similar to the present study should be conducted to study the relationship between the selected factors and job

performance ratings for each of the seven content areas of the job performance review (and/or various combinations of the 53 items that make it up) of all county staff members in the Tennessee Agricultural Extension Service

2. A further investigation should be conducted to determine the intercorrelations and interactions between the factors selected for the present study and their effect on job performance ratings

3. Other factors should be identified (e.g. general aptitude, high school grade point, social participation rating and leadership rating) for studies similar to the present one

4. A further investigation should be made with the known correlates of future job performance success or failure for the development of an effective prediction formula or of more than one if needed (e.g. one for each Tennessee Extension district)

5. There is a need for a depth study comparing a few of the highest performing agents with an equal number of the lowest performing agents in this state. Such a study should include investigation into why some agents perform certain functions better than others

6. A further investigation should be made to determine whether or not agents performing at relatively low levels improve after a three or four year period of job performance review

7. The findings of the present and other recommended research should provide a sound frame work for formulation of policy statements on and development of improved programs of pre-service and graduate and other in-service training programs for the Tennessee Agricultural

Extension Service

8. The Tennessee Agricultural Extension Service should exert its influence to include selected Extension oriented courses in the undergraduate curricula of prospective Extension workers (especially women).

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APPENDIXES

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APPENDIX A

PROPOSED JOB DESCRIPTION FOR THE COUNTY AGRICULTURAL AGENT, AGRICULTURAL
EXTENSION SERVICE, UNIVERSITY OF TENNESSEE, COLLEGE OF AGRICULTURE,
THE COUNTY BOARD OF COMMISSIONERS AND UNITED STATES DEPARTMENT OF
AGRICULTURE, COOPERATING _____ COUNTY, KNOXVILLE, TENNESSEE

Working under the supervision of the District Supervisor--Management for all management aspects and to the District Supervisor--Agricultural Programs for Planning and Implementation of Agricultural Programs and in accordance with the memorandum of understanding between The University of Tennessee, the United States Department of Agriculture, the provisions of the Smith-Lever Act of 1914 as amended, the new combined project agreement No. 8 for this work, and the memorandum of agreement for Extension work between _____ County and the Extension Service of The University of Tennessee, the County Agent in cooperation with the county home demonstration agent gives leadership, supervision and direction to the Cooperative Extension Service work in _____ County. Serving as leader of the county Extension team his work covers planning, programming, county organization, supervision, personnel management, county extension budgets, administrative relationships, policy making, securing specialist assistance, use of valid research, training agents and leaders, teaching, decision making, reporting, office management and evaluation. The County Agent serves as the official representative of the director's office on matters pertaining to administration.

The County Agent shares with the county home demonstration agent and county staff responsibility for making progress in all phases of the work. Gives support and encouragement to all personnel in the county in discharging their full responsibilities in serving as the educational arm

of the United States Department of Agriculture. Under the joint supervision of the district agents, the county agent is responsible for the following.

Serves as an over-all member of the Extension team and acts in the name of the administration; keeps the district agent--management informed of situations in the county and obtains accurate and complete information needed by the administration. Delegates tasks among men county staff members and secretarial help and assists in interpreting Extension policies and procedures. Keeps self informed on changing technology and scientific findings and carries out special and emergency assignments as directed by the administration. Works to improve the organization and management of the county Extension office and the quality of the work done by the personnel in the county; gives guidance and direction to work in the county, including personnel. Secures needed supplies and equipment with the help of the District Agent--Programs, promotes program development and projection, leader training, 4-H Club work, and assists with preparation of annual plans of work. Is responsible for maintaining county appropriations for salaries, office maintenance, equipment, and office space for county personnel. Is responsible for and keeps an inventory of all office equipment and demonstration materials. Meets periodically with the Board of County Commissioners on budget needs and presents annually the working agreement for Extension work to county commissioners for their approval. Directs the preparation of county budget in cooperation with other members of the county staff, and maintains favorable relations with the county appropriating bodies, other agencies and other organizations. Calls staff meetings to prepare and present to the Board of County Commissioners progress reports of county Extension work. Keeps public informed of

Extension work and activities under way.

With full assistance from the County Extension staff organizes and maintains an active county council involving representatives from neighborhoods and communities, including business, agriculture, home economics, 4-H Club and industry groups. Supplies leadership procedures, training and guidance that results in the development of a dynamic activated long-range program for people in the field of agriculture, the home and related fields, including both rural and urban people. Periodically evaluates and revises existing projects and helps plan and initiate new projects in keeping with economic changes and demands of the people. Implements and facilitates new teaching methods and procedures, good communication, use of mass media, local leaders and committees in disseminating information.

Provides counseling services on farm, home, youth and urban problems, and assists families in developing group action. With the help of the county staff mobilizes and trains people to meet emergencies and develops with families an understanding of economic and social factors affecting family life. Assists far families in production and marketing of dairy, poultry, livestock, crops, horticulture, forestry and pasture. Supervises the soil testing program and assists farmers with soil problems and makes recommendations.

Maintains good communication with county office personnel, district agents, and other Extension personnel along with federal, state, county and private agencies, groups, and the public in general. Keeps self and all county Extension personnel current on scientific findings on teaching techniques and opportunities for professional improvement. Attends and participates in state training conferences; confers regularly with

Extension subject matter specialists to keep up-to-date with research findings and new methods of procedure and disseminates the latest findings to the people in the county. Makes an agenda and calls a weekly office staff conference to facilitate understanding and to promote teamwork and submits minutes to district agent for management.

Prepares monthly, annual, and special reports and gives guidance to other members of the county staff in reporting Extension activities and accomplishments. Evaluates self, other county staff personnel, and the total county Extension program in relation to the use of advisory groups, techniques for planning and carrying out the program, working relationships, public relations, professional improvement, office management, reporting and making plans for future improvement. Analyzes, evaluates, and revises at regular intervals the results of county programs and annual plans of work as a basis for future improvement.

PROPOSED JOB DESCRIPTION FOR THE ASSISTANT AGRICULTURAL EXTENSION
AGENT, AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE,
COLLEGE OF AGRICULTURE, THE COUNTY BOARD OF COMMISSIONERS,
AND UNITED STATES DEPARTMENT OF AGRICULTURE, COOPERATING
_____ COUNTY, KNOXVILLE, TENNESSEE

The Assistant Agricultural Agent is immediately responsible to the agricultural Agent and through him the District Agents and the Director of Agricultural Extension Service and in accordance with the memorandum of understanding between the University of Tennessee, College of Agriculture, and the United States Department of Agriculture and in accordance with the provisions of the Smith-Lever Act of 1914 as amended, and subject to State and Federal Laws appropriating funds for the Cooperative Extension Service of Tennessee and in accordance with the new combined project agreement No. 8 for this work; assumes tasks and duties and authority delegated by the Agricultural Agent and assists him in conducting the County long-range program, and in his absence accepts full responsibilities for the conduct of the work of the county office.

Shares responsibility with the county staff for making progress in all phases of the work and discharges his full responsibility in serving as the educational arm of the U. S. D. A. Keeps the county agent informed of situations in the county by obtaining accurate and complete information. Keeps self informed on changing technology and scientific findings and carries out special and emergency assignments as directed by the county agent.

Represents the Director of the Agricultural Extension Service in his district; keeps self informed in research findings and keeps work up-

to-date by studying, analyzing and organizing information from many sources; prepares appropriate teaching and demonstration materials for use of 4-H members and Young Men's Clubs.

Plans and conducts 4-H activities in cooperation with the 4-H Advisory Committee, the 4-H Council and the Program Committee.

Organizes and maintains in action 4-H Clubs; increases enrollment with the help of the 4-H leaders; promotes the enrollment of the 4-H members in different projects; conducts 4-H contests; selects local candidates to attend State 4-H Camps; National 4-H Congress and National 4-H Club Conference; induces youth to obtain as much education as possible in the school, the farm and home activities so that he will be prepared for his life work; helps youth to be healthful and active member of the family, the club and community.

Helps club members to become chairmen in club meetings, to complete and exhibit their own projects, to take part in demonstrations and public speaking.

Organizes social activities to develop better citizens, induces youth to develop sportsmanship and gets the youth acquainted with the lives of outstanding men and women of the past and the present.

Encourages youth to participate in community problems; gives orientation to rural youth in relation with the advantages of living in the country.

Maintains favorable relations with all Federal and State and local agencies and institutions.

Prepares and submits monthly, annual, and special reports, helps prepare annual reports of county work and analyzes and evaluates his work at intervals as a basis for future improvement.

PROPOSED JOB DESCRIPTION FOR THE COUNTY HOME DEMONSTRATION AGENT,
AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE,
COLLEGE OF AGRICULTURE, THE COUNTY BOARD OF
COMMISSIONERS AND UNITED STATES DEPARTMENT
OF AGRICULTURE, COOPERATING _____ COUNTY
KNOXVILLE, TENNESSEE

The County Home Demonstration Agent works under the leadership of the County Agricultural Agent for Coordination and is responsible to the District Supervisor--Home Economics Programs for Planning and Program Implementation, and in accordance with the memorandum of understanding between the University of Tennessee, College of Agriculture and the United States Department of Agriculture and in accordance with the provisions of the Smith-Lever Act of 1914 as amended, and subject to State and county laws appropriating funds for the Cooperative Extension Service of Tennessee and in accordance with the new revised project agreement No. 8, shares responsibilities with the Agricultural Agent in organizing and directing office and field work of the Extension program including providing Home Economics Program leadership, aids in training new Extension Agents and makes requests for Subject Matter Specialist use. Represents officially the Agricultural Extension Service when she is conducting her work. Supervises the work done by Assistant Home Demonstration Agent and shares with the Agricultural Agent in supervising the work done by the office clerk and other office helpers.

Shares with the county staff the duty of keeping the office well organized, neatly arranged and well equipped. Promotes teamwork atmosphere and keeps office and field home demonstration work well organized.

Under the leadership of the Agricultural Agent and office staff aids in developing a dynamic long-range area projected program; assists in delineating area into communities and neighborhoods; assists with assembling economic and social information relating to urban, rural and farm families; assists area leadership to understand and determine the situation in the county; with county staff analyzes, interprets, and presents county data; through discussion and study of data, helps farm families determine basic problems based on needs; assists in establishing immediate and long-range goals and problems to be solved to reach goals in priority order; assists county staff and advisory planning committee to assemble county program phases in terms of problems to develop a course of action, sets goals to be reached and to write a projected county program.

With Assistant Home Demonstration Agents organizes procedures and methods for carrying out the home demonstration phase of the annual plan of work; helps to find, develop and utilize local leadership (women and 4-H), develops the most effective methods and teaching procedures and aids available; uses farm and home development and other modern methods to achieve greatest progress. Employs the use of method and result demonstrations, tours, radio, press, exhibits, visits, circular letters, slides, movies, mimeographed materials according to individuals or group needs and to encourage farm families to improve their economic and social conditions.

In collaboration with the Agricultural Agent she prepares an annual plan of work for the home demonstration phases of the work; interprets outlook, research, and subject-matter specialists' suggestions.

Aids Assistant Agent organize and maintain actively 4-H girls club and home demonstration clubs. Assists these clubs in preparing a plan of work for the year.

Keeps up-to-date on modern communications concepts and techniques. Prepares and uses effective audio visual aids.

Promotes and maintains good public relations with all civic organizations, governmental agencies, rural and urban families and the public in general. Participates willingly and cooperatively in all related activities that tend to bring good will toward the Cooperative Extension Service.

Keeps self current on scientific findings, new publications, new methods, teaching techniques, communications and opportunities for in-service and professional training. Attends and participates in workshops and annual State conferences to gain new knowledge and for professional improvement.

Evaluates Extension activities, methods and techniques in the home demonstration phase of work, in light of the objectives of the annual plan of work and long-range program as a basis for future improvement.

PROPOSED JOB DESCRIPTION FOR THE ASSISTANT HOME DEMONSTRATION AGENT,
AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE, COLLEGE
OF AGRICULTURE, THE COUNTY BOARD OF COMMISSIONERS AND UNITED
STATES DEPARTMENT OF AGRICULTURE, COOPERATING _____ COUNTY
KNOXVILLE, TENNESSEE

The Assistant Home Demonstration Agent is immediately responsible to the County Home Demonstration Agent and through her to the District Home Demonstration Agent and in accordance with the memorandum of understanding between the University of Tennessee and the United States Department of Agriculture and in accordance with the provisions of the Smith-Lever Act of 1914 as amended, and subject to State and Federal Laws appropriating funds for the Cooperative Extension Service of Tennessee and in accordance with the new revised project agreement for this work, shares with the Home Demonstration Agent the responsibility of giving leadership, advice and educational assistance in counseling, problem solving, citizenship, and with projects and recreation to 4-H Clubs, Farm, Rural and Urban Woman and Home Demonstration Club members.

Assists County staff members to keep office well organized, neatly arranged, well equipped and sees that government property is maintained in good operating condition. In the absence of the Home Demonstration Agent accepts and carries out with dispatch assignments made.

Keeps up-to-date records of voluntary local leaders, 4-H Club and Home Demonstration Club members lists, the Program Planning Committee, 4-H Advisory Committee; utilizes Home Demonstration Clubs and 4-H Club Councils to organize effective committees and to have their assistance in reaching a large number of people of the County.

Cooperates with County staff to organize, plan, prepare, and revise the sociological delineations of the county into communities and neighborhoods. Also assists in the assembling, analyzing and interpretation of socio-economic information, home and youth resources and all human resources to understanding the situation of the County. With the assistance of the County Program Committee helps prepare a long-range projected program that expresses the people's needs and wants in terms of problems, and how to make use of all potentials available to solve such problems. Helps with writing, printing, and distribution of the long-range projected county program and maintains interest of county committee leaders in revising the program to meet changing situations of the farms, the homes and the community.

Cooperates with county staff in training effective voluntary leaders to enable them to work efficiently and that the largest number of persons possible will receive the benefits of Extension education.

Organizes and maintains in action 4-H Clubs and youth work, home demonstration clubs; increases enrollment with the help of leaders; promotes enrollment in 4-H Club and home demonstration club contests within the communities she is working with. Assists organized clubs to prepare and to carry out annually an efficient plan of work to meet the needs and wants of young people and housewives.

Assists county staff in the preparation of an annual plan of work based on the problems, objectives and goals stated in the long-range program, with the assistance of the Program Planning Committee. Prepares a monthly calendar of work and submits it to the County Home Demonstration Agent and

District Home Demonstration Agent.

Organizes own operations procedures and methods for carrying out assigned phases of the county annual plan or work. Provides and disseminates scientific information to individuals and groups; counsels with individuals by telephone, home visits, and office calls. Also uses radio, circular letters, slides, movies, posters, publications, and mimeographed materials to encourage farm families to improve their economic and social situations.

Promotes public relations as a cooperative county team job to help all people of the area to get a better understanding of Extension work. Maintains good public relations with all organizations, agencies, and the public in general. Also participates in local and civic activities that tend to bring good will toward the Cooperative Extension Service.

Keeps self professionally up-to-date by attending workshops, conferences, and reading new publications. Keeps abreast of scientific findings, new methods and teaching techniques. Keeps in close touch with other professional groups and exchanges information with fellow workers and specialists; prepares and submits special, monthly, and annual reports of work done in the county.

Accepts willingly special assignments made by the District Home Demonstration Agent, County Home Demonstration Agent or other Administrative staff members, and expedites assignments with competence.

Evaluates Extension activities, methods, plans and teaching techniques at intervals as a basis for further improvement.



APPENDIX B

JOB REQUIREMENTS FOR COUNTY AGENT

Education

1. B. S. degree in agriculture or related field from a Land-Grant College or recognized university.
2. Be interested in Extension work as a profession and willing to keep current on scientific findings, teaching techniques, and Extension policies.
3. An undergraduate record which would qualify for admission to the graduate school.
4. Graduate studies leading to advanced degrees are highly desirable.

Knowledge

1. A comprehensive knowledge of the principles of adult and youth education and of teaching techniques that should be employed in conducting a successful county program.
2. A thorough knowledge of the history, objectives, scope, problems, and methods of Extension work.
3. A knowledge of the organization, objectives and programs of state and national groups and agencies serving agriculture.

Ability

1. To teach and speak effectively.
2. To analyze and interpret physical, economic, and social conditions and to plan and carry out a program that will improve these conditions.
3. To work effectively with all members of the Extension staff, rural and urban people, county governing bodies and other groups in the

4. Desirable personal traits, ability to effectively motivate people to make needed changes in social and economic conditions as well as the ability to teach and inspire.
5. To develop and initiate new methods that will tend to keep Extension work modern and more effective.
6. To inspire and assume leadership and to effectively influence people.
7. To withstand reasonable requirements and demands of the job by having physical, mental, and emotional stability.
8. To exercise proper judgment when called for and to promote decision making.

Attitude

1. The desire and ability to work harmoniously, effectively and objectively with people.

Experience

1. A minimum of three years of successful experience as an assistant or associate county agent.
2. Should possess a rural background. Farm reared and 4-H Club and FFA experiences are desirable.

JOB REQUIREMENTS FOR ASSISTANT COUNTY AGENT

A. Education

1. A B.S. degree from a recognized college or university with training in agriculture and a deep interest in advanced training.
2. Willing to take additional training leading to an advanced degree.

B. Experience

1. Should possess a rural background. Possess a good average grade in all studies. Farm reared and membership in 4-H Club is desirable.

C. Knowledge of

1. The history, philosophy, methods, objectives, scopes, and problems of Agricultural Extension work. A general knowledge of the organization, objectives, procedures and programs of State and National groups serving agriculture.
2. Some knowledge of the principles of adult and youth education and of teaching techniques.

D. Ability

1. To communicate effectively and to assume leadership.
2. To analyze socio-economic data that may help in the information of an educational program for the benefit of the people in his county.

3. Have an interest in Extension work as a profession. Loyal to the organization. High moral character and emotional stability to withstand the demands of the job.
4. The following characteristics are essential for a good Agricultural Agent: initiative, creative ability, tact, vision, enthusiasm, common sense, resourcefulness, cooperativeness, interest, honesty and ability to work with people.

JOB REQUIREMENTS FOR HOME DEMONSTRATION AGENT

A. Education

1. Bachelor degree in science with a major in Home Economics from a Land-Grant College or a recognized university.
2. Graduate studies leading to advanced degrees are highly desirable.
3. Interest in Extension work as a profession and willing to keep self current on scientific findings, modern methods, teaching techniques and to improve professional training.

B. Experience

1. A minimum of three years experience as Assistant Home Demonstration Agent.
2. Understanding of the history, philosophy and general organization of the Extension Service acquired during pre-service training and practice followed while in college.

C. Knowledge of

1. The objectives, scope, philosophy, history, problems and methods of home demonstration and Extension work.
2. The principles of adult and youth education and of teaching techniques that should be employed in conducting a successful county program.
3. The entire Extension program and vision to project work in order to meet trends affecting the dynamic society in which we live by using the family approach to Extension work.

D. Ability to

1. Work effectively with co-workers, rural and urban groups, organizations and the public.
2. Deal with county personnel and the public and a thorough understanding of human nature and relations.
3. Analyze social and economic conditions which affect home life, and to plan and use educational methods to remedy undesirable conditions.
4. To inspire high morale in the clientele with whom she works and possesses good personal traits, honesty and integrity.
5. To teach.
6. To communicate effectively and to assume community leadership with expectations of county Extension work.
7. Withstand requirements and demands of the job by having physical, mental and emotional stability.
8. Demonstrate initiative, originality and creativeness arising from demands of the job. Should be able to exercise proper judgment when called for and to securely participate in decision-making.

JOB REQUIREMENTS FOR ASSISTANT HOME DEMONSTRATION AGENT

A. Education

1. Bachelor degree in Science with a major in Home Economics from a qualified university.
2. Undergraduate courses on Extension methods and field practice on Extension work is a desirable asset.
3. Undergraduate courses on Food Preservation and Storage, adolescent and adult psychology, community organization, and leadership, rural sociology, and visual aids are highly desirable.
4. Interest in Extension work as a profession and willing to keep self current on scientific findings, teaching techniques and professional training leading to a graduate degree.

B. Experience

1. Understanding of the history, philosophy, and general organization of the Extension Service acquired during pre-service training and practice followed while in college.
2. A Teacher's Certificate is a desirable asset.
3. Farm reared, 4-H Club and FHA work experience is highly desirable.

C. A Knowledge of

1. The objectives, scope, philosophy, history, problems, and methods of home demonstration and Extension work.
2. The principles of adult and youth education and of teaching techniques that should be employed in conducting a successful county projected program.

3. The entire county projected program and vision to project work in order to meet trends affecting the dynamic society in which we live by using the family approach to Extension work.

D. Ability to

1. Work effectively with co-workers, rural and urban groups, organizations and the public.
2. Deal with county personnel and the public and a thorough understanding of human nature and relations.
3. Analyze social and economic conditions which affect home life, and to plan and use educational methods to remedy undesirable conditions.
4. To inspire high moral in the clientele with whom ~~she~~ works, for which good personal traits such as honesty and integrity, tact, vision, initiative, enthusiasm, common sense, resourcefulness, and interest are required.
5. To teach and to write.
6. To communicate effectively and to assume community leadership with expectations of county Extension work.
7. Withstand requirements and demands of the job by having physical, mental, and emotional stability.
8. Demonstrate initiative, originality, and creativeness arising from demands of the job. To exercise proper judgment when called for and to securely participate in decision making.

LINES OF AUTHORITY

The Assistant Home Demonstration Agent is responsible to the County Home Demonstration Agent and through her the District Home Demonstration Agent.



APPENDIX C

PROPOSED STANDARD OF PERFORMANCE FOR THE COUNTY AGRICULTURAL AGENT,
AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE, COLLEGE
OF AGRICULTURE, THE COUNTY BOARD OF COMMISSIONERS AND UNITED
STATES DEPARTMENT OF AGRICULTURE, COOPERATING _____ COUNTY
KNOXVILLE, TENNESSEE

Tasks

I. Working Authority

Working under the supervision of the District Agent for Management for all management aspects and to the District Supervisor--Agricultural Programs for planning and implementation of all agricultural programs and in accordance with the Memorandum of Understanding between the University of Tennessee, United States Department of Agriculture, the provisions of the Smith-Lever Act of 1914 as amended, the new revised project agreement No. 8 for this work, and the memorandum of agreement for Extension work between _____ County and the Extension Service of the University of Tennessee, the county agent in cooperation with the county home demonstration agent gives leadership, supervision, and direction to the Cooperative Extension Service work in _____ County. With county staff help he gives special emphasis to county program development, community

improvement, marketing and the public affairs phases of the State Extension Program to the cooperative agricultural extension work in _____ County. Shares in cooperation with the home demonstration agent full responsibility for making progress in all phases of agricultural extension work. Gives support to and encourages all county personnel in the county in carrying out the United States Department of Agriculture policy designating the Extension Service as the educational arm of the U. S. Department of Agriculture.

II. Assisting
Administration

Serves as the district agent for management representative on assigned administrative matters pertaining to the over-all extension organization in the county; contracts for extension work with the county commissioners of the county, including salaries of county staff, travel, office equipment and supplies. Is responsible for the supervision of all men extension workers in the county and represents the University of Tennessee and the United States Department of Agriculture in planning and conducting all phases of extension work

to be undertaken in the county. Takes the initiative for calling weekly and special staff conferences.

A. Policy

Maintains and keeps current a file of all policy statements, representing approved policies of the University and the state and Federal government. Keeps a handbook of all policy regulations readily available and encourages all county personnel to keep selves informed.

B. Personnel and
Business Management

Cooperates fully with the district agent in management in development of better management principles and policies covering job descriptions, job evaluation, office management, secretarial training, personnel analysis and records. Observes and sees that county staff maintain office hours in compliance with the locally approved county government policy and the policy of the state extension service. Strives to improve the knowledge and skills of county extension staff and the quality of personnel. Counsels frequently with the district agents and in cooperation with the home demonstration agent and all other staff members reviews and plans for

over-all county phases of the work including budgets, needed equipment, plans for long-range projected county programs, program execution, annual plans of work, leader training, county fairs, livestock shows, tours, 4-H camps, and county achievement days.

C. Organization

Aids in interpreting with the county extension staff current copies of the state agricultural extension organization chart for Tennessee, to enable all personnel to understand how agricultural extension work is organized and to show how they function as team members of the Cooperative Extension Service.

D. Budget and Finance

Prepares in cooperation with the district agent--management and the county extension staff a county budget to be submitted to the Board of County Commissioners; works cooperatively with the county staff and county commissioners to secure and maintain adequate county funds for salaries, equipment, office maintenance and office space. Serves as the local official representative of the extension division when necessary to contact or appear before

the Board of County Commissioners or the County Excise Board in behalf of new or continuing appropriations and for other fiscal matters pertaining to extension work in the county.

E. Equipment

Is responsible for equipment and supplies assigned to the county. Maintains and keeps up-to-date an inventory of all office equipment, supplies and demonstration materials.

F. Job Descriptions

Keeps self informed and assists all county extension agents, clerical and secretarial staff in the county in interpreting and making the proper use of a standard of performance and job description provided for each job.

III. Working for Human
Development

Assists other agents and leaders to develop and evaluate extension work in the county to the end that extension education will contribute to its maximum in effecting desirable changes in attitudes, skills, and knowledge of the people. Encourages individual growth of county personnel and leaders by means of counseling and conferences.

IV. Developing County Program

A. Organize Counties

Working with District Supervisors for programs provides leadership for and shares with home demonstration agent and other staff members in the initiation of long-range planning, program development and projection, and the necessity for revision of this program as needed. Works toward an effective organization in the county, both rural and urban, to accomplish the job. (The delineation of counties into communities and/or neighborhoods and the expansion of the neighborhood leader system is a vital objective.)

B. Leadership

Trains and supplies adequate leadership in setting up effective voluntary local leadership representative of all areas and major interests in each county. (Extension work is most effective when directed through leaders who help people to help themselves.)

C. Background Information

The County Extension staff in cooperation with state staff and subject matter specialists, assembles physical, economic, and social information needed

to help rural and urban families understand county and community situations. Encourages the leadership in the county to survey all agricultural, home, and all non-agricultural resources; and to make an adequate inventory of all human resources of the county.

(these sources of fact finding data will help leadership in determining the real problems in the counties.)

D. Planning and Projection

Assists leaders with analysis, interpretation and dissemination of the background information to the various groups in the counties. Assumes the leadership with the home demonstration agent, county extension staff, and the county program development and projection committee in developing a county program in terms of problems which results in a more effective use of agents' time. Assists them in writing and printing long-range county projected program; distributes and interprets the program to other interested leaders and the public. Keeps program current by timely revisions.

V. Making Annual Plans of Work

Takes the initiative and in cooperation with the home demonstration agent and other

staff members prepares a realistic and effective plan of work for the county which is developed with the assistance of the county program development and projection council. Submits the completed plan of work to the district supervisor for programs by the date required. Interprets annually outlook information to leaders and other interested parties in the county following the outlines prepared and made annually by the specialists. Counsels with the district agent periodically on plans being developed for the county.

VI. Developing
Program Operations

Gives information to and works closely with the district agent for programs and other staff members on organization and on methods and teaching techniques to be used in carrying out the annual plan of work, and to include working with extension sponsored groups, commercial and industrial concerns, individuals and the public. Encourages and gives assistance in developing procedures and methods that will result in effective

dissemination of subject matter, stronger leadership, and general acceptance of the county projected program; plans for and coordinates specialists' assistance in the county. Works with other staff members in the county to assist them with problems, study progress, and to appraise all phases of the work including 4-H Club work.

VII. Carrying Out Special Intensive Methods

Gives special direction under guidance of district agent for programs in the preparation of program development and projection including Farm and Home Development, Rural Development, Neighborhood Progress Work, and 4-H Club work as it applies to the county.

VIII. Promoting Professional Improvement

Keeps self current on scientific findings, new publications and teaching techniques. In cooperation with administration encourages and helps provide opportunities for in-service and graduate study for all county staff members. Attends and participates in field days with representatives of the research division of the university in special training events and other meetings. Visits experi-

ment stations and result demonstrations to observe results of research and to disseminate the information to the public either by planned meetings for county people at the experiment station or by other appropriate means.

**IX. Promoting Agency
and Organization
Relationships**

Keeps in close contact with local and county leadership and county governing bodies and keeps them current on Extension work and Extension policies. Attends and participates in programs of farm organizations, cooperative associations, civic clubs, bankers' organizations, business and industrial groups. Encourages other county Extension workers to participate in those activities that tend to foster good will and aid in the execution of Extension work.

**X. Assisting Public
Relations**

Maintains good public relations by conducting a program that develops in the mind of the general public an awareness of and appreciation for the Extension program of education and service. Effectively cooperates with other divisions and colleges of the university, governmental agencies, farm and home organizations, cooperatives, commodity groups, civic and trade groups,

and elected officials.

XI. Expediting Public Policy

Works closely with district agent for programs in keeping self and other county workers informed in the effective use of factual information for public affairs discussions. Develops in the minds of the public a clear understanding and better appreciation of the causes, nature, and effects of local, state and federal governmental participation in the affairs of every day living, including price supports, production controls, monetary policy, imports and exports, financial aid to education, national defense, and foreign aid.

XII. Securing Specialist Assistance

Confers with district agent for programs relative to subject matter specialist assistance needed in the development and carrying out of county Extension plans of work. Requests subject matter specialists needed to assist in training leaders and in keeping self informed. Keeps district agent informed relative to specific subject matter needed by the county in carrying out the plan of work.

XIII. Performing Special Assignments

Accepts special assignments made by the director or district agent, including

state fairs and livestock shows, committee work (evaluation, 4-H, etc.). Meetings when requested by director or district agent on watershed development work, Rural Development (as it applies), field days at experiment stations, special programs (civic clubs), and emergency programs.

XIV. Making Reports

Takes the initiative for seeing that the annual narrative and statistical reports of all personnel working in the county are accurately prepared and mailed to the state office on time. Prepares individual monthly reports and submits to district agent. Prepares and presents expense vouchers for travel; requests annual and sick leave in accordance with regulations. Prepares such special reports as may be requested by the administrative or supervisory staff.

XV. Evaluating

Analyzes and evaluates at regular intervals all phases of the county program and annual plan of work as a basis for future improvement. Specific phases will include the concepts of the job, the use of advisory groups and related extension

committees, project and other leaders,
planning and carrying out the program
staff working relationships, public
relations, professional improvement and
office management.

PROPOSED STANDARD OF PERFORMANCE FOR THE ASSISTANT AGRICULTURAL
EXTENSION AGENT, AGRICULTURAL EXTENSION SERVICE, UNIVERSITY
OF TENNESSEE, COLLEGE OF AGRICULTURE, THE COUNTY BOARD
OF COMMISSIONERS AND UNITED STATES DEPARTMENT OF
AGRICULTURE, COOPERATING _____ COUNTY,
KNOXVILLE, TENNESSEE

Tasks

Performance Requirements

I. Working Authority

The Assistant Agricultural Agent serves under the immediate supervision of the Agricultural Agent and District Supervisors in accordance with the memorandum of understanding between the University of Tennessee, College of Agriculture, and the United States Department of Agriculture and in accordance with the provisions of the Smith-Lever Act of 1914 as amended, and subject to State, County and Federal Laws appropriating funds for the Cooperative Extension Service of Tennessee and in accordance with the new revised project agreement No. 8 for this work; he performs his responsibilities as delegated by the County Agent and in his absence accepts full responsibilities for the conduct of the work of the county office.

Is charged with the responsibility

of giving advice and educational assistance, mainly with the youth enrolled in the 4-H Clubs and young men's work. He also performs other important tasks assigned by the County Agricultural Agent including Farm and Home Development and Program Development and Projection.

II. Promoting Leadership

Shares the representation of the Director of the Cooperative Extension Service with the Agricultural Agent at district level, in matters pertaining to 4-H Club organization and the performance of many duties related to the entire county program. Keeps informed of the latest research findings and keeps work modern by studying, receiving continuous training, analyzing and organizing information from many sources, to help leaders to accomplish a more efficient work. Stimulates, inspires and provides for the development of voluntary leaders in relation to the 4-H Clubs and young men's work. Enlists, trains, maintains and encourages local voluntary leaders to become competent organizers, interpreters and integraters in community activities of

the 4-H Clubs. Prepares information designed to reach and influence non-participating young people to participate actively in the 4-H Club movement. Maintains 4-H Clubs well organized and directed and promotes the development of leadership among the members.

III. Making Program

Encourages and utilizes 4-H Clubs local leaders and young committee membership to join in planning, program development and projection work with the entire county staff in accordance with the needs and problems affecting the young people.

Provides education, service and action for carrying out his phases of the program employing a wide range of subject matter with the aid of and the application of a number of teaching techniques. Makes use of subject matter material provided by the Federal and State Agricultural Experimental Stations and other recognized institutions, to keep the members of the 4-H Clubs and the farming community abreast of the times.

A. Teaching Methods and Procedures

Provides counseling services to

4-H members, young people and farmers. Makes use of the different teaching devices, method demonstrations, training meetings, other meetings, tours, posters, result demonstrations, conferences, films, slides, leaflets, bulletins, visits and others to assure a more effective education of the 4-H members that he is working with.

B. Communications

Makes use of circulars, newspapers, letters, radio, television and telephone to communicate with the rural and urban people, specially 4-H Club members.

IV. Developing Annual Plan of Work

Prepares own annual plan of work based on the problems, objectives, goals and recommendations submitted by the county program committee. Carries out the plan of work, emphasizing the work to be done with the 4-H Clubs. Prepares a monthly calendar outlining the work to be accomplished with the 4-H Clubs as expressed in the county annual plan of work.

V. Promoting Cooperation and Relationship

Maintains friendly relations within Cooperative Extension Service personnel, with other government agencies, with Agricultural organizations, cooperatives, civic

groups, business organizations and youth organizations of the district.

VI. Conducting Organizations

Organizes and maintains actively 4-H Clubs, 4-H Club Council, 4-H Advisory Committee and other groups dealing with youth. Organizes activities, Achievement Days, National 4-H Week, Rural Sunday, National Achievement Day and others related with 4-H movement.

VII. Accepting Special Assignments

Performs special assignments as delegated in case of disasters and carries them willingly and strive for obtaining good results.

VIII. Working for Professional Improvement

Studies modern technical publications and new teaching techniques. Attends College courses, workshops, conferences and training meetings conducted locally or abroad. Visits Agricultural Experimental Stations to observe the results of research. Keeps in close relationship with other professional groups and exchanges information with fellow workers and specialists.

IX. Promoting Public Relations

Keeps in contact with current events affecting the youth and farm people. Maintains good public relations with the parents of 4-H

boys, leaders, Advisory Committee, 4-H Council and others. Keeps in close contact with Farmers' Cooperatives, commodity groups, civic associations and business organizations to keep the public informed of the activities of the Cooperative Extension Service.

X. Making Reports

Submits monthly, annual and special reports of the work performed in the district. Prepares a monthly travel expense account.

XI. Evaluating

Gives his work self evaluation as Assistant Agricultural Agent and as a basis for future improvement.

PROPOSED STANDARD OF PERFORMANCE FOR THE COUNTY HOME DEMONSTRATION
AGENT AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE,
COLLEGE OF AGRICULTURE, THE COUNTY BOARD OF COMMISSIONERS
AND UNITED STATES DEPARTMENT OF AGRICULTURE, COOPERATING
_____ COUNTY, KNOWVILLE, TENNESSEE

Tasks

Performance Requirements

I. Working Authority

Working under the leadership of
of the County Agricultural Agent for
Coordination, and responsible to the District
Supervisor—Home Economics Programs for
planning and program implementation and
in accordance with the memorandum of under-
standing between the University of Tennessee
and the United States Department of Agri-
culture, effective July 1, 1935, and the
provisions of the Smith-Lever Act of 1914,
as amended, providing for Cooperative
Extension Work, and the State and county
Laws providing for Extension work and in
accordance with the new revised Project
Agreement No. 8, directs the Home Demon-
stration program phases in the county and
supervises the work done by Assistant Home
Demonstration Agents, shares responsibilities
with the Agricultural Agent in supervising

the work done by the office clerk and other office helpers. Represents officially the Agricultural Extension Service when she is conducting her work.

II. Assisting
Administration

Knows, understands and uses as a basis for her daily work the philosophy, objectives, and policies of Extension work. Shares with the Agricultural Agent the responsibilities of the arrangement of the office to maintain a good appearance and to keep it in good operating condition. Keeps self current on district administration of the Extension program and counsels with her immediate supervisor regarding expediting policies, plans and procedures. Assists the Agricultural Agent in organizing and holding meetings of local office personnel to discuss achievements, problems and any needed revision of the plan of work for the area. Promotes teamwork atmosphere at County level maintaining satisfactory relationship among local office personnel. With Assistant Agents helps keep office and field home demonstration work well organized.

III. Making Program

Gives assistance along with the County Extension staff to develop a dynamic long-range projected program as a basis for all Extension work.

A. Organizing County

Helps the Agricultural Agent and county staff in performing a sociological delineation of the area into communities, assists in assembling, analyzing and interpreting socio-economic information, farm and home resources, all known agricultural and non-agricultural resources and human resources needed to understand the situation of the county.

B. Selecting Leaders

Capable, well-trained and efficient voluntary local leaders are the foundation stone of Extension work. Will work along with the Agricultural Agent and staff to accomplish effective leadership in all phases of the home demonstration work. Seeks out, interests, informs and enlists potential leaders.

With the help of Assistant Home Demonstration Agents assists the community in the democratic selection of their own leaders thru meetings held in the community

for this purpose.

C. Training Leaders

Conducts orientation and training for leaders of home demonstration work which includes how to conduct meetings, how to work with people, how to use Extension methods, how to provide recreational facilities for the community and how to recognize problems and seeks for people's assistance in solving them.

D. Planning

Collaborates with the Agricultural Agent and county staff in assembling, analyzing, interpreting and disseminating economic and social information needed to help farm and non-farm families understand county and community situations in terms of problems. Shares with the county staff the organization of the Advisory Planning Committee thru democratic election of representatives by communities in meetings held for that purpose. Gives Committee members training on how to express the people's needs and wants in terms of problems. Helps in training them to make use of all potentials available in solving problems.

E. Writing Program

Shares responsibilities with the county staff to write, print and distribute the long-range projected program. Maintains interest of committee leaders in revising the long-range projected program to meet changing situations of the farm, the home and the community.

IV. Developing Annual Plan of Work

With the help of the Agricultural Agent and county staff organizes procedures and methods for carrying out the home demonstration annual plan of work for the purpose of strengthening leadership, disseminating subject matter information and otherwise furthering the Extension plan of work.

Develops educational plan of home demonstration work based on interests and needs of the families.

A. 4-H Club Work

With the assistance of the Assistant County Home Demonstration Agent organizes, uses and keeps active 4-H girls clubs, the 4-H Advisory Committee and the 4-H Club Council. Assists the 4-H Clubs in making plans of work for year. Collaborates with Assistant Home Demonstration Agent in the selection of 4-H Club leaders for new clubs

and leaders replacements. Is responsible for the active and satisfactory area participation in national 4-H contests regarding home demonstration work.

B. Home Demonstration Clubs

Organizes and maintains active home demonstration clubs and a home demonstration council. Is responsible for the active and satisfactory area participation in State contests regarding home demonstration work.

C. Other Groups

Assists older youth and adult groups of home demonstration work with technical problems.

D. Teaching Methods

Develops, with the cooperation of other members of the County Extension staff, the most effective methods and teaching procedures and aids available for home demonstration work. Uses the Farm and Home Development method to improve the standards of living and satisfaction of farm families, reaching more people and rendering greater services to them. Uses result demonstrations, community meetings, method demonstrations, training meetings, tours, exhibits, farm visits, radio, slides, movies, news articles and circular letters to encourage families to improve their economic and social situation.

V. Submitting Annual
Plan of Work

Collaborates with the Agricultural Agent in preparing and submitting a carefully prepared annual plan of work based on the needs, problems, objectives and goals stated in the long-range projected program. Considers the recommendations submitted by the Advisory Planning Committee in working with problems. Interprets outlook information and suggestions prepared by the subject-matter specialists regarding home demonstration work and uses it in setting goals and objectives and in the preparation of the Home Demonstration phases of the annual plan of work. Also takes into consideration the 4-H and home demonstration clubs activities and work.

VI. Preparing Calendar
of Activities

Helps the District Home Demonstration Agent prepare a calendar of activities relative to home demonstration work. This contains a schedule of the work to be done from day to day, the place and hour where the activity is going to be held, the teaching methods and visual aids she is going to use, and whether the assistance of subject-matter specialists is needed.

VII. Information and Communication

- A. Mass Media
- B. Group Contacts
- C. Individual Contacts

Keeps up-to-date on modern communication concepts and techniques. Works with the Agricultural Agent and County staff to determine when and how to use mass media, group or individual contacts so as to include the whole scope of communications in the county annual plan of work. Prepares and uses effective audio visual aids according to the group. Collaborates with the county staff in keeping the public well informed as to the philosophy and functions of the Agricultural Extension Service and achievements and future goals.

VIII. Promoting Public Relations

Is conscious of her public relations, functions and responsibilities. Promotes and maintains good public relations with all civic organizations, governmental agencies, commerce and industries, rural and urban clientele and the public in general. Also participates willingly and cooperatively in those activities that tend to bring good will toward the Cooperative Extension Service. The Home Demonstration Agent will live in the community where she works to be a part of the community and to think and feel as

community members do. She strives to be a respected and liked member of the community. Keeps self well informed of other agencies' plans of work and promotes cooperation between the Extension Service and them.

IX. Accomplishing Professional Improvement

Keeps self up-to-date on latest scientific findings and recent publications. Attends training meetings chaired by the Agricultural Agent and superior officers for training to do a better job. Attends periodic lectures given by Specialists, studies modern technical publications and takes advantages of in-service training.

X. Accepting Special Assignments

Accepts willingly special assignments made by superior officers. Carries out the assignments with competence and strives toward obtaining full results.

XI. Making Reports

Prepares and submits individual, annual, special and monthly reports as required.

XII. Evaluating

Makes constant evaluation of Extension activities of the home demonstration phase of work, methods and techniques in light of the objectives of the annual plan of work and long-range program. Annually makes

a systematic self evaluation oriented by the District Home Demonstration Agent to determine volume and quality of work done. Helps Home Demonstration Agents assisting her in the evaluation of activities they conduct through the year. She assists with the evaluation of the Assistant Home Demonstration Agents in her area. Shares responsibility with the Agricultural Agent in evaluating the work of the office clerk.

GRANT COUNTY, OREGON

PROPOSED STANDARD OF PERFORMANCE FOR THE ASSISTANT HOME DEMONSTRATION
AGENT, AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE,
COLLEGE OF AGRICULTURE, THE COUNTY BOARD OF COMMISSIONERS
AND UNITED STATES DEPARTMENT OF AGRICULTURE, COOPERATING
 COUNTY, KNOWVILLE, TENNESSEE

Tasks

Performance Requirements

I. Working Authority

The Assistant Home Demonstration

Agent works under the immediate supervision of the County Home Demonstration Agent and through her is responsible to the District Home Demonstration Agent and in accordance with the provisions of the Smith-Lever Act of 1914 as amended, and subject to State and Federal Laws appropriating funds for the Cooperative Extension Service of Tennessee and in accordance with the new revised project agreement No. 8 for this work. Shares with Home Demonstration Agent the responsibility of giving leadership, advice and educational assistance in counselling, problem solving, citizenship, and with projects and recreation with 4-H Clubs and home demonstration club members and shares with the Home Demonstration Agent in the performance of other important tasks.

Assists Home Demonstration Agent in the arrangement of the office and in her task of taking care of the office property as well as to maintain it in good operating condition.

II. Promoting Organization

In the absence of the Home Demonstration Agent accepts and carries out with dispatch assignments made. Keeps up-to-date official records of voluntary local leaders, 4-H Clubs, Home Demonstration Clubs, Result Demonstration in the neighborhoods and communities she is working with. Assists Home Demonstration Agent in keeping up-to-date records of Planning and Program Committee, 4-H Club Advisory Committee, the 4-H Club and Home Demonstration Club Council to have available active committees and to have their assistance in reaching a large number of people. Helps the Home Demonstration Agent in training these leaders to keep them current and working efficiently.

III. Promoting Teamwork Climate

Helps at all times to maintain good relationships between members of the local office and the public in general.

IV. Making Program

A. Organizing County

Assists Home Demonstration Agent and County staff in the preparation and periodic revision of sociological delineations of the County into neighborhoods and communities. Assists in the assembling, analyzing, and interpretation of socio-economic information, home resources and all human resources needed to understand the situation of the County. Assists with an analysis and with the interpretation of the facts assembled to discover the real problems of the County.

B. Training Leaders

Assists in training effectively voluntary local leaders representatives of all communities and interested in assisting with the planning, developing, and carrying out county home demonstration work. With staff help conducts orientation and training for leaders, the conduct of meetings, working with people, use of Extension methods, development of recreational facilities for the community or neighborhood, and the identification of problems and assisting people in solving them.

C. Planning

Gives assistance to the county staff in analyzing, interpreting, and disseminating socio-economic data of interest and value to

various groups of people and leaders in the neighborhood or community worked with, so they can visualize and state the overall county projected program in terms of problems. Helps in the training of the planning committee members on how to express the people's needs and wants in terms of problems; and how to use all potentials available to solve such problems.

D. Writing Program

Helps in the writing, printing, and distribution of long-range projected county program prepared according to the problems enumerated at the program planning committee meeting. Helps to maintain interest of county committee leaders in revising, as needed, the long-time projected program to meet changing situations on the farm, the home and the community.

V. Developing Annual Plan of Work

From the county annual plan of work she develops an individual annual plan of work through organized extension groups and rural and urban families within the neighborhoods and/or communities she is working with. Helps agents and committees to make a transition from long-range county

projected program to annual plan of work.

A. 4-H Club Work

Organizes and maintains active 4-H Clubs. Assists these clubs in making plans for year and in the selection of 4-H Club leaders for new clubs and leader replacements.

Promotes participation in 4-H Club National Contests. Assists the Home Demonstration Agent in the organization of the 4-H Club Council and in special activities such as Achievement Day, National 4-H Club Work, and other related 4-H Club activities.

B. Home Demonstration Club Week

Organizes and maintains active Home Demonstration Clubs. Shares responsibilities with the Home Demonstration Agent in the organization of the Home Demonstration Club Council and special activities such as National Home Demonstration Club Week, Achievement Day, etc.

C. Other Groups

Assists technically older youth and adults within the neighborhoods or area she is working with.

D. Teaching Methods

Develops, with the cooperation of other members of the county Extension staff, the most effective methods teaching procedures as farm and home unit approach, method demon-

strations, training meetings, result demonstrations, tours, posters, conferences, films, slides, leaflets, bulletings, visits, 4-H camp, radio, TV, and other methods to assure a more effective education to all groups she is working with.

VI. Making County Annual Plan of Work

As a team member of the County staff assists with the preparation of an annual plan of work based on the problems, objectives, and goals stated in the long-range projected program for the neighborhoods and communities she is working with. Interprets outlook information and subject matter specialists suggestions and other information which will be helpful in the preparation of the annual plan of work.

VII. Preparing Calendar of Activities

Through the County Home Demonstration Agent submits to the District Home Demonstration Agent a monthly calendar of activities, prepared from the annual plan of work and containing the work to be done daily, place where the activity is going to be held, method she is going to use and assistance from subject matter specialists that is needed.

VIII. Information and Communications

- A. Mass Media
- B. Group Contact
- C. Individual Contact

Works with county staff in determining mass media information aids, and where on the farm and in the home direct contacts should be made. Cooperates with other members of the County Extension staff in keeping the public well informed as to the philosophy and functions of the Agricultural Extension Service.

IX. Promoting Public Relations

Maintains good public relations with 4-H Club girls, 4-H Club parents, leaders, program planning committee members, 4-H Club Council, home demonstration club members, housewives and public in general. Promotes and maintains good public relations between county staff members, civic organizations, agencies, governing bodies and the public in general by promoting good will and understanding. Also participates in those activities that tend to bring good will toward the Cooperative Extension Service.

X. Accomplishing Professional Improvement

Keeps self informed of scientific findings, new publications, new methods, teaching techniques, communications, and opportunities for in-service and professional training. Also participates in workshops, and annual state conferences to obtain information

to make self a more effective worker and for professional improvement.

Keeps in close touch with other professional groups and exchanges information with fellow workers and specialists.

XI. Making Reports

Prepares and submits monthly and annual reports. Prepares an individual annual report and submits it to the home demonstration agent. Prepares monthly travel and daily per diem reports and other reports necessary.

XII. Accepting Special Assignments

Accepts, willingly, special assignments made by the District Home Demonstration Agent, County Home Demonstration Agent or other Administrative staff members, and will carry out the assignment with competence and strive for obtaining full results.

XIII. Evaluating

Makes constant evaluation of Extension activities, methods and techniques in light of the objectives of the annual plan of work and long-range program within her area of work. Conducts self-evaluation at intervals oriented by the Home Demonstration Agent and the District Home Demonstration Agent as a basis for further improvement.

APPENDIX D



THE AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE
Knoxville, Tennessee

PERFORMANCE REVIEW OF COUNTY EXTENSION PERSONNEL

Name _____ Supervisor _____

Position _____ County _____ Date _____

Length of Service in Extension _____ In Present Position _____

Review Period January 1, 196 _____ to December 31, 196 _____

Performance review is an integral part of Extension Planning, teaching, supervision and administration. It occurs from time to time whether we realize it or not, whether we do it formally or informally. It occurs in each situation where one person is responsible for or interested in the work of another.

This review has a positive objective--that of developing personnel. It is the purpose of the performance review to improve employees--to encourage them in those elements giving evidence of a strength and to aid them in all elements in which they show a weakness. A sound performance review is based on accomplishment toward program objectives and not on personality factors. The end result of personnel development should be a more effective county Extension program.

Performance review points out specific areas in which Extension agents excel or may be deficient rather than determining an over-all rating in such general terms as excellent, good, fair, or poor. It is a systematic, relatively objective procedure for determining how well a person is performing on his job. It lets the person know where he stands and how well he is progressing.

Performance review will help the agent do a better job by:

1. Increasing the worker's understanding of his job and his level of performance (progress).
2. Increasing the satisfaction agents experience on the job.
3. Assigning personnel to the area where they can make the greatest contribution.
4. Furnishing a basis for in-service training and guidance.
5. Helping the agent to evaluate annually his own work.

Guiding Principles

1. Every effort will be made to review separately the job performance in each area of work.
2. The performance review is an evaluative and educational process for identifying strong and weak points of the agent's performance so that he can improve his effectiveness as an Extension worker.
3. Honest and consistent self-analysis by the agent together with an objective performance review by the district agent is the most productive type of evaluation.
4. Any person making a performance review must be acquainted with the work of the person being reviewed.
5. Job performance review will be recognized and accepted as a regular part of supervision.
6. Every effort will be made to protect the self-respect and confidence of the individual.
7. The performance review should be held annually and will cover the past Extension year, and will be made as soon as possible after the beginning of the next Extension year.
8. This review will be made on job performance rather than personal characteristics.
9. If an agent is not satisfied with his performance review, he may, within ten days after the review, write to the Director requesting a conference for the purpose of discussing it.
10. A job description and standard of performance should serve as a basis for the performance review.

DIRECTIONS FOR MAKING THE PERFORMANCE REVIEW

The performance review will be done by the district agent in individual conference with each agent or assistant agent. A review will not be made when an agent has worked less than one year.

The district agent and the person whose performance is being reviewed will read first the descriptive paragraph concerning the item being discussed. After reading this information, they will then read the descriptive sentences under the line graph concerning the particular item under discussion.

The district agent will, after further discussion with the agent, put an X on the number which corresponds most nearly to the agent's level of performance. The X will be placed on a number, not a fraction of a part between two numbers. An X placed on 4 on the line graph means that the agent's performance is average as described in this guide. No attempt is being made to score his performance with the hypothetical average of all workers in his classification.

An agent to be designated as outstanding must do what is described as average performance, and, in addition, meet the requirements listed under outstanding.

There will be at the end of each of the items reviewed, a place for any appropriate remarks that the district agent may want to make concerning the agent's performance in the area.

A profile chart will be made of the agent's level of performance on each item checked. This will give the agent a quick way to see his performance level on the various items. By plotting his performance levels in different colors, he may compare one year with another.

A copy of the completed form will be given the agent at the conclusion of the performance review. A blank copy will be left with the agent who has worked less than one year.

The following areas of the county Extension agent job performance will be reviewed:

1. Planning the county program
2. Carrying out the Annual Plan of Work
3. Evidence of effective educational work
4. Working relationships
5. Public relations
6. Office Management
7. Professional improvement.

Definitions of the numbers on line graphs

Number one (1) indicates that the performance is not acceptable in the Tennessee Agricultural Extension Service.

Number two (2) indicates that the performance is below the desired standard of what is expected of an agent.

Number three (3) indicates performance is acceptable, but the individual is expected to improve.

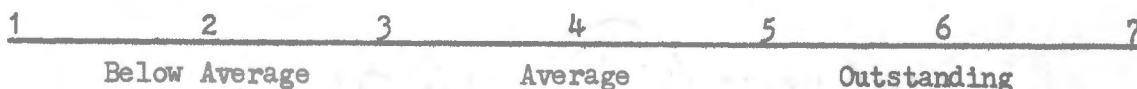
Number four (4) indicates average performance. Performance is satisfactory, but some areas could be improved.

Number five (5) indicates a level of performance higher than average.

Number six (6) indicates outstanding performance.

Number seven (7) indicates the highest level of performance.

Sample Line Graph



Remarks: _____

BASIC CONCEPTS

The supervisor will discuss with the agent, before his performance review conference, the following concepts of Extension work.

1. The fundamental objective of Extension work is ". . . the development of people themselves to the end that they, through their own initiative, may effectively identify and solve the various problems directly affecting their welfare."

Joint Committee Report on
 Extension Programs, Policies
 and Goals
 August, 1948

2. Extension work is basically educational. The charge given to the Cooperative Extension Service is ". . . 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. . . ."

Public Law Number 95
 The Smith-Lever Act
 63rd Congress, 1914

In referring to the foregoing Act, a more recent Extension document explains:

This broad charter clearly identifies Extension's function as education. This is not education in the abstract, but education for action. It is education of an informal and distinct type. It is education directed to helping people solve the various problems which they encounter from day to day in agriculture, home economics and related subjects.

The Cooperative Extension Service Today, A Statement of Scope and Responsibility
April, 1958

3. The Extension worker's primary role is that of a teacher. He must understand people. He must know his subject matter well. He should be skilled in the use of a variety of appropriate Extension teaching methods. He should teach people how to think, not what to think. He believes in and makes use of the principles of democratic action.
4. The Extension worker must understand his place in the organizational structure. As a member of the Tennessee Agricultural Extension Service with approximately 460 professional employees, it is important that each county Extension worker recognize that he is a member of the county Extension staff, a staff member of the University of Tennessee and a representative of the United States Department of Agriculture. The Extension worker should not only represent the University and the USDA, but should, as a member of the staff of each, promote the work of each. In this unique position his actions should be such that they will reflect credit on himself and the institutions he represents. It is expected that each worker will do his job to the best of his ability.
5. Local county volunteer lay leaders assist in the development and implementation of Extension work. They constitute a major distinctive force in democratic living. They express the natural interests of those whom they lead and represent. They are necessary for the effective operation of every group, community or county. They should be encouraged to participate fully in the development of Extension programs.

I. PLANNING THE COUNTY PROGRAM *

1. Has an active county Extension Program Development Committee to assist Extension personnel with long-range (5-year) and annual planning.

Has and keeps active a county Program Development Committee to assist in long-range (5-year) planning (program projection--resulting in a written county program statement) and short-range planning (annual Extension planning--resulting in a written annual county plan of work). The committee assists in collecting relevant facts, analyzing them, identifying major problems, stating program objectives, recommending more promising general courses of action, reviewing and adjusting the program statement periodically as needed and selecting priority program objectives annually for special attention during a given year. (It is recognized, of course, that such a committee participates not only in planning but, to one degree or another, in program execution and evaluation as well.)

Involves appropriate representatives of Extension's clientele, and of other agencies and organizations when needed, and gives due credit for assistance rendered.

Includes members of the Agricultural Extension Committee in the constitution and work of the county Program Development Committee.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
All planning done by commodity or special interest groups, home demonstration and other councils and/or by agents, primarily on an annual basis.			County Program Development Committee assists agents with planning. Study committees have been appointed for the areas of program emphasis (as delineated in the Scope Report) appropriate in the county.		County Program Development Committee, with active Executive and study committees, works cooperatively with agents and necessary resource people in helping to plan a unified county Extension program. Most appropriate areas of program emphasis are given due consideration.	

Remarks: _____

* See Tennessee Extension T & S PD--004 for definitions of terms used.

2. Works cooperatively with the Executive committee and appropriate study committees in planning the county Extension program.

Prepares adequate background information for the use of appropriate study committees. Takes into consideration previous program statements, annual plans of work, annual reports, up-to-date research findings (including those from local, state and other surveys and studies) and other relevant information.

Pre-analyses data to identify serious gaps that may exist between present and desired situations. Effectively presents information to committees so that problem areas emerge, and involves Executive and study committee members in data collection, analysis, preparation and presentation as desirable and possible.

Provides guidance and other needed assistance to committees as they study the situation in their areas, identify major problems, state program objectives, make recommendations for action, periodically review and adjust plans as needed and annually select priority program objectives to receive attention in the Extension program. Effectively makes use of generally accepted principles and procedures for group action as they may prove to be applicable in various committee situations.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		
Little or no background information developed for planning groups. Program plans based mainly on desires of agent(s) or special interest groups. Few or no study committees appointed and functioning.			Background and outlook information prepared and/or made available by agent at planning meeting(s). Program reflects needs and problems of county people based on relevant facts and experiences of the people. Committees are functioning	Agent guides committee members by effectively developing and presenting adequate background information. Program is based on needs of people as determined cooperatively by committees, agent(s) and resource people. Committee work is effective.		

Remarks: _____

3. Develops an adequate long-range program statement for the county.

Takes leadership in developing with the county Program Development Committee a written program statement including: 1) a brief situational statement; 2) a presentation of major problems; 3) a statement of program objectives, and 4) a brief statement of recommended ways for working toward the objectives. Makes provision for periodic study and revision of county program statement.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Has three separate program statements for agriculture, homemaking and youth. Little coordination of plans evidenced			Has one coordinated program statement covering the work to be done by all county staff members.		Uses program statement as basis for program development. Has definite plans for periodic revision and rewriting.	

Remarks: _____

4. Develops a realistic, written annual county plan of work.

Works with the county Program Development Committee, and Executive and Study committees thereof, in the selection of priority program objectives from the program statement to receive attention during the year ahead. Works with other staff members and members of the Agricultural Extension Committee in developing an annual plan of work designed to help attain priority program objectives selected. It includes: 1) an outline statement of the priority program objectives selected; 2) a statement of the Extension workers' teaching objectives for the year, including who will be taught, what the nature of the subject matter will be, and which behavioral changes in the audience will be sought; 3) a schedule for proposed teaching, including methods that will be used, agents who will be responsible, specialist or other assistance that might be required, when teaching will take place, where it will be done and evaluative techniques that will be used to measure progress, and 4) a condensed calendar of events indicating items scheduled monthly. Provides for coordination of all Extension teaching and activities in a plan for unified staff effort.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Priority program objectives not selected from (or lacking in) program statement. Audience not well-defined. Work not calendarized.			Plan is usable and easily understood. Has selected a reasonable number of priority objectives for the year. Work calendarized.		Selected priority program objectives from program statement with assistance of Program Development Committee. All staff members share in responsibility of initiating action in some phases of plan. Scheduled adequate time for planning, professional improvement and preparation for teaching.	
Remarks : _____						

5. Teaching objectives clearly stated in annual plan of work.

People learn best when they have clearly-stated, well-defined measurable objectives to guide them. Agents work best when they have such objectives. Therefore, teaching objectives in the plan of work should be so stated.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Teaching objectives not clearly stated. Objectives sometimes confused with teaching methods.			Annual plan of work has clearly-stated, well-defined teaching objectives.		Teaching objectives definitely related to priority program objectives selected from program statement. Audience well-defined, subject specified and desired behavioral change indicated.	
Remarks : _____						

6. Extension teaching methods well-defined.

The teaching methods employed by the Extension worker directly influence

the effectiveness of his efforts. In planning the learning situations and arranging the teaching activities, the Extension worker should use a variety of appropriate teaching methods.

Research indicates that, as the number and variety of teaching methods used increase, families (and individuals) tend to adopt a greater number of approved practices. If exposed to as many as five different methods, approximately seven out of eight families receiving Extension information changed their behavior. Repetition in a variety of ways is an accepted educational principle.

The teaching methods may be grouped into three categories according to use.

- a. Individual contacts--farm and home visits, office calls, telephone calls, personal letters and result demonstrations.
- b. Group contacts--method demonstration meetings, leader training meetings, lecture meetings, conferences and discussion meetings, meetings at result demonstrations, tours and miscellaneous meetings.
- c. Mass contacts--bulletins, leaflets, news stories, circular letters, radio, television, exhibits and posters.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Not more than two teaching methods scheduled for each teaching objective.			At least four appropriately selected teaching methods scheduled for each teaching objective.		A variety of at least six appropriately selected teaching methods scheduled for each teaching objective.	

Remarks : _____

- 7. Trains county Program Development Committee members and other local leaders to carry out assigned responsibilities in planning.

Any person selected to serve as a member of a Program Development Committee is entitled to know what is expected of him and the committee(s) of which he is a member, and how to do committee work effectively. Specific training should be provided to acquaint members with: the duties and responsibilities of committee officers and members; how to conduct group discussion; how to analyze factual information, identify problems and state objectives, and where and/or how to find reliable information needed.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Not more than 25% of Program Development Committee members received training.			At least 50% of committee members received training in study committee or other sessions.		At least 75% of committee members received training.	

Remarks: _____

8. Recognizes opportunities for providing educational assistance.

Continuously looks for, recognizes and utilizes opportunities and needs to provide additional educational assistance needed over and above that called for in the annual plan of work.

Recognizes and makes maximum effective use of resource people in providing educational assistance.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Fails to recognize and provide activities for needed special educational assistance.			Recognizes and provides special educational assistance for some of the needs not called for in the plan of work.		Recognizes and provides special educational assistance for all major needs not included in the plan of work.	

Remarks: _____

9. Evaluates the planning process and the resulting written documents.

Agent works cooperatively with the county Program Development Committee in analyzing strong and weak points of the planning process. An effort is made to discover improved ways to use in future planning. Evaluation may be formal or informal. It should be done in terms of accepted criteria established for long-range and annual planning and the written documents that result (program statement and plan of work respectively). Rating sheets available for such evaluation include Tennessee Extension T & S PD--111a and 211a.

1 2 3 4 5 6 7

Below Average Average Outstanding

Little or no evaluation of the planning process.

Agent occasionally evaluates the planning process and resulting written documents in terms of established criteria (see PD-111a and 211a).

Agent(s) and Program Development Committee members regularly evaluate in terms of criteria and improve the process and written products in light of findings.

Remarks : _____

II. CARRYING OUT THE ANNUAL PLAN OF WORK

1. Makes a continuous effort to effectively carry out the annual plan of work.

Work is guided by the teaching objectives set forth in the annual plan of work.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Little or no reference made to plan of work during year. Program effort based upon routine events.			Plan of work used as a guide during year. Progress checked each month toward carrying out plan.		A continuous effort is made to carry out plan of work. Work guided by teaching objectives set forth in annual plan.	

Remarks: _____

2. Effectively uses a variety of appropriately selected teaching methods.

These will include individual contact methods, group methods, and mass media methods. Methods may also be classified according to form: written, spoken, or visual.

People are influenced by Extension teaching to make changes in their behavior. The degree to which people are influenced by Extension teaching is usually in proportion to the number of Extension teaching methods used, such as meetings, demonstrations, bulletins, news stories, radio talks, personal visits, and other teaching methods.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Not more than two teaching methods used for each teaching objective.			At least four appropriate teaching methods used for each teaching objective.		A variety of at least six appropriate teaching objective.	

Remarks: _____

3. Uses personal contacts effectively.

Personal contacts should be made with the idea of doing educational work. If a visit is a service to the family, it should, also, be made educational. Leave a clear impression of the purpose of your visit. Farm and home visits and other personal contacts contribute greatly to the effectiveness of the teaching done through meetings, the press, radio, television and circular letters.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		

Not business-like.
Little or no assistance
given by personal
contacts.

Personal contacts are
educational, friendly,
business-like, and with
a purpose.

Contacts well planned.

Remarks: _____

4. Uses group methods effectively.

Effectively uses appropriate group methods, such as method demonstrations, tours, field days and discussions to accomplish teaching objective(s). Meetings provide satisfying experiences and lead to action the majority of the group thinks desirable. Physical arrangements conducive to learning are provided.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		

Very little preparations
made for meetings.
Purposes of meetings not
understood by audiences.

Group methods used
effectively. Purposes
of meetings clearly
understood by
audiences. Meetings
provides satisfying
experiences.

Carefully planned meetings
are well attended. Increased
attendance sought by
proper planning. Partici-
pants motivated to take
action to work toward
objectives.

Remarks: _____

5. Uses mass media effectively.

Wise use of mass media enables Extension workers to greatly increase their teaching efficiency. Publications, news stories, circular letters, radio, television, exhibits, and posters are used to provide helpful repetition for those contacted personally or through groups. They also make possible the dissemination of information to a larger and different clientele.

In his work with mass media, the agent maintains a high level of professional performance.

Mailing lists are kept current.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
<p>Uses available mass media only occasionally.</p>			<p>Mass media regularly used in carrying out the plan of work. Has weekly newspaper column or feature news stories or provides information for same. Uses attractive, well-written circular letters.</p>		<p>regular newspaper column or articles and radio programs (if radio station is located in county). Develops educational materials as needed by county people and provides them to newspapers, radio and TV stations located in the area. Keeps public well informed of timely publications.</p>	

Remarks: _____

6. Delegates and shares responsibilities with staff, committees, and leaders in carrying out the plan of work.

Provides for wise distribution and efficient use of time of self, county staff, committees, and local leaders. Puts first things first.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
<p>Agent does most of the work. Delegates very few responsibilities to committees and leaders.</p>			<p>Definite responsibilities shared with people in carrying out the plan.</p>		<p>Wise distribution and efficient use made of time of persons involved in carrying out the plan. Provides opportunities for growth of self, staff, and leaders.</p>	

Remarks: _____

7. Involves public agencies and other organizations in implementing the plan of work.

Many of the activities of the county Extension staff provide opportunities for involving other agencies and organizations in implementing the county Extension plan. When other agencies or organizations are involved, they should be brought in at the planning stage and should be given due credit for their assistance in both planning and implementation.

1 2 3 4 5 6 7

 Below Average Average Outstanding

Little active cooperation with other agencies and organizations.

Agencies and organizations involved, when applicable, in carrying out the plan.

Uses effective approaches in securing cooperation from other agencies. Attends planning meeting of other agencies and organizations in order to coordinate related Extension activities.

Remarks: _____

8. Provides opportunities for leadership development.

Throughout every day of Extension work, we need to seek and even create situations through which we can provide training and practice in leadership and problem solving.

Practically every Extension activity provides such ready-made opportunities for local leaders. Committee work, demonstrations, preparing reports, business meetings, field tours, project teaching, program planning and subject matter meetings are a partial list of some of the day-to-day opportunities that agents can use to develop leadership capacity and skills. Jobs assigned a local leader must be within his experience and skill to handle.

A leader training meeting is a meeting of local leaders who receive specific training that will help them to do a better job of carrying out their responsibilities. The agent provides continuous leader training and includes planned leader training as a specific section of general

meetings whenever possible.

1 2 3 4 5 6 7

Below Average

Average

Outstanding

Very few opportunities made available for leadership training and development.

Seeks and develops situations for leadership training and practice. Leader training meetings held during the year.

Consistently seeks ways to develop leaders. Provides many different situations to train leaders. Leaders conduct many of the local meetings. Leaders actively participate in most of the meetings.

Remarks: _____

9. Uses sound, up-to-date subject matter information.

Provides information that is sound, up-to-date and approved by the appropriate subject matter specialist, University of Tennessee, or U. S. Department of Agriculture, or other research material of an authentic nature.

When in doubt about the validity of subject matter, the agent checks with the appropriate subject matter specialist.

1 2 3 4 5 6 7

Below Average

Average

Outstanding

Some subject matter information used is out of date when more recent information is available.

Competent in subject matter areas concerning major enterprises in the county.

Uses verified, up-to-date research information. People respect agent's competence in all areas of program emphasis.

Remarks: _____

10. Evaluates and adjusts aspects of the plan of work as needed.

The purpose of evaluation is to keep us from "jumping" at conclusions. It is to provide a factual basis for making sound judgments. To an

Extension worker, evaluation in this context means determining the progress made toward program and related teaching objectives.

Evaluation provides a basis for improving the effectiveness of the county Extension program. It also serves as a basis for monthly, annual and other reports. It provides evidence to the community of the value of the county Extension program.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		
<p>Minimum amount of evaluation done only during the time of preparing the annual report.</p>			<p>Makes an effort to evaluate results after each major activity in terms of measurable progress made toward program and/or teaching objectives. Reports on evidence of such progress in monthly and annual reports.</p>	<p>Makes evaluation an essential part of Extension teaching. Uses findings of evaluation as a basis for making needed adjustments.</p>		

III. EVIDENCE OF EFFECTIVE EDUCATIONAL WORK

1. Increases participation in community improvement.

Families participate in planning and carrying out community improvement. Extension educational meetings held in each community having a suitable meeting place. Organized community planning and action are increasing.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
<p>Less than 25% of the communities in the county organized and active. Little support and participation in community work by business, agricultural and professional people.</p>			<p>At least 25% of the communities in the county are organized and active. Have held at least one planning or subject matter meeting in each unorganized community during the year. Business, agricultural and professional people actively support and participate in community improvement work.</p>		<p>More than 35% of the communities in the county are organized. Has active county council of community clubs. Community leaders assume primary responsibility for planning and carrying out their community improvement.</p>	

Remarks: _____

2. Increases participation in Home Economics work.

Women participate in planning and carrying out Home Economics work. Extension home economics educational meetings held in each community. Extension home economics work is increasing.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		
Less than 30% of the communities in the county have organized home demonstration clubs or other groups carrying on home economics work.			At least 60 per cent of communities have organized home demonstration clubs or other groups carrying on home economics work. At least one educational meeting held in communities not having organized home economics Extension work. Has an active Extension home economics county council. Evidence that some leaders plan and conduct Extension home economics work.	More than 75% of communities have organized home demonstration clubs or other groups carrying on home economics work. Provides appropriate educational assistance to special interest and other groups.		

Remarks : _____

3. Has increased and active 4-H participation.

A well-balanced 4-H program appealing to both rural and urban youth is being conducted that helps 4-H Club members to become effective members and leaders in club meetings. Provides special training for officers and project leaders. Encourages member participation in demonstration, 4-H talks, public activities, and completion of projects. Encourages the adoption of recommended practices in project work.

1	2	3	4	5	6	7
Below Average		Average	Outstanding			
Less than 25% of the individual club members participated in local, county, and/or state 4-H activities and events. *		At least 50% of the individual club members participated in local, county, and/or state 4-H activities and events.*	More than 75% of the individual club members participated in local, county, and/or state 4-H activities and events.*			

* Local, county and state activities and events such as:

Record Book entries (County and State)
 State 4-H Club Round-up
 Land judging
 County and District Demonstration Day
 Girls' Dress Revue
 4-H Talks
 Judging Teams
 State 4-H Club Congress
 4-H Camp
 Fair Participation
 County Rally

Remarks: _____

4. Has active Test-Demonstration and/or Farm and Home Development work.

Uses such approaches as channels for introducing new practices, ideas, and systems of improved farming and homemaking in the county Extension program. Plans carefully in the selection and development of farms and families to strengthen the Extension program and to serve in demonstrating improved practices and technology. Uses results in program planning and promotion.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		

Leaves most test demonstration and/or activities to other workers. Assists with annual meetings.

Gives some consideration to planning activities and some guidance to selection of families. Willing to help co-workers conduct meetings, tours, and demonstrations. Encourages office staff to be interested and cooperative.

Plans test-demonstration and/or farm and home development activities carefully. Integrates these with other related activities. Active in selecting new farms and planning farm development. Uses farm and home records and enlists aid of participating families in developing Extension program. Cooperates in supplying data, reports, and publicity.

Remarks: _____

5. Has active leadership.

Agent is using a planned approach to leadership development. Leaders encouraged to assist in planning and conducting meetings. Agents may or may not be present when leader conducts meetings. Delegates appropriate responsibilities to program development committee members, officers, and members of other committees. Guides but does not dominate.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Leaders assist in planning and conducting less than 20% of meetings.			Leaders assist in planning and conducting at least one-third of meetings. Leaders accept responsibility willingly. Has active program development committee, county 4-H leaders' council, home demonstration council and/or county council of community clubs.			Leaders assist in planning and conducting more than one-half of meetings. Leaders, under guidance of agent, actively participate in decision making, directing and conducting work. Provides appropriate training for leaders and gives them due recognition for work done.

Remarks: _____

6. Obtains adequate sponsorship of the county Extension program.

Has strong local sponsorship for Extension activities.

1	2	3	4	5	6	7
Below Average		Average		Outstanding		
Little or no local sponsorship of Extension activities.		Has local sponsorship of at least two major Extension activities.				Local people sponsor four or more major Extension activities.

Remarks: _____

7. Causes improvements in agriculture, home economics, and related fields.

An effective educational program should result in changes in peoples' attitudes, knowledge and skills which are reflected in improvements in agriculture, home economics and related fields.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Best example of major educational work during past year resulted in 5% or less of the people in a specified audience adopting recommended practices in agriculture, home economics, or related fields.			Two examples of major educational work during past year which resulted in at least 10% of the people in a specified audience adopting recommended practices in agriculture, home economics, and related fields.		Two or more examples of major educational work during the past year which resulted in 20% or more of the people in a specified audience adopting recommended practices in agriculture, home economics, and related fields.	

Remarks: _____

8. Has county-wide educational activities underway.

Examples of such county-wide educational activities include: DHIA; soil testing; health improvement; library; citizenship; fire protection; result demonstrations; beef cattle performance testing; county blood typing; Brucellosis control; artificial cattle breeding; farm management schools and farm and home safety.

1	2	3	4	5	6	7
Below Average		Average		Outstanding		
Two county-wide educational activities underway.		Five county-wide educational activities underway		Eight or more county-wide educational activities underway.		

Remarks: _____

9. Helps increase net farm and family income.

These returns may be the results of educational efforts such as those concerning pest control, new varieties of crops, use of agricultural chemicals, consumer education, home food production and preservation, farm and home management and clothing construction. It is also recognized that much of Extension work is directed toward developing family happiness and living standards which has no significant economic return.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Little or no evidence of educational work which resulted in increased savings or income.			One specific example of educational work which resulted in a 10% increase in savings or income for one enterprize or management practice for a specified audience, such as grade "A" dairy farmers, home demonstration club members, etc.		Two or more specific examples of educational activities which resulted in more than a 10% increase in savings or income for the enterprizes or management practices for a specified audience.	

Remarks: _____

10. Submits accurate and complete reports on time.

Timely submission of accurate and complete reports reflects the efficiency of the county office and contributes to the development of a more effective state Extension program.

The monthly report is the official time sheet for the Extension work. It serves as a basis for issuing the monthly salary check.

1	2	3	4	5	6	7
Below average			Average		Outstanding	
Reports are neither accurate nor complete; some require second notices.			Reports are accurate, complete and submitted on time. Special reports are submitted within one week after receipt.		Narrative reports reflect work accomplished during the reporting period, and are related to the corresponding statistical reports.	

Remarks : _____

11. Gives priority to educational work in areas where major improvement is needed.

Bases the majority of his teaching efforts on priority program objectives as listed in the plan of work.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Less than 40% of work reported based on priority program objectives as listed in plan of work.			At least 60% of work reported based upon priority program objectives as listed in plan of work.		80% or more of work was based on the priority program objectives listed in the annual plan of work. Definite tie-in seen at nearly all points between annual report and annual plan of work.	

Remarks : _____

12. Is recognized as an educational leader.

Agent's counsel is sought when important decisions in his educational field are being made. Agent serves on various advisory committees and is regarded as the interpreter of research.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Merely attends meetings on important issues convened by other groups. Is reluctant to call meetings concerning new areas of responsibilities.			Agent's counsel and advice sought by others on important issues affecting agriculture home economics, youth work and related fields.		Agent is the county leader in his field of work. Takes the initiative in convening meetings to discuss appropriate issues in his field of work. Looks for new opportunities and new methods for carrying out his job.	

Remarks : _____

13. Has adequate county financial support of Extension program.

County appropriate suggested share of county Extension budget and provides adequate office space.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		

County fails to provide suggested share of the county Extension budget.

County provides its suggested share of the county Extension budget. Office space adequate to needs.

County provides funds above its suggested share of the county Extension budget. Office space is convenient and attractive.

Remarks : _____

IV. WORKING RELATIONSHIPS

1. Cooperates with and promotes teamwork among county staff.

The cooperative nature of Extension work makes it imperative that there be a close working relationship among all members of the county staff. This is necessary in order to do effective planning and carrying out the county program. Agent cooperates and maintains wholesome relationships among office personnel.

Agent works conscientiously to promote teamwork among members of the staff; has friendly, tolerant, tactful and optimistic attitude toward co-workers.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Usually thinks his method the only way. Often fails to keep co-workers informed as to his plans and results. Makes very little effort to promote teamwork.	Consults frequently with other staff members. Strives to promote teamwork among county staff.	Agent looks for opportunities to assist other members of county staff in carrying out the county plan of work. Studies ways to improve teamwork, assists and/or takes the initiative in planning and promoting teamwork.				

Remarks: _____

2. Enlists aid of specialist staff as needed in planning and carrying out the work in the county.

With agriculture, related business, and homemaking becoming more complex, is necessary for agents to seek specialized assistance from the specialist staff. Agents usually request specialist assistance in those areas in which the agents are least competent. It is doubtful if the continued use of the same few specialists over a period of years develops as broad a program as the use of many specialists in different subject matter fields. Specialists can be of great assistance by providing guidance in their specialty. Agent obtains specialist assistance to keep current and to receive needed training.

Uses slides, films, judging kits, research material, bulletins, and other teaching aids prepared by specialists.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Below Average

Average

Outstanding

Takes little or no advantage of specialists' assistance and/or materials.

Regularly obtains same specialists' assistance and/or materials for use in planning and implementation of the county program as needed.

Takes full advantage of specialists' assistance and/or material for use in planning and implementation of the county program.

Remarks: _____

3. Cooperates with farm and commodity organizations.

Cooperates with farm and commodity organizations operating in the county in providing them educational assistance. Involves their officers or representatives in developing and carrying out the county Extension program. This would include organizations such as Farm Bureau, Grange, livestock associations, crop associations, Cooperatives, R. E. A., Soil Conservation District, etc.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Below Average

Average

Outstanding

Attends some of their meetings, but fails to provide educational assistance.

Motivates these organizations to request educational assistance.

Provides educational assistance. Involves their officers or representatives in developing and carrying out the county Extension program.

Remarks: _____

4. Cooperates with civic clubs, chambers of commerce, garden clubs, sportsman clubs, study clubs, and other similar groups.

Provides educational assistance to such organizations operating in the county. Assists them in planning a program that will be helpful to the people in the county.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Below Average

Average

Outstanding

Does not take an active part in the above organizations; rarely attends their functions.

Takes an active part in the affairs of the above organizations when appropriate, either as a member or non-member.

Agent appears on clubs' and organizations' programs and keeps them informed concerning the Extension program.

Remarks: _____

5. Assists in making the weekly county staff conference a democratic planning session and shows willingness to take suggestions.

Participates regularly and wholeheartedly in the weekly staff conference. Shares knowledge, experience, and ideas with staff in developing amore effective program. Agents assists in making the staff conference primarily a planning session for future activities. It is the responsibility of the county agent to see that the weekly county staff conference is held.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Below Average

Average

Outstanding

Poor attendance at weekly staff conferences. Fails to attend weekly staff conferences but leaves weekly plans with secretary to include in the minutes. Hesitant to consider suggestions of others.

Regularly attends and participates in weekly staff conference. Minutes of conference reflect planning done. Considers suggestions of others.

Prepares notes during the week for consideration at the weekly staff conference. Strives to make the conference a business session. Solicits suggestions from others as to how he can do a better job. Analyzes and evaluates suggestions that may be used.

Remarks: _____

6. Plans county travel to make maximum use of joint transportation when feasible.

Due to a limited travel allowance and increased cost of transportation, it is good business to share transportation whenever possible. Better working relationships and public relations are exhibited when only one car from the same Extension office is taken to a meeting.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Very little joint travel made within the county. Often too late to leave at the same time.			Shares transportation with other members of staff when attending the same meeting. Keeps other staff members informed of travel schedule.		Does advance planning for joint transportation. Willing to share transportation with other members of county staff.	

Remarks: _____

7. Keeps secretary informed concerning itinerary.

Plans and schedules itinerary as far in advance as possible. Discusses procedure secretary should follow in contacting him when away from the office.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Seldom keeps secretary informed concerning itinerary.			Usually keeps secretary informed of itinerary.		Almost always keeps secretary well-informed of itinerary and how to contact him.	

Remarks: _____

8. Has a clear understanding of his own job description and those of others.*

Keeps self informed and assists all county staff members in interpreting each other's job description and standard of performance.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Has not read or fails to understand job descriptions and standard of performance of his own and his co-workers.			Has read and understands job description and standard of performance of his own and his co-workers.		Action reflects his understanding of job description and standard of performance for all members of the county staff.	

Remarks: _____

* This item is to be used for discussion purposes only unless or until and adequate job description has been completed for the agent.

V. PUBLIC RELATIONS

1. Maintains effective public relations.

A sound educational program will do as much to develop good public relations as any other factor. Public relations is "good performance" publically appreciated. It involves doing good work over a period of years in such a manner as to develop in the public mind a confidence in and appreciation of Extension work that encourages active interest and cooperation.

Plans should be made to acquaint each of Extension's publics with the county program or aspects of the program and its activities pertaining to that public.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Little or no effort made to inform people of Extension's educational program. No special public relations effort.	A consistent effort is made to keep the public informed about the Extension educational program underway. Special news stories and reports used to inform the people.	A representative group of people throughout the county assists in planning, carrying out the program, evaluating and reporting on progress. Gives due recognition to individuals and groups.				

Remarks: _____

2. Maintains a pleasant, friendly and businesslike office as existing facilities allow.

The county Extension office should reflect credit to the institutions which it represents. The office should be kept clean, neat and attractive. Office kept free of obsolete materials. Chairs are available for people other than agents. Office callers feel welcome and agent appears willing to help.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Office caller not greeted promptly. Telephone calls slow in being returned. Office appearance untidy. Inadequate seating facilities.	People enjoy visiting local office. Subject matter easily found in files and office maintains adequate supply of bulletins	People's needs are promptly taken care of in a friendly, business-like manner. Has repeat clientele.				

Remarks : _____

3. Keeps county court, county Agricultural Extension Committee, state and national legislators residing in the county well informed about Extension activities.

It is very important that the county court, the county Agricultural Extension Committee, and legislators be kept well informed regarding the county Extension program and accomplishments.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Little or no effort made to supply these officials with information concerning county Extension work.			County staff members jointly develop and follow a plan for supplying these officials with information concerning Extension work.		These officials involved in developing the county Extension program.	

Remarks : _____

4. Handles public affairs wisely.

Extension has an important obligation in the area of public affairs and a responsibility to help people understand issues regarding agriculture, home economics and related fields which affect them. In so doing, however, it should be crystal-clear that Extension's function is not policy determination. Rather, its function is to better equip the people it serves, through educational processes, to analyze issues involved on the basis of all relevant facts. It is the prerogative and responsibility of people themselves, individually or collectively to make their own decisions on policy issues and express them as they see fit. Agent will assist in securing factual information concerning the various aspects of the issue but he does not take sides in the discussion.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		
Avoids as much as possible public affairs topics, or shows prejudices.			Provides factual information and guidance in discussing at least one public affairs topic on a community basis.	Provides opportunity on a community basis to discuss two or more public affairs topics. Arranges for background information and assists in constructing alternatives.		

Remarks : _____

5. Builds and maintains close working relationships with communication media personnel.

An important part of our public relations program will be carried out by using the various communication media. Agent maintains good working relationships with all the newspaper, radio and television representatives located in the county. Representatives of these groups participate in county program development activities.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		
Agent has poor working relationship with communication media personnel. Frequently fails to observe deadlines.			Agent has good working relationship with communication media personnel in the county.	Communication media personnel actively participating in county Extension program activities. Agent immediately becomes acquainted with new local personnel in the communication field.		

Remarks : _____

6. Cooperates with the Federal and State agencies located in the county.

Takes the initiative in bringing agencies together to explore ways and means for developing systematic, cooperative work among the agencies. Agent invites other agencies to attend and cooperate in Extension

meetings, field days and other similar events. Agent recognizes the aims, jobs and problems of the other agencies. Gives due credit for assistance from other agencies.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		
Little cooperation with other Federal and State agencies.			Secures cooperation of Federal and State agencies in carrying out the county Extension program.	Attends appropriate meetings held in the county by other Federal and State agencies. Provides effective educational leadership and participates in the programs of these agencies when appropriate.		

Remarks: _____

7. Continually evaluates county Extension staff public relations.

Throughout the year the agent looks back on past events for examples of successful and unsuccessful public relations and analyzes to see the probable causes. Involves all members of the county staff in evaluating county Extension staff public relations.

1	2	3	4	5	6	7
Below Average			Average	Outstanding		
Seldom evaluates county Extension staff public relations.			Regularly evaluates public relations and makes plans to improve.	Keeps file of suggestions for improving public relations. Improves public relations as needed.		

Remarks: _____

VI. OFFICE MANAGEMENT

1. Contacts handled promptly and courteously.

Secretary's desk should be located so that she can greet visitors when they come in the door.

The agents should take time to be interested and to do everything possible to make the visit of the office caller satisfactory and profitable. Agent offers information with a spirit of helpfulness.

Regular office days are publicized and maintained.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	

Improper office management. Slow follow-up on contacts. Fails to make follow-up. Correspondence frequently lays on desk a week or more before answered.

Good office management. Contacts handled promptly and courteously. Gives office caller his full attention. Correspondence answered promptly. Secretary keeps record of all office callers during absence of agent from office.

Secretary keeps agents informed as to number of callers, names, problems, and whether or not their needs were satisfied. Agent knows subject matter material and where to find it and offers information with a spirit of helpfulness.

Remarks: _____

2. Keeps other staff members informed of his activities.

In order to achieve maximum efficiency in the Extension office, agents must plan and work together cooperatively on all phases of the program. Agent should be familiar with the work and activities of all the county workers.

It is the agent's responsibility to see that his secretary has his itinerary so that the office caller or telephone caller can be informed as to where he can be located and what he is doing.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Below Average

Average

Outstanding

One or more staff members not informed as to agent's activities. Secretary frequently does not know the agent's itinerary or the nature of his work.

Keeps staff members fully informed as to his activities. Secretary fully informed about his itinerary, and the approximate time of return.

Agent can be located most of the time he is away from the office. Secretary posts schedule of all major events on a master office calendar.

Remarks: _____

3. Equitably distributes time of the clerical staff among the professional staff.

In many counties, one secretary serves two or more Extension agents. Each agent should plan to share the work of the secretary with other members of the county staff. The staff should plan the priority of the secretary's work during the weekly office conferences.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Below Average

Average

Outstanding

Pushes his work ahead of regularly scheduled work. Frequently works secretary overtime.

Stives to see that the time of the clerical staff is equitably distributed.

Plans work for secretary at least one week in advance. Helps secretaries with any problems pertaining to the job. Little or no after hours work for the secretary.

Remarks: _____

4. Maintains adequate, up-to-date filing system.

Keeps county files according to state-wide filing system adopted in 1960. Work files kept current and conveniently located. Agent keeps in mind that his Extension office is a headquarters for educational information. Secretary should do the filing, but agent should know the system used. File trays should be used on desks. Material should be marked for files as it goes over desk.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Files not properly indexed and labeled. Filing not done regularly.			Material filed according to state filing guide.		Filing is a regular part of week's work. Files kept up-to-date.	

Remarks: _____

5. Has well-trained and efficient secretary. *

The office secretary is the key member on the county team around whom the whole Extension program unfolds. Her telephone "hello," her smile, and her courteous and diplomatic replies to all callers set the atmosphere for the office and make the first impression on the public. Her actions should reflect an attitude of service.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Secretary inadequately trained. Has undesirable work habits and/or attitudes.			Secretary well-trained efficient, and demonstrates good judgment in meeting the public. Work habits and attitudes reflect good supervision.		Secretary has interest and enthusiasm for her work. Demonstrates technical ability in secretarial duties. Knows how to properly use office equipment and where to find information.	

Remarks: _____

* This item is to be used for discussion purposes only and will not be included as an agent profile item.

VII. PROFESSIONAL IMPROVEMENT

1. Keeps up-to-date through systematic participation in in-service training programs.

One thing with which we all agree is that the future will bring more changes and at a faster rate. So, one of the biggest "challenges of change" is to be ready for it. That means professional improvement, or training, in some form. The future success of our organization depends to a large degree on the quality of our training program.

It is the policy of the Tennessee Cooperative Extension Service to encourage its staff to pursue a continuous program of professional improvement. Extension workers who improve their professional ability tend to become more efficient and productive; the opposite also being true. Extension's total training program rests on this assumption.

Agent participates in both optional and required sub-district, district, and state in-service training meetings.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Agent attends only required inservice training meetings.			Agent attends required inservice training meetings and appropriate optional ones as well.		Agent actively participates in inservice training. Is sensitive to inservice training needs and calls them to the attention of the district agent.	

Remarks: _____

2. Has a definite plan for, and carries out, systematic self-improvement through reading and study.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Agent allocates little or no time for keeping self current through systematic reading and study.			Agent attempts to keep up-to-date in subject matter by using his own time to read and study.		Agent allocates sufficient time for keeping self current by building it into his plan of work. Agent effective use of time allocated in plan.	

Remarks: _____

3. Has worked to professionally improve self by formal education courses.*

Such work would include the regular University of Tennessee Winter Short Course for Extension Workers, Extension summer schools, courses at off-campus graduate centers and special problems courses.

1	2	3	4	5	6	7
Below Average			Average		Outstanding	
Has complete not more than three quarter hours of graduate work during past five years. If agent has M.S. degree--no work for credit or audit completed during last five years.			Competed at least six quarter hours of graduate work during past five years. If agent has M.S. degree--three hours work for credit or audit completed during last five years.		Completed at least nine quarter hours during past five years. If agent has M.S. degree--six hours of work for credit or audit completed during last five years.	

Remarks: _____

* This item applies only to those agents who were eligible for formal training.

APPENDIX E

CRANES

FACULTY BIOGRAPHICAL DATA
THE UNIVERSITY OF TENNESSEE
College of Agriculture

1. Name _____ Title _____
2. Home Address _____
3. Headquarters _____
(Give complete address to which official mail should be sent)
4. Date and Place of Birth _____
(Date) _____ (Place)

5. Marital Status _____
6. Wife's Maiden Name (or husband's full name) _____
7. Children--Names and Ages (address if not the same as yours) _____

8. Area of Major Work Responsibility _____

9. a. Educational Background

<u>Degree</u>	<u>Year Received</u>	<u>Institution</u>	<u>Major</u>	<u>Minor</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(Items 9b and 9c to be filled out by Extension personnel only)

b. Additional Quarter Credit Hours (completed since 1956) Above Highest Degree Reported in Item 9a Above.

<u>No. of Quarter Credit Hours</u>	<u>Year Received</u>	<u>Institution</u>	<u>Nature of Course Work or Subject Matter</u>
_____	_____	_____	_____
_____	_____	_____	_____

c. If you reported credit in Item 9b above, how much applies toward an advanced degree? _____
 (Quarter Hours)

10. Record of Service as a staff member of The University of Tennessee

	<u>Position Held</u>	<u>Date of Appointment</u>
First Appointment	_____	_____
	_____	_____
	_____	_____
	_____	_____

11. Employment other than at The University of Tennessee

Employer	Position Held	Period of Service		
		Beginning Date	Ending Date	Total Years
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

12. Affiliations

- a. Church (denomination) _____
- b. Professional (organizations) _____
- c. Scholastic (honorary) _____
- d. Fraternal (orders) _____
- e. Other _____

13. Awards and Honors _____

14. Publications written and published (attach additional sheet if necessary)

15. Parents' Names and Addresses _____
 (indicate if living)



16. Name of Home Town Newspaper _____

Signature _____

Date _____

APPENDIX F

ABSTRACT

TITLE: STRAP--A Stepwise Regression Analysis Program for the IBM 1620 Card System.

AUTHORS: A. R. Colville and L. S. Holmes

PURPOSE: STRAP is a multiple linear stepwise regression analysis program containing extensive provisions for the transformation of input variables. It is useful in determining the relationships between the independent and dependent variables of a set of observations. This relationship is expressed by an equation of the form:

$$Y = A_0 + \sum_{i=1}^n A_i X_i$$

where Y is the dependent variable; X_i are the independent variables; and A_0 and A_i are the constant and coefficients to be determined. The independent variables are added to this equation one at a time, in the order of their apparent significance.

EQUIPMENT SPECIFICATIONS:

The program is written for a basic 1620 card system with or without automatic divide.

SOURCE LANGUAGE:

The program is written in SPS language and will be distributed in compressed form.

TARGET DATES:

Estimated availability of cards and documentation is November 1, 1961.

OTHER:

A. Estimated Timing

Assuming an average problem of 10 independent variables with 10 transformations and 50 observations, the estimated time of execution and output is five minutes with card output and fifteen minutes with typed output.

B. Maximum Problem Size

1. Up to 39 independent variables.
2. Any one of 14 dependent variables.
3. Up to 39 transformation steps using any of 15 different operations and 20 constants.
4. Up to 999 observations.

C. Program Output

1. Number of Independent Variables Considered
2. Dependent Variable Number
3. Number of Observations.
4. Residual Sums of squares and cross products of all variables.
5. Mean value and standard deviation of all variables.
6. Simple Correlation Coefficients between all variables.
7. For each step in the development of the regression equation, the following values are given.
 - a. Error of estimate of the dependent variable.
 - b. F value of the variable added to or removed from the equation at that step.
 - c. Pure constant term.
 - d. Regression coefficients of each of variables in the equation.
 - e. Error of the regression coefficients.
 - f. Square of the multiple correlation coefficients for the equation.

D. Program Options

1. Can punch out transformed variables.
2. Can type out transformed variables.
3. Can type output instead of punching it on cards.
4. Can also be run on a 1620 with paper tape input and output.
5. Can have names of variables included in the output.
6. Can selectively suppress the following outputs.
 - a. Residual sums of squares and cross products.
 - b. Mean values and standard deviations.
 - c. Simple correlation coefficients.
 - d. All of the steps in the development of the regression equation except the final one.

PREPARATION OF INPUT DATA

The input data consists of two decks. The first deck, called the definition deck, specifies the size of the problem and the transformations to be performed on the observations. The second deck, called the data deck, contains the observations. Both of these decks are placed between the program deck for part 2. If the option for giving the names of the variables in the output is elected, then a third deck containing these names must be placed between the program decks for part 2 and part 3.

Definition Deck

This deck must contain the following cards in this order:

Title Card
Problem Definition Card
Disregarded Observations Card
Transformation Constant Cards
Transformation Code C^Ards

A. Title Card

This card has the title of the regression run. It may contain up to 80 columns of alphanumeric information which will be used as a heading for the program output.

B. Problem Definition Card

This card defines the size of the problem, specifies the information desired to be in the output, and contains the minimum F value used in developing the regression equation. The following card columns are to be used for these purposes.

Card Column

- 1-2 Number of independent variables to be read in with each observation (01 to 39)
- 3-4 Number of dependent variables to be read in with each observation (01 to 14)
- 5-6 Number of independent variables to be considered (01 to 39)
- 7-8 The dependent variable number to be considered (01 to 14)
- 10 The names of the variables are included in the output if a 9 punch is present in this column.
- 12 Residual sums of squares and cross products are not included in the output if a 9 punch is present in this column.
- 14 Mean values and standard deviations are not included in the output if a 9 punch is present in this column.
- 16 Simple correlation coefficients are not included in the output if a 9 punch is present in this column.
- 18 Only the last step in the development of the regression equation is included in the output if a 9 punch is present in this column.
- 19-28 Minimum F value to be included in the final regression equation, in excess-fifty floating point notation.

C. Disregarded Observations Card

This card denotes the observation numbers which have been shown to be in error on previous regression runs and should be disregarded. Rather than remove these observations from the data deck, they may be eliminated from consideration by including their three digit observation numbers in ascending order starting in column one of this card. A maximum of twenty observations may be disregarded in this manner. If no observations are to be thrown out, a blank card must be inserted.

Example:

002034 on this card would cause observation numbers 2 and 34 to be disregarded.

D. Transformation Constant Cards

In applying transformations to the input data, constants may be desired. Up to twenty of these constants can be used. These must be entered in excess-fifty floating point notation, 8 constants per card. A negative number is indicated by an X punch over the low order position of the number. The last card of this set of constants must contain all blanks in columns 71-80. For this reason, if just 8 or just 16 constants are desired, they must be followed by a blank card. Also, if no constants are used, a blank card must be inserted. The first constant will be considered by the transformations to be constant number 01, the second 02, etc.

Example:

If three constants are desired (1.0, -35.0, and 0.025) the transformation constant card would contain the following.

511000000052350000004925000000

E. Transformation Code Cards

The transformation operations to be performed on the observations are defined using the 10 digit codes described below. These codes are entered, 8 per card, with a maximum of 5 cards or 40 transformations. The last transformation code must be all zeros to signal the end of the transformations. If no transformations are to be used, a blank card must be inserted. Each transformation code is in the following format:

TTIIJJCCKK

where

TT is the transformation to be performed

II is the number of the variable involved

JJ is the number of the second variable involved (if necessary)

CC is the number of the constant to be used (if necessary)

KK is the number of the transformed variable

Zeros must be entered for elements of the code that are not relevant. Variable numbers from 01 to 39 refer to the 1st through the 39th independent variable, variable numbers from 41 to 54 refer to the 1st through the 14th dependent variable.

Transformations that are provided are as follows:

<u>TT Code</u>	<u>Name</u>	<u>Operation</u>
00	End	End of transformations
01	Add	$X_{II} + X_{JJ} \text{ (or } C_{CC}) = X_{KK}$
02	Subtract	$X_{JJ} \text{ (or } C_{CC}) - X_{II} = X_{KK}$

<u>TT Code</u>	<u>Name</u>	<u>Operation</u>
03	Multiply	$X_{II} \times X_{JJ} \text{ (or } C_{CC}) = X_{KK}$
04	Divide 1	$X_{JJ} \text{ (or } C_{CC}) / X_{II} = X_{KK}$
05	Divide 2	$X_{II} / X_{JJ} \text{ (or } C_{CC}) = X_{KK}$
06	Log	$\text{Log } X_{II} = X_{KK}$
07	Ln	$\text{Ln } X_{II} = X_{KK}$
08	Exp ¹⁰	$10^{X_{II}} = X_{KK}$
09	Exp ^e	$e^{X_{II}} = X_{KK}$
10	X ^C	$X_{II}^{C_{CC}} = X_{KK}$
11	Sine	$\text{Sin } X_{II} = X_{KK}$
12	Cosine	$\text{Cos } X_{II} = X_{KK}$
13	Summation	$i = JJ_{X_i} = X_{KK}$ $i = ii^1$
14	Replace	X_{II} moves to X_{KK}
15	Test	If X_{II} is negative, go to transformation number JJ If X_{II} is positive, go to transformation number KK If X_{II} is zero, go to the next transformation.

This flexible transformation system provides the ability to perform a number of successive operations on the same variable; thus it is possible to use any polynomial or exponential expression as a variable. For example, the sequence of codes to build a variable of the form:

$$X_1 (X_3^2 + X_2 + C_2) / X_5 = X_{10}$$

is as follows:

<u>Code</u>	<u>Operation</u>
0303030010	$X_3 \times X_3 = X_{10}$
0110020010	$X_{10} + X_2 = X_{10}$
0110000210	$X_{10} + C_2 = X_{10}$
0510050010	$X_{10} / X_5 = X_{10}$
0601000039	$\log X_1 = X_{39}$
0310390010	$X_{10} \times X_{39} = X_{10}$
0810000010	$10^{X_{10}} = X_{10}$

*Variable 39 was used as temporary storage and should be out of the range of the number of independent variables considered.

Data Deck

Each observation is contained on two sets of cards, one set of independent variables and one set for dependent variables. The variables are entered on the first 70 card columns in excess-fifty floating point notation (7 variables/card). A negative number is indicated by an X punch over the low order digit of the number. The last 10 card columns are used for identification purposes as follows:

Card Column

71	If a 9 punch is present on the last card of a set, then an extra card will be read in with that set.
72-75	Regression Number, to identify the data.
76	0 indicates independent variables 1 indicates dependent variables
77	Card Number for each set. Independent variables may go from 1 through 6, dependents from 1 through 1.
78-80	Observation Number. <u>These must be in ascending order with the last observation being numbered 999.</u> This causes the program to go on to Part 2.

Variable Name Deck

If the option to give the names of the variables in the output is selected, then this deck must be placed between the program decks for part 2 and part 3. One card must be used for the name of each independent variable considered and one for the name of the dependent variable. These cards may contain up to 38 columns of alphameric information, and are arranged in ascending order with the dependent variable name last.

Operating Instructions

1. Assemble program and input decks as follows:

Program Part 1
 Definition Deck
 Data Deck
 Program Part 2
 Variable Name Deck (if necessary)
 Program Part 3
 Two blank cards

2. Clear memory---Insert, 310000300002, Release, Start; then Instant Stop, Reset
3. Set Console Switches
 - Sw 1 on to punch out transformed data
 - Sw 2 on to type out transformed data
 - Sw 3 on to type output instead of punching it
 - Sw 4 on if program is to be run as a paper tape program.
4. Load assemble decks into read hopper, then press load button. Program will load Part 1, type out LINEAR STEPWISE REGRESSION ANALYSIS, then begin reading data.
5. If the data deck is not punched or assembled properly, the message DATA OUT OF ORDER will be typed out and the program will halt. To resume processing, remove the last two cards from the read stacker and determine which observation number was being worked on. Remove the cards from the read hopper and non-process run out cards into the read select stacker. Correct the error condition and then reload the cards into the read hopper starting with the first card of the observation which was in error. Press Reader Start then Start to continue with the processing of observations.

Torn card, etc.

Press: Stop
 Reset
 Insert
 Type 4907500
 Release
 Start

Instructions for Transformation Program:

1. Place program in Read hopper followed by decimal data.
2. Press Reset, then load