

ECONOMIC INFORMATION EXTENSION EDUCATION

by

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PART I. ECONOMIC INFORMATION NEEDED

Introduction

In reviewing previous research studies pertaining to market outlook information, the conclusion was reached that a large majority of farmers both desire and should have adequate information of this type. A recent survey by Fischer (11) taken among 50 Nevada farmers indicated that 48 were in favor of continuing to receive the Nevada outlook publication. All studies reviewed substantiated the above drawn conclusions.

A study by McCormick among farmers gained suggestions as to the type of materials which farmers desired. Farmers were interested in other than immediate short run aspects of the market and specifically asked for outlook information and an explanation of future price forecasts. Educational institutions were asked that these points be given due consideration when future educational programs were planned (26).

However, in none of the studies were there any data showing what county extension agents thought the central office staff of the state extension service might do with the outlook materials to make them of greater value in carrying out their respective county's educational programs.

Due to the fact county extension agents are a reliable source of information for local cooperators (38), they were selected to be surveyed to find the type of materials most frequently requested and the manner of presentation desired. This included the method and speed of distribution of the two publications, the Kansas Agricultural Situation and the Kansas Market Comments. There was also a need for additional information to determine whether or not the present publications were being written on the educational level of the

local cooperators and if the manner in which the material was presented had the necessary eye-appeal and ease in reading to cause the general public to want to read the publications. These were the basis for this study.

Organizing the Survey

A basic study was conducted in the latter part of December, 1958 and the early part of January, 1959. This study consisted of two phases. One phase was a questionnaire (Appendix B and D) which was followed by a personal open end question depth interview with extension personnel in 29 of the 105 county extension offices in Kansas. As a result there were 66 questionnaires and interviews from which the final analysis was made.

The survey questions were arranged to find what information county extension personnel felt should be included in the two extension outlook publications, the December issue of the Kansas Agricultural Situation (Appendix A) and December 2 issue of the Kansas Market Comments (Appendix B).

At the time this survey was made, the Kansas Market Comments was being mailed directly to 1,200 farm management cooperators of Kansas from the central office distribution center of the extension service. Copies of the Kansas Agricultural Situation were furnished in bulk to the local county extension offices where individual copies were mailed to local cooperators. Approximately 15,000 families of Kansas were receiving this publication.

Questions in the survey also asked for suggestions so that future articles could be of greater value to agents in carrying out the local extension educational program (38).

The statistical laboratory personnel of Kansas State University were contacted to find how many county offices would need to be contacted before valid results could be obtained. The statisticians pointed out that if statistically significant results were required approximately 90 percent of the county offices would need to be surveyed. However, if only general conclusions were needed to give a generally sound basis for a revision of the present outlook publications, one-third of the counties would give data which were reliable. Due to the lack of necessary funds and time, the basic study was planned and completed for one-third of the counties.

A random selection was made of approximately one-third of the 105 county extension offices of Kansas for a personal survey by the author. The agents were notified of the time when the author would visit their respective offices so all agents could be present. If an agent or agents had other commitments for the day of the interview, a different day was selected. All agents in the 29 counties were present for the interview except one agricultural agent who was sick the day the interview was scheduled.

The questionnaire pertaining to the Kansas Agricultural Situation was answered first, after which the Kansas Market Comments questionnaire was answered. No comments were made by the author except to answer specific questions of an agent regarding a point on the questionnaire. Agents were asked to give an unbiased opinion when answering the questions. No identification of the respondents was made on the questionnaires. After the agents had finished the questionnaires, approximately 30 minutes were spent interviewing each agent in depth using an open end question technique.

Results of the Survey

The Kansas Agricultural Situation. The 66 agents responding to the questionnaire (Appendix B) were asked to note their length of service as an extension agent. They were then divided in two groups -- those with more than three years of service and those with less than three years of service. It was considered necessary that at least half of the agents fall in the former group for valid conclusions to be drawn from the survey. Of the 66 agents surveyed, the following indicated they had more than three years of service: 28 agricultural agents, 14 home economics agents, four assistant agricultural agents and seven 4-H club agents. Thus 53 of the 66 agents responding had three or more years of experience in extension work, and it was therefore felt all questionnaires answered by the agents could be used in the final analysis. To further substantiate this hypothesis, the 13 agents with less than three years of service were mainly home economics and 4-H club agents for whom the outlook materials were not primarily prepared. The articles were published mainly for the agricultural program in the county. However, it was desired by this study to find what outlook information was needed by the other agents to aid in their part of the county program. Most of the newer agents were found to make few comments in the final analysis. Thus a majority of the findings are from the agents with the longer length of service.

Although the questionnaires of the 66 agents were divided according to job position in the county and length of service, no such division was made in the final analysis.

Agents receipt of copies of Kansas Agricultural Situation. The 31 agents receiving a personal copy of the Kansas Agricultural Situation reported reading it (Table 1). However, less than half of the agents interviewed were receiving a personal copy thus making it impossible to read the articles before the publication reached the homes of local cooperators. Agents were thus unable to answer questions on a specific article until the publication containing the article could be located.

About one-third of the agents reporting had a copy on file to refer to. Others discarded it upon receipt or made no comments in response to what was done with a copy when received (Table 1).

Agricultural agents were slow in getting the Kansas Agricultural Situation mailed out as only five agents replied that it was mailed on the day received in the local offices. Most of the agricultural agents seemed little concerned with timeliness of having the publication in local mail boxes.

Table 1. Disposition of agents' copies of Kansas Agricultural Situation.

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	4-H Club Agts.	Asst. Agr. Agts.
1. When your county supply of the <u>Kansas Agricultural Situation</u> arrives at your office, do you:					
Obtain a personal copy before they arrive?					
A. Yes	31	19	6	2	4
B. No	15	5	7	3	0
C. No remarks	20	6	7	6	1

Table 1 (concl.).

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	4-H Club Agts.	Asst. Agr. Agts.
2. Do you read the pamphlet before mailing to cooperators?					
A. Yes	31	20	3	6	2
B. No	10	4	3	2	1
C. No remarks	25	6	14	3	2
3. If you obtain a personal copy do you:					
A. Throw it away?	16	7	6	3	0
B. Keep it on file?	23	14	4	0	5
C. No remarks	27	9	10	8	0
4. For <u>County Agents</u> only:					
When your supply arrives is it:					
A. Mailed out next day?		5			
B. Next three or four days?		13			
C. In one week?		3			
D. At no set time?		5			
E. No answer.		4			

Value of Publication to Extension Agents. Over half of the agents responding to the questionnaire had read six or more issues during the year with nine replying none had been read. Agents were not finding the articles of much assistance in carrying out local educational programs. Twenty-two said it was of little help and 32 said it was helpful (Table 2). Enough recommendations for a change in the publication were offered by the agents (Question 3, Table 2) that the central office could give them consideration. Agents certainly felt in its present form it was not serving the purpose for which it was originally intended.

Table 2. Extension agents response to value of Kansas Agricultural Situation.

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	4-H Club Agts.	Asst. Agr. Agts.
1. During the past 12 months how many of the 12 issues of <u>Kansas Agricultural Situation</u> have you read? (all or some part)					
A. Less than six.	16	6	7	1	2
B. Six or more.	38	22	7	6	3
C. None.	9	1	5	3	0
D. Don't know.	3	1	1	1	0
2. What value is the monthly publication (any part of it) to your extension program? Check the phrase that comes the <u>closest</u> to the way you feel about it.					
A. Helpful in my work.	32	20	5	3	4
B. Of little help.	22	8	9	4	1
C. No help to me.	1	0	0	1	0
D. Don't read it.	9	2	4	3	0
E. Other (specify)					
Never saw the publ.	1	0	1	0	0
Did not say.	1	0	1	0	0
3. Consider the value of this publication to you. If you were asked to vote today, would you say:					
A. Continue as is.	11	5	4	2	0
B. Continue after a major overhaul.	42	25	7	5	5
C. Discontinue the present publication.	4	0	2	2	0
D. No answer.	9	0	7	2	0

The Kansas Agricultural Situation was used by some agents as a source of information, but nearly all the agents had to rewrite or summarize the materials when it was used. The agents pointed out the fact that they felt the articles as written were above the comprehension level of local co-operators or were not adapted to local conditions and situations (Table 3).

Table 3. Extension agents use of Kansas Agricultural Situation.

Question Asked	Total	Agr. Agts.	Home Ec Agts.	L-H Club Agts.	Asst. Agr. Agts.
1. In what ways do you use the information in the <u>Kansas Agricultural Situation</u> ? (More than one answer may be checked.)					
A. As a basis for deciding what to stress in talks and meetings.	26	13	6	6	1
B. Use some of the facts in leader training meetings.	12	5	5	2	0
C. Use some of the facts in talks I give.	15	11	2	0	2
D. Use the information in articles written for circulars, newsletters, newspapers, etc.	25	18	3	0	4
E. Use the information in writing radio talks or TV programs.	6	5	0	0	1
F. As a help in answering questions that come to me.	39	26	3	6	4
H. Other (specify)					
No answer	2	0	2	0	0
Had not seen publ.	1	0	1	0	0
2. If you use the material in talks of in writing articles, or for radio or TV programs, do you generally use it:					
A. As it is written?	1	1	0	0	0
B. Rewrite it?	6	5	0	1	0
D. Digest or brief it?	30	16	5	4	5
No answer	26	5	15	6	0
Had checked two	3	3	0	0	0

Agents were not in agreement in their response to whether or not information should be included in the publication of interest to non-farm families or for businessmen. However, 31 agents asked for information which would be of interest to non-farm families and 34 asked for information that would be of interest to businessmen.

Specific questions were asked about two articles appearing in the December issue of the Kansas Agricultural Situation (Appendix A). Agents were asked if they had read the "Dairy" article and the "Business Trends" article. Thirty-two replied they had read the one on business trends and 21 found it interesting and easy to read. There were 30 agents who felt the articles on business trends had the information about the general business conditions of the United States which are necessary in conducting a county extension educational program (Table 4).

Table 4. Readability and interest of "Dairy" and "Business Trends" articles in December, 1958 Kansas Agricultural Situation.

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	4-H Club Agts.	Asst. Agr. Agts.
(Agents were asked to glance at the Dec. 1 issue of the <u>Kansas Agricultural Situation</u> but to use it only as a reference in answering the following questions):					
1. The article on page 3 entitled "Dairy Products" — do you remember reading it?					
A. Yes	17	8	3	4	2
B. No	42	18	14	7	3
C. No answer	7	4	3	0	0
2. If yes was checked above, check one answer below on readability and one on interest:					
A. Was it easy to read?	20	9	6	4	1
B. Was it hard to read?	6	3	0	2	1
C. Was it interesting?	21	9	6	5	2
D. Was it dull?	5	4	0	1	0
E. No answers to A, B, C or D	40	18	14	5	3
3. With reference to the article on "Business Trends" on page 1, do you remember having read this?					

Table 4 (concl.).

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	4-H Club Agts.	Asst. Agr. Agts.
3. (Continued)					
A. Yes	32	18	7	4	3
B. No	29	11	10	6	0
C. No answer	5	1	3	1	0
4. If "yes" was checked on question 3, check one answer below on readability and one on interest:					
A. Was it easy to read?	21	12	6	3	0
B. Was it hard to read?	13	6	2	2	3
C. Was it interesting?	21	11	5	5	0
D. Was it dull?	10	5	2	0	3
E. No answers:					
To A and B	32	12	12	6	2
To C and D	35	14	13	6	2
5. Does this article cover the parts of the business trends which are important to your extension program?					
A. Yes	30	17	9	4	1
B. No	10	6	2	2	0
C. No answer	26	7	10	5	4

Agents were asked which sections of the Kansas Agricultural Situation were of the greatest help to them in carrying out their county programs. The answers indicated the following areas (listed from most to least important): summary, business trends, beef cattle, hogs, dairy products, and poultry and eggs (Table 5). The summary, business trends and beef cattle articles were rated by extension agents as the most important data to them; therefore, future publications should stress these facts whenever feasible because extension agents have a good knowledge of the economic facts required by local farm managers in making management decisions.

Table 5. Articles in the Kansas Agricultural Situation used most by extension agents.

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	H-H Club Agts.	Asst. Agr. Agts.
<p>In the past, the <u>Kansas Agricultural Situation</u> has been set up in sections: summary (concise statements of major headings), business trends, wheat, feed grains, beef cattle, hogs, sheep and lambs, dairy products, and poultry and eggs. Please check the sections you generally read:</p>					
A. Summary	46	25	10	8	3
B. Business Trends	36	18	10	5	3
C. Beef Cattle	36	24	2	5	5
D. Hogs	32	21	1	5	5
E. Dairy Products	27	14	8	2	3
F. Poultry and Eggs	23	12	9	0	2
G. Wheat	21	17	3	0	1
H. Sheep and Lambs	21	16	1	1	3
I. Feed Grains	21	14	2	1	4
J. None of the sections	9	1	5	3	0
K. No answers	1	0	1	0	0

In summary of the 66 agents' answers to question 10, "General comments or suggestions you have for improving the Kansas Agricultural Situation," only 20 percent of the agents responded and all requested a revised publication -- if the publication was continued -- and for it to contain photographs, charts, illustrations, etc. The agents stressed that the publication needed to be "dressed-up" with good eye-appeal so cooperators would read the material. They further stated the revised outlook magazine should contain eight or more pages with all articles written on the educational level of the local cooperators for whom the articles are written. All outlook forecasts should be more specific in forecasting

of prices. More information should be given which would be of value to the homemaker and the home economics agents. Consumer information should contain wise food buys and data on buying goods for the home. Livestock forecasts should be for longer than a month ahead -- preferably for periods of six months to a year. Long range forecasts for all major farm commodities should be included.

Pertinent Findings. Agents in general expressed a desire for outlook materials but stated that if the present publications are to be read and of value to extension personnel, the publications must be interesting enough to catch the eye of the reader in order that time will be taken from a busy schedule to read them. The Kansas Agricultural Situation needs a major revision into a magazine of eight pages or more containing timely articles written on the educational level of the audience for which it is intended. More graphs, charts and pictures should be used in the revised publication.

Consumer information which will interest the housewife in outlook forecasts need to be made a part of the revised magazine. Articles on consumer buying tips, if possible, should be correlated with the feature story pertaining to the outlook for a major farm commodity.

The revised publication must reach farmers the next day or two after publication to be of much value and in order to accomplish this, it should be mailed directly from the printer to local cooperators.

The Kansas Market Comments. The agents who answered the questionnaire for the Kansas Agricultural Situation were asked to complete a questionnaire (Appendix D) pertaining to the weekly Kansas Market Comments. The latter questionnaire was not given until the former questionnaires had been completed.

Agents Receipt of Copies of Kansas Market Comments. Thirty-nine of the 66 extension agents surveyed reported they were not receiving a personal copy of the Kansas Market Comments. Thus, a majority of the agents surveyed did not have an opportunity to read the publication. The agents who did receive a personal copy did not find the information of much permanent value as a source of outlook information as only 11 offices kept a copy on file for reference (Table 6). This hypothesis was further substantiated by 23 (or 35 percent) of the total number of agents surveyed answering that they had read 12 or more of the past 52 issues of the Kansas Market Comments. It was also brought out that 18 agents had read less than 12 copies the past year and 18 had read none.

Table 6. Receipt of and copies read of Kansas Market Comments.

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	4-H Club Agts.	Asst. Agr. Agts.
1. Do you receive a personal copy of the <u>Kansas Market Comments</u> ?					
A. Yes	27	15	6	4	2
B. No	39	15	14	7	3
2. If you obtain a personal copy, do you:					
A. Throw it away after reading?	12	6	3	3	0
B. Keep it on file?	11	7	2	1	2
C. Otherwise -- specify					
No answer	4	2	1	0	3
3. During the past 12 months how many of the 52 issues of <u>Kansas Market Comments</u> have you read (all or some part):					
A. Less than 12 issues?	18	7	6	4	1
B. Twelve or more issues?	23	16	3	1	3
C. None?	18	3	10	5	0
D. Do not know.	7	4	1	1	1

Value of Kansas Market Comments to Extension Agents. The price forecast section was the most widely used section of the pamphlet (Table 7). Thirty-six agents indicated they usually read or glanced at the price forecast section. This number represented nine more than the 27 who indicated they were receiving the publication and this discrepancy may be accounted for by the fact that nine additional agents were borrowing copies to read within their extension offices. The majority of the agents found the price forecast of more value than the feature article as 31 agents had read the price forecast section of the December 2 issue of Kansas Market Comments (Appendix C) and only 14 reported reading the feature article in this issue. However, more agents answered the question pertaining to the readability and interest of the feature article, "Recent Marketing Practices, Help or Hindrance," than had previously indicated having read the article; therefore, this question should be disregarded statistically (Table 7).

It was indicated in the personal interviews that a majority of the agents found the discussion part of the market comments to be of little value because it contained too much written material and many times was written in a language too technical for the agent to comprehend. It was further brought out that it was almost impossible for an agent to find the time necessary to read the present publication.

In the past year the Kansas Market Comments was used primarily by agents as reference material to answer questions of cooperators (Table 7). Some agents were using the articles to assist in writing newsletters, circulars, newspaper columns, etc. Thirteen agents indicated they used the articles to help in keeping up-to-date with current research in the field of agriculture. Of the agents using the materials in their local educational

programs, 34 reported all articles were rewritten or digested before use. Only seven agents reported using the materials as published.

Few farm management cooperators had made inquiries of extension agents regarding the November issues of Kansas Market Comments as only seven agents reported one or more persons had asked about some fact or information contained in these issues.

Table 7. Extension agents use and value received from the Kansas Market Comments.

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	4-H Club Agts.	Asst. Ag. Agts.
1. In the past the <u>Kansas Market Comments</u> have been set up in two sections: two or three week future price forecasts of major farm commodities and a discussion of one of these. Please check the sections you usually read:					
A. Price forecasts	36	20	4	5	5
B. Discussion	13	10	1	2	0
C. Neither A nor B	11	0	6	5	0
D. No answers					
2. In what ways do you use the information in <u>Kansas Market Comments</u> ?					
A. As a basis for deciding what to stress in talks and to keep me up-to-date.	13	11	1	1	0
B. Use the information in leader training meetings.	4	4	0	0	0
C. Use the information in articles I write for circulars, newsletters, newspaper columns, etc.	24	16	1	2	5
D. Use the information in radio or TV programs.	8	7	0	0	1
E. Use the information to answer questions of cooperators.	30	19	4	3	4
4. If you use the materials in talks, newspaper columns, newsletters, radio or TV scripts, do you generally use it:					

Table 7 (concl.).

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4. (Continued)					
A. As it is written?	7	6	0	1	0
B. Rewrite it?	15	9	0	2	4
C. Digest it?	19	14	1	3	1
Please glance at the Dec. 2 issue of <u>Kansas Market Comments</u> but use it for reference only in answering the following questions:					
1. Do you remember reading the article on "Recent Marketing Practices, Help or Hindrance?"					
A. Yes	14	11	0	1	2
B. No	41	17	11	10	3
C. No answer	11	2	9	0	0
2. If question 1 was answered "yes" check one of the questions below on readability and one on interest):					
A. Was it easy to read?	15	11	1	2	1
B. Was it hard to read?	6	3	0	3	0
C. Was it interesting?	18	13	1	3	1
D. Was it dull?	5	4	0	0	1
3. Do you remember reading the article on "Outlook Prices for Next Two or Three Weeks?"					
A. Yes	31	23	2	3	3
B. No	18	5	7	5	1
C. No answer	17	2	11	3	1
4. Does this article give a clear picture of the prices of major farm commodities for the next two or three weeks?					
A. Yes	30	17	2	8	3
B. No	7	3	3	0	1
C. No answer	29	10	15	3	1
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Changes Recommended by Extension Agents in the Kansas Market Comments.

Less than one-third of those surveyed wished to have the present publication continued in the future even after a major overhaul and 14 were in favor of

discontinuing it. Several agents suggested that the Kansas Market Comments be combined with the Kansas Agricultural Situation if it were revised into a magazine type of publication (Table 8).

Sixteen agents indicated that the publication should include more information that would be helpful to businessmen and 13 signified that additional information of this type was not needed. Before a definite decision could be drawn concerning this matter, additional agents should be contacted.

Agents indicated that if the publication is continued, the articles need to be written in a more readable and interesting style and on an educational level of the cooperators. The agents suggested the use of charts and graphs to present data pertaining to price trends, livestock numbers, etc.

Table 8. Changes recommended in Kansas Market Comments by extension agents.

Question Asked	Total	Agr. Agts.	Home Ec. Agts.	H-H Club Agts.	Asst. Agr. Agts.
1. If you were asked to vote considering the value of <u>Kansas Market Comments</u> to you today, would you vote:					
A. To continue the publication as is?	20	14	1	4	1
B. Continue it after a major overhaul?	17	10	2	2	3
C. Discontinue present publication?	14	5	4	4	1
D. No comments.	15	1	13	1	0
2. Considering your work in your county do you think this publication should include more information that would be helpful to businessmen?					
A. Yes	16	8	3	2	3
B. No	13	9	2	2	0
C. No opinion	37	13	15	7	2

Pertinent Findings

A further study needs to be made among farm management cooperators as to the value of the Kansas Market Comments to them before any definite conclusions may be drawn from this study. Additional agents need to be interviewed to find what value the market comments are to them, as agents answers in this survey indicated about equal numbers were in favor of continuing or discontinuing the present publication.

One observation is pertinent, county agents must have ready access to a copy of each issue of Kansas Market Comments if it is to be of maximum value to them in carrying out the county extension program. It is the responsibility of the central office staff to see that each agent receives a copy of this publication as soon as it is printed.

The feature article and price forecasts in Kansas Market Comments need to be changed so they will be of increased value to all agents as a source of information to answer questions of cooperators and for use in the educational program work. The discussion in the feature article should be written on the educational level of the farm management co-operators. This may be accomplished in part by the use of graphs, charts and pictures thus increasing the eye-appeal of the written page and decreasing the number of words required to explain the subject being presented. The articles should be aimed to meet the local conditions being faced by county agents and farm management cooperators.

Summary

A majority of farmers have expressed a desire for and should receive adequate outlook information. Educational institutions were asked by

farmers to improve outlook publications so they would contain more pertinent data about future price forecasts as reported by McCormick (26).

A basic study was conducted by the author which consisted of a questionnaire type survey and a personal interview with extension personnel in 29 of the 105 county extension offices of Kansas. Sixty-six questionnaires and interviews were included in the final analysis to find what outlook information was needed by extension agents to give local cooperators the outlook information desired.

Agents questionnaires were first divided according to length of service in the summary of results, but when it was found that 53 of the 66 agents had three or more years of service, all were included in the final analysis.

Less than one-half of the extension agents were receiving a personal copy of the Kansas Agricultural Situation, thus decreasing the effectiveness of this publication's use by extension personnel. Twenty-three agents filed it for future reference.

Five of the 30 county agricultural agents reported mailing the Kansas Agricultural Situation to local cooperators the next day after receiving it in bulk from the central office distribution center. Agents responding to the interview asked that future copies of the publication be mailed directly from the printing office the day it comes off the press to local cooperators.

Agents expressed a need for outlook information during the personal interviews and said they felt they were not receiving the specific information they needed to help with the educational part of the extension program in the present outlook publications. A majority of the 66 agents surveyed replied either in the questionnaire or during the personal interview they would like

to have the Kansas Agricultural Situation made into a magazine type publication and that the articles in it be written on the average educational level of the readers. They wanted more information of interest to the homemaker and the home economics agents with a page devoted to consumers. They further stated they would like information which would be of interest to non-farm families and to businessmen.

Articles in the Kansas Agricultural Situation pertaining to business trends, beef cattle, hogs and dairying are needed as shown by the survey. Agents agreed that the revised publication should be "dressed up" with pictures for eye-appeal that would cause the recipient to want to read the articles in the magazine. The analysis showed the use of charts and graphs to present statistical data in a visual form would help to catch the eye of the reader and decrease the amount of writing required per page. The graphs and charts used should be those which the reader could easily understand and not be above the average level of comprehension.

Of the 66 agents surveyed, only 27 were receiving a personal copy of Kansas Market Comments and only 11 of the 29 extension offices surveyed kept a file on this outlook publication for future reference. Twenty-three of the agents reporting receiving a personal copy of Kansas Market Comments reported reading 12 or more of the past 52 issues of this publication and 18 agents replied they had read none of the past year's issues. However, there were nine more agents responded they usually read or glanced at the price forecast section than reported receiving a personal copy of this publication. This discrepancy was accounted for by the fact agents borrowed copies from other agents in the office to read. The 36 agents who read the price forecast section indicated they preferred this section to the discussion

part of the pamphlet because the discussion contained too much written material and many times was written in a language too technical for the agent to comprehend.

Of the 66 agents surveyed, 30 were using Kansas Market Comments primarily as reference material to answer questions of cooperators. The 34 agents reporting using the articles in newsletters, circulars, etc., agreed it was necessary to rewrite or digest the material before using.

Only seven agents reported one or more persons had inquired about some fact or information published in any of the November issues of Kansas Market Comments.

The agents surveyed were of varied opinions as to what should be done with the Kansas Market Comments. Of the 66 agents contacted, 20 replied the publication should be continued, 17 said to continue after a major revision, and 14 wished to have it discontinued. Thus no definite conclusions could be drawn from the agents response to this question. Further studies among farm management cooperators and extension agents that were not included in this survey should be made before a definite conclusion can be reached on this matter. One fact was apparent though, county extension personnel must receive a personal copy of each issue of Kansas Market Comments if it is to be of value to them.

The agents who showed an interest in continuing the publication of the Kansas Market Comments suggested during the personal interview that the publication would be of much more interest if it were to contain a few pictures and to use charts and graphs to present statistical data. This would not only catch the eye of the public, but would cut down on the reading matter. The agents stressed that the written material be stated in a language easily understood by the average person.

PART II. GRAPH COMPREHENSION

Basis for Study

The author was able to find only one basic study in the field of graph comprehension in the review of literature (8). Therefore, it was felt before any decisions could be made on the use of graphs and charts in outlook publications, it would be necessary to conduct a study to see what the average comprehension is of the different types of these visual aids. It was first necessary to determine the average educational level of adults in Kansas before research could be done in the former area. Thus it was necessary to conduct a second portion of research in order to determine what major revisions should be carried out in the two outlook publications, the Kansas Market Comments and the Kansas Agricultural Situation.

Suggestions made by county extension agents for the improvement of the present outlook publications to make them of increased value in carrying out local county extension programs were primarily for the articles in both publications to be written on the educational level of local readers and for the statistical data to be presented by graphs and charts that are easy to comprehend. Therefore, a second part of this study was for the purpose of finding the average educational level of adults in Kansas and finding which kinds of graphs were the easiest to comprehend, and to see if there was any limit in the sets of statistical data that could be plotted graphically and still be readily understood. It was further desired to know if the educational level of the reader played a part in the readability of the written page and what this level of education had to do with

graph comprehension. Also, if the reader had some farm background, would the level of comprehension of graphic data of an agricultural nature increase. These were the basis for the second part of this basic study.

In order to determine the average educational level of adults in Kansas, the City-Data Book of 1956 (42) was consulted. It was learned the educational level of adults in Kansas 25 years of age or older averaged 10.2 years (Table 9). Dr. Flesch found for quick comprehension or ease of reading the material should be written in a language at least one year below the educational level of the reader (12). The reading ease level average for the northern half of Kansas was the eighth grade plus, and the ninth grade for the southern half of Kansas. Therefore, although the educational level averaged 10.2, the reading ease level averaged the ninth grade.

Table 9. School years completed by Kansas residents 25 years of age or older and reading ease level (42).

Area	Grade Completed	Reading Ease Level
State Median	10.2	9th
Average Northern Half of Kansas (56 counties)	10.4	Mid 8th
Average Southern Half of Kansas (49 counties)	10.0	9th

Organization of Study

In order to determine the graph comprehension of the educational level and ease of reading level of adults of Kansas, a survey of students in eighth and ninth grade mathematics classes of the Manhattan Junior High School was

conducted. To further determine if additional education had any effect on graph comprehension, the survey was extended to two classes in Economics I at Kansas State University. Also, to determine whether or not an agricultural background would affect the comprehension of the presentation of agricultural data graphically, two vocational agriculture classes, one freshman and one senior, at Randolph High School were given the same survey questionnaire as the students in the former areas.

The survey questionnaires are shown in the Appendix. Basically a graph questionnaire consisted of a graph followed by a series of questions. In some cases the same questions were asked in combination with different graphic forms. The questions were progressive in complexity going from the less to the more complex. The purpose was to measure the difference in comprehension due to a different form of chart being used.

The graph survey questionnaire was prepared for those graphs most commonly used by the central office staff to present outlook information. The graphs included were the line (Fig. 1, 2, 3), pie (Fig. 4), flow (Fig. 5), and bar graph (Fig. 6) and grouped-bar graph (Fig. 7). Other kinds of graph models were not tested in this basic study.

The questionnaire was explained to each class by the regular instructor to make sure there was no outside influence to cause certain students to do other than normal in answering the survey questions. Each instructor read the same set of instructions to his respective class. The instructions stated that the students were not to consider the questions as an examination but to answer the questions pertaining to each graph as if they were a part of an article in a newspaper or magazine which they might be reading. Students were instructed not to turn back to a previous graph after they had

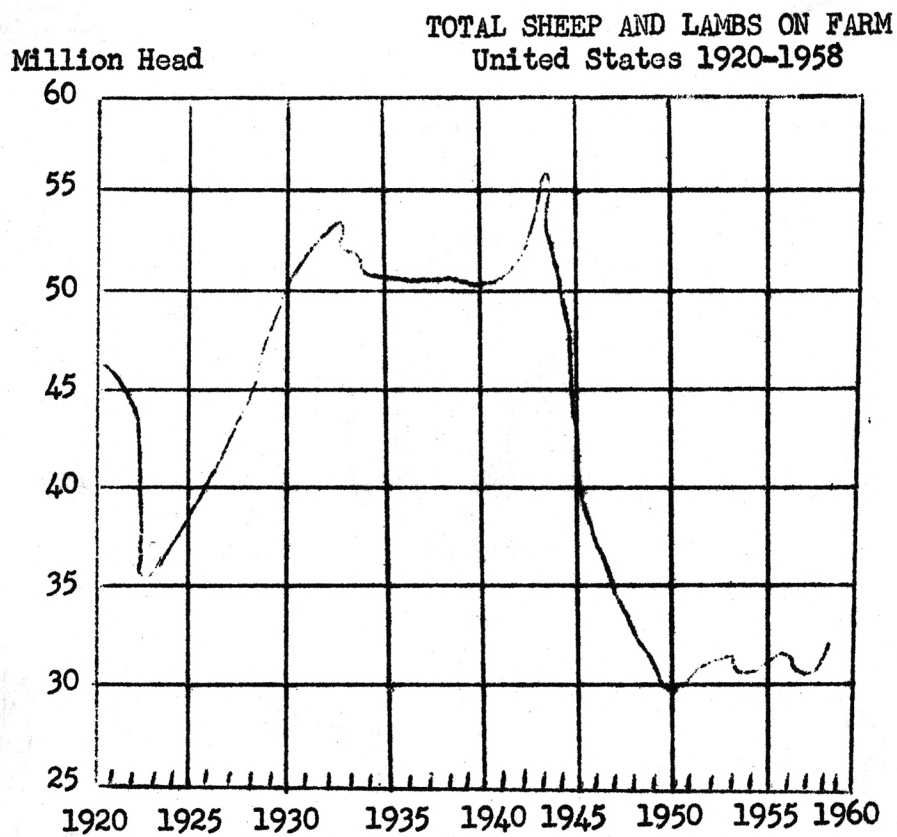


Fig. 1. Line graph, one set of data.

TOTAL HOGS ON FARMS AND COMMERCIAL SLAUGHTER
United States 1920-1958

Million Head

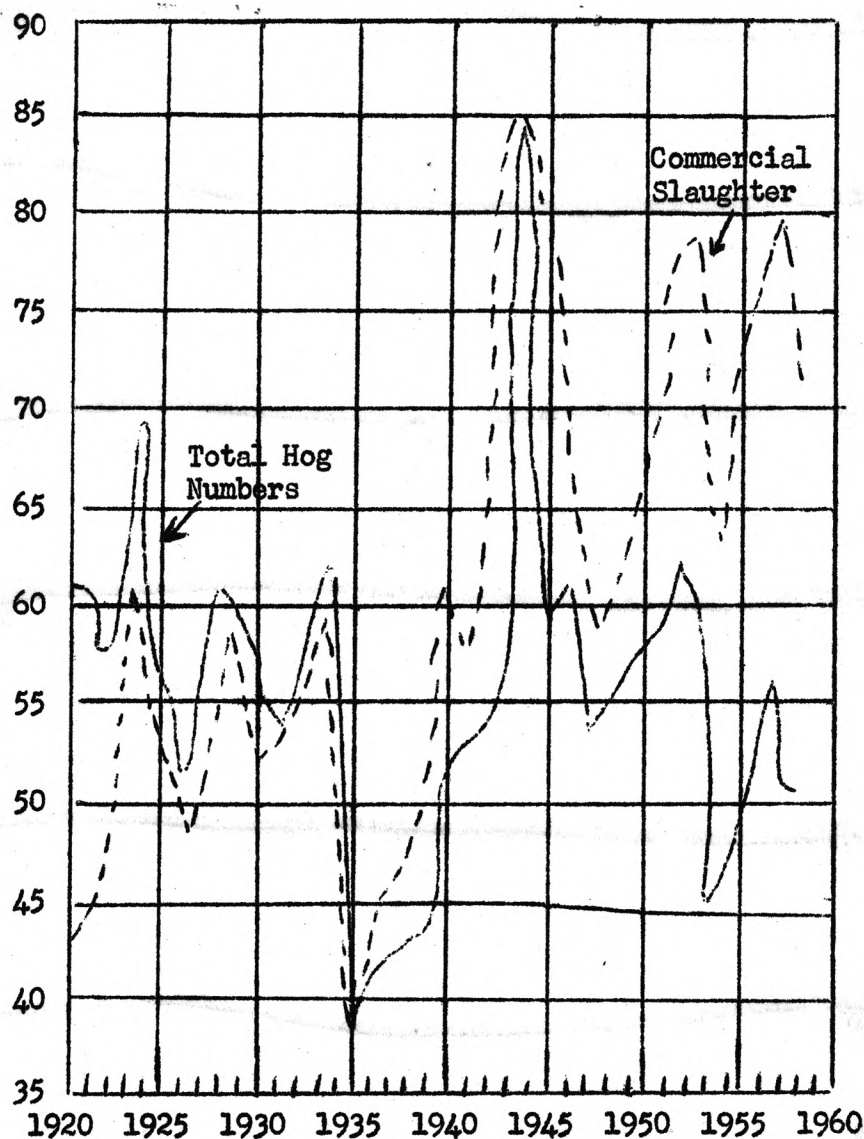


Fig. 2. Line graph, two sets of data.

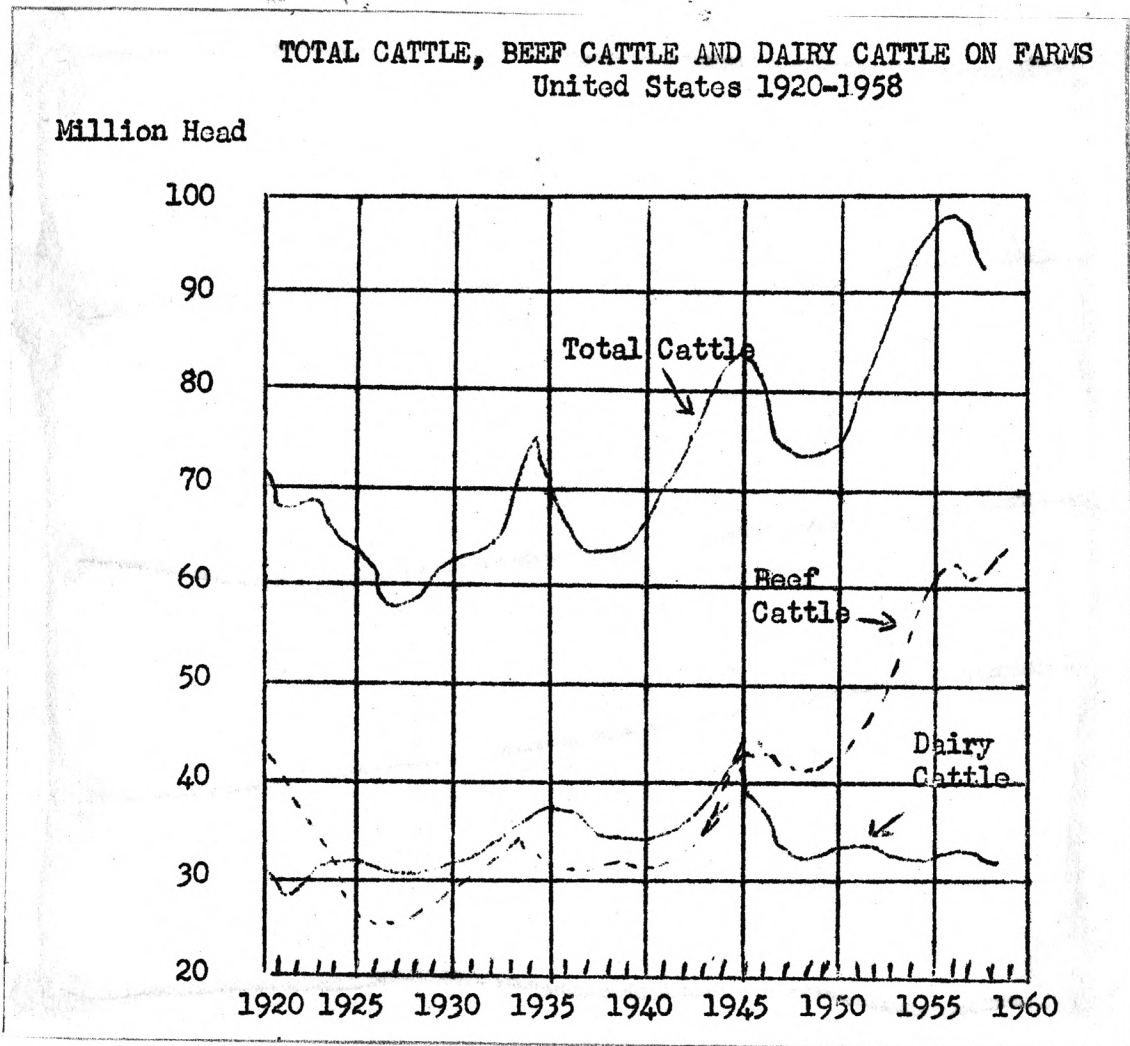


Fig. 3. Line graph, three sets of data.

LOCAL DEALERS SOURCES OF SUPPLY FOR FEEDER CATTLE AND CALVES
Kansas, 1947

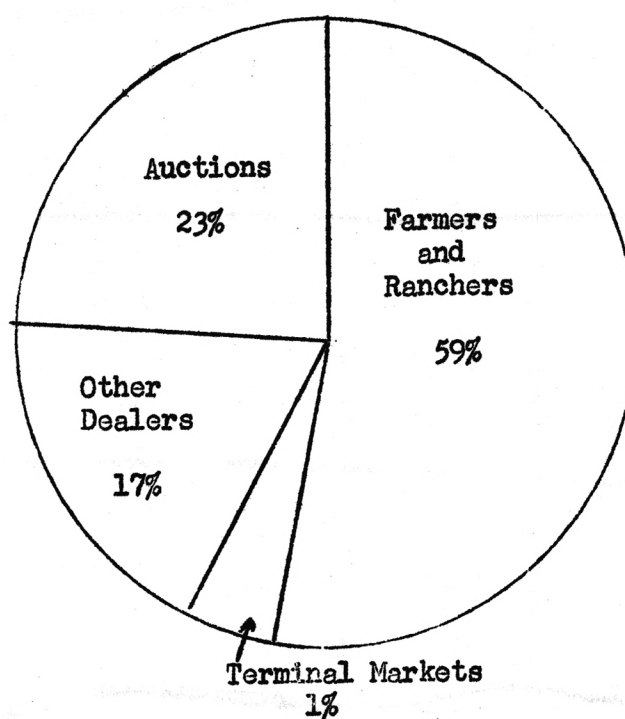


Fig. 4. Pie graph, one set of data.

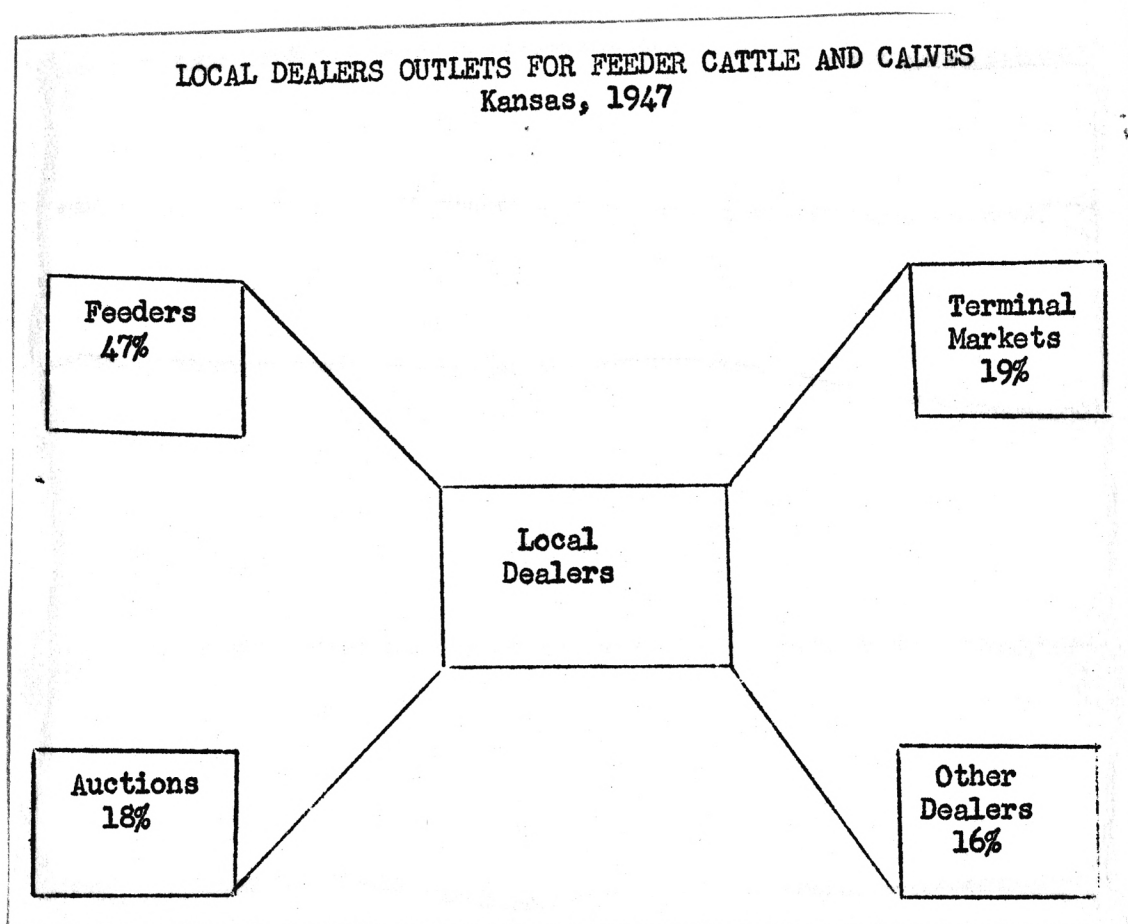


Fig. 5. Flow graph, one set of data.

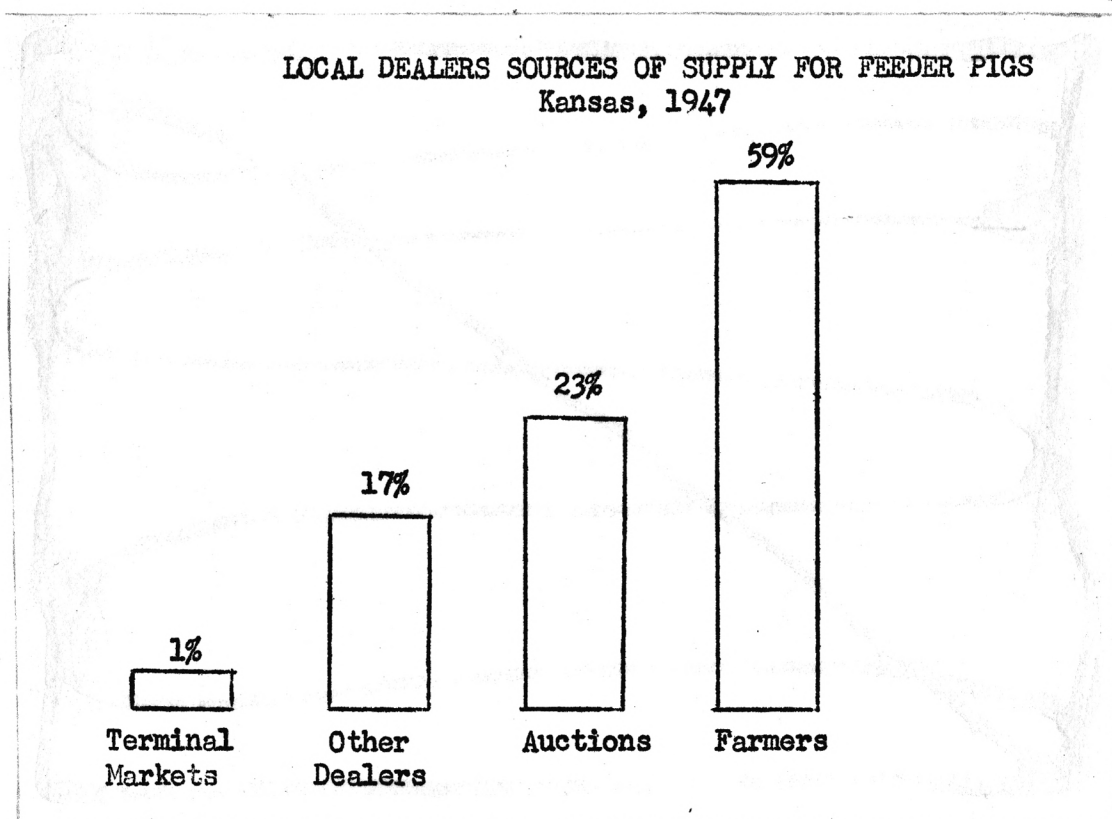


Fig. 6. Single bar graph, one set of data.

LOCAL DEALERS SOURCE AND SUPPLY FOR FEEDER CATTLE AND CALVES
Kansas, 1947

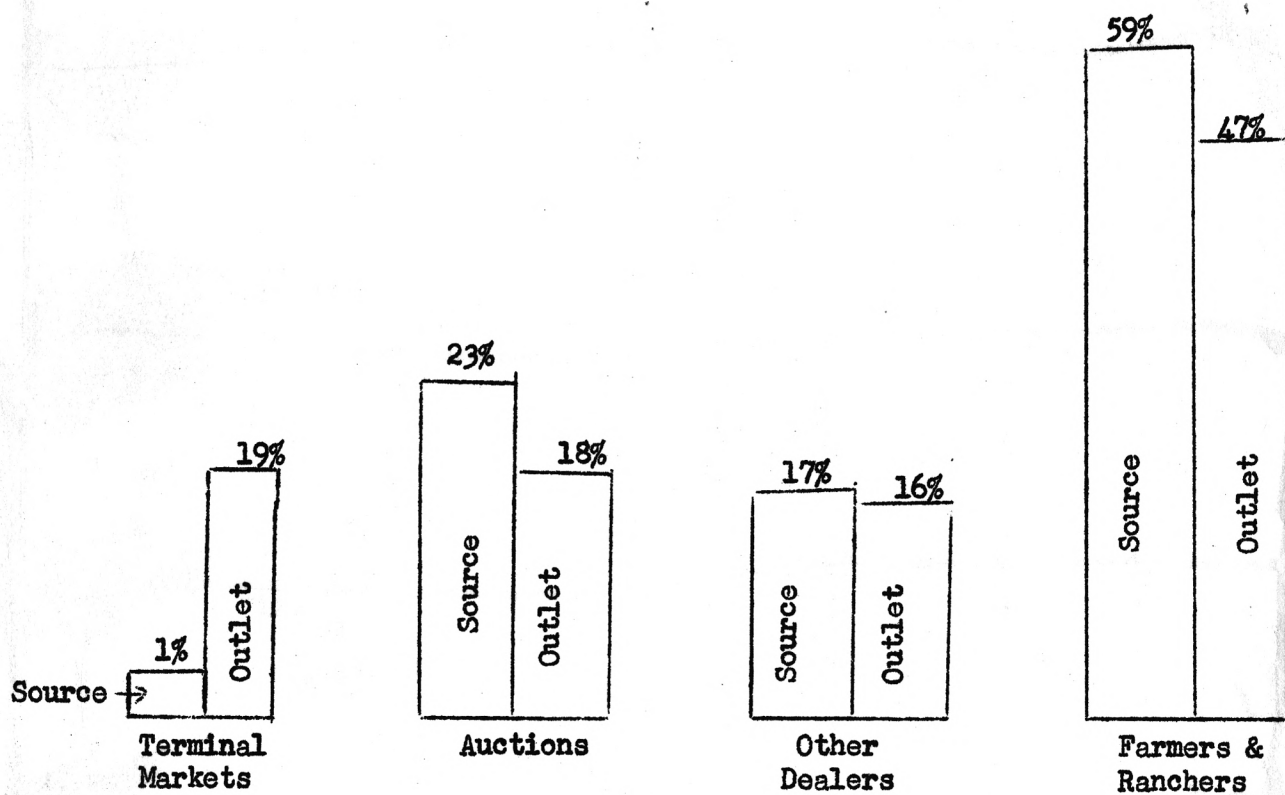


Fig. 7. Grouped-bar graph, two sets of data.

finished answering it so there would be little, if any, correlation between one set of answers from a previous graph to the one currently being answered. Time was not emphasized as being important but students were instructed that if they could not answer a question easily from the graphed data to leave the question blank. After a majority of the students had finished a set of questions pertaining to a particular graph, those not finished were asked to do so within the next few minutes.

Most of the answers to the graph survey questionnaire were answered according to the normal reading habits of the individuals. Similarly constructed questions were asked pertaining to the pie, flow and bar graphs with only the data changed so that the number of correct answers to each respective graph could be compared in the final analysis. The questions and answers for the line graph were not arranged so they could be compared to either of the above graphs in the final results.

The data for the bar and flow graph were combined and presented by a grouped bar graph. The same questions were asked for the flow and single bar graphs as for the grouped-bar graph so the results could then be compared to find which one was the easiest for the reader to comprehend.

The same model graph was used for the three line graphs when one, two and three sets of numerical data were plotted. The 15 questions for each line graph were the same except the data were changed. The number of correct answers to each line graph was to be compared in the final analysis to find if a writer might present more than one set of statistical facts per line graph and not have the level of comprehension affected.

Results of Graph Comprehension Survey

The 33 advanced eighth grade mathematics students and the 40 freshman Economics I students had approximately the same average number of correct answers to the questions for Graph I (Fig. 1) (Table 10). For the other educational groups the mean varied from 9.9 to 10.4 in comparison to 11.6 for the eighth grade and Economics I students. Thus there was no wide variation in the average number of correct answers for Graph I among any of the educational groups surveyed.

Table 10. Number of correct answers to each question of Graph I (Fig. 1) by the various educational groups and the mean for each group.

Number of Question	Reg. 8th Grade Math.	Adv. 8th Grade Math.	Reg. 9th Grade Math.	9th Grade Algebra	9th Voc. Agr. Class	Senior H. S. Voc. Agr.	Col. Fresh. Ec. I
1	0	0	0	0	0	0	0
2	0	0	1	0	1	0	0
3	0	0	0	0	0	0	0
4	1	0	1	0	0	0	0
5	0	0	4	0	0	0	1
6	2	0	1	3	0	0	0
7	1	1	7	2	1	1	0
8	4	3	0	4	2	1	1
9	2	3	7	3	1	0	3
10	7	4	9	1	1	1	2
Mean	9.9	11.6	10.0	10.2	10.4	10.4	11.6
11	5	5	6	1	2	1	9
12	2	2	15	2	4	1	12
13	4	6	5	6	0	5	8
14	1	6	3	1	2	0	2
15	0	3	0	1	0	0	2
Total No. Students Each Group	29	33	59	24	14	10	40

The percentage difference between the eighth grade advanced mathematics class and the freshman Economics I classes when the number of correct answers to all seven graphs was compared was 2.5 percent. The percentage variance for all educational groups when compared was 9.5 percent for the number of correct answers to any set of graph questions pertaining to a particular graph. This was the difference between the general eighth grade mathematics class and the freshman Economics I classes (Table 11).

Students with a farm background or experience could answer few if any more of the questions correctly for the graphed data even though it was of an agricultural nature. The vocational agriculture students were able to answer a few more questions correctly which pertained to line graph II and III where two and three sets of data were presented per graph. One reason for this variance rather than the farm experience might have been due to the training in the use of this particular type of graph in vocational agriculture classes. This hypothesis was further substantiated by an analysis of the number of correct answers to all the other graph questions which showed there was little, if any, difference, and in most cases the groups with no farm training were able to answer a larger percentage of the questions pertaining to each respective graph correctly than the vocational agriculture students. Most of the students in the Manhattan Junior High School and the Kansas State University Economics I classes lived in town and reported little or no farm experience. Therefore, this variable was not considered of importance in this study and was disregarded in the final analysis.

Table 11. Percentage of correct answers to each graph by the various educational groups.

No. Stu. in Each Group	Graph I % Correct	Graph II % Correct	Graph III % Correct	Graph IV % Correct	Graph V % Correct	Graph VI % Correct	Graph VII % Correct
8th Math. 29	66.0	57.2	47.3	73.4	71.4	70.4	46.8
9th Gen. Math. 59	66.3	55.6	53.2	77.2	68.0	76.7	47.4
9th Alg. 24	68.1	60.1	45.8	82.1	84.5	87.5	65.8
9th Voc. Agr. 14	69.0	68.0	60.0	73.5	76.5	76.5	54.1
Senior Voc. Agr. 10	69.3	66.0	60.1	70.0	70.0	80.0	49.3
8th Adv. Math. 33	77.6	67.7	60.2	79.6	75.3	83.6	50.6
College Freshman Ec. I 40	77.3	74.3	57.2	89.6	84.6	80.7	50.7
Ave. for Report Total 209	74.9	60.6	54.0	79.7	75.4	79.9	51.5

Graph I — Line graph one set of data (Fig. 1).
 Graph II — Line graph two sets of data (Fig. 2).
 Graph III — Line graph three sets of data (Fig. 3).
 Graph IV — Pie graph (Fig. 4).
 Graph V — Flow graph (Fig. 5).
 Graph VI — Bar graph (Fig. 6).
 Graph VII — Grouped-bar with two sets of data (Fig. 7).

Line Graph Comprehension When One, Two and Three Sets of Data Were Plotted. When one set of data were plotted on a line graph (Appendix E, Fig. 1) 74.9 percent of the 15 questions pertaining to this particular graph were answered correctly by the 209 students surveyed. However, when two sets of numerical data were plotted on the same model line graph (Appendix F, Fig. 2), the comprehension level dropped to 60.6 percent and when three sets of data were presented (Appendix F, Fig. 3), the level of understanding dropped to 54.0 percent (Table 11). The comprehension level of all groups decreased when more than one set of data was plotted per graph.

Certain facts were easily gained from the line graph when one or more ideas were plotted while this was not the case for other facts. Those questions asking for only general information from the graphed data such as when a general increase or decrease, shown by the line curve, occurred or when an extreme low in numbers or an extreme high for a given time series was present a large percentage of the questions could be answered correctly.

Some facts it was found should not be presented by a line graph if the reader was supposed to comprehend the data presented easily and accurately. Data that should not be presented by a line graph (Appendix E, F, G) if the author wishes the reader to be able to grasp the facts, are a given number or quantity for a given year or period of time (Table 12). The writer should use other methods than the line graph to present such data.

Table 12. Percent correct answers to each question for line graphs I, II and III for all educational groups surveyed.

Question Number on Survey	Graph I (Fig. 1) One Idea % Correct	Graph II (Fig. 2) Two Ideas % Correct	Graph III (Fig. 3) Three Ideas % Correct
1	94.3	91.9	86.6
2	96.2	95.7	65.0
3	43.5	15.8	10.5
4	69.4	90.4	16.7
5	38.3	34.5	3.3
6	73.2	67.0	64.6
7	89.5	77.0	76.5
8	48.8	48.4	46.9
9	89.5	30.1	82.8
10	76.1	52.6	62.2
11	66.6	66.5	65.0
12	70.8	58.0	58.0
13	70.3	70.0	65.6
14	66.0	61.2	48.3
15	70.8	66.5	54.1
Average % Correct for all 15 ques.	74.9	60.6	54.0

A comparison of the number of correct answers by all groups surveyed which pertained to the pie (Appendix H, Fig. 4), flow (Appendix I, Fig. 5), and bar graph (Appendix J, Fig. 6), when one set of statistical data were plotted on either of these graphs found there was little variance in the level of comprehension. The 209 students answering the questions for the respective graphs were able to answer 79.7 percent of the questions (Appendix H) correctly for the pie graph (Fig. 4), 79.9 percent correctly (Appendix J) for the single bar graph (Fig. 6), and slightly less (Appendix I) for the flow graph (Fig. 5), 75.4 percent (Table 11).

The pie (Fig. 4) and single bar graph (Fig. 6) were superior to the flow graph (Fig. 5) when the respondents were asked to ascertain a certain

percentage of the total. However, the pie graph was superior to either in presenting a percentage of the total as shown by the fact 79.3 percent of these particular questions were answered correctly, 71.0 percent for the bar, and 60.0 percent for the flow graph data (Table 13).

The flow graph was superior to the pie graph and slightly better than the bar graph when those surveyed were asked to ascertain from what source local dealers purchased the largest percentage of their livestock. The flow graph was superior to the pie graph as 89 percent answered the question correctly for the flow graph while 79.9 percent answered correctly for the pie graph when the same data were plotted (Table 13).

Table 13. Percent correct answers to each question for the pie, flow and bar graphs for all educational groups surveyed.

Question Number on Survey	Graph IV Pie % Correct	Graph V Flow % Correct	Graph VI Bar % Correct
1	79.9	89.0	88.5
2	85.2	86.6	87.6
3	86.6	90.0	87.6
4	81.3	77.0	84.7
5	64.1	69.9	72.7
6	85.6	65.6	79.9
7	73.1	54.5	62.2
Average % Correct for all 7 questions	79.7	75.4	79.9

Those answering the survey questionnaire (Appendix K) were unable to ascertain the graphed data to a high degree of accuracy when it was presented

by a grouped-bar graph (Fig. 7). When data was presented by a single bar graph (Fig. 4) the level of comprehension was 79.9 percent. Another set of data presented by a flow graph (Fig. 5) was answered correctly by 75.4 percent, but when these two sets of data were presented by a grouped-bar graph (Fig. 7), the level of comprehension of correct answers was only 50.4 and 51.7 percent respectively. Thus, the single bar or flow graph were both superior to the grouped-bar graph (Table 14).

Table 14. Comparison of percentage of correct answers for the same data when presented by a single bar and a flow graph and then combined for a grouped-bar graph.

Quest. No. in Survey (App.J)	Graph VI Single bar % Correct	Quest. No. in Survey (App.K)	Graph VII Grouped-bar % Correct	Quest. No. in Survey (App.I)	Graph V Flow % Correct	Quest. No. in Survey (App.K)	Graph VII Grouped-bar % Correct
1	88.5	1	51.2	1	89.0	6	36.9
2	87.6	3	64.1	2	86.6	5	51.2
3	84.7	4	51.7	3	90.0	14	62.1
4	84.7	2	46.4	4	77.0	13	36.9
5	72.7	7	28.7	5	69.9	11	58.0
6	79.9	10	56.0	6	65.6	9	58.4
7	64.2	12	55.0	7	54.5	8	58.9

Summary

Various academic educational levels seemed to have little bearing on the degree of graph comprehension as the advanced eighth grade mathematics class of the Manhattan Junior High School was able to answer nearly as many questions correctly as the freshman Economics I classes at Kansas State University. The

mean number of correct answers to questions pertaining to Graph I was the same for both groups. The number of correct answers to all seven graphs by the various educational groups for any one question varied only 9.5 percent. The mean for Graph I varied from 9.9 to 11.6.

Training or experience of an agricultural nature had no bearing on the reader's ability to understand data of an agricultural source presented by graphs.

It was learned that certain facts may be presented by a line graph (Fig. 1, 2, 3) and be rather easily understood while other information was almost impossible to obtain from this type of graph. Numerical data was understood when plotted by a line graph when the data consists of a general increase or decrease in numbers had occurred in a certain period of time or when an extreme low or high in the data was apparent. However, some information cannot be presented by a line graph without the reader having trouble in comprehending the facts. Such data as when a specific number of livestock was present for a given period, or a given year when a certain quantity of livestock were present were almost impossible for those surveyed to ascertain from a line graph.

There was little difference in the students' ability to understand graphed data whether presented by a flow (Fig. 5), single bar (Fig. 6), or pie graph (Fig. 4) except when he was asked to note a certain percentage figure of the total or the flow of livestock from one source to another when the flow and bar graph were superior. The pie and single bar graphs were superior to the flow graph when depicting the percentage data with the pie graph appearing to be superior to the bar graph. The flow graph was superior

when the respondents were asked to determine such facts as the flow of animals from a particular source to a buyer (Appendix I).

When two sets of data were presented by a grouped-bar graph (Appendix K, Fig. 7), the students failed to comprehend the facts asked for to any high degree of accuracy. However, when the identical data were presented by a flow (Appendix I, Fig. 5) and a single bar graph (Appendix H, Fig. 6), the comprehension level was considerably higher. Thus, from the results found in this study, the grouped-bar graph should not be used to present numerical data unless absolutely necessary. The flow and bar graph were superior in presenting all of the facts which were tested by the survey questionnaire.

This basic study showed that there was a difference in the level of comprehension when data were presented by different kinds of graphs. The graph used in presenting outlook information needs to be the easiest ones understood. Only one set of statistical data may be presented by a bar or line graph if a high degree of comprehension is desired by the writer and publisher of the information.

Limitations of Report

No research studies were conducted among farm cooperators to find what information they desire or which graphs were the easiest for them to understand. These two basic studies may be used for future research studies in these fields.

No definite conclusions could be reached in either one of the studies conducted due to their basic nature. Little, if any, previous research in these fields could be found to substantiate the hypothesis arrived at in the final analysis. However, the hypotheses can be used as a basis for starting future research studies.

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APPENDICES

Appendix A

Appendix A

The Kansas Agricultural Situation

December 1, 1958

Summary Lower prices for lambs weighing more than 100 pounds; steady to lower prices for feed grains and grade A milk; steady prices for stocker and feeder cattle, choice lambs under 100 pounds, slaughter ewes, feeder lambs, large grade A eggs, turkeys, broilers, and manufacturing milk; steady to slightly higher prices for hogs, slaughter cattle, medium grade A eggs, and farm hens; and slightly higher prices for wheat are expected during December.

Business Trends Temperate optimism appears to be the mood in the business world. Soft spots apparent in early November are fewer as December begins. The 1958 Christmas market promises brisk sales at a good, but not record, level.

During November, steel production held its own despite curtailed auto production. Demand for autos is reported strong by dealers. In the same tone, most other indexes of the general economy are steady or up a little.

Employment dropped slightly in October. This can be attributed almost entirely to labor disputes.

A bright note came from a Wall Street Journal survey. It reveals that "U.S. industry is confidently planning to boost its expenditures on new plants and equipment during 1959 . . . The upswing of capital goods spending is already under way. . . . The continuation of this upturn into 1959 promises to inject still more vigor into the recovery, in the view of most executives interviewed."

Food supplies into 1959 are expected to be about even with those twelve months earlier. Beginning

early in 1959 they are likely to be somewhat higher. Demand for food is expected to continue strong throughout this next year. For 1959, food prices will likely average a little under those of 1958 because of the heavier supplies.

Wheat Slightly higher wheat prices are in prospect for December.

Wheat prices advanced in November as the expected pressure on storage space failed to develop and farmers continued their holding policy on wheat. Marketings of wheat are not expected to increase greatly in December under current conditions.

Prices of ordinary hard winter wheat are appreciably below the net loan in many areas. With storage space available there is a strong incentive to place wheat under loan. Market requirements are likely to cause wheat prices to edge upward during December as a result.

Large supplies and the expectation of shortages in storage space weakened the tendency for prices to rise in the fall months.

Kansas State College of Agriculture and Applied Science

EXTENSION SERVICE, MANHATTAN, KANSAS

Prepared by the Department of Agricultural Economics and issued by the Extension Service of Kansas State College of Agriculture and Applied Science. (These forecasts of market trends apply to conditions during the thirty days following date of issue.)

Appendix B

SURVEY OF KANSAS EXTENSION SERVICE

as to

Effectiveness of Kansas Agricultural Situation
and Kansas Market Comments in the County Extension Program

Date _____

Check One:

Number of years in Extension work..... _____

County Agricultural Agent..... _____

Home Economics Agent..... _____

4-H Club Agent..... _____

Assistant County Agricultural Agent..... _____

Assistant 4-H Club Agent..... _____

Assistant Home Economics Agent..... _____

State Specialist..... _____

Kansas Agricultural Situation questions:
(1 - 11 inclusive)

1. During the past 12 months how many of the 12 issues of Kansas Agricultural Situation have you read (all or some part)?
 - a. Less than six _____
 - b. Six or more _____
 - c. None _____
 - d. Don't know _____
2. What value is the monthly Kansas Agricultural Situation (any part of it) to your extension program? Check the phrase that comes closest to the way you feel about it.
 - a. Helpful in my work _____
 - b. Of little help _____
 - c. No help to me _____
 - d. Don't read it _____
3. Consider the Kansas Agricultural Situation value to you. If you were asked to vote today, would you say:
 - a. Continue the publication as is _____
 - b. Continue after major overhaul _____
 - c. Discontinue the present publication _____

A. Please give reasons for your answer to question 3. _____

B. If your answer is 3b, what overhauls do you suggest? _____

4. In what ways do you use the information in the Kansas Agricultural Situation? (More than one answer may be checked.)
- a. As a basis for deciding what to stress in talks and meetings and to keep me up-to-date _____
 - b. Use some of the facts in talks I give _____
 - c. Use the information in leader training meetings _____
 - d. Use the information in articles I write for circulars, newsletters, newspaper column, etc. _____
 - e. Use the information in writing radio talks or TV programs _____
 - f. As a help in answering questions that come to me _____
 - g. I don't use it _____
 - h. Other (specify) _____
-
5. If you use the material in talks, or in writing articles, or radio scripts, or TV programs, do you generally use it:
- a. As it is written _____
 - b. Rewrite it _____
 - c. Digest or brief it _____
6. In the past, the Kansas Agricultural Situation has been set up in sections: Summary (concise statements of each major heading), Business Trends, Wheat, Feed Grains, Beef Cattle, Hogs, Sheep and Lambs, Dairy Products, and Poultry and Eggs. Please check the sections you usually read.
- a. Summary _____
 - b. Business Trends _____
 - c. Wheat _____
 - d. Feed grains _____
 - e. Beef cattle _____
 - f. Hogs _____
 - g. Sheep and lambs _____
 - h. Dairy products _____
 - i. Poultry and eggs _____
 - j. None of them _____
7. Considering your work in your county (or state if a specialist) should this publication include more information helpful to non-farm families
- a. Yes _____
 - b. No _____
 - d. No opinion _____
- a. For businessmen?
- a. Yes _____
 - b. No _____

-3-

8. When your county supply of the Kansas Agricultural Situation arrives at your office do you:
- Obtain a personal copy before they arrive Yes _____
No _____
 - Read a copy before mailing to your cooperators Yes _____
No _____
 - If you obtain a personal copy, do you:
 - Throw it away _____
 - Keep it on file _____
 - Other (specify) _____
 - For county agricultural agent only: When your supply arrives is it:
 - Mailed out the next day _____
 - Next 3 or 4 days _____
 - One week _____
 - No set time _____
9. Please glance now at the copy of the December 1 issue of Kansas Agricultural Situation which is enclosed. Do not read it now, but use the copy for reference only in answering questions A and B.
- A. The article on page 3 entitled, "Dairy Products," do you remember reading this article? Yes _____
No _____
- If yes, (check one on readability and one on interest) Do you find it: Easy to read _____
Hard to read _____
Interesting _____
Dull _____
- B. The article on "Business Trends," page 1, do you remember reading this article? Yes _____
No _____
- If yes, (check one for readability and one for interest) do you find it: Easy to read _____
Hard to read _____
Interesting _____
Dull _____
- Does this article cover the parts of the business trends which are important to your extension program? Yes _____
No _____
- If no, what other information should it contain? _____

10. General comments or suggestions you have for improving the Kansas Agricultural Situation for use in your county program: _____

11. In the past month have any of your cooperators made Yes _____
comments or asked questions of you regarding information No _____
they read in this publication?

Appendix C

Kansas Market Comments

December 2, 1958

SUMMARY OF SHORT-RUN MARKET SITUATION

The summary is intended as a brief statement of the market situation for the period three to six weeks ahead. These statements will be changed if and when important new market factors appear to alter the outlook. Readers should study the paragraphs below for more complete understanding of the market situation.

Wheat: Slightly higher prices.

Corn: Steady to slightly lower prices.

Grain Sorghum: Steady to slightly lower prices.

Soybeans: Steady to slightly lower prices.

Beef Cattle: Steady to slightly higher prices for slaughter cattle and steady prices for stockers and feeders.

Sheep and Lambs: Steady prices for lambs of choice grade weighing 100 pounds or less, slaughter ewes, and feeder lambs; lower prices for lambs weighing 100 pounds or more.

Hogs: Steady to slightly higher prices.

Dairy Products: Steady to lower prices.

Eggs: Steady prices for large Grade A eggs and steady to slightly higher prices for medium Grade A eggs.

Broilers, Fryers, Farm Hens: Steady prices for broilers, steady to slightly higher prices for farm hens.

Turkeys: Steady prices.

Recent Marketing Practices, Help or Hindrance?

In the earliest days of agricultural marketing, a significant portion of agricultural products was sold by the producer directly to the consumer. The entire expenditure of the consumer went to the farmer to cover his production and distribution costs. Quite often in such a process the farmer may have overlooked his distribution costs and considered the income as payment for his production.

Current complex marketing channels are far removed from the days of the direct sale of farm products. The tendency for the past century, and especially in the 1900's, has been for increased services to be added to agricultural products prior to their presentation to the consumer. Now the bulk of farm products is presented in a highly complex form of prepared or semi-prepared food. The emphasis has been on convenience for the consumer. In this process, a natural re-

sult has been that the percent of the consumer's expenditure received by the farmer has decreased. Now the farmer may receive only 15 to 60 percent of the retail price for many items.

Many individuals view this situation with alarm. They consider this indicative that the farmer is not being paid an adequate price for his product. Or, they fear that the middleman is taking an unfair share of the consumer's expenditures for his services.

This does not prove to be true. One drawback in the current marketing scene is this: as the value of the farm product represents a smaller portion of the final product purchased by the consumer, this has probably made the demand for agricultural product more inelastic. The processing and handling charges attached to the farm product in marketing are more or

less fixed. This is due to wage contracts and fixed capital investment in storage, transportation and processing facilities. Therefore, changes in price due to changes in demand and supply conditions probably show up more in the farm portion of the final product than in the costs of the less flexible marketing services.

On the other side of the picture, these marketing services in many instances yield important benefits to the farmer. One important contribution is efficiency. Many highly processed products or "convenience foods" now sell for less at retail than the actual farm product itself would. A recent study of convenience foods in Washington, D. C. conducted by the Agricultural Marketing Service, gives several examples: frozen packaged vegetables as compared to fresh vegetables, frozen fruit juice as compared to fresh fruit and cubed and frozen beef steaks.

Many other examples could also be developed if a broader scope of marketing is considered. Generally, direct marketing procedures have given way to indirect marketing procedures as a result of competition. It appears that indirect methods are, in the over-all, more efficient and consequently, replace the more direct marketing methods in the economy.

The more complex marketing pattern gives a lower net price to the consumer with an over-all increase in consumption. Marketing practices had to become more complex and more efficient to make use of the increased flow of goods from an expanding agricultural industry.

Today there is a second and probably even more important aspect of convenience foods at the retail level. This stems from competing demands on the time of the urban family. The housewife can quickly prepare an appetizing nutritious meal. In part, the availability of convenience foods may have allowed the housewife to engage in many extra-household activities.

As the housewife has become involved and accustomed to this situation, convenience on the part of food items is becoming a necessary condition for sale. Any branch of agriculture that cannot market its product in such a form faces decreased consumption as a result of replacement in the home by convenience foods. Prepared cake mixes may cost slightly more than the cost of ingredients purchased separately. Still more families would no doubt forego the pleasure of eating wheat in the form of cake if the housewife were faced with the task of combining the original ingredients to turn out a product equal to that which can conveniently be poured from a box.

With current high levels of income, the cost of convenience foods are no deterrent to consumption. It is the nature of the convenience that gives these goods consumer appeal. It appears that the agriculture industry must look forward to an increase in marketing services. Products that cannot fit into this category face the possibility of decreased demand.

Lawrence Van Meir

Appendix D

-5-

Kansas Market Comments Questions
(12 - 21 inclusive)

12. During the past 12 months how many of the 52 issues of Kansas Market Comments have you read (all or some part)?
- | | |
|-----------------|-------|
| a. Less than 12 | _____ |
| b. 12 or more | _____ |
| c. None | _____ |
| d. Don't know | _____ |

13. If you consider the Kansas Market Comments value to you today, and if you were asked to vote, would you say:
- | | |
|--|-------|
| a. Continue the publication as is | _____ |
| b. Continue it after major overhaul | _____ |
| c. Discontinue the present publication | _____ |

A. Please give your reasons for your answers to question 13. _____

B. If your answer is 13 b, what overhauls do you suggest? _____

14. In what ways do you use the information in Kansas Market Comments?
- | | |
|---|-------|
| a. As a basis for deciding what to stress in talks and meetings and to keep me up-to-date | _____ |
| b. Use some of the facts in talks I give | _____ |
| c. Use the information in leader-training meetings | _____ |
| d. Use the information in articles I write for circulars, newsletters, newspaper column, etc. | _____ |
| e. Use the information in writing radio talks or TV programs | _____ |
| f. As a help in answering questions that come to me | _____ |
| g. I don't use it | _____ |
| h. Other (specify) | _____ |

15. If you use the material in talks, in writing articles, radio scripts, or TV programs, do you generally use it:
- | | |
|-----------------------|-------|
| a. As it is written | _____ |
| b. Rewrite it | _____ |
| c. Digest or brief it | _____ |

16. In the past the Kansas Market Comments have been set up in two sections: Two-three week future price forecasts of major farm commodities and a discussion of one of these. Please check the sections you usually read.
- | | |
|---|-------|
| a. Price forecasts | _____ |
| b. Discussion of one of major commodities | _____ |
| c. Neither of them | _____ |

-6-

17. Considering your work in your county (or state if a specialist) should this publication include more information helpful to your businessmen?

a. Yes _____
b. No _____
c. No opinion _____

18. Do you receive a personal copy of the Kansas Market Comments?

a. Yes _____
b. No _____

If you obtain a personal copy, do you

a. Throw it away after reading _____
b. Keep on file _____
c. Other (specify) _____

19. Please glance now at the copy of the December 2 issue of Kansas Market Comments which is enclosed. Do not read it now but use the copy for reference only in answering questions a and b.

a. The article on "Recent Marketing Practices, Help or Hindrance," do you remember reading this article? Yes _____
No _____

If yes, (check one on readability and one on interest), did you find it:

Easy to read _____
Hard to read _____
Interesting _____
Dull _____

b. Outlook for prices for next two or three weeks, do you remember reading it? Yes _____
No _____

c. Does it give a clear picture to the prices of major farm commodities for next two or three weeks? Yes _____
No _____

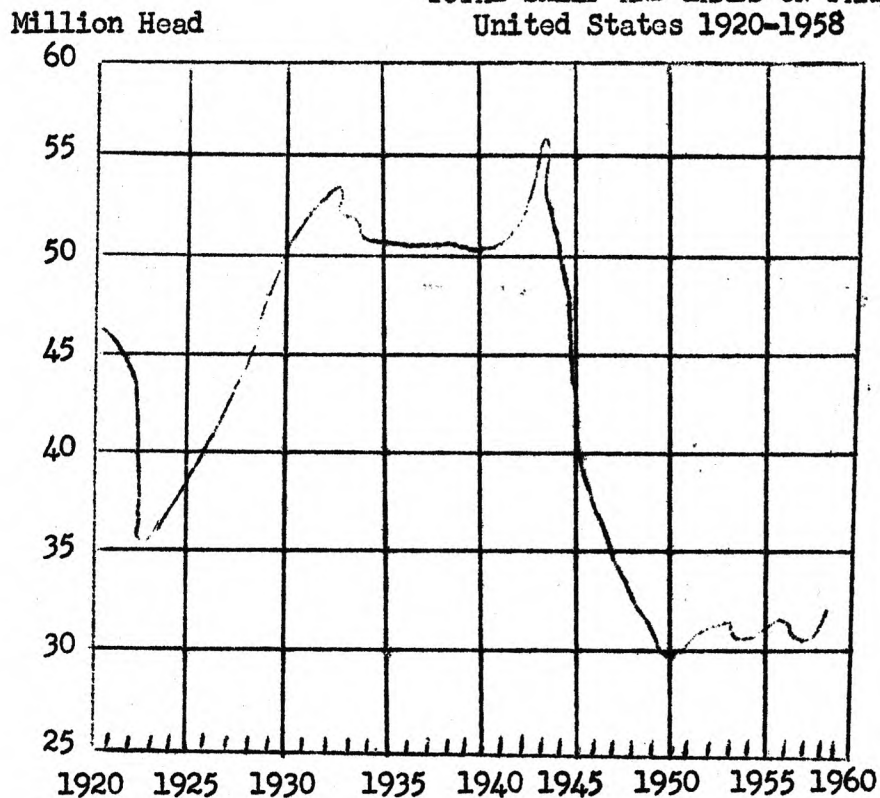
c. If your answer is NO to the above question specify what you feel it should contain: _____

20. General comments or suggestions you have for improving the Kansas Market Comments for your use: _____

21. In the past month have any of your farm management cooperators asked questions or made comments to you concerning information they read in this publication? Yes _____
No _____

Appendix E

TOTAL SHEEP AND LAMBS ON FARM
United States 1920-1958

Student

Age _____

Do you live in town
or country? _____AdultsLast grade of school
completed _____

Occupation _____

Do you live in town
or country? _____

I. Single line graph showing total sheep numbers on farms in U.S., 1920-1958.

Questions to Graph No. 1.

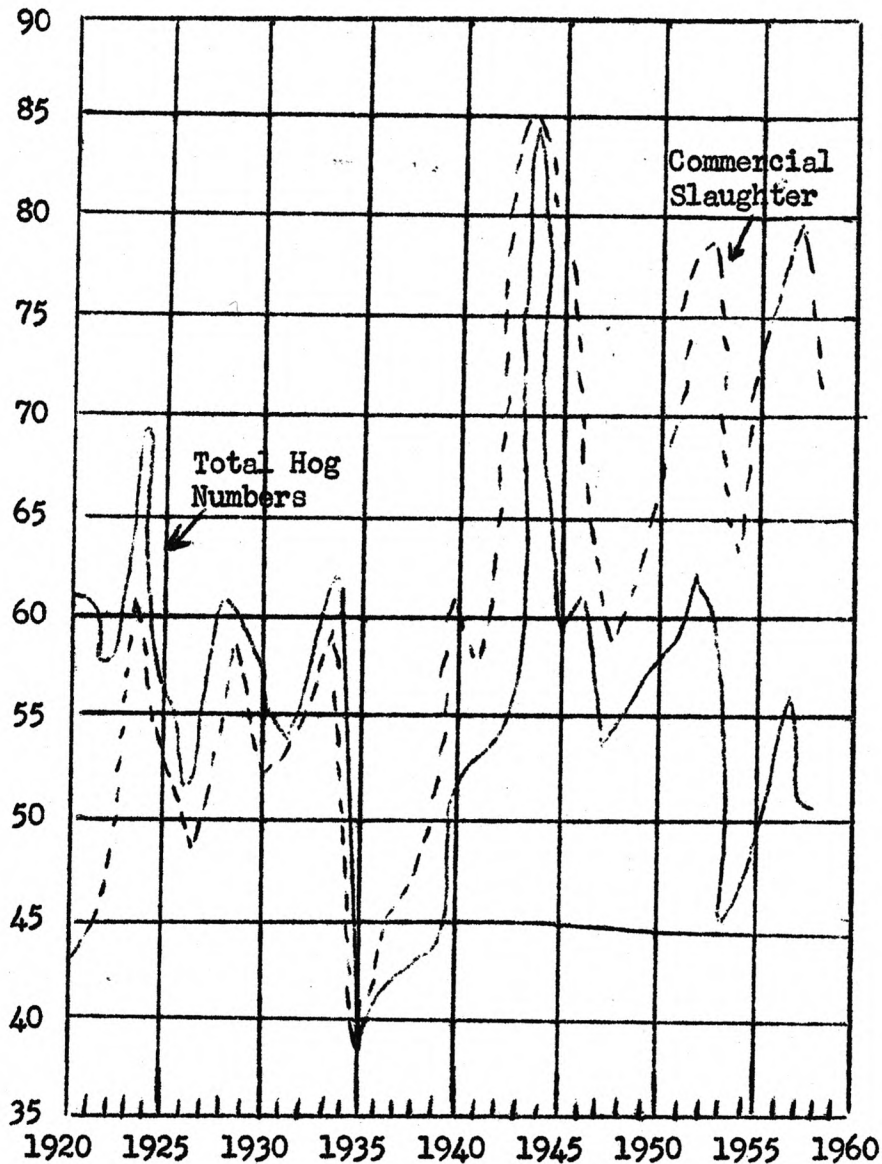
1. Sheep numbers have tended to increase and decrease since 1920.
True _____ False _____.
2. The low in sheep numbers was reached on farms in the U.S. in _____
(year).
3. Two lows in sheep numbers have occurred since 1920. They were in
_____ and _____ (years).
4. The largest number of sheep were found on farms in the U.S. during the
period of _____ and _____ (years).
5. Sheep numbers reached a low point on farms before World War II which
was _____ (year).
6. Several peaks have occurred in sheep numbers. Those were in _____ and
_____ (years).
7. Sheep numbers reached a low of _____ (numbers) during the 1935-37
period.
8. A very rapid decrease in sheep numbers occurred after World War II during
the years of _____ and _____.
9. Sheep numbers in 1957 totaled _____ (number).

10. Income from sheep has been on a rapid decrease in the U.S. since _____ (year).
11. Rapid growth in population combined with higher wages per worker since World War II should have (increased, decreased) (underline one) the number of sheep kept by farmers on farms.
12. (More, less) (underline one) wool has been produced on farms in the U.S. since the beginning of World War II.
13. (Fewer, more) (underline one) lambs have been born on farms the past few years as shown by the total number of sheep on farms the past few years.
14. If you would draw in a free hand trend line on the graph, it would show a gradual (increase, decrease) (underline one) in total sheep numbers since 1920.
15. The law of supply and demand is one of the reasons that can be used to explain the (decrease, increase) (underline one) in sheep numbers the past few years.

Appendix F

TOTAL HOGS ON FARMS AND COMMERCIAL SLAUGHTER
United States 1920-1958

Million Head



II. Graph showing total hog numbers on farms and commercial slaughter of hogs in the U. S., 1920-1958.

Questions to Hog Graph:

1. Hog numbers have tended to increase and decrease since 1920.
True _____ False _____.
2. The low in hog numbers was reached on farms in the U.S. in _____ (year).
3. _____ (number) lows have occurred in hog numbers since 1920.
4. The largest number of hogs were found on farms in the U.S. during the year _____.

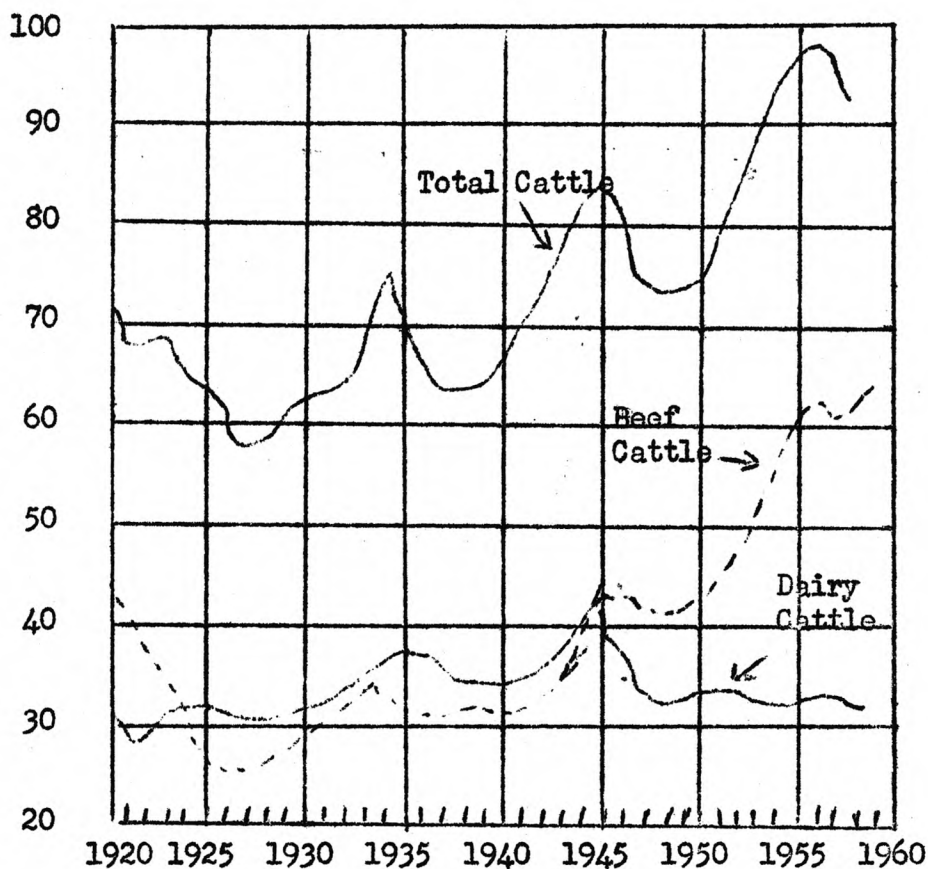
5. Hog numbers reached their lowest point after World War II which was _____ (year).
6. Two extreme peaks have occurred in hog numbers. These were in _____ and _____ (years).
7. Hog numbers reached a low of _____ (numbers) during 1935.
8. A very rapid increase in hog numbers occurred after the depression of 1930-34. The increase was from _____ to _____ (years).
9. Hog numbers in 1957 totaled _____ (number).
10. Income from hogs has been on a rapid decrease in the U.S. since _____ (year).
11. Rapid growth in population combined with higher wages per worker since World War II should have (increased, decreased) (underline one) the number of hogs kept by farmers on farms.
12. (More, less) (underline one) lard has been produced on farms in the U. S. since the end of World War II.
13. (Fewer, more) (underline one) pigs have been born on farms the past few years as shown by the total number of hogs on farms the past few years.
14. If you would draw in a free hand trend line on the graph, it would show a gradual (increase, decrease) (underline one) in total hog numbers since 1920.
15. The law of supply and demand is one of the reasons that can be used to explain the (increase, decrease) (underline one) in hog numbers the past few years.

Appendix G

Appendix G-1

TOTAL CATTLE, BEEF CATTLE AND DAIRY CATTLE ON FARMS
United States 1920-1958

Million Head



III. Graph showing total cattle numbers, beef cattle and dairy cattle on farms in the U.S., 1920-1958.

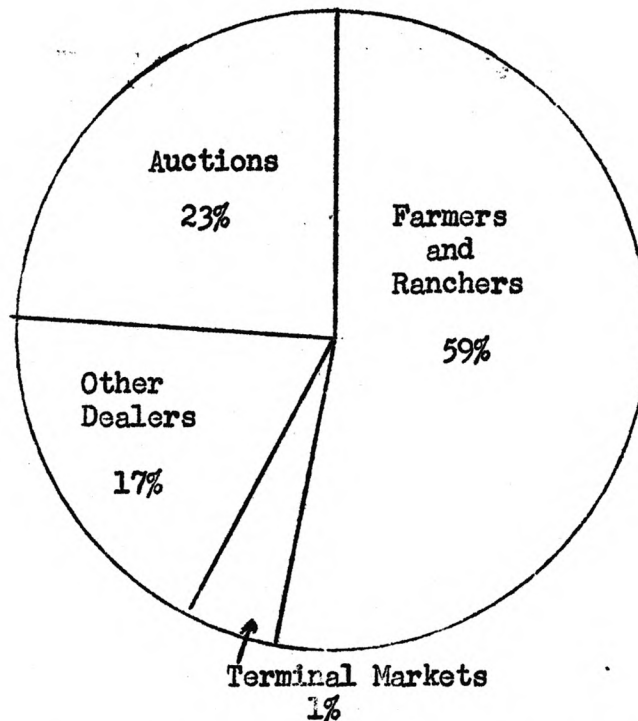
Questions to Graph III:

1. Total dairy cattle numbers have tended to increase and decrease since 1920. True _____ False _____.
2. The low in dairy cattle numbers was reached on farms in the U.S. in _____ (year).
3. _____ (number) lows have occurred in dairy cattle numbers since 1920.
4. The largest number of dairy cattle were found on farms in the U.S. during the years _____ and _____.
5. Dairy cattle reached their lowest point after World War II which was _____ and _____ (years).
6. Two peaks have occurred in dairy cattle numbers. These were in _____ and _____ (years).
7. Dairy cattle numbers reached a low of _____ (numbers) during 1921.
8. A very rapid decrease in dairy cattle numbers occurred after World War II. The decrease was from _____ to _____ (years).

9. Dairy cattle numbers in 1958 totaled _____ (number).
10. Income from dairy cattle has been on a decrease in the U.S. since _____ (year).
11. Rapid growth in population combined with higher wages per worker since World War II should have (increased, decreased) (underline one) the number of dairy cattle kept by farmers on farms.
12. (More, less) (underline one) milk has been produced on farms in the U. S. since the end of World War II.
13. (Fewer, more) (underline one) dairy calves have been born on farms the past few years as shown by the total number of dairy cattle on farms the past few years.
14. If you would draw in a free hand trend line on the graph, it would show a gradual (increase, decrease) (underline one) in total dairy cattle numbers since 1920.
15. The law of supply and demand is one of the reasons that can be used to explain the (increase, decrease) (underline one) in dairy cattle numbers the past few years.

Appendix H

LOCAL DEALERS SOURCES OF SUPPLY FOR FEEDER CATTLE AND CALVES
Kansas, 1947



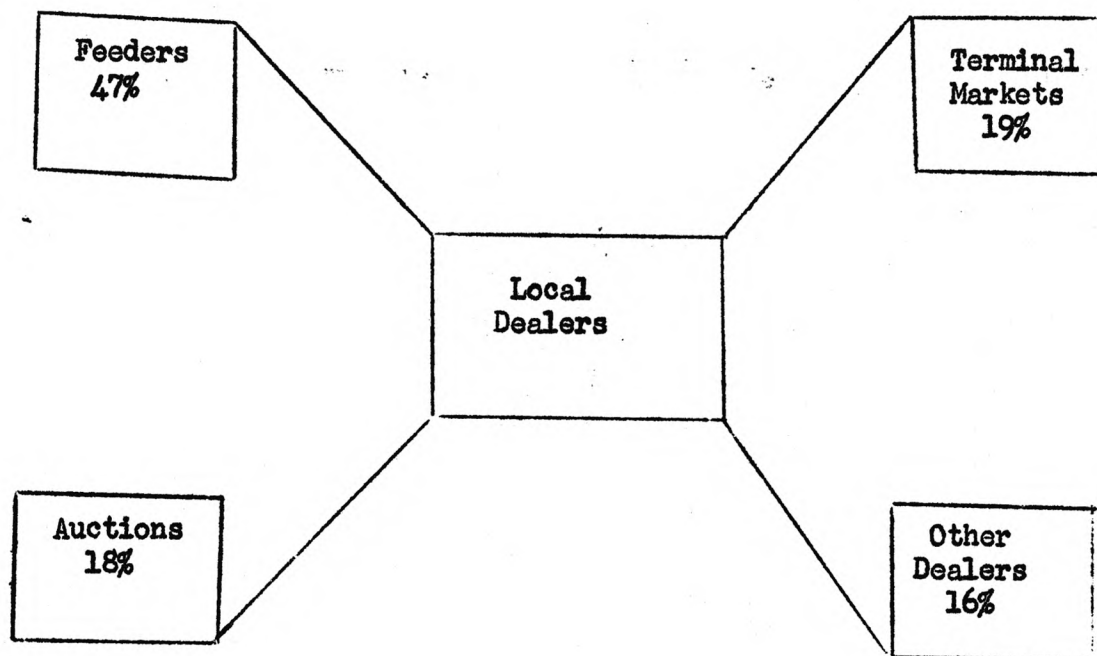
IV. Graph showing local dealers sources of supply for feeder cattle and calves during 1947 in Kansas.

Questions to Graph IV:

1. Local dealers were able to buy _____ (percentage) of their feeder cattle and calves at local auction markets.
2. Terminal markets as a source of cattle for local dealers in 1947 supplied _____ (percent).
3. Farmers and ranchers supplied local dealers with the (largest, smallest) (underline one) percent of their feeder cattle and calves which was _____ (percent).
4. When in need of buying replacement cattle terminal markets would be a (good, poor) (underline one) source for you to buy feeder cattle and calves.
5. Most ranchers and farmers (do, do not) (underline one) like to sell their cattle directly to local buyers.
6. Local auctions (are, are not) (underline one) an important part of our marketing system for cattle.
7. Local dealers would rather buy their feeder cattle and calves (off the farm, on the farm) (underline one).

Appendix I

Appendix I

LOCAL DEALERS OUTLETS FOR FEEDER CATTLE AND CALVES
Kansas, 1947

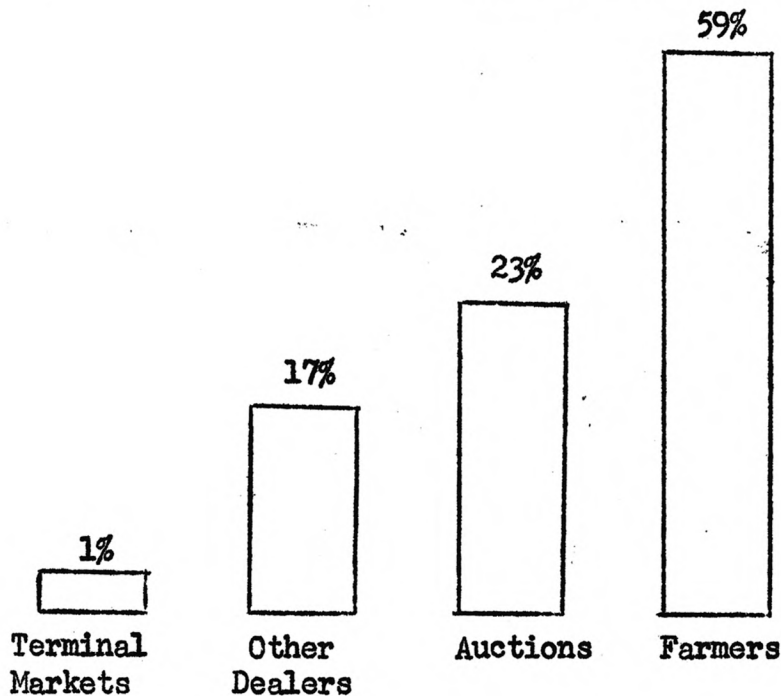
- V. Graph showing local dealers outlets for feeder cattle and calves in Kansas, 1947.

Questions to Graph V:

1. Local dealers were able to sell the largest percentage of their feeder cattle and calves to _____ (market source).
2. Terminal markets served as a market outlet for local dealers in 1947. Dealers sold _____ (percent) of their feeder cattle and calves through this source.
3. Feeders bought the (largest, smallest) (underline one) of the local dealers cattle offered for sale.
4. If you were selling feeder cattle and calves terminal markets would be one of the (best, second best, poorest) (underline one) places for you to use.
5. Most cattle feeders like to buy their cattle (direct from dealers, through markets) (underline one).
6. Local auction markets were a (main, minor) (underline one) outlet for local dealers supplies of feeder cattle and calves on hand in 1947.
7. If you had feeder cattle and calves for sale your major outlet source would be _____ (name of source).

Appendix J

LOCAL DEALERS SOURCES OF SUPPLY FOR FEEDER PIGS
Kansas, 1947



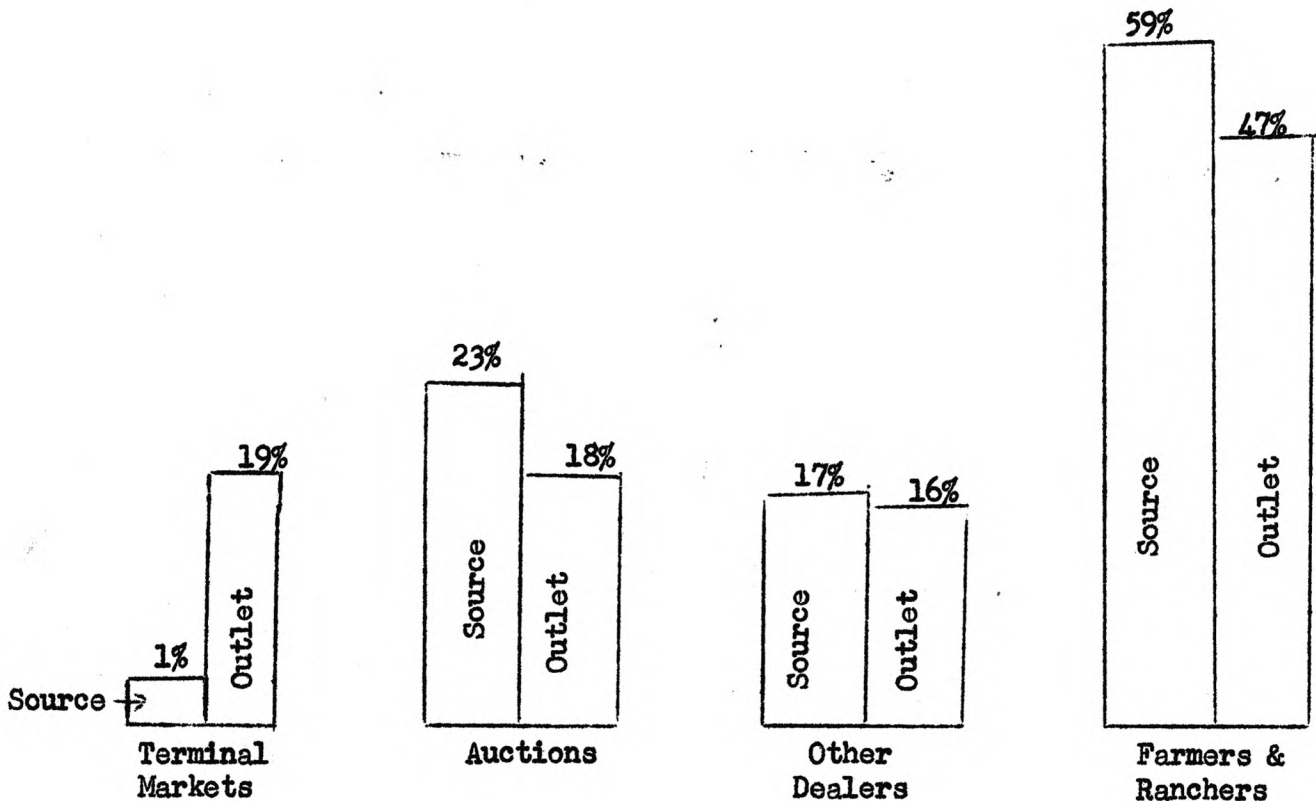
VI. Graph showing dealers sources of supply for feeder pigs in Kansas, 1947.

Questions to Graph VI:

1. Local dealers were able to buy most of their feeder pigs at _____ (source).
2. Terminal markets served as a source for local dealers to buy feeder pigs in 1947. They supplied _____ (percent) of local dealers feeder pigs.
3. Farmers supplied _____ (percent) of the local dealers feeder pigs supply in 1947.
4. If you were buying feeder pigs, terminal markets would be (best, poorest) (underline one) place for you to use.
5. Most hog producers like to sell their feeder pigs (direct, through markets) (Underline one).
6. Local auction markets were one of the (major, minor) sources of feeder pigs for local dealers in 1947.
7. If you had feeder pigs for sale, your major outlet would be _____.

Appendix K

LOCAL DEALERS SOURCE AND SUPPLY FOR FEEDER CATTLE AND CALVES
Kansas, 1947



VII. Graph showing local dealers source and supply for feeder cattle and calves in Kansas, 1947.

Questions to Bar Graph:

1. Local dealers were able to buy _____ (percentage) of their feeder cattle and calves at local auction markets.
2. Local dealers were able to sell _____ (percentage) of their feeder cattle and calves to local dealers.
3. Terminal markets as a source of cattle for local dealers in 1947 supplied _____ (percent).
4. Farmers and ranchers supplied local dealers with the (largest, smallest) (one) percent of their feeder cattle and calves which was _____ (percent).
5. Terminal markets were a (major, second, third) (one) source for local dealers to buy feeder cattle and calves in 1947.
6. Farmers and ranchers purchased _____ (percent) of the local dealers cattle offered for sale.

Appendix K-2

7. If you were selling feeder cattle and calves terminal markets would be one of the (best, second best, poorest) (underline one) places for you to use.
8. Most farmers and ranchers like to sell their feeder cattle and calves (direct, through markets) (underline one).
9. If you were buying feeder cattle and calves, other dealers would be (best, one of the poorer) (underline one) places for you to use.
10. Local auction markets were one of the (major, minor) sources of feeder cattle and calves for local dealers in 1947.
11. Most cattle feeders like to buy their cattle (direct from dealers, through markets) (underline one).
12. If you had feeder cattle and calves for sale, your major outlet source would be _____ (name of source).
13. Local auction markets were a (main, minor) (underline one) outlet for local dealers supplies of feeder cattle and calves on hand in 1947.
14. If you were buying feeder cattle and calves, your best source of supply would be _____.

ECONOMIC INFORMATION EXTENSION EDUCATION

by

KENNETH RALPH JAMESON

B. S., Kansas State University of
Agriculture and Applied Science, 1941

AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Agricultural Economics

KANSAS STATE UNIVERSITY
OF AGRICULTURE AND APPLIED SCIENCE

1960

The purpose of this study was to determine whether or not the two publications, the Kansas Agricultural Situation and the Kansas Market Comments, were fulfilling the outlook needs for Kansas extension personnel, and if not, what changes should be made in them.

A personal interview and questionnaire type survey was conducted among 29 county extension offices of Kansas which gave a total of 66 extension agents surveyed. Data from this survey showed that in order for these publications to be effective as an educational tool for extension personnel, the agents must receive a personal copy of each issue of the publications. Agents requested that the articles in both pamphlets be "dressed up" with pictures for eye-appeal so that not only the agents but the cooperators will read the publications. The analysis of the data showed that nine agents had read none of the past year's issues of the Kansas Agricultural Situation and 18 had read none of the past 52 issues of Kansas Market Comments. Agents surveyed felt a better reception could be had for the publications if there was less written material and if more pictures, charts and graphs were used. Charts to be used in both publications for presenting statistical data were requested by a majority of the agents.

As for future issues of the Kansas Agricultural Situation it was recommended that this pamphlet be made into at least an eight page magazine with the new publication mailed directly from the printer to local cooperators in order to eliminate the time lag between the date of publication and receipt.

A majority of the 66 agents surveyed liked the price forecast section of the Kansas Market Comments in preference to the discussion section as

the latter section was being read by only 13 of the 66 agents. The reason for so few reading the discussion section was because it contained too much written material, the words often used were technical in nature, and there was a lack of explanatory material such as graphs, charts, and pictures.

No definite conclusions as to the future issues of Kansas Market Comments other than to cut down on the written material could be reached. Some agents felt the present publication was fulfilling the job for which it was intended; others asked that it be discontinued, and still others wanted to combine it with a revised Kansas Agricultural Situation. Further studies need to be conducted before definite conclusions on changes in this publication can be drawn.

The general consensus was that the articles in the revised publication should be written on the educational level of local readers so that county extension personnel would not have to rewrite it for local use, and that statistical data be presented whenever possible by graphs and charts. Therefore a second part of this study was necessary.

Since the educational level of the reader was such an important factor in the ease of reading, it was determined from the 1956 County-City Data Book (42) that the average reading level of adults in Kansas is nearly the ninth grade. Therefore, the eighth and ninth grade mathematics classes of the Manhattan Junior High School were selected as a basis for this study.

To find if additional education had any bearing on the level of graph comprehension, two freshman Economics I classes of Kansas State University were also surveyed. The eighth grade advanced mathematics class and the

freshman Economics I classes varied only 2.5 percent in the percentage of correct answers to all questions on the graphs. The widest variation of 9.5 percent was between the eighth grade general mathematics class and the university students. However, the mean number of correct answers to Graph I varied from 9.9 to 11.6 for all educational groups contacted. Therefore, with no wide variance in the number of correct answers to each set of graph questions apparent, the difference in educational level of the reader had little effect on the level of graph comprehension in this study and all educational groups were used in the final analysis.

Since the data used in all graphs were of an agricultural nature, it was further desired to see if additional training and experience of an agricultural nature would assist the reader in his level of comprehension of the graphed data. Two classes in vocational agriculture, one a freshman and the other a senior, at the Randolph High School were surveyed. It was found that the students in agriculture could answer few, if any more, questions correctly than the students with no agricultural background. Therefore, this variable seemingly had no effect on the level of comprehension and was disregarded in this study.

It can be concluded that only one set of data should be presented by a line graph because when more than one set of data was plotted, the level of comprehension dropped sharply. It was found further that numerical facts pertaining to a specific quantity for a given period should not be presented by a line graph if the writer wants easy comprehension.

The pie, flow and bar graphs with one set of data were about equal in the level of understandability in this study. However, the pie and

single bar graph were superior to the flow graph in presenting a specific percentage. Here again one set of data should be presented if a high degree of comprehension is desired because when the same data plotted by a flow and a bar graph were presented by a grouped-bar graph, the level of comprehension dropped considerably.

Only those graphs commonly used by the Central Office Staff in presenting outlook information were studied in this basic research.