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Characteristics of Missouri Livestock Auction Markets

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COLUMBIA, MISSOURI

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This bulletin reports on Missouri Agricultural Experiment Station research project 289, "Livestock Markets."

Characteristics of Missouri Livestock Auction Markets

DURWARD BREWER

Auctions are gaining importance as a market outlet for livestock. In 1940, 105 livestock auction markets operated in Missouri.[1] At the time this study was undertaken (1957) there were 107. The number of auction markets had fluctuated a plus or minus 10 since 1940, but has remained relatively stable since. Perhaps one major reason for this stability and the growing importance of these markets has been the increased attention auction management has given toward developing a more adequate and serviceable market unit.

The average livestock auction has a relatively small marketing operation; however, in 1955, there were 30 million head of cattle and calves sold through auction markets in the United States.[2] This is about one-third more sales of cattle and calves than the 64 terminal public markets reported for the same period. Auction markets also marketed 15 million head of hogs and nearly 6 million head of sheep and lambs during this same period.

Estimated sales through Missouri auctions in 1958 were more than 1,240,000 head of cattle and calves, more than 1,216,000 head of hogs, and about 198,000 head of sheep and lambs.[3]

OBJECTIVES

The basic information for this bulletin was obtained by individual interviews of management from a sample of 54 auctions operating in the state in 1958.

Prior to drawing a representative statistical sample, it was felt necessary to define counties within the state which had similar characteristics in livestock production and marketing and to segregate these counties into as near as possible homogeneous groups.

Objectives of the study were: (1) To examine the position held by the livestock auction market in the marketing channel, and to provide information needed for future economic analysis. (2) To describe and set forth particular characteristics of auction markets as related to facilities, ownership, and other pertinent methods of operation. (3) Location, volume, size, trade area, and classes of animals handled. (4) Services performed and marketing charges.

The 54 auctions from which information was obtained were divided into three classes or groups for purposes of comparison. Group I consisted of those auctions having an annual volume of livestock handled in excess of 40,000 head;

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[1]Herman Haag, *Community Livestock Auctions in Missouri.* (Unpublished manuscript, Department of Agricultural Economics, University of Missouri, 1941).

[2]U. S. Department of Agriculture. Agricultural Marketing Service, Marketing Research Division, *Livestock Auction Markets in the U.S.; Development, Volume Handled, and Marketing Changes.* Marketing Research Report No. 223. (Washington: Government Printing Office, 1958), p. 13.

[3]Durward Brewer, *Country Livestock Dealers and Local Markets in Missouri.* University of Missouri, Agricultural Experiment Station, Bulletin No. 722. (Columbia: Agricultural Experiment Station, 1960).

Group II, auctions having a volume in excess of 16,000 but less than 40,000 head; and Group III, auctions handling an annual volume of less than 16,000 head.

The average annual numbers of animals handled by Group I, II, and III auctions were 61,306 head, 26,412 head, and 8,491 head, respectively. The total number of animals received at Missouri auction markets in 1957 was approximately 2,655,000 head. Table 1 illustrates the estimated volume of various classes of livestock received at Missouri auction markets in 1957.

TABLE 1-ESTIMATED NUMBER OF ALL LIVESTOCK RECEIVED AT MISSOURI LIVESTOCK AUCTION MARKETS FROM VARIOUS SOURCES, 1956*

Class	Totals	No. of Livestock Consigned by Farmer	Number of Livestock Consigned by Auction Organization	Number of Livestock Consigned by Other
Total Cattle and Calves	1,241,291			
Feeder	813,210	577,403	61,211	174,596
Slaughter	313,933	259,389	18,998	35,546
Other	114,148	94,909	3,800	15,439
Total Hogs and Pigs	1,216,757			
Feeder	862,627	681,701	26,785	154,141
Slaughter	313,227	278,980	20,735	13,512
Other	40,903	35,101	726	5,076
Total Sheep and Lambs	197,957			
Feeder	98,465	80,973	998	16,494
Slaughter	87,076	74,350	296	12,432
Other	12,416	10,698	369	1,349

*Estimates for total livestock were made by multiplying the actual data collected from the sample markets for each of the various species and classes, by the percentage of markets not included in the sample were of the sample number, and adding this total to the sample total.

SOME CHARACTERISTICS OF MISSOURI'S LIVESTOCK AUCTION MARKETS

Location

Livestock auctions are well distributed over the state. They are found in 74 counties. Fifty-six percent of the auction markets are south of the Missouri River, and are relatively more concentrated in the southwest quarter. Markets north of the Missouri River are more heavily concentrated in the northeast quarter of the state. Terminal public market location probably influences the establishment and location of auction markets. Figure 1 shows the approximate location of livestock auction markets in 1958.

Ownership

A large proportion of Missouri auction markets are privately owned. In classifying auctions by ownership, 45 percent were single proprietorships, 37

Figure 1. County Location of Missouri Livestock Auction Markets, 1958

percent partnerships, and 18 percent corporations. Single proprietorships are more frequently found in the smaller volume auctions, accounting for 53 percent of that group. Of the auctions in Group II classification, partnerships, and single proprietorships were of equal importance. Corporate ownership appeared to become more prevalent in Group I or large volume auction markets. Slightly more than 50 percent of this group was corporate owned.

Facilities and Length of Time Operated

Average length of time that various auctions had been operating was 24.4 years. The age of the auctions varied considerably from 4 to 50 years. The study revealed that facilities used at auction markets were owned by 84 percent of the organizations. This included land, buildings, scales, and all other equipment necessary in the functioning of the business.

Operation Under Present Management

The study indicated that most livestock auction management personnel had been in the business of buying and selling livestock for several years. Present management of the auction markets ranged from less than 1 year to 28 years. Of the auction managers interviewed, one-third had operated their present auction market for 10 or more years. Group I markets (the larger ones) had re-

mained under present management longer than markets classified in Groups II or III. The average number of years for each group of auction markets operating under present management was 9 years for Group I, 8.9 years for Group II, and 7 years for Group III.

Factors related to the difference in relative length of time that livestock auctions had remained under their present management appeared to be associated with the kind, class, or grade of livestock being produced in the trade area, the volume of production, the growth and development of various types of other markets and marketing agencies in the area, and the quality of livestock auction market management. Limited information obtained did not permit a detailed analysis of these factors to rank them in order of their relative importance.

Number of Sales Per Week

More than 96 percent of all auctions operating in the state in 1957 held only one sale per week. However, a few, primarily large volume markets, held as many as three sales per week. Several others held special feeder or breeding livestock sales once or twice a year. Data from these special sales were not included in this analysis.

Day of Week: The most frequent sale day was Saturday. Twenty-five percent held their auction sales on this day. Wednesday was the second most popular day, being used by 21 percent. There appeared to be some tendency for large-volume auctions to hold sales the latter part of the week. From comments received during the course of the study from auction management, farmers, and other patrons of auction markets, two factors apparently influenced this latter part of the week sale concentration: (1) custom, habit or tradition, a sociological factor; (2) terminal public market receipts are concentrated at the beginning of the week, therefore allowing a larger potential group of buyers to appear at interior markets during the latter part of the week.

Starting Time: The starting times of the auctions included in the sample were checked and compared to the average volume of livestock handled. Seventy percent of the auction markets commenced selling in the afternoon, and 76 percent of these began selling between twelve and one o'clock. However, no significant relationship was found between volume of sale and the time sale was commenced.

Time Run of Sale: The average sale ran approximately 4.6 hours. Time varied 0.8 of an hour between the large auctions (Group I) and the smaller auctions (Group III). The average number of head sold per sale ranged from 1,226 head for Group I markets down to 170 head per sale for Group III markets. Perhaps this indicates more efficient use made of time and facilities in the large auctions. The approximate total annual sales time was computed by multiplying the average sale time per auction times 50 weeks per year. By taking the total annual volume of receipts and dividing through by total annual sales time, an average number of head sales per hour was computed for each of the three auc-

tion groups. The number of head of livestock sold per hour varied from an average of 42 head in Group III auctions to 252 head in Group I auctions. Only limited data were available and this discrepancy cannot be explained sufficiently. Part of the difference may have been due to facilities, arrangements, smaller lots of livestock, variety of classes, and the lack of adequate sorting.

Total annual labor hours used by auctions of various sizes were compared to total volume of livestock received at auctions. These ratios were: Group I (large) auctions—one hour of labor yielded an average of 7.3 head handled (1:7.3); Group II auctions 1:5.6 head; and Group III, 1:3.2 head.

This difference in volume handled per man hour cannot be attributed to any single factor. Organization of physical facilities plays a large role in determining the volume handled per sale hour and per labor hour, although the plants of all auctions resembled each other in physical layout. Data indicated an optimum number of employees exists for the proper functioning of an auction market. Such a number would be closely related to volume of livestock handled.

Attendance

The average attendance at livestock auction markets varied by volume of receipts and by season. Auctions had best attendance in the fall. The average attendance at Group I, II, and III auctions was 360, 324, and 265 persons, respectively. Less than 3 percent of the auctions had attendance under 100 persons per sales day.

PHYSICAL FACILITIES

Pens and Alleys

The average number of pens and alleys per auction market was 67. This figure ranged from an average of 103 pens for Group I to 48 pens in Group III. Table 2 shows the average number of pens and alleys and square feet of covered pens for the three groups.

TABLE 2-PHYSICAL PLANT SIZE COMPARISONS FOR THE THREE AUCTION GROUPS

	Auction Group		
	I	II	III
Average No. Pens and Alleys	103.2	70.0	47.7
Average Sq. Ft. per Pen	333	212.8	343.9
Average Sq. Ft. per Auction	34,421	14,898	16,420
Average No. Pens under Roof	80.3	59.3	45.8
Average Sq. Ft. under Roof per Auction	20,739	9,608	7,888

Scales

More than 74 percent of the auction markets owned and operated scales at the yard. Only 58 percent of Group III auctions maintained scale facilities while 78 percent of Group II, and 100 percent of Group I auctions had scales.

Occasionally two sets of scales were found, one set at weigh-in and the other at ring side.

The type of scale found most frequently was of the beam self-recording type. This type was found at more than 72 percent of the markets. Fifteen percent of the auctions used the beam hand-recording scale, and over 12 percent used dial self-recording scales. Table 3 illustrates these percentages by class of auction markets.

TABLE 3-PERCENTAGE OF AUCTIONS USING VARIOUS TYPE SCALES

	Auction Group			All
	I	II	III	Auctions
Percent Reporting Scales	100	77.8	58.0	74.1
Type Used				
Beam Self Recording	88	66.6	72.7	72.5
Beam Hand Recording	0	23.8	9.1	15.0
Dial Self Recording	12	9.5	18.2	12.5
Total	100	100.0	100.0	100.0

Weight was recorded to the nearest 5 pounds by 85 percent of the auctions that had scale facilities. Ten percent recorded weights to the nearest 2.5 pounds. One auction reported that it recorded the actual weight on all transactions.

Receiving Facilities

Loading chutes among Missouri auction markets averaged 3.59 chutes per market. This varied from 10 chute facilities to 2 chutes at some small auctions. The average number of chute facilities at Group I, II, and III auctions was 5.6, 3.4, and 2.9, respectively. Shipments either to or from Missouri auctions by rail did not exist in any significant volume; therefore, any type of facility related to rail loading or unloading was not included in the study.

Transportation

Data indicated that nearly 30 percent of the auctions had truck transportation service available to the farmer. This was much more prevalent among the smaller auction markets (Group III) than among those in Group I. Forty-seven percent of the Group III auctions reported they owned trucks and transported livestock on request for farmers at the customary charge. Twenty-two percent of the Group II auctions had trucks available; only 12 percent of the larger auctions offered this service. Auction management personnel were asked if they assisted farmers in obtaining transportation for their livestock when this service was not offered by the market itself. More than 94 percent replied that they made a con-

certed effort to help obtain transportation for customers' livestock, to or from the auction market, when requested to do so.

SERVICES

Services performed by auction markets for their customers varied. The markets also varied in the uniformity with which the services were carried out. Some of the more important services performed were analyzed where information and data permitted.

Sorting

Some sorting of animals prior to sale were carried on at all auction markets. However, this varied by class of livestock as well as by volume size of the auction market.

Animals were sorted either by grade or weight, or by a combination of the two; that is, on the basis of both grade and weight. Cattle were more frequently sorted than calves, hogs, or sheep. Approximately 89 percent of all auctions sorted cattle prior to sale. About 18.5 percent sorted calves, 57.4 percent sorted hogs, and 9.2 percent sorted sheep and lambs. Table 4 gives a breakdown of these sorting percentages.

Auction markets in Group I carried on a more comprehensive sorting program than the smaller markets in Groups II and III. In the Group I auctions,

TABLE 4-PERCENTAGES OF AUCTION MARKETS SORTING VARIOUS CLASSES OF LIVESTOCK PRIOR TO SELLING

	Auction Group					
	I		II		III	
Class	Yes	No	Yes	No	Yes	No
			Percent			
Cattle	100	0	85	15	89	11
Calves	12	88	19	81	21	79
Hogs	75	25	59	41	47	53
Sheep	0	100	11	89	11	89

100 percent sorted cattle, 75 percent sorted hogs, and 12 percent sorted calves. The method employed in sorting programs was most generally a combination of sorting on both grade and weight basis. However, sorting by grade of the animal was more frequently practiced than sorting by weight. Table 5 shows the percentages of species sorted by different methods.

The function of sorting was most frequently the responsibility of either the yardman or the ringman. However, the sorting of animals by these two men was in agreement with and, in most cases, under the supervision of the owners of the animals. More than 54 percent of the livestock sorting at auction markets was carried out by this method or a variation of the method. The auction owners sorted animals at 22 percent of the markets, and at 15 percent of the auctions the task was carried out by other employees of the auction company.

This method of sorting animals does not have a high degree of accuracy in placing animals in uniform lots or grades, particularly slaughter animals. However, the methods employed by auctions in sorting do have desired features, in that they give the farmer the opportunity and freedom in having a voice in how his animals are offered for sale. Information and comments obtained during the study indicated that more efficiency could be gained if sorting and grading were more rigid and were performed by trained, experienced graders.

Feeding

Most auctions offered the services of feeding and watering livestock. This varied between the three groups of auctions from 88 percent in Group I to 68 percent in Group III offering these services.

The percentages of animals fed and watered ranged from 0 at some auctions to nearly 100 percent at others. Livestock held overnight were fed and watered prior to sale by all auctions offering the service. In about 18 percent of the auction markets, animals had free access to water. Approximately 28 percent of all the livestock received at auction markets were fed and watered at the auction facilities. About 17 percent of the markets did not practice the service of feeding and watering animals received.

Order of Sale

Substantial differences existed among auction markets in their order of selling livestock. However, some definite patterns emerged. Slaughter hogs were sold first at 63 percent of the auctions, and second at 25 percent of the auctions. Sheep and lambs were sold first at 25 percent and second at 62 percent of the auctions. Calves and vealers were sold third by over three-fourths of the markets. Slaughter cattle were generally last in order of sale.

Information obtained indicated that it is often to the farmer's advantage to be familiar with the order of sale practiced at the auction. A major reason is that auction management frequently follows the practice of selling livestock in order of its arrival at the yards; another reason, all livestock of any particular class is generally sold before starting sale of another class. Farmers who deliver animals of a given class after that class has been sold face the possibility that the principal buyers of that class have left the market or have made their purchases for the day. Therefore, the seller may take a lower price than the average paid for the same quality animal earlier.

Auction management indicated that it was not always possible to rigidly follow the established order of selling and that modifications were frequently made as a result of late animals.

Replacement livestock was generally sold at the beginning of each particular class of animals offered for sale. This was more of a convenience to farmers and was offered by auction management for that purpose. In this order of sales, the farmer could buy replacement animals and did not have to wait through the sale to make his purchases.

TABLE 5-PERCENTAGES OF AUCTIONS THAT SORT LIVESTOCK BY WEIGHT, GRADE, OR BOTH

	Auction Group											
	I				II				III			
Class	Gr.	Wt.	Both	No	Gr.	Wt.	Both	No	Gr.	Wt.	Both	No
	Percent											
Cattle	25.0	0	75.0	0	48.1	0	37.0	14.9	68.4	5.3	15.8	10.5
Calves	0	0	12.0	88	3.7	3.7	11.1	81.5	10.5	.0	10.5	78.9
Hogs	12.5	25	12.5	25	5.9	22.2	11.1	40.7	15.8	31.6	0	52.6
Sheep	0	0	0	100	11.1	0	0	88.9	5.3	5.3	0	89.5

Buy on Orders

Auction managers were asked if they bought livestock on order from farmers. Auctions in all three group classifications did some buying on orders. They included approximately 65 percent of the total number of auction markets.

Management personnel were asked if the auction did any buying on its own account. Data indicated that small volume auction markets were more prone to buy than auctions of larger volume. The percentages of auctions buying on their own account by group classifications I, II, and III were: 25 percent, 26 percent, and 54 percent. It is worthwhile to note that a sizeable volume of livestock purchased by auctions was generally of an unintentional nature. Many times the set in price was too high and the animal was purchased by the auction. Other times in a slow moving market, or if it was apparent that an animal was under its market value, the purchase fell on the auction. These purchases appeared to be beneficial to sellers in that they helped stabilize or raise the market and did not have a depressing effect on prices paid.

Note that as the auctions decrease in volume of receipts, they tend to purchase on their own account. There are several possible reasons for this, a major one being that larger auction markets, merely by offering a larger supply and greater variety of livestock, draw more potential buyers. Therefore, the probability of the auction having to buy an animal at the set in bid is reduced.

DISTANCE FROM WHICH AUCTION MARKETS OBTAINED LIVESTOCK

A basic purpose of the livestock auction market is to provide a market facility convenient to a livestock producing community, where producers of livestock may sell and buy at regular intervals on the basis of open bidding. Auctions are patronized most frequently by farmers in disposing of their live animals. However, they are of major importance to other types of dealers in livestock as a sales outlet and source of supply.

Sources of Livestock Receipts

Approximately 77 percent of all livestock received at Missouri livestock auction markets originated directly from farmers. About 5.6 percent of the animals were supplied by the organization itself and sold through its own ring. Many of these animals were purchased at the auction by the organization in its attempt to stabilize or hold prices up on a weak market, and were resold at a later date. Nearly 17 percent of livestock received at auctions in 1957, or about 430,000 head, were consigned by other individuals or agencies.

The survey revealed that approximately 73 percent of cattle and calves, 82 percent of hogs and pigs, and slightly more than 82 percent of sheep and lambs were supplied directly by livestock producers. Feeder animals were generally the most important class of livestock consigned by other suppliers to the auction market. Table 6 illustrates the percentage of total volume of various classes of

TABLE 6-PERCENTAGES OF VARIOUS CLASSES AND SPECIES OF LIVESTOCK SUPPLIED TO AUCTION MARKETS BY DIFFERENT TYPES OF CONSIGNORS

Class of Livestock	Farmers	Organizations	Other*
Cattle and Calves			
Slaughter	81.1	7.3	11.6
Feeder	68.2	9.1	22.7
Other	79.7	5.8	14.5
Total	72.7	8.3	19.0
Hogs and Pigs			
Slaughter	94.1	1.3	4.6
Feeder	77.8	4.2	18.0
Other	85.4	2.2	12.4
Total	82.3	3.4	14.3
Sheep and Lambs			
Slaughter	83.8	.9	15.3
Feeder	80.5	1.1	18.4
Other	86.6	3.0	10.4
Total	82.4	1.2	16.4

*Other refers primarily to country livestock dealers.

different species supplied to auction markets by different consignors.

Farmers consigned lowest ratio of feeder animals to slaughter animals. The auction organizations themselves were intermediate with other consignors having the greatest proportions of feeders over slaughter animals. See Table 7.

TABLE 7-RATIO OF SLAUGHTER TO FEEDER LIVESTOCK MARKETED THROUGH AUCTION MARKETS, BY ORIGIN

Class	Farmer	Organization	Other
	S F	S F	S F
Cattle and Calves	1 : 2.1	1 : 3.2	1 : 5.0
Hogs	1 : 2.3	1 : 9.0	1 : 10.7
Sheep and Lambs	1 : 1.04	1 : 1.2	1 : 1.3

These ratios help substantiate findings previously mentioned that other consignors, primarily country dealers, were a major supplier of feeder animals to auctions. In a previous University of Missouri study it was estimated that country dealers sold more than 44,000 head of feeder cattle and calves, nearly 19,000 head of feeder pigs, and approximately 3,400 head of feeder lambs through auction markets.[4]

Cattle and Calves

Several factors had substantial influence on volume of livestock receipts at auction markets: Distance from which livestock was obtained, density of livestock production, and the individual farmer's acceptance of auction markets.

One of the primary concerns in the study was to determine the relative percentages of different classes of livestock received at auction markets from vary-

[4]Durward Brewer, *Country Livestock Dealers and Local Markets in Missouri.* University of Missouri, Agricultural Experiment Station, Research Bulletin 722, 1960.

TABLE 8-PERCENTAGES OF LIVESTOCK RECEIVED BY DIFFERENT CLASSES OF AUCTION MARKETS FROM VARIOUS DISTANCES

	Auction Market Groups											
	Group I Miles				Group II Miles				Group III Miles			
Class of Livestock	0-9	10-24	25-49	50+	0-9	10-24	25-49	50+	0-9	10-24	25-49	50+
Feeder Cattle and Calves	18.25	28.45	25.60	27.00	19.26	34.07	29.11	17.68	23.68	38.95	22.11	14.21
Slaughter Cattle and Calves	31.25	42.50	25.00	1.25	33.52	40.93	22.22	3.33	34.52	41.63	18.21	4.78
Feeder Pigs and Hogs	16.88	28.12	23.12	29.38	27.97	33.91	24.52	13.60	21.56	40.00	25.62	12.81
Slaughter Hogs	39.38	48.12	10.00	2.50	34.58	42.29	20.00	3.12	46.00	40.67	12.67	.67
Feeder Lambs and Sheep	21.25	26.25	26.25	26.25	17.35	37.06	30.00	15.59	20.14	35.97	40.29	3.60
Slaughter Sheep and Lambs	40.62	29.38	23.12	6.88	20.00	48.12	23.33	8.54	23.85	48.08	26.15	1.92

ing distances surrounding the market place. Auction market trade areas presented a picture of substantial overlapping. Large volume markets drew a significant percentage of their receipts from areas beyond a fifty mile radius (Table 8). However, when all auctions were combined, the major volume of livestock sold through these markets was supplied by the immediate area around the auction facility. Nearly 60 percent of total volume of livestock received at auction markets came from within a 25 mile radius, although volume of different classes of livestock received from different distances varied considerably.

A larger volume of feeder livestock were moved greater distances to auctions than slaughter animals. Approximately 51 percent of the feeder cattle and calves received at auctions came from distances in excess of 25 miles, whereas about 29 percent of the slaughter cattle and calves were received from areas in excess of 25 miles from the auction. Table 9 gives the percentages of various classes of cattle making up the total volume received at auction markets from various distances.

TABLE 9-THE PERCENTAGE OF DIFFERENT CLASSES OF CATTLE AND CALVES ARE OF TOTAL VOLUME RECEIVED AT AUCTION MARKETS BY VARIOUS DISTANCES

Class	Distance (Miles)			
	0-9	10-24	25-49	50+
	Percent			
Slaughter	31.6	20.2	26.4	3.4
Feeder	52.8	58.3	65.1	92.9
Other	15.6	11.5	8.5	3.7
Total	100.0	100.0	100.0	100.0

Hogs and Pigs

Information on hogs and pigs received and sold through auction markets showed an even more pronounced relationship of volume and distance. More than 77 percent of the slaughter hogs received at auctions were within 25 miles of the market, as were 73.7 percent of other hogs and 55.1 percent of feeder hogs and pigs. Approximately 34 percent of the hogs received from within a 25 mile radius were slaughter animals. Only about 15.9 percent from distances in excess of 25 miles were of slaughter type. As with cattle and calves, feeder pigs and hogs make up the largest volume received from distances in excess of a 25 mile radius of the market. Eighty-nine percent of the hogs received from distances greater than 50 miles were feeders (Table 10).

Sheep and Lambs

Volume-wise, sheep and lambs were of minor importance to auction markets, comprising approximately 6 percent of total receipts. Tables 11 and 12 illustrate the origin of receipts by distance and class. More than 90 percent of slaughter and feeder sheep and lambs received at auction markets originated from distances 25 miles or less from the facility.

Figure 2 illustrates the percentages of total volume of different classes of livestock received at auctions from various distances.

Table 13 shows the estimated number of different classes of livestock received at auction markets from various distances.

TABLE 10-PERCENTAGES OF DIFFERENT CLASSES OF HOGS AND PIGS RECEIVED AT AUCTION MARKETS FROM VARIOUS DISTANCES

Class	Distance (Miles) 0-9	10-24	25-49	50+
		Percent		
Slaughter	31.3	34.6	20.4	8.9
Feeder	61.7	60.9	75.7	89.1
Other	7.0	4.5	3.9	2.0
Total	100.0	100.0	100.0	100.0

TABLE 11-PERCENTAGES OF DIFFERENT CLASSES OF SHEEP AND LAMBS RECEIVED AT AUCTION MARKETS FROM VARIOUS DISTANCES

Class	Distance (Miles) 0-9	10-24	25-49	50+	Total
			Percent		
Slaughter	26.6	40.3	24.6	8.5	100
Feeder	24.8	32.2	29.4	13.6	100
Other	11.3	21.6	58.4	8.7	100

TABLE 12-PERCENTAGES OF DIFFERENT CLASSES OF SHEEP AND LAMBS RECEIVED AT AUCTION MARKETS FROM VARIOUS DISTANCES

Class	Distance (Miles) 0-9	10-24	25-49	50+
		Percent		
Slaughter	46.1	48.8	33.8	32.3
Feeder	49.0	44.7	46.2	59.4
Other	4.9	6.5	20.0	8.3
Total	100.0	100.0	100.0	100.0

TABLE 13-ESTIMATED NUMBER OF LIVESTOCK RECEIVED FROM VARIOUS DISTANCES

Class	Distance (Miles) 0-9	10-24	25-49	50+
		Number		
Cattle and Calves				
Feeder	156,684	243,427	208,779	204,315
Slaughter	93,766	128,747	84,233	7,184
Other	40,906	42,763	23,235	7,245
Hogs and Pigs				
Feeder	190,328	276,491	223,820	171,994
Slaughter	134,808	117,182	58,303	2,931
Other	16,557	16,038	7,079	1,225
Sheep and Lambs				
Feeder	25,353	30,955	28,632	13,516
Slaughter	22,213	31,593	27,124	6,147
Other	1,922	3,709	5,241	1,544

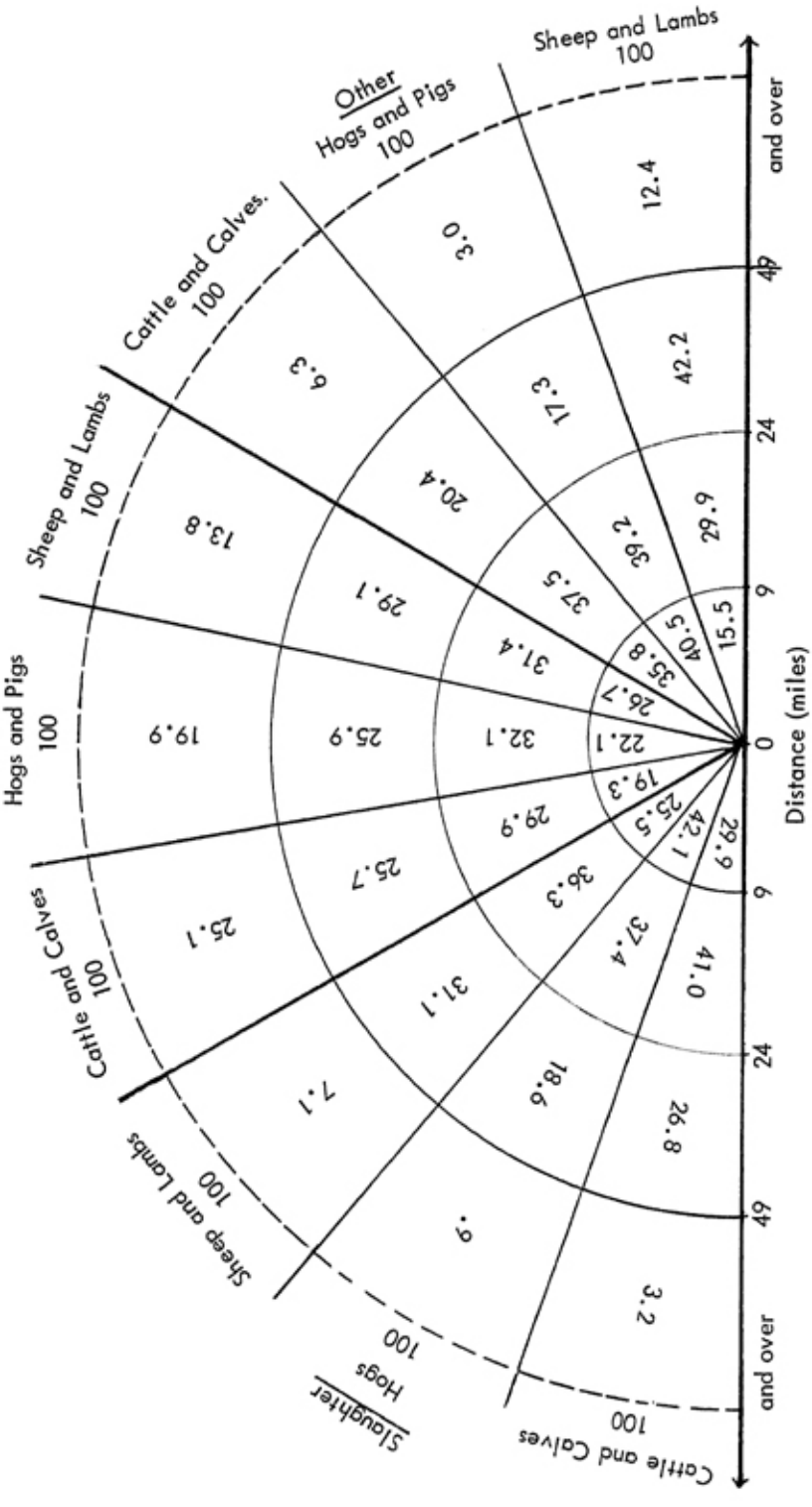


Figure 2. Percentages of Different Classes of Livestock Received From Various Distances for All Auction Markets, 1957

Receipts and Distance Relationship

Relationships between receipts and distances from which these receipts obtained were computed for various classes of livestock for the three size classifications of auctions.[5]

Figure 3a illustrates the relationship between various distances and volume of slaughter cattle and calves obtained by different sizes of markets. In Group I receipts increase as trade area is expanded out to approximately 25 miles; then, as the area is expanded out to 40 miles, a gradual decrease is incurred for each additional mile. Beyond a 40-mile radius receipts of slaughter cattle obtained for each additional mile decline rapidly. In Group II auctions, the addition of miles away from the market facility had little effect on the number of slaughter cattle and calves obtained from each additional mile until a 20-mile radius was reached. From 20 miles on, a fairly substantial rate of decrease occurred. In the auctions where annual receipts were relatively small (Group III), a continuous decrease in volume occurred for each additional mile of trade area added.

In terms of number of head, feeder cattle were one of the most important classes of livestock handled by auction markets. Figure 3b presents the distance and volume relationships for feeder cattle. These relationships differ from those computed for slaughter cattle in that distance shows a less pronounced effect on volume obtained from a particular mile radius surrounding the market facility.

From the computations of the three equations, it is interesting that the medium sized markets extended the mileage area in which volume increased. That is, the volume received increased from each additional mile the market area was expanded out to approximately 40 miles. In Groups I and II, a decrease in receipts set in at about the 20-mile radius.

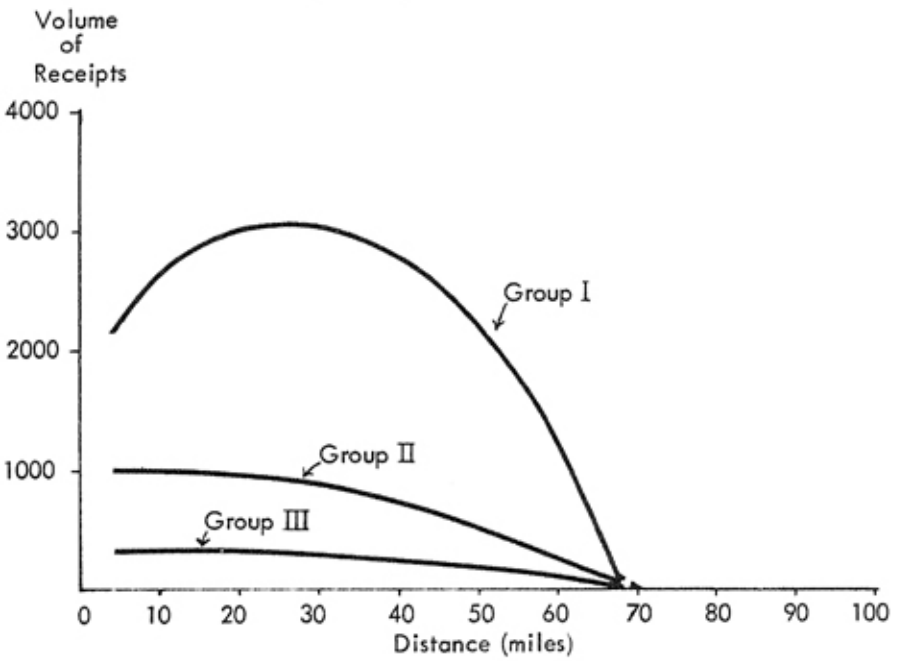
In general, slaughter hogs are a less important source of receipts than slaughter and feeder cattle or feeder pigs. Figure 4a illustrates the continuous decline in slaughter hog receipts obtained by auctions from each additional mile increase in the market radius. A possible exception to this decrease in rate of receipts is in the larger markets (Group I) where volume apparently increases slightly out to approximately 12 miles from the market.

Missouri auctions are the major market outlet for sale of feeder pigs. Accepting this fact, it was expected that the calculations of the relationships between receipts volume and distances obtained would expand the market radius outward substantially for this class. Figure 4b shows that total feeder pig receipts increased over a greater radius from the market facility than in the case of either feeder and slaughter cattle or slaughter hogs. Also, the curves demonstrate a more gradual descent after they reach their peaks. Both Groups II and III show an increase in receipts obtained out to approximately 25 miles; however, larger auctions (Group I) show decreasing receipts setting in at about the 25-mile radius. This perhaps can be explained in that the number of feeder pigs that

[5]Auction market management personnel of the sample markets were asked: "What volume of total receipts of various classes of livestock sold through the auction come from sources within different mile radii of the market facility?" The mile radii used in the study were 0-9, 10-24, 25-49, 50-75, and 75 and over. The midpoints of the mile intervals were used in computing the curves.

Figure 3. Relationship of Volume of Slaughter and Feeder Cattle Receipts at Auction Markets, to Distance From Which Obtained

(a) Slaughter Cattle and Calves



(b) Feeder Cattle and Calves

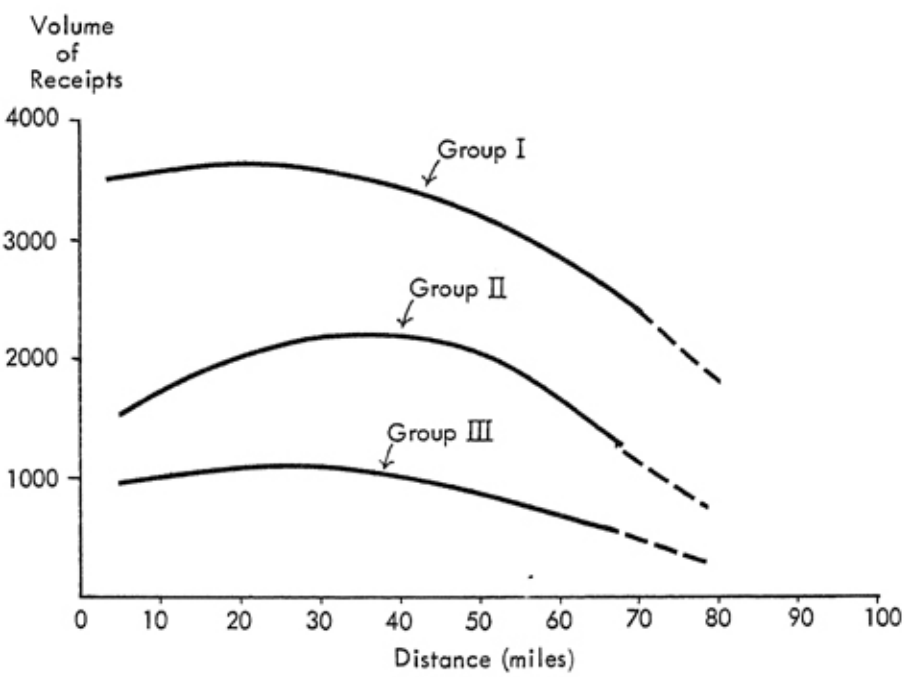
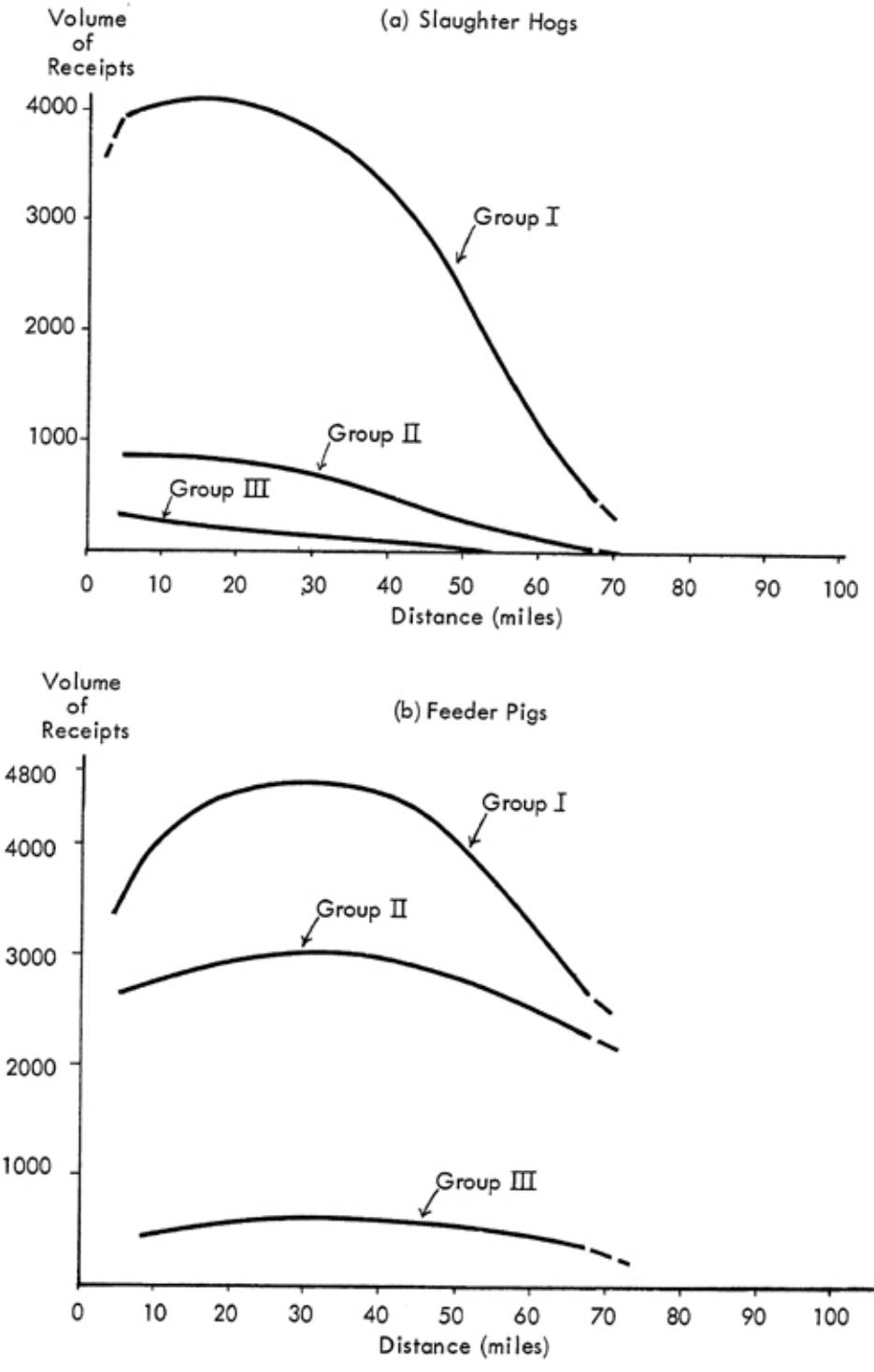


Figure 4. Relationship of Volume of Slaughter Hogs and Feeder Pigs Receipts at Auction Markets, to Distance From Which Obtained



large auctions must obtain from each one-mile increase in market area must be considerably more than would be required for smaller markets in order to maintain the increasing portion of the curve. Possibly a second reason is that feeder pigs make up a smaller percentage of the total livestock receipts at large auction markets. Additional statistical information is presented in the Appendix.

Size of Consignment

The size of the average consignment of livestock varied between auctions of different volume sizes as well as between species at the same market. The average size of consignment of cattle at all auction markets was 9.2, varying from a high of 13.5 at Group I auctions to 6.5 at Group III auctions. Size of consignment of calves varied least of any class of livestock, ranging from 3.5 in Group II to 2.8 in Group III. Table 14 shows the average size of consignment of various classes of livestock received at the three groups of auction markets.

TABLE 14-AVERAGE SIZE OF CONSIGNMENT OF VARIOUS CLASSES OF LIVESTOCK SOLD THROUGH AUCTION MARKETS, BY SIZE OF AUCTION

Class	Auction Group I	Auction Group II	Auction Group III	All Auctions
			Number of Head	
Cattle	13.5	9.8	6.5	9.2
Calves	3.3	3.5	2.8	3.2
Hogs	20.2	18.2	11.5	16.1
Sheep	22.8	20.6	13.6	18.5

DISPOSITION OF LIVESTOCK

Table 15 shows estimated totals of feeder, slaughter, and other classes of livestock that were purchased by various types of buyers. Farmer purchases accounted for 48 percent of total volume of livestock sold through auction mar-

TABLE 15-ESTIMATED NUMBER OF LIVESTOCK PURCHASED BY VARIOUS TYPES OF BUYERS*

Class	Farmers	Dealers	Packers	Order Buyers	Others
Cattle and Calves			Number		
Feeder	530,610	31,195	1,180	234,105	16,120
Slaughter		69,117	211,627	29,448	3,742
Other	56,749	32,619	21,167	2,935	678
Hogs and Pigs					
Feeder	551,283	44,203		260,742	6,400
Slaughter		42,819	263,558	6,583	266
Other	18,019	12,338	8,844	1,578	120
Sheep and Lambs					
Feeder	83,045	7,650	1,690	6,077	
Slaughter	35,282	18,746	31,859	1,131	
Other	10,664	1,122	50	473	106

*For method used in compiling estimates, see footnote page 4.

kets in 1957. This high percentage can primarily be explained in that more than 67 percent of auction sales volume during that period was composed of stocker and feeder animals.

Purchases by Organization

Most of the auction organizations purchased some stock on their own account. There appeared to be two primary reasons for this practice: (1) auction management purchased animals at their own yards to help stabilize prices on a weak market; (2) auction organizations purchased livestock at producers' farms as a convenience or service offered to the farmer, and thereby helped maintain volume at the auction markets. Table 16 shows the estimated number of livestock purchased by the auction organizations by place of purchase and type of seller.

TABLE 16-ESTIMATED NUMBER OF HEAD OF LIVESTOCK PURCHASED BY THE AUCTION ORGANIZATION IN 1957

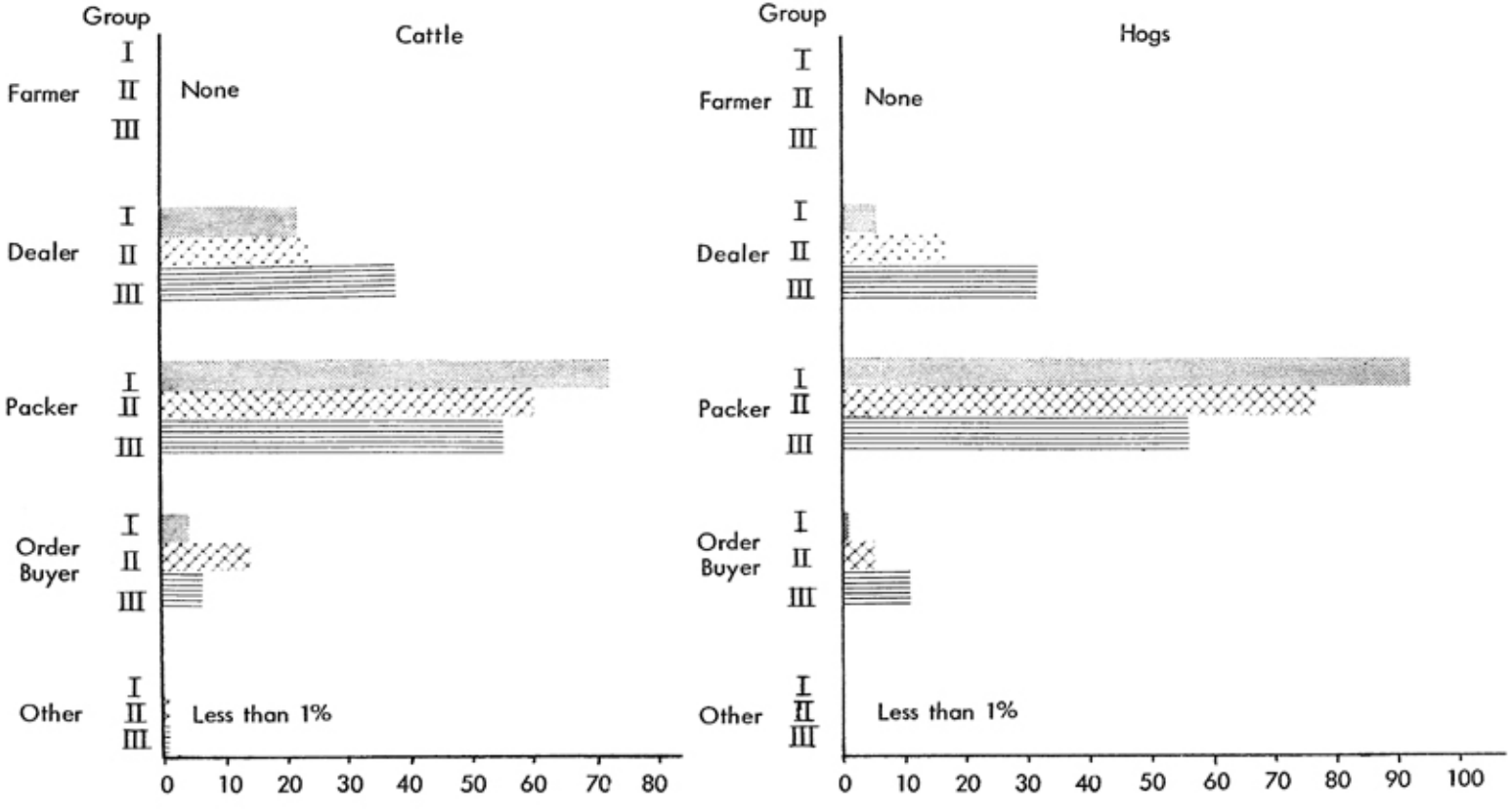
Class	Total Number Purchased	Number Purchased Own Yards	Number Purchased Elsewhere	Number Purchased from Farmers	Number Purchased From Other Sources
Total Cattle and Calves	100,837				
Feeder	69,302	13,230	56,072	44,227	25,073
Slaughter	26,768	4,428	22,441	22,752	4,014
Other	4,767	1,439	3,331	4,106	665
Total Hogs and Pigs	123,514				
Feeder	48,597	7,022	41,573	33,624	14,971
Slaughter	74,141	50,882	23,260	71,589	2,552
Other	776	100	674	676	100
Total Sheep and Lambs	2,938				
Feeder	1,316	20	1,296	823	494
Slaughter	1,253	300	953	1,215	38
Other	367	100	267	257	110

Slaughter

In general, packer-buyers were the major buyers of slaughter livestock at auction markets. Country dealers were second in importance. Packer-buyers and country dealers differed in the percentage volume of various classes of slaughter livestock they purchased. Packers purchased nearly 85 percent of the slaughter hogs sold through auctions; however, they purchased only 64 percent of the slaughter cattle.

Country dealers purchased about 12 percent of the slaughter hogs and approximately 25 percent of the slaughter cattle. They purchased substantially a larger percentage of the total volume of small auction market receipts than of Group I auction receipts. In Group III, or the small auctions, dealers bought 37.8 percent of total slaughter cattle receipts, compared to 22.7 percent of the Group I slaughter cattle receipts. In Group III auction markets, dealers bought 31.3 percent of the total slaughter hog volume compared to 6.7 percent of the volume sold through markets classified under Group I. Figure 5 shows the percentage for different classes of slaughter livestock by market group purchased by various types of buyers.

Figure 5. Percentage of Slaughter Cattle and Hogs Bought by Various Buyers

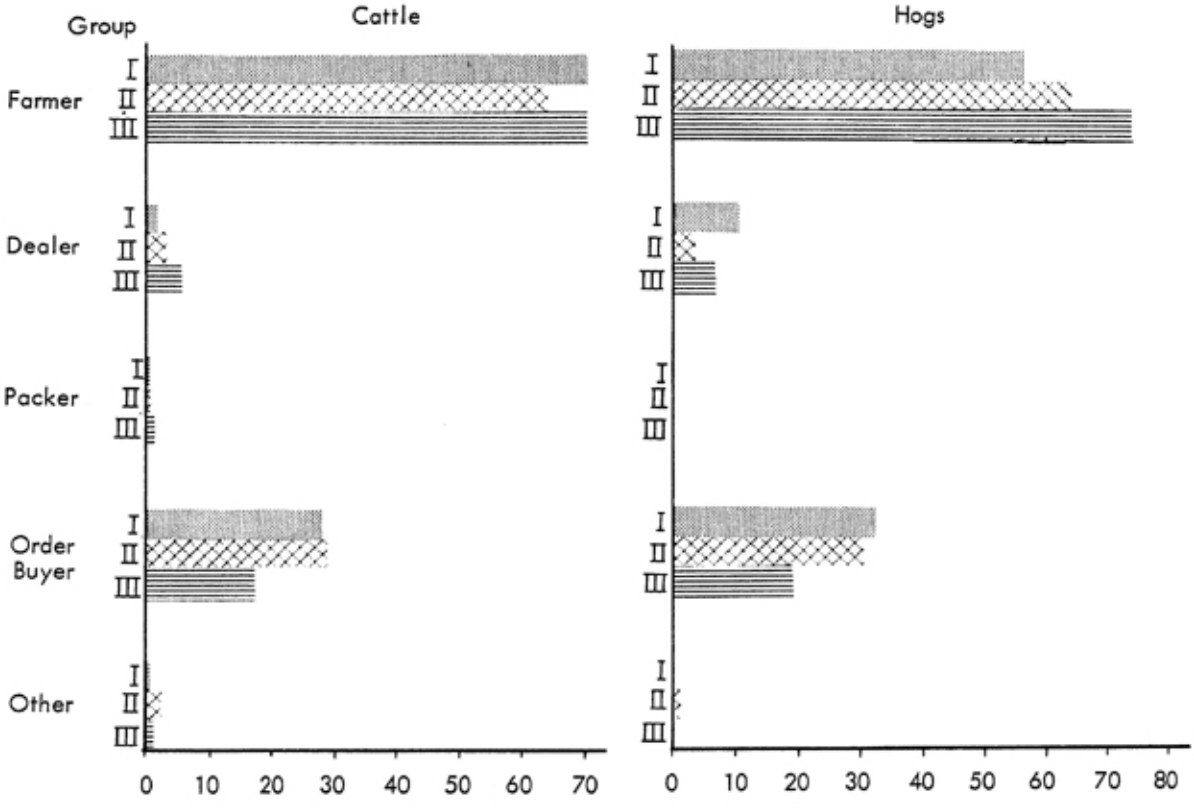


Feeder Livestock

The principal purchasers of feeder livestock marketed through auctions were the farmers. They purchased more than 64 percent of the auctions' feeder livestock offerings. By species, amounts purchased by farmers were 67.9 percent of the feeder cattle, 63.1 percent of the feeder pigs, and 84.3 percent of the feeder sheep.

Some variations existed in the volume of feeder livestock purchased at different sizes of markets by type of buyer. The data illustrated a tendency for farmer purchases to account for a larger volume of feeder livestock in small auction markets than in auctions of larger size, whereas order buyers were more active on auctions where total annual volume of sales exceeded 40,000 head. Figure 6 shows a percentage comparison of different classes of feeder livestock purchased by various types of buyers, illustrated by auction groups.

Figure 6. Percentages of Feeder Cattle and Pigs Bought by Various Buyers

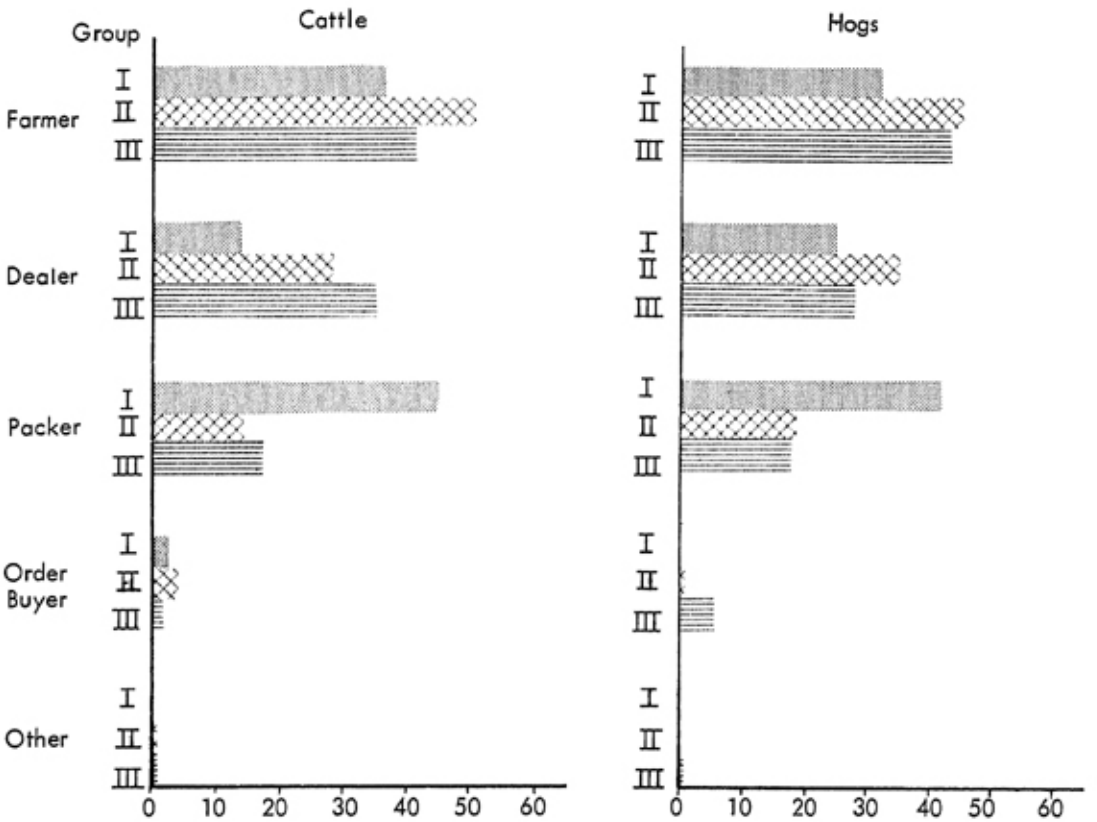


Other Livestock

This class included animals where the specific use to which they were to be put was not readily known. Though no data was obtained to support this con-

clusion, the investigators thought that a large part of this class was made up of breeding animals and replacement stock. This class was more evenly distributed among the four major purchasers of livestock for all three groups of markets (Figure 7).

Figure 7. Percentages of Other Cattle and Hogs Bought by Various Buyers



Management personnel were asked to estimate what percentage of livestock sold through their markets was shipped various distances. The tabulation of these estimates indicated that approximately 54.1 percent of the total volume sold at auctions went to destinations within 50 miles of the market facility. More than 52 percent of the cattle and calves, 53.2 percent of the hogs and pigs, and 70 percent of the sheep fell within this 50-mile radius. Table 17 shows the estimated number of livestock shipped various distances from the market.

TABLE 17-ESTIMATED NUMBER OF LIVESTOCK SHIPPED VARIOUS DISTANCES

Class	Miles		
	0-50	50-250	250+
Cattle and Calves	651,599	494,155	95,539
Hogs and Pigs	647,944	436,251	132,557
Sheep and Lambs	138,482	59,071	400

SELLING CHARGES

Sellers of livestock, whether farmers, other producers, or dealers, were concerned with marketing charges made by the agency or market through which they dealt. In the interviews conducted with auction management during this study, information was obtained on some of the charges assessed by auction markets. The most common charges assessed by auctions were commissions, yardage, feed, etc. As a result of lack of sufficient detail, various minor charges were omitted or were included jointly under one of the following major paragraph headings.

Commission

Substantial differences in the methods of assessing commission charges and rates charged were found among auction markets. The commission charged was relatively consistent among auctions over the three species of livestock sold. Table 18 shows commission charges on gross value of cattle and calves, hogs, and sheep.

TABLE 19-PERCENTAGES OF AUCTIONS ASSESSING VARIOUS YARDAGE CHARGES BY CLASS OF LIVESTOCK CONSIGNED

Yardage Charge	Percent of Auction Markets Reporting			
	Cattle	Calves	Hogs	Sheep
2¢	6.7	10.0	6.7	10.0
5¢ per head	13.5	20.0	33.0	40.0
10¢ per head	27.0	30.0	33.0	20.0
15¢ per head	6.7		6.7	10.0
20¢ per head	6.7			
25¢ per head	33.0	10.0	20.0	20.0
30¢ per head	6.7	10.0		
40¢ per head				
50¢ per head		20.0		

All of the auctions that reported selling sheep assessed selling charges on a straight percentage of gross value. One auction reported selling cattle on a per head basis and two auctions reported selling hogs on a per head basis. Commission charges varied from 2½ to 4 percent of gross value with the most common rate being a 3 percent charge.

A substantial number of the auctions provided a reduction in selling charges when the gross value of an individual's livestock exceeded a given amount. The two figures most frequently used for this base were $500 and $1,000 gross value. This reduction is also illustrated in Table 18.

TABLE 18-PERCENTAGES OF AUCTIONS ASSESSING VARIOUS COMMISSION CHARGES ON LIVESTOCK SOLD

Commission	Percent of Auction Markets Reporting		
	Cattle and Calves	Hogs	Sheep
Straight 4%	5.6	5.6	5.6
Straight 3 3/4	1.8	1.8	1.8
Straight 3 1/2			
Straight 3	50	46.6	47.0
4% on first $500 - 3% over	1.8	1.8	
3% on first $500 - 2 1/2 over	1.8	2.0	17.0
3% on first $500 - 2% over	9.2	7.5	14.1
3% on first $500 - 2 1/2% over	1.8	7.5	4.7
3% on first $1000 - 1% over	1.8		
3% on first $1000 - 2% over	14.8	13.4	9.2
3% on first $1500 - 2% over	1.8	1.8	
3% on first $2000 - 2% over	3.7	3.8	
Straight 2 1/2%	3.7	3.8	
Straight Per Head	1.8	3.8	

Yardage Charges

Approximately 28 percent of the livestock auction markets in Missouri charge a yardage fee. Information from the sample markets indicated considerable variation in yardage fees charged among the auctions which followed the practice. Charges for yardage varied from 2 to 50 cents per head. A 10 cent charge appeared to be the most common charge made by auctions for yardage when all species were considered. Yardage fees ranged from 2 to 30 cents for cattle, 2 to 50 cents for calves, and up to 25 cents on hogs and sheep. Table 19 shows the various charges assessed by auctions having a yardage charge.

Feed Charges

Nearly all livestock auctions made a feed charge on the basis of volume of feed consumed by the animal. There were three auctions in the groups studied which charged a flat rate of 30 cents to 1 dollar. About one-third of the markets did no feeding and personnel at one market indicated that they did feed but no charge was made.

Insurance Charges

More than 22 percent of the auction markets studied made specific charges against consignors of livestock for insurance protection. Most auctions assessed charges on a per head basis. However, the management at one auction indicated assessment was made on the hundredweight. Insurance charges varied from 1 to 6 cents per head for cattle and calves with 3 cents being the most common assessment. Hogs and sheep were assessed ¾ to 1 cent with the majority of cases being 1 cent.

Veterinary Charges

Nearly 89 percent of the auctions reported that a specific inspection or veterinary charge was made. The average charges assessed for inspection and veterinary services were 7.9 cents for cattle and 5.3 cents for hogs. These charges varied from 2 to 25 cents for cattle and calves, and from 2 to 20 cents for hogs and sheep. The inspection and veterinary service charges at large auction margets (Group I) were generally lower than those assessed at small markets. These charges for cattle and calves were 7.6, 7.8, and 8.4 cents for Group I, II, and III auctions, respectively. For hogs, these charges were 4.6, 4.6, and 6.1 cents.

A few auctions included the inspection and veterinary charges in the initial yardage fee. There were only two auctions which reported that no veterinary or inspection fee entered into the farmers' marketing cost.

CREDIT, PAYMENT, AND PRICES

Auction managers were asked if they checked the credit of buyers operating on their market before releasing animals they purchased. Approximately 54 percent checked buyers' credit. Another sizeable group said they intended to begin this practice in the future. However, about one-third indicated they did not, and saw no great need for doing so.

In almost all cases, buyers were required to make settlement on livestock purchased before removing the animals from the auction premises. Slightly less than 6 percent of the markets did not follow this procedure.

Payment to Seller

Sellers of livestock through auctions received payment for their animals the same day of the sale. No variations were found from this method of payment.

Data indicated that all auction markets having scale facilities weighed the animals immediately after they left the auction ring if the animals were sold by the pound. The practice was believed to be more efficient than the method sometimes practiced of weighing livestock immediately before they enter the sales ring. It avoided a tie-up at scales because one lot of animals could be weighed while the next one was being sold. Several auction managers gave the opinion that this method of weighing reduced ring time used per lot.

In general, all auctions followed the practice of not announcing the weight of livestock before or during the sale of an animal. Exceptions were found in that a few markets would give out weights to potential buyers when requested. Also, when stockers or feeders were being sold, the weights were commonly given to buyers during the bidding process. This was generally true in most auction markets that had a substantial volume of trade in these classes of animals.

Loss or Injury

It was customary among Missouri livestock auction markets to make payment for any animal lost or injured after arrival of the animal at the auction yards. However, a number of auctions did not accept responsibility for the animal. More than 20 percent of the auctions claimed no responsibility for loss, sickness, or injury suffered by an animal at the auction place. All Group I auctions said they accepted liability of livestock at their yards. Seventy-eight percent of Group II and 74 percent of Group III markets accepted liability.

Price Reports

More than 35 percent of the livestock auctions furnished some form of price reports to farmers. Several media were used for this purpose, the most important being radio, television, newspapers, and market newletters. The majority of these reports were not comprehensive and were limited in their information. However, it was believed that a desired function in market news dissemination was accomplished. Information included prices paid for certain classes of animals the last day a sale was held. Several auction markets used two or more media in disseminating price information to their customers. Table 20 shows the percentages of auctions using the various news media.

TABLE 20-PERCENTAGES OF THE AUCTION MARKETS THAT USED VARIOUS NEWS MEDIA IN REPORTING PRICES

News Media	Auction Group		
	I	II	III
		Percent	
Radio or Television	50	22	10.5
Newspspers	38	30	10.5
Newsletters	25	0	0
Telephones	12	7	0

MARKET SOLICITATION

The percentages of auction markets that solicited business varied among the three size groups, from a low of 62.5 percent in Group I to a high of 78 percent in Group II.

Solicitation was carried out by auction managers in a number of ways. The most common method was through personal contact with the producers via farm visitation. This method was used by all auction markets that solicited business and had many advantages over other methods employed. Radio broadcasts were frequently used by several markets. Nine percent used newspapers. Two auctions made extensive use of telephones.

Auction managers were asked what effect they felt solicitation had on gross receipts of livestock at their market. Their estimates ranged from 10 to 75 per-

cent increase. The average estimated effect related by all auction managers was approximately 28 percent of gross receipts. Auctions of small volume were more inclined to rate the value of solicitation high than were the larger markets. A readily understood explanation is that an auction having a volume of 100 head per sale may increase receipts 10 percent by acquiring another 10 head, whereas an auction normally having a run of 500 must acquire an extra 50 head to bring about the same percentage increase.

LABOR

The number of workers employed varied widely among auction markets. The data also indicated that the number of workers employed at the same auction market varied substantially over time. Since labor at most auctions was employed only one day per week, it was difficult in many cases for managers to maintain a high percentage of experienced workers.

The number of employees at auctions in Group I ranged from 12 to 19, excluding auctioneers. About one-third of these workers were employed as clerical workers. Group II auctions employed from 6 to 20, and Group III, from 4 to 19. Table 21 gives the average numbers of workers employed, by various duties performed and total hours of labor per average week.

TABLE 21-AVERAGE NUMBER OF WORKERS EMPLOYED, BY VARIOUS DUTIES PERFORMED AND TOTAL HOURS OF LABOR PER WEEK

Auction Group	Clerks	Ringmen	Yardmen	Weigh-men	Clean-up	Total Hours of Labor*	Avg. Time Sale Runs
I	3.9	1.	8.4	.7	.75	1,345	4.9
II	3.7	1.	6.5	.44	.80	2,552	4.8
III	2.6	.37	4.7	.1	.42	1,003	4.05

***Difference in total hours is partly the result of variation in number of markets composing the various groups.**

A comprehensive analysis of auction market labor efficiency was not undertaken in this study because the data was too limited. However, the information indicated that substantial gains might be made by all auction markets in the area of labor allocation.

Auction markets with large volume per sale indicated more efficient use of labor and time than markets with small volume. The rate of sale per hour of auction time varied from 250 head per hour to 41.9 head (Table 22). The ratio of aggregate work hours to volume handled ranged from 7.3 to 3.2 head. Not all of this variation can be explained by more efficient management of the large markets.

Data on sizes of lots consigned to the auction were collected but size of consignment did not imply that all animals consigned were sold through the ring at one time. Other factors involved to an unknown degree were lot sizes

TABLE 22-AVERAGE NUMBER OF HEAD OF LIVESTOCK PER SALE AND RATE OF SELLING, IN RELATION TO WORK HOURS EMPLOYED

Group	Avg. Number of Head Per Sale*	Avg. Number of Head Sold Per Hour**	Ratio of Work Hour to Volume Handled	Avg. Number of Employees Per Auction
			Hour Head	
I	1,226	250	1 : 7.3	15.1
II	528	110	1 : 5.6	11.8
III	170	41.9	1 : 3.2	8.3

*Compiled from estimated annual volume.
**Calculated by using number of head sold per sale, and average number of hours of labor per sale day.

consigned to the ring for sale at any one time, quantity and quality of buyers attending, and seasonality of receipts.

The relationship between average labor requirements per sale and annual volume of livestock handled in the three groups of auction markets is presented in Figure 8. The line of average relationship was determined and plotted for each group of markets. The line representing this relationship for Group III markets indicates that for each increase of 1,000 head in annual receipts of livestock, the market would have to add 0.2 of one laborer per sale. For auction markets classified in Group II, additional labor required on the average per sale for each 1,000 increase in annual receipts up to 40,000 would be about 0.1 based on the regression calculation. In markets where annual receipts exceeded 40,000 head, annual increase in number of laborers required for each additional 1,000 head was indicated to be near zero.

For purposes of future analytical studies and for the critical reader, the coefficients of correlations for the three functions in Figure 8 defining the relation between number of laborers and volume of receipts were computed (Appendix Table 6).

The number of laborers employed is misleading if one attempts to compare the number of employees to receipt volume without considering the number of work hours spent. Therefore, the relationship between total average hours of labor used per week and average total weekly receipts volume should permit a more adequate basis for comparison. To help illustrate the relationship between man hours and volume of livestock the regression line and the scatter of the data for each of the three groups of auctions are presented in Figure 9.

In small markets (Group III), where sale receipts were 100 head weekly, receipts could be increased up to 300 head or 200 percent with only a 38.5 percent increase in the number of work hours. Auctions in Group II, on the basis of these calculations could expect to increase from 350 head to 700 head or 100 percent with a corresponding increase in work hours of 92 percent. When this analysis is applied to larger markets where receipts range from 800 to 2,000 head per sale, the market with weekly receipts of 800 head could expect to increase work hours per week 71 percent if weekly receipts were doubled, or ap-

Figure 8. Relationship of Number of Laborers Employed to Annual Volume of Receipts, by Auction Market Group

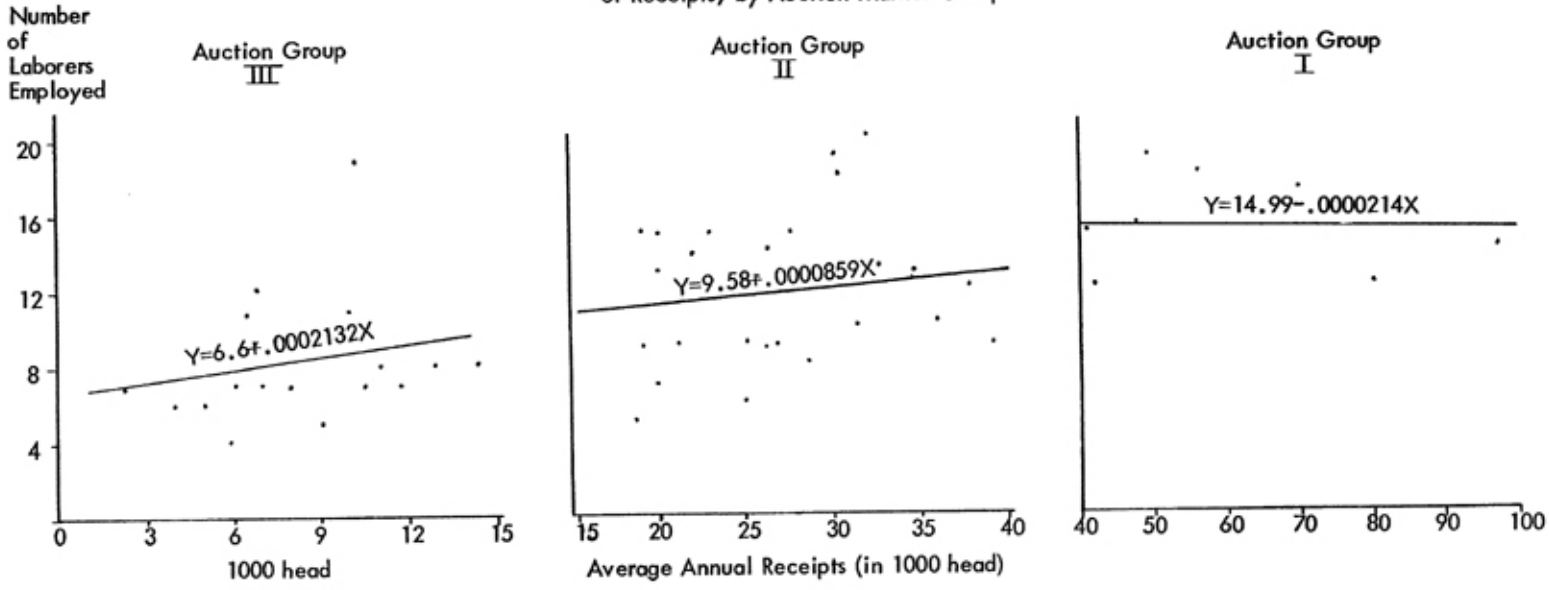
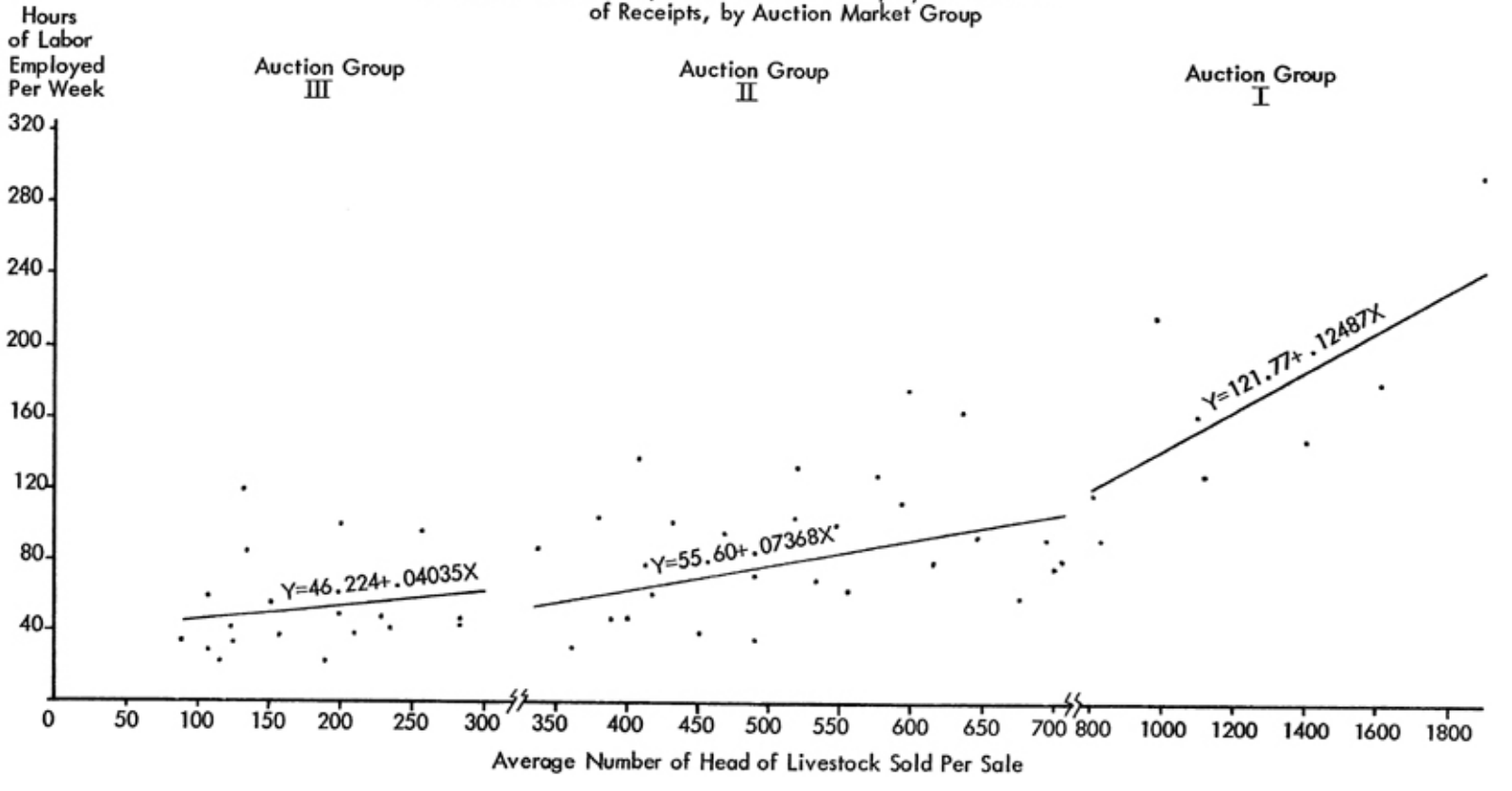


Figure 9. Relationship of Hours of Labor Employed to Volume of Receipts, by Auction Market Group



proximately 11 man hours for each 100 additional receipts. The above explanation assumes a linear relationship. Appendix Table 7 shows the various coefficients derived for hours of labor employed to receipt volume.

The relatively low coefficients for the three different auction groups indicate that other factors have substantial influence on the amount of labor employed besides volume of receipts. Possibly the more important of these are pen and alley arrangements, unloading facilities, and bookkeeping procedures. Obviously, these are limiting factors to the rapidity at which livestock can be handled at auction markets; however, the preceding analysis was felt to be worthwhile in that it gives some basis for making judgments in labor allocations.

For more reliable results to be accomplished on the efficiency by which livestock auction markets allocate their available resources, more detailed information than was available for the present study is needed. The auction agencies alone can supply this information. Present indications suggest that efficient allocation of labor and other resources is one of the major problem areas in auction markets. It appears that a detailed study conducted in this area would yield fruitful results to the livestock auction organizations. For further statistical information, see Appendix Tables 8 and 9.

STATE OF REPAIR AND OTHER RELATED FACTORS

At the time of the interviews, an attempt was made to appraise facilities of livestock auctions included in the sample. These appraisals were made primarily on the state of repair of physical properties, lighting, sanitation, and general arrangement. Each of these was categorized under the heading of poor, fair, good, very good, and excellent. The subjectivity of this classification was readily recognized; however, some meaningful indications were brought out.

Livestock auction markets classified under the Group I classification were rated substantially higher in the appraisal than markets in the Group II and Group III classifications. In no instance were any of the Group I auction markets rated lower than "good." Table 23 shows the percentage of sample markets classified under the subjective scale of rating for state of repair, sanitation, and lighting.

When all auction markets were grouped together without regard to volume, size, or location, 63 percent rated good or above in state of repair, 62 percent good or above in sanitary conditions, and 68 percent good or above in lighting.

From the information obtained, it is believed that a number of auction markets could save substantial man hours of labor with little out-of-pocket cost by rearrangement of existing facilities. Tie-ups at ring gate, scales, or in relotting after the sale were frequently caused by the lot and gate arrangement off the alleys.

Poor lighting of the sales ring was often found. Good lighting is desired if buyers are to judge and classify animals by type and visually estimate grade. The

TABLE 23-PERCENTAGE OF AUCTIONS WHICH WERE SUBJECTIVELY CLASSIFIED AS TO STATE OF REPAIR, SANITATION, AND LIGHTING, BY AUCTION GROUP

Auction Group	State of Repair					Sanitation					Lighting				
	Poor	Fair	Good	Very Good	Excell.	Poor	Fair	Good	Very Good	Excell.	Poor	Fair	Good	Very Good	Excell.
I	.0	.0	37.5	50.0	12.5	.0	12.5	75.0	12.5	0	.0	.0	75.0	25.0	.0
II	14.8	33.3	29.6	11.1	11.1	3.7	33.3	55.5	7.4	0	7.4	37.0	40.7	11.1	3.7
III	10.5	26.3	47.4	5.3	10.5	10.5	36.8	47.4	5.3	0	15.8	10.5	57.9	15.8	.0
All Auction Markets	11.1	25.9	37.0	14.8	11.1	5.6	31.4	55.6	7.4	0	9.2	22.2	51.8	14.8	2.0

buyer's bid is related directly to the grade of the animal or, perhaps, in the case of feeder livestock, the estimated potential grade to which the buyer expects to bring the animal over time. Good lighting helps the buyer and seller to place the animal more effectively in its proper grade classification. In many of the markets, lighting could be greatly improved with little effort.

A majority of Missouri livestock auction facilities appeared clean and a fair state of sanitation apparently existed. However, in some instances, much could be done on sanitation at several of the markets. Both buyers and sellers shun auction markets where pen and other facilities are not kept clean.

CRITICISMS AND RECOMMENDATIONS

One of the most frequent criticisms by patrons of Missouri auction markets was price fluctuations. Wide variations often occur in prices paid for livestock of similar appearing grade during the sale or within a relatively short time period. Frequent radical price fluctuations present uncertainty and risk to the producers who patronize auction markets. There are indications that small auction markets are more likely to experience this difficulty than the large ones. One factor which influences price fluctuation is the supply. An irregular supply of a particular class of livestock may cause prices for that class or grade to fluctuate over a short period of time.

A second major criticism was "yard trading." Consignors object to this practice as well as many buyers. Many auctions did not permit this activity and most tried to discourage it. However, it apparently occurs at some auction markets. More conscientious control of this activity by auction management apparently would be an improvement. There are several actions which could be taken to accomplish the desired effect.

A third serious criticism was by-bidding. If this practice exists at an auction market, it should be discontinued for the benefit and welfare of the market where it occurs. By-bidding is usually far more costly in the long run than the immediate gains made by its use. Consignors and buyers will usually stop using a market where this practice is known or suspicioned.

A fourth criticism was sanitation, not only in the yards and alleys, but also in attached facilities which become part of the market. Many patrons of auction markets felt that tighter sanitary restrictions should be enforced. Again, this criticism was not lodged against auction markets generally, but only against those where sanitation was not adequately practiced; however, the effects of this criticism more than likely are felt by all auction markets.

Auction markets were frequently criticized on yard and barn facilities. Since many of the auctions were built without adequate planning during the rapid development period, defects have shown up continuously. These defects range from improper hanging of gates at the loading and unloading facilities to inadequate ring size and seating space. Much could be done by management to cor-

rect arrangements which are now critical. But at several of the auctions, correction of improper construction could be accomplished only by considerable expense and in some cases only by outright rebuilding.

Poor lighting of the auction ring was another criticism mentioned by many patrons against auction markets. In many instances, this might be attributed to oversight on the part of management. In other cases, it could be caused by inefficient construction of the facility. Regardless of cause, it is a source of criticism in a number of markets and one that could be corrected easily.

Inadequate parking space and/or parking arrangement was mentioned by customers of several auction markets. In some situations, increased parking space can only be acquired through extensive capital outlay; on the other hand, more efficient and serviceable parking arrangements could be installed on existing areas at many markets at little expense.

Market news was often mentioned as a desire by the auction patron. There appeared to be a tendency for auctions that did practice some form of market news reporting to be spasmodic in their reports. Auction customers could not depend on the report appearing in the local paper or radio newscast at a given time, nor in the extent of the report when it did appear.

Auction markets were criticized frequently on scale facilities and weighing practices. In most cases, it is believed that this criticism stemmed from lack of understanding. In other instances, the criticism stemmed from the seller being unable to see his livestock weighed or not knowing if the scales were correctly adjusted. Accurate weights should be continuously practiced and stressed by auction management.

Some auction markets were criticized on treatment of the small odd lot seller. Emphasis on uniform treatment of all sellers without reference to size of lot appears to be desirable. The sources of this criticism often mentioned collusion among buyers.

Reference to rough handling of livestock came from buyer and seller alike. Apparently, great care is taken at most auctions in handling livestock at their yards.

SUMMARY

At present no one best market exists for all classes of livestock and for all individual sellers and buyers of livestock. Each type of market performs some services which contribute to increased market efficiency. However, the effectiveness and efficiency of the many different types of markets in handling livestock varies over a wide range. What might be an advantageous method of marketing to one producer might not necessarily be true for another. The best market is commonly defined as that market where the seller or buyer receives the highest net return over a period of time, for the particular class and grade of livestock

which he handles. However, there are many other deciding factors which subtract from the validity of this definition. Many of these factors are so closely related that they can be grouped under the heading "convenience." Convenience and associated factors cannot be measured accurately by a common denominator.

Missouri livestock auctions varied widely in their facility arrangements, space, charges, services performed, and other practices common to auction markets. One important contribution which all auction markets make to the livestock industry is to provide the community a facility for local exchange of feeder, stocker, and breeding livestock between farmers and other producers. This, by no means, is the only worthwhile function or service performed by auction markets but it is one which is frequently overlooked and therefore merits specific mention.

Missouri livestock auction markets do have their imperfections as do other market institutions. Many of the complaints lodged against auctions and the auction method of selling livestock in general are not the fault of market agencies per se but rather the result of undesirable practices and the experiences endured by some individual at a few of the markets.

Much can be done in improving Missouri's livestock auction markets. The functions and services performed by these markets should not be discounted. The estimated volume of receipts at these markets is well over two million head annually. The future of the livestock auction and the auction method of selling depends primarily upon the quantity and quality of the service offered by these markets in relation to services offered by alternative markets. In this respect, the future prospects for livestock auction markets are no different than those of any other market.

APPENDIX TABLE 1-ESTIMATED TOTAL RECEIPTS, PERCENTAGES VARIOUS SPECIES WERE OF TOTAL, NUMBER OF EMPLOYEES, AND AVERAGE TIME RUN OF SALE, AUCTION MARKET GROUP I

Auction Group I (Code No.)		Estimated Total Receipts All Livestock (1957)	Cattle and Calves as Percent of Total	Hogs and Pigs as Percent of Total	Sheep and Lambs as Percent of Total	Auction-eers (No.)	Clerks (No.)	Ring-men (No.)	Weigh-men (No.)	Yard-men (No.)	Clean up and other Employ-ees (No.)	Total Employees (No.)	Average Sale Run Time (hours)
	26	40,470	23.3	75.8	.9	1	4	1	1	8	1	16	6
	40	41,550	37.5	42.1	20.4	2	3	1	1	7	0	14	4.5
	51	49,350	54.9	44.9	.2	3	6	1	1	10	2	23	4
	52	55,050	66.1	32.2	1.7	2	5	3	1	6	0	17	4.5
	46	56,000	31.3	42.8	25.9	4	6	2	1	10	0	23	4.5
	53	70,200	68.5	27.8	3.7	1	3	1	1	7	2	15	6
	50	80,525	27.4	72.4	.2	1	2	1	1	7	2	14	3.5
	54	97,300	58.6	41.1	.3	3	2	1	1	5	4	16	5.5
Total	8	490,445				17	31	11	8	60	11	138	38.5
Average		61,306				2.1	3.9	1.4	1	7.5	1.4	17.2	4.81
Ratio of Employees to Average Receipt Volume						1 : 3,554							
Ratio of Man Hours to Average Receipt Volume						1 : 364.6							
Ratio of Hour of Sale Time to Volume Sold						1 : 254.9							

APPENDIX TABLE 2-ESTIMATED TOTAL RECEIPTS, PERCENTAGES VARIOUS SPECIES WERE OF TOTAL, NUMBER OF EMPLOYEES, AND AVERAGE TIME RUN OF SALE, AUCTION MARKET GROUP II

Auction Group II (Code No.)	Estimated Total Receipts All Livestock (1957)	Cattle and Calves as Percent of Total	Hogs and Pigs as Percent of Total	Sheep and Lambs as Percent of Total	Auction-eers (No.)	Clerks (No.)	Ring-men (No.)	Weigh-men (No.)	Yard-men (No.)	Clean up and other Employ-ees (No.)	Total Employees (No.)	Average Sale Run Time (hours)
22	16,780	40.3	54.3	5.4	2	4	1	1	5	0	13	6.5
30	18,088	57.5	37.0	5.5	2	3	2	0	0	1	8	4
44	19,000	87.9	6.8	5.3	3	3	0	1	6	0	13	5
38	19,500	66.7	25.6	7.7	2	6	2	1	6	0	17	6
17	20,050	26.9	71.1	2.0	3	2	0	0	4	1	10	3
12	20,330	23.0	76.7	.3	2	3	1	1	10	1	18	4.5
23	20,600	36.4	63.1	.5	1	3	3	1	6	0	14	4
16	20,890	24.4	73.4	2.2	2	2	2	0	5	0	11	4
47	21,670	80.7	16.9	2.4	2	3	0	1	9	1	16	5
27	23,440	42.0	48.6	9.4	2	3	4	1	7	0	17	4
36	24,525	52.0	42.1	5.9	2	2	0	0	4	0	8	4.5
8	24,568	16.8	82.4	.8	2	3	0	0	6	0	11	4
32	25,900	42.2	48.2	9.6	2	4	0	1	5	0	12	4.5
41	26,000	60.0	40.0	0	2	7	0	0	7	1	17	4.5
33	26,600	43.8	51.9	4.3	1	3	0	0	6	0	10	3
42	27,400	56.9	13.8	29.1	1	5	3	1	6	0	16	5
43	27,800	56.1	43.2	.7	2	2	0	0	6	0	10	5
49	28,650	71.7	26.5	1.8	3	4	0	1	7	0	15	5
24	29,700	25.2	74.4	.4	1	4	2	2	10	0	19	4
37	29.900	43.5	52.2	4.3	2	5	3	1	9	0	20	5
20	30,700	20.8	71.9	7.3	2	4	0	0	5	1	12	6
39	31,800	47.2	37.7	15.1	3	5	2	1	12	0	23	5
25	32,240	25.8	59.7	14.5	2	3	0	0	10	0	15	5.5
48	34,700	51.9	36.0	12.1	2	5	1	1	6	1	16	5
34	35,900	32.6	65.1	2.3	2	4	2	0	4	0	12	5
31	27,600	27.9	69.1	3.0	5	4	1	1	7	0	18	6.5
45	38,800	43.3	48.9	7.8	3	3	0	0	5	1	12	6
Total 27	713,131				58	99	29	16	173	8	383	130.0
Average	26,412				2.1	3.7	1.1	.59	6.4	.30	14.2	4.8

Ratio of Employees to Average Receipt Volume	1 : 1860
Ratio of Man Hours to Average Receipt Volume	1 : 279.5
Ratio of Hours of Sale Time to Volume Sold	1 : 110

APPENDIX TABLE 3-ESTIMATED TOTAL RECEIPTS, PERCENTAGES VARIOUS SPECIES WERE OF TOTAL, NUMBER OF EMPLOYEES, AND AVERAGE TIME RUN OF SALE, AUCTION MARKET GROUP III

Auction Group III (Code No.)		Estimated Total Receipts All Livestock (1957)	Cattle and Calves as Percent of Total	Hogs and Pigs as Percent of Total	Sheep and Lambs as Percent of Total	Auction-eers (No.)	Clerks (No.)	Ring-men (No.)	Weigh-men (No.)	Yard-men (No.)	Clean up and other Employ-ees (No.)	Total Employees (No.)	Average Sale Run Time (hours)
	1	625	84.0	0	16.0	2	2	1	0	4	0	9	5.5
	4	4,500	83.1	1.4	15.5	1	1	1	1	3	0	7	4
	6	5,340	76.8	22.3	.9	2	2	0	1	5	0	10	4
	5	5,362	72.1	23.3	4.6	1	1	1	0	4	0	7	3
	3	5,840	58.2	40.1	1.7	2	1	1	1	1	0	6	5.5
	2	6,250	52.1	44.8	3.1	1	2	2	1	2	0	8	2.5
	18	6,468	87.6	7.6	4.9	2	2	0	1	4	0	9	6
	13	6,865	71.2	21.8	7.0	1	3	1	0	7	0	12	4
	7	7,620	54.1	43.9	2.0	2	1	0	1	5	1	10	6
	14	7,960	61.7	34.5	3.8	1	2	1	0	5	0	9	3
	9	9,444	46.6	51.8	1.6	2	2	0	1	3	0	8	3.5
	29	10,000	100.0	0	0	1	3	1	0	7	0	12	2
	15	10,100	49.5	49.5	1.0	2	3	1	1	9	2	18	4
	10	10,484	43.0	49.6	7.4	1	2	3	1	0	1	8	3
	11	11,440	40.9	59.1	0	2	2	0	1	5	0	10	4
	21	11,780	55.2	39.7	5.1	2	2	0	1	4	0	9	4
	19	12,900	48.1	36.1	15.8	2	2	0	1	5	0	10	5.5
	28	14,144	70.6	28.7	.7	1	3	1	1	5	0	11	3
	35	14,200	84.5	14.0	1.5	2	2	0	1	4	0	9	4.5
Total	19	161,322				30	38	14	14	82	4	182	77.0
Average		8,490				1.6	2	.74	.74	4.3	.21	9.6	4.05
Ratio of Employees to Average Receipt Volume						1 : 884							
Ratio of Man Hours to Average Receipt Volume						1 : 160.8							
Ratio of Hour of Sale Time to Volume Sold					1 : 42	1 : 42							

The regression equations for receipt volume of slaughter cattle and feeder cattle to distance for the three auction market groups are:

Slaughter Cattle and Calves

Market Group	
I	$Y = 1772.151 + 97.779X - 1.821X^2$
II	$Y = 974.093 + 6.601X - .307X^2$
III	$Y = 349.684 - .707X - .048X^2$

Feeder Cattle

I	$Y = 3411.059 + 23.390X - .549X^2$
II	$Y = 1272.976 + 57.809X - .856X^2$
III	$Y = 919.535 + 12.898X - .275X^2$

APPENDIX TABLE 4. INDEX OF DETERMINATION AND STANDARD ERROR, AUCTION MARKET GROUP

Auction Group	Index of Determination	Standard Error
Slaughter Cattle		
I	.2233733	2192.499
II	.2639955	673.768
III	.0836064	343.401
Feeder Cattle		
I	.0664360	5835.961
II	.0667199	1446.720
III	.0595716	837.467

The regression equations for receipt volume of slaughter hogs and feeder pigs to distance for the three auction groups are:

Slaughter Hogs	
Market Group	
I	$Y = 3864.0766 + 34.7782X - 1.2499X^2$
II	$Y = 902.4357 + -3.8576X - .1354X^2$
III	$Y = 296.5749 + -4.2797X - .0037X^2$
Feeder Pigs	
I	$Y = 2831.3755 + 121.9439X - 1.7133X^2$
II	$Y = 2570.2928 + 26.0918X - .4561X^2$
III	$Y = 373.7168 + 18.3091X - .2676X^2$

APPENDIX TABLE 5. INDEX OF DETERMINATION AND STANDARD ERROR, AUCTION MARKET GROUPS

Auction Group	Index of Determination	Standard Error Sxy
Slaughter Hogs		
I	.05508	6139.392
II	.09964	1006.408
III	.07901	327.337
Feeder Pigs		
I	.05424	3121.186
II	.00814	2916.981
III	.03326	643.348

APPENDIX TABLE 6-COMPARISON OF THE COEFFICIENTS OF CORRELATION OF AVERAGE NUMBER OF LABORERS TO RECEIPT VOLUME, FOR THE THREE AUCTION MARKET GROUPS

Auction Market Group	Coefficient of Correlation
I	.16118
II	.16499
III	.10316

APPENDIX TABLE 7-COMPARISON OF THE COEFFICIENTS OF CORRELATION OF AVERAGE NUMBER OF MAN HOURS OF LABOR TO RECEIPT VOLUME, FOR THE THREE AUCTION MARKET GROUPS

Auction Market Group	Coefficient of Correlation
I	.736726
II	.262138
III	.091799

The regression equations for number of employees and receipts for the three auction market groups are:

Market Group	
I	Y = 14.99 - .0000214X
II	Y = 9.58 + .0000859X
III	Y = 6.45 + .0002132X

APPENDIX TABLE 8. REGRESSION COEFFICIENTS, THEIR STANDARD ERRORS, AND "t" VALUES FOR THE ABOVE EQUATIONS

Auction Group	b	Sb	t
I	.0000214	.0000533	.40150
II	.0000859	.0001027	.83671
III	.0002132	.0004592	.46428

The regression equations for total work hours spent per week to weekly receipts for the three auction groups are:

Market Group	
I	Y = 121.77 + .12487X
II	Y = 55.60 + .07368X
III	Y = 53.32 + .04035X

APPENDIX TABLE 9. REGRESSION COEFFICIENTS, THEIR STANDARD ERRORS, AND "t" VALUES FOR THE ABOVE EQUATIONS

Auction Group	b	Sb	t
I	.12487	.043227	2.8885
II	.07368	.054216	1.359
III	.04035	.106245	.37979