

AN ECONOMIC ANALYSIS OF FROZEN FOOD LOCKER PLANTS IN
KANSAS WITH EMPHASIS ON THOSE OFFERING
SLAUGHTERING FACILITIES

by

GEORGE NOLAN MCKENZIE

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

A THESIS

submitted in partial fulfillment of the

requirements for the degree of

MASTER OF SCIENCE

Department of Agricultural Economics

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

1947

Docu-
ment
LD
2668
.T4
1947
M34
c.2

TABLE OF CONTENTS

	Page
INTRODUCTION	1
LIMITATIONS OF STUDY	2
METHODS OF PROCEDURE	2
REVIEW OF LITERATURE	3
Survey of Small Livestock Slaughter Plants.	3
Minimum Essential Needs of Small Slaughter Houses	4
Effect of Cold Storage Lockers Upon Meat Distribution	5
Sanitation Requirements	6
RECENT DEVELOPMENTS OF THE FROZEN FOOD LOCKER INDUSTRY IN KANSAS	8
Scope of Study	8
Developments by Districts in Kansas	10
Rate of Development	15
Conclusion	19
TRENDS IN FARM AND LOCAL SLAUGHTER IN KANSAS.	22
Farm Slaughter	22
Local Slaughter	23
Comparison of Farm and Local Slaughter by Classes of Livestock	28
SLAUGHTER ESTABLISHMENTS IN KANSAS	29
SURVEY OF LOCKER PLANTS IN KANSAS OPERATING IN CON- JUNCTION WITH A SMALL SLAUGHTER PLANT.	33
Introduction.	33

Type of Ownership	36
Year of Plant Opening	38
Location of Plant	41
Facilities	43
Investment	45
Labor	54
Owner-Operator Labor	64
Volume of Slaughter	65
Source of Livestock Slaughtered for Resale	81
Delivery of Livestock to Slaughter Plant	85
Source of Slaughter of Meat in Locker Box	87
Slaughtering Charges	90
Processing Charges	93
Disposition of Meat Slaughtered by Plant	98
Disposition of Inedible Slaughter By-products	103
Suggested Improvements in Utilization of Inedible By-products	109
Contemplated Changes	110
Insurance	110
Problems Confronting Individual Plants	111
CONCLUSIONS	113
ACKNOWLEDGMENT	115
BIBLIOGRAPHY	116

INTRODUCTION

The purpose of this study was to determine the role of small slaughter plants operated in conjunction with frozen food locker plants in the general structure of the meat packing industry in Kansas and to analyze certain phases of their operations.

Before undertaking the major study of analyzing the frozen food locker plants operating their own slaughtering facilities, preliminary and related data were gathered and studied on the growth of the frozen food locker industry, the trends in farm and local slaughter which represent the major source of slaughter for locker patrons, and the general structure of the slaughter or packing industry existing in Kansas.

Frozen food lockers have made a rapid growth in Kansas in the last decade and locker plants operating a small slaughter plant have made a rapid growth in the last five years. The industry has experienced unusual success with its maximum point of expansion apparently not yet reached. It has become an important industry to the state in terms of financial success, source of employment, and in the service it is performing for the farmers and, to a lesser degree, the urban people of Kansas.

LIMITATIONS OF STUDY

This study was limited by the fact that accurate and detailed data were not readily available. Little information has been gathered and published concerning this industry, and in cases where information had been gathered, it was often obsolete by the time it was published. The nature of the industry, its complexity, and its ever-changing conditions retard the compilation of accurate statistical data.

The only practical method of securing the desired information concerning operation figures and policies was to deal directly with the individual plants of the industry. It was not practical to obtain complete information of all the plants and it was necessary to depend upon sample data supplied by the individual plants as being accurate and representative of that particular plant.

METHODS OF PROCEDURE

This study has been divided into four major parts:

- (1) recent developments in the frozen food locker industry in Kansas, (2) trends in farm and local slaughter in Kansas, (3) slaughter establishments in Kansas, and (4) a survey of locker plants in Kansas operating in conjunction with a small slaughter plant.

The first three parts were not treated in great detail. They were developed only to the extent of providing an understanding and a basis for the last part of this thesis, which constituted the major portion of this study.

REVIEW OF LITERATURE

Survey of Small Livestock Slaughter Plants

The small livestock slaughter plant has not yet received adequate attention in most states. R. C. Ashby¹ in a preliminary report on small livestock slaughter plants in Illinois, visited ten small slaughter plants, six of which were operated in conjunction with cold storage locker plants. Various problems of operating these plants were analyzed. Some of his findings and views are expressed in the following statements:

Plant Investment. Total investment of the ten plants varied widely. Six plants had a total investment of \$9,999 or less, two had between \$10,000 and \$19,999 and two plants had an investment of \$40,000 or more.

Experience of Operators. In the writer's opinion, the most important factor in the successful operation of any slaughter plant is the skill of the management and of the plant personnel. The managers of five plants said they had no experience in a slaughter or packing house before their present position. The other five have had extensive experience.

¹R. C. Ashby, "Small Livestock Slaughter Plants in Illinois." University of Illinois Agricultural Experiment Station. A Preliminary Report, September, 1945.

Disposal of Offal. Only one plant is processing blood. All plants remove gut fats. Only one plant realizes any return from the offal, selling it to a rendering plant for one-fourth cent a pound for hog offal.

Starting a Plant. The basic questions to be answered before operation of a slaughter or packing plant are stated as: (1) location, type and size of plant, (2) management and personnel, (3) water supply, (4) sewage facilities, (5) power, (6) offal disposal, and (7) inspection and sanitary requirements.

Ashby's study indicated some of the operating problems facing the operators of the small slaughter plants. Many of the same problems analyzed in his study, were also considered in the survey of the cold storage locker plants with slaughter facilities in Kansas.

Minimum Essential Needs of Small Slaughter Houses

The Oregon Agricultural Experiment Station² has summarized what it considers as the minimum essential needs of small slaughter plants as follows:

A cement floor is the prime necessity. Wood floors are not tight and are not easily cleaned. Cement may crack but these cracks can be sealed with asphaltum or ordinary solder melted and run into the holes.

A septic tank and a settling tank for disposal of run-off water. The settling tank is essential to successful operation of the septic tank. Without it, the tallow, lard, and grease which is washed away runs into the septic tank, chills, forms a scum over the water and prevents the bacterial action which is the work of the septic tank. The drain to the settling and septic tanks should contain a trap which will prevent

²Oregon Department of Agriculture, "Minimum Essential Needs of Small Slaughter Houses." Oregon Agricultural Experiment Station Bulletin No. 77, p. 9, April, 1938.

the gases from backing up into the slaughter house.

Facilities for hot water. This is highly essential. Larger plants can use the steam boiler but smaller plants will find that a small oil heater is economical and practical. One can be installed for as little as \$35. Hot water is essential to proper sanitation because without it, grease and tallow cannot be melted off the floors and utensils.

A refrigeration plant. The plant in the larger slaughter house can also serve as a storage plant.

Walls of the slaughter house should be of concrete or be covered with metal to a height of four feet on the inside. This permits cleaning of the walls.

A few other suggestions: The old bone pile that grew larger and larger ought to be a thing of the past, and it is in the larger plants. Waste may be kept down by burning bones or selling to rendering plants. All buildings should be adequately screened. Hide houses and swill pots should be kept separate from the rest of the plant.

These recommendations are in accord with the thinking of other authorities on the subject. There are other additional needs such as adequate plant facilities, volume of slaughter, experienced management and personnel, and fair slaughter and processing charges.

Effect of Cold Storage Lockers upon Meat Distribution

The effect of the cold storage locker industry upon meat distribution has received considerable study by research personnel at the University of Minnesota. A study made by R. J. Eggert³ was among the earliest studies made of the effects of

³R. J. Eggert, "How Cold Storage Lockers May Affect Live-stock Meat Distribution." Ice and Refrigeration, August, 1938.

the cold storage locker industry upon the meat packing industry and meat distribution system in its present form. The results of his study are summarized in the following statements:

If we assume continued success for cold storage lockers, there is some indication that they may possibly result in: causing a shift in meat consumption from pork to beef and veal, increase in total meat consumption per capita, decrease in number of butcher shops, selling packaged frozen meat direct to the consumer, and development of local commercial slaughtering plants.

The specific nature of changes which might occur are not yet known. We can be certain that many factors other than cold storage lockers will affect the long-time picture.

Sanitation Requirements

The early development of the small slaughter plants in Kansas found many plants operating under unsanitary and unwholesome conditions. The State was compelled to pass laws that would curb unsanitary practices and to establish rules and regulations which the plant was forced to follow if it were to remain open for operation. The Kansas Meat and Poultry Inspection Law and Regulations⁴ outlined the need for such a law and defined the plants which were affected by the law as follows:

⁴Kansas Session Laws of 1945, Chapter 254. "The Kansas Meat and Poultry Inspection Law and Regulations, 1945."

FOREWORD: Nearly four years ago the attention of the State Board of Health was directed to certain practices in the meat industry which were dangerous and repulsive. Slaughterers were found dressing out the carcasses of animals which had died of disease. This work was being done under unsanitary conditions and the products were being sold in competition with those of legitimate establishments. At that time the State Board of Health adopted regulations which served, with proper enforcement, to clean up the conditions in the meat industries.

Section 1 of Kansas Meat and Poultry Inspection Act. As used in this act: (1) "Slaughterhouse" means an establishment in which animals other than poultry are slaughtered and dressed for human food. (2) "Pack-
inghouse" means an establishment in which animals are slaughtered and dressed in which products are canned or otherwise processed or packed for shipment or storage.

The passage of this act in 1941 caused the closing of more than 200 small slaughter plants in Kansas.⁵ These were plants which could not possibly meet the requirements of the Act with any amount of alterations. Many other plants which were operating outside the limitations of the Act, were able to make the necessary changes to comply with the Law. Today every slaughter plant in Kansas, not under federal inspection, is required to pay a registration fee to the state, which in turn licenses the plant and inspects it to see that it is meeting all sanitary requirements, as specified by law.

⁵Data supplied by interview with Evan Wright, Director of Food and Drug Division, Kansas State Board of Health, Topeka, Kansas, October 20, 1946.

RECENT DEVELOPMENTS OF THE FROZEN FOOD LOCKER INDUSTRY IN KANSAS

Scope of Study

No attempt has been made in this manuscript to trace the history and development of the locker industry in Kansas. This was adequately covered by Eggert⁶ and others in their unpublished study made in 1941. Neither was an effort made to study locker plants on the basis of their internal organization, capacity, and operational methods. These factors were studied by Otto⁷ and others.

It is the purpose of this phase of the study to merely summarize the geographical distribution and the rate of development of the locker industry in Kansas. A basic understanding of this development is essential to grasp the full significance of later sections of this study concerning the rapid growth of locker plants with slaughter facilities in Kansas.

Much interest has been aroused concerning the changes and development trends which have occurred in the industry during World War II. Year by year figures are not available

⁶R. J. Eggert. Unpublished data. Department of Economics and Sociology, Kansas State College, 1941.

⁷M. L. Otto and E. B. Phelps, "The Locker Plant Industry in Kansas." A mimeographed report. Kansas Agricultural Experiment Station, June, 1946.

and such an analysis is, therefore, impossible. However, the directory of locker plants in Kansas compiled by George A. Filinger, Secretary of the Kansas Frozen Food Locker Association was revised in 1939, 1941, 1944 and 1946. These lists tabulated the number and location of cold storage locker plants in Kansas, and were sufficiently uniform in their periodic analysis to serve as a basis to analyze the trends in development of this industry in Kansas from 1939 to 1946.

These lists of locker plants compiled in 1939, 1941, 1944 and 1946 are not entirely free from error. An accurate picture at any one time is difficult to obtain because of the constant changes in ownership, name of plant, location of new plants, and location of plants discontinued. This condition is accentuated by the fact that each individual locker plant is not required to become a member of the State Locker Association, nor is it required to register with the Kansas State Board of Health unless it has slaughtering facilities. An official directory of locker plants in Kansas is, therefore, not available and the unofficial lists compiled by Filinger are as complete and correct as is possible to obtain. The data used were assumed to be sufficiently accurate for observations in general trends in the development of the industry.

For sake of convenience and ease of comparison, the State was divided into nine districts which are analogous with the crop reporting districts of the state. This division facilitates the study of the rate of development of the

locker industry by various sections of the state.

Developments by Districts in Kansas

In Fig. 1 the number of lockers per county in 1939 is indicated as well as the general geographical location in which the early development took place and made its greatest progress. Although the entire eastern two-thirds of the state was fairly well represented in 1939, it was evident that the industry had become most firmly established in the central, south central and east central sections of the state. In addition to ascertaining the extent of development by counties and districts, the counties in which there had not yet been any locker plants established are readily seen.

By observing Figs. 2, 3, and 4 respectively, a pictorial summary can be gained of the rate of development by sections of the state. The western one-third of Kansas had a slow and retarded development of frozen food lockers. An interesting fact shown in Fig. 3 is that Lincoln and Linn counties still had not established their first locker plant, yet were in the midst of parts of the state that led in the development of locker plants throughout the entire period. Figure 4 indicates that all of the 105 counties in Kansas had one or more locker plants in operation in 1946. The significant fact of this development of the industry, was its steady and rapid growth throughout the war years when materials and labor were at a premium and difficult to obtain.

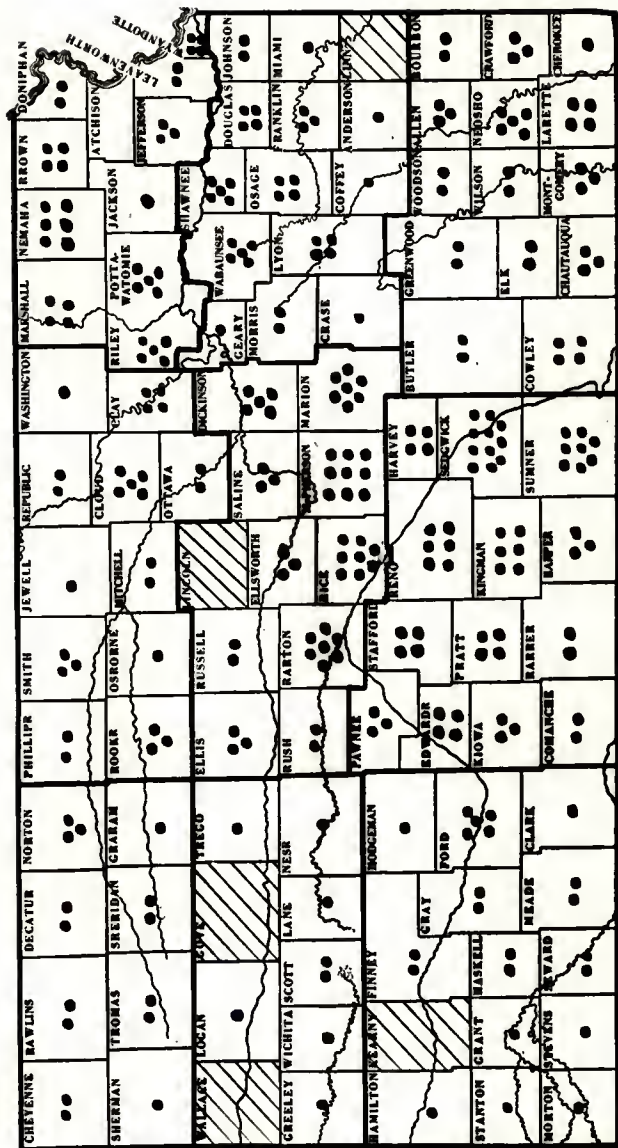


Fig. 3. Number of frozen food locker plants per county in Kansas, 1944.

● Represents one locker plant.

A county without a locker plant.

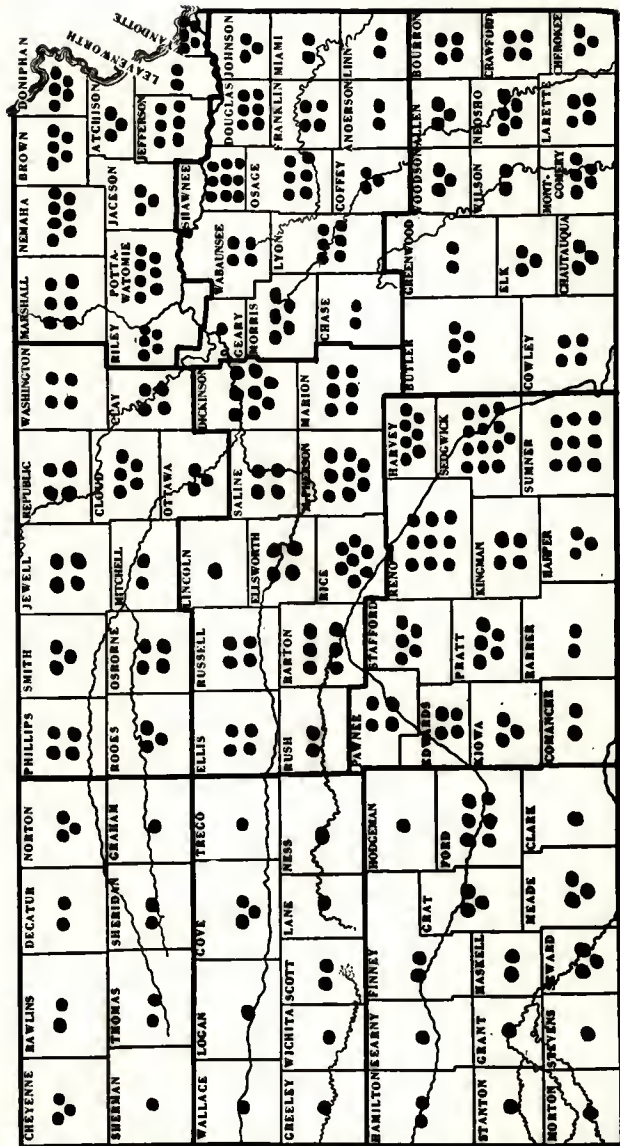


Fig. 4. Number of frozen food locker plants per county in Kansas, 1946.

Rate of Development

Table 1 shows the total number of plants in each district for the years 1939, 1941, 1944 and 1946 with the percentage increase from one period to the next. Central Kansas had 28 locker plants in 1939 for the leading district, by numbers of plants. At the time the 1939 list of lockers was compiled, the state had a total of 105 locker plants. In 1941, Kansas had a total of 181 locker plants with the central section of the state still leading with a total of 41 plants, closely followed by south central Kansas with 39 plants. In 1944, the Kansas total increased to 289 with the south central district taking the lead with a total of 60 plants while central Kansas had increased only to 49 plants. Figures as of September 1, 1946, indicate Kansas has a total of 379 locker plants with the south central district still leading with a total of 70 plants, followed by east central with 55 plants. East central Kansas increased from a total of 34 plants in 1944 to 55 plants in 1946. This is a large numerical increase as well as a large percentage increase.

The last three columns of Table 1 indicate the percent increase that occurred in each district and in the state as a whole in 1941 over 1939, in 1944 over 1941, and in 1946 over 1944. To get a clear picture of these comparisons, the numerical increase should be noted as well as the percentage

increase. For instance, in 1944 the west central district increased 700 percent over its total in 1941 but this was a numerical increase from only one plant in 1941 to a total of eight in 1944. In 1941 two districts had no increase in locker plant numbers from the 1939 total, these being west central and north central. In the north central district, Osborne county lost the plant it had in 1939 and in 1941 reported no locker plants. This was offset by an increase of one plant in Cloud county to make the district total in 1941 the same as in 1939.

Table 2 enumerates the average number of lockers per county in the nine different districts for each of the four years studied. The same conclusions that were derived in the preceding analysis of the rate of growth by districts, apply to the rate of growth of average number of lockers per county in each of the nine districts. In all cases, the average number of lockers per county was calculated on the basis of all the lockers comprising the district and not just those counties reporting one or more locker plants. The central and south central sections of Kansas dominate in average number of locker plants per county in each of the four years studied. The northeast district in 1946 gained from 2.75 locker plants per county in 1944 to 4.91 in 1946. The totals for the state as a whole reflected a steady and progressive development from an average of one locker plant per county in 1939 to 1.71 in 1941, 2.75 in 1944, and 3.61 in 1946.

Table 1. Number of frozen food locker plants per crop reporting district and rate of increase in Kansas, 1939, 1941, 1944, and 1946.¹

Crop reporting district	Number of plants per district				Percent of increase for period	
	1939	1941	1944	1946	1939-1941	1941-1944 : 1944-1946
Northwest	3	6	15	16	100.00	150.00 6.67
West Central	1	1	8	12	00.00	700.00 50.00
Southwest	7	9	22	28	28.57	144.44 27.27
North Central	12	12	27	40	00.00	125.00 48.15
Central	28	41	49	54	46.43	19.50 10.20
South Central	16	39	60	70	143.75	53.84 16.67
Northeast	11	24	36	54	118.18	50.00 50.00
East Central	16	29	34	55	81.25	17.20 61.76
Southeast	11	20	38	50	81.82	90.00 31.57
Kansas Total	105	181	289	379	72.38	59.66 31.14

¹Calculated from data obtained from Dr. G. A. Filing, Department of Horticulture, Kansas State College, September, 1946.

Table 2. Average number of frozen food locker plants per county within each crop reporting district in Kansas, 1939, 1941, 1944, and 1946.¹

Crop reporting district	No. of counties in district	Average number of lockers per county in district			
		1939	1941	1944	1946
Northwest	8	0.38	0.75	1.88	2.00
West Central	9	0.11	0.11	0.89	1.33
Southwest	14	0.50	0.64	1.93	2.00
North Central	11	1.09	1.09	2.46	3.64
Central	11	2.55	3.73	4.46	4.91
South Central	13	1.23	2.93	4.62	5.38
Northeast	11	1.00	2.18	2.75	4.91
East Central	14	1.14	2.07	2.43	3.93
Southeast	14	0.79	1.43	2.71	3.57
Kansas Total	105	1.00	1.71	2.75	3.61

¹Calculated from data obtained from Dr. G. A. Filing, Department of Horticulture, Kansas State College, September, 1946.

Table 3 indicates the rate of development in each district by total number of counties reporting locker plants, and conversely, the total number of counties which did not report locker plants. The state totals indicate 62 counties having one or more locker plants in 1939, 76 in 1941, 100 in 1944, and the entire 105 counties in 1946.

Figure 5 is a graphic presentation of the rate of growth by each section of the state from 1939 to 1946. The results are comparable to those in Table 1.

Conclusion

Starting with the locker industry in Kansas as it existed in 1939, it was found that the industry was concentrated in the central, south central and east central sections of the state. However, as early as 1939 the industry had been introduced to all areas of the state. Subsequent years brought a rapid rate of expansion and growth in the face of World War II with its resulting shortage of labor, materials, and equipment. Although the industry was initially concentrated in the center of the state extending east and south, its development in all sections of the state was steady and continuous and was in proportion to the population concentration in different parts of the state.

The industry still appears to be in a period of expansion, the possible extent of which is unknown. Nearly every locker plant in the state has a large waiting list of prospective

Table 3. Number of counties within crop reporting districts in Kansas reporting frozen food locker plants, 1939, 1941, 1944, and 1946.¹

Crop reporting district	No. of counties in :				No. of counties without lockers in :			
	district:				district:			
	1939	1941	1944	1946	1939	1941	1944	1946
Northwest	8	3	5	8	5	3	0	0
West Central	9	1	1	7	8	8	2	0
Southwest	14	6	7	13	8	7	1	0
North Central	11	6	5	11	5	6	0	0
Central	11	8	10	10	3	1	1	0
South Central	13	11	12	13	2	1	0	0
Northeast	11	6	10	11	5	1	0	0
East Central	14	12	13	13	2	1	1	0
Southeast	14	9	13	14	5	1	0	0
Kansas Total	105	62	76	100	43	29	5	0

¹Calculated from data obtained from Dr. G. A. Filing, Department of Horticulture, Kansas State College, September, 1946.

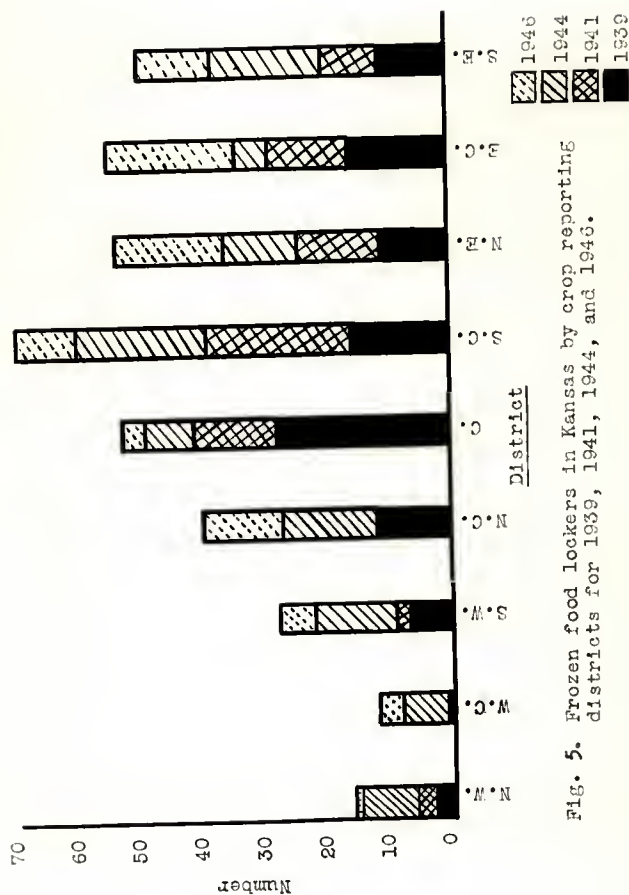


Fig. 5. Frozen food lockers in Kansas by crop reporting districts for 1939, 1941, 1944, and 1946.

patrons who are unable to rent a locker box. This condition has been an incentive for many plants to expand their facilities. Many locker boxes have been rented to city patrons during the War, who rented the box primarily to combat the shortage of meat supplies. Many of these patrons now find the locker box economical and a convenient method of storage for their fruits and vegetables. The future action of this group of patrons may have considerable effect upon future expansion of the locker plant industry in Kansas.

TRENDS IN FARM AND LOCAL SLAUGHTER IN KANSAS

Farm Slaughter

Farm slaughter is the estimated slaughter on the farm for home use and for the sale of meat.⁸ Yearly farm slaughter in Kansas is shown in Table 4 for each class of livestock for the period 1930 to 1945 inclusive. The average yearly farm slaughter for the entire period of 1930 to 1945 also is indicated in Table 4. The most significant thing indicated by Table 4 is the relatively constant number of head slaughtered in all classes of livestock from 1935 to 1945.

Figure 6 indicates the trend of farm slaughter in Kansas for the period 1930-1945 by classes of livestock. Yearly

⁸Bureau of Agricultural Economics, United States Department of Agriculture, "Meat Animals, Farm Production and Income." 1935-41 Summary. p. 2. April, 1942.

farm slaughter totals of Table 4 were combined in Fig. 6 into three classes of livestock. This represented the combining of cattle and calves together in one class and sheep and lambs together in another class.

A significant feature of Fig. 6 is the large volume of farm slaughter of hogs during the early 1930's. Slaughter of sheep and lambs appeared to be relatively constant during the entire period. Farm slaughter of cattle and calves increased during the later 1930's reaching a peak of 35,000 head in 1938 and decreasing thereafter to 28,000 head in 1945.

Local Slaughter

Local slaughter includes both wholesale and retail slaughter of livestock originating within the state.⁹

Table 5 indicates the yearly local slaughter in Kansas for the period 1930 to 1945 for each class of livestock. There were extreme fluctuations in the local slaughter of hogs from year to year. Local slaughter of other classes of livestock was rather constant up to 1941.

Figure 7 indicates the trend of local slaughter in Kansas for the period 1930-45 by classes of livestock. Yearly local slaughter totals of Table 5 were combined for cattle and calves and for sheep and lambs to make up the three classes of livestock shown in Fig. 7.

⁹Bureau of Agricultural Economics, loc. cit.

Table 4. Farm slaughter of meat animals in Kansas (by thousand head), 1930-1945.¹

Year	Cattle	Calves	Hogs	Sheep	Lambs
1930	10	12	360	2	3
1931	12	14	400	2	3
1932	15	11	424	3	5
1933	10	20	420	3	5
1934	10	20	400	3	5
1935	13	21	275	2	3
1936	13	20	255	2	3
1937	15	19	215	2	3
1938	15	20	215	2	3
1939	14	17	243	2	3
1940	13	17	255	2	3
1941	13	16	225	2	3
1942	13	16	235	2	3
1943	13	14	265	3	1
1944	13	15	225	2	3
1945 ²	13	15	225	2	3
Average					
1930-1945	12.8	16.7	289.8	2.3	3.2

¹Bureau of Agricultural Economics, United States Department of Agriculture, "Meat Animals, Farm Production and Income." 1930-1945.

²Preliminary estimate of figures for 1945.

Table 5. Local slaughter of meat animals in Kansas (by thousand head), 1930-1945.¹

Year	Cattle	Calves	Hogs	Sheep	Lambs
1930	30	12	200	2	2
1931	33	12	200	2	2
1932	34	11	220	2	4
1933	35	15	240	2	4
1934	35	15	230	2	4
1935	35	14	90	2	4
1936	32	12	110	2	4
1937	28	12	70	2	3
1938	26	11	70	2	4
1939	27	13	100	3	4
1940	28	13	105	3	5
1941	32	14	89	3	6
1942	35	15	130	4	6
1943	58	16	440	4	6
1944	72	35	170	1	4
1945 ²	93	32	135	1	2
Average					
1930-1945	39.6	15.8	162.4	2.3	4.0

¹Bureau of Agricultural Economics, United States Department of Agriculture, "Meat Animals, Farm Production and Income." 1930-1945.

²Preliminary estimate of figures for 1945.

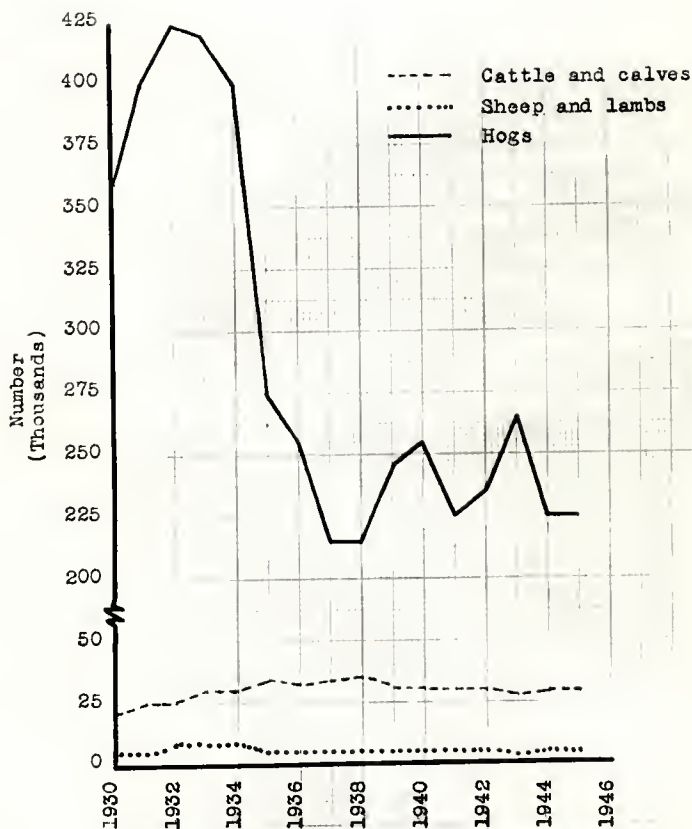


Fig. 6. Farm slaughter of meat animals in Kansas from 1930 to 1945.

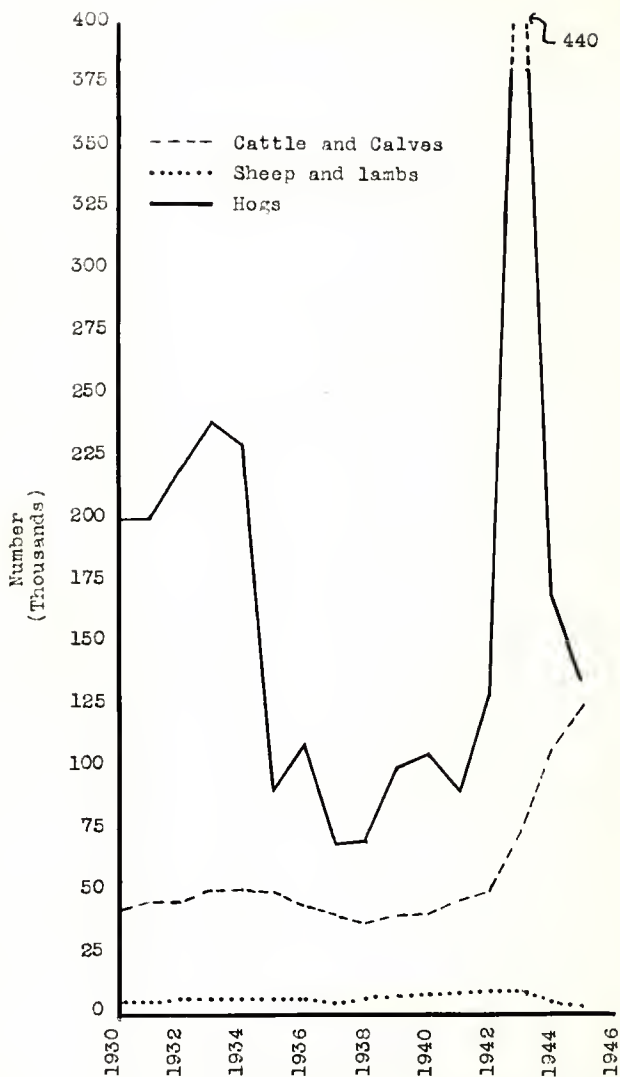


Fig. 7. Local slaughter of meat animals in Kansas from 1930 to 1945.

Several significant facts are indicated in Fig. 7. In the case of hogs, the high slaughter peak in 1933 was not surpassed until 1943 when the local slaughter rose abruptly to 440,000 head. A sharp decline in 1944 followed when 170,000 head were locally slaughtered. These two years mark extreme fluctuations in the local slaughtering of hogs in Kansas.

Local slaughter of cattle and calves began to increase in 1942 and made a steady and continued increase up to the last available figures in 1945. Sheep and lamb slaughter was rather constant throughout the entire period up to 1943, when the local slaughter of sheep and lambs started to decline.

Comparison of Farm and Local Slaughter by Classes of Livestock

Cattle and Calves. The trends in farm and local slaughter of cattle and calves are indicated in Fig. 8. The significant feature was their inverse relationship from 1938 to 1945. Several factors may have contributed to this tendency. As the locker industry and the small slaughter plant industry developed, it probably became more convenient and more economical for the farmer to hire the plant to slaughter his animal and prepare it for the locker, thus causing a gradual decrease in the amount of farm slaughter and an increase in local slaughter.

Hogs. The relative trends of farm and local slaughter

of hogs are indicated in Fig. 9 for the period 1930-1945. The wide fluctuations in local slaughter of hogs have already been discussed. Farm slaughter of hogs reached a record of 424,000 head in 1932. Since 1935, the farm slaughter of hogs has fluctuated evenly between rather narrow limits.

Sheep and Lambs. Farm slaughter and local slaughter of sheep and lambs is not important in Kansas. Figure 10 indicates the relative trends of farm and local slaughter of sheep and lambs in Kansas for the period 1930-1945. Due to the large scale used in Fig. 10, the fluctuations appear to be exaggerated. The most significant trend was the steady increase in local slaughter of sheep and lambs from 1937 to 1942, when it leveled off at 10,000 head per year and then started to decline sharply in 1944.

SLAUGHTER ESTABLISHMENTS IN KANSAS

On September 1, 1946, Kansas had a total of 282 slaughter and packing plants licensed and in operation. Twenty-one of these plants were federally inspected.¹⁰ The remaining 261 plants consisted of 48 plants operating under state inspection and 213 small slaughtering plants which were licensed

¹⁰Correspondence with Mr. C. A. Jerand, Bureau of Animal Industry, United States Department of Agriculture, Livestock Exchange Building, Kansas City, Missouri, November 19, 1946.

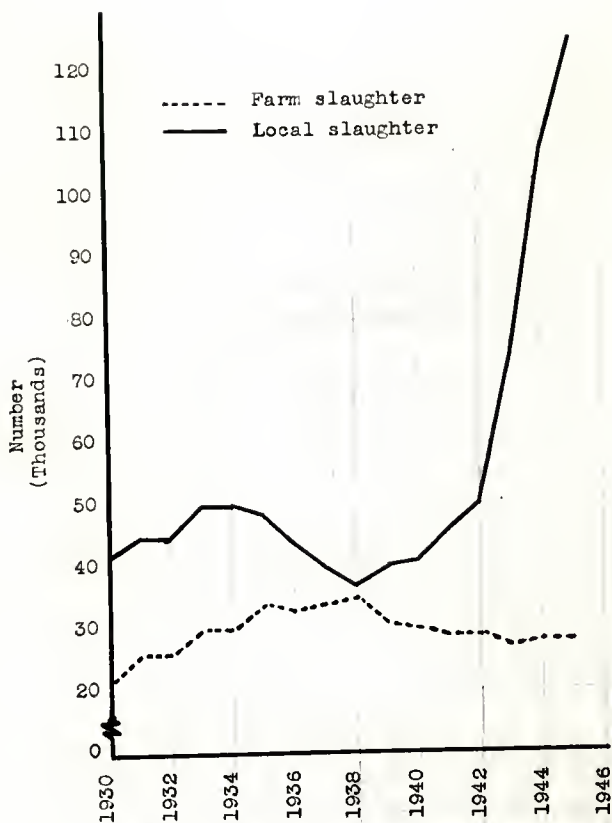


Fig. 8. Farm slaughter and local slaughter of cattle and calves in Kansas, 1930-1945.

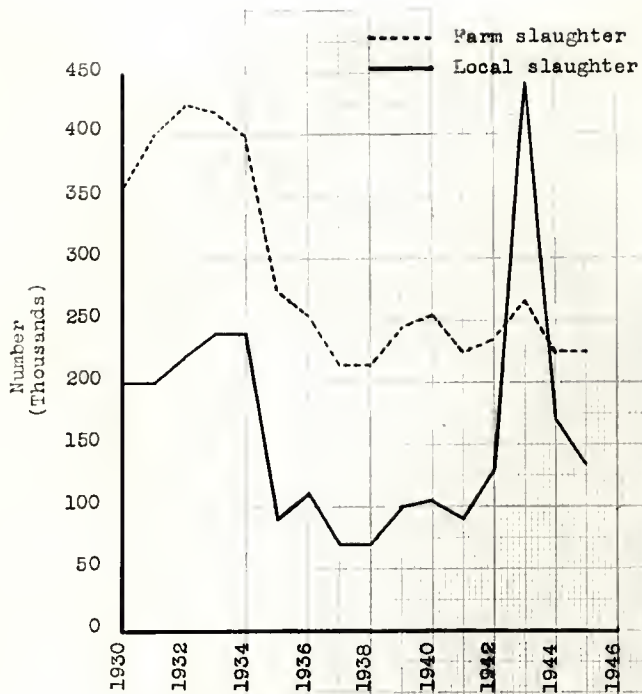


Fig. 9. Farm slaughter and local slaughter of hogs in Kansas, 1930-1945.

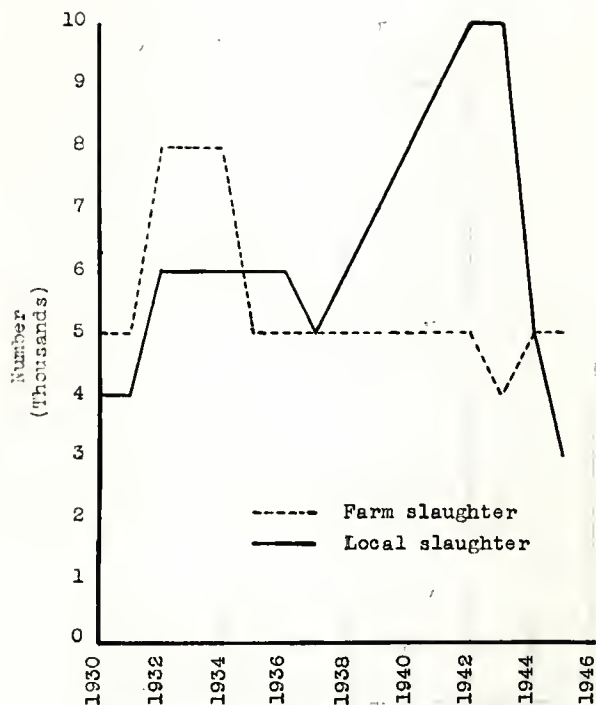


Fig. 10. Farm slaughter and local slaughter of sheep and lambs in Kansas, 1930-45.

by the state and issued a permit to slaughter.¹¹

Of the 379 locker plants in Kansas, 102 operated a slaughter plant in conjunction with the locker plant. Of these 102 locker plants with slaughter facilities, 20 plants were under state inspection, 68 plants were licensed and issued a permit to slaughter by the state, and 14 plants were not listed on the records of the Kansas State Board of Health. Some of these plants were only recently opened, and it is possible that they are now slaughtering under license and permit of the State of Kansas. Thus, the total packing and slaughtering establishments in Kansas on September 1, 1946, was unofficially 296 plants. The major portion of study of this manuscript was concerned with those slaughter plants that were operated in connection with a frozen food locker plant.

SURVEY OF LOCKER PLANTS IN KANSAS OPERATING IN CONJUNCTION WITH A SMALL SLAUGHTER PLANT

Introduction

The major portion of this study was concerned with cold storage locker plants in Kansas which operated their own slaughtering facilities. In an earlier section of this

¹¹Correspondence with Mr. Evan Wright, Director of Food and Drug Division, Kansas State Board of Health, Topeka, Kansas, September 30, 1946.

study, it was pointed out that there were 379 cold storage locker plants operating in Kansas as of September 1, 1946.

It was found that 102 of these cold storage locker plants operated their own slaughter plant. This figure was derived from several composite sources: (1) Mr. Evan Wright, Director of Food and Drug Division, Kansas State Board of Health, Topeka, Kansas; (2) Mr. H. L. Collins, State Agricultural Statistician, Bureau of Agricultural Economics, United States Department of Agriculture, Topeka, Kansas; (3) a previous survey conducted by Mr. M. L. Otto, Department of Economics and Sociology, Kansas State College, and (4) by direct correspondence with the plant operators.

A questionnaire was mailed to each of the 102 plants and was followed in two weeks by a tracer to those plants not yet reporting. Thirty-six plants returned questionnaires with varying degrees of completeness. Fourteen additional plants were visited and similar information was gathered as on the mailed questionnaires. This represented a return of 35.29 percent by questionnaire and 13.73 percent visited for a total sample of 49.02 percent.

This survey cannot be considered as a true random and statistical sample because of the method and procedure of obtaining the sample. However, the sample is sufficiently large to indicate a representative cross-section of the industry.

Figure 11 indicates the geographical location of the 102

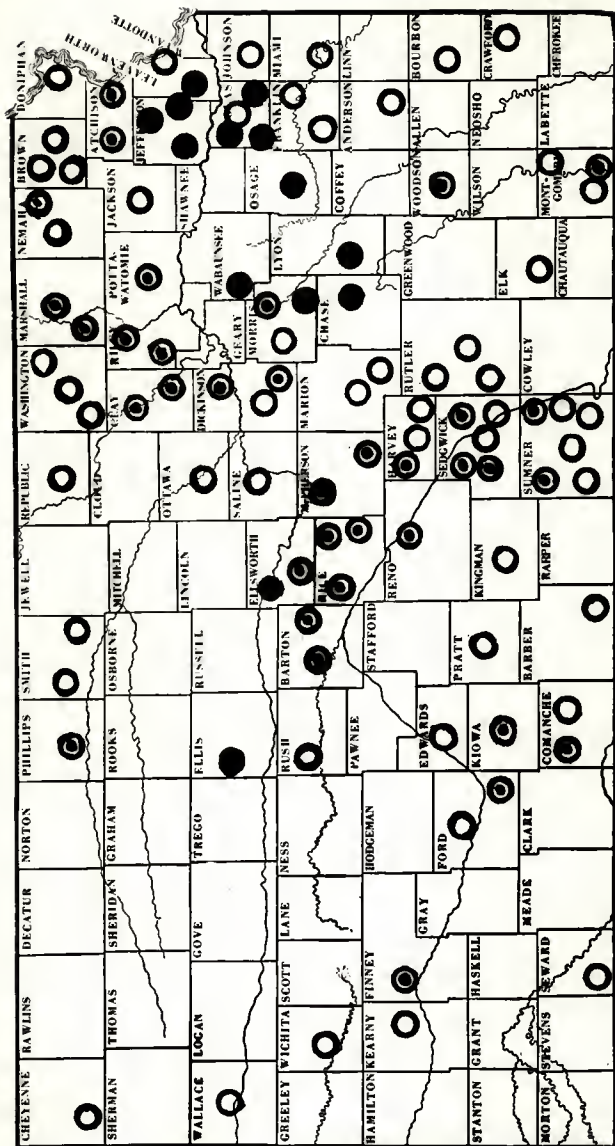


Fig. 11. Location of frozen food locker plants with slaughter facilities in Kansas, 1946.

○ Plant from which no data were received.
 ◐ Plant furnishing data by questionnaire return.
 ● Plant where data obtained by personal visit.

plants studied in Kansas. The majority of the plants are concentrated in south central and northeastern Kansas. The field trip was planned to cover a section of the state which was not adequately represented by the return of mailed questionnaires.

Due to the fact that many plants did not completely fill out the mailed questionnaires, the number of plants included in each phase of the study varied and summaries for each phase did not necessarily include identical plants. For each individual sub-topic, only those plants providing complete data on that particular phase, were considered as plants reporting.

This fact will prevent an accurate comparison of results of one phase of study with that of some other phase. Considering each subject in its entirety, according to the plants reporting on that particular phase, it is possible to draw conclusions for each individual subject considered.

Type of Ownership

The fifty plants surveyed reported their types of ownership as shown in the following illustration:

Type of ownership	Number of plants	Percent of plants reporting
Individual proprietorship	25	50
Partnership	20	40
Corporation	5	10

The nature of this type of business lends its adaptability well to all three types of ownership. However, it is significant that only 50 percent of the total number surveyed were operated under individual proprietorship.

The relatively large proportion of partnerships may be due to two contributing factors. First, a locker plant with slaughter facilities represents a rather large investment in plant facilities and overhead and operating expenses are high. In most small communities where these plants were located, it was undoubtedly necessary in some instances for a partnership to be formed to finance the project. Second, this type of business lends itself to partnership because of the varying skills or degree of experience which each partner is able to contribute. In some cases, one of the partners had been a country butcher all of his life; thus, he was in charge of the slaughtering end of the business. In other cases one of the partners may not have had experience but was able to furnish the capital and became a "silent partner". Still other cases found one partner particularly experienced in locker plant and refrigeration problems.

Four of the five plants that were corporations originated as small country packers that gradually grew and eventually added locker plants. The one plant not in this category is a cooperative. Although there are a considerable number of cooperatively owned and operated locker plants in Kansas, there are only three cooperative plants which operate complete locker plants and slaughter facilities.

Year of Plant Opening

The year the locker plant was opened for operation was tabulated separately from the year the slaughter plant was opened. This enabled a study of the individual plant to see if it established its locker plant first and later added a slaughter house as the demand for complete processing increased or whether the locker plant was added as an additional function of an established small country packer, or whether the plant was constructed for both types of facilities when the plant was opened for operation. The latter is particularly true of the new plants that have been constructed since 1940.

Table 6 shows the opening year of the locker plant and of the slaughter plant of 45 plants reporting. It is apparent that the two phases of the business have developed hand in hand. The locker industry's growth is largely contained in the last ten years. With the exception of four slaughter plants, which had been in operation for a number of years, the slaughter plants have also largely developed in the last ten years, with particular emphasis on the development of slaughter plants in the last five years.

The 45 plants reporting were classified on the basis of facilities in the plant at its original opening. The following tabulation shows by number of plants, the

facilities in the original plant:

Facilities when plant : originally opened :	Number : of plants :	Percent of plants reporting
Slaughter plant	5	11.11
Locker plant	11	24.44
Both locker and slaughter	29	64.45

Of the five slaughter plants that opened before they had locker facilities, two had operated as a slaughter plant for more than 15 years, one plant 11 years, one plant ten years, and one plant one year prior to establishing locker facilities in the plant.

Of the 11 plants which established the locker plant first, one plant had operated seven years, one for six, three for four, one for three, and five plants for one year as locker plants before slaughter facilities were established in the plant.

The 29 plants which opened both facilities the same year are significant and indicate the latest development in a new and growing industry. The 29 plants constituting 64.45 percent of the plants reporting, which opened their plant completely equipped with locker and slaughter facilities, are largely represented in Table 6 by the increase in number of plants established in period from 1941-1946. The trend of the last five years seems to definitely include complete processing facilities including slaughtering in new locker plants constructed. This is borne out in Table 6 by the

Table 6. Frequency distribution of locker plants with slaughter facilities in Kansas, based on the opening year of operation of the slaughter plant and of the locker plant.¹

Year	Number of slaughter plants opened	Number of locker plants opened
1929 (and earlier)	3	
1930	1	
1931		
1932		
1933		
1934		1
1935		
1936	2	2
1937	2	3
1938	2	3
1939		1
1940	2	3
1941	3	9
1942	3	2
1943	5	4
1944	5	3
1945	7	7
1946	10	7
Total	45	45

¹Data obtained from survey of locker plants with slaughter facilities in Kansas, 1946.

fact that of the 45 plants, 35 of them, or 78 percent, established their slaughter facilities since 1940.

Location of Plant

Slaughter Plant. The location of the slaughter plant may reflect greatly upon its efficiency. Of 47 plants reporting, 31 had their slaughter plant within city limits, 16 were on the edge of town or city and two were in the country. The large proportion located in town reflects upon the ability of the operator to meet city sanitary requirements and not be a health detriment to the community. The operator who has his slaughter plant located in town, in most cases, enjoys the advantages of city water, electricity, and sewage disposal. It is interesting to note that of all plants reporting in this survey, none of the recently constructed slaughter facilities was located in the country. In some cases local city regulation prohibits the slaughter of meat animals within the city limits, in which case the plant was forced to the edge of town for operations.

Locker Plant in Respect to Slaughter Plant. Of 47 plants reporting, the location of their locker plant in respect to their slaughter plant is summarized as follows:

	: Same : Adjoining : Distance of separation			
	: building	: building	: up to $\frac{1}{4}$ mile:	$\frac{1}{4}$ - 1 mile
No. of plants	24	8	6	9

Nearly 50 percent of the plants reporting had their locker plant and slaughter plant in the same building. An additional eight plants had their locker plant in an attached or adjoining building to their slaughter plant. These two groups represent those plants which are located in town or on the edge of town. The 15 plants which are not located in the same or adjoining building are those plants in which the slaughter plant was in the country or at the edge of town. One plant had both its locker and slaughter plant under one roof and located at the edge of town. This explains the discrepancy of one plant in the preceding comparison.

In a majority of the cases, the locker plant was a forerunner of the slaughter plant and it was natural to locate the locker plant within the city limits so as to be convenient to the patrons and to allow the plant the use of city utilities. With the rapid development of the slaughtering facilities in many of these plants, the ideal location was on the same building lot as the locker plant, providing city regulations did not prohibit such a location. Plants so located are more adaptable to better sanitary practices as water and electricity are plentiful; in most cases, city sewage disposal is available; and lastly, the plant is close to the scrutiny of the public eye, which can be a compelling factor in causing the operator to use sanitary practices and to slaughter livestock of desirable condition and health.

Slaughter plants located in the country, in most cases,

have to operate without service of complete utilities. Abundant water is an absolute necessity in slaughtering; in many cases in the country it is not sufficient. Drainage of water and refuse from the slaughter premise in the country is often woefully inadequate, thus contributing to an unsanitary environment for the slaughtering of meat animals. A plant located in the country without the benefit of an abundant supply of hot and cold water and sufficient drainage to keep the plant and surrounding grounds in a dry condition, has difficulty in achieving the desired sanitary standards in slaughtering.

Facilities

Hot Water. The importance of hot water in a slaughter plant can not be over emphasized. Without hot water to melt the grease and tallow, the floors and walls cannot be adequately cleaned, regardless of the nature of their construction. Forty of the 49 plants reporting had hot water, while nine plants had only cold water. Plants not having such facilities will undoubtedly find it increasingly difficult to meet the sanitary standards required to keep their permit to slaughter from the State Sanitary Commission.

Cement Floor. The floor of the slaughter plant must be made of concrete if it is to resist the decaying action of slaughter refuse and be cleaned easily at the end of the

day. This fact was well appreciated by the plants in Kansas reporting in this survey. Of the 49 plants reporting, 48 had a concrete floor, and one plant reported part of its floor being concrete, the extent of which was not determined. Although the material in the construction of the walls was not studied among the plants surveyed, it is important. In the killing and skinning room especially, the walls should be made of a smooth and rather impervious material which can be easily cleaned.

Settling Tank. Only 23 of 49 plants reporting, had a settling tank or a blood trap in their slaughter plant. This included plants using both the city sewer and the septic tank for sewage disposal. It is advisable for some sort of a blood trap or settling tank to be used in either form of sewage disposal, but it is especially important for those plants using a septic tank for sewage disposal. The waste grease and tallow which are washed into the drain when the floor and walls are cleaned, will soon clog a septic tank if most of the solid and greasy refuse are not settled out before the sewage reaches the septic tank. Plants that have a septic tank without proper traps and settling tanks, find it necessary to have their septic tank cleaned out often. This is expensive, a disagreeable job, time consuming, and shuts down slaughtering operations.

Sewage. Of the 49 plants reporting, 17 used a septic tank system, 30 were connected to city sewer, and two

reported they had neither type of sewage disposal. The kind of system used is, of course, dependent upon the location of the slaughter plant. However, it is undesirable for any slaughterer to continue to operate without some sort of sewage disposal. Without such, sanitary conditions would become intolerable, especially in the summer months. The two plants that reported no sewage disposal were both located on the edge of town, one of them doing an average volume of business. It is possible that all blood and waste of these two plants are trapped and hauled away. This would still leave the floors dirty, or the yards in undesirable condition from flushing out the slaughter house.

Refrigeration. The plants surveyed were asked whether or not their slaughter plant contained a chill room or any kind of a refrigerated house. Thirty-nine plants reported their slaughter house had refrigeration, while ten plants reported they did not. These results are not too significant as such, because several of the plants which are located under one roof, have a chill room in the locker plant which also can serve their slaughter plant. Thus, plants not having a chill room in their slaughter house may use the chill room facilities of their locker plant.

Investment

Locker Plant. Twenty-nine plants reported their

investment in locker plant and facilities, by investment in the building and lot and investment in the plant equipment. Table 7 shows the frequency of plants reporting which fell within different investment intervals for building and lot and for plant equipment. It is noted in this table that under building and lot, the mode is in the \$5,000 to \$10,000 interval. Thirteen of the 29 plants reporting fell within this interval. There is a wide range of investment in locker building and lot, ranging from four plants having an investment of \$1,001 to \$2,000 up to one plant in the investment interval of \$35,000 to \$40,000.

Investment in locker plant equipment is also shown in Table 7. The mode is again within the interval of \$5,001 to \$10,000. The range of the 29 plants reporting varied from one having locker equipment investment of \$500 to \$1,000 to one plant having between \$30,000 and \$40,000. By referring to column one of Table 9, the frequency of locker plants in varying investment intervals is obtained for total investment in locker plant, lot, and equipment. Using the data furnished by the 29 plants who reported their investment in building and lot and in equipment, and supplemented by seven additional plants who reported one total figure for their locker plant investment, the total investment in locker plant and locker plant equipment for 36 plants was obtained. This investment in locker plant and equipment, exclusive of the slaughter plant and equipment, ranged from \$5,000 to one

plant having an investment of \$70,000 to \$80,000. The mode is in the group having a total locker investment of \$10,001 to \$15,000.

Table 10 indicates the average investment of each locker plant reporting for the building and lot, the equipment, and the total locker plant investment. The 29 plants reported a total investment in building and lot of \$288,085 or an average of \$9,933.96 per plant. The 29 plants reported a total investment in locker plant equipment, which included refrigeration equipment, of \$282,900 or an average of \$9,755.17 per plant. One cannot help but note how close the investment in building and lot is to the investment in equipment, both for the total of 29 plants and for the average plant. By calculating the data of the total of 36 plants furnishing investment data on their locker plant and equipment, the total investment of 36 plants reporting is \$719,085 for an average of \$19,974.58 per plant for locker plant building and lot and locker plant equipment.

Slaughter plant. Twenty-one plants reported their investment in slaughter plant building and lot. Many plants were unable to break this figure down as their locker and slaughter plant were contained in the same building; however, their investment figures are later calculated in the total investment figures. The frequency of plants having varying investment in slaughter plant and lot and in slaughter equipment is given in Table 8. Of the 21 plants reporting, the

Table 7. Frequency distribution of locker plants in Kansas based on estimated investment in buildings, including lot, and in equipment.¹

Investment interval	Number of plants	
	Building and lot	Plant equipment
\$ 500 - - - 1,000		1
1,001 - - - 2,000	4	1
2,001 - - - 3,000		1
3,001 - - - 4,000	4	2
4,001 - - - 5,000		4
5,001 - - - 10,000	13	11
10,001 - - - 15,000	2	4
15,001 - - - 20,000	1	4
20,001 - - - 25,000	2	
25,001 - - - 30,000		
30,001 - - - 35,000	2	1
35,001 - - - 40,000	1	
Number of plants reporting	29	29

¹Data obtained from survey of locker plants with slaughter facilities in Kansas, 1946.

Table 8. Frequency distribution of slaughter plants in Kansas operated in connection with a locker plant, based on estimated investment in building including lot, and in equipment.¹

Investment interval	Number of plants	
	Building	Plant
	and lot	equipment
\$ 100 - - - 250	1	2
251 - - - 500	2	5
501 - - - 750	1	3
751 - - - 1,000	1	3
1,001 - - - 2,000	10	2
2,001 - - - 3,000	1	
3,001 - - - 4,000	1	1
4,001 - - - 5,000		1
5,001 - - - 10,000	1	2
10,001 - - - 15,000	1	
15,001 - - - 20,000	1	
20,001 - - - 25,000	1	
Number of plants reporting	21	19

¹Data obtained from survey of locker plants with slaughter facilities in Kansas, 1946.

Table 9. Frequency distribution of locker plants with slaughtering facilities in Kansas, based on estimated investment in total locker plant facilities, total slaughter plant facilities, and combined investment of the two.¹

Investment interval	Number of plants		
	:	:	:
	Locker	Slaughter	Locker and
	plant and	plant and	slaughter
	facilities	facilities	plant and
	:	:	facilities
	:	:	combined
\$ 100 - - - 500		5	
501 - - - 1,000		5	
1,001 - - - 2,000		6	
2,001 - - - 3,000		6	
3,001 - - - 4,000		1	
4,001 - - - 5,000	1		1
5,001 - - - 10,000	7	2	4
10,001 - - - 15,000	9		11
15,001 - - - 20,000	6	3	8
20,001 - - - 25,000	5		3
25,001 - - - 30,000	1	1	4
30,001 - - - 35,000	2		3
35,001 - - - 40,000	2		5
40,001 - - - 50,000	2	1	2
50,001 - - - 60,000			
60,001 - - - 70,000			1
70,001 - - - 80,000	1		1
80,001 - - - 90,000			
90,001 - - - 100,000			1
Number of plants reporting	36	30	44

¹Data obtained from survey of locker plants with slaughter facilities in Kansas, 1946.

Table 10. Total and average investment of locker and slaughter plants in Kansas, by types of facilities.¹

Facility	: Number : of plants : reporting	: Total : value of : all plants	: Average : value : per plant
Locker plant			
Building and lot	29	\$ 288,085	\$ 9,933.96
Equipment	29	282,900	9,755.17
Total locker plant investment	36	719,085	19,974.58
Slaughter plant			
Building and lot	21	84,900	4,042.85
Equipment	19	34,700	1,826.32
Total slaughter plant investment	30	185,500	6,183.33
Total investment in locker and slaughter plant combined	44	1,174,950	26,703.41

¹Calculated from data obtained from survey of locker plants with slaughter facilities in Kansas, 1946.

mode was in the group of ten plants which had an investment of \$1,001 to \$2,000 for the slaughter plant building and lot. Four plants were below \$1,000 and six plants were over \$2,000 with two plants in the \$20,000 and above class.

Nineteen plants reported their investment in slaughter plant equipment. The mode group of five plants had an investment of \$251 to \$500. This tends to bear out the fact that a small slaughter plant does not need a lot of expensive and complicated equipment.

The frequency of plants in varying intervals of total investment in slaughter plant and equipment is shown in Table 9 for the 30 plants reporting. There were two mode groups of \$1,001 to \$2,000 and \$2,001 to \$3,000. Twelve of the 30 plants reporting had a total investment in their slaughter plant and equipment of \$1,000 to \$3,000. The effect of several larger country packers can be ascertained from Table 9. Total investment in slaughter plant and facilities of five plants is more than \$15,000 which can hardly be compared with the mode of the 30 plants or the average of all the plants reporting.

Table 10 indicates the total investment of all plants reporting and the average plant investment in slaughter plant and slaughter equipment. The total investment in slaughter plant and equipment of 30 plants reporting was \$185,500.00 or an average of \$6,183.33 per plant. It must be noted

again that this relatively high average investment per plant is due largely to the four or five plants which fell within the high investment intervals in Table 9.

Total Investment. In column three of Table 9 the total investment of locker and slaughter plants with equipment is combined. The mode falls in the interval of \$10,001 to \$15,000 with the median in the interval of \$15,001 to \$20,000. Of the 44 plants reporting, 11 had a total investment of \$10,001 to \$15,000 and 24 of the 44 plants reporting had a total plant and equipment investment of \$20,000 or less with 20 plants having a total investment in excess of \$20,000. Of these 20 plants, three had a total investment of \$60,000 or higher. Here again a few plants that were operating on rather a large scale caused the total investment and the average plant investment for the group of plants reporting, to be considerably higher.

The last item in Table 10 indicates the total investment of 44 plants reporting and the average investment per plant. The total investment of 44 reporting plants in their locker and slaughter plant and facilities combined is \$1,174,950.00 with an average of \$26,703.41 total investment per plant. Even though this average plant investment is higher than the majority of the plants because of the influence of several large plants included in the total and the average, it can be seen that each individual plant has a considerable investment, and the industry as a whole

represents an important segment in the total industry of Kansas.

Although the 44 plants reporting total investment figures were not a true statistical random sample, they may be used as representative of the industry. On this basis, the 102 locker plants operating with slaughter facilities in Kansas would have approximately \$2,723,747.00 total investment. The investment in this industry is significant in the fact that its rapid growth is such a recent development and with prospects for even greater and more rapid expansion, especially in the addition of slaughter facilities to the locker plants already established. Furthermore, many of these plants in Kansas are located in very small communities where they stand out as the largest and leading business establishment in the community.

Labor

Number Employed. Data were gathered from plants concerning full-time and part-time employees in the locker and slaughter plants. Table 11 indicates the frequency of plants distributed according to the number of full-time and part-time workers employed per plant.

Full-time employees were reported for 48 plants with 13 plants employing two, which constituted the modal group. Four plants hired no full-time labor, depending entirely upon

the owners together with part-time help as needed, to manage and operate the business. One plant reported 16 employees on a full-time basis. A few large plants caused the average number of full-time employees per plant to be considerably higher than the mode.

Of the 40 plants reporting on part-time employees, 15 had no part-time employees and 13 employed one which constituted the mode for those plants hiring part-time labor. In many cases the slaughterer was hired to butcher two or three days a week and was thus employed on a part-time basis.

The total number of full-time and part-time employees and the average number per plant reporting were calculated as shown in the following summary:

Type of employees	: Number : of plants : reporting	: Total : number of : employees	: Average number : of employees : per plant
Full-time	44	159	3.60
Part-time	25	34	1.36

The average of 3.6 full-time employees per plant is considerably higher than the mode of two or the median of three as found in Table 11. The average of 1.36 part-time employees compares favorably with the median in Table 11 and the mode for the plants which did employ part-time labor.

These figures in the preceding summary were calculated on the basis of all plants that reported numbers of workers employed, and should not be confused with a later tabulation

Table 11. The frequency distribution of locker plants in Kansas employing full-time labor and plants employing part-time labor based on number of full-time and part-time employees per plant.¹

Number of employees per plant	No. plants	No. plants
	employing given	employing given
	no. of full-time employees	no. of part-time employees
0	4	15
1	5	13
2	13	8
3	9	1
4	6	2
5	2	
6	4	1
7	4	
8 or more	1	
Plants reporting	48	40

¹Data obtained from survey of locker plants with slaughter facilities in Kansas, 1946.

Table 12. Frequency distribution by number of plants and number of employees, on part-time and/or full-time employment at varying weekly wage rates in locker plants with slaughter facilities in Kansas.¹

Weekly wages	Number of employees		Number of plants	
	Full-time	Part-time	Full-time	Part-time
\$ 1.00 -- 5.00		1		1
5.01 -- 10.00		1		1
10.01 -- 15.00		5		2
15.01 -- 20.00	1	10	1	6
20.01 -- 25.00		3		1
25.01 -- 30.00	9	3	3	
30.01 -- 35.00	16	5	5	
35.01 -- 40.00	66	4	15	2
40.01 -- 45.00	10	4	4	
45.01 -- 50.00	34	4	8	2
50.01 -- 55.00	3	1	1	
55.01 -- 60.00	2	1	1	1
60.01 and over		2		1
Total	141	31	38	17

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

which summarizes similar averages for those plants which reported their weekly payroll in addition to numbers employed.

Weekly Wages. Table 12 indicates the frequency distribution of total employees according to their weekly wage rate under full-time and part-time employment, and the frequency of plants reporting according to the average weekly wage paid both full-time and part-time employees.

One hundred forty-one employees were hired full-time by 38 plants reporting. The modal wage group received \$35.01 to \$40.00 per week. The range of pay for this group is somewhat limited with 126 of the 141 employees receiving between \$30.01 and \$50.00 a week. Several plants employed help receiving payments from the government as "on-the-job training" and this may have affected wage scales.

Of a total of 31 part-time employees hired by the 17 plants reporting, the modal group received weekly wages of \$20.01 to \$25.00. There was a wide range of pay for the part-time employees. This is a result of many plants hiring a skilled man to do the slaughtering and paying a relatively high wage rate or slaughtering fee. In the latter case, the weekly pay varied with the volume of livestock slaughtered at the plant in a week.

Columns 3 and 4 of Table 12 indicate the frequency of plants according to the average weekly wage rate of both full-time and part-time employees. The modal group for the

plants employing full-time employees is \$35.01 to \$40.00, which is identical to the mode when tabulated on the basis of total employees. The mode for part-time labor falls in the group paid \$20.01 to \$25.00 per week, which is also the same as when tabulated on the basis of average pay for total part-time employees.

This consistency of the mode in two distinctly different approaches of frequency distribution is significant. It would appear that this particular sample was sufficiently representative and uniform, to correct the discrepancies usually caused by a few abnormally small or a few abnormally large plants.

Experience. Proper slaughtering procedures and correct processing methods require considerable skill, and it is usually to the advantage of the plant and the patron to have experienced men employed in the plant to perform these operations.

Table 13 indicates the frequency of plants according to the average number of years' experience of the full-time and part-time employees. Data were obtained on the experience of the full-time labor employed in 38 plants. The mode fell within the class having "some" experience. Seven plants reported their full-time help had no previous experience in the slaughtering business. Another seven plants reported their full-time employees had between one and five years' experience. Thirteen of the 38 plants reported their full-time labor had

Table 13. Frequency distribution of locker plants with slaughter facilities in Kansas, based on average year's experience of the plant's part-time and full-time employees.¹

Years of experience	Number of plants	
	Full-time labor	Part-time labor
0	7	8
1 - 5	7	1
6 - 10	3	1
11 - 15	3	
16 - 20	4	1
21 - 25	2	
26 - 30	1	2
30 and over		1
"some"	11	7
Number of plants reporting	38	21

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

more than five years experience. Additional plants with experienced labor undoubtedly fell in the classification of "some" experience because of the failure of the plants to report a more complete and specific answer.

Of 21 plants reporting on the experience of their part-time labor, eight plants reported their part-time help had no experience in the slaughtering and meat packing business, seven reported they had "some", while the remaining six plants had part-time help with a wide variation in the number of years of experience. Undoubtedly many plants employing the services of a local slaughterer with considerable experience, did not indicate this in their answer to this question.

Separate Staff. Some plants had a staff of employees for their slaughter plant which was separate from the staff which was employed in the locker plant. Of 48 plants reporting, 19 plants reported employees in the slaughter plant were entirely separated from employees in the locker plants with no overlapping of duties between the two plants. Twenty-nine plants reported they did not have a separate staff for the locker plant and for the slaughter plant. Their employees, being trained to work in either, were shifted about as conditions required.

Summary. The industry is affording a considerable amount of employment as indicated by the average employment of three to four full-time employees and one to two part-time

employees per plant.

There was a wide variation of wages for the part-time labor. This was to be expected because of the wide range in the time different part-time laborers were employed by different plants per week.

A complete summary of the plants which furnished complete information is tabulated below:

Item	: Full-time : Part-time	
	: employees	: employees
Number of plants reporting	38	17
Total number of employees	141	31
Average number of employees per plant	3.71	1.82
Total weekly payroll	\$5,682.00	\$1,028.00
Average weekly wage per employee	40.30	33.18
Average weekly payroll per plant	149.53	60.50

Thirty-eight plants reported a total of 141 full-time employees being paid a total of \$5,682.00 weekly, or a weighted average weekly wage of \$40.30 per employee. The plants employed an average of 3.71 full-time employees and had an average weekly payroll of \$149.53 per plant. The average of 3.71 employees per plant compares favorably with the average of 3.6 in an earlier analysis of 44 plants which were tabulated regardless of whether or not full information was available on weekly wage rates.

Seventeen plants reported a total of 31 part-time employees being paid a total of \$1,028 weekly, or a weighted average weekly wage of \$33.18 per employee. The plants

employed an average of 1.82 part-time employees with a weekly payroll average of \$60.50. This summary is tabulated from a different group of plants than the previous summary in an earlier discussion of labor. Although the average number of employees per plant is not identical in the summaries of the two different groups of plants, the figure does indicate a close relationship.

On the assumption that the preceding figures, calculated from the plants reporting, are representative of the 102 locker plants with slaughter facilities in Kansas, the following estimate of weekly and annual payrolls may be calculated:

Total for 102 plants	: Full-time : employees	: Part-time : employees
Total employees	379	186
Average weekly payroll	\$ 15,252.06	\$ 6,171.00
Total annual payroll	793,107.12	320,892.00

The importance of this growing industry in the welfare of the state is indicated by a total of 379 full-time employees receiving a weekly wage of \$15,252.06 and a total annual wage of \$793,107.12 on the basis of 102 plants in Kansas.

Part-time help in the industry would consist of 186 part-time employees receiving \$6,171.00 weekly or an annual total of \$320,892.00.

Owner-Operator Labor

Years Owned or Managed Plant. Data were obtained from 46 plants on the number of years which the owner or manager has been associated with his present duties in the plant. Data for 46 plants reporting are summarized below:

	: Number of years owned or managed											
	:	1	2	3	4	5	6	7	8	9	10	Over 10
Number of plants		12	7	3	1	7	3	1	3		4	5

These data are a further indication of the growth of this industry in the last five years. The modal number of years as owner or manager was one. Seven owners or managers have had two years' experience, three have had three, one has had four, and seven have had five years' experience as owner or manager. Thirty of the 46 plants reporting had been owned or managed by the operator for five years or less. Only five have owned or managed a plant for 11 years or longer.

In nearly all cases, the party concerned was the owner. However, to measure the length of service of the manager of corporate concerns, the data were gathered on the basis of either owner or manager, whichever the case might be.

Prior Experience in Packing Industry. Data were obtained from 35 plants on the number of years' experience of the owner or manager in the slaughtering industry prior to

entry in the present business. These data are tabulated in the summary below:

	: Number of years of previous experience					
	: 0	: 1-5	: 10-15	: 16-20	: 21-30	: Over 30
Number of owners or managers	18	5	4	4	3	1

These data indicate that owners and managers of more than 50 percent of the plants reporting had no previous slaughtering experience. It is significant that such a large proportion of the present owners have enjoyed apparent success in a business in which they had no previous experience.

Several of the plant owners visited, reported they have had experience in large terminal packing companies. Others had been country butchers for a great many years.

Volume of Slaughter

Data were gathered on the number of head and total pounds of hogs and cattle slaughtered weekly in each plant reporting, when operating at maximum capacity, average normal capacity, and the weekly average slaughter during the month of September, 1946.

Maximum Slaughter Capacity. Column one of Table 14 indicates the frequency of plants slaughtering a varying number of head of hogs and cattle weekly, if the plant were to be operated at maximum capacity. The mode for the group was

21 to 30 hogs and ten head of cattle per week. The median maximum capacity of slaughter of cattle and hogs was 16 to 20 head weekly for each. Table 14 indicates that a few plants have a rather large maximum slaughter capacity and the influence of these plants tends to raise the median of the group and the plant average.

Figure 12 is a graphic analysis of weekly maximum slaughter capacity for hogs and cattle for 26 plants reporting. The frequency of plants within different volumes of capacity is indicated. Figure 12 corresponds to data in column two of Table 14 with some alternations in interval.

Figures 12, 13, and 14 each represent a separately compiled group of plants reporting in each case. Although there is some overlapping of plants in the three figures, the 26 plants reporting for each capacity of slaughter are not identical. Thus, Figs. 12, 13, and 14 should not be considered as a comparison of different operating capacities of 26 identical plants reporting.

Table 15 indicates the maximum slaughter capacity of 26 plants reporting in terms of total number of head and total pounds live weight per week. A total capacity of 755 hogs with a total weight of 175,756 pounds and 583 head of cattle with a total weight of 477,756 pounds live weight would be slaughtered if the 26 plants reporting were to operate at their maximum capacity. The average weekly maximum slaughter per plant of 26 plants reporting would be 29 head of hogs with

a weight of 6,742 pounds and 22.4 head of cattle with a weight of 18,374 pounds live weight. The weighted average weight per head slaughtered in the plants reporting was estimated at 232 pounds per head for hogs and 805 pounds per head for cattle.

The potential of this industry in Kansas is of considerable importance, if it is assumed that the 26 plants reporting are representative of the 102 locker plants in Kansas with slaughter facilities. On this assumption, the 102 locker plants in Kansas with slaughter facilities would have a maximum weekly slaughter capacity of 2,958 head of hogs weighing 687,684 pounds and 2,285 head of cattle weighing 1,874,148 pounds live weight. These figures do not include any data for slaughter of calves or for sheep.

Average Weekly Volume Slaughtered. The column entitled "average capacity" in Table 14 indicates the frequency of plants by number of head of cattle and hogs slaughtered weekly under average conditions. The mode for this group was between 11 and 15 head of hogs and five head of cattle. The median for hogs of 38 plants reporting, was 11 to 15 head weekly, or the same as the mode. The median number of head of cattle slaughtered under average conditions was seven head, based on 39 plants reporting.

Figure 13 is a graphic analysis of Table 14 indicating the frequency of plants by number of head of weekly slaughter of cattle and hogs under average conditions.

Table 14. Frequency of distribution of locker plants with slaughter facilities in Kansas by number of head slaughtered weekly, under different slaughtering capacities.¹

Number of head slaughtered weekly	Number of plants operating			
	Maximum capacity :	Average capacity :	September, 1946	
	Hogs : Cattle	Hogs : Cattle	Hogs : Cattle	Hogs : Cattle
0				2
1				1
2				1
3				2
4	1		2	3
5			3	2
6			9	3
7	1		4	1
8			4	3
9	1		2	1
10	4		4	1
11--15	5		4	2
16--20	5		4	6
21--30	8	11	5	3
31--40	10	5	1	3
41--50	1	3	4	1
over 50	4	1		3
Number of plants reporting	39	40	38	31
				32

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

Table 15. Volume of weekly maximum, average, and September, 1946, slaughter of 26 locker plants with slaughter facilities in Kansas.¹

Unit of measure	Weekly maximum		Weekly average		Weekly slaughter	
	: Hogs	: Cattle	: Hogs	: Cattle	: Hogs	: Cattle
Total, all plants						
Pounds slaughtered ²	175,213	477,756	91,145	207,205	113,981	309,410
No. head slaughtered	755	583	361	281	442	445
Average per plant						
Pounds slaughtered ²	6,742	18,374	3,506	7,969	4,384	11,900
No. head slaughtered	29	22.4	13.9	10.8	17	17.1
Weighted average weight per head	232	805	252	737	258	696
Number of plants reporting	26	26	26	26	26	26

¹Calculated from data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

²Calculated on basis of live weight.

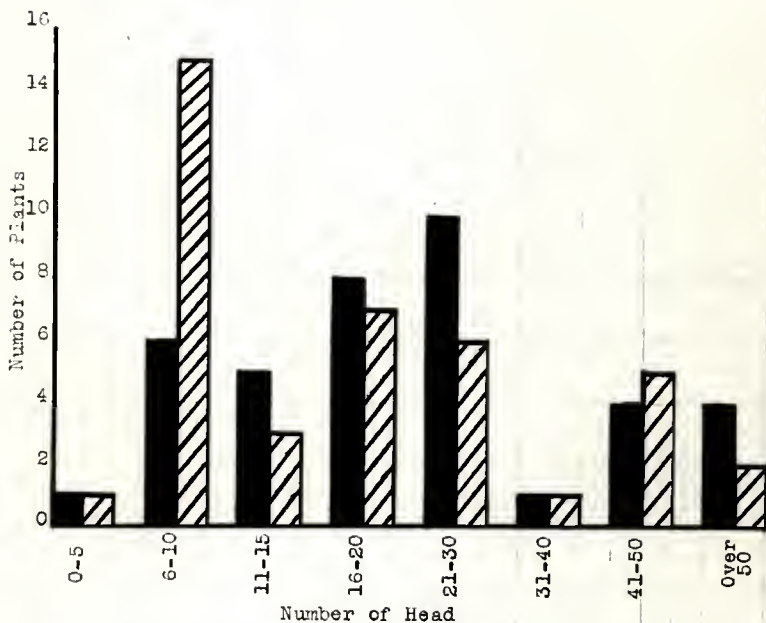


Fig. 12. Frequency distribution of 39 locker plants with slaughter facilities in Kansas, for which data are available, based on maximum weekly slaughter of hogs and cattle, 1946

■ Hogs

▨ Cattle

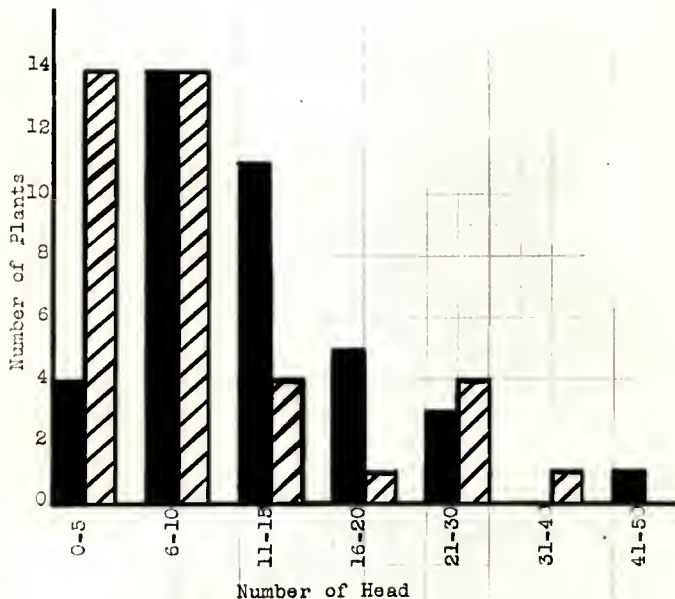


Fig. 13. Frequency distribution of 39 locker plants with slaughter facilities in Kansas, for which data are available, based on average weekly slaughter of hogs and cattle, 1946.

■ Hogs

▨ Cattle

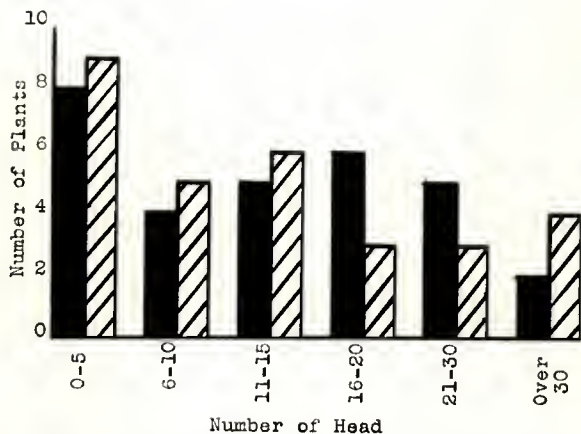


Fig. 14. Frequency distribution of 31 locker plants with slaughter facilities in Kansas, for which data are available, based on average weekly slaughter for September, 1946



Hogs



Cattle

The total slaughter and the average slaughter of plants reporting, was calculated in Table 15. Under normal conditions, the average weekly slaughter for 26 plants reporting was 361 head of hogs with a total live weight of 91,145 pounds and 281 head of cattle weighing 207,205 pounds. The average per plant was 13.9 head of hogs weighing 3,506 pounds and 10.8 head of cattle weighing 7,969 pounds. The weighted average weight per head of all hogs and cattle slaughtered by all plants reporting was 252 pounds for hogs and 737 pounds for cattle on live weight basis. It is noted that the weighted average weight for hogs was higher and the weighted average weight for cattle was lower for plants reporting average weekly volume than for plants reporting maximum capacity.

These slaughter figures included custom slaughter as well as slaughter for resale of meat products. All cattle and hogs slaughtered in the plant, regardless of their disposition, were considered as the volume handled by the plant.

On the previous assumption that the 26 plants reporting were sufficiently representative of the industry for developing trends and estimates, it would appear that the total for the 102 locker plants in Kansas with slaughter facilities would, under normal average conditions, slaughter 1,417 head of hogs weighing 357,612 pounds and 1,102 head of cattle weighing 812,838 pounds per week.

The monthly total federally inspected slaughter of cattle

and hogs in Kansas for 1944-1945 was obtained from H. L. Collins.¹² An average weekly total of federally inspected slaughter for this period in Kansas was calculated and found to be 64,723 head of hogs and 24,866 head of cattle. The ratio of the average estimated weekly slaughter for the 102 locker plants in Kansas with slaughter facilities, compared to the weekly total federally inspected slaughter in Kansas, is summarized below:

	Number of head		
	Federally inspected	102 Locker slaughter plants:	Percent
Cattle	24,866	1,102	4.43
Hogs	64,723	1,418	2.19

The above summary indicates that the estimated average weekly slaughter of the 102 plants in Kansas is 4.43 percent of cattle and 2.19 percent of hogs slaughtered under federal inspection, using the monthly figures for 1944-45 to compute an average weekly federally inspected slaughter in Kansas. The data for federally inspected slaughter included certified inspected slaughter and federally inspected slaughter.

September 1946 Slaughter. Data were gathered for slaughter during September, 1946 to study the effect of price controls upon the volume of slaughter in the industry.

¹²Correspondence with H. L. Collins, State Agricultural Statistician, United States Department of Agriculture, Topeka, Kansas, December 27, 1946.

The last column of Table 14 indicates more nearly a uniform distribution of plant frequencies, arrayed according to number of head of cattle and hogs slaughtered. Although the mode for hogs was within the slaughter volume of 16 to 20 head per week, it was not a well defined mode. The median for hogs was between 11 and 15 head per week. The mode and median for slaughter of cattle both fell in the interval of 11 to 15 head per week. An examination of Table 14 indicates that the slaughter of the plants reporting for September, 1946 was above that of average weekly slaughter.

Figure 14 graphs the frequency of plants reporting according to their average weekly volume of slaughter for cattle and hogs during September, 1946. These data are taken from Table 14, which has previously been discussed.

A summary of slaughter is tabulated in Table 15, with 442 head of hogs weighing 113,981 pounds and 445 head of cattle weighing 309,410 pounds being slaughtered weekly in September, 1946 by the 26 plants reporting. These figures are considerably higher than the slaughter under average conditions. The individual plant average was 17 head of hogs weighing a total of 4,384 pounds and 17.1 head of cattle weighing a total of 11,900 pounds.

Several observations may be made from Table 15. First, slaughter of both cattle and hogs was higher during September, 1946 than slaughter under average conditions. Second, the number of cattle slaughtered weekly during September, exceeded

the number of hogs slaughtered by the plants reporting. Third, the weighted average weight per hog of all hogs slaughtered by the 26 reporting plants was 258 pounds during September, 1946, or the highest average weight hog of the three slaughtering conditions studied. While hogs slaughtered during September were of highest average weight, cattle slaughtered during September averaged only 696 pounds which was the smallest average weight of cattle slaughtered under the three conditions studied.

On the previous assumption that the 26 plants reporting were sufficiently representative of the industry for developing trends and estimates, it would appear that the total for the 102 locker plants in Kansas with slaughter facilities under conditions during September, 1946, would have had an estimated weekly slaughter of 1,734 head of hogs and 1,746 head of cattle.

Data were obtained from H. L. Collins¹³ for the federally inspected slaughter of cattle and hogs in Kansas during September, 1946. An average weekly total of federally inspected slaughter for this period in Kansas was calculated and found to be 5,506 head of hogs and 3,557 head of cattle. The ratio of the average estimated weekly slaughter for the 102 locker plants in Kansas with slaughter facilities, compared to the weekly total federally inspected slaughter in

¹³Correspondence with H. L. Collins, State Agricultural Statistician, United States Department of Agriculture, Topeka, Kansas, December 27, 1946.

Kansas, is summarized below:

	: Number of head :		
	: Federally	: 102 locker and	: Percent
	: inspected	: slaughter plants :	
Cattle	3,557	1,746	49.09
Hogs	5,506	1,734	31.49

The above summary indicates a drastic reduction of federally inspected slaughter during September, 1946, while the slaughter of the locker plants with slaughter facilities increased over their average operating conditions. These 102 plants in Kansas slaughtered an estimated number of head of cattle equal to 49.09 percent of that slaughtered under federal inspection and slaughtered an estimated 1,734 head of hogs which was 31.49 percent of the weekly slaughter of hogs during September, 1946 under federal inspection.

This summary indicates that the small plants were not hurt by the meat shortage as was the large terminal packer; in fact, slaughter was greater during September, 1946 for the small locker and slaughter plant, than under normal average conditions.

Comparison Ratios. Table 16 contains ratio calculations of data which were presented in Table 15. Column one of Table 16 measures the average weekly slaughter as percent of the average maximum slaughter. Using the weekly totals for the 26 plants reporting, it was found that the average slaughter was 51.99 percent of the maximum slaughter of hogs

Table 16. Comparison of weekly volume of slaughter of 26 locker plants with slaughter facilities in Kansas, based on estimated maximum slaughter, average slaughter, and weekly slaughter for September, 1946.¹

Unit of measure	Percent average :		Percent Sept., :		Percent Sept., :	
	slaughter was of :		1946 slaughter :		1946 slaughter :	
	maximum slaughter :		was of maximum :		was of average :	
	Hogs :		slaughter :		slaughter :	
	Cattle :	Hogs :	Cattle :	Hogs :	Cattle :	Hogs :
Total for 26 plants reported						
Pounds slaughtered ²	51.99	43.37	65.02	64.76	125.05	149.33
No. head slaughtered	47.81	48.19	58.54	76.23	122.43	153.36
Weighted average weight per head ²	108.74	91.56	111.21	86.46	102.38	94.43
Number of plants reporting	26	26	26	26	26	26

¹Calculated from data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

²Calculated on basis of live weight.

by weight and 47.81 percent by number of head slaughtered. For cattle, the average slaughter was 43.37 percent of maximum slaughter by weight and 48.19 percent by number of head slaughtered. The average weight per head slaughtered on average weekly slaughter was 108.74 percent of maximum weekly slaughter conditions for hogs, and 91.56 percent for cattle. Differences between the percentages measured by number of head and by total weight are explained by the difference in the average weight of the animals under maximum, average, and September, 1946 slaughtering conditions.

Column two of Table 16 indicates the ratios of September, 1946 slaughter compared to maximum slaughter. These ratios are higher than those of the preceding analysis, indicating that September slaughter was larger than the average slaughter.

Column three of Table 16 indicates ratios of September, 1946 slaughter to average slaughter. In the ratios computed, it is noticed that slaughter of cattle and hogs, both by number of head and total pounds, is above 100 percent in all cases in this particular comparison. This further indicates that the slaughter for September, 1946 was larger in all respects than was the slaughter under average operating conditions.

September slaughter was 125.05 percent of average slaughter for hogs by number of head and 122.43 percent by total pounds slaughtered. Cattle slaughtered during

September, 1946 was 149.33 percent of average slaughter on basis of number of pounds slaughtered, and 158.36 percent by number of head.

The September, 1946 average weight of hogs killed was 102.38 percent of those slaughtered under average conditions, while average weight of cattle slaughtered during September was only 94.43 percent of the average weight of cattle slaughtered under average conditions. These data indicate that of the comparisons studied, the heaviest hogs were slaughtered during September, 1946, while the lightest weight cattle were slaughtered during this period.

Conclusions. The average slaughter per plant was calculated slightly higher than one would expect after studying Table 14. This was due largely to the fact that several plants were operating on a rather large scale which tended to make the averages higher than those indicated by the mode and median.

A study of Table 14 reveals that the most representative plant of those reporting had a weekly average slaughter of 11 to 15 head of hogs and five to seven head of cattle a week.

Table 16 indicates that the plants reporting, had an average slaughter of between 45 and 50 percent of maximum capacity. This is significant in that it would permit considerable expansion of the output without further expansion of existing facilities.

Another significant result of this phase of the study

was the comparison of the slaughtering volume during September under price control, with the slaughtering volume under maximum and average conditions. During September, 1946, terminal packers were forced to curtail operations for lack of livestock to slaughter, while the small slaughter plant operated in connection with a locker plant, slaughtered more than under normal conditions.

Source of Livestock Slaughtered for Resale

Data were gathered pertaining to the source of livestock purchased, which the plant slaughtered for retail or wholesale purposes. Livestock custom slaughtered was not considered in this particular phase of study. It was found that the plants obtained their livestock at four sources: direct country purchase, auction sales, stockyard or terminal market, and livestock owned by the slaughterer which was produced for slaughter in his plant.

Direct Country Purchase. This represented the source of livestock supplies in part or in whole for 32 plants. Many plants had more than one source for their livestock supplies, thus the total of the four sources of supply will exceed the 35 plants reporting on this particular question.

Reference to Table 17 indicates that 11 of the 32 plants purchased 100 percent of their supplies by direct country purchase. The remainder of the plants had an evenly

distributed proportion of their purchases from this source ranging from a few percent up to 99 percent. This even distribution prevents the mode and the median from being very representative, although the mode, as most representative class, was 11 plants listed under 100 percent and the median was 71 to 80 percent direct country purchase. In a majority of the instances, the livestock that were not purchased direct from country source, were secured at auction sales.

Auction Sales. Eighteen plants reported purchasing livestock for slaughter for resale from auction sales. The reporting plants again had a very even distribution of the proportion of livestock obtained from this source from a few percent up to 100 percent.

Table 17 indicates the frequency of plants purchasing different proportions of their supplies from auction sales. It is evident that direct country purchases and auction sales comprise the major source of supplies for the small slaughter plant.

Stockyard and Terminal Market. Six plants of those surveyed, purchased part or all of their livestock supplies from the terminal market. In all instances, these plants were located near a livestock market center such as Kansas City, St. Joseph, or Wichita.

Table 17 indicates that one plant purchased between 41 and 50 percent, one purchased 51 to 60 percent, two purchased 71 to 80 percent and two plants purchased 100 percent

of their livestock from the nearby terminal market.

These plants obtaining their supplies from this source are significant in that they are meeting the terminal packer on an even basis and seem to be competing successfully. It is a credit to the efficiency of these six small plants that they can enter the open market and obtain their supplies in competition with the more efficient large packers, and still dispose of their wholesale and retail meat at a level of competing prices.

Owned by Slaughter Operator. Ten plants reported that they owned part or all of the livestock which was slaughtered in their plant for retail and wholesale purposes. Four plants owned between one and ten percent of the total they slaughtered for resale, one plant owned 100 percent, and the remainder owned varying proportions of the livestock slaughtered in their plants for resale, as indicated in Table 17.

Livestock Purchased Outside Trade Territory. Plants were asked the proportion of livestock which was purchased outside their immediate trade territory. The results are summarized below:

	Percent purchased outside trade territory					
	0 : 1-20	21-40	41-60	61-80	81-99	100
Number of plants	37	3	1	2	2	4

Of 49 plants reporting, 37 did not purchase any of their livestock outside their immediate local trade territory.

Table 17. Frequency distribution of locker plants with slaughter facilities in Kansas by sources of livestock supplies for slaughter in plant for wholesale and retail purposes.¹

Percent	Number of plants			
	Direct	Stockyard	Owned by	
	: country : : purchase :	: Auction : : sales :	: and terminal : : market :	: slaughter : : operator :
0				
1--10	3	3		4
11--20	3	1		1
21--30	3	2		
31--40	1	2		1
41--50	4	1	1	
51--60		1	1	1
61--70	1	2		
71--80	3	2	2	1
81--90	1	1		
91--99	2	2		1
100	11	1	2	1
Total plants reporting	32	18	6	10

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

Eight plants purchased part of their supplies outside their trade territory. Four plants obtained all of their supplies from sources other than their own immediate trade territory. These four plants were represented by part of those obtaining their supplies from the terminal market.

The results of this summary verify the fact that the majority of the locker plants with slaughter facilities, purchase their livestock from farmers or nearby auction sales. Only those located near the terminal market, use it as a source for the purchase of their livestock supplies. These sources are directly related to the distance from the plant, and thus determine whether or not the livestock is purchased within or without the immediate trade territory of the plant.

Delivery of Livestock to Slaughter Plant

The party responsible for the delivery of the livestock to the slaughter plant is dependent upon the source of supplies and the policy of the individual plant.

Table 18 indicates the frequency of plants in different percentage intervals of livestock delivered to the slaughter plant by the producer or customer and by the slaughter operator. In 24 of 44 plants reporting, the customer or producer delivered 100 percent of the livestock to the slaughter plant. The other 20 plants had a varying number delivered to the plant by the producer. The percent of livestock delivered to the plant by the slaughter operator was practically complementary to the

Table 18. Frequency distribution of locker plants with slaughter facilities in Kansas showing percentage of livestock delivered by customer and by slaughter operator.¹

Percent delivered	Number of plants	
	Producer or customer	Slaughter operator
0	4	24
1--10	2	3
11--20	1	4
21--30	1	1
31--40		2
41--50	2	2
51--60	2	
61--70	1	
71--80	1	2
81--90	4	1
91--99	2	1
100	24	4
Total plants reporting	44	44

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

delivery of the producer. Without discrepancies in reports of a few plants, the deliveries of the two parties would be in an inverse mathematical ratio.

Twenty-four plant operators do not deliver any of the livestock, which is complementary to the 24 plants where the producer delivers 100 percent. Four plants deliver 100 percent by the operator himself, and the remaining 16 have varying amounts delivered by the slaughter operator. In several instances, plants reported that they would pick up the livestock and deliver it to their slaughter plant, but the farmer or the patron was charged a delivery fee for each head of livestock hauled.

Source of Slaughter of Meat in Locker Box

The meat which the patron has in his locker box, may have been slaughtered under three different circumstances. The livestock may have been slaughtered on the farm, custom slaughtered by the plant, or slaughtered by the plant and sold to the patron in wholesale or retail quantities. A negligible amount may have been purchased from outside sources and put in the locker box, but this is so small that it does not enter into this consideration.

Table 19 indicates the frequency distribution of plants for each possible source in percentage intervals. The importance of custom slaughter is immediately observed by the fact

Table 19. Frequency distribution of locker plants with slaughter facilities in Kansas, by various sources of supply of total beef and pork contents of locker boxes.¹

Percent slaughtered	Number of plants		
	Custom slaughter	Farm slaughter	Slaughtered by plant and sold to patron
0	1	2	25
1--10	2	29	19
11--20		4	3
21--30	1	5	1
31--40	2	2	
41--50	2	2	
51--60	4	1	
61--70	4	1	
71--80	9		1
81--90	11		
91--99	11	2	
100	2	1	
Total plants reporting	49	49	49

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

that 22 of 49 reporting plants custom slaughter between 81 and 99 percent of the total meat contents of the locker boxes in their plant. One plant did not do custom slaughter, its facilities being used only to slaughter for retail and wholesale purposes. This plant is an exception and falls within the limits of this study in that it does operate both a locker plant and a slaughter plant. The large proportion of plants falling in the higher percentages of custom slaughter indicates the favor with which patrons look upon custom slaughter. The charge for slaughter is small and a much better job of slaughtering and dressing of the carcass usually is done by the experienced man employed in the slaughter plant.

Table 19 indicates a small proportion of farm slaughter; of 49 plants reporting, 31 report ten percent or less of the total meat in their locker boxes is slaughtered on the farm by the patron. The remaining 18 plants report a varying amount of slaughter done on the farm.

Column three of Table 19 shows the relative unimportance of the proportion of the meat which the locker patron purchases in carcass from the slaughter operator. Twenty-five plants did not wholesale or retail any meat to their patrons for storage in locker box and 19 sold less than ten percent.

This would seem to indicate that the slaughtering operations of the plant are directed largely towards custom slaughter. It must be emphasized that the above analysis pertained only to the meat contained in locker boxes. Some meat

was sold over the retail meat counter in the plant, and is considered in a later analysis.

Slaughtering Charges

Hogs. A wide variation of slaughtering charges was indicated by the different plants reporting. Table 20 indicates the number of plants, arrayed according to the size of the slaughtering fee and the various methods of charging for slaughtering.

Charges for slaughtering of hogs were by the head, by the pound live weight, and by the pound dressed weight. Eight of 42 plants reporting, charged by the pound on a live weight basis. Six of these plants charged one cent a pound and two plants charged one and one-half cents a pound live weight. One of the plants charging one and one-half cents a pound, included services of cutting, wrapping, and sharp freezing. The weighted average charge for the plants in this group was one and one-eighth cents per pound on live weight basis.

Only two plants charged on dressed weight basis; one charged two cents per pound and one charged two and one-half cents per pound. The weighted average charge per plant for this group was two and one-quarter cents per pound on dressed weight basis.

Table 20 indicates that 32 of 42 plants reporting, based their slaughtering charge for hogs on the per-head basis.

Table 20. Frequency distribution of locker plants with slaughter facilities in Kansas, according to charge for slaughtering and the average slaughter charge per plant reporting.¹

Slaughter charge	Number of		Weighted average	
	plants making		charge per plant	
	Hogs	Cattle	Hogs	Cattle
Per pound, live weight			\$0.0112	\$0.0100
1 cent	6	2		
1½ cents	2			
3 cents				
Per pound, dressed weight			0.0225	0.0150
1 cent		1		
2 cents	1	1		
2½ cents	1			
Per head			2.33	3.08
\$1.50	4	1		
2.00	14	3		
2.50	10	5		
3.00	1	8		
3.50	1	4		
4.00	1	3		
5.00	1	2		
Slaughter for hide		12		
Number of plants	42	42		

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

The mode for the plants in this class was a charge of \$2.00 per head. The median also was \$2.00 per head. A wide range exists between the charges reported for the various plants. Of the plants tabulated in Table 20, one plant's figures need further explanation. The one plant charging \$4.00 per head for slaughtering a hog, included with that charge the cut, wrap, and sharp freeze services. The plant charging \$5.00 per head for slaughtering, charged an additional two and one-half cents a pound for cutting, wrapping, and freezing. The weighted average charge per plant for this group was \$2.33 per head.

Cattle. Table 20 indicates that in addition to the three previous categories of charges for hogs, cattle also were slaughtered for the hide in some cases. Two plants charged one cent a pound, live weight, for the slaughter of cattle. Of the two plants charging on a dressed weight basis, one charged one cent a pound and one charged two cents a pound for an average of one and one-half cents per pound on dressed weight basis.

Twenty-six plants charged by the head for the slaughtering of cattle. The mode and median for the plants reporting, both fell within the charge of \$3.00 per head. The range of charges varied from one and one-half dollars per head up to five dollars per head, with a weighted average of \$3.08 per plant for 26 plants.

Twelve plants kept the hide as the slaughtering fee for

cattle. Several plants reported they formerly had slaughtered for the hide, but were forced to a unit charge because of the present high market price of hides. At present hide prices, the hide from an average beef should return five dollars or more, which was the highest charge on the basis of slaughter by the head.

Summary. There are several different approaches by which the slaughtering charge may be computed. Although there is a considerable variation as indicated in Table 20, the mode and median for each group are representative and the weighted average charge per plant as indicated in Table 20, is approximately the same as the mode and median.

Processing Charges

Chill, Cut and Wrap, Quick Freeze. Table 21 indicates a complete lack of uniformity of charges for these services, both on the basis of the charge and the amount. The charges for each individual service are of some value to get a picture of the wide variety of charges, but due to the overlapping of different combinations of two or more of these services, the mode and median of each class do not indicate significant results. If this method were to be used, the representative charge would be one cent a pound for chill, two cents a pound for cut and wrap, and one cent a pound for quick freeze, or a total of four cents a pound as shown by Table 21.

Table 21. Frequency number of locker plants with slaughter facilities in Kansas based on processing charges for individual services and for total services combined.¹

Charge	Number of plants			
	: Chill	: Cut and : wrap	: Quick : freeze	: All services : combined
Per pound (dressed weight)				
$\frac{1}{2}$ cent	4		5	
1 cent	5	2	5	1
1 $\frac{1}{2}$ cents		3	1	5
2 cents	1	5		18
2 $\frac{1}{2}$ cents		1		6
3 cents				2
Included in slaughter charge	6	2	2	
Per head (hog)				
\$.50	2			
.75	1			
1.00	1			
Per head (cattle)				
\$ 1.00	3			
1.50	1			
2.00	1			
Plants reporting	25	13	13	32

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

Six plants included the charge for chilling in their slaughter charge and two plants included charges for cut, wrap, and quick freeze in their fee for slaughtering. Charges for chilling indicated considerable variation in rate and basis of charge. This was partially explained by the fact that some plants allowed wholesalers and other meat operators to use the facilities of their chill room, for which they were charged by the pound or by the carcass. Many of these same plants did not charge their patrons separately for chilling the animal carcass.

A more accurate description of all service charges may be obtained from column four of Table 21. Many plants reported only one total figure for the complete service. These plants, plus those reporting individual charges in such a manner that they could be totaled, represented 32 reporting plants. The modal group of 18 plants had a total charge of two cents a pound for chill, cut, wrap, and quick freeze. One plant was performing this service for as low as one cent a pound and five plants for one and one-half cents a pound. Six plants were charging a total of two and one-half cents a pound and two plants were charging a total of three cents a pound.

Lard. Thirty-one plants reported charges for rendering lard, as indicated in Table 22. The charges ranged from one to four cents a pound with the mode and median both at three cents a pound. One plant charged one cent a pound, one

Table 22. Frequency number of locker plants with slaughter facilities in Kansas, based on rate of charge for processing meat and meat products.¹

Charge per pound	Number of plants			
	: Lard	: Hamburger	: Sausage	: Smoke and cure
Cents				
1	1	13	9	
1½	1	6	6	
2	10	11	9	1
2½		1	1	
3	12	1	1	3
3½				1
4	2		1	12
4½				
5				8
5½				
6				1
Included with cut, wrap, and sharp freeze	5	9	8	1
Plants reporting	31	41	35	27

¹Data obtained from survey of locker plants with slaughter facilities in Kansas, 1946.

charged one and one-half cents a pound, and ten plants charged two cents a pound, twelve charged three cents a pound, and two plants charged four cents a pound. These charges did not include the container for the lard. Five plants included the rendering of lard under previous charges for cutting and wrapping.

The charges of several plants were not included in Table 22. One plant operated on a commission basis, keeping ten percent of all lard for its rendering. Another plant charged 20 cents a gallon, while another plant made a flat charge of 75 cents per hog to render the lard.

Hamburger. Table 22 indicates 41 plants ground hamburger in their plant. Thirteen plants charged one cent a pound, constituting the modal group while 11 plants charged two cents a pound, constituting the median. One plant charged two and one-half cents a pound and another plant charged three cents a pound to grind meat. Nine plants included the cost of grinding hamburger under previous costs of processing the meat and putting it in the locker.

Sausage. Thirty-five plants made sausage in their plant, nine of them charged one cent a pound, six charged one and one-half cents a pound and nine charged two cents a pound. Only three of the 35 plants charged more than two cents a pound. Eight plants included the cost of making sausage in previous charges of processing. Twenty-four of 27 plants making a charge for sausage, charged between one and two cents a

pound, with as many plants charging one cent as there were plants charging two cents a pound.

Smoked and Cured Meats. Twenty-seven plants reported their charge for smoking and curing meat combined in one figure. Table 22 indicates the range from two to six cents a pound. Twelve of 27 plants charged four cents a pound, constituting the modal group. Eight plants charged five cents a pound. Plants charging four and five cents a pound for curing and smoking, constituted 20 of 27 plants reporting.

Two plants, not included in Table 22, did not charge by the pound. One plant charged a flat rate of one dollar per hog and the other plant charged ten cents a piece of meat cured or smoked.

Disposition of Meat Slaughtered by Plant

Data were gathered on the disposition of meat resulting from the slaughter of animals in the locker plants with slaughter facilities. The three possible dispositions of meat slaughtered in the plant are: custom slaughter where ownership of the meat is retained by the customer, meat sold retail, and meat sold wholesale. The plant operator takes possession of the meat products in the latter two instances and is responsible for placing it in channels of distribution.

Hogs. Reference to Table 23 indicates the frequency of plants, by percentage intervals, for slaughter of hogs in the

plant for custom slaughter, meat sold wholesale, and meat sold retail. These three possibilities represented the disposition of the entire slaughter of the plant.

Of 42 plants reporting, 13 plants reported custom slaughter represented the entire slaughter of their plant, or 100 percent. This constituted the modal group. The median group was 71 to 80 percent custom slaughter. These data indicate that many of the plants do not have a retail meat counter and are not engaged in supplying wholesale trade channels. Two plants reported no custom slaughter; their slaughter consisting only of meat which was for retail or wholesale purposes.

Twenty-one of 42 plants reporting did not slaughter any hogs for wholesale distribution. Fifteen plants reported one to ten percent of their total plant slaughter of hogs was for wholesale purposes. One plant reported 61 to 70 percent of its total plant slaughter for wholesale trade. This was the highest percentage slaughter for wholesale distribution of any plant reporting. Only six plants reported more than ten percent of the total slaughter was for wholesale distribution. These data indicate that slaughter of hogs for wholesale distribution is not important on the basis of number of plants. However, the six plants whose slaughter for wholesale represented more than ten percent of their total slaughter, were plants operating on a larger scale than the average plant, thus the quantity of meat distributed by a few plants through wholesale channels could be considerable.

Table 23. Frequency distribution of locker plants with slaughter facilities in Kansas, based on percentage disposition of meat products from total slaughter of hogs in the plant.¹

Percent	Number of plants		
	: Custom : slaughter	: Meat sold : : wholesale :	: Meat sold : retail
0	2	21	19
1 - 10	1	15	5
11 - 20		2	6
21 - 30	5		1
31 - 40	3	1	2
41 - 50	3		4
51 - 60	2	2	1
61 - 70	1	1	1
71 - 80	5		1
81 - 90	3		
91 - 99	4		
100	13		
Plants reporting	42	42	42

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

Table 24. Frequency distribution of locker plants with slaughter facilities in Kansas, based on percentage disposition of meat products from total slaughter of cattle in the plant.¹

Percent	Number of plants		
	: Custom : slaughter	: Meat sold : : wholesale :	: Meat sold : retail
0	3	21	18
1 - 10	1	14	7
11 - 20	2	4	5
21 - 30	4		
31 - 40	3	2	4
41 - 50	5		5
51 - 60			
61 - 70	1	2	1
71 - 80	5		1
81 - 90	3	1	
91 - 99	4		
100	13		3
Plants reporting	44	44	44

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

Of 42 plants reporting, 19 did not slaughter any hogs for retail distribution. Six plants reported 11 to 20 percent of the entire slaughter of hogs entered retail channels. It is noted that 23 of 42 plants reporting did some slaughter for retail, while 21 plants of 42 reporting slaughtered for wholesale distribution. These data indicate only a slightly higher number of plants engaged in retail distribution of pork than in wholesale distribution.

Of the plants personally visited, it was found that those slaughtering hogs for wholesale distribution were largely selling carcasses to locker patrons and supplying local concerns in the community and were not shipping carcasses outside of the immediate trade territory.

Cattle. Reference to Table 24 indicates the frequency of plants by percentage intervals for custom slaughter, beef sold retail, and beef sold wholesale. Thirteen of 44 plants reporting indicated that custom slaughter constituted 100 percent of the plant slaughter. This was the modal group, being the same as for slaughter of hogs. The median group reported 71 to 80 percent of total plant slaughter was custom slaughter; this also is the same median as for slaughter of hogs. Three plants did not custom slaughter. Twenty-eight of 44 plants reporting were relatively evenly distributed between a percentage of custom slaughter greater than zero and less than 100 percent.

Twenty-one of 44 plants reported no slaughter for wholesale purposes. Fourteen plants slaughtered one to ten percent

of cattle for wholesale distribution. One plant slaughtered as high as 81 to 90 percent of its total slaughter for wholesale trade. Only five plants slaughtered more than 20 percent for wholesale distribution, and it was noted that these plants were those operating on a larger scale.

Eighteen of 44 plants reporting did not slaughter for retail. Seven plants slaughtered one to ten percent of their total slaughter for retail distribution. Three plants reported 100 percent of total slaughter of cattle was for retail trade.

Summary. These data from plants surveyed indicate that the large proportion of the animals slaughtered in the plant were custom slaughtered for patrons. Wholesale slaughter was small for both cattle and hogs and was an important factor only in the larger slaughtering plants. Retail slaughter was closely associated with facilities and location of the plant. Those plants operating a retail meat counter in conjunction with their plant, did a proportion of their slaughter for retail channels.

Disposition of Inedible Slaughter By-products

General. Data obtained on the disposition of inedible by-products of the small slaughter house were regarded as one of the most important phases of this study. It was significant that a vast majority of the plants do not have an outlet for

by-products, other than to throw them away or to feed them to hogs.

The 50 plants surveyed gave only a meager description of the disposal of inedible by-products and the returns realized. An attempt was made to study the disposition of different types of by-products.

Flood, Offal, and Viscera. Of the 50 plants surveyed, 42 gave an indication of the disposition of their inedible by-products. Several of these overlapped into two or more categories, thus the total of the different methods of disposition exceed the total number of 42 plants reporting. A summary of the disposition of inedible by-products is listed below:

Disposition	No. of plants
Fed to hogs (no cash returns)	24
Pick-up service (no cash returns)	8
Throw away as waste (no cash returns)	4
Sell to rendering plant	6
Sell to farmers (small monthly return)	3
Render tankage in plant for resale	4
Render inedible grease in plant for resale	2

The large proportion of the plants which throw away or give away inedible by-products is indicated in the above illustration. Of 51 dispositions reported by 42 plants, 36 received no returns. Many plants gave away by-products to avoid costs in disposing of them. In other cases, the slaughter operator was not only unable to obtain any return

from the offal, but costs were incurred in hauling it away from the plant.

Most plants reported insufficient volume as the factor prohibiting the installation of a cooker to make green tankage and render off inedible grease. Of the five plants which render tankage and inedible grease, only three had a volume of average weekly kill which exceeded the mode for the entire group of 50 surveyed plants, whereas two plants fell below the modal group. Another plant which has a volume of weekly kill of ten hogs and four head of cattle is installing a cooker to render off inedible grease.

This would appear to discount the assumption that a large volume was necessary before additional processing could be profitably given inedible by-products by a small slaughter plant. Three plants visited had a very small investment in a cooker, and were rendering out waste fats. Returns from sales of inedible grease and pressed cracklings were reported.

The prices received for offal and viscera varied from 50 cents to \$1.50 per carcass for a beef and 30 to 50 cents per carcass for a hog. Other plants reported selling the inedible products to farmers for a small amount, averaging about \$5.00 per month.

One plant visited has had unusual success with the rendering equipment in its plant. This particular plant has two large cookers in which all fat is cooked off the offal and viscera and the soap grease, crackling, and green tankage rendered in the plant are sold for an average of \$8.00 per

carcass for cattle and \$1.50 per carcass for hogs. This represents a large potential profit which the large majority of plants are not receiving. This particular plant reported that processing of the inedible by-products more than represented profits, as slaughtering was done at cost to meet competition of nearby terminal packers and locker plant income did not meet expenses.

Bones. Five plants reported that although the animal offal was not sold, the bones were sold to a rendering company. Two plants received one cent per pound, one received one and one-half cents, and two received two cents per pound for bones sold. Another plant reported selling bones to dog owners for a few cents a piece and realizing a considerable return.

Hair. None of the reporting plants made any use of the hair scraped from hogs. In all cases where the hog was not skinned, the hair was a total waste and had to be hauled away and dumped. Six plants reported that hogs were skinned instead of scraped. The hide was sold to the rendering company at a price between 50 cents and \$1.00 each.

Gut Fats. This subject was discussed in the consideration of the disposition of offal. In addition, two plants reported the gut fat was stripped and sold to the rendering company. One reported a return of \$10.00 weekly and one reported a return of \$15.00 a month. This again emphasizes the amount of potential value which is present in the offal of the animal,

much of which can be salvaged for resale with a nominal amount of time, labor, and equipment.

Cattle Hides. Schedules of 43 plants reporting disposition of cattle hides indicated that 28 plants sold the hide and credited the patron, one plant purchased the hides from the customer, two plants returned the hides to the patron and 12 plants kept the hide for the slaughtering fee. Other plants indicated that formerly hides had been kept as a slaughter fee, but at present market prices for hides, this charge was out of proportion.

An extremely wide range in prices paid for cattle hides existed in 26 plants reporting. Some variation may be due to price changes in the hide market during the interval of time in which some of the plants reported. However, the data from all the plants reporting were obtained in a period of two months. Price changes probably did not entirely explain the wide variation of prices which different plants paid their patrons for cattle hides. The number of plants paying varying prices to patrons for cattle hides are tabulated below:

Prices received for cattle hides :	Number of plants
Market price	10
Cents per pound	
10	1
12	2
13	1
14	3
15	1
16	
17	1

Prices received for cattle hides :	Number of plants
Cents per pound (continued)	
18	1
19	
20	1
21	2
Dollars per head, average	
\$6.00	2
8.00	1
Plants reporting	26

Summary. Data obtained indicate that the utilization of inedible animal products is far from efficient in the industry. Too many plants apparently assumed their volume as insufficient to justify adequate consideration of the matter. Several small plants have shown that inedible animal products can be utilized efficiently without a large amount of expensive equipment.

Inedible grease can be rendered with very little equipment and is in good demand at attractive prices. Another plant has taken the initiative in attempting to interest several small plants which are located in the same general locality to work out a cooperative plan whereby the animal offal can be picked up from several plants by a single truck and hauled to a rendering works, or to establish a small rendering works of their own and operate it on a cooperative basis. This plan may have possibilities for a group of small slaughtering plants located in close proximity.

The problem of utilizing inedible products is a challenge to the industry. In most cases, operators are aware of the

inefficiency; a few plants regard inedible products as animal waste. Several plants have reported patrons were becoming dissatisfied with increased charges for slaughter and processing meat. If the slaughter plants were able to make more efficient use of inedible by-products, it would be possible to reduce charges to the patron and increase the returns of the plant.

Suggested Improvements in Utilization of Inedible By-products

Plants were asked for suggestions as to how to improve the utilization of the inedible by-products which are now wasted by a majority of the plants. Of 28 plants reporting, 16 had no suggestions for improvement. Eight suggested further processing if volume permitted, two plants favored pick-up service by a rendering plant, one plant was negotiating with a rendering plant concerning sale of bones and offal, and one plant suggested a cooperative organization of several small plants by which the inedible by-products from the plants would be pooled. In the latter case, the increased volume might permit either pick-up service by a rendering company, or the installation of cooperatively-owned rendering equipment for the plants interested.

In general, there is a lack of interest by the plants in the problem of utilizing inedible by-products. This problem deserves considerable study by the individual plants concerned.

Contemplated Changes

Data on contemplated physical changes in the plant facilities were obtained. Twenty-seven of 41 plants reporting did not contemplate making any change in plant facilities or increase the utilization of inedible by-products. Eleven plants were expecting to install a cooker to render off waste grease. Some were installing a tankage cooker to render green tankage. Three plants were planning to build a new and modern plant as soon as materials were available.

The fact that 14 out of 41 plants reporting are contemplating major alterations in their building or processing equipment is indicative that these particular plants have become aware of the importance of more complete utilization of the offal and other inedible by-products from the individual plant.

Insurance

Thirteen of 46 plants reporting indicated insurance coverage on the animal from the time it was delivered for slaughter by the customer until the meat was returned to the patrons. Thirty-eight of 48 plants reporting carried insurance on the contents of the patron's locker box. Twenty of 44 plants reporting carried some type of accident insurance on their

employees.

Problems Confronting Individual Plants

An assorted variety of problems was reported by various locker plants with slaughter facilities. Table 25 shows the various problems and the number of plants reporting each particular problem.

In studying these problems, it appears that some plants are operating on a narrow margin. Others are experiencing difficulty in obtaining supplies and competent labor. Insufficient plant facilities to handle the volume of business demanded, and lack of education of the patrons provide additional problems for the operator.

Several problems were listed which indicated that patrons still have much to learn. Customers or patrons have been encouraged to learn the correct methods and procedures of preparation of products for the locker box. It appears that patron-education along several lines would be helpful to the industry.

One plant visited did not have a sharp freeze unit. The patrons were putting fresh meat in their locker boxes without its being pre-frozen. This instance was an exception and the operator admitted the patrons were not satisfied with the flavor and quality of the products stored in the box.

Because of the wide diversification of personalities and educational levels of the great bulk of individuals comprising

Table 25. Problems confronting various locker plants with slaughter facilities in Kansas.¹

Problem	: Number : of plants : reporting
Shortage of help, equipment and supplies	7
Processing charges are insufficient	6
Customers overcrowd locker boxes	5
Plants need to expand to handle volume of business	3
Customers not educated on subject of slaughter and meat products	3
Rising prices of paper supplies	2
Patrons lose keys	2
Patron thinks meat disappears from locker box	2
Competition, danger of too many locker plants in territory	2
Plant needs insurance on contents of locker box	1
Plant needs higher locker box rent	1
Plant needs city water and sewage	1
Labor supply inadequate and high in cost	1
High power rates	1
Uneven flow of livestock to slaughter, crowds chill room facilities	1
Customers put unfrozen meat in locker box	1
Customers leave lights on and doors open	1
Work is too hard compared to returns of the business	1

¹Data obtained from a survey of locker plants with slaughter facilities in Kansas, 1946.

this industry, it can expect to have its share of problems, none of which seems to be so serious that they cannot be solved.

CONCLUSIONS

The frozen food locker industry in Kansas has expanded rapidly in the past decade. Locker plants operating in conjunction with a small slaughter plant, have experienced a rapid growth in the last five years. The trend of new construction in Kansas is toward a locker plant with its own slaughter facilities, enabling it to offer complete services to the patrons.

The locker-slaughter plant industry is a thriving industry in Kansas, offering a substantial number of people employment, representing a rather large investment in small communities, and offering many savings, economies, and a variety of services to the people of Kansas.

Many successful plants are operated by personnel who have not had previous experience in the business. While experience apparently is not essential, it is undoubtedly of great help. The volume of slaughter varied widely among plants; most of them found the limiting factor in their rate of slaughter was the size of their cooling facilities.

Custom slaughter is increasing and farm slaughter is decreasing in Kansas. Patrons appreciate the convenience and

economies of having qualified plant personnel with adequate equipment to slaughter the animal and prepare the meat for the locker box.

Slaughtering and processing charges varied widely in amount. The basis of the charge also varies greatly between plants. Some plants have charges that are high, especially those receiving the hide in return for slaughtering cattle. There is a decided lack of standardization of charges throughout the industry.

The disposition of inedible by-products is one of the major problems facing the small slaughter plant. Many plants have assumed their volume of slaughter to be insufficient to justify an investment in rendering equipment. Other plants have disproved this assumption through the installation of inexpensive and simple equipment. Several plants have cookers to render off waste-fat; partial rendering of offal is done by others, reducing the bulk and giving it some degree of value. It is then sold for hog feed or to a rendering plant for further processing. At the present time inedible grease is in great demand by soap manufacturers.

Undoubtedly one of the foremost reasons for the success of the locker plant industry in Kansas is the wide variety of services rendered to the people of a community. It has established itself as one of the most important single types of business in the small communities of Kansas.

ACKNOWLEDGMENT

Acknowledgment is made to Prof. C. P. Wilson, major instructor, for his valuable assistance in all phases of the preparation of this thesis; to Prof. Merton L. Otto for his cooperation in supplying information obtained in a previous survey; to Dr. G. A. Filing, Department of Horticulture, Kansas State College, for supplying names and location of locker plants in Kansas; to Mr. H. L. Collins, State Agricultural Statistician, United States Department of Agriculture, Topeka, for furnishing slaughter data in Kansas; to Dr. J. A. Hodges for his suggestions in statistical analysis; to Dr. W. E. Grimes and to Dr. Harold Howe for their constructive criticisms and suggestions concerning the final preparation of this thesis.

BIBLIOGRAPHY

- Ashby, R. C.
Small Livestock Slaughter Plants in Illinois. Univ. Ill.
Agr. Expt. Sta. Prelim. Rpt., September, 1945.
- Eggert, R. J.
"How Cold Storage Lockers May Affect Livestock Meat
Distribution." (Reprint) Ice and Refrigeration, August,
1938.
- Kansas Session Laws of 1945, Chapter 254. The Kansas Meat
and Poultry Inspection Law and Regulation, 1945.
- Meat Animals, Farm Production and Income. Bur. Agr. Econ.,
U. S. Dept. Agr. 1930-45.
- Minimum Essential Needs of Small Slaughter Houses. Oregon
Agr. Expt. Sta. Bul. No. 77, April, 1938.
- Otto, M. L. and E. B. Phelps
The Locker Plant Industry in Kansas. (Mimeo. Rpt.) Kans.
Agr. Expt. Sta., June, 1946.