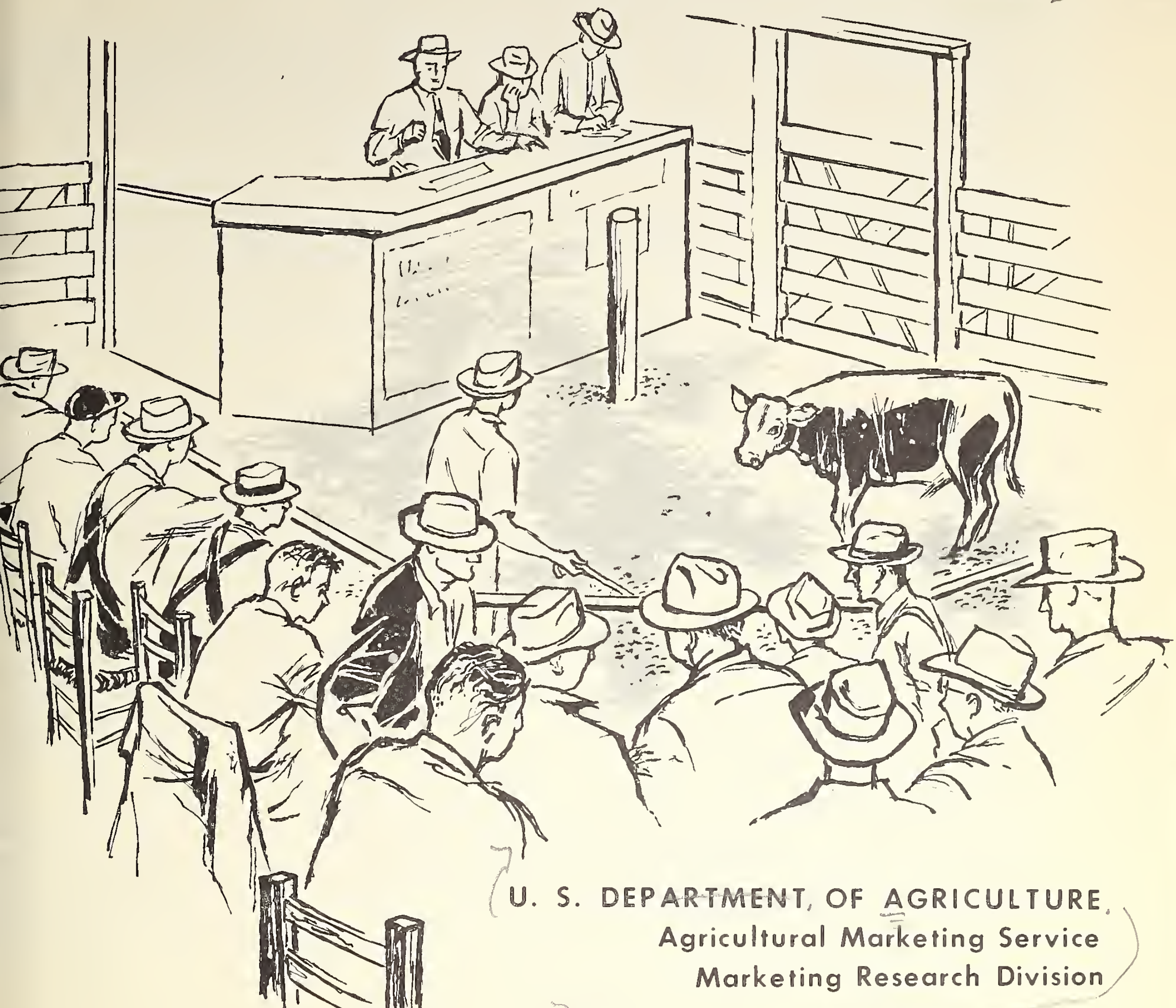
LIVESTOCK AUCTION MARKETS in the United States

Development, Volume Handled, and Marketing Charges



U. S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Marketing Research Division

Marketing Research Report No. 223

ACKNOWLEDGMENTS

The American National Livestock Auction Association solicited the cooperation of its members in this study; the livestock auction market operators furnished basic data. Mr. C. T. Sanders, Executive-Secretary, American National Livestock Auction Association, gave valuable assistance in planning the project.

The 48 State Departments of Agriculture provided lists of all livestock auction markets operating in their respective States.

The authors are especially indebted to the Alabama, Florida, New York, Oklahoma, South Dakota, Vermont, Washington, and Wyoming State Departments of Agriculture and to the Minnesota, Nebraska, West Virginia, and Purdue Agricultural Experiment Stations for providing additional data on numbers of livestock marketed at auctions.

John R. Churchill, formerly agricultural economist with the Agricultural Marketing Service, was associated with the project during its planning phase.

CONTENTS

	Page
Summary	1
Introduction	3
Organization and development	3
General characteristics	9
Ownership	11
Facilities	12
Methods of operation	12
Volume of livestock sold	13
Area served	18
Consignors and purchasers at auctions	19
Marketing charges at auctions	23
Methods of assessment	23
Straight per head method	23
Per head combination method	26
Straight percentage method	29
Percentage combination method	29
Value and marketing charges	29
Appendix	35

March 1958

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. - Price 25 cents

SUMMARY

The livestock auction market has become one of the major market outlets for livestock in the United States. In 1955, over 30 million head of cattle and calves were sold through auctions. This amounted to about one-third more than the number sold at terminal public stockyards. Auction markets also handled almost 15.5 million hogs and over 5.8 million sheep and lambs during that year. This represented about 63 percent as many hogs and a little over two-thirds as many sheep and lambs as were marketed through terminal yards.

Rapid expansion in numbers of auctions took place after 1930. Auction numbers increased from about 200 operating in 1930 to 2,472 by 1949. The peak in numbers was reached in 1952 when over 2,500 auctions were holding sales. By 1955, numbers had declined somewhat to 2,322.

About 45 percent of the livestock auctions were located in the North Central region, and more livestock were sold through auctions in this region than in any other area. However, this region accounts for the largest proportion of total liveweight production of meat animals in the United States. In relation to total livestock production, sales at auctions were less important in the North Central States than in any other region. In the South, auction sales accounted for a greater proportion of livestock production than in any other part of the country.

Most of the livestock auctions in the United States are relatively small scale operations. In 1955, over half of the auctions handled less than 10,000 marketing units (one marketing unit is equivalent to 1 head of cattle, 3 calves, 4 hogs, or 10 sheep and lambs). Only about 5 percent of the markets sold over 40,000 units. This 5 percent, however, sold a greater proportion of all livestock than did all the auctions handling less than 10,000 marketing units.

Auctions in general receive the bulk of their supply of livestock from local areas. During 1955, over 60 percent of the livestock consigned at auctions originated from within a 25 mile radius. However, the proportions of livestock consigned from outlying areas tended to increase with size of auction.

Livestock producers and feeders were the most important consignors to auction markets. This group supplied over three-fourths of all livestock consigned to auctions during 1955. Dealers consigned about 15 percent of the total volume while auction operators reported that their own personnel provided another 4 percent.

Packers and livestock producers and feeders were the 2 major groups of buyers at livestock auctions, acquiring 32 and 29 percent, respectively, of the total offerings in 1955. About a sixth of all livestock consignments were taken by order buyers for packer accounts, while dealers and order buyers for feeder accounts each purchased a tenth of the total volume sold. Auction operators reported that 2 percent of all offerings were taken by auction personnel.

Marketing charges for services provided at auctions were levied on a per head basis, as a percentage of sales value or by a combination of the 2 methods. The most usual rates were 3 and 5 percent for auctions assessing all charges on a percentage basis. At auctions levying all per head charges, the most common rates ranged from $1.50 to $2.00 for cattle, $1.00 to $1.50 for calves, 50 to 60 cents for hogs, and 40 to 50 cents for sheep and lambs.

The average marketing charge for all auctions reporting, regardless of their method of assessment, was $2.25 per head for cattle, $1.27 per head for calves, 63 cents per head for hogs, and 42 cents per head for sheep and lambs.

LIVESTOCK AUCTION MARKETS IN THE UNITED STATES

by Gerald Engelman and Betty Sue Pence
agricultural economists
Marketing Research Division
Agricultural Marketing Service

INTRODUCTION

During the last 2 decades the auction has become increasingly important as a marketing agency for livestock. Livestock auctions in the United States have increased in number about threefold since 1935. Along with this growth in numbers, there has been a significant expansion in the volume of livestock marketed at auctions.

The purpose of this study was to examine the role of the auction in the marketing of livestock in the United States and to provide information which may serve as a benchmark for future analyses of the economic importance and effectiveness of livestock auctions. Specifically the objectives were as follows: (1) To trace the development of livestock auction markets in the United States, (2) to describe the several characteristics of auctions in terms of ownership, facilities, and methods of operation, (3) to examine the present status of auctions with respect to volume handled, area served by them, and the relative importance of the different types of patrons, and (4) to determine the charges assessed for the services provided at auctions.

Data for 1955 were obtained from a mail survey of all livestock auction markets in the United States (see appendix). For purpose of analysis, data on auctions were grouped according to 2 methods of classification. By 1 method, auctions were divided into 5 regional groups: Northeast, North Central, South, South West Central, and West (fig. 1). The other method was based on size of auction as measured by the number of marketing units handled during the year. Auctions were separated into 5 size groups.

ORGANIZATION AND DEVELOPMENT

Buying and selling of livestock at auction in the United States dates back to a very early period. In New York City, records of auction sales may be found for as early as 1676. The auction method of selling was used in many of the colonies as a means of disposing of property, imported goods, secondhand household furnishings, farm utensils, and animals.

According to available records, the first public livestock auction sale was held in Ohio in 1836 by the Ohio Company, whose business was importing English cattle. This event also marked the first sale of purebred cattle ever

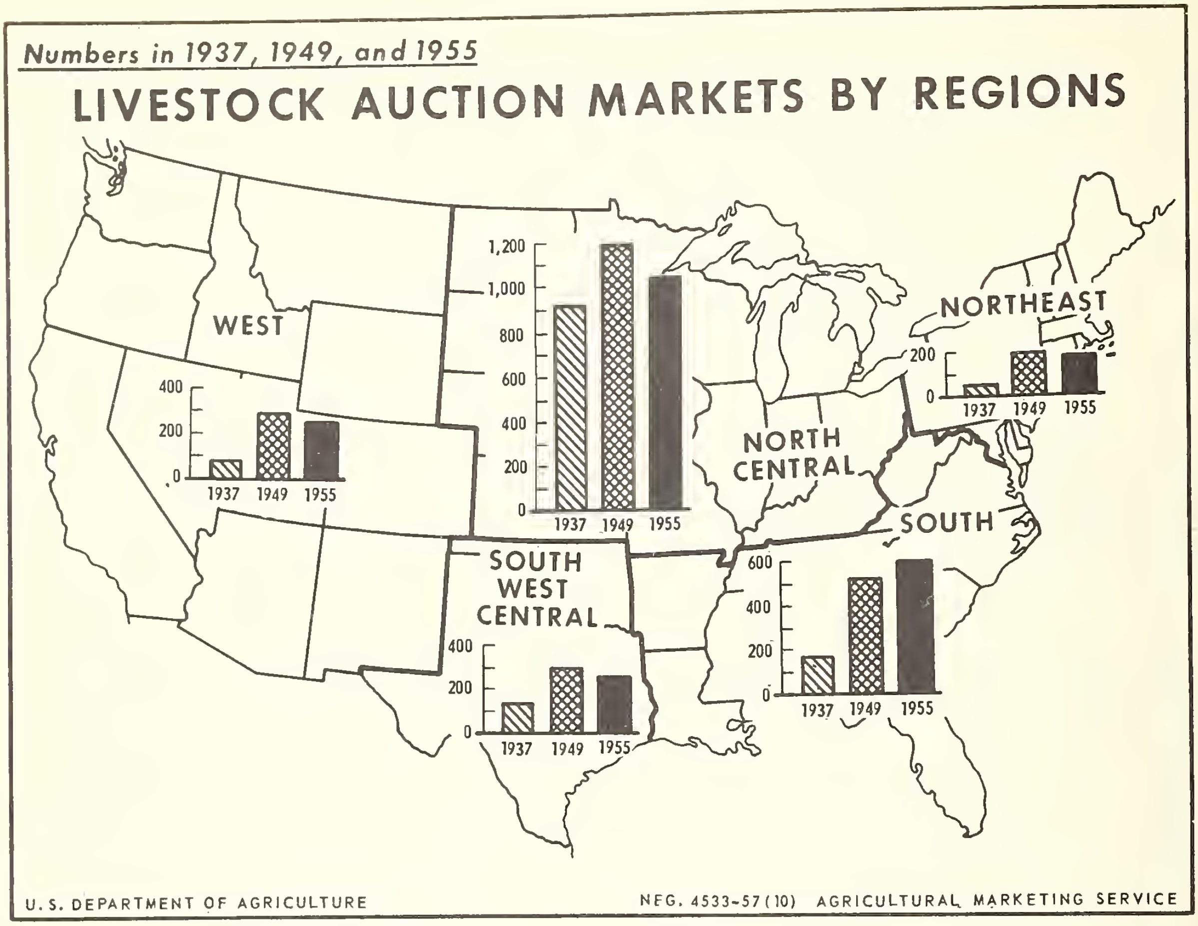


Figure 1

held in America. Another early livestock auction sale was established by the Madison County Importing Company at London, Ohio, in 1853. Its first sale was held on September 27 of that year when imported stock, including 15 bulls, 9 cows, 12 hogs, and 20 sheep, was sold by auction. On March 5, 1856, this company held its first monthly sale of commercial livestock. These sales continued to increase in importance throughout the 19th century.

Some of the most important livestock auction sales held in the 1850's were the Kentucky "court day" sales which took place on the first Monday of each month at Paris, Versailles, Frankfort, and Georgetown. Buyers on hand for these sales came from the neighborhood, from adjoining counties, and from nearby and distant States. Sales were mostly conducted by the auction method, but often when business was dull private negotiations were also carried on. However, the importance of these sales declined in the course of time.

During the first 2 decades of the 20th century, very few livestock auction markets are known to have been in operation. The oldest livestock auction in the Western Region was established at Miles City, Mont., in 1900. This auction held sales exclusively for horses and operated for only a few years after its formation.

Some growth in numbers of livestock auction markets took place during the early 1900's. Most of this was centered in the North Central region. In Iowa, the first market-day or combination sale was established at Union in 1904. Three more auctions were established in 1912 and by 1930 there were 33 markets operating in the State. In 1911, an auction sale was established at Berlin, Ohio, by a group of Mennonite farmers. No more auctions were reported in Ohio until 1929 when 2 more came into existence. By 1930, there were 9 sales operating in this State. The first livestock auction market in Nebraska was established in 1912. This State had 7 auctions in existence in 1920 and 15 by 1930. In 1919, the first community livestock auction market in Minnesota was established at Belle Plaine. The following year another auction was started at Sleepy Eye and until 1933, these markets were the only 2 operating in Minnesota.

In the Western region an auction market for slaughter hogs was started at Wasco, California in 1917 by farmers in Kern County. The following year similar auctions were established in Tulare and Kings Counties. By 1919, auction sales were being held in 7 counties of the State.

Until the 1930's very few livestock auction markets were operating in the Southern and Northeastern regions. The first livestock auction markets in the Southeast appeared in Georgia in 1925. According to available records, the first Mississippi auction was organized in 1932, and in 1934 the first auction sale in Louisiana was established. In the Northeastern region the 2 earliest livestock auctions were established in 1920 in Connecticut and Delaware. By 1930, only 3 more auctions had been organized in this area. Two appeared in New Jersey and Vermont in 1926, and another in New York in 1929.

The most phenomenal growth in the number of livestock auctions came about during the 1930's. Figure 2 shows an estimated growth curve of the numbers of livestock auctions in operation from 1900 to 1955. During the decade of the thirties, numbers of auctions in operation had increased from about 200 in 1930, to some 2,000 markets by 1940.

Several important factors contributed to the pronounced expansion of auction markets during the thirties. These factors are associated with the trend toward a decentralized livestock marketing system which has been occurring over the last 25 years. A development of primary importance was the improvement and extension of hard surfaced roads accompanied by the increased use of motor carriers as a means for transporting livestock to and from the market place. Use of trucks increased flexibility in the handling of various sized lots of livestock and in the direction of movement. With the advent of better roads, trucks could be used for transporting livestock moderate distances both quickly and economically. Growing numbers of small packers, located at points away from terminal markets, were able to procure livestock more efficiently at auction markets. Other factors leading to the growth of auction markets were the development of more uniform grade and weight

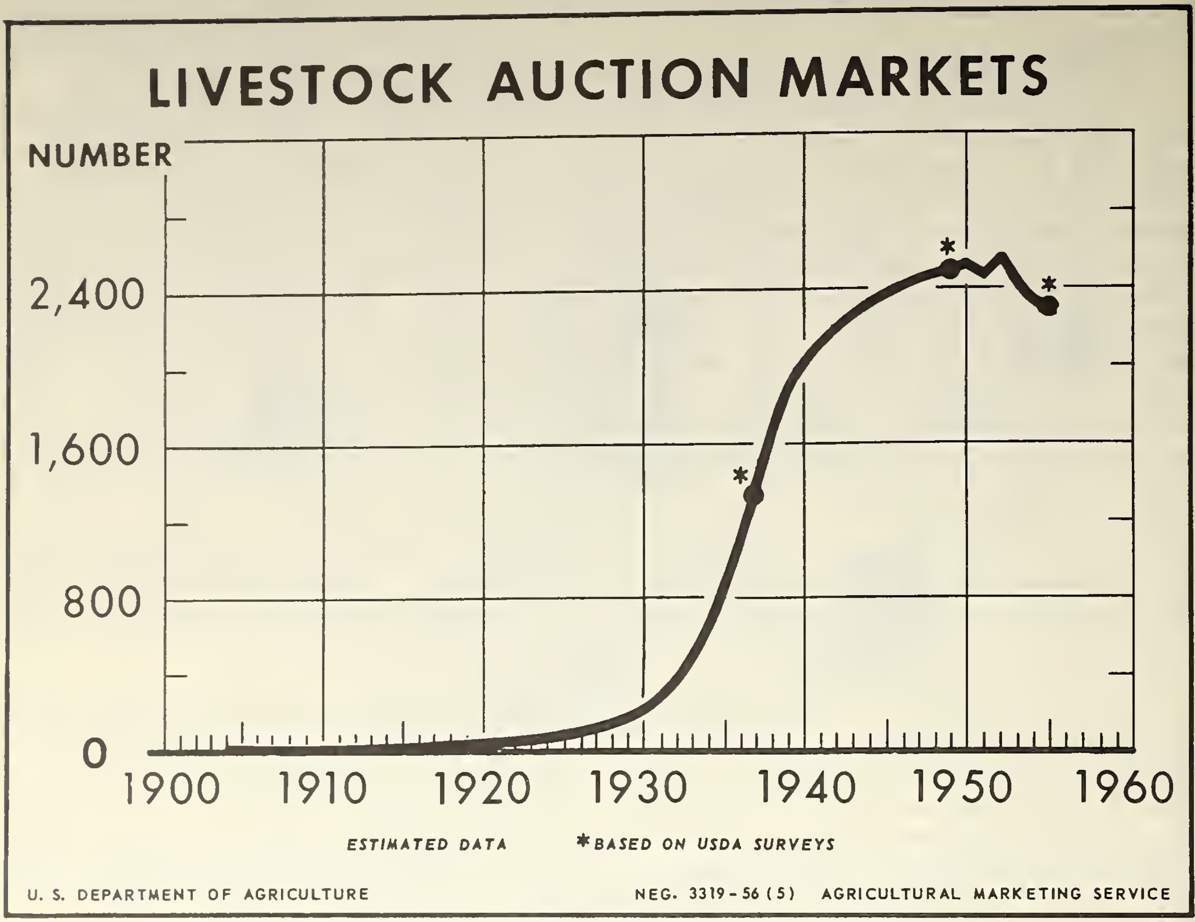


Figure 2

classifications for livestock and improvements made by the Federal government in providing more extensive collection and dissemination of market news.

With these developments, local auctions became a convenient marketing place for farmers to dispose of small lots of livestock and to purchase stocker, feeder, and breeding animals. These nearby markets also enabled farmers to keep currently informed of local market conditions and livestock prices.

Certain general economic conditions existing in the early thirties also favored the establishment of auction markets. During the depression years, 1930-33, livestock prices declined steadily. At a low level of prices, transportation and other marketing expenses compose a greater part of the total gross value received from the sale of livestock. Since, at this time the commission charges at most auctions were based on a percentage of the gross sale value of the animal, marketing expenses at auctions tended to be low when prices were low. With the proximity of auctions to producing areas, out-of-pocket transportation expenses were less for livestock sent to local auction than for shipments to more distant market outlets.

Abnormal feed distribution caused by the droughts of 1934 and 1936 in the Western Corn Belt and Range States created conditions favoring increased sales at auctions. Some immature and unfinished stock in these areas were sold at nearby auctions to farmers having a plentiful supply of feed on hand. Stocker and feeder cattle were shipped out of the drought sections to auctions located in areas where feed supplies were more abundant.

The rapid increase in livestock auctions during the thirties first got under way in the North Central region. By 1937, there were 1,345 livestock auctions operating in the United States with 68 percent located in the North Central region (fig. 3). Over half of the auctions operating in the United States in 1937 were located in the States of Illinois, Iowa, Missouri, Kansas, and Nebraska. These States had a combined total of 685 auctions at that time. Outside the North Central region, the State having the greatest number of auctions at this time was Oklahoma with a total of 93 markets.

By 1937, some auction market development also had taken place in the Northeastern States of New York and Pennsylvania and in most of the States in the Southern region. In the Western region, the largest number of auctions were concentrated in Colorado and California.

After 1937, the great expansion in the number of auctions took place outside the North Central region (fig. 4). By 1949, auction markets were well distributed throughout the country. Extensive development took place in the Western and Northeastern regions where auction numbers increased almost fourfold from 1937 to 1949. Numbers expanded over threefold in the South and doubled in the South West Central area (Texas and Oklahoma). Although livestock auctions had increased by 20 percent in the North Central region during this period, the 1949 count in this region represented less than half the total number of auctions in the United States as compared with over two-thirds of the total in 1937.

Between 1949 and 1955 the number of auctions first increased and then decreased. The peak in numbers of auctions was reached in 1952, when over 2,500 markets were operating in the United States. By 1955, however, numbers had declined to 2,322 active markets, which was somewhat less than the 1949 count of 2,472 (table 1). Between 1949 and 1955, numbers were reduced in all regions except the South which experienced a slight increase. In the South, the peak period of growth occurred in 1952, and by 1955 the total was still about 16 percent above the 1949 level. The peak in auction development in the Western region was reached by 1949, and in the South West Central by 1950. In the North Central region, a steady decline in auction numbers began after 1952. By 1955, there were 1,044 auction sales operating in this area, which accounted for 45 percent of the total for the United States.

In 1955, Iowa was the leading State in numbers of auctions with 185 in operation. Texas was second with 151. States having the greatest increase in numbers of auctions during the period 1949-55 were South Carolina, Georgia, and Tennessee. Other areas where auction numbers expanded were Virginia, North Carolina, Florida, and Arkansas in the South, Maine, Massachusetts, and

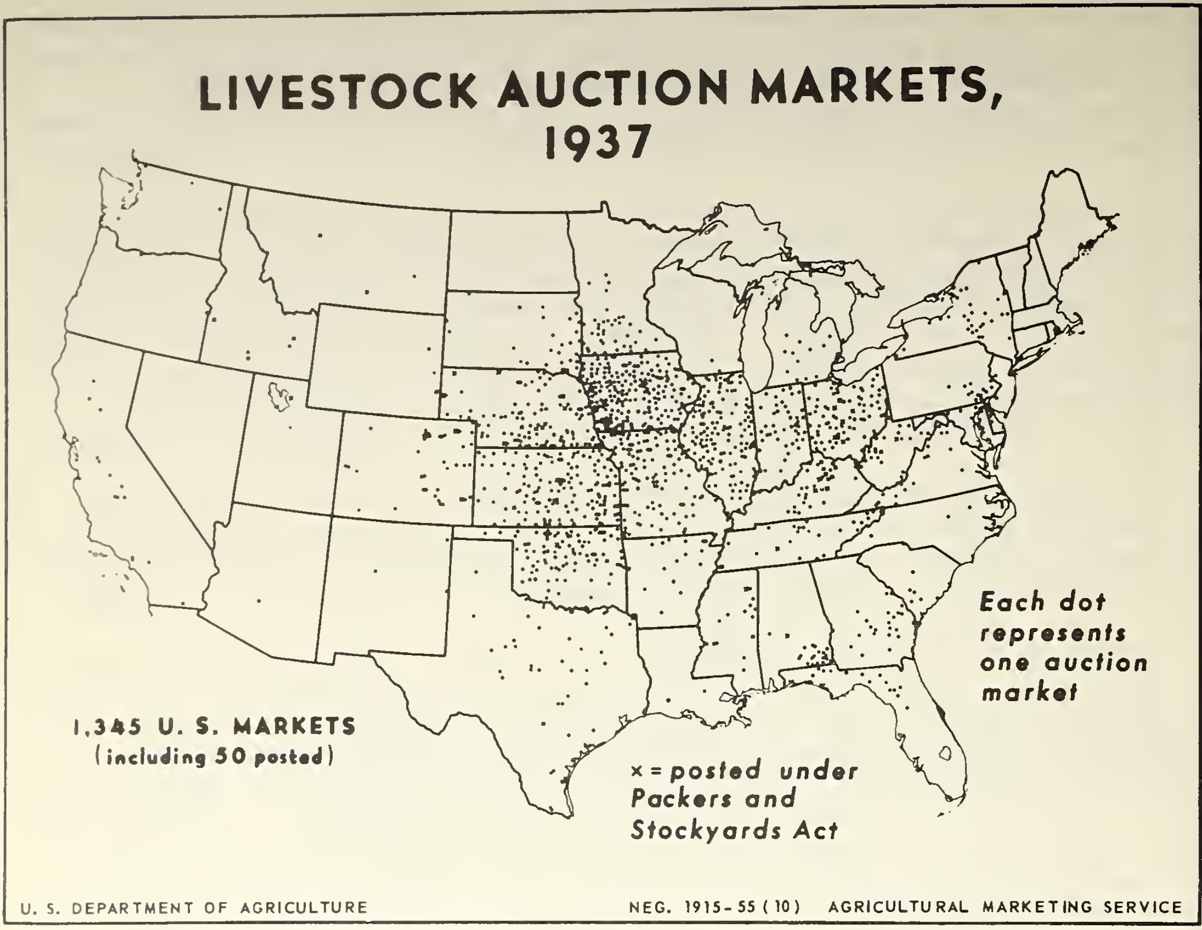


Figure 3

Connecticut in the Northeast, Indiana, Wisconsin, and South Dakota in the North Central, and Montana, Arizona, and Utah in the West. Numbers declined in most of the other States

More detailed information on the development of livestock auctions in the Western region and Texas is shown in figure 5. After 1935, numbers of auctions in the West increased rapidly. The greatest period of expansion was during the years 1945-49, when numbers increased from 280 to 456. Volume of cattle and calves handled at auctions also has shown an upward trend. In 1935, about 238 thousand head of cattle and calves were sold at Western auctions. By 1945 auction sales of cattle and calves in the West had increased to over 4 million. Although numbers of auctions showed a slight decline after 1949, volume of cattle and calves sold at Western auctions continued to increase to about 8 million head in 1955.

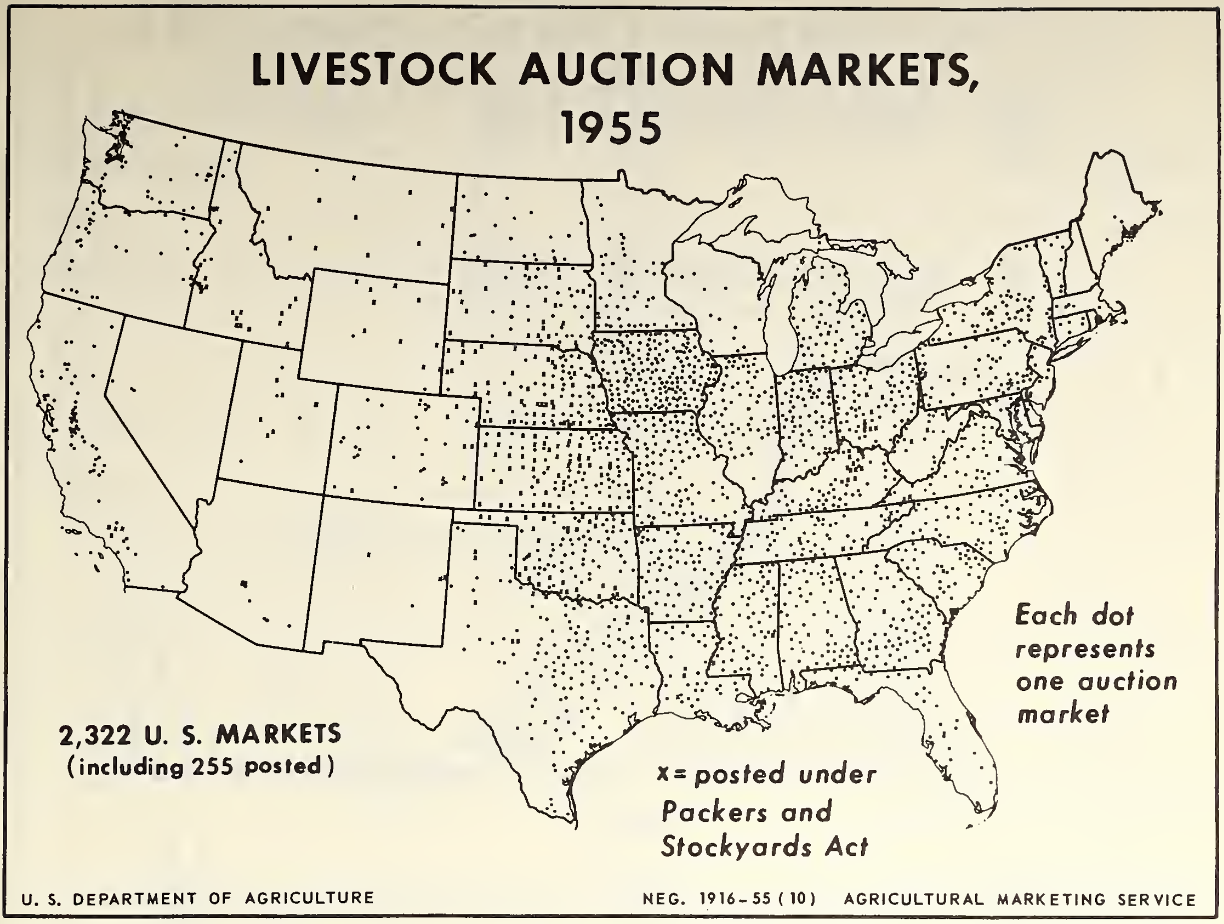


Figure 4

GENERAL CHARACTERISTICS

Livestock auctions are market places of business where livestock are assembled and sold by means of public bidding. Animals are driven from the holding pens, where they had been yarded when received, into a sales ring where they can be viewed simultaneously by all buyers. The sale is conducted by the auctioneer, who is mainly responsible for obtaining the highest possible bid for the stock. In contrast, trading at terminal markets is carried on by private treaty in the pens where animals are yarded. Marketing procedures at livestock auctions differ from terminal market practices principally in this respect.

While the general selling process is similar for most auctions throughout the United States, markets vary with respect to number and kinds of livestock handled, type of ownership, facilities, and methods of operation. The majority of livestock auctions are relatively small and conduct sales only once a week.

Table 1.--Livestock auction markets by State and region, 1937, 1949, and 1955

State and region	1937	1949	1955	State and region	1937	1949	1955
	Number	Number	Number		Number	Number	Number
Northeast:				South:			
Maine	0	0	3	Virginia	16	48	49
New Hampshire	0	2	0	West Virginia	22	24	24
Vermont	0	15	9	North Carolina	4	52	55
Massachusetts	0	1	5	South Carolina	5	17	41
Rhode Island	0	1	0	Georgia	23	65	86
Connecticut	0	4	5	Florida	14	23	31
New York	30	72	70	Tennessee	24	38	55
New Jersey	2	10	10	Alabama	20	60	70
Pennsylvania	13	70	59	Mississippi	15	73	70
Delaware	5	5	3	Arkansas	16	70	78
Maryland	4	12	12	Louisiana	2	45	39
Total	54	192	176	Total	161	515	598
North Central:				South West Central:			
Ohio	76	83	77	Oklahoma	93	122	100
Indiana	44	74	80	Texas	39	168	151
Illinois	140	97	74	Total	132	290	251
Michigan	13	72	61				
Wisconsin	3	8	16				
Minnesota	38	60	52	West:			
Iowa	195	201	185	Montana	3	12	13
Missouri	113	164	118	Idaho	5	31	27
North Dakota	0	25	23	Wyoming	3	14	12
South Dakota	27	54	61	Colorado	40	53	39
Nebraska	99	114	108	New Mexico	3	4	4
Kansas	138	150	124	Arizona	1	4	8
Kentucky	32	85	65	Utah	2	8	10
Total	918	1,187	1,044	Nevada	0	3	3
				Washington	5	43	30
				Oregon	2	38	35
				California	16	78	72
				Total	80	288	253
				Total U. S.	1,345	2,472	2,322

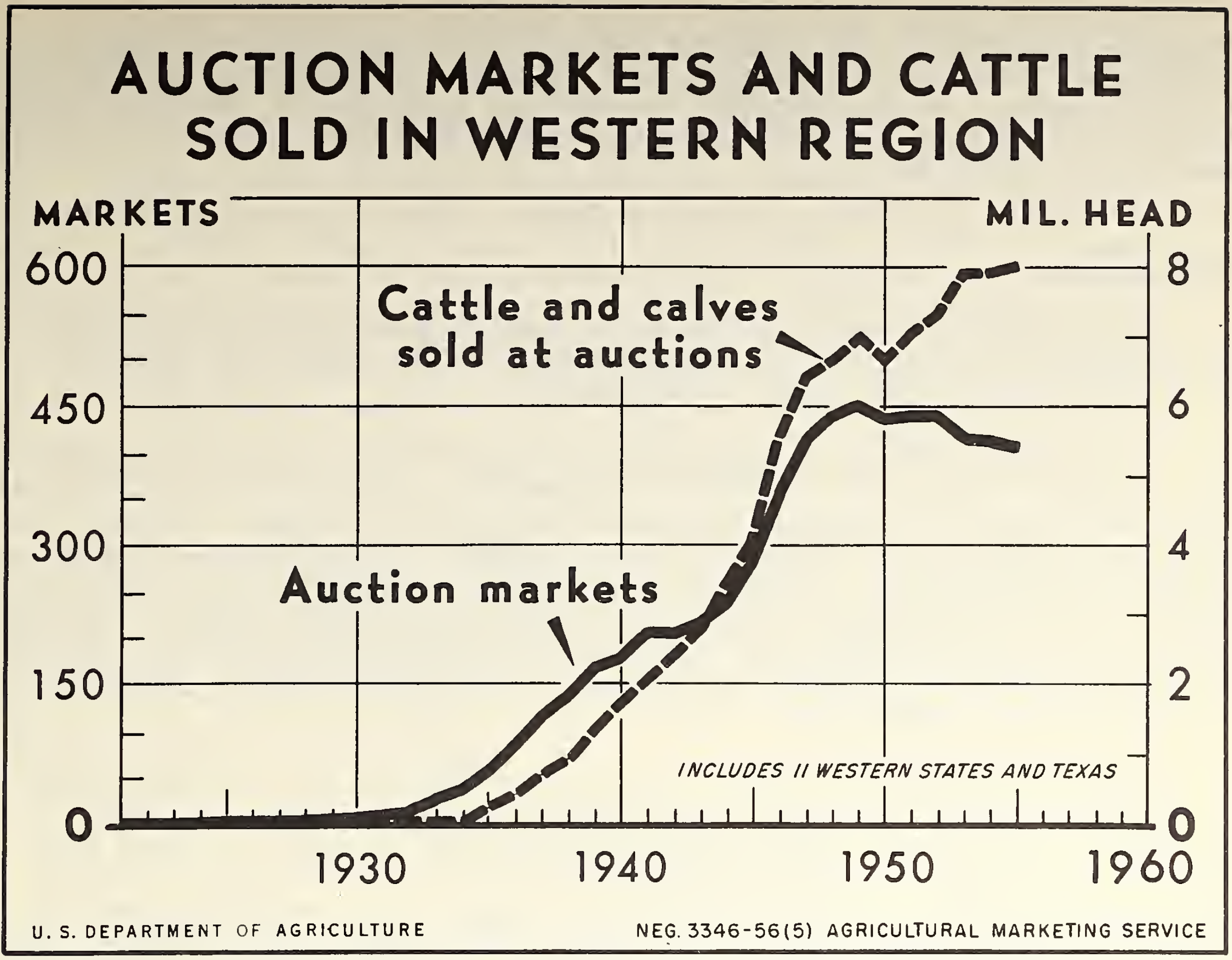


Figure 5

However, auctions vary considerably in the volume of livestock they handle. Numbers of cattle and calves sold at auction during 1955 ranged from less than 100 head at some markets to over 200,000 at others. Most of the auctions handle more than one kind of livestock, although specialized selling of one type or class of stock takes place in certain areas of the country.

Ownership

Livestock auction markets are owned by partnerships, individuals, corporations, and cooperatives. Operations by individuals and partnerships usually tend to be associated with the smaller auctions, whereas the corporate form of ownership is more typical of the larger markets.

Certain types of ownership are more prevalent in certain areas. For example, in 1948, 50 percent of the auctions in the Western States and Texas were operated by partnerships, while 35 percent were owned by individuals. In the Northeastern States, however, individuals and corporations owned the majority of auctions. The corporate form of ownership is particularly extensive in the States of Pennsylvania, West Virginia, and Maryland. Cooperatively owned auctions, which represent the smallest proportion of the total number in the United States, are found largely in Ohio, Oklahoma, California, Indiana, New York, and Michigan.

Facilities

The movement of livestock through an auction market requires facilities for receiving, selling, and loading out animals. The layout and design of these facilities differ greatly among markets.

Yards for receiving and loading out livestock will include some or all of the following facilities: Truck and railroad docks, receiving and loading-out chutes and chute pens, tagging chutes, holding pens, alleyways, overhead walkways, dipping vats, feed racks, and water troughs. The arrangement and design of pens and alleys at a particular yard depends to a great extent upon the climatic conditions and the volume and classes of livestock handled. Covered pens are highly advantageous for auctions handling a large proportion of hogs and are also favored for sheep and calves. Many auctions have a combination of both open and covered pens.

Alleys or chutes are used to connect yard facilities to the sales barn. In the sales barn are the sales ring, seating space for buyers, sellers and spectators, auctioneer's booth, scales, offices, and generally a lunch room or snack bar. Sales rings are usually semicircular or "U" shaped, although some are rectangular or polygon shaped. The area of the sales ring may vary from 100 to 1,200 square feet but the most common size is 300-500 square feet. The auctioneers' box is elevated above the ring and is ordinarily located directly across the sales ring from the seating area.

Methods of Operation

Most auction markets in the United States hold sales at least one day a week. Some of the smaller auctions, however, may temporarily discontinue operations during slack marketing periods. The day of the week on which sales are held varies considerably among auctions, particularly within a given area. In order to have an adequate number of buyers and sellers on hand for the sale, an auction operator usually selects a day of the week that will not conflict with the sales day of nearby competitors. Another factor in the selection of the sales day may be the availability of brand and health inspectors.

Ordinarily, livestock are delivered to the yards on the sales day, although some are delivered before. Most auction operators have no set time deadline for receiving livestock. Upon arrival at the market, the livestock are unloaded and inspected by yard personnel who record number and species consigned. A receipt is then issued to the consignor who may specify how the livestock are to be sold. In order to maintain identification, the livestock are usually tagged or marked before being assigned to pens.

Livestock consigned at auctions are sold either by weight on a price-per-pound basis or by the head. Two different methods are used for selling livestock on a weight basis. In one case, the animals appearing in the ring are all consigned by the same person and are sold either singly, in pairs, or in small lots that are fairly uniform with respect to size, condition, and quality. When this method is used, the animals are weighed either prior to or immediately following the sale, depending upon the established practice of the market. Auctions selling livestock by the other method combine consignments from a number of owners to make up rather large lots containing animals of uniform grade and weight. Animals in these pooled lots are weighed only at the time they are sorted. This method is most frequently used at large auctions selling a predominant amount of slaughter livestock. Animals sold on a per head basis may be auctioned individually, in pairs, or in small lots. Selling by the head is generally more common in areas where substantial numbers of breeding stock are sold. Many auctions, however, use both methods.

Auction operators may consider a number of factors in determining the order of sale of livestock. The principal reasons for establishing a definite pattern are to accommodate buyers and to maintain buyer interest. The type of livestock attracting the greatest buyer interest is often sold last. In scheduling certain classes of stock for sale first, operators may consider such factors as shrinkage of animals and convenience to farmers. Most auctions, however, attempt to sell animals within a class in the same order in which they are received from consignors.

VOLUME OF LIVESTOCK SOLD

The auction market has become one of the major institutions for marketing livestock in the United States. In 1955, over 30 million head of cattle and calves were sold through the 2,322 auctions in operation. This amounted to about one-third more than the number of cattle and calves sold at 64 terminal public markets during that period (table 2). A breakdown of the numbers of cattle and calves marketed indicates that auctions sold about 96 percent as many cattle as were sold at terminal markets but somewhat over three times as many calves. Almost 15.5 million hogs were sold through auctions, about 63 percent as large as the number sold at terminal markets. Sales of sheep and lambs at auction markets amounted to a little over two-thirds as large as the number marketed through terminal yards.

Numbers of livestock sold through auctions in 1955 were most heavily concentrated in the North Central region (table 3). Production of meat animals is largest there. However, the North Central States accounted for a much heavier concentration of the liveweight production of livestock than they did of the volume of livestock sold through auctions. In each of the other four regions, auction sales of livestock were of greater relative importance. This was especially true in the South. In 1955, the Southern region's proportion of auction sales of livestock was almost twice as large as their proportion of total livestock production.

Table 2.--Salable receipts at 64 terminal public markets and sales at livestock auctions, United States, 1955 1/

Species	Salable receipts at 64 terminal public markets	Sales at livestock auctions
	1,000 head	1,000 head
Cattle and calves	22,935	30,125
Cattle	19,077	18,269
Calves	3,858	11,856
Hogs	24,579	15,481
Sheep and lambs	8,594	5,858

1/ Numbers of livestock reported in this table represent a certain amount of double counting inasmuch as some livestock are sold more than once, both at terminal markets and at livestock auctions.

Table 3.--Percentage distribution of liveweight of farm production of meat animals and sales at livestock auctions, by region, United States, 1955

Region	Farm production of meat animals	Sale at livestock auctions
	Percent	Percent
Northeast	3.5	5.0
North Central	63.4	44.7
South	12.1	22.5
South West Central	8.3	12.8
West	12.7	15.0
United States	100.0	100.0

In 1955, the North Central region accounted for more of each species of livestock sold through auctions than any other region (table 4). Sales of hogs at North Central auctions amounted to more than the total for all other regions combined. The South, where almost a third of the total number for the United States were marketed, was the one other important area for hog sales at auctions. North Central auctions handled about 44 percent of the cattle, 36 percent of the calves, and 44 percent of the sheep and lambs sold through auctions in the United States.

Table 4.--Estimated number of livestock sold through auctions, by kind, by region, 1955

Region	Auctions	Cattle	Calves	Hogs	Sheep and lambs
	Number	1,000 head	1,000 head	1,000 head	1,000 head
Northeast	176	800	1,275	497	158
North Central	1,044	8,043	4,294	8,593	2,592
South	598	3,773	2,897	4,839	703
South West Central	251	2,461	1,896	843	1,223
West	253	3,192	1,494	709	1,182
Total	2,322	18,269	11,856	15,481	5,858
	Percentages of auctions and livestock sold				
	Percent	Percent	Percent	Percent	Percent
Northeast	7.6	4.4	10.8	3.2	2.7
North Central	45.0	44.0	36.2	55.5	44.2
South	25.7	20.6	24.4	31.3	12.0
South West Central	10.8	13.5	16.0	5.4	20.9
West	10.9	17.5	12.6	4.6	20.2
Total	100.0	100.0	100.0	100.0	100.0

Outside the North Central region, Southern and Western auctions handled the largest proportion of the total cattle volume. However, the Western region averaged the largest numbers of cattle sold per auction. The South West Central ranked second.

A rather sizable number of calves were sold through auctions in all areas of the country. Although total volume of auction sales for each kind of livestock was lowest in the Northeast, the sale of calves was by far the most significant to this area.

In the Northeastern region marketings of calves through auctions were over one and a half times the number of cattle sold during 1955. Auctions in the South, South West Central, and West accounted for 24, 16, and 13 percent, respectively, of the total number of calves sold through auctions in the United States.

Sales of sheep and lambs at auctions were especially important in the Western and South West Central regions. Although numbers of auctions in each of these areas represented about 11 percent of the total in the United States, sheep and lamb sales for the two regions combined amounted to over 40 percent of the total number marketed through all auctions.

The great bulk of the livestock auction markets in the United States are relatively small scale operations. In this study, size of auction was measured according to the number of marketing units handled during 1955. 1/ Small auctions, those selling up to 10,000 marketing units, represented over half of the total number in operation but only about a fifth of all livestock sold through auctions (table 5). On the other hand, large auctions handling over 25,000 marketing units accounted for about 12 percent of all auctions but sold over 41 percent of the total volume.

Table 5.--Livestock sold at auctions, by kind, by size of auction, United States, 1955

Size of auction 1/	Auctions		All livestock (marketing units)	Cattle	Calves	Hogs	Sheep and lambs
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Small:							
Under 10,000	1,330	57.3	20.6	17.7	26.8	29.8	15.5
Medium:							
10,000-24,999	720	31.0	38.0	35.8	42.4	44.9	36.0
Large:							
25,000-39,999	163	7.0	17.0	17.7	15.4	13.2	27.0
40,000-54,999	53	2.3	8.3	9.5	5.8	5.2	5.7
55,000 and above	56	2.4	16.1	19.3	9.6	6.9	15.8
All large	272	11.7	41.4	48.5	30.8	25.3	48.5
Total	2,322	100.0	100.0	100.0	100.0	100.0	100.0

1/ Size classification based on the annual marketing units handled for each auction.

1/ One marketing unit or equivalent equals 1 head of cattle, 3 calves, 4 hogs, or 10 sheep and lambs.

In table 5 the largest size group is divided into 3 subgroups. The largest of these 3, those auctions handling over 55,000 marketing units, represented about 2 percent of all auctions. However, these markets handled more cattle and sheep and lambs than did the small auctions, those under 10,000 marketing units, which accounted for 57 percent of the total number of auctions.

The regional distribution of markets by size and the proportion of livestock handled at auctions within different size groups are shown in table 6.

Table 6.--Percentage distribution of livestock auctions and livestock sold, by size of auction, by region, 1955

Size of auction 1/	Northeast		North Central		South	
	Auctions	Livestock sold	Auctions	Livestock sold	Auctions	Livestock sold
	Percent	Percent	Percent	Percent	Percent	Percent
Small:						
Under 10,000	72.1	38.8	60.1	22.9	56.5	25.8
Medium:						
10,000-24,999	23.9	44.0	28.1	36.0	35.3	48.6
Large:						
25,000 and above ..	4.0	17.2	11.8	41.1	8.2	25.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Size of auction 1/	South West Central		West		All regions	
Small:						
Under 10,000	46.5	16.7	48.6	13.0	57.3	20.6
Medium:						
10,000-24,999	37.9	41.3	30.4	29.3	31.0	38.0
Large:						
25,000 and above ..	15.6	42.0	21.0	57.7	11.7	41.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ Size classification based on the annual marketing units handled for each auction.

While small auctions accounted for the greatest share of the total number in each region, the heaviest concentration of small markets was in the Northeast. Only 4 percent of the Northeastern auctions were included in the large size groups as compared with almost 12 percent for the country as a whole. In both the Northeastern and Southern regions, large auctions sold a relatively small percentage of the total volume of livestock. Large auctions were most important in the West. Here they represented about a fifth of the total number of markets in the Western region but accounted for almost 58 percent of the livestock sold through auctions.

AREA SERVED

In general, livestock auctions serve local areas. Most of the consignments at auctions originate from a distance of less than 25 miles. In 1955, auctions received three-fourths of their supply of hogs, two-thirds of the calves, and over half of the cattle and sheep and lambs from within a 25 mile radius (table 7). Sheep and lambs traveled greater distances to markets than did the other kinds of livestock. Only a small proportion of the hog consignments were moved over 50 miles to market.

Table 7.--Distance livestock is transported to auctions: Percentage distribution by kind of livestock, United States, 1955

Livestock	Distance in miles				
	0 - 9	10 - 24	25 - 49	50 and over	Total
	Percent	Percent	Percent	Percent	Percent
Cattle	24	32	25	19	100
Calves	29	35	23	13	100
Hogs	34	41	18	7	100
Sheep and lambs	24	31	23	22	100
All livestock	26	34	24	16	100

Western auctions served a larger area than did those in other regions of the country. In this region, over half of the livestock traveled distances exceeding 25 miles to auctions (table 8). Auctions in the Northeastern and Southern States, however, received the great bulk of their consignments from relatively short distances. Only about a tenth of the livestock in these States were received from a distance of more than 50 miles.

Volume of livestock handled at auctions was associated with the area served. Large auctions tended to attract a greater proportion of consignments from outlying areas than did the small markets (table 9). During 1955, auctions selling over 55,000 marketing units received almost a third of their livestock from distances greater than 50 miles, while small auctions received less than a tenth of their consignments from these distances. On the other hand, over three-fourths of the receipts at the small auctions originated from within the 25 mile radius.

Table 8.--Distance livestock is transported to auctions: Percentage distribution by region, 1955

Region	Distance in miles				
	0 - 9	10 - 24	25 - 49	50 and over	Total
	Percent	Percent	Percent	Percent	Percent
Northeast	30	38	22	10	100
North Central	29	34	22	15	100
South	27	38	24	11	100
South West Central	20	33	25	22	100
West	19	25	27	29	100

Table 9.--Distance livestock is transported to auctions: Percentage distribution by size of auction, United States, 1955

Size of auction 1/	Distance in miles				
	0 - 9	10 - 24	25 - 49	50 and over	Total
	Percent	Percent	Percent	Percent	Percent
Small:					
Under 10,000	37	39	16	8	100
Medium:					
10,000-24,999	29	38	22	11	100
Large:					
25,000-39,999	22	33	27	18	100
40,000-54,999	21	30	26	23	100
55,000 and above	17	23	28	32	100
All large	20	29	27	24	100

1/ Size classification based on the annual marketing units handled for each auction.

CONSIGNORS AND PURCHASERS AT AUCTIONS

Major consignors of livestock at auction markets were livestock producers and feeders, livestock dealers, and auction personnel. The great bulk of the animals sold through auctions were consigned by farmers and feeders (fig. 6).

Dealers were next in importance, consigning about 15 percent of all livestock sold. Auction personnel supplied the remaining 4 percent. 2/

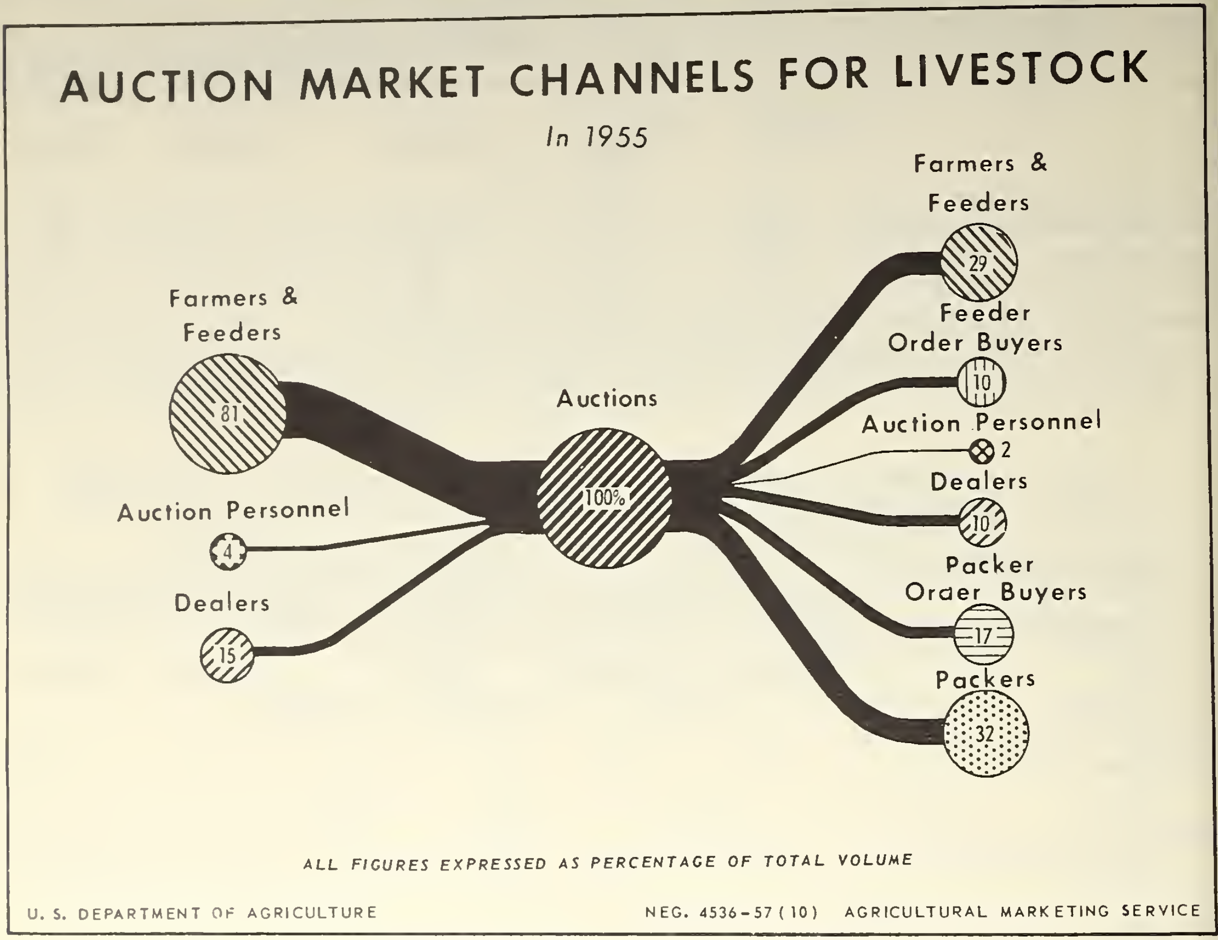


Figure 6

Livestock purchases at auctions were made primarily by livestock producers and feeders, order buyers for feeder accounts, dealers, auction personnel, packers, and order buyers for packer accounts. Packers, which included all livestock slaughterers, purchased the greatest proportion of livestock. The fact that almost half the total number were bought by packers and order buyers for packer accounts indicates the importance of slaughter livestock at auction sales. Feeder and stocker animals purchased by livestock producers and feeders, and order buyers for feeder accounts represented about 39 percent of the

---

2/ Proportions of livestock consigned and purchased by auction personnel may have been larger than indicated by the results of this survey. Auction personnel sometimes operate as dealers or livestock producers on the selling side and as dealers or order buyers on the buying side, and operators may have reported such activities in these categories rather than under auction personnel.

total sales. Dealers and auction personnel, who acquired 12 percent of all animals offered for sale, were not restricted to the purchase of any one particular type of stock.

Sources and outlets for the different species sold through auctions are shown in figure 7. Although patrons of auction markets tended to consign similar proportions of each kind of livestock and also to purchase similar proportions, some variations did exist. A larger proportion of hogs than of other species was supplied by livestock producers and feeders. On the other hand, dealers and auction personnel were more active as consignors of cattle.

On the buying side, packers bought a larger share of calves than of the other three kinds of livestock. However, combined purchases of packers and packer order buyers accounted for 63 percent of the hogs and 60 percent of the calves. Packers bought about the same proportion of the cattle offerings as did producers and feeders but took a somewhat larger share of the sheep and lambs sales. Dealers and order buyers for feeder accounts were more important as buyers of cattle than they were for other kinds of livestock. Again, the share of each kind of livestock bought by dealers and auction personnel was somewhat smaller than their consignments to auctions.

Among regions, there were some variations in the proportion of livestock consigned and purchased by the different patrons of auctions. Although auction markets in all regions received the majority of their consignments from producers and feeders, Northeastern markets received 74 percent of the livestock from the farmer group as compared to 85 percent for Southern auctions. Dealers, on the other hand, were most active in the Northeastern States, supplying 23 percent of the livestock for sale. Percentages received from auction personnel were relatively small in all areas with a high of 6 percent in the North Central region.

The sale of slaughter livestock was most important in the Northeastern States, where about 82 percent of the consignments at auctions were sold to packers and order buyers for packer accounts. At Southern auctions, about two-thirds of the offerings were purchased by packers and packer order buyers. The proportion of total purchases taken by these two groups in the North Central, South West Central, and Western regions was somewhat less, amounting to 43, 45, and 40 percent, respectively, for the 3 areas.

As purchasers of livestock, producers and feeders were most active in the North Central region, taking about 38 percent of total offerings. Another 9 percent was purchased by order buyers for feeder accounts in this area. Farmers and feeders and feeder order buyers were also important at South West Central and Western auctions where they purchased 43 and 46 percent, respectively, of the total livestock sales. In all areas, auction personnel and dealers played minor roles as buyers and bought fewer livestock than they consigned.

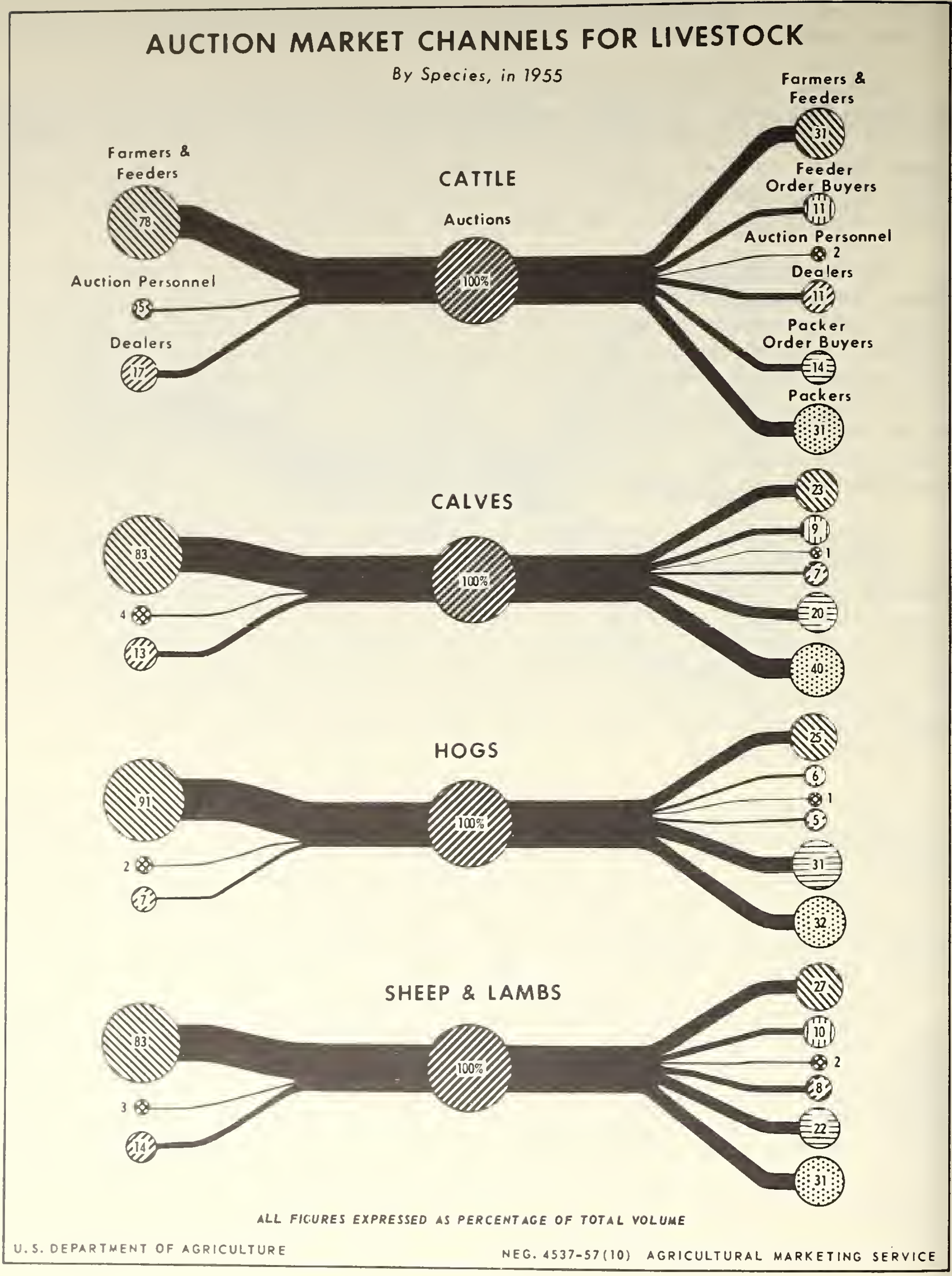

AUCTION MARKET CHANNELS FOR LIVESTOCK
By Species, in 1955
CATTLE
Farmers & Feeders
78
Auction Personnel
5
Dealers
17
Auctions
100%
Farmers & Feeders
31
Feeder Order Buyers
11
Auction Personnel
2
Dealers
11
Packer Order Buyers
14
Packers
31
CALVES
83
4
13
100%
23
9
1
7
20
40
HOGS
91
2
7
100%
25
6
1
5
31
32
SHEEP & LAMBS
83
3
14
100%
27
10
2
8
22
31
ALL FIGURES EXPRESSED AS PERCENTAGE OF TOTAL VOLUME
U.S. DEPARTMENT OF AGRICULTURE
NEG. 4537-57(10) AGRICULTURAL MARKETING SERVICE

Figure 7

MARKETING CHARGES AT AUCTIONS

Rates charged for marketing livestock vary at different auctions. Services for which charges are levied may include selling, yardage, weighing, insurance, brand inspection, and health inspection. Many auctions do not provide all these services. A commission or selling fee, however, is charged at all markets and is the primary source of income to auction operators. At some auctions, the commission covers yardage and weighing in addition to the selling service. Some operators levy a separate charge for each service provided, while others charge a single rate to cover all services.

Methods of Assessment

Auction operators levy their charges on a percentage of gross value, on a per head basis, or by a combination of the two methods. In this study, methods of assessing charges on livestock sales were classified into the following four categories:

(1) Straight per head--all charges levied on a per head basis.
(2) Per head combination--per head commissions with other charges based on a percentage of gross value.
(3) Straight percentage--all charges assessed on a percentage of gross value.
(4) Percentage combination--percentage commissions with other charges levied on a per head basis.

Straight Per Head Method

More auctions used the straight per head method as a basis for levying charges on all species than any other method (table 10). Among regions, this method was used by the largest proportion of North Central and South West Central auctions. In the Western Region, the straight per head assessment was most important for cattle, calves, and sheep and lambs.

More of the larger auctions used the straight head method than was the case among the smaller markets. This method was used by about 40 percent of the smaller markets handling between 10,000 and 25,000 marketing units and by somewhat over 60 percent of the auctions in the 25,000 to 55,000 marketing unit range. Among auctions reporting volumes greater than 55,000 marketing units, 81 percent used this method as a basis for cattle charges, 75 percent for hog charges, and 90 percent for calf and sheep and lamb charges.

Straight per head charges on cattle and calves varied considerably among auctions reporting this type of assessment (table 11 and figure 8). However, the most usual charges for cattle ranged from $1.50 to $2.00 per head, and over three-fourths of the auctions levied rates between $1.50 and $2.50. Straight per head charges on calves tended to be less than on cattle and were

Table 10.--Distribution of auctions reporting, according to method of assessing charges, 1955

Method of assessing charges	Number and proportion of auctions reporting charges on--							
	Cattle		Calves		Hogs		Sheep and lambs	
	Number reporting	Percent	Number reporting	Percent	Number reporting	Percent	Number reporting	Percent
Commission charges on per head basis:								
(1) Straight per head	332	40	324	42	276	37	307	46
(2) Per head combination 1/ ..	75	9	71	9	64	9	70	10
Commission charges based on percentage of sales:								
(3) Straight percentage	161	20	159	20	188	25	125	19
(4) Percentage combination 2/ ..	255	31	222	29	217	29	167	25
Total	823	100	776	100	745	100	669	100

1/ Other charges including yardage, insurance, brand inspection, health inspection, etc., are based on percentage of value.
2/ Other charges are assessed on a per head basis.

Table 11.--Distribution of marketing charges at auctions reporting straight per head charges, 1955

Species	Auctions reporting	Ranges in dollars per head							
		0.50-.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00-3.49	3.50 and over	Total
	No.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Cattle	332	1/	9	44	34	8	3	2	100
Calves	324	14	58	22	5	1	--	--	100

Species	Auctions reporting	0.20-.29	0.30-.39	0.40-.49	0.50-.59	0.60-.69	0.70-.79	0.80-.89	0.90-.99	1.00-1.09	1.10 and over	Total
	No.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Hogs	276	2	4	7	31	18	13	5	2	12	6	100
Sheep and lambs	307	8	15	31	25	16	3	1	1/	1	1/	100

1/ Less than 0.5 percent.

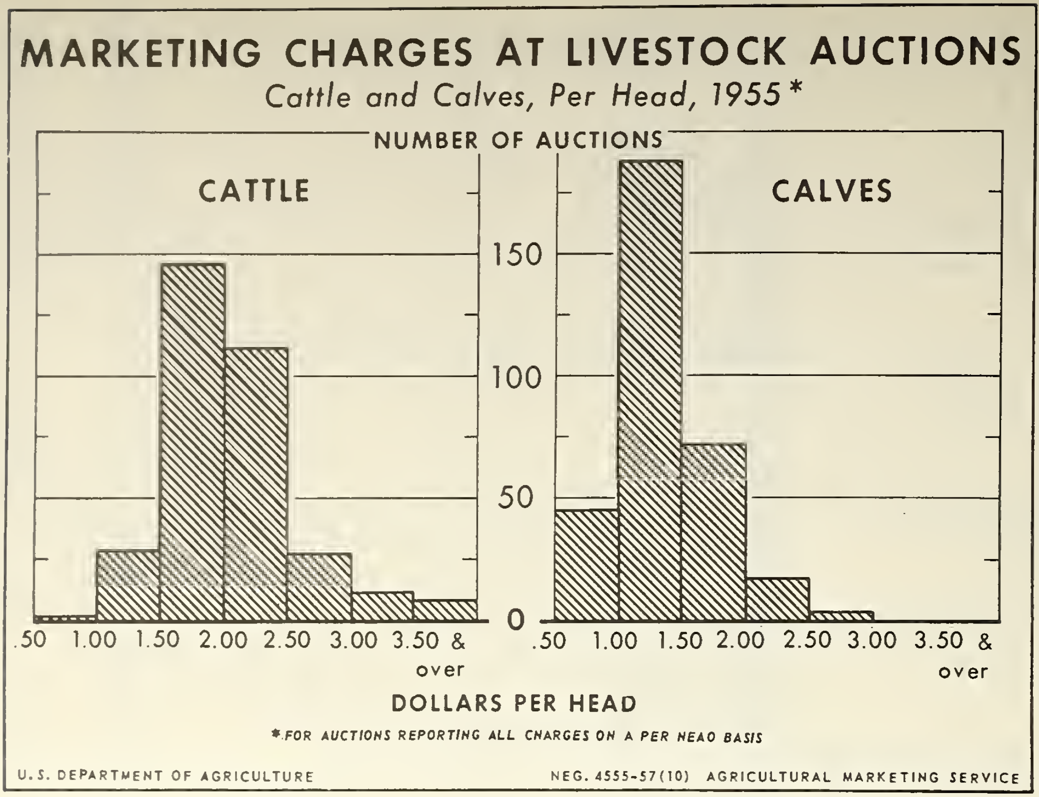


Figure 8

predominately set at amounts ranging from $1.00 to $1.50. No assessments on calves of over $3.00 were reported by these auctions and only 6 percent of the markets levied fees of more than $2.00.

While ranges in per head charges on hogs and sheep and lambs were generally smaller than those levied on cattle and calves, rates varied substantially (table 11 and figure 9). Per head charges most frequently levied on hogs ranged from 50 to 60 cents. However, another smaller grouping of charges occurred within the range of $1.00 to $1.10. This may be partially due to the fact that many auctions levy separate rates on the different classes--particularly butcher hogs and feeders. More than half of the assessments on sheep and lambs were within the 40 to 60 cents range with only a few auctions reporting charges over 70 cents.

Per Head Combination Method

Comparatively few markets used the per head combination method in which commissions are assessed on a per head basis and other charges are based on a percentage of value. The only region in which this method was significant was the South, where about a third of the auctions reported per head combination charges on sheep and lambs. No auctions in the South West Central or Western regions reported using the per head combination method. This device was of

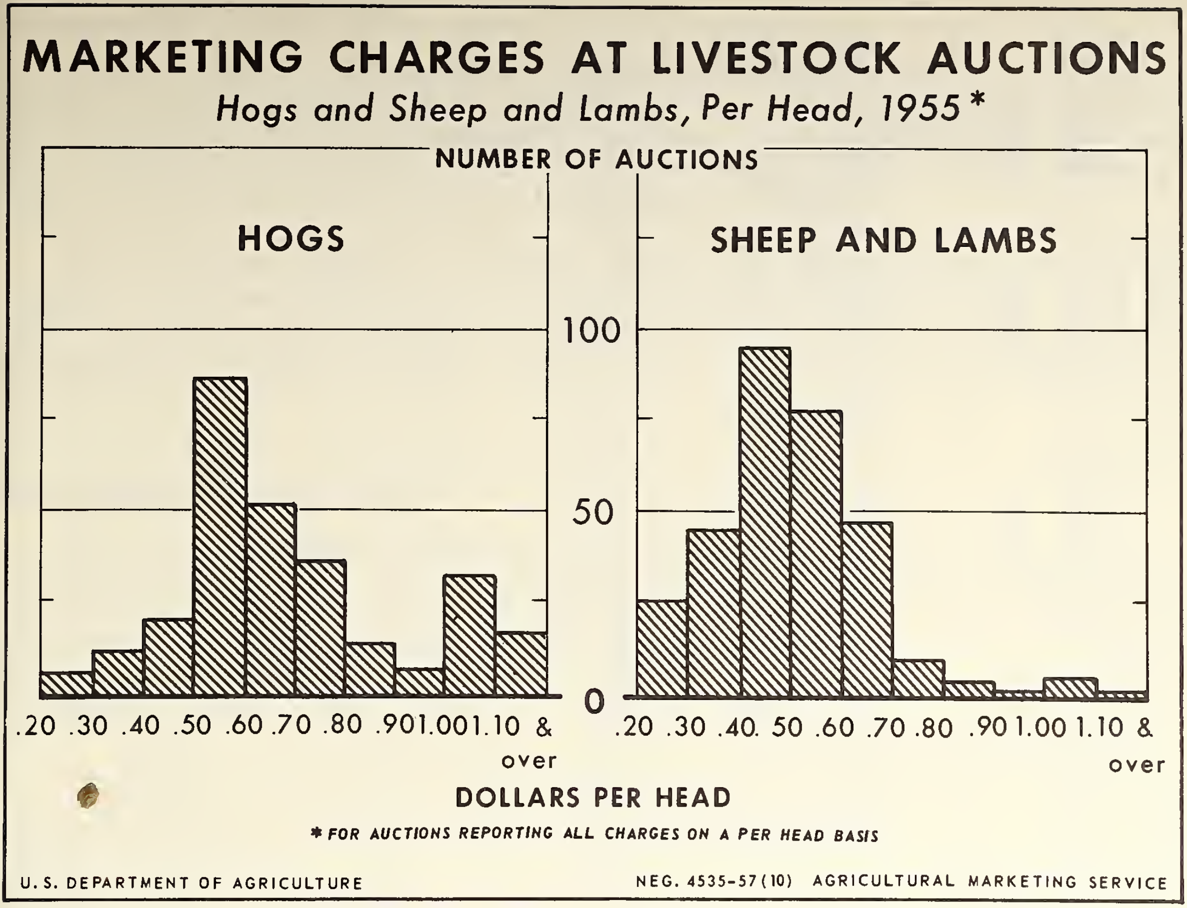


Figure 9

lesser importance at the large size auctions than at the smaller markets and was not reported by any auctions handling over 55,000 marketing units.

Commissions on cattle and calves were relatively low at auctions levying per head combination charges (table 12). Over four-fifths of these auctions reported per head commissions on cattle within the range of $1.00 to $2.00 per head. Fifty cents to $1.00 per head commissions on calves were assessed by almost four-fifths of the markets using this system and none reported amounts over $1.50. More than 95 percent of these auction operators levied other charges on cattle and calves at the rate of 1 percent or less.

Most of the per head commissions on hogs and sheep and lambs ranged from 20 to 60 cents. As was the case for straight per head charges on hogs, two major groupings were also noted in the distribution of per head hog commissions--in this case between 20 and 30 cents and within the 50 to 60 cents range. Over three-fourths of the sheep and lamb commissions were levied at rates within the 20 to 40 cents range. Again, over 95 percent of the other charges reported by these auctions were assessed at 1 percent or less on both hogs and sheep and lambs.

Table 12.--Distribution of commissions at auctions reporting per head combination charges, 1955 1/

Species	Auctions reporting	Ranges in dollars per head: 0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-2.99	Total
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Cattle	75	8	54	32	3	3	100
Calves	71	79	21	--	--	--	100

Species	Auctions reporting	0.20-.29	0.30-.39	0.40-.49	0.50-.59	0.60-.69	0.70-.79	0.80-.89	0.90-.99	1.00-1.09	1.10 and over	Total
		Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Hogs	64	23	17	16	28	3	8	--	--	3	2	100
Sheep and lambs	70	44	32	4	17	--	3	--	--	--	--	100

1/ Other charges, including yardage, insurance, brand inspection, health inspection, etc., are based on percentage of value.

Straight Percentage Method

About a fifth of the auction operators reported straight percentage charges on cattle, calves, and sheep and lambs, while a fourth of the auctions used this method for levying charges on hogs. In the Northeastern Region, most of the auctions used the straight percentage method for all livestock. Western auctions used this method most often on hogs.

The most usual charge on cattle, calves, and hogs for auctions reporting straight percentage charges was 3 percent (table 13 and fig. 10). Five percent was the most usual charge for sheep and lambs at these markets. The 5-percent rate, however, was more than twice as important as the intermediate 4-percent rate for all species.

Percentage Combination Method

The percentage combination charge (percentage commission with other charges levied on a per head basis) was used by more auction operators than was the straight percentage assessment. Among regions, the percentage combination method was most important at Southern auctions. This method of assessment was second in importance in the North Central region for all species and in the Western region for cattle, calves, and sheep and lambs.

Commissions for auctions assessing percentage combination charges were generally lower, as would be expected, than the charges levied by auctions using the straight percentage method (table 14). Three and 3.5 percentage commissions were most common for all species. Less than a fourth of these markets charged commissions of over 3.5 percent. The most usual per head charge for other services at these markets ranged from 10 to 20 cents for cattle, calves, and hogs and from 0 to 10 cents for sheep and lambs.

Large auctions tended to charge lower percentage commissions than did the smaller markets. About a fifth of the small auctions, which handled fewer than 25,000 marketing units, charged less than 3 percent on cattle commissions; over half of the larger ones charged less than 3 percent. Calf, hog, and sheep and lamb commissions of less than 3 percent were charged by only 16, 20, and 15 percent, respectively, of the small auctions, and by 43, 35, and 29 percent, respectively of the larger ones.

Value and Marketing Charges

Operating incomes for auction markets levying charges partially or entirely upon a percentage basis are directly affected by the sales value of the animals. Auction operators charging percentage commission rates receive greater returns on high value animals than on lower priced livestock. Returns to operators using this method of assessment, will depend to a great extent on prevailing price levels. During a period of high prices, an animal sold for

Table 13.--Distribution of marketing charges at auctions reporting straight percentage assessments

Species	Auctions reporting	Percentage of sales value						
		1 and 1.5	2 and 2.5	3 and 3.5	4 and 4.5	5 and 5.5	6 and over	Total
	Number	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Cattle	161	1	11	50	9	27	2	100
Calves	159	1	8	43	12	35	1	100
Hogs	188	1	12	44	11	31	1	100
Sheep and lambs	125	3	8	35	11	41	2	100

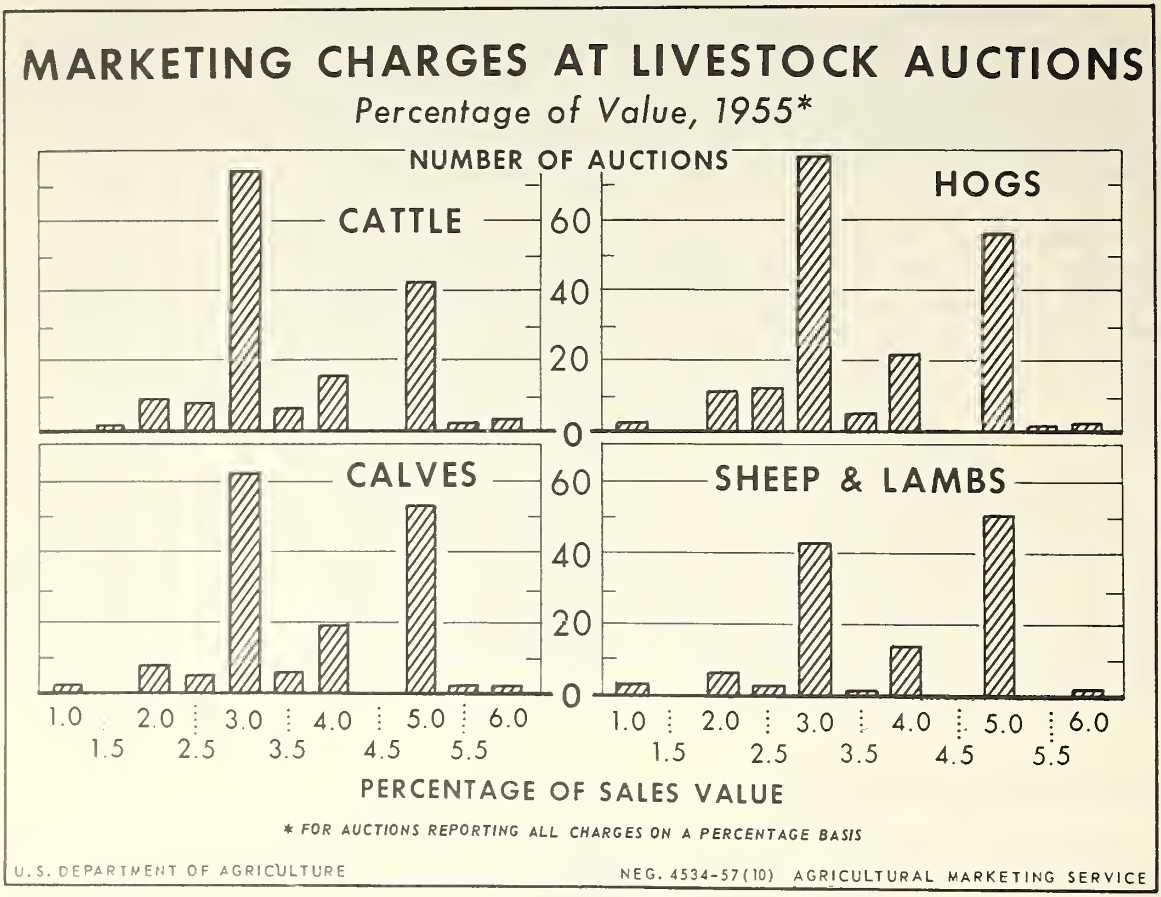


Figure 10

Table 14.--Distribution of commissions at auctions reporting percentage combination charges, 1955 1/

Species	Auctions reporting	Percentage of sales value					
		1 and 1.5	2 and 2.5	3 and 3.5	4 and 4.5	5 and 5.5	Total
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Cattle	255	3	19	59	10	9	100
Calves	222	1	18	59	10	12	100
Hogs	217	3	18	59	11	9	100
Sheep and lambs ..	167	1	15	66	10	8	100

1/ Other charges, including yardage, insurance, brand inspection, health inspection, etc., are assessed on a per head basis.

$60.00 will bring a greater return to the operator at a commission rate of 4 percent than would an identical animal sold for less than $48.00 at a 5 percent commission during a low-priced period.

Incomes received by auctions levying fixed per head charges are not affected by rice fluctuations as much as those received by operators using the percentage system. However, returns of those operators levying variable per head charges graduated according to the animal's value are affected somewhat by price changes. On the other hand, at many auctions, per head charges as well as percentage commissions may be graduated downward with an increase in the number of animals in a consignment.

Per head charges reflect the costs of services provided by auctions more accurately than do levies based on a percentage of value. Selling costs do not vary directly with value, as the cost of handling low value livestock is probably about the same as the costs of providing the same services to higher value animals. Auctions leavying charges on a per head basis generally have lower rates for multiple lots. This is because the per head cost of the selling services declines as the number of head in the lot is increased.

Average values per head for any given species of livestock sold through auction are affected by the proportions of the different classes, grades and weights sold. Seasonal changes in price and volumes of the various classes marketed also influence the annual per head average. Kinds and types of buyers, as well as management practices, may also have some influence upon values at a particular auction.

Average per head values and marketing charges during 1955 for the auctions reporting are shown in tables 15 and 16. Marketing charges were computed on the basis of all charges reported by the auctions, regardless of the method of assessment, and the averages are expressed both in terms of dollars per head and as a percent of the average value.

Table 15.--Average value and marketing charges for livestock at auctions, by species and region, 1955

Region	Cattle			Calves			Hogs			Sheep and lambs		
	Value per head	Total marketing charges		Value per head	Total marketing charges		Value per head	Total marketing charges		Value per head	Total marketing charges	
		Per head	As percentage of value		Per head	As percentage of value		Per head	As percentage of value		Per head	As percentage of value
	Dol.	Dol.	Pct.	Dol.	Dol.	Pct.	Dol.	Dol.	Pct.	Dol.	Dol.	Pct.
Northeast	126.27	3.70	2.9	15.58	0.79	5.1	25.62	0.89	3.5	13.24	0.52	3.9
North Central	103.07	2.15	2.1	54.97	1.22	2.2	24.47	.56	2.3	13.36	.42	3.1
South	72.78	2.21	3.0	38.33	1.35	3.5	23.20	.75	3.2	15.28	.42	2.7
South West Central ...	79.15	1.82	2.3	53.84	1.52	2.8	16.85	.66	3.9	11.47	.42	3.7
West	97.09	2.55	2.6	47.02	1.46	3.1	22.14	.63	2.8	12.95	.42	3.2
United States	93.82	2.25	2.4	45.37	1.27	2.8	23.71	.63	2.7	13.35	.42	3.1

Table 16.--Average value and marketing charges for livestock at auctions, by species, by size of auction, 1955

Size of auction 1/	Cattle			Calves			Hogs			Sheep and lambs		
	Value per head	Total marketing charges		Value per head	Total marketing charges		Value per head	Total marketing charges		Value per head	Total marketing charges	
		Per head	As percentage of value		Per head	As percentage of value		Per head	As percentage of value		Per head	As percentage of value
	Dol.	Dol.	Pct.	Dol.	Dol.	Pct.	Dol.	Dol.	Pct.	Dol.	Dol.	Pct.
Small:												
Under 10,000	84.30	2.61	3.1	28.84	1.09	3.8	23.14	0.63	2.7	12.15	0.43	3.5
Medium:												
10,000-24,999	89.83	2.33	2.6	49.64	1.28	2.6	22.36	.62	2.8	12.81	.40	3.1
Large:												
25,000-39,999	93.34	2.25	2.4	46.62	1.40	3.0	25.84	.69	2.7	13.54	.46	3.4
40,000-54,999	106.91	2.29	2.1	47.80	1.33	2.8	26.38	.70	2.7	15.24	.40	2.6
55,000 and above ..	103.06	1.94	1.9	60.53	1.31	2.2	28.35	.57	2.0	14.78	.43	2.9
All large	99.63	2.13	2.1	50.50	1.36	2.7	26.51	.65	2.5	14.33	.44	3.1

1/ Size classification based on the annual marketing units handled for each auction.

Average marketing charges differed considerably among regions for all species except sheep and lambs. Cattle charges ranged from a low of $1.82 per head in the South West Central region to over twice this amount in the Northeast where the average charge was $3.70 per head. In contrast, the Northwestern region had the lowest average charge on calves while the South West Central had the highest. Regional average marketing charges for hogs at auctions varied from 56 cents per head in the North Central to a high of 89 cents per head in the Northeast. Marketing charges for sheep and lambs, however, averaged the same in all regions except the Northeast where the average was 10 cents higher.

Regional differences were also noted in the average values of livestock sold at auctions. Average values for cattle varied over 50 dollars between a low of $72.78 in the South and a high of $126.27 in the Northeast. Calves were valued relatively high at North Central and South West Central auctions, while in the Northeast, values for calves were extremely low. This was mainly due to the predominant number of small veal calves among the total consist of calves marketed at auctions in the Northeast and the practice of selling much heavier calves in the other regions. The top regional average value for hogs was in the Northeast. Per head values of both hogs and sheep and lambs averaged lowest at South West Central auctions. Southern auctions reported the top average value for sheep and lambs at $15.28 per head.

When regional average marketing charges were expressed as a percent of value, the highest charges were associated with the lowest average values on all species except sheep and lambs. Percentagewise, charges on sheep and lambs were highest in the Northeast, although the value was slightly below the U. S. average. Selling rates for sheep and lambs may have been higher because these animals comprise an extremely small proportion of total livestock sales in the Northeast. Lowest charges on a percentage basis were generally associated with relatively high average per head values.

In comparing auctions of different size, cattle charges tended to average lower for the larger sized markets, especially when expressed as a percentage of value. Per head values for cattle, on the other hand, were somewhat higher at the larger auctions. These relationships among size groups were not as pronounced for calves, hogs, and sheep and lambs. This may be partially explained by the fact that size of auction was primarily determined by the number of cattle marketings. Percentagewise, however, charges on the other three kinds of livestock were consistently higher at auctions selling under 10,000 marketing units than at auctions handling over 55,000 units. Methods of assessing charges may affect this comparison. Over half the small auctions levied percentage commissions, while over three-fourths of the markets in the largest group assessed straight per head charges. Average per head values were consistently lower for the small auctions than for the largest auctions selling more than 55,000 marketing units of livestock.

APPENDIX

METHODOLOGY

This study was based largely on a mail survey of livestock auction market operations carried on during 1955. Questionnaires were mailed to all auction operators in the United States who were listed as operating in that year. In addition to the original mailing on February 15, 1956, two followup requests were sent to the nonrespondents approximately two and five weeks later. Operators were asked to furnish information pertaining to volume of livestock sold, distances livestock were brought to markets, kinds of buyers and sellers, and marketing charges for their particular auction.

In order to estimate the total U. S. volumes of livestock sold through auction markets, certain adjustments were necessary to remove the effect of nonrespondent bias. This bias was due to a tendency for a greater proportion of the larger operators to answer the questionnaire. The Hendricks method of adjustment for nonrespondent bias was first applied to the data reported. 3/ Through the use of this device, estimates were made of the universe average number of each kind of livestock sold per auction.

Table 17 shows the response to each of the three successive mailings and the average volume of sales of cattle and calves for those auctions responding. Per auction averages for hogs and sheep and lambs were also computed for each of the three returns. In each case, the average number per auction became progressively smaller with each successive group of returns. This indicated a downward bias in size among nonrespondents to the survey.

Since the larger auctions tended to report more promptly, the first 14 percent of the auctions reporting handled more than 14 percent of the cattle and calves sold through auctions. If an unlimited number of mailings were repeated, this bias could be expected to diminish with each higher percentage response. At a 100-percent return all bias resulting from nonresponse would be removed, as the percentage of cattle and calves reported would then equal the percentage of auctions reporting.

In figure 11, the cumulative average volumes for cattle and calves were plotted against the cumulative percentage returns on double logarithmic scales. A trend line was drawn through the three points and extrapolated to the vertical dotted line representing a cumulative return of 100 percent. At the intersection of these two lines the estimated average number of cattle and calves would

---

3/ This method is discussed in Walter A. Hendricks' "Adjustment for Bias Caused by Non-Response in Mailed Surveys," Agr. Econ. Res., vol. 1 (1949), pp. 52-56. A more detailed presentation of this method may be found in Walter A. Hendricks' "The Mathematical Theory of Sampling," New Brunswick, N. J., The Scarecrow Press (1956), pp. 339-356.

Table 17.--Results of 1st mailing of questionnaires to 2,322 livestock auction operators, and 2 successive mailings to nonrespondents

Mailing	Questionnaires returned		Average number of cattle and calves per auction for auctions reporting
	Number	Percent	100 head
1st	327	14.1	193
2d	606	26.1	145
3d	320	13.8	142
	Cumulative results		
1st	327	14.1	193
1st and 2d	933	40.2	161
1st, 2d, and 3d	1,253	54.0	156

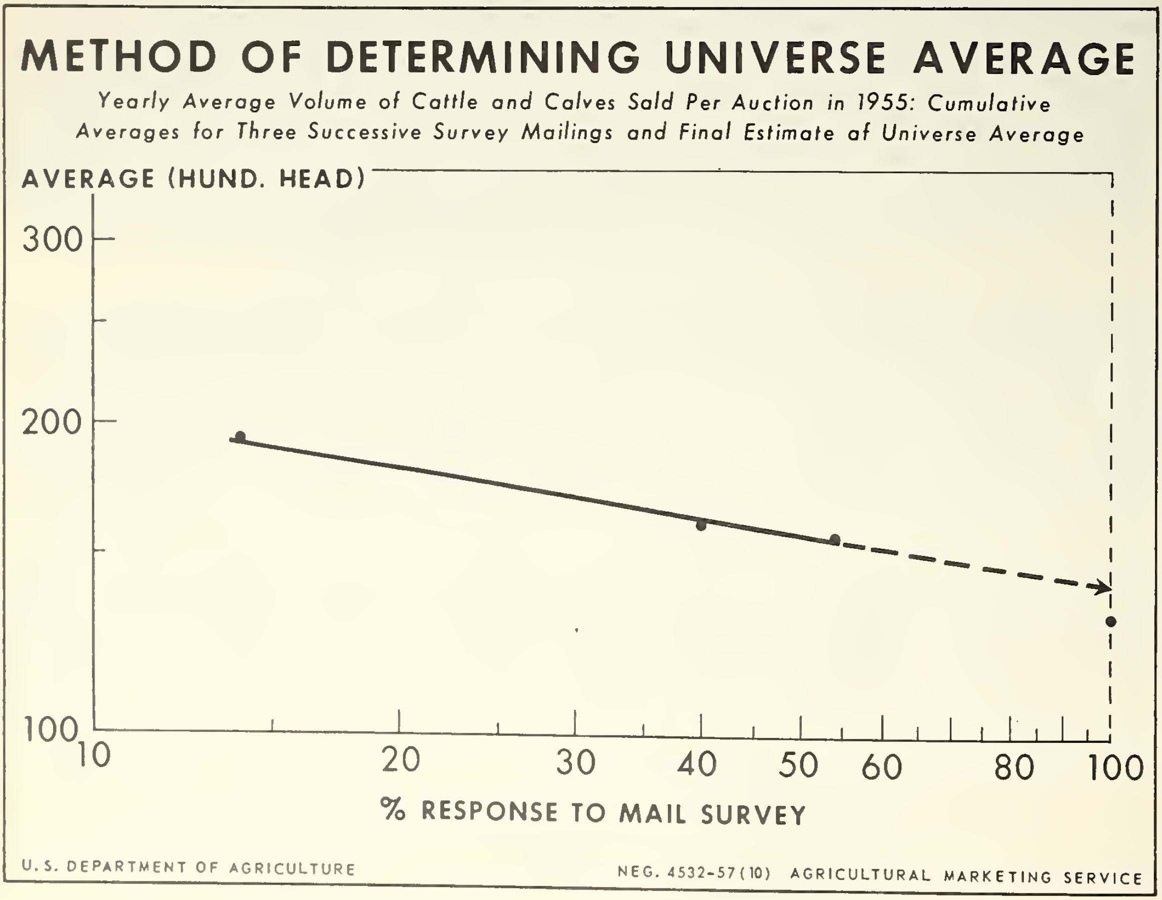


Figure 11

have been 14,000 head per auction. Although further downward adjustments were necessary in arriving at a final average estimated for the universe, this first estimate was found to be far more accurate than the average volume of those auctions responding to the survey (indicated by the third dot).

Complete volume data on marketings at livestock auctions were obtained for 13 States. Final adjustments were made on the basis of this information. Nine State Departments of Agriculture, including Alabama, Colorado, Florida, New York, Oklahoma, South Dakota, Vermont, Washington, and Wyoming, supplied summary records for their respective States. The Minnesota, Nebraska, West Virginia, and Purdue (Indiana) agricultural experiment stations conducted a personal interview survey of nonrespondents. Final adjustment factors were based on the difference between the actual total volumes reported for the 13 States and the volumes estimated by the Hendricks method for the same States. In figure 11, the dot located on the vertical dotted line below the projected trend line represents the final adjusted average volume of cattle and calves sold per auction. This first estimate of 14,000 head of cattle and calves, derived from the Hendricks method, was adjusted downward to a final estimate of 13,000 head.

The same procedure was applied to obtain average volume estimates for hogs and for sheep and lambs.

☆ U. S. GOVERNMENT PRINTING OFFICE : 1958 O - 459437