A QUESTIONNAIRE SURVEY OF THE USEFULNESS AND UNDERSTANDABILITY OF OKLAHOMA EXPERIMENT STATION BULLETINS TO OKLAHOMA EXTENSION AGENTS

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PREFACE

The author sincerely appreciates the valuable advice and assistance provided in this study by Mr. Maurice Haag, associate professor of journalism, and Mr. George Church, agricultural publications editor, Oklahoma State University.

Appreciation is also expressed for advice provided by Dr. Carl Marshall, director, statistical laboratory; Mr. Clement E. Trout, professor of journalism, and Dr. Ellsworth Chunn, head, School of Cummunications, Oklahoma State University.

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CHAPTER I

THE OKLAHOMA EXPERIMENT STATION COMMUNICATION PROBLEM

Ever since establishment of the Oklahoma Agricultural Experiment Station, as provided for by Congress in passage of the Hatch Act in 1887, the primary medium for reporting original experiment station research has been the station bulletin.[1] These bulletins are written by experiment station scientists in the various fields of agriculture. Since these authors are usually specialists, their contact with the audience for which their bulletins are intended if often quite limited.

The question of how to present research information effectively in station bulletins is more often a topic of general discussion than a subject of scientific inquiry. The federal extension service, however, which works closely with the experiment stations, has published several studies on the effectiveness of extension circulars and bulletins. Since extension and station bulletins often follow the same format, and since the audience for extension bulletins and station bulletins is often similar, some conclusions of the exten-

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[1] Legislation Authorizing Federal Grants for Agricultural Experiment Stations, U.S. Dept. of Agriculture, Miscellaneous Pub. No. 515 (Washington, 1943) p. 10: "....that bulletins or reports of progress shall be published at said stations at least once in three months...."

sion studies should apply to station bulletins. Results and conclusions of the extension studies significant to this study are provided in section "Review of Past Research" of this chapter.

The audience for which station bulletins are primarily written, as defined by Oklahoma experiment station administrative policy, is comprised of persons classified as "off-farm" leaders. This group includes research workers, extension service subject-matter specialists and county agents, personnel of the Soil Conservation Service, the Federal Housing Administration and other government agencies, and commercial enterprise representatives such as farm supply and equipment dealers, creamery field men, and crop dusters. The role of the off-farm leader in relation to the experiment station is that of intermediary between the reported research results of the station and the application of these research results by farmers.

Scope of Study

The specific question to which this thesis study attempts to provide some answers is "What characteristics and qualities of characteristics of Oklahoma state experiment station bulletins do county extension agents find useful and understandable?" Accurate answers to this question will be helpful guides for authors of future experiment station bulletins.

This study has been limited to the county-agent segment of the off-farm leader audience for several reasons: (1) As a matter of preference--county agents are legally designated as primary "extenders" of station research information. (2) The county-agent

audience is easily defined. County agents are hired jointly by county, state, and the federal extension service. There is a county agent's office for each of the 77 counties in Oklahoma. (3) The county agents, since they all have offices and frequently meet on the Oklahoma State University campus, are easily accessible. (4) County agent offices are evenly scattered about the state; therefore, a random sample of agents commenting on uses made of station bulletins should reflect the agricultural information needs of different regions of the state.

Clarification of Terms

Before going further in reporting this study, several terms have been adapted which should receive more clarification:

(1) County extension agent: As previously mentioned, county agents are hired jointly by the counties, state, and federal extension service. In Oklahoma there is for each county at least one county agent office, usually located at the county seat. The job of the extension service and county agents is, as described by the Smith-Lever Act, "....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...."[2/]

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[2]1957 Extension Subcommittee on Scope and Responsibility, U.S. Dept. of Agriculture, The Cooperative Extension Service....Today (Washington, 1957) p. 3.

(2) Experiment station bulletins: The Oklahoma State experiment station bulletins are those station publications of bulletin format having the prefix "B" before their serial identification numbers (i.e. B-422, B-419, B-489). Technical bulletins and mimeographed progress reports are excluded from consideration in this study.

(3) Characteristics of experiment station bulletins: The bulletin characteristics considered in this research are: pictures and illustrations, tables, graphs, bulletin titles, subheads, footnotes, appendices, table of contents, written copy, subject content, and arrangement of characteristics.

(4) Understandability: Understandability is the ease with which county agents comprehend the information presented in bulletins. The term "understandability" is used instead of "readability" because the latter in its most common usage includes "reader interest," in additon to comprehension, within its definition.[3] This study is limited to the "comprehension" part of the definition of "readability."

(5) Usefulness: The usefulness of a bulletin is its ability to provide information helpful to the county agent in his job as counselor to rural people on agricultural problems. The definition of "reader interest" is also more inclusive than the term "usefulness." "Usefulness" may be considered as one part of what motivates "reader interest."

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[3]Rudolf Flesch, How to Test Readability, (New York, 1951) p. 1.

Review of Past Research

Since formal research projects on experiment station publications have developed only within the last two years, little research dealing directly with station bulletins has been published. However, as previously mentioned, several studies related to extension service bulletins and circulars have been published.

A national questionnaire survey conducted in 1957 by L. E. Sarbaugh, extension service specialist in educational media, indicated some of the major weaknesses of experiment station bulletins. Sarbaugh's study was entitled "Agricultural Extension Editors' Opinions about Publications and Needed Research."

In the 38 questionnaires returned in Sarbaugh's survey, the editors frequently indicated that station publications were "hard to read and understand, too long and detailed, not well written, and that they contained poor typographic devices." About the only good comment editors made about the publications was that they gave detailed information for scientists.[4]

The editors' opinions point almost directly to experiment station bulletins since these are the most common publication of the stations.

Regarding future research, editors most frequently expressed opinions that more attention should be given to study of audience needs and characteristics, production techniques, distribution, and

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[4]L. E. Sarbaugh, Agricultural Extension Editors' Opinions about Publications and Needed Research, Publications Research Project, federal extension service, (Washington, 1957) pp. 1-9.

use and effects of publication.

Some extension service communication studies date back to the 1920's. Given below are conclusions of these studies that seem to have some bearing on station publications:[5]

Roy, K. B. and Cooper, W. M., Desirability of Illustrated Cover Pages for Extension Circulars, 4 pp. Ark. Agr. Col. Ext., Little Rock, 1938.

Observations were made with two different extension circulars, each prepared with an illustrated cover and non-illustrated cover. Thirty copies of each of the four circulars were placed on display in 12 counties, and selections made were observed. Later a questionnaire was mailed to the people who had taken the circulars to determine the use made of the information in them and to get certain other data on the effectiveness of illustrated covers. Conclusions drawn by the authors are as follows: (1) Illustrated cover pages remind individuals of the need for information on a particular subject; (2) they stimulate interest in the subject discussed, and (3) they increase the use of experiment station findings and extension teaching methods.

Arbour, M. B., Extension Publications., 4 pp. University Station, La. Agr. Col. Ext., Baton Rouge, 1950.

The study shows that the majority of county and home demonstration agents distributed the greatest number of bulletins to people making calls at the agents' offices and to those who asked for them at meetings. Most Louisiana agents have found that mailing material to everyone on a general mailing list is not a satisfactory means of distribution.

Minnesota University Department of Agriculture, Division of Agricultural Extension, Publications Office., Information Services Survey, 4 pp. University Farm, Minn. U. Agr. Ext., St. Paul, 1951.

In 1951 the publications office of the university department of agriculture made a study of its services, including bulletins. The information was obtained from the Minnesota county extension agents by questionnaire completed and turned in at district conferences.... The agents thought that if any changes were made in bulletins, they should be made simpler and shorter. Eighty-five percent thought publications generally are acceptable, 12 percent thought they are

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5Lucinda Crile, Findings From Studies of Bulletins, News Stories and Circular Letters, U. S. Extension Service Circular 488, (Washington, 1953) pp. 1-7.

too complicated, none that they are too simple. Mimeographed materials were rated lower than bulletins. The agents considered outlook folders, economic bulletins, and rural sociology publications to be of little value....They thought economic material isn't published rapidly enough; and that extraneous material, background, and history should be left out of bulletins. They want a synopsis with every bulletin....The most popular bulletins during the past year were on freezing, insecticides, grass silage, and livestock pest control.

CHAPTER II

OBTAINING THE DATA

Information about the understandability and usefulness of experiment station bulletins was obtained by mail questionnaire and personal interview.

The Mail Questionnaire

A questionnaire entitled "Bulletin Understandability Survey" was written and, on a trial basis, mailed to five county agents of the seventy-seven in the state. The five agents were selected by Mr. Edd Lemons, Head, Agricultural Information Services, Oklahoma State University. Mr. Lemons, in his position, is personally acquainted with all the agents and thought these five would be especially interested in the questionnaire.

Three of the five agents returned the questionnaire within two weeks. After examining their replies, minor revisions were made on the questionnaire before sending it to a larger group of county agents.

The revised questionnaire (See Appendix A) was sent to fifty-five county agents. They were selected, with the aid of a table of random numbers, from the remaining agents still unexposed to

the questionnaire.[6]

Accompanying each questionnaire were two letters (See Appendix A) and three experiment station bulletins. One letter, signed by Mr. G. F. Church, Publications Editor, Agricultural Information Services, explained how to complete the questionnaire. The other letter, signed by Mr. E. K. Lowe, Assistant Director, Extension Service, emphasized to the agents the importance of this research and the necessity that the questionnaire be returned.

The letter signed by Mr. Church asked the agents to compare the three bulletins they received on the basis of understandability, but each agent did not receive the same three bulletins. In all, 11 different bulletins were sent to the 55 agents.

Table I, page 10, lists the 11 bulletins sent to the agents. These bulletins vary from seven to 23 pages in length. They were selected, however, so that the amount of space devoted to written copy is about the same for each bulletin. Most of the variation in number of pages is due to differences in space devoted to other bulletin characteristics such as tables, graphs, subheads, etc.

To help keep track of the bulletins and questionnaires sent to the agents, each bulletin and questionnaire was given an identification number. In Table I the bulletin identification number is to the left of each bulletin title. The questionnaire numbers, which range from 1 to 55 and are given in Table II Chapter III, were placed inconspicuously on the back of each questionnaire.

The groups of three bulletins sent to agents were selected so

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[6]John Philip McCarthy, Introduction to Statistical Reasoning, (New York, 1957) pp. 136-138.

TABLE I

ELEVEN EXPERIMENT STATION BULLETINS SENT

TO COUNTY AGENTS

Bulletin Identification Number	Bulletin Title	Bulletin Serial Number
#1	A Two-row, Tractor-mounted Castor Bean Harvester	B-489
#2	A Survey of Spinach Markets and Marketing in Eastern Oklahoma	B-468
#3	The Development of the Oklahoma Brush-type Cotton Stripper	B-422
#4	The Place of Cotton as a Source of Farm Income in Southeastern Oklahoma	B-419
#5	The Cost of Rearing Oklahoma Farm Children	B-467
#6	Nitrogen Fertilization of Winter Oats	B-491
#7	Green Manure and Cotton in Double-cropping System on a Fine-textured Soil	B-472
#8	Effects of Fertilization and Climatic Conditions on Prairie Hay	B-492
#9	Feeding Trace Minerals to Beef Cattle in Oklahoma	B-470
#10	A Feed Crop Rotation for Central and Eastern Oklahoma	B-465
#11	Concho Winter Wheat	B-453

that, after all 55 questionnaire had been returned, each bulletin had been compared with every other bulletin at least twice.

A month after the 55 questionnaire were mailed, all but 15 had been returned. In an effort to get questionnaires from the 15 agents not yet replying, duplicate copies were sent to them. Thus, they had replacements should they have lost the first copies.

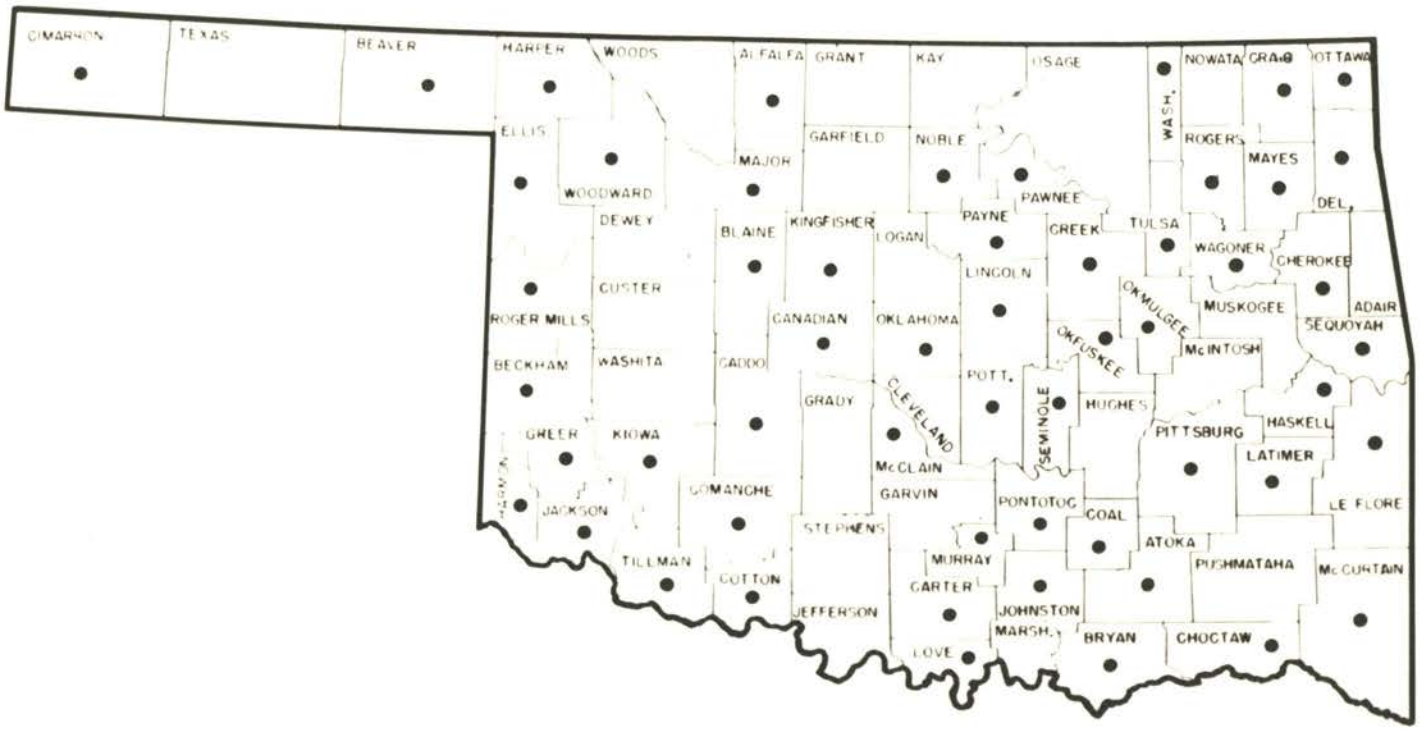
After three more weeks, only five questionnaires had not been returned. To complete the sample, five more questionnaires were mailed to randomly selected agents not yet exposed to the questionnaire. Two of these five questionnaires were promptly returned. After reminder postcards were mailed to the three remaining agents, all 55 questionnaires were returned. Location of counties from which questionnaires were received is shown in Figure 1, page 12.

In the questionnaire the agents were asked to read through the bulletins and list them in first, second, and third place according to the ease with which they were understood. The sums of these ratings of the agents were used to derive for each bulletin an "understandability rating score." These scores are discussed in Chapter III.

Using mail questionnaires to obtain data has had several disadvantages. For one, no adequate witnesses exist as to whether the agents actually read the bulletins. Also, since agents' opinions were formed mostly from the consideration of only 11 bulletins, generalization of their opinions to other station bulletins may be inaccurate. Though the 11 different bulletins are probably representative of station bulletins, this need not be so.

LOCATION OF COUNTY AGENTS

FROM WHICH QUESTIONNAIRES WERE RECEIVED



Counties from which agents returned the questionnaires are designated by dots.

Figure 1

On the other hand, providing the agents with bulletins to read and compare gave them opportunity to form opinions of their likes and dislikes of the bulletins. To have agents read and compare bulletins during interviews would be extremely time consuming.

The Personal Interviews

As a follow-up on the mail questionnaire, another questionnaire was written for use during personal interviews with the extension agents. The second questionnaire (See Appendix A) was designed (1) to obtain more specific answers to "open" questions in the mail questionnaire, (2) to answer questions brought to attention from results of the mail questionnaire, and (3) to serve as check on the results of the mail questionnaire.

Interviews were obtained with the extension agents while they were at Oklahoma State University attending a three-week extension "short course." At the beginning of the course Mr. E. K. Lowe told the agents that sometime during the next three weeks they would probably be approached for an interview concerning station bulletins.

A table and several chairs were placed near the agents' classrooms for use as a station for the interviews. Mr. Maurice Haag, Associate Professor of Journalism at the University, and the author acted as interviewers. During periods free from classes, the agents were selected at random and invited to be interviewed.

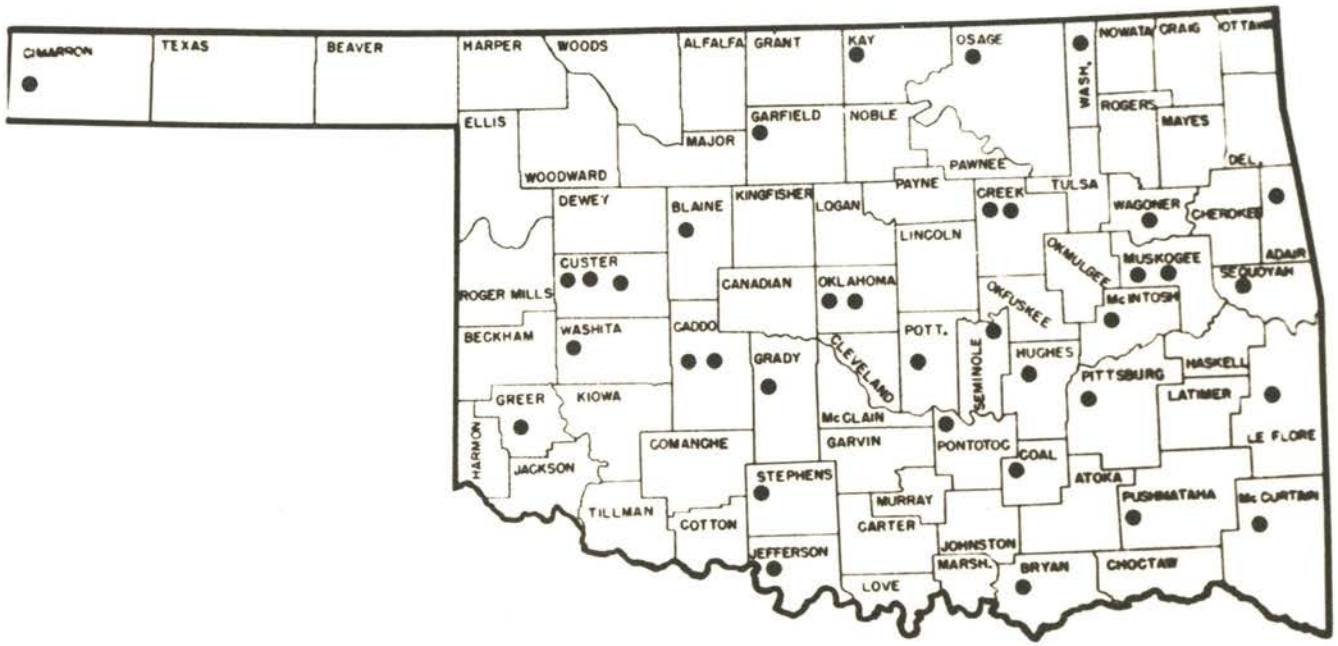
Each interview began by giving an agent 12 different bulletins to look at so he would know exactly what type of publication the interview questions would be concerned with. The agents were not asked to read or compare these bulletins. However, some agents did

use them in pointing out particular likes or dislikes of bulletins. If an agent did not understand a question as read to him, the interviewer gave further explanation. The questionnaire contained 25 questions and took about 30 minutes to complete with each agent.

In all, 36 interviews were obtained--16 with county agents, 13 with assistant county agents, and seven with associate county agents. The counties in which the agents interviewed have their offices are shown in Figure 2, page 15.

The activities of county agents, assistant county agents, and associate county agents in their work with the public are similar. Their jobs differ mainly in the segments of the public with whom they work. Because of similarity of jobs of the three types of agents, their responses to questions concerning station bulletins should be similar. The few differences in responses to the interview questions that apparently resulted from differences of the three types of agents are discussed in Chapter IV.

LOCATION OF OFFICES OF AGENTS INTERVIEWED



The black dots indicate the county in which the office of each agent interviewed is located.

Figure 2

CHAPTER III

ANALYSIS OF RESPONSES TO THE MAIL QUESTIONNAIRE

In this chapter responses to the mail questionnaire are discussed in order of appearance of the questions in the questionnaire.

Analysis of Responses to Question One

The first question asked the agents was:

Rate the three bulletins according to which presents information the easiest way for you to understand.

a. The bulletin presenting information so it is the easiest to understand is: (title) _____

b. The bulletin presenting information so it is second easiest to understand is: (title) _____

c. The bulletin presenting information so it is the most difficult to understand is: (title) _____

Table II, page 17, shows which three of the 11 bulletins each agent was asked to compare for understandability. The numbers in parenthesis in the table are the questionnaire identification numbers. To the right of each questionnaire number are the identification numbers of the bulletins sent with each questionnaire (See Table I).

TABLE II

RATINGS COUNTY AGENTS GAVE TO THE BULLETINS

Questionnaire Number	Ratings: * 1st/2nd/3rd	Questionnaire Number	Ratings: 1st/2nd/3rd	Questionnaire Number	Ratings: 1st/2nd/3rd
(1)	#2 #1 #3	(20)	#2 #3 #4	(39)	#5 #8 #4
(2)	#1 #4 #5	(21)	#5 #6 #7	(40)	#8 #7 #6
(3)	#1 #6 #7	(22)	#9 #5 #8	(41)	#10 #11 #9
(4)	#9 #1 #8	(23)	#5 #10 #11	(42)	#1 #2 #9
(5)	#10 #1 #11	(24)	#1 #5 #2	(43)	#9 #3 #4
(6)	#2 #3 #4	(25)	#5 #3 #4	(44)	#5 #9 #6
(7)	#2 #5 #6	(26)	#7 #8 #6	(45)	#8 #9 #7
(8)	#2 #7 #8	(27)	#9 #6 #10	(46)	#1 #10 #11
(9)	#10 #9 #2	(28)	#11 #6 #1	(47)	#10 #2 #3
(10)	#11 #1 #2	(29)	#2 #3 #6	(48)	#5 #10 #4
(11)	#5 #3 #4	(30)	#4 #5 #6	(49)	#7 #10 #6
(12)	#3 #6 #7	(31)	#9 #7 #8	(50)	#10 #8 #9
(13)	#9 #3 #8	(32)	#10 #11 #7	(51)	#11 #1 #2
(14)	#3 #10 #11	(33)	#2 #1 #7	(52)	#11 #3 #4
(15)	#1 #2 #3	(34)	#3 #7 #4	(53)	#11 #5 #6
(16)	#5 #6 #4	(35)	#5 #7 #6	(54)	#11 #7 #8
(17)	#8 #4 #7	(36)	#10 #9 #8	(55)	#11 #9 #10
(18)	#9 #10 #4	(37)	#1 #11 #8		
(19)	#11 #1 #4	(38)	#2 #3 #8		

*The numbers in the columns are the assigned bulletin identification numbers.

Ratings Given by Agents

Each bulletin was rated by 15 different county agents. This is evidenced by counting the times an identification number appears in Table II. Table II also shows the ratings that each county agent, as represented by the questionnaire number, gave for the three bulletins he received.

Table III, page 19, lists each group of three bulletins which included bulletin #1. Counting the times bulletin #1 was compared with each of the other bulletins shows that bulletin #1 was compared with both bulletins #2 and #11 seven times, and with bulletins #3, #4, #5, #6, #7, #8, #9, and #10 twice each.[7] Bulletin #1 was compared with bulletins #2 and #11 more than other bulletins because of the particular arrangement of the bulletins in groups of three.

Understandability Rating Scores

From the ratings shown in Table II an "understandability rating score" was derived for each bulletin. To obtain this score a point was provided a bulletin for each time it was rated easier to understand than another bulletin, and the sum of these points for any one bulletin is its understandability rating score. For example, in questionnaire (1) bulletin #1 (See Table II) was rated in second place; therefore, being rated easier to understand than bulletin #3, it received one point. If bulletin #1 had been rated in first place, it would have received two points, one point for

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[7]Originally the author planned for each bulletin to be compared with each other bulletin an equal number of times. But due to a statistical error this did not occur, and the ratings had to be adjusted for the error.

TABLE III

GROUPS OF THREE IN WHICH BULLETIN B-489 (#1) WAS COMPARED

Questionnaire Numbers	Assigned Identification Numbers	Questionnaire Numbers	Assigned Identification Numbers
(1)	#1 #2 #3	(24)	#5 #1 #2
(2)	#1 #4 #5	(28)	#6 #11 #1
(3)	#1 #6 #7	(33)	#7 #1 #2
(4)	#1 #8 #9	(37)	#8 #11 #1
(5)	#1 #10 #11	(42)	#9 #1 #2
(10)	#2 #11 #1	(46)	#10 #11 #1
(15)	#3 #1 #2	(51)	#11 #1 #2
(19)	#4 #11 #1		

TABLE IV

NUMBER OF TIMES BULLETIN B-489 (#1) WAS COMPARED

WITH EACH OTHER BULLETIN

	Number of Times
Bulletin #1 was compared with #2	7
" " " " " #3	2
" " " " " #4	2
" " " " " #5	2
" " " " " #6	2
" " " " " #7	2
" " " " " #8	2
" " " " " #9	2
" " " " " #10	2
" " " " " #11	7

being easier to understand than bulletin #2 and one point for being easier to understand than bulletin #3. The maximum possible points, therefore, that a bulletin might receive in each group of three bulletins is two.

Procedure for Obtaining Understandability Rating Scores

The following example illustrates the procedure for obtaining the understandability rating scores:

	Points Received by #1	
In questionnaire (1) when #1 is compared with #2	...0	(#1 was rated in 2nd place; second to #2)
In questionnaire (1) " " " " " #3	...1	

Reference to Table II will show that bulletin #1 was not rated easier than #2, but was rated easier than bulletin #3.

To continue, when points from questionnaire (2) are added to those from questionnaire (1):

	Points Received by #1	
When #1 is compared with #2	0	
When #1 is compared with #3	1	
When #1 is compared with #4	1	(Questionnaire (2)
When #1 is compared with #5	1	" "

All the points from the questionnaires are added until:

	Points Received by #1	
When #1 is compared with #2	0,1,1,1,0,1,1	(#1 is rated with #2 in questionnaires (1), (10), (15), (24,) (33),(51).
" " " " " #3	1,1	
" " " " " #4	1,1	
" " " " " #5	1,1	
" " " " " #6	1,0	
" " " " " #7	1,1	
" " " " " #8	1,1	
" " " " " #9	1,0	
" " " " " #10	0,1	
" " " " " #11	1,0,0,0,1,1,0	

To equate the seven comparisons of bulletin #1 with bulletins #2 and #11 to the comparisons occurring twice, the number of points given in each series of seven comparisons is divided by the number (seven) of comparisons. The resulting fraction is placed twice in the row as the equivalent of points received from two comparisons. For example, the points bulletin #1 when the two series of seven comparisons are equated is:

#2	5/7, 5/7
#3	1, 1
#4	1, 1
#5	1, 1
#6	1, 0
#7	1, 1
#8	1, 1
#9	1, 0
#10	0, 1
#11	3/7, 3/7
	15 3/7 Total

The sum 15 3/7 is the understandability rating score for bulletin #1. The possible range of the understandability rating score is from 0 to 20. Computations for rating scores of the other bulletins are given in Appendix C.

Table V, page 22, gives the ranking of the bulletins according to their understandability rating scores. The higher the understandability rating score, the easier a bulletin was for the county agents to understand.

Relation of Rating Scores to Bulletin Characteristics

The next step was to determine what association, if any, the bulletin characteristics have with the understandability rating scores.

TABLE V

RANKING OF EXPERIMENT STATION BULLETINS ACCORDING TO UNDERSTANDABILITY RATING SCORES

Rating Score	Rank	Assigned Identification Number	Bulletin Title	Serial Number
15 3/7	1.5	#1	A Two-row Tractor-mounted Castor Bean Harvester	B-489
15 3/7	1.5	#11	Concho Winter Wheat	B-453
14 3/7	3.	#5	The Cost of Rearing Oklahoma Farm Children	B-467
13 2/7	4.	#9	Feeding Trace Minerals to Beef Cattle in Oklahoma	B-470
12 6/7	5.	#10	A Feed Crop Rotation for Central and Eastern Oklahoma	B-465
12 4/7	6.	#2	A Survey of Spinach Markets and Marketing in Eastern Oklahoma	B-468
10	7.	#3	The Development of the Oklahoma Brush-type Cotton Stripper	B-422
5 3/7	8.	#8	Effects of Fertilization and Climatic Conditions on Prairie Hay	B-492
3 6/7	9.	#6	Nitrogen Fertilization of Winter Oats	B-491
3 2/7	10.	#7	Green Manure and Cotton in Double-cropping System on Fine-textured Soil	B-472
2 4/7	11.	#4	The Place of Cotton as a Source of Farm Income in Southeastern Oklahoma	B-419

Only three characteristics--tables, heads and subheads, and written copy--occurred frequently enough in the bulletins to be measured and correlated with the understandability rating scores with any possibility of statistical significance.

To quantify the characteristics the space devoted to each in the bulletins was measured. The printed area on a page of an Oklahoma Station Bulletin is 45 picas deep and 27 picas wide. This totals to 1215 pica ems per page. Figure 3, page 24, shows a page from a bulletin with the characteristics measured.

In Figure 3 the space used for cut lines of the picture was included in the measurement of space used for the picture. Likewise, the space used in the explanatory portion of a table was included in the measurement of table space.

Heads and subheads of the bulletins were also quantified by counting the number of heads and subheads per bulletin and by counting the number of syllables used in heads per bulletin.

To measure the "ease of reading" of written copy in the bulletins the Flesch formula was employed. Flesch scores are derived from the measurement of average sentence length and syllables per 100 words of written copy.[8]

Relation of Tables to Rating Scores

The characteristics of tables, measured in terms of space,

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[8]Flesch, pp. 2-6.

SPACE MEASUREMENTS OF CHARACTERISTICS ON A BULLETIN PAGE

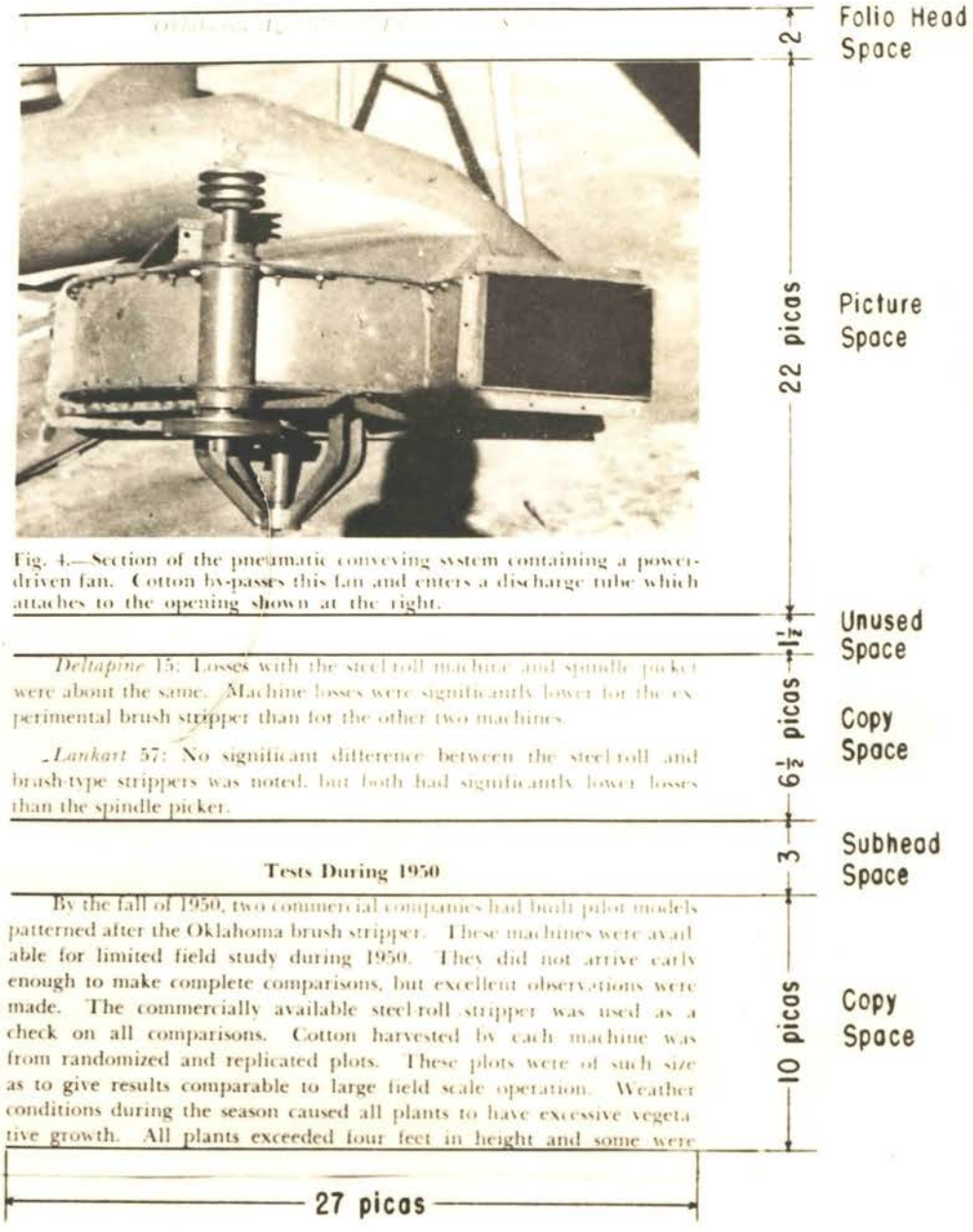

Figure 3

showed the greatest degree of association with the understandability rating scores. A correlation coefficient of -.498, as measured by the rank difference method, was obtained between the rating scores and the amount of space used for tables in each bulletin.[9] Since the correlation coefficient is negative, it indicates the extent to which bulletins with high understandability rating scores are not occupied by tables. The confidence level of this correlation, however, is not quite 10 percent, which is to say that there is little certainty that the correlation coefficient would be the same if measured from another sample of bulletins and population.[10] A 5 percent level of confidence is usually desired if a correlation coefficient is to be accepted with sufficient confidence to make predictions.

Relation of Heads and Subheads to Rating Scores

When measurements of space used for heads and subheads were correlated with the understandability rating scores, a coefficient of .216 was obtained. This coefficient is also too low for any significance.

The correlation coefficient between number of heads and subheads per bulletin and the rating scores is .341. The coefficient between number of syllables used in heads and subheads per bulletin and the

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[9] John C. Townsend, Introduction to Experimental Method, (New York, 1953) pp. 160-163.

[10] R. A. Fischer, Statistical Methods for Research Workers, (5th ed. London, 1934) pp. 178-181.

rating scores is .389. Neither coefficient is sufficiently high to be accepted with much confidence.

Relation of Written Copy to Rating Scores

A correlation coefficient between the amount of space used for written copy and the rating scores was not computed. The bulletins were selected so that space used for written copy would be about the same for each bulletin. Since this variable has been controlled no relationship is expected.

The written copy was, however, measured by use of the Flesch formula. The correlation coefficient between the Flesch scores and the understandability rating scores was -.457 at a confidence level of not quite 10 percent. Flesch generally claims at least a .66 positive correlation coefficient is obtained between the "ease of reading" scores and his criterion of "ease of reading."[11]

The correlation coefficient in this study, however, is negative, just the opposite of what would be expected. High rating scores should have positive correlation with high Flesch scores. This negative correlation does not necessarily indicate that the rating scores are inaccurate, or that Flesch scores are inaccurate when used on material for which it was designed.

The Flesch formula was not standardized on people who had special interests in agriculture nor was it intended for use on material of

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[11] Edgar Dale and Jeanne S. Chall, A Formula for Predicting Readability, (Ohio State University, Columbus, 1948) pp. 2-6.

the highly technical nature found in experiment station bulletins.[12] So, it would not necessarily measure "ease of reading" of station bulletins from the viewpoint of the county agents. Also, the writing in the bulletins may have been sufficiently easy for the agents to understand that they did not consider it an important point for comparison of bulletins on understandability.

Discussion of Results of Question One

The large number of variables that could affect the understandability of the bulletins is no doubt responsible for much of the poor success in obtaining highly significant correlations. If a large number of variables are involved in understandability, a larger sample of bulletins would be needed to obtain more significant correlations. But to increase the sample and still have each bulletin compared with each other bulletin, would be extremely difficult since the questionnaires would have to be sent to a prohibitingly large number of persons to obtain the correct arrangement of comparisons.

All tabulations in measuring the characteristics and obtaining the correlation coefficients are given in complete detail in Appendix C.

Analysis of Responses to Question 2 and 2a

Question 2 and 2a was:

What particular parts of the bulletin you rated in first place do you consider most effective in making the information understandable?

a. Why do you believe these parts were most effective in making the information understandable?

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[12]Edgar Dale and Jeanne S. Chall, pp. 2, 8.

Question 2 and 2a was successful for obtaining the opinions of the agents on what they liked about the bulletins. The agents were willing to make comments, and although this question is "open," similar comments were made frequently enough that they could be classified. For example, when giving reasons as to why a bulletin rated in first place was easier to understand, agents made comments such as: "It is short, to the point;" "gets to the point quicker;" "concise and to the point;" "direct and to the point;" "brief, concise;" etc. In interpreting these comments the author placed them all under the classification "concise and to the point." However, some agents' comments were not so easily interpreted and classified as the foregoing, and, therefore, their interpretation could differ from person to person. To overcome this weakness in the analysis, the author and four other persons from the agricultural publications staff of the experiment station interpreted and classified the comments of the agents.

For interpreting the agents' comments, the author established eight different classifications. These were: "effective use of tables," "effective use of pictures and illustrations," "effective use of graphs," "effective summaries and conclusions," "effective introduction," "effective table of contents," "concise and to the point," and "language easy to understand." The five interpreters read the agents' comments and indicated the portions of the comments that belonged to a particular class of interpretation. The observations of the five interpreters as to the number of agents making comments of a particular classification were then averaged. The

eight classifications and the average observations of the five interpreters are given in Table VI, page 30. The interpreters' observations and computation of the average observations are given in Appendix C.

Discussion of results from question 2,2a and 3,3a are given together after presentation of the analysis to question 3 and 3a.

Anlysis of Responses to Question 3 and 3a

Question 3 and 3a was:

What particular parts of the bulletin you rated in last place do you consider most ineffective in making the information understandable?

a. Why do you believe these parts were ineffective in making the information understandable?

The agents' comments to this question were also interpreted by the author and four members of the agricultural publications staff. The interpreters placed the comments to this question in classifications corresponding to those in question 2 and 2a. However, since question 3 and 3a is a negative question, that is, it asks for what's "ineffective," the comments of the agents were negative. And appropriately the classifications were made negative; for example, "ineffective use of tables," "language difficult to understand," and "not concise and to the point."

Table VII, page 31, lists all the classifications of the agents' comments to question 3 and 3a, and the average observations of the interpreters as to the number of agents making comments of a particular classification. Table VII contains three classifications that

TABLE VI

CLASSIFICATION OF AGENTS' COMMENTS

IN QUESTION 2 AND 2a

Classification of Agents' Comments	Comments in Classifications Number*	% **	Number of Bulletins to Which Classifications Apply ***	Number of Agents' Comments About Bulletins to Which Classifications Apply
Effective use of pictures and illustrations	7	26.9	4	26
Effective use of graphs	3	16.9	5	18
Effective use of tables	16	32.6	10	49
Effective summaries and conclusions	14	25.5	11 ****	55
Effective introduction	11	20.0	11 ****	55
Effective table of contents	7	17.9	7	39
Concise and to the point	22	40.0	11 *****	55
Language easy to understand	19	34.5	11 *****	55

*The numbers are the averages (with fractions rounded off) of the interpreters' observations. (See Appendix C) The numbers indicate the average number of comments of a classification as observed by interpreters.

**These percentages indicate the percentage of agents' comments (numbers) which are of a particular classification. For example, 7 is 26.9% of 26.

***Some bulletins did not have pictures or illustrations, or graphs or tables; therefore, the respective classifications would not apply.

****All bulletins did not have sections titled "introduction" or "summary and conclusion," but they all contained sections serving the same purpose.

*****Determining if a bulletin has the characteristic "concise and to the point" or "language easy to understand" is relative to the opinion of each agent.

TABLE VII

CLASSIFICATION OF AGENTS' COMMENTS

IN QUESTION 3 AND 3a

Classification of Agents' Comments	Comments in Classifications		Number of Bulletins to Which Classifications Apply ***	Number of Agents' Comments About Bulletins to Which Classifications Apply
	Number*	% **		
Ineffective pictures and illustrations	1	8.3	4	12
Ineffective use of graphs	4	10.8	5	37
Ineffective use of tables	27	51.9	10	52
Ineffective summaries and conclusions	1	1.8	11 ****	55
Ineffective introduction	1	1.8	11 ****	55
Lacked table of contents	1	4.2	4	24
Not concise and to the point	12	21.8	11 *****	55
Language difficult to understand	14	25.5	11 *****	55
Lack personal knowledge to understand material	3	5.5	11 *****	55
Ineffective Organization	7	12.7	11 *****	55
Unattractive Presentation	4	7.3	11 *****	55

*The numbers are the averages (with fractions rounded) of the interpreters' observations. (See Appendix C)

**These percentages indicate the percentage of agents' comments (numbers) which are of a particular classification. For example, 1 is 8.3% of 12.

***Some bulletins did not have pictures or illustrations or graphs, etc; therefore, the respective classifications would not apply.

****All bulletins did not contain sections entitled "introduction" or "summary and conclusion," but all contained parts serving this purpose

*****Determining if a bulletin has the characteristic "not concise and to the point" or "language difficult to understand," etc. is relative to the opinion of each agent.

are additional to those corresponding to question 2 and 2a. The three additional classifications are "lack personal knowledge to understand material," "ineffective organization," and "unattractive presentation."

Discussion of Results of Questions 2,2a and 3,3a

Comments from the two questions 2,2a and 3,3a should be interpreted in relation to each other. To assist the comparison of results of the two questions, Table VIII, page 33, lists in parallel columns the "Classification of Agents' Comments" and "Percentage of Comments in Classification" of questions 2,2a and 3,3a.

All comments of the agents to questions 2,2a and 3,3a are located in Appendix B.

Providing the 11 bulletins are representative of station bulletins as a whole, several important conclusions may be drawn from the data in Table VIII. The most obvious is that although tables may help to make bulletins understandable, from the viewpoint of county agents more often than not, tables are ineffective in making the bulletins easy to understand. As Table VIII shows, 51.9 percent of the agents indicated "ineffective use of tables" contributed to making bulletins "most difficult to understand." At the same time 32.6 percent of the agents indicated "effective use of tables" contributed to making bulletins "easiest to understand." The average amount of space occupied by tables in the 11 bulletins was 3,437.2 pica ems. For a sample of 26 bulletins selected randomly from approximately 150 available Oklahoma station bulletins, the average space occupied by

TABLE VIII

COMPARISON OF RESULTS OF QUESTIONS 2, 2a AND 3, 3a

Classification of Agents' Comments to Question 2 and 2a	Percentage of Comments in Classification	Classification of Agents' Comments to Question 3 and 3a	Percentage of Comments in Classification
Effective use of pictures and illustrations	26.9*	Ineffective pictures and illustrations	8.3 *
Effective use of graphs	16.9 *	Ineffective use of graphs	10.8 *
Effective use of tables	32.6	Ineffective use of tables	51.9
Effective summaries and conclusions	25.5	Ineffective summaries and conclusions	1.8
Effective introduction	20.0	Ineffective introduction	1.8
Effective table of contents	17.9	Lacked table of contents	4.2
Concise and to the point	40.0	Not concise and to the point	21.8
Language easy to understand	34.5	Language difficult to understand	25.5
		Lack personal knowledge to understand material	5.5
		Ineffective Organization	12.7
		Unattractive presentation	7.3

*In these classifications the number of agents commenting about bulletins to which classifications apply is probably too few for the percentages to have any significance.

tables was 3,462.34 pica ems, a difference of only .007 percent. It is likely, then, that the agents' attitude toward tables of station bulletins as a whole would be much the same as for the 11 bulletins they compared.

The most frequent reason indicated by agents for rating a bulletin "easiest to understand" was "it is concise and to the point." Forty percent of the agents made comments of this classification. The corresponding negative classification, "not concise and to the point," was indicated by only 21.8 percent of the agents as a reason for rating a bulletin "most difficult to understand." Apparently, then, having bulletins short and concise is of considerable importance to the agents.

The reason given second in frequency for rating bulletins "easiest to understand" was "language easy to understand." This reason was indicated by 34.5 percent of the agents. Comments of the corresponding negative classification, "language difficult to understand," which was indicated by 25.5 percent of the agents, was second in frequency as a reason for rating bulletins mot difficult to understand." So in some instances, although the county agents are college graduates, they find language in bulletins too difficult.[13]

Comments of the two classifications, "effective summaries and conclusions" and "effective introduction" were made by 25.5 and 20.0 percent of the 55 agents respectively. However, comments of the corresponding negative classifications "ineffective summaries and conclusions" and "ineffective introduction" were infrequent. Only one comment of each classification was made. It is apparent, then,

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[13]Mr. E. K. Lowe, Assistant Director, Extension Service, stated to the author that all of the county agents are college graduates.

that in all the bulletins agents compared, they usually found the sections on "summaries and conclusions" and the "introduction" helpful.

From the county agents' point of view, the results of questions 2,2a and 3,3a generally indicate that although bulletins may have effective tables, or are concise and to the point, or have language easy to understand, these characteristics in station bulletins are too often ineffective or lacking.

On the other hand, the agents have relatively few complaints about the sections "summaries and conclusions" and "introduction" in the bulletins.

In answering questions 2,2a and 3,3a many agents commented as to why parts of bulletins were effective or ineffective. Some of their remarks were frequent enough to be classified. For example, at least seven of the agents made comments easily interpreted to mean that they thought the bulletins contained too many tables. Four agents though the text of the bullotins contained too many references to tables. Other unfavorable remarks expressed by agents about tables were: "Tables not conveniently located;" "tables are not accompanied with sufficient explanation;" "tables contain too many figures," and "headings to tables and columns of data in tables are difficult to understand."

Several agents, when rating bulletins first, made favorable comments that the tables were simple, easy to understand, and conveniently located. Some agents indicated one reason they rated a bulletin first was that it contained few tables.

Agents' comments about the language of the bulletins rated last in understandability most frequently indicated that agents thought the language too technical. As for language in bulletins rated first in understandability, the usual comment was "it's simpler."

Analysis of Responses to Question 4 and 4a

Question 4 and 4a was asked the agents to find for what reasons the agents will read one bulletin before another.

Question 4 and 4a was:

Which bulletin did you read through first?

a. Was there any specific reason that you read through this bulletin first? Explain.

Table IX, page 37, lists the bulletins and the number of times each was read first, second, and last by the agents. When sent to the agents, each bulletin was placed on top of the other two bulletins five times; so that each would have equal opportunity to be seen first. Table IX gives the total point scores, which are a measure of the tendency of agents to read a particular bulletin first. The scores were obtained by alloting one point to a bulletin each time it was read first, two points for each time read second, and three points for each time read last. The lower the total point score, the greater the tendency of the agents to read a particular bulletin first.

Twenty-five county agents said they read a bulletin first because of a special interest in the subject matter of the bulletin. Ten agents said they read a bulletin first because it was on top of the pile. Seven agents said they had no particular reason, and seven more made no reply to the question. Only three agents mentioned

TABLE IX

TENDENCY OF AGENTS' TO READ BULLETINS FIRST

Bulletin Serial Number	Times Read First	Times Read Second	Times Read Last	Points for Being Read 1st	Points for Being Read 2nd	Points for Being Read last	Total Point Scores
B-489	4	8	3	4	16	9	29
B-453	9	1	5	9	2	15	26
B-467	6	3	6	6	6	18	30
B-470	7	6	2	7	12	6	25
B-465	5	7	3	5	14	9	28
B-468	9	2	4	9	4	12	25
B-422	4	6	5	4	12	15	31
B-492	2	3	10	2	6	30	38
B-491	4	6	5	4	12	15	31
B-472	2	7	6	2	14	18	34
B-419	3	6	6	3	12	18	33

that they were influenced to read a bulletin first by its attractive cover. Three miscellaneous reasons given for reading a bulletin first were: because it was shortest, because it was the more current publication, and because it was well illustrated.

Discussion of Results of Question 4 and 4a

By far the majority of the agents indicated they read a bulletin first because of its subject content. Because of the importance of the subject content and the fact that only three agents said they were influenced to read a bulletin by its attractive cover, the value of dressing bulletin covers with expensive color and illustrations to attract county agent readers is questionable. To entice agents to read station bulletins, most probably is accomplished by writing bulletins on topics of interest to them.

Analysis of Responses to Question Five

Question five was:

Which bulletin did you read through last?

The times a bulletin was read last is shown in Table IX, page 37. Covers of the five bulletins that tended to be read last by the agents were compared with covers of five bulletins that agents tended to read first. No significant difference between the covers of the five bulletins agents tended to read first and the five bulletins they tended to read last was found. Total number of words in titles of the five bulletins agents tended to read first was 36, while the total for the five titles of bulletins agents tended to

read last was 46. Because length of titles varied considerably and the sample of titles was small, the difference of ten words is not significant as measured by the t test.

The average syllable length of words in titles of the five bulletins read first was 1.89, while for titles of the five bulletins read last it was 1.91. Obviously, the averages are not significantly different.

Anlysis of Responses to Question Six

Question six was:

On the bulletin you placed first, how important do you believe your educational background on the subject matter was in influencing your judgment?

Check one: not important___ fairly important___
slightly important___ greatly important___

Before writing this question the author assumed that the educational background on subjects might have some influence on the decisions of the agents. Question six was asked as an effort to obtain information as to the importance of the agents' educational background in making the comparisons of the bulletins.

Twenty-eight agents checked that their educational background was "not important" in influencing their decisions; 16 checked that it was "slightly important;" ten that it was "fairly important," and one that it was "greatly important."

It is apparent, at least from the viewpoint of agents, that educational background on the subject matter of the bulletins had little influence on their opinions about the understandability of

bulletins.

Analysis of Responses to Question 7 and 7a

Question seven was asked as another effor to determine what characteristics of station bulletins make a bulletin most useful to agents. Question seven was:

What five Agricultural Experiment Station Bulletins (This excludes circulars and other publications without the prefix B before the identification number) have you found most useful in your work as an extension agent?

List in order of usefulness. Most useful first. Second most useful second, and so on.

Replies to question seven were used to rank station bulletins according to frequency mentioned as "most useful." Many agents, however, misunderstood the question and replied by giving titles of "most useful" extension circulars and other publications. The 12 bulletins most frequently mentioned as "most useful" by the agents are listed in Appendix C.

The 12 bulletins that the agents most often mentioned as "most useful" were published between the first of January 1954 and the last of December 1956. For comparison with these "most useful" bulletins, 12 bulletins were randomly selected from the group of bulletins published during this period which were not mentioned as "most useful" by the agents. The two groups of bulletins were compared for differences in quantity of tables, pages per bulletin, frequency of content tables, pictures and illustrations in the text of bulletins, syllable word length of cover page titles, Flesch "ease

of reading" scores, number of heads and subheads, word length of heads and subheads, and frequency of pictures or color on bulletin cover pages. Table X, page 42, shows the averages of these characteristics in the bulletins for the two groups. For the detailed measurements of the characteristics and for computation of the averages see Appendix C.

The most apparent difference between the two groups of bulletins is that nine of the bulletins in the "most useful" group have covers with pictures, illustrations or color, while only three of the bulletins in the group not mentioned as "most useful" have pictures or color. About 40 percent (estimated from about 150 station bulletins published from 1950-1958) of the station bulletins are published with color or illustrations on their covers. The measurement of this difference in covers of the two groups of bulletins by the Chi Square was 3.0, which is significant between a 5 percent and 10 percent level of confidence.

Another noted difference between the two groups of bulletins is that the bulletins not mentioned as "most useful" by the agents contained longer heads and subheads. The difference between the average length of heads and subheads in the bulletins not mentioned "most useful" and the bulletins mentioned "most useful" as measured by the t test was 3.353. This t test score is significant within the 1 percent level of confidence.

The titles of the bulletins not mentioned as "most useful" also tended to be longer. The difference in length of titles, measured in terms of syllables, between the two groups of bulletins

TABLE X

COMPARISON OF CHARACTERISTICS IN BULLETINS "MOST USEFUL" WITH CHARACTERISTICS OF BULLETINS NOT MENTIONED "MOST USEFUL"

Classification of Bulletin Characteristics	Measurement of Characteristic in 12 Bulletins "Most Useful"	Measurement of Characteristic in 12 Bulletins Not Mentioned "Most Useful"	Measurement of Difference ****	Significance ***
Pages	219 pages	229 pages	*	
Tables	74 tables	74 tables	*	
Pictures and Illustrations	26 pic. or illust.	31 pic. or illust.	*	
Content Tables	3 content tables	1 content table	*	
Heads and Subheads	217 heads and subheads	180 heads and subheads	.677 t test	**
Heads and Subheads	2.9978 average word length of heads	4.4789 average word length of heads	3.353 t test	Within 1 %
Ease of Reading	492 total of Flesch scores	446 total of Flesch scores	.569 t test	**
Color, pictures and illustrations on bulletin covers	9 total for group	3 total for group	3.0 Chi X^2	Between 5% and 10%
Titles of Bulletins	77 words for group	100 words for group	1.552 t test	**
Titles of Bulletins	144 total number of syllables	202 total number of syllables	2.148 t test	Within 5 %

*The difference between the two groups of 12 bulletins is obviously too small to be significant.

**The significance is much less than 5% level of confidence.

***The confidence levels of significance were obtained from tables in "Introduction to Experimental Method," John C. Townsend, pp. 212, 213.

****Computations for the measurements of differences are given in Appendix C.

provided a t test score of 2.148, which is significant within the 5 percent level of confidence. The greater number of syllables in titles of bulletins not mentioned as "most useful" could be due to both a greater number of words and longer words in this group of titles.

Discussion of Results of Question Seven

The longer titles, heads and subheads in bulletins not mentioned "most useful" probably results from policy of the experiment station editorial staff to give longer titles to highly technical bulletins. Longer titles, which would have less interest to laymen, is one way of limiting distribution of the bulletins to persons who will make most use of them.[14] That the bulletins not mentioned "most useful" are more technical than the "most useful" group is also a reasonable explanation for why the "most useful" group has more pictures, color, and illustrations on the bulletin covers. The editorial staff also tends to put more pictures, illustrations, and color on bulletins intended for popular use.

Since the bulletins mentioned as "most useful" are less technical than the bulletins not mentioned "most useful," apparently the technical nature of a bulletin affects its usefulness to county agents.

The importance of subject content in determining the usefulness of station bulletins also becomes apparent from observation of

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[14]This policy was commented on by Mr. George Church, Publications Editor, Agricultural Information Services, Oklahoma State University.

differences in subject content of bulletins mentioned "most useful" by different agents. For example, in four questionnaires from the counties of Alfalfa, Beaver, Cimarron, and Kingfisher, which are high in production of wheat, six of 20 bulletins mentioned as "most useful" were about wheat and none were about cotton, a crop of relatively low production in these counties. Similarly, in two questionnaires from agents of the counties of Harmon and Beckham, which are high in the production of cotton and relatively low in the production of wheat, five of ten bulletins mentioned "most useful" were about the production of cotton and only one about production of wheat.

Replies to Question Seven When Agents Mentioned Publications Other Than Bulletins

Previously mentioned was the fact that many of the agents replied to question seven by giving titles to publications other than station bulletins. Fourteen agents made this error. The agents possibly did not completely read the question, for it is specific and differentiates between extension circulars and experiment station bulletins. Possibly some agents have an attitude that station bulletins are never "most useful." Since this study concerns station bulletins no effort was made to compare circulars mentioned as "most useful" with circulars not mentioned as "most useful."

Analysis of Responses to Question Seven "a"

In designing a publication for a particular audience, information

on how the audience will use the publication is helpful. For this reason a part "a" was added to question seven. Part "a" was:

How do you find these bulletins most useful in your work as an extension agent?

The replies of the agents to part "a" indicated that the following are important uses that agents make of bulletins mentioned "most useful":

Number of Agents Indicating Use	Use of Bulletins as Indicated by Agents
13	Use to distribute to farmers and other persons interested in the subject of the bulletin.
13	Use bulletins as personal reference.
11	Use bulletins to gain information on latest research developments.
11	Use bulletins to obtain answers to local and specific farm problems
8	Use bulletins when counseling with individuals or in group discussions
7	Interpret experimental results and conclusions of experiments into farming practices for farmers.
3	Use bulletins for the preparation of radio talks and news releases.

Discussion of Results of Part "a" of Question Seven

In general, the editorial policy of the station editorial staff has been to design bulletins so that they facilitate use by agents in most of the ways listed above. However, station bulletins are not published with the intention of wide distribution to a farmer audience.[15]

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[15] Mr. Church concurs on this statement of policy.

But, since 13 agents indicated that they distribute bulletins to farmers, apparently a considerable number of farmers are an audience for station bulletins.

Discussion of Responses to Part "a" of Question Seven When Publications Other Than Bulletins Were Mentioned "Most Useful"

Seven of the 14 agents who replied incorrectly to question seven, part "a", indicated they handed out extension circulars to farmers and other persons interested in having copies. Four of these agents indicated they used the circulars in discussion with individuals. Three agents indicated that they used the circulars for reference and background information.

Analysis of Responses to Question Eight

Question eight, "Do you have any comments?" was provided in the questionnaire so that the agents could make remarks not yet prompted by the other questions. The agents comments to this question are diverse, but contain a number of useful suggestions for editors of bulletins. (See Appendix B)

Again, some agents' responses to this question were similar enough to be classified. Ten agents indicated they thought the bulletins should be more concise and to the point. Four agents commented that the bulletins they wanted were always out of print. Two agents mentioned that they needed latest research information sooner in order to compete with magazines and newspapers.

Discussion of Agents' Comments to Question Eight

In general the comments and criticisms of agents in reply to question eight show that apparently the bulletins often are written with little understanding or regard for the needs of the county agents, and also, that county agents lack understanding of the purpose for which station bulletins are published. Agents often believe station bulletins are intended for distribution to farmers, but the bulletin authors, to the contrary, seem to write bulletins more often for the researcher than the county agent.

CHAPTER IV

ANALYSIS OF RESPONSES TO QUESTIONNAIRE INTERVIEWS

As previously mentioned in Chapter II the interview questionnaire (See Appendix A) was designed (1) to obtain more specific answers to "open" questions in the mail questionnaire, (2) to answer questions brought to attention from results of the mail questionnaire, and (3) to serve as a check on the results of the mail questionnaire.

Each interview began by giving an agent 12 different bulletins to look at so he would know what type of publication the interview questions would be concerned with. The agents were not asked to read or compare these bulletins. However, some agents did use them in pointing out particular likes or dislikes of bulletins. If an agent did not understand a question as read to him, the interviewer gave further explanation.

Thirty-six interviews were obtained with the extension agents. Sixteen were with county agents, 13 with assistant county agents, and seven with associate agents.

In analysis of most of the interview results, the different types of agents are considered as one group. The jobs of the three types of agents are similar, differing to some extent only in the public they work with. The county agent works with the public as a whole. The assistant agent, however, has more contact with farm

children and 4-H Club activities. The associate agent is more concerned with management problems of family farms that are in full-time operation.[16] Any significant difference in the responses of the three types of agents are noted in the discussions of question results.

The first question (See page 50) concerned the uses made of station bulletins by the county agents. This question was asked the agents as a check on the results of question seven "a" of the mail questionnaire.

Analysis of Responses to Question One

The alternative uses of station bulletins listed in this question were obtained from the results of question seven "a." Table XI, page 51, gives the results of this question. The total point scores in the table are a measure of tendency of agents to check that they "very frequently" make a certain use of station bulletins. The total point scores were obtained by alloting one point to a "use" each time an agent checked it "very frequently," two points to a use each time it was checked "frequently," and three points each time checked "occasionally." The lower the score, the greater the tendency of the agents to check "very frequently."

As a measure of the importance of the uses agents make of station bulletins, the total point scores in Table XI provide about the same results as question seven "a" in the mail questionnaire.

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[16] Oral statement by Errol Hunter, Assistant Director, Oklahoma Agricultural Extension Service.

Question One

1. In your work as county agent, how often do you use experiment station bulletins

a. to help answer questions while talking to individual farmers about local agricultural problems: Check space below which seems most appropriate:

_____occasionally _____ frequently _____ very frequently

b. as a basis for group discussions with farmers and other interested persons:

_____occasionally _____ frequently _____ very frequently

c. as a reference for your personal use:

_____occasionally _____ frequently _____ very frequently

d. to gain information on latest research results that farmers can put into practice:

_____occasionally _____ frequently _____ very frequently

e. in preparation of radio talks and news releases:

_____occasionally _____ frequently _____ very frequently

f. to distribute to people interested in the bulletins:

_____occasionally _____ frequently _____ very frequently

g. What uses that you make of the bulletins are not covered by the categories above:

_____

How often: ____occasionally ____frequently ____very frequently

TABLE XI

FREQUENCY OF USES AGENTS MAKE OF BULLETINS

Letter Identification of Use	Times Checked Occasionally	Times Checked Frequently	Times Checked Very Frequently	Points for Being Checked: Occ.	Freq.	V.Freq.	Total Point Scores*
a.	11	20	5	33	40	5	78
b.	17	17	2	51	34	2	87
c.	3	19	14	9	38	14	61
d.	4	19	13	12	38	13	63
e.	22	12	2	66	24	2	92
f.	18	13	5	54	26	5	85

*The total point scores are a measure of the tendency of agents to check "very frequently" in regard to a use made of station bulletins. The uses are identified by the letters a, b, c, etc. The lower the total point scores, the greater the tendency of agents to check "very frequently" regarding a use of station bulletins.

Measured by total point scores, the top four uses of bulletins in order of importance are: c. as a reference for personal use; d. to gain information on latest research results while talking to individual farmers about local agricultural problems, and f. to distribute to people interested in the bulletins.

In the mail questionnaire the uses made of bulletins mentioned by the agents were, in order of frequency: use bulletins as a personal reference; use bulletins to distribute to farmers and other persons interested in the subject of the bulletin; use bulletins to gain information on latest research developments; and use bulletins to obtain answers to local and specific farm questions. In relation to the other uses, results of question seven "a" showed the distribution of bulletins to people as more important to the agents than did the first question of the interview questionnaire. In any case, the results of the two questions obviously lead to the same conclusions regarding what important uses agents make of station bulletins.

In part g of the first question of the interview questionnaire, only eight of the 36 agents interviewed mentioned an additional category of "use" that might have been added to the question. Six of these eight were assistant county agents. The six assistant agents mentioned they used bulletins in connection with 4-H Club demonstrations.

Discussion of Results of Question One

To design station bulletins for use in the several ways

frequently mentioned by agents would be a difficult task. A bulletin, if designed to be used for personal reference, would probably contain considerable detailed information. But a bulletin designed for distribution to the public probably would be a leaflet type, containing only essential information for solving specific farm problems.

A bulletin used for reference would need to have heads and subheads, a table of contents, and index tables so that certain information could be easily found. However, the shorter bulletins designed for the public probably need not be so complete with aids for finding information.

The various uses that agents mentioned they make of bulletins creates a complex problem for bulletin authors and editors. They must decide whether or not one bulletin should be designed for one particular use, several bulletins should be designed for several uses, or one bulletin should be designed as a compromise for several uses.

Analysis of Responses to Question Two

Questions two and one in the interview questionnaire obtained about the same information. However, question one is worded differently. It was asked mainly to determine if this differently worded question would get significantly different results.

Question two was:

In what two uses mentioned here [This refers to question one] are experiment station bulletins most helpful to you in your work?

In answering this question, 25 agents indicated use d; 19 indicated use c; ten use a; seven use f; six use b; two use e, and

two use g. Uses d, c, a, and f, which were most frequently mentioned by agents in this question, were the same four uses most frequently mentioned by agents in question seven "a" of the mail questionnaire. They also were the same four uses that agents most often checked "very frequently" in question one of the interview questionnaire.

Analysis of Responses to Question Three

Question three was:

Now suppose today you had no experiment station bulletins in stock. That is, you're completely out of station bulletins. Now, for what two uses of station bulletins mentioned here could you not find good substitute publications?

When this question was read to agents, they often had difficulty understanding it, and the interviewers had to explain more completely what it meant. The results of this question were similar to those in question two. Twenty-two agents indicated d, 14 indicated c, 13 indicated f, six indicated b, and three indicated e. No agents made comments for the miscellaneous category g.

Discussion of Results of Question Three

The results of question seven "a" of the mail questionnaire and the first question of the interview questionnaire did not differentiate between uses c and d in terms of frequency mentioned or tendency of agents to check "very frequently." In question seven "a" uses c and d were both mentioned 13 times by the agents. In question one the total point score (See Table XI) for use d was 63 and for use c was 61, indicating little difference in the agents'

tendency to check "very frequently" regarding a particular use of a bulletin. However, in questions two and three of the interview questionnaire agents indicated that use d, "to gain information on latest research results that farmers can put into practice," was most important to them.

Analysis of Responses to Questions Four and Five

Questions four and five were:

4. What group of people receive the majority of the experiment station bulletins which you distribute?

farmers: _____

rural non-farmers: _____

commercial dealers in agricultural equipment and products: _____

5. What other groups receive the bulletins from you?

_____

After several agents had been interviewed, the interviewers decided to gain more complete information to questions four and five by also asking the agents which groups receive the second largest number of the bulletins they distribute.

Thirty-four of the 36 agents interviewed said that farmers receive the majority of the bulletins they distribute. Twenty-five agents were asked the additional question "Which group receives the second largest number of bulletins distributed by you?" Sixteen of the 25 agents replied that they distribute the second largest number of bulletins to rural non-farmers.

Additional groups of people to whom agents frequently mentioned they distributed bulletins were: city people, local 4-H Club leaders, garden clubs, vocational agriculture teachers, government officials, and high school libraries. The additional group most frequently mentioned as receiving bulletins from agents was city people. Twelve of the 36 agents replying to question five mentioned city people.

A frequent comment of agents about the bulletins distributed to commercial dealers in agricultural equipment and products was that though the dealers consistently obtain bulletins, they don't receive a large number because they are not a large group.

Discussion of Results of Questions Four and Five

As expected, farmers are the group receiving the largest number of bulletins from agents. However, farmers are not the only group receiving station bulletins from agents. The agents distribute the bulletins to many other groups, having different educational backgrounds and interests. Many people receiving bulletins from agents obviously are not members of the audience for which experiment station bulletins are intended.

Analysis of Responses to Question Six

Question six was:

How do you distribute the experiment station bulletins to the people mentioned above? [This refers to questions four and five.]

Check the appropriate spaces:

_____Place bulletins in display rack where they are available for people to take at their convenience.

_____Hand the bulletins out to persons who ask for information on subjects covered in the experiment station bulletins.

_____Give the bulletins to persons who ask for a specific one.

By what other means do you distribute the experiment station bulletins? _____

All but one agent, an associate agent, checked that they distribute bulletins by "placing bulletins in display rack where they are available for people to take at their convenience." All agents checked that they "hand the bulletins out to persons who ask for information on subjects covered in the experiment station bulletins," and "give the bulletins to persons who ask for a specific one."

Twenty agents also mentioned that they distribute bulletins by mail. Three of these 20 agents said that they keep a mailing list of persons they believe would be interested in the bulletins. Three agents also said they mailed out bulletins after receiving requests by phone. One agent mentioned that he used bulletin information for a monthly newsletter that he mailed to farm families.

Fourteen agents said they made bulletins available to farmers at group meetings. Three of the 14 agents mentioned making the bulletins available at 4-H Club meetins.

Three agents commented that in addition to distributing bulletins by an office display rack, they sometimes use display racks in banks, feed stores, or drugstores. One agent said that in banks and feed-

stores he kept bulletin boards that had hooks on which he hung bulletins for people to take at their convenience.

Analysis of Responses to Question Seven

Question seven was:

By which of the methods just mentioned [This refers to question six] do you distribute most of the experiment station bulletins?

Twelve agents said they distributed most of their bulletins by "handing the bulletins out to persons who ask for information on subjects covered in the experiment station bulletins." Eleven agents said they distributed most of their bulletins by "placing bulletins in a display rack where they are available for people to take at their convenience." One agent said he distributed most bulletins equally by display racks and handing them out to persons interested. One other agent said he distributed most bulletins to persons asking for specific bulletins. Two agents checked that they distributed bulletins equally through the three ways listed in question six.

Six agents said they distributed most of their bulletins by mail, and three said they distributed most bulletins at meetings.

Discussion of Results of Question Seven

Display racks are an important means that agents use for distribution of experiment station bulletins. If bulletin authors and editors were concerned with getting bulletins to the public through display racks, then pictures, illustrations and color on the covers of bulletins would no doubt be of considerable value in attracting people's attention to bulletins.

Analysis of Responses to Question Eight

In the last question (Any comments?) of the mail questionnaire, four county agents replied that the bulletins they wanted were always unavailable because they were out of print. Question eight was asked the agents to determine to what extent agents have difficulty obtaining station bulletins.

Question eight was:

Do you have difficulty obtaining experiment station bulletins that you need the most? _____ If so, why have they been difficult to obtain? _____

Twenty-nine of the agents interviewed said they had no difficulty obtaining station bulletins they needed most. The other seven said they did have difficulty. Four of these seven mentioned that the bulletins they could not get were out of print. Three agents said they sometimes receive requests for new bulletins before they are sent copies. Agents replies to this question are given in detail in Appendix D.

Discussion of Results of Question Eight

Few agents seem to have difficulty obtaining station bulletins. When they do, it is because they bulletins are out of print. Perhaps, if demand for bulletins were better determined, this problem would be entirely eliminated.

Sometimes the agents do not receive the bulletins soon enough. Results of the mail questionnaire and previous questions in this questionnaire show that agents frequently depend on the station

bulletins for the latest research information. Perhaps a mimeographed publication, costing less and taking less time to prepare, could provide the agents with more timely research information.

Analysis of Responses to Question Nine

Question nine, "What particular bulletins that you've needed have been difficult to obtain?" received few replies. In question nine only seven agents found station bulletins difficult to obtain, and these seven remembered few titles of bulletins that were not available.

Analysis of Responses to Question Ten

Question ten, which was "What publication did you use to substitute for the experiment station bulletins that were not available?" also did not receive many replies. Four of the seven agents who had difficulty obtaining certain bulletins said they substituted with extension publications. Two agents said they had substituted with USDA bulletins and extension bulletins. One agent said he substituted with the USDA year book.

Analysis of Responses to Questions 11 and 12

Question 11 was:

Do you believe that color or illustrations on the covers of the experiment station bulletins have much influence as to whether a person will take a bulletin from you bulletin rack home with him?

Question 12 was:

Do you believe that color or an illustration on a bulletin

cover will sometimes be more important in determining the overall demand for a bulletin than its subject content?

Questions 11 and 12 were asked agents as an effort to obtain an indication of their attitude toward the use of pictures and illustrations on bulletin covers.

Only one agent replied a definite "no" to question 11. The 35 other agents replied with "yes" or an equivalent remark such as "I believe so." Probably more significant than the "yes" or "no" replies to this question are the additional comments that the agents made. Fourteen agents made additional remarks such as "It gets them to look at them," "they notice it quicker," or "it attracts their attention."

To question 12, twenty-five agents replied with a "yes" or equivalent reply. Seven of these 25 agents indicated that they thought the subject content most important in determining the overall demand for a bulletin. Replies to question 11 and 12 are given in Appendix D.

Discussion of Results of Questions 11 and 12

The agents apparently believe that pictures, illustrations, and color on covers of bulletins attract people's attention and that as a result these characteristics make bulletins more useful to agents in their work. This conclusion is also indicated in the analysis of question seven of the mail questionnaire.

As one might expect, the usefulness of a bulletin to county agents is determined in part by its subject content. Results

of question seven in the mail questionnaire as well as the opinions of agents expressed in question 12 of the interview questionnaire indicate the importance of subject content to usefulness of a bulletin to an agent.

Analysis of Results of Questions 13, 15, 17, and 20

Because of the similarity of questions 13, 15, 17, and 20, they are analyzed together. These questions are:

13. Do you find a table of contents helpful in making use of information in station bulletins?

_____occasionally _____frequently _____very frequently

15. Do you find graphs helpful in making use of the information in the experiment station bulletins? (Explain definition of graph)

_____occasionally _____frequently _____very frequently

17. Do you find tables helpful in making use of the information in experiment station bulletins?

_____occasionally _____frequently _____very frequently

20. Do you find subheads helpful in making use of information in experiment station bulletins?

_____occasionally _____frequently _____very frequently

Table XII, page 63, shows total point scores for responses to questions 13, 15, 17, and 20. These scores were derived by the same procedure as used for the total point scores in Table XI, page 51. The lower the total point scores, the more often agents tended to check "very frequently" that a particular characteristic is helpful in making use of the research information.

The total point scores for these questions concerning the bulletin

TABLE XII

COMPUTED RESULTS OF QUESTIONS

13, 15, 17, AND 20

Question	Frequency Space Checked:			Frequency Space Checked:			Total Point Scores **
/	Occ./	Freq./	V.Freq./	Occ./	Freq./	V.Freq./	
13.	5 *	12	19	15	24	19	58
15.	19	13	4	57	26	4	87
17.	16	14	6	48	28	6	82
20.	3	19	14	9	38	14	61

*One agent said "seldom." This remark was counted as occasionally.

**The total point scores are a measure of the tendency of agents to check "very frequently" in regard to the helpfulness of particular bulletin characteristics questioned. The lower the total point scores, the greater the tendency of agents to check "frequently" and "very frequently" for the questions listed. If for any one question all agents had checked "very frequently," the total point score would be 36 for that question.

characteristics of table of contents, subheads, tables, and graphs were 58, 61, 82, and 87 respectively. A conclusion that may be drawn from this data is that, from the viewpoint of extension agents, table of contents and subheads are more helpful to agents in making use of information in station bulletins than graphs or tables.

Discussion of Results of Question 13, 15, 17 and 20

Results of the mail questionnaire show that subheads and a table of contents in a bulletin, in the opinion of agents, help to make bulletin information easier to understand. On the other hand, agents frequently complained that tables did not help to make bulletin information more understandable.

Similarly, the analysis of interview questions 13, 15, 17, and 20 indicate that agents "very frequently" find subheads and table of contents helpful in making use of bulletin information. Graphs and tables they only "occasionally" find helpful.

Results of the interviews, however, indicate a less favorable attitude of agents toward graphs than did the mail questionnaire results. Nineteen agents checked that they found graphs helpful only "occasionally." Sixteen agents checked that they found tables helpful "occasionally." In the mail questionnaire only four of 37 agents indicated ineffective graphs made bulletins "most difficult to understand." The results of the mail questionnaire concerning graphs are probably of little significance since only five of the 11 bulletins contained graphs.

Though agents apparently do not look upon graphs and tables with

great favor, the results indicate that they prefer tables to graphs. Further analysis indicates that this is most apparent for the county agents and assistant county agents who were interviewed.

Further Analysis of Responses to Questions 15 and 17

The responses of the seven associate agents interview show that these agents differ from county agents and assistant agents in their attitude toward graphs. Three of the associate county agents checked that they found graphs helpful "very frequently," and three checked that they found them helpful "frequently." Only one associate agent checked "occasionally." However, only one of the 29 county agents and assistant agents interviewed checked "very frequently." Ten of these agents checked "frequently," and 18 checked "occasionally."

The favorable attitude of associate agents toward graphs tended to decrease the total point score for question 17. The responses of associate agents to question 11, which concerns tables, follows the pattern of the other agents' responses.

When the responses of associate agents are eliminated from consideration in question 15 and 17, the assistant agents and county agents show a definite preference for tables to graphs in terms of "helpfulness in making use of the information in experiment station bulletins?" The total point scores in Table XIII, page 66, illustrate this preference.

Discussion of Further Analysis of Questions 15 and 17

Associate agents work with whole family farm units and often have to assist families in farm management problems. In preparation

TABLE XIII

RESPONSES OF COUNTY AGENTS AND ASSISTANT COUNTY AGENTS

TO QUESTIONS 15 AND 17

Question and type of Agents Responding/	Frequency Space Checked: Occ./	Freq./	V.Freq./	Points for Being Checked: Occ./	Freq./	V.Freq./	Total Point Scores *
Question 15							
County Agents	11	4	1	33	8	1	42
Asst. Agents	7	6	0	21	12	0	33
						Total	75
Question 17							
County Agents	6	7	3	18	14	3	35
Asst. Agents	7	4	2	21	8	2	31
						Total	66

*Comparison of total points of the agents (66 vs. 75) indicates a slight preference of tables to graphs by the agents.

for their type of work, associate agents often take more courses in farm management and agricultural economics than assistant and county agents.[17] This difference in background might account for why these agents would be more favorable toward use of graphs than county or assistant county agents.

That agents actually prefer tables to graphs is probably questionable; nevertheless, agents as a group, do not "very frequently" find graphs and tables helpful in making use of bulletin information. Some of the agents' complaints in questions 16 and 19 provide a few suggestions as to why agents do not often find graphs and tables helpful.

Analysis of Responses to Questions 16 and 19

Question 16 was:

Do you have any suggestions for improving graphs in experiment station bulletins? _____

Question 19 was:

Would you prefer that information presented in tables be presented in a different way? (i.e., graphs, pictures, explanation) _____

_____Do you have any suggestions for improving tables?

Nineteen of the agents did not offer suggestions for improvement of graphs. Four of the agents who did make suggestions said that graphs should be made simpler. Three agents commented that explanations of the graphs were not adequate. Two agents said color added

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[17] Oral statement by Mr. E. K. Lowe, Assistant Director, Oklahoma Extension Service.

to graphs would help. Two other agents said that cartoons or illustrations in graphs would be helpful. Other comments made by agents were: "Need to be about one subject;" "design so that they will be easy for newspapers to duplicate;" "locate near explanation;" "avoid real technical terms in graphs;" "lines are confusing at times." All agents' comments on question 16 are in Appendix D.

Only three agents did not reply to question 19. Fourteen of the agents said they did not necessarily prefer graphs, pictures, or explanatory material to tables, but six of the 14 did offer suggestions for improving tables. Four of these six agents indicated they thought that the explanations of tables often were not adequate. Two said that tables should be simpler; to quote one agent, "I prefer more tables with less information per table."

Fourteen agents answered "yes" or equivalent to the first part of question 19. Five of these 14 indicated that they would prefer graphs to tables. Seven agents indicated a preference for pictures. Six agents indicated they thought more explanation would be better than having so many tables.

Five agents did not indicate a preference, but made general statements. Such comments were: "Take more room; write for farmers;" "it would be looked over more thoroughly if it had more graphs, pictures, and explanation;" "have trouble sometimes in following line across page and in getting columns straight;" "table or graph is set up without enough explanation, and sometimes other readers don't pay much attention to these."

Discussion of Results of Questions 16 and 19

Many of the complaints and suggestions that agents made in answering questions 16 and 19 are the same as those made by agents replying to questions 2,2a and 3,3a of the mail questionnaire. However, replies to questions 16 and 19 are more general than the similar responses in the mail questionnaire. Results of these four questions show that apparently a large number of the agents think graphs and tables should be simpler, better explained, and more appropriately located in bulletins.

Analysis of Responses to Question 14

Question 14 was:

Where do you prefer that a table of contents be located in a bulletin? (Show locations)

_____At the back of the cover on the second page.

_____On about the third or fourth page just after the preface.

_____On the outside page at the very back of the bulletins.

While asking the agents this question the interviewers showed them the three locations where in the past content tables have been placed in bulletins. Twenty-seven agents said that they preferred to have a table of contents "at the back of the cover on the second page." Four agents preferred to have a table of contents "on about the third or fourth page just after the preface." One agent said he would prefer to have the content table "on the outside page at the very back of the bulletin." Three other agents expressed no opinion, and one other said "just follow a standard procedure."

Discussion of Results of Question 14

The usual location for content tables in Oklahoma station bulletins is at the back of the cover on the second page. Probably the major reason agents indicated they preferred to have a content table located on the second page is that by habit that is where they expect to find it.

Analysis of Responses to Question 18

Question 18 was:

How often do you read information that is in table form?

_____occasionally _____frequently _____very frequently

Fifteen of the agents checked "occasionally," 13 checked "frequently," and five checked "very frequently." Two agents said they read table information as it is needed. One agent said he scanned tables and read for comparisons.

The results of question 18 probably mean that agents do not pay much attention to a lot of information that is placed in tables.

Analysis of Responses to Question 21

The number of subheads on a page of an experiment station bulletin ranges from as many as none to at least five. It would be possible to have a subhead for each paragraph. How many do agents prefer? To determine if agents have any preference as to number of subheads per page, they were asked question 21.

Question 21 was:

On the average, how many subheads per page of written copy do you believe should appear in an experiment station bulletin?

Six agents said they would like from two to three subheads per page of written copy. Four agents said they preferred two per page. One agent preferred three subheads, and two agents said they would like to have four subheads per page. Two agents said they would like from three to four subheads per page. The other agents responding did not commit themselves to the preference of an set number, but made such comments as "no set number," "as many as convenient," "if it covers information," "minimum of two, lots of white space," "would say keep to minimum," etc.

The agents did not show much of a trend in preference as to number of subheads. A compromise that would probably satisfy most agents would be about three subheads per page of written copy.

Analysis of Responses to Question 22

Question 22 was:

Do you find the language used in the experiment station bulletins sufficiently easy to understand?

_____occasionally _____frequently_____ very frequently

Three agents checked that they "occasionally" found bulletins sufficiently easy to understand. Twenty-four agents checked "frequently." Six checked "very frequently." Remarks of the other three agents were "no problem with it," "more frequently hard to understand," and "frequently find them hard to understand from the standpoint of the farmer."

Discussion of Results of Question 22

In replying to this question most of the agents checked the middle choice, "frequently." Apparently, then, agents do not find the bulletins too difficult to understand. However, many agents may have checked "frequently" because they felt if they had indicated the bulletins were difficult to understand by checking "occasionally," they would be admitting their ignorance. The results of question 23, though, tend to indicate that this latter conclusion is incorrect.

Analysis of Responses to Question 23

Question 23 was:

Do you have any particular criticism about the writing in the experiment station bulletins?

Seventeen agents had no particular criticisms to make about the written language in experiment station bulletins. Eight agents who did criticize made comments to the effect that they thought station bulletins were too technical or too long for the farmer to use the information. Eleven agents criticized the language without referring to farmers. Four of these eleven said bulletins were too long, and two said bulletins should be simpler. The two other agents made remarks that were too vague to analyze.

Discussion of Results of Question 23

Seventeen agents made no particular criticisms of the written language in station bulletins. Eight of the agents who did criticize,

did so in terms of what makes bulletins more presentable to farmers. Probably, if agents thought the written language was too difficult to understand, they would have made more criticisms of the written language. In the mail questionnaire the comments by agents about tables showed that agents could be critical if they thought it justified.

Analysis of Responses to Question 24

Question 24 was:

Do you have any particular comments or criticisms about: summaries in bulletins:_____(Their location--near the back or front) _____ introduction:_____tables:_____ (location of tables) _____graphs:_____pictures:_____.

Question 24 was "open" and produced a variety of comments from the agents. Because the agents reponses to question 24 were so general and various, little effort was made to classify them.

Thirteen of the agents made no comments in regard to summaries; however, most of the agents did indicate a preference in location of a summary. Twenty-three agents indicated they preferred the summary at the back of a bulletin. Eight agents said they preferred the summary at the front. The agents who commented about summaries, generally indicated that they thought a summary was important to a bulletin.

Some agents thought a good introduction was needed in a bulletin. Other agents indicated they paid little attention to the introduction of a bulletin. Eight agents did coment about introductions.

Generally the agents thought more pictures were needed in bulletins if the pictures are connected with the subject matter. The comments agents made about tables and graphs were usually the same as made in previous questions. Agents said tables and graphs should be simpler, more adequately explained, nearer to explanation, etc.

Question 25

Question 25 was "Any other comments you would like to make?" The additional comments the agents made are mostly repetitious of comments made to previous questions. Some agents, however, mentioned specific problems they have with bulletins. No attempt was made to classify the agents' comments to this question. All comments to this question are located in Appendix D.

CHAPTER V

SUMMARY OF RESULTS AND CONCLUSIONS

The usefulness of a station bulletin has been defined as its ability to provide information helpful to the agent in his job as counselor to rural people on agricultural problems. No doubt many of the agents had the farmer in mind when answering questions in the mail questionnaire and during the interviews. In many instances, agents probably find that for information to be understandable and helpful to them, it must also be helpful and understandable to the farmer. The questions that agents ask and have to answer are usually questions that farmers might ask, not questions that the researcher might ask. Many criticisms that agents made about bulletins probably accrued from the tendency of bulletin authors to write for other researchers rather than for county agents.

Conclusions

1. Although bulletins may have effective tables, or have language easy to understand, or be concise and to the point, agents find that these characteristics in station bulletins are too often ineffective or lacking. Agents find the tables, in particular, more often than not are ineffective in making a bulletin easy to understand. On the other hand, the agents have relatively few complaints

about such sections as "summaries and conclusions" and "introduction" in bulletins.

2. The most frequent reasons agents give for tables being ineffective in making bulletin information understandable and useful are: (1) Bulletins contain too many tables. (2) Text of bulletins contains too many references to tables. (3) Tables are not accompanied with sufficient explanation. (4) Tables contain too many figures. (5) Tables are not conveniently located near explanations.

3. Agents do not necessarily prefer graphs to tables. Agents find that graphs also have a number of faults. Graphs are sometimes complex, containing too many lines. Like for tables, graphs often receive inadequate explanation. Agents believe that cartoons and illustrations added to graphs would help make bulletin information more useful.

4. Agents find a content table and subheads more helpful in making usef of bulletin information than tables or graphs.

5. Agents often do not find the written copy in station bulletins particularly difficult to understand. However, the written copy sometimes contains too many technical terms. The agents complain that the written copy in bulletins is often too technical for farmers.

6. The three most frequent and important uses that agents make of station bulletins are: (1) as personal references for background information, (2) to obtain information on latest research developments, and (3) to distribute to people interested in the bulletins.

7. To design bulletins for the three uses most frequently made of them by agents would be difficult. A bulletin for agents to use

primarily for personal reference would be different from one designed for distribution to the public.

8. The bulletins agents find most useful in their work more frequently have color, pictures, or illustrations on their covers than other bulletins. The most useful bulletins tend to be about less technical subjects than other bulletins.

9. Agents believe that color, illustrations, and pictures on covers of bulletins are important in attracting people's attention to bulletins. However, they also believe that subject content is most important for the overall demand of bulletins.

10. Agents sometimes have difficulty obtaining station bulletins when they need them, but for most agents this is usually a minor problem. Agents would find it more convenient, though, if they could receive latest research information sooner.

11. According to the opinion of agents, the subject content of a bulletin is the most important factor in determining which of several bulletins they will read first.

12. Agents prefer to have the content table of a bulletin on the second page.

13. Agents prefer to have about three subheads per page of words in a bulletin.

14. Agents distribute most station bulletins through the use of display racks and by handing them out to persons seeking information on a subject covered in a bulletin. Some agents distribute most of their station bulletins by use of mailing lists, or by making them available to people at special meetings.

15. Bulletins are received by many groups of people for whom they are not designed. Farmers, city people, garden clubs, and rural non-farmers are a few of these groups receiving station bulletins.

16. Farmers receive the largest number of the bulletins which agents distribute. However, a large quantity of bulletins is distributed to city people and rural non-farmers.

Comparison of Conclusions of Oklahoma Study with Conclusions of Previous Research

Some of the conclusions drawn from the previous research studies listed in Chapter I are similar to those of this study. For example, in the Minnesota University study, agents thought "that if any changes were made in bulletins they should be made simpler and shorter." Agents replying to the mail and interview questionnaires indicated a desire to have bulletins "concise and to the point."

The study in Louisiana concluded that "the majority of county and home demonstration agents distributed the greatest number of bulletins to people making calls at agents' offices and to those who asked for them at meetings." Similarly, Oklahoma agents indicated that they distribute most bulletins through display racks in their offices and by just handing them to persons interested in subject matter covered by a bulletin. Oklahoma agents also indicated they passed out a fairly large number of bulletins at meetings.

The Arkansas study concluded that "illustrated cover pages remind individuals of the need for information on a particular subject," and that "they stimulate interest in the subject discussed."

Oklahoma agents indicated that they believed color, illustrations, or pictures on bulletin covers helped considerably in attracting people's attention.

CHAPTER VI

SUGGESTIONS FOR FUTURE RESEARCH ON OKLAHOMA EXPERIMENT STATION BULLETINS

In Chapter I it is stated that the primary medium for reporting original experiment station research has been the station bulletin. in using these bulletins for communication, three basic problems exist: (1) Distribution of the information into the hands of people who will use it. (2) Presenting bulletin information in a way in which the audience for which it is intended can make the most use of it. (3) Presenting information in the bulletins on subjects which are of interest and importance to the audience for which the bulletins are intended.[18]

So far, no detailed investigation has been made of distribution problems of Oklahoma station bulletins. Problems of distribution should be an important concern for future research on Oklahoma bulletins. The first step in such a study would be simply to describe what the distribution problems of Oklahoma station bulletins are. Two questions about distribution that come to the author's mind are: (1) By what criterion should it be decided who is to receive station bulletins? Is the present criterion sufficient, or could a more adequate criterion, developed from knowledge of the readers' needs and

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[18]Mr. George Church, Agricultural Publications Editor, concurs on this outline of the three problems.

background, be made? (2) Who are all the unknown recipients of station bulletins, and how many bulletins are distributed to this unknown audience.

A study of "how to present information in a way in which the audience for which it is intended can make most use of it" would naturally concern techniques of presenting information in bulletins. The study of these techniques would involve further study of bulletin characteristics. A few questions to answer would be: What are the best type of tables or graphs? What are the best type of pictures? Should pictures be colored? Are colored pictures worth the extra cost? Questions of lesser importance might concern what type of content tables or subheads to use.

An important part of the question of how to present information in bulletins is the question of "how to write information in station bulletins so that it is understandable to the audience for which it is intended." To answer this question, one must first determine what criterion for understandability or comprehension should be used. Perhaps a group of people could be given written passages to read; then, after reading them they could be asked questions about information in the passages. Their ability to answer the questions could be used to rate the passages according to understandability.

Assuming that the ability of a reader to remember material just read is in part determined by the way the material is written, a criterion might be developed by measuring the ability of people to recall words among a list of words as being words that appeared in a passage just read. If the readers remember the material they just

read, which is akin to understanding it, they should be able to recognize more words from passages easy to understand than from written passages difficult to understand.

Another criterion of understandability might be a test of readers' ability to replace missing words deleted from a written passage they just read. A group of students might be asked to read a written passage for about ten minutes. After reading the passage, the readers might be asked to fill in the missing words deleted from another copy of the passage. Ability of readers to fill in the missing words could be used as a measure of understandability.

The mail and interview questionnaire surveys of the county agents might be followed up by similar studies of other segments of the audience for station bulletins. Vocational agricultural teachers are a group that could be easily studied in this manner. Such information would help to further define the information needs of the audience of station bulletins.

Information about agricultural subjects of interest and importance to the audience of station bulletins would be useful in determining who should receive bulletins on a particular subject. Some highly technical bulletins about research probably need not ever be sent to county agents. Information of subjects of interest and importance to the audience of bulletins would probably have little affect on the subject content of bulletins. Such information could affect subject content of bulletins only to the extent that it could affect station policy as to the type of research to be done.

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APPENDIX A

Appendix A contains copies of all the letters sent to the county agents, the questionnaire they were requested to complete and return by mail, and the questionnaire they completed during personal interviews.

Contents

OKLAHOMA

AGRICULTURAL AND MECHANICAL COLLEGE

November 5, 1957

Dear _____:

The experiment station wishes to try the attached questionnaire on about five county agents before sending it to others. The information obtained will be helpful in improving Extension Service publications as well as those of the experiment station. I thought you might be willing to help by completing the questionnaire and making any comments you think would be appropriate.

Very sincerely yours,

Edd Lemons
Head, Agr Inf Services

Bulletin Understandability Survey
Agricultural Experiment Station Publications
Division of Public Information
(Research Project 990)

Dear County Agent:

We need your help in getting answers to a few questions about experiment station bulletins.

As a county agent, you have had to handle the problem of translating experiment station information into terms a farmer can use. But first, experiment station information must be translated in terms understandable to you. The question of how best to present information in agricultural experiment station bulletins to off-farm leaders such as extension agents and vocational agriculture instructors has confronted us for some time. Many answers have been given, but few based on objective evidence.

With your help, and that of other members of the off-farm leader audience, we are searching for better and more objective answers to this question. As a first step in this project, we wish to have you rate these bulletins according to your judgment on their understandability.

To begin, read through each of the bulletins enclosed with this questionnaire. While reading, compare the bulletins according to which presents information so it is most understandable to you. Then, answer the questions on the following page, but read through all three bulletins first.

1. Rate the three bulletins according to which presents information the easiest way for you to understand.

a. The bulletin presenting information so it is easiest to understand is:

(title) _____

b. The bulletin presenting information so it is second easiest to understand is:

(title) _____

c. The bulletin presenting information so it is the most difficult to understand is:

(title) _____

2. What particular parts of the bulletin you rated in first place do you consider most effective in making the information understandable?

_____

_____

a. Why do you believe these parts were most effective in making the information understandable?

_____

_____

3. What particular parts of the bulletin you rated in last place do you consider most ineffective in making the information understandable?

_____

_____

a. Why do you believe these parts were ineffective in making the information understandable?

_____

_____

4. Which bulletin did you read through first?

(title) _____

a. Was there any specific reason that you read through this bulletin first? Explain.

_____

5. Which bulletin did you read through last?

(title) _____

6. On the bulletin you placed first, how important do you believe your background on the subject matter was in influencing your judgment?

Check one: not important ____ fairly important ____

slightly important ____ greatly important ____

7. What five agricultural experiment station bulletins have you found most useful in your work as an extension agent?

List in order of usefulness. Most useful first. Second most useful second, and so on.

1. (title) _____
2. (title) _____
3. (title) _____
4. (title) _____
5. (title) _____

8. Do you have in mind any agricultural experiment station bulletins especially difficult to understand? Give titles:

_____

_____

9. Do you have any comments? _____

_____

_____

After you have answered the questions as best you can, please put this questionnaire and the three bulletins in the return envelope and forward to the Division of Public Information, Project 990, Oklahoma State University, Stillwater, Oklahoma.

December 3, 1957

Dear_____:

We will appreciate your helping us on an important project in publications study. Will you please fill out the attached questionnaire and return it in the enclosed envelope addressed to George Church, Division of Public Information, Oklahoma State University.

Copies of this questionnaire are going to a limited number of agents, with each agent looking over only three Experiment Station bulletins. Most of the agents we contact will be given different bulletins, so it is important that we have your comments on the three which you receive.

These bulletins are being studied for understandability, and we will certaintly appreciate your careful study and frank opinions on those you receive. The attached questionnaire has been prepared to help you list your answers.

Very truly yours,

Ernest K. Lowe
Assistant Director

Bulletin Understandability Survey
Agricultural Experiment Station Publications
Division of Public Information
(Research Project 990)

Dear County Agent:

We need your help in getting answers to a few questions about experiment station bulletins.

As a county agent, you have had to handle the problem of translating experiment station information into terms a farmer can use. But first, experiment station information must be translated in terms understandable to you. The question of how best to present information in agricultural experiment station bulletins to off-farm leaders such as extension agents and vocational agriculture instructors has confronted us for some time. Many answers have been given, but few based on objective evidence.

With your help, and that of other members of the off-farm leader audience, we are searching for better and more objective answers to this question. As a first step in this project, we wish to have you rate these bulletins according to your judgment on their understandability.

To begin, read through each of the bulletins enclosed with this questionnaire. While reading, compare the bulletins according to which presents information so it is most understandable to you. Then, answer the questions on the following pages, but read through all three bulletins first.

Sincerely yours,

George Church
Editor, Agr Inf Services

1. Rate the three bulletins according to which presents information the easiest way for you to understand.

a. The bulletin presenting information so it is easiest to understand is:

(title) _____

b. The bulletin presenting information so it is second easiest to understand is:

(title) _____

c. The bulletin presenting information so it is the most difficult to understand is:

(title) _____

2. What particular parts of the bulletin you rated in first place do you consider most effective in making the information understandable?

_____

_____

_____

a. Why do you believe these parts were most effective in making the information understandable?

_____

_____

_____

3. What particular parts of the bulletin you rated in last place do you consider most ineffective in making the information understandable?

_____

_____

_____

a. Why do you believe these parts were ineffective in making the information understandable?

_____

_____

4. Which bulletin did you read through first?

(title) _____

a. Was there any specific reason that you read through this bulletin first? Explain.

_____

_____

5. Which bulletin did you read through last?

(title) _____

6. On the bulletin you placed first, how important do you believe your educational background on the subject matter was in influencing your judgment?

Check One:

not important ____ fairly important ____

slightly important ____ greatly important ____

7. What five Agricultural Experiment Station Bulletins (This excludes Circulars and other publications without the prefix B before their identification number) have you found useful in your work as an extension agent?

List in order of usefulness. Most useful first. Second most useful second, and so on.

(title) 1. _____

(title) 2. _____

(title) 3. _____

(title) 4. _____

(title) 5. _____

a. How do you find these bulletins <u>most</u> useful in your work as an extension agent?

_____

_____

_____

_____

8. Do you have any comments? _____

_____

_____

_____

After you have answered the questions as best you can, please put this questionnaire in the return envelope and forward to the Division of Public Information, Project 990, Oklahoma State University, Stillwater, Oklahoma.

Dear _____:

You probably remember the questionnaire on understandability of experiment station bulletins that was sent to your office several weeks ago. The results of the questionnaire, if I ever get them all returned, will be used for my Master's thesis in addition to being published for the benefit of other land grant colleges. So far, all the questionnaires but two have been returned. If you still have a copy of the questionnaire around your office, I'd sure appreciate receiving it.

Sincerely yours,

Don Childers

February 25, 1958

We wish to express our appreciation to you for completing and returning the questionnaire on the understandability of experiment station bulletins. All fifty-five of the questionnaires sent to county agents have been returned, and we are presently analyzing the data. The information obtained from these questionnaires will be of considerable help to experiment station authors in providing you with better bulletins. Again, we wish to say that your time and effort spent on the questionnaire was very much appreciated.

Cordially yours,

George F. Church
Editor, Agri. Information

QUESTIONNAIRE FOR SURVEY OF UNDERSTANDABILITY AND USEFULNESS OF EXPERIMENT STATION BULLETINS

EXTENSION AGENT'S NAME: _____

LOCATION OF AGENT'S OFFICE: _____

READ TO AGENT:

Last December we sent out a questionnaire concerning the understandability of experiment station bulletins. You may remember receiving one. What I have here is another questionnaire which is a follow-up on the results of the one sent out last December.

This questionnaire is concerned only with experiment station bulletins. I have here several copies of different bulletins we have published. (Show copies) They all have a series number starting with a B, indicating that it is a bulletin as distinguished from leaflets, circulars, and various miscellaneous publications.

QUESTION ONE--HAND TO AGENT:

1. In your work as county agent, how often do you use experiment station bulletins:

a. to help answer questions while talking to individual farmers about local agricultural problems: Check space below which seems most appropriate:

_____occasionally _____frequently _____very frequently

b. as a basis for group discussions with farmers and other interested persons:

_____occasionally _____frequently _____very frequently

c. as a reference for your personal use:

_____occasionally _____frequently _____very frequently

d. to gain information on latest research results that farmers can put into practice:

_____occasionally _____frequently _____very frequently

e. in the preparation of radio talks and news releases:

_____occasionally _____frequently _____very frequently

f. to distribute to people interested in the bulletins:

_____occasionally _____frequently _____very frequently

g. What uses that you make of the bulletins are not covered by the categories above:

_____

_____

How often: ____occasionally ____frequently ____very frequently

Read to agent as he receives question one:

This first question here is about the uses made of experiment station bulletins. I would like for you to read through all the parts of the question before trying to answer it. I'll be glad to answer any questions you might have about the question. Remember in answering the question, circulars, leaflets and other publications are excluded from consideration.

LET AGENT POSSES QUESTION ONE WHILE ANSWERING QUESTIONS 2 AND 3

---

2. In what two uses mentioned here are experiment station bulletins most helpful to you in your work? (Point to uses in question one)

---

3. Now suppose today you had no experiment station bulletins in stock. That is, you're completely out of the station bulletins. Now, for what two uses of station bulletins mentioned here (point to uses) could you not find good substitute publications.

OBTAIN QUESTION ONE FROM AGENT AND CHECK TO SEE THAT IT IS COMPLETED PROPERLY.

---

4. What group of people receive the majority of the experiment station bulletins which you distribute?

farmers: _____

rural non-farmers; _____

Commercial dealers in agricultural equipment and products: _____

5. What other groups receive the bulletins from you?

---

6. How do you distribute the experiment station bulletins to the people mentioned above?

Check appropriate spaces:

_____Place bulletins in display rack where they are available for people to take at their convenience.

_____Hand the bulletins out to persons who ask for information on subjects covered in the experiment station bulletins.

_____Give the bulletins to persons who ask for a specific one.

By what other means do you distribute the experiment station bulletins?

_____

_____

7. By which of the methods just mentioned do you distribute most of the experiment station bulletins?

_____

_____

8. Do you have difficulty obtaining experiment station bulletins that you need the most?

_____If so, why have they been difficult to obtain?

_____

9. What particular bulletins that you've needed have been difficult to obtain?

_____

_____

_____

10. What publications did you use to substitue for the experiment station bulletins that were not available?

_____

_____

_____

11. Do you believe that color or illustrations on the covers of the experiment station bulletins have much influence as to whether a person will take a bulletin from your bulletin rack home with him?

---

12. Do you believe that color or an illustration on a bulletin cover will sometimes be more important in determining the overall demand for a bulletin than the subject content?

READ TO AGENT:

I'm interested in finding out what parts or characteristics of experiment station bulletins you find helpful in making use of the information in the bulletins?

---

13. Do you find a table of contents helpful in making use of the information in station bulletins?

_____occasionally _____frequently _____ very frequently

14. Where do you prefer that a table of contents be located in a bulletin? (Show locations)

_____At the back of the cover on the second page.

_____On about the third or fourth page just after the preface.

_____On the outside page at the very back of the bulletin.

15. Do you find graphs helpful in making use of the information in the experiment station bulletins? (Explain definition of graph)

_____occasionally _____frequently _____ very frequently

16. Do you have any suggestions for improving graphs in experiment station bulletins?

---

17. Do you find tables helpful in making use of the information in experiment station bulletins?

_____occasionally _____frequently _____ very frequently

18. How often do you read information that is in table form?

_____occasionally _____frequently _____ very frequently

19. Would you prefer that information presented in tables be presented in a different way? (i.e., graphs, pictures, explanation)

_____ Do you have any suggestions for improving tables _____

_____

_____

_____

_____

20. Do you find subheads helpful in making use of information in experiment station bulletins?

_____occasionally _____frequently _____ very frequently

21. On an average, how many subheads do you believe should appear per page of written copy in an experiment station bulletin?

_____

22. Do you find the language used in the experiment station bulletins sufficiently easy to understand?

_____occasionally _____frequently _____ very frequently

23. Do you have any particular criticism about the writing in the experiment station bulletins?

_____

_____

_____

_____

24. Do you have any particular comments or criticisms about:

summaries in bulletins: _____

_____(Their location--near the back or front) _____

introduction: _____

tables: _____

_____(location of tables) _____

_____

graphs: _____

_____

pictures: _____

_____

25. Any other comments you would like to make?

_____

_____

_____

APPENDIX B

APPENDIX B

Appendix B contains the agents comments to question 2 and 2a, 3 and 3a, and 8. The portions of the agents' comments given a particular classification by the author are underlined. To the right of each underlined portion is a number to identify how it was classified. Pages 106, 113, and 121 list the classifications and corresponding numbers for identifying the classification of an agents' comment to a particular question.

Contents

TABLE XIV

CLASSIFICATIONS FOR AGENTS' REPLIES

TO QUESTIONS 2 AND 2a

Corresponding Identification Number	Classifications for Agents' Replies
1	Effective use of pictures and illustrations
2	Effective use of graphs
3	Effective use of tables
4	Effective summaries and conclusions
5	Effective introduction
6	Effective table of contents
7	Concise and to the point
8	Language easy to understand

County Agents' Replies to Question 2 and 2a

Replies when Bulletin B-489 was rated in first place:

2. The closeup photographs and diagrams.[1]
2a. Because they show quickly how the machine operates and is of utility.

2. Step by step descriptions, diagrams or photographs.[1]
2a. You could see what to do as you read how to do it.

2. Tabulations[3] and pictures.[1]
2a. Easy to see information in less time.

2. Introduction[5] --description of harvester.
2a. It is short, to the point, in outline form.[7]

2. Pictures[1] made this bulletin more easily understandable for me.
2a. Pictures and diagrams actually show the information the bulletin if trying to convey.

2. The pictures.[1]
2a. Because a reader can see what is being explained.

Replies when Bulletin B-453 was rated first place:

2. The parts of the bulletin listed on pages three to ten.
2a. They were listed and discussed in the order of importance to the farmer, and in language he or she can understand.[8]

2. Has table of contents[6] and tables to show how[3] this variety compared with other varieties.
2a. When a farmer wants information he doesn't want to read the entire publication to find the answer.

2. A brief description; then, a discussion of comparisons with other varieties.
2a. Everyone is always concerned about what it does or looks like--then how it compares.

2. The table of contents[6] and subject headings--very readable and easy to locate. Short paragraphs.[9] The opening statement.[5]
2a. The important points were emphasized more, and specific information was easier to locate. The opening statement is very thorough and invites further interest in the publication.

2. Table of contents.[6] Didn't have to read the entire bulletin if I didn't want to find out "Origin" and "History" and etc. Opening paragraph.[5]
2a. Direct and to the point[7] and written in a manner that it could be understood.[8]

2. Specific subject matter heading in simple narrative form. Simple tables easy to understand.[3]
2a. Don't have to interpret tables to understand narrative. Contents[6] easy to find and understand any phase without reading entire bulletin.

2. The very first statement[5]--highly productive, high in test weight, widely adapted, good quality--thus more total income; what all farmers are interested in.
2a. The farmers will continue to read through the entire bulletin for double assurance that maybe he can make more money. The bulletin is written in plain language throughout.[8]

2. Definite headings. Simple terms[8]
2a. Large print and to the point on most paragraphs.[7]

Replies when Bulletin B-467 was rated in first place:

2. The entire bulletin used relatively simple forms and its tables[3] were well made.
2a. Relatively simple language and good sentence structure.[8]

2. Page 2. Findings of Study[5] Page 8. Conclusion.[4]
2a. It gives a good outline of what the study is and a summary of the whole bulletin. If none of the other topics of the bulletin were read, one would have a good knowledge of the subject by reading the parts mentioned.

2. Less tables[3]--deals only with one subject--lists facts without going into so much detail.
2a. Same as reply given to question 2.

2. The first paragraph,[5] and Table I.[3]
2a. Easy to read and see at a glance.

2. Charts[3] easy to read and understand. Summary[4] easy to compare.
2a. Because I was able to retain the major factors of the bulletin after completion.

2. The simple wording[8]-charts[3] are interspersed at proper spaces.
2a. The wording makes for easy reading, and the charts are located so that they tie in with the line of thought to make for continuous reading.[9]

2. The fact that the findings of the study was presented at the[5] beginning and a definite conclusion given at the end.[4]
2a. You could have an idea of what you were reading by reading the results at the beginning, and the entire bulletin had fairly simple sentence construction and was written for the most part in laymen's language.[8]

2. It is to the point and does not ramble around.[7] It sets up each item.
2a. It has a definite point and the story is told.

2. The charts are easy and simple to understand[3] and placed in such manner[9] that they can be checked along with reading reference.
2a. They have only information needed to complete information in bulletin. Any phase of information can be checked at at glance.

Replies when Bulletin B-470 was rated in first place:

2. Procedures and results of the bulletin briefly and concisely[7] stated. Simple, yet adequate summary[4] to the question.
2a. Reasons listed under question 2.

2. The contents arrangement of the bulletin at the beginning.[6] Introduction[5] and the good explanation of the experiment and results.
2a. Subject in the experiment was brief.[7] The brief contents page made this bulletin more understandable.

2. The short summary statement.[4] The various tables.[3]
2a. The results are set out in clear cut and concise manner of[7] presentation, the experiment is easily understood; this in turn, saves considerable time to the reader which is very important.

2. The summary[4] is shorter but plainly understandable.
2a. It was short and to the point.[7] Explanations are near the tables.[9]

2. The charts were short and to the point.[3] There wasn't too many of the charts as was the case with the second and third bulletins.
2a. As I stated above, the charts were short, and not too many of them. In my opinion statistics can be pretty dry; persons lose interest.

2. Results.
2a. Complete--to the point.[7]

2. The summary was brief and to the point. The three tests gave results and the three tests were considered separately.
2a. My time is my most valuable asset. The bulletin was shorter[7] with the objective of the tests clearly stated. The summary and results[4] were equally clear and easy to find.

Replies when Bulletin B-465 was rated in first place:

2. The general comments were written in understandable form.
2a. Written in laymen's language[8]--easy to understand.

2. Grain forage yields of the crops grown.
2a. Not only explained in very simple terms[8] but shown in tables that were easy to understand.[3]

2. First page gave a brief[5] and interesting caption of the bulletin. Information is brief,[7] easy to understand. Use of pictures,[1] graphs[2] etc. in place of many words to read.
2a. Most people will not take the time for long periods of reading, and information in a bulletin must sell the idea, or at least stimulate further reading.

2. The Procedure and Rotation Plan, General Comments,[4] Charts,[2] Terminology.
2a. The procedure of the experiment written under the rotation plan is written in terms that the experienced person would very readily recognize and understand.8 The rotation plan is written in such terms that the experiment could very easily be translated into every day practice. The procedure does not go into detailed scientific explanation but enough information is presented so that the reader may quickly have a comprehensive picture of the over-all procedure. The procedure of the various segments of planting, fertilization and yields are easily understood. The general comments give a clear picture of what might be expected from utilizing the results of this experiment. The charts in this bulletin can be readily analyzed and understood. The terms used in explaining this experiment are concise yet completely explanatory.

2. Introduction to the material[9] included in the bulletin. Has a good content. Organization is good and set up in good readable form. Very outstanding, easily read because not too crowded.
2a. Because they do stand out--not crowded--each heading easily identified.

2. Large lettering and[9] special emphasis on key points; however, I like the content table on B-470 especially for quick reference.
2a. The first page.[5] Here the rotation and what it will do. This makes you want to read it, and the divided page. Makes it easy to read. Short and simple statements to the point.[7] However, this bulletin is still too long.

Replies when Bulletin B-468 was rated first place:

2. It is less technical--gets to the point quicker.[7] Language used is nearer on my own plane
2a. They are nearer on my level and I don't use lots of time to study--unless it (subject) becomes a project.

2. Easy reading with little reference to tables on (A&B)
2a. Did not lose trend of thought in reading to examine a table to complete information.

2. Clearly stated information in general discussion type bulletin--used a minimum of tables[3] with long lists of figures.
2a. The information was clearly stated in a very readable form.

2. Explanation and summary.[4]
2a. More readable and of local interest.

2. No particular part.
2a. No comment.

2. It is concise, to the point[7] and easy to read.
2a. There is a lot of bulletin to read--we need more that will tell the story in fewer words.

2. Topical approach, brief, concise,[7] clear in both body and summary[4]
2a. Because it was clear to me.

2. General information of the area. Farm characteristics and related information. Concise summary[4] and conclusions.
2a. Concise and exacting summary and conclusions. Wide margins and paragraph breaks makes easy reading.

Replies when Bulletin B-422 was rated first place:

2. Pictures of the cotton-stripper.[1] Simplicity of organization and easiness of understanding terms used. Graphs[3] are simpler and more to the point. (Bulletin had no graphs, but tables were much simpler and contained less data than in most other bulletins.)
2a. It paints a much better picture. You can see workings of stripper better than plots used in other bulletins.

2. Tests comparison in 1949, page 7. Also best during 1950, pp. 8-9. Summary on pp. 13.[4]
2a. Points up the things I wanted to know about the stripper. I am not concerned with how it mechanically operated but I wanted the results.

2. Information was specific without too many details.[7] A concise[4] summary without detailed data.
2a. First it gave quick practical answers. It furnished information easily explained to farmers.

2. The introductory page,[5] figures 1 and 2 and the test comparisons.
2a. You get a picture in your mind from the introduction and figures one and two[1] whereby you better understand the results on the tests.

Replies when Bulletin B-492 was rated in first place:

2. Statements of procedure, conditions affecting experiments and conclusions[4] regarding results. (Not data in tables)
2a. Research results for public consumption should be confined to concise, understandable statements,[7] setting out the proven facts and observations of the scientists. Notes and voluminous tables of data should be eliminated from the publication or published separately for use of other scientists.

2. Subject matter more clearly stated, explained and to the point.[7] Outline of subject matter seems more orderly. Explanation of technical or more unusual words or phrases used--are explained in parenthesis. Has clear summary of results[4] of experiments discussed. Explanation of tables good.[9]
2a. Subject matter wording generally plain[8] and to the point, with explanations on special points. Contents of tables explained.[9] Number of different phasis of experiment listed in any one table held to a minimum, making them easier to understand.[3]

Replies when Bulletin B-491 was rated in first place:

/No county agent rated this bulletin in first place/

Replies when Bulletin B-472 was rated in first place:

2. Charts were 20 or more years average.[3] This cut length of bulletin and made it easier to find facts.[7] This bulletin also has clear statements making it easy to read.
2a. Reply same as question 2.

2. Separate experiments. Fewer tables.[3] Results and summary.[4]
2a. Less confusion--too many tables in many bulletins--discussion; summary and facts more interesting.

2. The summary.[4] It gets to the point clear and simple.[7]
2a. The wording[8] and also it had what I was interested in finding out. When I first read the title of the experiment, I was interested.

Replies when Bulletin B-419 was rated in first place:

2. Introduction,[5] simple explanation, examples[3] and graphs,[2] /Examples were in table form/
2a. The introduction sold me on reading the bulletin. Explanation was simple and to the point.[8] Examples pointed out how to work graphs. Graphs gave information in concise form.

TABLE XV

CLASSIFICATIONS FOR AGENTS' REPLIES

TO QUESTION 3 AND 3a

Corresponding Identification Number	Classifications for Agents' Replies
1	Ineffective pictures and illustrations
2	Ineffective use of graphs
3	Ineffective use of tables
4	Ineffective summaries and conclusions
5	Ineffective introduction
6	Lacked table of contents
7	Not concise and to the point
8	Language difficult to understand
9	Lack personal knowledge to understand material
10	Ineffective organization
11	Unattractive presentation

County Agents' Replies to Question 3 and 3a

Replies when Bulletin B-489 was rated in last place:

3. Difficult subject to understand from print. Description of the harvester.
3a. I would not state the parts were ineffective but in my estimation, I believe more study was required to visualize the mechanical function of the machine.

3. The main features, page 4 and 5. Practices recommended for Mechanical Harvester, page 11.
3a. The manner in which it was presented.

3. The overall purpose is vague. Introduction. Title.
3a. Introduction is not adequate.[5] Generally speaking, the publication does not seem to be as well written. However, I would say that my knowledge (or lack of it) would definitely be a factor in this decision.[9]

Replies when bulletin B-453 was rated in last place:

3. Pictures do not aid subject matter.[1] Pedigree nice to have but establishes nothing. Written as a news article with summary first.
3a. Because you forget the summary by the time you are thru the[4] details of the bulletin. Results is what is needed not why conclusions drawn.

3. Too many statistics and reference to tables.[3] The tables were in the back of the bulletin.
3a. The tables were not adjacent to the discussion of the various points.

3. Too much yield data and other figures for farmers to remember;[3] also some genetics study that most farmers could not understand.
3a. The organization is not good.[10] Research people tend to go over most farmers' heads in presenting their findings.[8] The charts alone[2] would scare most farmers as they hopelessly turn through the bulletin.

3. Descriptions are written too much in detail,[7] charts and graphs were good but not eye catching enough as to detail. (Even makes the agent study.)
3a. Not in plain enough words for most farmers,[8] too much attention to detail in graphs and charts. More simplicity would help.

Replies when Bulletin B-467 was rated in last place:

3. Too many figures; not enough simple charts and graphs.[3] /This bulletin did not contain graphs./
3a. Too much reading to get such a small amount of information It is not inviting to read.[11]

Replies when Bulletin B-470 was rated in last place:

3. Detailed procedures using tables[3] and different lots make the bulletin difficult to follow and understand. However, I was more interested in this bulletin, although it required much more study to understand. I do recommend the summary such as this bulletin has.
3a. Confusing and difficult to read.[8] Difficult to keep the material straight in your mind as you read it.

3. Results.
3a. Did not give a definite answer.

3. Too many words and figures with very little emphasis to encourage the average reader to read the bulletin. Bulletin B-470 needs a more attractive cover.[11]
3a. Bulletin B-470 is a report of the experiment and lacks the ability to interest the average farmers in following through with the reading of the information enclosed.

Replies when Bulletin B-465 was rated in last place:

3. The explanation of how to plant the crop. This would vary from farm to farm and year to year--at least in our area.
3a. Each year would present a different problem.

3. The text keeps referring to different charts--plots--and[2] related activities. The first page or fly leaf catches your attention but after that you become lost in a bunch of data.[7]
3a. I possibly answered this question in the above answer--The situation is set up too long--The objective not clear[10]-- the results hard to find.

Replies when Bulletin B-468 was rated in last place:

3. Farm Characteristics not needed. Figure I.[1]
3a. Farm Characteristics could be omitted--Figure I; it would be hard for the average farmer to understand.

3. Actually I saw little difference between the three bulletins. I did feel that it was not as concise.[7] Lacks a content table,[6] and could perhaps be presented clearer, especially in regard to headings.
3a. Primarily it does not attract the reader's attention and it is[11] more difficult to realize major points being emphasized.

Replies when Bulletin B-422 was rated in last place:

3. Tables II and III.
3a. Heading of Table III abbreviated--requiring constant reference to footnotes. More information included in both tables than is readily assimilated.[3]

3. The many minor details[7] and the technical language used.[8]
3a. They are relatively unimportant to me in my general agricultural educational work.

3. All the tables lack reader interest.[3]
3a. Too many figures and decimal points.

Replies when Bulletin B-492 was rated in last place:

3. The technical chemical data presented.[3] /This data is in table form./
3a. They are of little value except to the research specialist involved in the study.

3. Figure 1 /This agent misunderstood the question and made comments on the bulletin he rated first/
3a. Listed Stigler, Tahlequah, Broken Arrow, Sallisaw as first choice markets yet showed no number as preferring them.

3. Too much in too many tables[3]--chemical symbols.
3a. Especially--chemical symbols not understood by average individual.[8] Bulletins should be shorter and to the point[7]--put in terms understandable to laymen.

3. The wording[8] and discussion and tables.[3]
3a. The bulletin could be boiled down some what,[7] particularly the "Results of Each Experiment." The tables could be changed to be more easily and quickly analyzed.

3. Too many tables,[3] charts[2] and figures.
3a. Too many figures in chart form. People don't study them and don't understand them as they would in other forms.

3. Several tables[3] and statistical information make for difficulty in understanding. Very time consuming to dig information out.
3a. Most people would like the information presented as it is in the summary. Without previous training in analyzing experimental results, the statistics and tables as presented would give little help.[9]

3. Results, tables,[3] terminology.[8]
3a. The results of this experiment are broken down into various segments which were hard for one to follow and correlate. The results as recorded in this bulletin are of a scientific nature which requires more time to obtain the information in such a way that could be presented in every day language. This bulletin contains a great many more tables than the other two and in many cases contains no information that I could use in presenting the results of this experiment.

3. Most charts[2] and tables[3] in chemical formulas.
3a. In some cases reference books would be needed to get the full meaning.[9]

3. Entire bulletin is too technical[4] and detailed[7] for average farmers use.
3a. No comment.

3. Too many tables[3] that required considerable time in determining its content. Chemical symbols were used.
3a. Not all could read chemical abbreviations and information that[3] requires effort to get message will not likely be read.

Replies when Bulletin B-491 was rated in last place:

3. Too many figures used.[3] Too technical[8] would confuse the average farmer until he would not read forward.
3a. Because it covered too wide a scope.[7] Not definite enough in farmers' language.

3. We consider the entire bulletin ineffective. It proves nothing that is not already generally known.
3a. This bulletin is ineffective because the observations of experiments were made during an abnormal rainfall period; were inclusive and stated in a very poor manner. Parts are copied from other research data.

3. Charts[2] and tables,[3]--also too many treatments.
3a. Did not explain enough; also it was confusing with darso when the experiment was with oats.

3. In winter fertilization oats; this bulletin had too much[7] material on previous cropping systems and darso.
3a. Was hard to separate winter oat information from darso information.

3. Too many tables[3]--the bulletin covers two different subjects[7]--N2 fertilizer on yield of winter oats and effect of previous cropping system.
3a. Same as above.

3. In a once over reading, I was unable to draw the information from the tables.[3]
3a. Answered above.

3. That part from page three to upper part of page five. (Old cropping system.)
3a. The reader must picture the old cropping and there are several. Could it have been drawn giving the treatment and cropping system?

3. I see nothing difficult in either (A or B).
3a. No comment.

3. The procedure of conducting the experiment was too complex to be thoroughly understood without considerable study.
3a. Too much material was discussed in too much detail.[7] The terminology was too technical[8] as were conclusions.

Replies when Bulletin B-472 was rated in last place:

3. Excess use of long and detailed tables[3] of information.
3a. Possibly because an attempt was made to include too many different treatments and phases of treatments in one table form.

3. Charts[3] /The bulletin contained tables not charts/[7] have too much information in them. Goes too much into details about plots[7] and other information on them.
3a. People can just follow one train of thought at a time. The simpler each bulletin is the better people can understand and follow.

3. Tables[3] and contents take too much time to read.[7] (The graph type tables in B-465 are easy to read and understand.)
3a. I found myself stopping and going back to lines I had already read in order to try to get the meaning.

3. Description of experiments are confusing and not concise enough.[7]
3a. You have to read experiment description and variations; then refer to charts--could be more concise and to the point--better organized.[10]

3. Procedure paragraph, table 2 and 4.[3]
3a. Too many figures with headings hard to read. Must be studied to get the results.

3. Some words seem a "little large" to quickly comprehend.[8] (For example--on page 9 "the information about incorporation into soil." Is there enough explanation of some technical terms, abbreviations, words, etc. into "every-day language" such as "calcium carbonate concretions," "ferruginous," etc? Too many different phases of experiment in one table.[3]
3a. Outline, words and explanation of experiments not clear.

Replies when Bulletin B-419 was rated in last place:

3. Tables I, II, III, VI, VIII.[3]
3a. Too hard for me to grasp the meaning by reading the figures once.

3. The section on tables.[3]
3a. It takes too long to study these tables to secure the information and most tables are too complicated to understand easily.

3. Reference to tables.[3] Could not read narrative or make conclusion without complete study. (A good bulletin that I have used and wouldn't know how information could be presented any better technically.)
3a. Takes concentration and study to interpret information. This is a broad subject and can be broken down to specific cases after study of entire bulletin.

3. The bulletin contains a number of tables[3] which to me are not described enough in the narrative part of the bulletin. It is difficult to draw difinite conclusions when making comparisons.
3a. It is difficult to interpret the tables in terms of information which should be applied to a particular situation. It takes too long to get the facts together for comparison.

3. Too many "two-bit" words[8]--The charts are located[3] /The charts are tables/ in the back while they are referred to in every paragraph.
3a. Some of the words cause a hesitation to grasp the meaning--while trying to understand the charts, ti is necessary to turn back to the front of the book to follow instructions.

3. Though some of the tables are effective, that is the area least effective[3] in my opinion.
3a. Long, detailed and massive.[7]

3. Too many research figures, tables,[3] and terms not applicable[8] to farmers interest.
3a. It takes too much time to explain details that farmers may not think important.

3. Tables are separated[3] on different pages from explanations. I still don't understand the bulletin.
3a. I think the subject was more difficult to explain than it was for the other two bulletins. There should be a better way to present this information.

3. It is just the reverse on the cotton bulletin. Too many charts /tables/ especially charts on pages 12, 13, 14.[3]
3a. A good many of the farmers would be lost trying to digest the charts and would give up.

3. Charts.[3] /Tables./
3a. Makes it too long to study.

3. Too much reading, tell and stop.[7]
3a. I have to read more than once to understand or get the point.

3. The charts are in the bulletin other than as reading reference.[3] It's necessary to turn pages to hunt graphs information. Page 7 paragraph 1, under "Solution" refers to table 3 which is wheat instead of cotton.
3a. Too much time is necessary to thoroughly digest bulletin. Twice as much time was taken reading this bulletin in comparison with Okla. Farm Children Bulletin.

Introduction to Replies of Question Eight

The agents comments to question eight which follow on page 122 were diverse. Little effort was made to classify agents' replies to question eight. However, three classifications were used for the agents' comments to this question. The number "1" identifies the ten comments made by agents indicating that they thought bulletins should be more "concise and to the point." The number "2" is used to identify the four agents' comments indicating that the bulletins that were wanted were always out of print. The two agents' comments indicating a desire to have the latest research information sooner are identified by the number "3".

County Agents' Replies to Question Eight

1. On new developments and problems[3] under test, it would help to have reports as in letter or leaflet form to help answer questions that some people ask due to premature reports on the press or radio or promotion by certain individuals.

2. Only that we feel that the best use of the experiment station bulletins are for the extension specialist to read and then write leaflets.

3. No comment.

4. All of the bulletins have some desirable points. My suggestions, for what they are worth, are as follows:
Each bulletin should have a table of contents in the front.
Material should be broken down into subjects and set apart so that the material can be easily found.
More pictures that will detail the story or show how to do a job.
A summary of the contents of the bulletin in the back is a must when possible to use one.
Individuals will not use the entire contents of a bulletin but will have specific questions that can be answered somewhere in the bulletin in a paragraph.
Detailed charts are difficult for me to digest and they must be studied intensely to get the story.
Summary should be given after each chart to point out the principles.

5. Publications for farmer and extension workers should be reviewed by someone who has or is working in the field before they are printed.

6. Of the three bulletins I read, I understood the one on feeding trace minerals very thoroughly but it was primarily because of previous research work I have done. As far as presentation of the experiments and the making of recommendations, I believe the one on crop rotation is easily the most understandable. I believe there is one primary consideration that distinguishes the understandability of this bulletin and it is simply the terms in which this experiment is presented. As a county agent I am confronted each day with the problem of stating scientific procedures and results into everyday language.

7. In my opinion, bulletins should be as concise as possible;[1] they should be aimed at progressive farm people. I realize that in research work this is difficult; however, people are interested in results that may be obtained by using new practices.

8. Bulletins, leaflets, and circulars should be presented in understandable language to farmers. Most farmers do not want charts, tables, etc. We need some bulletins on beef and sheep production for our adult breeders.

9. No comment.

10. In my opinion all these bulletins were well written and easy to understand.

11. No comment.

12. The bulletins which I have placed in second and third place are necessarily more complex and involve more technical terminology than the publication rated first. In general, such bulletins are useful to me where I am brushing up on background information and feel the need of going deeper than farmers' bulletins or extension publications go. I refer also to them at times when I have time for study.

13. We are glad to help in this survey.

14. We need a good bulletin on brush and timer control, and one on livestock, poultry, dairy housing and equipment, etc., what I mean is plans for pole barns, hog feeders, sheep feeders, poultry houses, a variety of plans for each type of livestock. Most of the bulletins I get in this county are not used because of no demand. The bulletins I need are always out of print.[2]

15. Our people seem to like the leaflet type, one or two pages on one specific subject.

16. With the ever increasing demands on one's time, the clear, concise, short statement of information and summary is appreciated.[1]

17. No comment.

18. I think it is most difficult to compare B-468 (a) and B-487 (b) with B-491 (c). B-491 (c) by nature of material presented has to be much more complicated than does a or b. It seems to me that all these bulletins are well written for subject matter presented.

19. I feel these bulletins should be as brief as possible,[1] but still tell the story. Pictures and graphs are always good where applicable and will cut down on the reading which in many cases is confusing. The bulletin "Nitrogen Tests of Winter Oats" was easy reading after one understood the previous cropping system and etc. From the center of page 6 to the end, it is an excellent bulletin. The first one can be understood but it takes some studying.

20. The title on the first place bulletin scared me. We had had it in our office since 1954 and I had never looked inside it. Colored fronts, short concise information helps me most.[1] The years work, the failures, and the hours the researchers spent are secondary to the amount to application, how much it costs per acre and what are the expected returns.

21. We are unable to get the desired number of experiment station bulletins.[2] Reason: out of print--supply usually exhausted.

22. We need more bulletins on farm management and marketing. Circular 549, Grading Eggs, is an example. Technical subject matter is good for off-farm leaders but could be supplied to them other than bulletin form. Bulletins need to be written in terminology so the average farmer can read and understand.

23. Most experiment station bulletins are too technical for most farmers to understand. The writing should be simple and to the point, not long.[1] The average farmer will read about three paragraphs out of a ten page bulletin. A county agent has so many publications to read, that the most simple, shortest, to the point material is read first. We are not much different from farmers. Our time has to be planned from eight in the morning to ten at nite. So the quicker to the point, the better for the county agent.

24. Too many experiment station bulletins are written in such a manner and style that they have no value to farm people. To be of value a bulletin should cover the subject from a practical, economic standpoint in a concise,[1] interesting manner, having a minimum amount of tables of data.

25. The bulletins could be made more brief[1] in many cases. The information kept current as much as possible.

26. Definitely more bulletins and circulars on many fields need to be made available. Too many of our requests come back out of print.[2]

27. We find the extension circular more useful to us in our work with farmers.

28. On a whole our bulletins are being printed in more down-to-earth language. Bulletins containing several charts could have the charts better located to fit in with the reading.

29. Bulletins are most useful when written in a simple manner and to the point.[1] Discussions should be as short as possible to get points understood. Pictures, illustrations, drawing or sketches are very good when they can be used. People who requestion information like to have it in leaflet, circular and bulletin form as well as from question and oral answer.

30. Circular 653, Crop Varieties for Oklahoma, 1957, is a great improvement and one that farmers will use and is handy reference for us. A condensed bulletin on general crops and more, especially livestock production information, would be used and might be more economical.

31. We need bulletins or leaflets on subjects as soon as possible that will[3] the correct information based on experimental data to compete with farm magazines and papers on the subject.

32. Make all the bulletins the same size.

33. We need to transpose and reduce the paragraphs of information and have more publications like Oklahoma's Program of Profit Pointers for Laying Hens, Leaflet L-13.

34. The answer to question number seven is not that they are bulletins I have found most useful. They are examples of the type I find useful. I looked around in my office to check which ones I find most useful. I found that I actually use circulars in my work more than bulletins.

35. No comment.

36. Give specific results in table form, include pictures to help show results, make covers attractive, and keep bulletins short[1] to eliminate excessive reading.

37. Farmers and ranchers in this area prefer circulars except for a few of the better managers. I'm afraid many bulletins do not have much application in this county.

38. The three bulletins are difficult to compare because of their different applications. Two are more technical than the other. Actually, all three are fairly adequate in what they attempt to do.

39. In my review of the three bulletins-with the wide variety of subject matter--could I detect which was the most effective presentation of the material.

40. The majority of experiment station bulletins are used only as references. Circulars are more used to inform farmers and myself of certain problems.

41. No comment.

42. Think your department has done a good job. Just keep this kind of information coming to us.

43. It seems we have too many publications that are of no value to me; however, they might be to others.

44. Lets please keep our bulletins short, concise and to the point.[1] A good bulletin can be short. We realize it is more difficult in most cases to condense.

45. No comment.

46. All bulletins discussed herein are definitely good in my opinion, but some are a little easier for me to understand. Nothing personal. Besides, maybe I am not well enough qualified to be critical.

47. Meetings are calling it to attention. Moves more bulletins. Ordinary calls are not so numerous.

48. We are continually out of the best and most popular bulletins.[2] Usually there is a long time lag between printings; useful bulletins should be kept in stock.

49. I believe the attractiveness of the cover pages is very important in stimulating readers interest.

50. I like the organization of the Trace Mineral Bulletin where the procedure, result, and summary are given very clearly and definitely.[1] The bulletin on Nitrogen on Oats might be a good technical bulletin, but farmers would not finish the first page.

51. This is one way of getting us to read these bulletins.

52. Too many tables and graphs are time consuming to read and understand. History and background is not needed in such detail in in most instances.[1]

53. The problem and the conclusion of the tests are our interests, not the details of setting up the test and the mechanics of them. The only person who would be interested in such detail would be another research worker--or if the techniques or details of the test is in itself the solution to the problem.

54. All 4-H bulletins would be better to be written in story style on the funny book order.

55. No comment.

APPENDIX C

APPENDIX C

Appendix C contains the computations and measurements used in the statistical analysis of certain questions used in the mail and interview questionnaires.

Contents

Subject Page

Computation of Bulletin Understandability

Rating Scores

Bulletin #2 compared with bulletins:

#3.....1,1,1,1,1,1,1	1,1
#4.....1,1	1,1
#5.....1,0	1,0
#6.....1,1	1,1
#7.....1,1	1,1
#8.....1,1	1,1
#9.....0,1	0,1
#10.....0,0	0,0
#11.....0,0	0,0
#1.....1,0,0,0,1,0,0	2/7,2/7
	12 4/7 Understandability Rating Score

Bulletin #3 compared with bulletins:

#4.....1,1,1,1,1,1,1	1,1
#5.....0,0	0,0
#6.....1,1	1,1
#7.....1,1	1,1
#8.....1,1	1,1
#9.....0,0	0,0
#10.....1,0	1,0
#11.....1,0	1,0
#1.....0,0	0,0
#2.....0,0,0,0,0,0,0	0,0
	10 Understandability Rating Score

Bulletin #4 compared with bulletins:

#5.....1,0,0,0,0,0,1	2/7,2/7
#6.....0,1	0,1
#7.....1,0	1,0
#8.....0,0	0,0
#9.....0,0	0,0
#10.....0,0	0,0
#11.....0,0	0,0
#1.....0,0	0,0
#2.....0,0	0,0
#3.....0,0,0,0,0,0,0	0,0
	2 4/7 Understandability Rating Score

Bulletin #5 compared with bulletins:

#6.....1,1,1,1,1,1,1	1,1
#7.....1,1	1,1
#8.....1,1	1,1
#9.....0,1	0,1
#10.....1,1	1,1
#11.....1,0	1,0
#1.....0,0	0,0
#2.....0,1	0,1
#3.....1,1	1,1
#4.....0,1,1,1,0,1,1	5/7,5/7
	14 3/7 Understandability Rating Score

Bulletin #6 compared with bulletins:

#7.....1,1,1,0,0,0,0	3/7,3/7
#8.....0,0	0,0
#9.....0,0	0,0
#10.....1,0	1,0
#11.....0,0	0,0
#1.....0,1	0,1
#2.....0,0	0,0
#3.....0,0	0,0
#4.....1,0	1,0
#5.....0,0,0,0,0,0,0	0,0
	3 6/7 Understandability Rating Score

Bulletin #7 compared with bulletins:

#8.....1,0,1,1,0,0,1	4/7,4/7
#9.....0,0	0,0
#10.....0,1	0,1
#11.....0,0	0,0
#1.....0,0	0,0
#2.....0,0	0,0
#3.....0,0	0,0
#4.....0,1	0,1
#5.....0,0	0,0
#6.....0,0,0,1,1,1,1	4/7,4/7
	3 2/7 Understandability Rating Score

Bulletin #9 compared with bulletins:

#9.....0,0,0,0,0,1,1	2/7,2/7
#10.....0,0	0,0
#11.....0,0	0,0
#1.....0,0	0,0
#2.....0,0	0,0
#3.....0,0	0,0
#4.....1,1	1,1
#5.....0,0	0,0
#6.....1,1	1,1
#7.....0,1,0,0,1,1,0	2/7,3/7
	5 5/7 Understandability Rating Score

Bulletin #10 compared with bulletins:

#10.....0,1,1,0,0,0,1	3/7,2/7
#11.....0,0	0,0
#1.....1,0	1,0
#2.....1,0	1,0
#3.....1,1	1,1
#4.....1,1	1,0
#5.....1,0	1,0
#6.....1,1	1,1
#7.....1,1	1,1
#8.....1,1,1,1,1,0,0	5/7,5/7
	13 2/7 Understandability Rating Score

Bulletin #11 compared with bulletins:

#11.....1,1,1,1,1,1,0	6/7,6/7
#1.....1,0	1,0
#2.....1,1	1,1
#3.....0,1	0,1
#4.....1,1	1,1
#5.....0,0	0,0
#6.....0,1	0,1
#7.....1,0	1,0
#8.....1,1	1,1
#9.....1,0,0,1,1,1,0	4/7,4/7
	12 6/7 Understandability Rating Score

Bulletin #11 when compared with bulletins:

#1.....0,1,1,1,0,0,1	4/7,4/7
#2.....1,1	1,1
#3.....0,1	0,1
#4.....1,1	1,1
#5.....0,1	0,1
#6.....1,1	1,1
#7.....1,1	1,1
#8.....1,1	1,1
#9.....1,1	1,1
#10.....0,0,0,0,0,0,1	1/7,1/7
	15 3/7 Understandability Rating Score

CHARACTERISTIC MEASUREMENTS OF BULLETINS USED IN MAIL

MAIL QUESTIONNAIRES

Bul. Serial Number	Rank Rating Scores	Title-head and Subhead Space	Syllable Length of Heads	Total Number of Heads	Space Used for Tables	Space Used for Graphs	Space Used for Pict. & Illust.	Space Used for Content Table	Space Used for Footnotes	Space Used for Appendices	Total Space Used in Bulletin	Total Space Available	Total Space Used for Written Copy	Flesch Readability Scores
B-489	1.5	392	44	4	none	none	4779	none	54	none	10059	13365	4685	45
B-453	1.5	2484	89	18	4644	1373	1760	878	68	none	17269	23085	5252	23
B-467	3.	783	78	11	1087	none	none	351	621	none	8073	8505	5015	28
B-470	4.	1161	106	11	2657	none	none	702	95	none	10916	13365	5603	62
B-465	5.	1283	109	18	5819	3780	none	351	74	none	17315	18225	5522	50
B-468	6.	1256	81	13	607	none	594	none	149	419	8356	8505	5535	47
B-422	7.	540	59	6	1367	none	3335	257	122	none	11845	18225	5265	37
B-492	8.	1053	63	8	9992	1094	none	none	54	756	17809	27945	4644	33
B-491	9.	338	25	4	1360	837	none	none	122	608	9543	13365	5846	42
B-472	10.	945	45	9	4721	none	none	378	27	none	14711	18245	7884	53
B-419	11.	1080	70	10	6556	770	none	783	405	none	15008	18225	4766	63

RANK DIFFERENCE CORRELATION

OF RATING SCORES WITH TITLE-HEAD AND SUBHEAD SPACE

Subject	Scores		Ranks		D	D^2
	X	Y	X_2	Y_2		
B-489	15 3/7	392	1.5	10.	8.5	72.25
B-453	15 3/7	2484	1.5	1.	.5	.25
B-467	14 3/7	783	3.	8.	5.	25.
B-470	13 2/7	1161	4.	4.	0.	0.
B-465	12 6/7	1283	5.	2.	3.	9.
B-468	12 4/7	1256	6.	3.	3.	9.
B-422	10	540	7.	9.	2.	4.
B-492	5 3/7	1053	8.	6.	2.	4.
B-491	3 6/7	338	9.	11.	2.	4.
B-472	3 2/7	945	10.	7.	3.	9.
B-419	2 4/7	1080	11.	5.	6.	36.

$N = 11 \qquad \Sigma D^2 = 172.50$

$$\rho = 1 - \frac{6\Sigma D^2}{N(N^2 - 1)} = 1 - \frac{1035}{1320} = .216$$

RANK DIFFERENCE CORRELATION

OF RATING SCORES WITH SYLLABLE LENGTH OF HEADS

Subject	Scores		Ranks		D	D^2
	X	Y	X_2	Y_2		
B-489	15 3/7	44	1.5	10.	8.5	72.25
B-453	15 3/7	89	1.5	3.	1.5	2.25
B-467	14 3/7	78	3.	5.	2.	4.
B-470	13 2/7	106	4.	2.	2.	4.
B-465	12 6/7	109	5.	1.	4.	16.
B-468	12 4/7	81	6.	4.	2.	4.
B-422	10	59	7.	8.	8.	1.
B-492	5 3/7	63	8.	7.	1.	1.
B-491	3 6/7	25	9.	11.	2.	4.
B-472	3 2/7	45	10.	9.	1.	1.
B-419	2 4/7	70	11.	6.	5.	25.

$N = 11 \quad \Sigma D^2 = 134.5$

$$\rho = 1 - \frac{6\Sigma D^2}{N(N^2 - 1)} = 1 - \frac{807}{1320} = .389$$

RANK DIFFERENCE CORRELATION

OF RATING SCORES WITH NUMBER OF HEADS

Subject	Scores		Ranks		D	D^2
	X	Y	X_2	Y_2		
B-489	15 3/7	4	1.5	10.5	9.	81.
B-453	15 3/7	18	1.5	1.5	0.	0.
B-467	14 3/7	11	3.	4.5	1.5	2.25
B-470	13 2/7	11	4.	4.5	.5	.25
B-465	12 6/7	18	5.	1.5	3.5	12.25
B-468	12 4/7	13	6.	3.	3.	9.
B-422	10	6	7.	9.	2.	4.
B-492	5 3/7	8	8.	8.	0.	0.
B-491	3 6/7	4	9.	10.5	1.5	2.25
B-472	3 2/7	9	10.	7.	3.	9.
B-419	2 4/7	10	11.	6.	5.	25.

$N = 11 \quad ED^2 = 145$

$$p = 1 - \frac{6ED^2}{N(N^2 - 1)} = 1 - \frac{870}{1320} = .341$$

RANK DIFFERENCE CORRELATION

OF RATING SCORES WITH SPACE USED FOR TABLES

Subject	Scores		Ranks		D	D^2
	X	Y	X_2	Y_2		
B-489	15 3/7	none	1.5	11.	9.5	90.25
B-453	15 3/7	4644	1.5	5.	3.5	12.25
B-467	14 3/7	1087	3.	9.	6.	36.
B-470	13 2/7	2657	4.	6.	2.	4.
B-465	12 6/7	5819	5.	3.	2.	4.
B-468	12 4/7	607	6.	10.	4.	16.
B-422	10	1367	7.	7.	0.	0.
B-492	5 3/7	9992	8.	1.	7.	49.
B-491	3 6/7	1360	9.	8.	1.	1.
B-472	3 2/7	4721	10.	4.	6.	36.
B-419	2 4/7	6556	11.	2.	9.	81.

$N = 11 \quad ED^2 = 329.5$

$$p = 1 - \frac{6ED^2}{N(N^2 - 1)} = 1 - \frac{1977}{1320} = -.498$$

RANK DIFFERENCE CORRELATION

OF RATING SCORES WITH FLESCH READABILITY SCORES

Subject	Scores		Ranks		D	D^2
	X	Y	X_2	Y_2		
B-489	15 3/7	45	1.5	6.	4.5	20.25
B-453	15 3/7	23	1.5	11.	9.5	90.25
B-467	14 3/7	28	3.	10.	7.	49.
B-470	13 2/7	62	4.	2.	2.	4.
B-465	12 6/7	50	5.	4.	1.	1.
B-468	12 4/7	47	6.	5.	1.	1.
B-422	10	37	7.	8.	1.	1.
B-492	5 3/7	33	8.	9.	1.	1.
B-491	3 6/7	42	9.	7.	2.	4.
B-472	3 2/7	53	10.	3.	7.	49.
B-419	2 4/7	63	11.	1.	10.	100.

$N = 11 \qquad \Sigma D^2 = 320.5$

$$\rho = 1 - \frac{6\Sigma D^2}{N(N^2 - 1)} = 1 - \frac{1923}{1320} = -.457$$

TWELVE RANDOMLY SELECTED STATION BULLETINS

WHICH AGENTS DID NOT MENTION

AS "MOST USEFUL"

Bulletin Serial Number	Bulletin Title
B-417	The Influence of Location on Farmland Prices
B-479	Producer Adjustments and Opinions Under Federal Order Pricing of Milk in the Oklahoma City Milkshed
B-438	Milk Test Variations in the Tulsa Milkshed
B-433	The Effect of Harvest Practices on the Performance of Alfalfa
B-424	Papers and Feeders vs. Feeders Alone for Starting Chicks
B-476	Choosing Turkey Rations--Some Economic Guides
B-475	Oklahoma Land Market Activity
B-466	Education of the Oklahoma Farm Population
B-467	The Cost of Rearing Oklahoma Farm Children
B-459	The Changing Distribution of Medical Doctors in Oklahoma
B-451	Some Pricing and Regulatory Effects of the Federal Order on the Tulsa Milkshed
B-447	Producing and Dehydrating Sweet Potatoes for Livestock Feed

TWELVE STATION BULLETINS WHICH AGENTS MOST FREQUENTLY RATED "MOST USEFUL"

Bulletin Serial Number	Bulletin Title	Times Rated "Most Useful"
B-456	Wheat, Oats and Barley in State Wide Tests--1950-54	13
B-474	Wintering and Fattening Steers on Native Grass	10
B-483	The Effects of Levels of Grain Feeding Upon the Efficiency of Milk Production	8
B-455	Concho Winter Wheat	7
B-473	Custom Rates for Farm Operations in Oklahoma	5
B-425	Turf Grasses, Their Development and Maintenance in Oklahoma	5
B-454	Cotton Variety Tests, 1950-1954	5
B-418	Studies on Winter Rations for Commercial Beef Cows	5
B-457	Cimarron Oats	5
B-469	Research on the Spotted Alfalfa Aphid in Oklahoma, Progress Report	4
B-455	Greenfield Bermuda Grass	4
B-440	Self-Feeding Salt and Cottonseed Meal to Beef Cattle	4

MEASUREMENTS OF CHARACTERISTICS OF 12 BULLETINS NOT MENTIONED

AS "MOST USEFUL" BY AGENTS

Classification of Characteristics/	Serial Numbers of 12 Bulletins Not Mentioned "Most Useful"												
	B-417/	B-479/	B-438/	B-433/	B-424/	B-476/	B-475/	B-466/	B-467/	B-459/	B-451/	B-447/	Total
Content Tables	1	1	none	1	none	1	1	1	1	1	1	1	9
Number of Pages	26	15	10	57	8	15	15	24	8	23	21	7	229
Number of Tables	12	2	3	19	3	9	6	7	2	7	4	none	74
Number of Figures	none	7	2	7	2	none	6	none	none	1	6	none	31
Flesch Scores	47	41	39	15	65	57	19	18	28	25	38	54	446
Number of Heads and Subheads	8	15	12	17	11	10	9	39	27	6	15	11	180
Average Word Length of Heads and Subheads per Bulletin	3.205	3.200	3.750	6.058	4.545	4.600	5.220	2.666	5.444	4.833	4.600	5.636	53.757
Pictures, Illust., Color on Bulletin Cover Pages	yes	none	yes	none	yes	none	none	none	none	none	none	none	3
Word Length of Bulletin Titles	7	15	7	7	10	6	6	6	7	8	13	8	100
Syllable Length of Bulletin Titles	13	31	12	14	14	12	21	15	12	18	24	16	202

MEASUREMENTS OF CHARACTERISTICS OF 12 BULLETINS MENTIONED

BY AGENTS AS "MOST USEFUL"

Classification of Characteristics/	Serial Numbers of 12 Bulletins Mentioned "Most Useful"												
	B-456/	B-474/	B-483/	B-453/	B-473/	B-425/	B-454/	B-418/	B-457/	B-469/	B-455/	B-440/	Total
Content Tables	1	1	none	1	1	1	1	1	1	1	1	1	11
Number of Pages	35	31	8	18	15	32	15	22	10	12	7	14	219
Number of Tables	8	13	3	10	4	2	10	11	6	2	1	4	74
Number of Figures	4	none	2	3	1	12	none	none	1	3	none	none	26
Flesch Scores	32	45	50	32	43	65	38	19	45	32	58	33	492
Number of Heads and Subheads	24	20	5	14	21	25	12	53	6	11	12	14	217
Average Word Length of Heads and Subheads per Bulletin	3.458	4.456	3.600	5.286	2.190	2.160	1.750	3.113	1.666	3.000	2.286	3.000	35.974
Pictures, Illust., Color on Bulletin Cover Pages	yes	none	none	yes	yes	yes	yes	yes	yes	yes	yes	none	9
Word Length of Bulletin Titles	8	8	6	8	2	2	5	3	7	8	13	7	77
Syllable Length of Bulletin Titles	12	12	22	5	14	17	15	13	4	11	6	13	144

COMPUTATION OF T TEST FOR AVERAGE WORD LENGTH PER BULLETIN OF BULLETINS MENTIONED "MOST USEFUL" AND NOT MENTIONED "MOST USEFUL" BY AGENTS

Bulletins Mentioned "Most Useful"			Bulletins Not Mentioned "Most Useful"		
Average Word Length per Bulletin X_1	d_1	d_1^2	Average Word Length per Bulletin X_2	d_2	d_2^2
3.458	.4602	.2118	3.205	1.2748	1.6251
4.465	1.4672	2.1527	3.200	1.2798	1.6379
3.600	.6022	.3626	3.750	.7298	.5326
5.286	2.2882	5.2359	6.058	1.5782	2.4907
2.190	.8078	.6525	4.545	.0652	.0042
2.160	.8378	.7019	4.600	.1202	.0134
1.750	1.2478	1.5570	5.220	.7402	.5479
3.113	.1152	.0133	2.666	1.8138	3.2899
1.666	1.3318	1.7737	5.444	.9642	.9297
3.000	.0022	.0000	4.833	.3532	.1248
2.286	.7118	.5067	4.600	.1202	.0134
3.000	.0022	.0000	5.636	1.1562	1.3368

$M_1 = \frac{35.974}{12} = 2.9978$ $Ed_1^2 = 12.5465$ / $M_2 = \frac{53.757}{12} = 4.4798$ $Ed_2^2 = 13.168$

$$S.D. = \sqrt{\frac{Ed_1^2 + Ed_2^2}{(N_1 - 1) + (N_2 - 1)}} = \sqrt{\frac{25.7146}{22}} = 1.0811$$

$$S.E._D = \frac{\sqrt{N_1 + N_2}}{N_1 N_2} = S.D. \sqrt{\frac{24}{144}} = .44109$$

$M_1 - M_2 = 1.4820$

$$t = \frac{M_1 - M_2}{S.E._D} = \frac{1.482}{.4411} = 3.359$$

Value of t required for 1 % level of confidence is 2.82

COMPUTATION OF T TEST FOR WORD LENGTH OF TITLES OF BULLETINS MENTIONED "MOST USEFUL" AND NOT MENTIONED "MOST USEFUL" BY AGENTS

Bulletins Mentioned "Most Useful"			Bulletins Not Mentioned "Most Useful"		
Title Length in Words per Bulletin X_1	d_1	d_1^2	Title Length in Words per Bulletin X_2	d_2	d_2^2
8	1.58	2.496	7	1.33	1.7689
8	1.58	2.496	15	6.66	44.3556
6	.42	.176	7	1.33	1.7689
8	1.58	2.496	7	1.33	1.7689
2	4.42	19.536	10	1.66	2.7556
2	4.42	19.536	6	2.33	5.4289
5	1.42	2.016	6	2.33	5.4289
3	3.42	11.696	6	2.33	5.4289
7	.58	.336	7	1.33	1.7689
8	1.58	2.496	8	.33	.1089
13	6.58	43.296	13	4.66	21.7156
7	.58	.336	8	.33	.1089

$M_1 = \frac{77}{12} = 6.416$ $Ed_1^2 = 106.91$ / $M_2 = \frac{100}{12} = 8.33$ $Ed_2^2 = 92.41$

$$S.D = \sqrt{\frac{Ed_1^2 + Ed_2^2}{(N_1 - 1) + (N_2 - 1)}} = \sqrt{\frac{199.32}{22}} = 3.016$$

$$S.E.D = S.D. \sqrt{\frac{N_1 + N_2}{N_1 N_2}} = S.D. \sqrt{\frac{24}{144}} = 1.2305$$

$M_1 - M_2 = 1.91$

$$t = \frac{M_1 - M_2}{S.E.D} = 1.552$$

Value of t required for 5 % level of confidence is 2.07

COMPUTATION OF T TEST FOR FLESCH SCORES OF BULLETINS MENTIONED "MOST USEFUL" AND NOT MENTIONED "MOST USEFUL" BY AGENTS

Bulletins Mentioned "Most Useful"			Bulletins Not Mentioned "Most Useful"		
Flesch Scores X_1	d_1	d_1^2	Flesch Scores X_2	d_2	d_2^2
32	9.01	81.18	47	9.84	96.83
45	3.99	15.92	41	3.84	14.75
50	8.99	80.82	39	1.84	3.39
32	9.01	81.18	15	22.16	491.07
43	2.91	8.94	65	27.84	775.07
65	23.99	575.52	57	19.84	393.63
38	3.01	9.06	19	18.16	329.79
19	22.01	488.44	18	19.16	393.63
45	3.99	15.92	28	9.16	83.91
32	.99	.98	25	12.16	147.87
58	16.99	288.66	38	.84	.71
33	8.01	16.16	54	16.84	283.59

$M_1 = \frac{492}{12} = 41.01$ $\quad \Sigma d_1^2 = 1662.78$ / $M_2 = \frac{446}{12} = 37.16$ $\quad \Sigma d_2^2 = 3014.24$

$$S.D. = \sqrt{\frac{\Sigma d_1^2 + \Sigma d_2^2}{(N_1 - 1) + (N_2 - 1)}} = \sqrt{\frac{4677.02}{22}} = 16.6$$

$$S.E._D = S.D. \sqrt{\frac{N_1 + N_2}{N_1 N_2}} = 16.6 \times 408 = 6.7728$$

$M_1 - M_2 = 3.85$

$$t = \frac{M_1 - M_2}{S.E._D} = \frac{3.85}{6.7728} = .5686$$

Value of t required for 5 % level of confidence is 2.07

COMPUTATION OF T TEST FOR NUMBER OF HEADS AND SUBHEADS IN BULLETINS MENTIONED "MOST USEFUL" AND NOT MENTIONED "MOST USEFUL" BY AGENTS

Bulletins Mentioned "Most Useful"			Bulletins Not Mentioned "Most Useful"		
Number of Heads and Subheads per Bulletin X_1	d_1	d_1^2	Number of Heads and Subheads per Bulletin X_2	d_2	d_2^2
24	5.92	35.046	8	7	49
20	1.92	3.686	15	0	0
5	13.08	171.086	12	3	9
14	4.08	16.646	17	2	4
21	2.92	8.526	11	4	16
25	6.92	47.878	10	5	25
12	7.08	36.966	9	6	36
53	34.92	1219.406	39	24	576
6	12.08	145.926	27	12	144
11	7.08	50.026	6	9	81
12	6.08	36.966	15	0	0
14	4.08	16.646	11	4	16

$M_1 = \frac{217}{12} = 18.08$ $Ed_1^2 = 1788.8$ / $M_2 = \frac{180}{12} = 15$ $Ed_2^2 = 956$

$$S.D. = \frac{\sqrt{Ed_1^2 + Ed_2^2}}{(N_1 - 1) + (N_2 - 1)} = \frac{\sqrt{2744.8}}{22} = 11.16$$

$$S.E._D = S.D. \frac{\sqrt{N_1 + N_2}}{N_1 N_2} = 11.16 \times 408 = 4.5538$$

$M_1 - M_2 = 3.08$

Value of t required for 5 % level of confidence is 2.07

$$t = \frac{M_1 - M_2}{S.E._D} = \frac{3.08}{4.55} = .6769$$

COMPUTATION OF T TEST FOR SYLLABLE LENGTH OF TITLES OF BULLETINS MENTIONED "MOST USEFUL" AND NOT MENTIONED "MOST USEFUL" BY AGENTS

Bulletins Mentioned "Most Useful"			Bulletins Not Mentioned "Most Useful"		
Syllable Length of Bulletin Titles X_1	d_1	d_1^2	Syllable Length of Bulletin Titles X_2	d_2	d_2^2
12	.00	.00	13	3.83	14.67
12	.00	.00	31	14.17	200.79
22	10.00	100.00	12	4.83	23.33
5	7.00	49.00	14	2.83	8.01
14	2.00	4.00	14	2.83	8.01
17	5.00	25.00	12	4.83	23.33
15	3.00	9.00	21	4.17	17.39
13	1.00	1.00	15	1.83	3.35
4	8.00	64.00	12	4.83	23.33
11	1.00	1.00	18	1.17	1.37
6	6.00	36.00	24	7.17	51.41
13	1.00	1.00	16	.83	.69

$M_1 = \frac{144}{12} = 12$ $\quad \Sigma d_1^2 = 290$ $\quad / M_2 = \frac{202}{12} = 16.8$ $\quad \Sigma d_2^2 = 372.30$

$$S.D. = \frac{\sqrt{\Sigma d_1^2 + \Sigma d_2^2}}{(N_1 - 1) + (N_2 - 1)} = \frac{\sqrt{662.30}}{22} = 5.48$$

$$S.E._D = S.D. \frac{\sqrt{N_1 + N_2}}{N_1 N_2} = 2.238$$

$M_1 - M_2 = 4.83$

Value of t required for 5 % level of confidence is 2.07

$$t = \frac{M_1 - M_2}{S.E._D} = \frac{4.83}{2.238} = 2.158$$

CALCULATION OF CHI SQUARE FOR PICTURES, COLOR, OR ILLUSTRATIONS ON COVERS OF BULLETINS MENTIONED "MOST USEFUL" AND NOT MENTIONED "MOST USEFUL" BY COUNTY AGENTS

Frequency	"Most Useful" Bulletins	Bulletins Not Mentioned "Most Useful"	Total
Observed	9	3	12
Expected	6	6	12
$(fo - fe)$	3	3	
$(fo - fe)^2$	9	9	
$\frac{(fo - fe)^2}{fe}$	1.5	1.5	$x^2 = 3$

Degrees of freedom = $(r-1)(c-1) = 1$

With 1 degree of freedom for a confidence level of within 10 % the Chi Square must equal 2.706, for a 5 % level, 3.841.

COMPUTATION OF AVERAGE OBSERVATIONS

OF INTERPRETERS OF COMMENTS

TO QUESTION 2 AND 2a

Classifications of Comments	Interpreters' Observations					Average of Interpreters' Observations *
	1	2	3	4	5	
Effective use of pictures and illustrations	7	8	8	8	7	7
Effective use of graphs	3	3	3	3	3	3
Effective use of tables	17	13	16	18	18	16
Effective summaries and conclusions	17	10	14	16	15	14
Effective introduction	12	11	10	10	10	11
Effective table of contents	5	5	6	8	12	7
Concise and to the point	22	26	23	21	16	22
Language easy to understand	18	28	17	14	17	19

*The fractions have been rounded off.

COMPUTATION OF AVERAGE OBSERVATIONS

OF INTERPRETERS OF COMMENTS

TO QUESTION 3 AND 3a

Classifications of Comments	Interpreters' Observations					Average Observations of Comments *
	1	2	3	4	5	
Ineffective pictures and illustrations	2	2	1	2	1	1
Ineffective use of graphs	5	5	3	3	6	4
Ineffective use of tables	27	33	23	23	30	27
Ineffective summaries and conclusions	1	1	1	3	1	1
Ineffective introduction	1	1	1	0	1	1
Lacked table of contents	2	1	1	1	1	1
Not concise and to the point	11	15	9	8	17	12
Language difficult to understand	12	11	13	16	19	14
Lack personal knowledge to understand material	1	3	1	2	9	3
Ineffective organization	10	2	10	6	9	7
Unattractive presentation	3	3	2	6	4	4

*The fractions on the averages have been rounded off.

APPENDIX D

APPENDIX D

Appendix D contains the replies that the agents made to questions 8, 11, 12, 16, 19, 23, and 25 of the interview questionnaire.

Contents

Agents' Replies to Question Eight

Yes	No	Additional Remarks
Assistant Agents:		
	x	Out of publication or being revised.
x		
	x	
	x	
	x	
	x	
	x	
	x	Sometimes newspaper and radio stations often get publication before we do. Use a waiting list when don't have publication.
	x	
	x	
	x	
	x	
Associate Agents:		
x		Don't know why.
	x	
	x	
	x	Hardly ever.
	x	The county agent takes care of most of this.
	x	
	x	
County Agents:		
	x	
	x	
x		Yes, have trouble getting them at time when they8re really needed.
x		Always out of print, limited publication.
	x	
	x	
	x	
x		At times, sometimes they're out of publication you want.
	x	
	x	
	x	
	x	
x		Many times bulletin is out of print, or bulletin you have is not related to problem with which you're dealing.
	x	Sometimes have request before we get bulletins.
	x	Have had difficulty getting some of older bulletins.
	x	Generally not.

Replies of Agents to Question 11

County Agents:

Yes. People reach for something shiny--picture or color. Can't see the bulletin that is best written and which serves his purpose. If it has contrasting color, can see it.

Makes a lot of difference.

Yes sir, no question about it.

Think so, especially 4-H kids, attracts attention to bulletin.

I think so, first glance, attractiveness.

Yes

Yes sir, something that catches the eye.

Definitely, will always get them, lot of 4-H bulletins are taken by color.

Yes, some influence, but we have lot of people come in, ask for new bulletins and they notice the color.

Yes, he wouldn't pick it up if he didn't see that color unless he is particularly looking for the subject.

Yes, color on cover would help.

Yes, very definitely--our birghter colored bulletins disappear first.

Yes.

Definitely do.

Yes.

Yes, absolutely.

Asst. County Agents:

Yes, has some bearing, especially in 4-H work.

Definitely yes.

I think it does. They notice it quicker. Bulletin will probably be picked up more quickly.

Yes, definitely--besides color--pattern or design on cover is important too.

I sure do.

Yes, I think so.

Yes, I do.

Might attract attention. Don't know if it will make them read, but some might not get read if they have no color or illustrations.

Yes sir, a lot to do with it.

Yes, it does, gets them to look at it.

Yes, definitely has some.

Gets their attention.

Yes, on any type of experiment information, color or pictures that catch the eyes will attract a person.

Associate County Agents:

No.

Yes.

Yes, just to take from rack.

Think so.

Color adds a lot to it.

Yes.

Definitely.

Agents' Replies to Question 12

County Agents:

Yes.

It will sometimes double it.

Depends on where bulletin used. Usually not. But for club kids it might.

Don't think so.

No, I don't.

No, content most important.

Depends mostly on subject content.

Don' think so

No--just calls thing to their attention more.

Yes.

No.

Yes.

Yes.

Not so, content most important.

Yes.

Yes.

When all on the same subject content.

After content.

Subject content is more important than the color. If they come in to ask for it, they are interested in content.

No.

Asst. County Agents:

No.

Yes, color catches the eyes, creates interest, increases motivation to read or think through.

No, don't think so.

No, don't think so.

No, content still most important.

Don't believe so. They've got to have some type of desire or use for it before they'll pick it up.

Most important is subject content.

No.

Associate County Agents:

No.

No.

Doubt it, shouldn't.

Don't think so.

No, it wouldn't

No, don't think so.

Agents' Replies to Question 16

County Agents:

No.

Might make with cartoons.

Design so that they will be easy for newspaper to duplicate.

More explanation, sometimes they are a bit shy on explanation, and that which does explain is on another page.

No comment.

Sometimes outline explanation of graph not clear. Location of graph should be very near the explanation.

No comment.

Explain well, so people know what they're looking at.

Don't think of any

No comment.

No comment.

Graphs are more helpful than tables or figures--unless a man is going into detail. Reader gets picture from graph while he would miss story in a table. Had good graphs in "Trends in Oklahoma Agriculture," which was very widely used.

Should be more simple than what they are--don't try to cover entire subject matter; limit subject covered.

No particular suggestions for graphs.

No comment.

Make them as simple as you can.

Asst. County Agents:

No comment.

Avoid real technical terms in graphs--maybe color graphs.

Sometimes go back too many years to make point--mistake to try to fit to year. Show year that is favorable.

Farmers more interested in facts--unless interested in why a thing is so. Farmer is after procedure to follow.

No comment.

Sometimes I question whether they are clear enough to people to grasp. Lines are confusing at times.

Don't know how they could improve them--unless you use figures of people.

No comment.

No, rather have in some other form.

Do away with them, takes too much time to analyze. Majority of people who receive them don't analyze them.

Yes, I think they have some overall value, looking at situation from point of time.

No comment.

For our own use, frequently--for farmers, occasionally, and maybe not necessary.

Associate Agents:

No.

None particularly.

No.

A little color, some aren't to simple at first impression.

No comment.

For most people a graph needs to be simple; needs to be about one subject.

No comment.

Agents' Replies to Question 19

County Agents:

Yes, pictures are always more attractive; explanation and graphs would be next--multicolor or different background to draw attention to it.

Very good job--none, summarized explanation might be below it.

Yes, trend curves, picture comparisons, bar graphs, and color contrasts used in place of table.

Does good job as is.

All right if it has proper explanation.

Perhaps, a brief summary of information if possible, depends much on type of graph; bar graph no better than line graph.

In explanation with number given in text, with fewer numbers.

Yes, lots of explanation.

No.

Have trouble sometime in following line across page and in getting columns lined up.

No, just as soon have it in table as any way. Sometimes I need a little more explanation within the table, or within the columns--probably by use of footnotes.

No comment.

Not necessarily, may have to be in table form, keep simple.

As, sometimes copy tables, enlarged for meetings as well as graph.

Yes, I would say a brief summary in words; explain what it means so that we don't have to figure.

Either graph or explanation.

Asst. County Agents:

Explanation sometimes. Tables and graphs sometimes set up without enough explanation.

Sometimes other readers don't pay much attention to these.

No, wouldn't suggest any changes from the way they are.

Prefer table to other forms.

Yes, explanation helps a lot.

Take more room, write for farmers; it would be looked over more thoroughly if it had graphs, pictures, and explanation.

Yes, I prefer pictures and explanations.

No. No suggestions except to not make them with too many numbers. Prefer more tables with less information per table.

No comment.

Yes, as much as possible, figures get boring, illustrations, graphs with pictures, etc.

No, very understandable usually. Usually a footnote to explain it.

Yes, pictures are great universal solution.

More illustrations the better I like a bulletin.

Associate Agents:

Yes, more use of pictures.

Yes, sometime hard to come to conclusion from them, results should be shown simpler.

No preference--depends on material. Like to have table near appropriate text in bulletin.

More table information used in graphs and explanation.

Good table and a good summary and you have the bulletin fixed up.

No, if picture could be substituted people would notice it.

No comment.

Agents' Replies to Question 23

County Agents:

Some good, but generally speaking should be connected in simplified language, so that farmers can use them also.

In some cases, they are a little too technical for the average county agent.

Read into some, but didn't read far enough for bulletin to make impression.

No.

Like them brief.

Still repetition, sometimes, too long, shorter if possible. Farmer and even the college graduate doesn't need all the detailed information.

Sometimes too scientific and not enough practical application in terms of what the farmer can use.

Written more for technical worker; lower level of written; prefer simple language.

Fewer graphs, charts, and tables, and more writing.

No comment.

No, I don't believe I do.

Level of understanding, more background, a more practical understanding.

No--don't know why they publish some of these silly things. Some are just too technical.

Some of the language used will lose some of the farmers.

These experiment station bulletins are not written for the average person to understand.

Sometimes a little too lengthy.

I think they are a little too technical--the main reason for being technical is so fellow research people can compare notes.

Assistant Agents:

Sometimes for picking a bulletin off rack, it would be easier for us to do explaining. Fine the way they are.

No comment.

No criticism

No.

No comment.

No, don't have any criticism.

Not particularly--haven't read enough since I've been in county.

I question whether people we're trying to reach can understand a lot of it.

No comment.

If written for farmers in an understandable way, should not be so many technical ters. Probably all right for own use.

No, usually short enough in summary to tell the story.

No, we write above farmer; think below him. Sometimes wonder if it is as clear to farmer as it might be.

Simpler, written more simpler.

Associate Agents:

B-437. Sometimes is hard to follow--is easy to understand--a livestock student--talk about organic chemical composition, and prairie hay--seems to foul me up, hard to concentrate.

Simplified more, would contribute to effectiveness.

Could be written a little more in terms 4-H club members could understand.

Sometimes they're a little too long. Usually pick up for specific purpose.

No comment.

No.

No comment.

Agents' Replies to Question 25

County Agents:

No comment.

We're going to need to get our extension bulletins published on time and use research bulletins for information only or cut out extension bulletins and be more general in our research bulletins. For example--we needed a lease agreement bulletin in our county since 1954 and its not out yet. When the bulletin gets out, the farmers will have no use for it. They will be doing leasing as customary. Bulletin comes too late. Dairy and livestock management information is needed--don't have research information to back up extension bulletins. Crops--engineering, electricity, gardening, fertilizer are pretty well up to date. To make them for younger boys or girls, they should be in funny book style, at least color.

No comment.

No comment.

No comment.

No comment.

No comment.

We get so many that are not applicable to our situation.

Want to get experiment station information before the commercial people do. Farm people read commercial advertising before we learn about it. Mentioned our bulletin on new sun turf--had only one--two or three commercial people warning that it was no good. We need a closer relationship between our extension personnel and experiment station personnel.

Rate of application was figured wrong in one bulletin--sometimes will leave out most important thing. For example--weed killers--how much should a farmer put on. Some need to be condensed more. Cut it down and get to the point.

We can't get station or extension information on Stilbestrol, but you folks will give a story to Farmer-Stockman. It is embarrassing for an agent to have farmer get his experiment station information before agent gets it. Leptospirosis, internal parasites of cattle, dwarifism, hybrid grain, sorghums--we've gotten straight on that finally. All are cases where station or extension have given information to farm publication and we have to cut article out of Farmer Stockman. Bulletin on mineral rights has a slow sale but merits specific demand. Trends in Oklahoma Agriculture very useful. B-369 is a publication which hasn't gone anywhere. Think it's the limited subject matter in it.

No comment.

I would like to have more bulletins on specific subjects, especially those currently popular. The kind I like especially on specific livestock problems. The Feeder's booklet is good--But there's too much material. I would like to have leaflets in particular subjects. A common one used is protein requirements for wintering brood cows. It would be helpful to have research on pasture experiments. We don't have anything on pastures hardly, or pounds of beef per acre. Recent El Reno field day--one of best I've attended. Would be good to have a leaflet on dwarfism. Four to six pages or less would be ideal. Research on pinkeye--its an everlasting problem with us. Maybe developments in chemicals for brush control. Farmers ask about them whether they are recommended or not. Embarrassing when only place where I can find information is through national farm magazine. Grub control--internal treatment--there again--bulletin doesn't come out until farmers have tried it out and its proven. If we could get statement saying "do not recommend"--if it's just a summary, we want to know.

Asst. County Agents:

The bulletins are adequately serving the purpose.

Simplify for me, should have comparative costs of these practices, More suggestions should be included in the bulletins.

More of them.

Bulletins usually in pretty good summary form, occasionally a little repetition. Feel more use of bulletins at student level in college is desirable.

Sift the information carefully and put in only what is essential to the problem. Farmer very happy to get hold of single page leaflet. That's his theory of a good bulletin. Any kind of information on a single page is popular.

No comment.

Sometimes--be more specific--need to have pinned down when you are talking. Farmer asking question, you can't find definite answer for him.

No comment.

My gripes are on extension bulletins--Feeder's day, horticulture, research information on sorghum grains. We're having problems on hybrid sorghums--our station doesn't recommend them--other stations do. One of the most controversial questions we've had this last spring. No information we could grab hold of and hang on to.

No comment.

Not full of so much detail.

No comment.

No comment.

Associate Agents:

Like to get memeographed information on field trips--get material out as early as possible.

No comment.

No comment.

No comment.

Baron station--depend on the superintendent for much information.

No comment.

VITA

Donald Kay Childers

Candidate for the Degree of

Master of Science

Thesis: A QUESTIONNAIRE SURVEY OF THE USEFULNESS AND UNDERSTANDABILITY OF OKLAHOMA EXPERIMENT STATION BULLETINS TO OKLAHOMA EXTENSION AGENTS

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Education: Attended elementary and junior high schools in Arlington, Virginia; was graduated in 1951 from Washington-Lee High School, Arlington; received a Bachelor of Journalism degree in June, 1955 from the University of Missouri; received a Bachelor of Arts degree from the University of Missouri in August, 1955, with a major in psychology.

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