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The Texas Meat Packing Industry —

Structure, Operational Characteristics and Competitive Practices

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HIGHLIGHTS

The growth of cattle feeding and slaughter in the Texas Panhandle has been a major factor in the growth of the economy of the Texas Panhandle since 1960. The Texas slaughtering industry has undergone major changes in structure, location, and operational characteristics during the last decade. Factors which contributed to these changes included the mushrooming cattle feeding industry in the Texas Panhandle-Plains area, the subsequent decisions by large, specialized cattle slaughtering firms to locate plants within or near these concentrated feeding areas, and the enactment of the Wholesome Meat Act in 1967. Other factors which contributed to change included the advent of the boxed meat programs, innovations in packaging and storage of meat items, and the continued growth of large grocery supermarkets.

This study is the second in a series of studies designed to analyze the market structure, performance, and competitive practices of the Texas meat industry at the retail, wholesale, and slaughter levels. Data for this study were obtained through personal interviews with owners or managers of slaughter plants in Texas for 1974. Respondents were selected on a stratified random sample basis to represent every segment of the slaughter industry and to provide data for varying sizes of slaughter firms.

Large specialized cattle slaughtering firms in the Texas Panhandle-Plains accounted for about three-fourths of the Texas steer and heifer slaughter in 1974, compared with one-third of steer and heifer slaughter in 1964. Packers acquired 75 percent or more of all types of slaughter livestock from Texas sources during 1974. Almost all of the steers and heifers and calves were purchased in Texas. Inshipments of slaughter cows and bulls originated mostly from adjacent states, while the Kansas-Nebraska area was the most important out-of-state source for slaughter hogs.

Feedlots supplied about 99 percent of the steers and heifers slaughtered by Texas packers. Public markets were the predominant source of supply for slaughter cows and bulls, calves, and veal. The most important sources for lamb and hogs were feedlots, followed by public markets and country points.

Almost all steers and heifers slaughtered by Texas packers in 1974 were U. S. Good or higher, with 55 percent U. S. Choice or higher. Lambs were predominantly U. S. Choice or higher, while calves were mostly U. S. Good or higher.

During the early 1960's, Texas was a deficit fed beef producing state, but the combination of rapid feedlot growth and establishment of large beef slaughtering facilities in the Panhandle area in the late 1960's shifted Texas to a surplus fed beef producing state. In 1974, steer and heifer beef accounted for almost two-thirds of the 2.6 billion pounds of dressed red meat produced by Texas slaughtering firms. Cow and bull beef accounted for another 23 percent, followed by fresh pork with almost 9 percent.

Texas packers merchandised about 60 percent of their steer and heifer beef to out-of-state customers -- primarily in the Northeast, the Southeast, and the West Coast. Lamb, historically, has been sold predominantly to out-of-state customers in the Northeast, and 1974 was no exception. Relatively large quantities of cow and bull beef were also shipped to customers in other states. All other fresh and processed meat items were sold primarily to customers in Texas.

Since Texas packers shipped most of their steer and heifer beef to customers in other states during 1974, about 70 percent of the steer and heifer beef was marked with U. S. grades. Cow and bull beef was generally merchandised without U. S. grades or packer brands, while relatively high proportions of calf and lamb were marked with U. S. grades. Pork items were generally marked with packer brands.

Retailers were the major outlets for all types of fresh and processed meat items sold by Texas packers with the exception of cow and bull beef and veal. Texas packers relied primarily on processors and wholesalers or jobbers for cow and bull beef sales, while the hotel, restaurant, and institutional (HR&I) trade was the major outlet for veal.

Almost two-thirds of the steer and heifer beef, more than three-fourths of the calf, and almost 90 percent of the lamb was merchandised in carcass form by Texas packers in 1974. Fresh pork was sold almost entirely as primal cuts, and cow and bull beef were sold primarily as boneless meat.

Boxed steer and heifer beef sales by Texas packers, which were predominantly subprimals, represented less than 15 percent of the steer and heifer beef sales. The steer and heifer beef used in the boxed beef programs were mostly U. S. yield grade 4. However, 45 percent of the fresh pork was merchandised as boxed meat. Small proportions of calf and cow and bull beef were also merchandised as boxed meat.

Fresh and processed meat items were shipped almost entirely by truck during 1974. Approximately one-half of the trucks used for shipping fresh meat items were owned or leased by Texas packers in contrast with 95 percent or more of the trucks used for shipping cured and processed meat items.

The results suggest that the Texas slaughtering industry, especially the cattle slaughtering industry, will continue shifting to areas of production. Further, recent construction of beef slaughtering establishments in the Panhandle-Plains area included facilities for meat fabrication and boxed beef programs. The trend toward fabrication of fresh meats into primals and subprimals at major slaughter plants will probably increase in the future.

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THE TEXAS MEAT PACKING INDUSTRY ---
STRUCTURE, OPERATIONAL CHARACTERISTICS
AND COMPETITIVE PRACTICES

Raymond A. Dietrich and Donald E. Farris*

The meat packing and wholesale meat industries have undergone major changes during the last decade. Changes are evident in the structure, the organization, and the operational characteristics of the meat packing industry. The number of slaughter plants have declined, while average sales per plant increased. The enactment of the Wholesome Meat Act in 1967 and the continued technological improvements in the handling and distribution of fresh and processed meat items were additional factors leading to a decline in the number of establishments. The cattle slaughtering industry has become increasingly characterized by large and highly specialized cattle slaughter plants combining regional or national systems of distribution with plants located within or near concentrated cattle feeding areas. Many of these specialized slaughter plants fabricate and process carcasses into wholesale or retail cuts for direct shipment to retail or institutional outlets. Technological innovations in the packaging, shipping, and storage of meat items have greatly increased the storage life of meat items and decreased many problems associated with discoloration and shrinkage of fresh and processed meat items. These developments, along with access to a rapid transportation and communica-

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tion system and the universal language embodied in federal grades, have generated changes in the distribution channels and markets for fresh and processed meats. For example, markets for many buyers and sellers have been increased from a local area to a regional or national market.

Changes within the Texas livestock and meat industry, similar to those in the United States, are evident in the production, slaughtering, and distribution segments. With the development of large scale commercial feedlot operations, Texas has become the leading cattle feeding state in the United States. Along with the growth and expansion of the cattle feeding industry in the Texas Panhandle-Plains, large and highly specialized cattle slaughtering and beef processing firms have established plants within or adjacent to the Panhandle-Plains area. These large specialized beef slaughtering plants, which merchandise fresh and processed beef on a national basis, have installed and/or converted facilities to facilitate fabrication and shipment of beef as primals or subprimals as boxed beef. Texas has become an exporter of fed cattle and fresh beef rather than an importer of these products as was the case in the early 1960's.

Additionally, a commercial hog production industry has been developed in the Texas Panhandle-Plains, along with a long-time sheep and lamb industry in the Edwards Plateau area, which contributes to further change and development in the Texas slaughtering and meat distribution industry. Other changes include the proliferation and growth of large retailing organizations which feature high quality meat items and which purchase fresh and processed meat items on a rigid specification basis. These developments create opportunities and raise important questions in the Texas livestock and slaughtering industry relative to structural characteristics, marketing and buying practices employed, and competitive strategies employed in merchandising fresh and processed meat items. This study focuses on these topics and is the second in a series of studies designed to analyze the market structure, performance, and competitive practices of the Texas meat industry at the retail, wholesale, and slaughter levels. The first study in this series focused on the Texas retail meat industry.

Data for this study were obtained through personal interviews with owners and managers of livestock slaughtering firms in Texas for 1974. Respondents selected represented the proportions of the federally inspected (FIS) and state inspected (SI) slaughter plants as shown in Table 1. More precisely, the sampling rate included all the FIS plants in the Dallas-Fort Worth, Houston, and San Antonio areas, plus all the large federally inspected beef slaughter plants in the Texas Panhandle. The remaining FIS plants were selected on a 50-percent random sample basis. Respondents for the state inspected slaughter plants were selected to represent 12 percent of the state inspected population. Completed questionnaires represented about 51 percent of the FIS plants and less than 5 percent of the state inspected plants. However, completed questionnaires from FIS and SI slaughtering firms represented data from packers which accounted for two-thirds or more of the total cattle, calves, sheep and lamb, and hogs slaughtered in Texas during 1974.

Structural Characteristics of the Slaughter Industry

Slaughter establishments have undergone much change in the United States and Texas during the last decade with respect to the number of

Table 1. Slaughter plant population and sampling rates, by type of inspection, commercial slaughter by kind of livestock slaughtered, and commercial slaughter accounted for by completed questionnaires, Texas, 1974

Item	Slaughter plant population: Under federal inspection	Slaughter plant population: Other	Sampling rate 1/: Under federal inspection	Sampling rate 1/: Other	Commercial slaughter accounted for by completed questionnaires
	Number	Number	Percent	Percent	Percent
Slaughter plants	74	475	66	12	NA 2/
Livestock slaughtered	1,000 head	1,000 head			
Cattle	3,695	388	NA	NA	65.9
Calves	26	164	NA	NA	81.2
Sheep and lambs	1,421	19	NA	NA	91.3
Hogs	1,200	194	NA	NA	90.2

1/ The sampling rate was not based on kind of livestock slaughtered.

2/ Not applicable.

establishments, average sales, location, and type of inspection. The Census of Manufacturers reports that slaughter establishments which are engaged primarily in slaughtering declined almost 20 percent in the United States during 1963-72, while average sales per plant increased more than 60 percent (Table 2). Total sales also increased substantially for most regions of the United States, except the Northeastern states where sales declined. Although the North Central states accounted for more than 60 percent of U. S. meat packer sales in 1972, the largest increases in total and average sales during 1963-72 occurred in the Mountain and West South Central regions, including Texas. Meat packing firms have located large specialized slaughter establishments near concentrated cattle feeding areas in the Plains and Mountain States since the mid-1960's.

Perhaps the single most important factor affecting the number and operation of small meat packing plants during the last decade was the enactment of the Wholesome Meat Act in December 1967. This act required all state meat inspection systems to be equivalent to federal standards within an allotted time period. If a state had not complied within the allotted time period, the U. S. Department of Agriculture took over the state program. Table 3, which provides data concerning the number of slaughter establishments regardless of primary function, shows that the number of slaughter plants under federal inspection (FIS) increased about 160 percent since enactment of the Wholesome Meat Act. The increase in FIS plants has been substantial in all regions of the United States, especially the Middle Atlantic region. For example, FIS plants increased more than 10-fold in Pennsylvania. Since all slaughter plants were required to maintain health and inspection standards

Table 2. Number of meat packing plants, total and average sales, by Census Regions and Texas, 1972, and percentage changes, 1963-72 1/

Region and State	Number of plants 1972	Number of plants Percentage change 1963-72	Total sales 2/ 1972	Total sales 2/ Percentage change 1963-72	Average sales 2/ 1972	Average sales 2/ Percentage change 1963-72
	Number	Percent	Million Dollars	Percent	1,000 Dollars	Percent
Northeastern States	326	-22.6	1,296.0	-14.4	3,975.5	10.6
New England 3/	53	-19.7	96.2	-24.3	1,815.1	- 5.7
Middle Atlantic 4/	273	-23.1	1,199.8	-13.5	4,394.9	12.5
North Central States	879	-16.6	13,926.5	38.1	15,843.6	65.8
East North Central 5/	510	-21.8	3,866.2	15.8	7,580.8	48.0
West North Central 6/	369	- 8.2	10,060.3	49.2	27,263.7	63.0
The South	871	-10.9	4,173.8	46.5	4,792.0	74.4
South Atlantic 7/	324	4.5	1,267.0	30.1	3,910.5	48.2
East South Central 8/	201	-19.3	1,163.7	41.3	5,789.6	75.1
West South Central 9/	346	-17.4	1,743.1	65.8	5,037.9	100.8
Texas	192	-15.0	1,304.7	71.5	6,795.3	101.0
The West	399	-16.7	3,627.7	42.3	9,092.0	70.9
Mountain 10/	188	-12.1	2,056.1	104.5	10,936.7	132.8
Pacific 11/	211	-20.3	1,571.6	1.8	7,448.3	27.9
United States	2,475	-17.3	23,024.0	35.5	9,302.6	63.8

1/ Includes establishments primarily engaged in slaughtering (for their own account or on a contract basis for the trade) cattle, hogs, sheep, lambs, and calves for meat to be sold or to be used on the same premises in canning and curing, and in making sausage, lard, and other products. Does not include slaughtering establishments chiefly engaged in wholesale or retail trade, locker plant services, etc.

2/ The 1963 sales were adjusted to represent 1972 prices by the Consumer Price Index, 1967 = 100.

3/ New Hampshire and Massachusetts.

4/ New York, New Jersey, and Pennsylvania.

5/ Ohio, Indiana, Illinois, Michigan, and Wisconsin.

6/ Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

7/ Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida

8/ Kentucky, Tennessee, Alabama, and Mississippi.

9/ Arkansas, Louisiana, Oklahoma, and Texas.

10/ Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, and Utah.

11/ Washington, Oregon, California, and Hawaii.

Source: Census of Manufacturers, U. S. Department of Commerce, Bureau of the Census.

le 3. Number of livestock slaughtering establishments, by type of inspection, by
sus Regions and Texas, March 1, 1975 and percentage change, 1968-75

ion and tate	Under Federal Inspection 1975	Under Federal Inspection Percentage change, 1968-75	Other 1975	Other Percentage change, 1968-75	Total 1975	Total Percentage change, 1968-75
	Number	Percent	Number	Percent	Number	Percent
theastern states	417	441.6	307	-77.7	724	-50.1
ortheast	20	66.7	99	-45.0	119	-38.0
iddle Atlantic	397	510.7	208	-82.6	605	-52.0
th Central states	520	127.1	2,255	-41.7	2,775	-32.3
ast North Central	136	43.2	1,001	-44.0	1,137	-39.6
est North Central	384	186.6	1,254	-39.7	1,638	-25.9
South	276	97.1	1,745	-37.4	2,021	-31.0
outh Atlantic	77	92.5	548	-37.5	625	-25.0
ast South Central	85	157.6	360	-32.8	445	-21.8
est South Central	114	70.1	837	-42.7	951	-37.8
Texas	82	54.7	465	-39.4	547	-37.8
West	272	117.6	295	-51.6	567	-22.9
ountain	103	139.5	221	-45.4	324	-27.7
acific	169	106.1	74	-63.9	243	-15.3
ted States	1,485	160.1	4,602	-46.8	6,087	-33.9

rce: Livestock Slaughter, Statistical Reporting Service, U. S. Department of Agriculture, selected issues.

equivalent to federal standards under the Wholesome Meat Act, numerous plants chose to operate under FIS standards rather than under state inspection standards in order to be eligible for trade in interstate commerce. However, some states chose to abandon their state inspection system, thereby letting the U. S. Department of Agriculture take over the meat inspection responsibilities, at federal cost, within their state. Non-federally inspected plants (other) declined almost 50 percent from March 1, 1968 to March 1, 1975, while total slaughter plants declined 33 percent (Table 3). Numerous slaughter establishments, primarily small plants, apparently opted to close their facilities rather than attempt to meet the standards of the Wholesome Meat Act since this would have required additional expenditure to renovate facilities often obsolete.

Although numbers of FIS slaughter plants increased substantially with the passage of the Wholesome Meat Act, the proportion of commercial livestock slaughter accounted for by FIS plants increased only slightly from 1968 to 1974 (Table 4). This was not unexpected since almost all of the larger slaughter establishments were already operating under FIS standards in order to merchandise fresh and processed meat items in interstate commerce.

As in most U. S. industries, a relatively small proportion of the meat packing firms accounts for most of the industry sales (Table 5). In 1972, 80 percent of the U. S. meat packing plants employed from 1 to 49 workers and accounted for less than 10 percent of the total industry sales volume. Firms with 100 or more employees represented about 12 percent of meat packing plants but accounted for about 80 percent of

Table 4. Percentage of total commercial slaughter by federally inspected plants, by type of livestock, United States and Texas, 1968-74

	Type of livestock							
	Cattle		Calves		Sheep and lambs		Hogs	
Item	1968	1974	1968	1974	1968	1974	1968	1974
	Percent							
United States	84.5	90.5	71.2	78.8	91.6	96.7	87.8	94.3
Texas	84.9	90.5	11.3	13.5	99.1	98.7	84.0	86.1

Source: Livestock Slaughter, Statistical Reporting Service, U. S. Department of Agriculture and Texas Livestock Statistics, Texas Department of Agriculture.

Table 5. Meat packing plants, by number of employees and value of shipments, United States, 1967 and 1972

	1967		1972	
Item	Plants	Value of shipment	Plants	Value of shipment
	Number	Mil. Dols.	Number	Mil. Dols.
U. S. total	2,697	15,576.3	2,475	23,024.0
Distribution of number of employees:	Percent			
1-4	43.4	.7	43.0	.7
5-19	21.2	2.6	22.1	2.3
20-49	15.6	7.9	14.3	6.4
50-99	8.2	11.1	8.7	10.5
100-249	6.3	18.2	6.2	18.5
250-499	3.1	21.8	3.4	24.6
500-999	1.1	11.8	1.3	13.2
1,000-2,499	.8	14.4	.8	16.6
2,500 or more	.3	11.5	.2	7.2
Total	100.0	100.0	100.0	100.0

Source: U. S. Department of Commerce, Census of Manufacturers.

the industry sales volume. This overall pattern has changed only slightly since 1967. The proportion of total sales accounted for by firms with 100-2,499 employees increased almost 7 percent from 1967 to 1972. In contrast, industry sales accounted for by firms with 2,500 or more employees declined from 11.5 percent of the total in 1967 to 7.2 percent in 1972. These data suggest that plants with 2,500 or more employees, often those with large diversified operations, have been declining both in numbers and industry sales volume from 1967 to 1972. The largest increase in the proportion of industry plants and sales volume were for those plants with 250-2,499 employees. The latter group includes many specialized slaughtering establishments which are becoming predominant throughout the industry.

Weekly slaughter volume, similar to annual sales volume, is highly concentrated among the larger firms in the industry. During 1970, more than 85 percent of the U. S. cattle slaughtering plants killed 52 or fewer head of cattle per week (Table 6). These were firms with 25 or fewer employees. The weekly slaughter volume for 90 percent or more of the firms slaughtering hogs and sheep, similar to cattle slaughtering firms, was relatively low.

Meat packing plants, as of 1970, were generally comprised more of older-type establishments than were sausage and prepared meat plants or wholesale meat and meat products plants (Table 7). Food locker plants, however, contained the highest proportion of older establishments, with almost 80 percent of the locker plants in operation for more than 20 years.

In summary, the decline in number of slaughter plants was mostly among those with less than 20 employees during 1967-72. The Wholesome

Table 6. Average kill per week by kind of animal and employment size group, meat packers, United States, 1970

Kind of animals	Number of employees: 0 to 5, Percent of plants	0 to 5, Kill/ week, head	6 to 25, Percent of plants	6 to 25, Kill/ week, head	26 to 100, Percent of plants	26 to 100, Kill/ week, head	101 to 500, Percent of plants	101 to 500, Kill/ week, head	Over 500, Percent of plants	Over 500, Kill/ week, head
Cattle	42.9	19	42.5	52	9.9	444	3.4	963	1.3	1,706
Hogs	47.4	15	42.8	56	4.8	186	3.6	2,318	1.4	3,263
Sheep	40.2	16	51.8	14	6.6	210	1.4	1,505	1/	1/
Other red meat animals	20.0	7	63.9	54	14.2	189	1.9	1,000	1/	1/

1/ None reported.

Source: Select Committee on Small Businesses, United States Senate, "The Effects of the Wholesome Meat Act of 1967 Upon Small Business," Sept. 16, 1971.

Table 7. Ages of plants in four meat industries, United States, 1970

Industry	Age group: 10 years & under	11-20 years	21-30 years	31-40 years	41-50 years	50 years & older
	Percent					
Meat packing	17.7	20.0	36.2	15.7	5.3	5.1
Sausage and prepared meats	34.1	18.8	23.5	10.7	7.2	5.7
Food lockers	10.7	11.3	60.2	13.2	2.1	2.5
Wholesale meat and meat products	27.1	22.5	24.1	9.7	4.4	5.1

Source: Select Committee on Small Businesses, United States Senate, "The Effects of the Wholesome Meat Act of 1967 Upon Small Business," Sept. 16, 1971.

Meat Act of 1967 had an important role in changing economies of size within the slaughter industry when numerous small plants opted to close rather than renovate existing facilities. Although most food locker plants were built in the 1940's, they are still prominent in many small towns and cities. However, home freezers have reduced the demand for many of the services provided by food locker plants.

Texas Meat Packing Operations

Slaughter plants in Texas are predominantly small, non-federally inspected establishments (Table 3). However, during 1974 the federally inspected slaughter plants (13 percent of the 549 plants) accounted for 90 percent of the cattle slaughter, 99 percent of the sheep and lamb slaughter, 86 percent of the hog slaughter, and about 14 percent of the calf slaughter.

Legal forms of ownership varied considerably between federally inspected and state inspected slaughter plants during 1974 (Table 8). Almost 80 percent of the federally inspected slaughter plants were incorporated, while the single proprietor form of ownership was predominant among the state inspected plants. Partnerships were the second most important form of ownership among both federally and state inspected slaughter plants.

The fabrication or processing function required the largest number of employees at both federally and state inspected plants (Table 9). The second most important function in terms of labor requirements was slaughtering, which required more than 30 percent of the labor force at the FIS plants and about 26 percent at the state inspected plants. These were followed by distribution, administration, and sales with the excep-

Table 8. Legal forms of ownership, by type of inspection, Texas meat packers, 1974

Type of inspection	Single proprietor	Partnership	Corporation	Cooperative	Other	Total
	Type of ownership					
	Percent					
Federally inspected plants	7.9	13.2	78.9	1/	1/	100.0
State inspected plants	52.6	21.1	26.3	1/	1/	100.0

1/ None reported by respondents interviewed.

Table 9. Type of employment, by function performed and type of inspection, Texas meat packers, 1974

Type of inspection	Slaughter	Fabrication or processing	Sales	Distribution	Administration	Other 1/	Total
	Function or job performed						
	Percent						
Federally inspected plants	30.8	34.4	4.1	9.3	8.5	12.9	100.0
State inspected plants	26.3	39.7	5.4	15.1	9.0	4.5	100.0

1/ Primarily maintenance, clean-up, and miscellaneous jobs.

tion of "Other" at FIS plants. The "Other" function at FIS plants consisted mostly of maintenance, clean-up, guard duty, and miscellaneous jobs.

Volume, Quality, and Carcass Weight Ranges of Livestock Slaughtered

With the development and growth of the cattle feeding -- and to some extent the lamb feeding industry -- within the state during the last decade, Texas has been accounting for an increasing proportion of U. S. cattle and sheep and lamb slaughter. Changes in the Texas slaughter industry are also represented by increased carcass weights of steer and heifer beef. During 1974, Texas ranked third in cattle and sheep and lamb slaughter and first in calf slaughter (Table 10). Texas, however, ranked 18th in hog slaughter (liveweight basis) with 352.5 million pounds. Additionally, Texas accounted for 6.1 percent of the U. S. cattle slaughter in 1964 compared with 9.8 percent in 1974, 20.8 percent of the calf slaughter in 1964 compared with 12.7 percent in 1974, 2.2 percent of the hog slaughter in 1964 compared with 1.8 percent in 1974, and 10.3 percent of the sheep and lamb slaughter in 1964 compared with 15.1 percent in 1974.

Steer beef, primarily fed beef, represented more than 60 percent of the Texas cattle slaughter in 1974 (Table 11). Heifer beef, also primarily fed beef, accounted for another 13 percent of the cattle slaughter, with cow and bull slaughter making up the remaining cattle slaughter volume. Calf slaughter at 47 million pounds in 1974 represented about 2 percent of the total Texas cattle and calf slaughter in 1974, as compared with 25 percent of the cattle and calf slaughter in 1964. The decline in calf slaughter was primarily a result of the generally profitable

Table 10. Top ten states in meat packing, by species and commercial live weight slaughter, 1974

	Cattle		Hogs		Calves		Sheep & lambs	
Rank	State	Slaughter	State	Slaughter	State	Slaughter	State	Slaughter
		(1000 lbs.)		(1000 lbs.)		(1000 lbs.)		(1000 lbs.)
1	Nebr.	5,187,426	Iowa	4,902,526	Texas	109,747	Calif.	178,503
2	Iowa	4,748,691	Minn.	1,437,742	La.	104,067	Colo.	167,601
3	Texas	3,747,401	Ill.	1,433,129	N. Y.	78,927	Texas	139,731
4	Calif.	3,088,168	Mich.	943,688	Calif.	57,836	Nebr.	77,102
5	Kans.	2,818,274	Ohio	900,230	N. J.	57,566	S. Dak.	44,247
6	Colo.	2,505,359	Ind.	878,363	S. C.	53,552	Ill.	41,579
7	Minn.	1,461,951	Wis.	854,375	Wis.	43,066	N. J.	40,927
8	Wis.	1,425,912	Tenn.	776,257	Va.	39,305	Mich.	40,222
9	Ill.	1,326,120	Nebr.	745,110	Fla.	37,426	Utah	37,507
10	Ohio	991,446	Va.	714,664	Miss.	34,388	Iowa	31,712

Source: Livestock Slaughter, SRS, U. S. Department of Agriculture, Jan. 1975.

Table 11. Total fresh meat produced from slaughter, and dressed fresh meat and processed meat purchases, Texas packers, 1974

Kind of meat	Slaughter production	Fresh meat purchases[1/]	Processed meat purchases[1/]	Total
	--	1,000 pounds	--	
Beef				
Steer	1,365,151	2,945	--	1,368,096
Heifer	290,780	306	--	291,086
Cow and bull	603,160	17,533	--	620,693
Calf	46,845	713	--	47,558
Veal	2/	2/	--	2/
Lamb and mutton	64,346	790	--	65,136
Fresh pork	229,996	72,102	--	302,098
Smoked and cured pork	--	--	542	542
Sausage, variety, and other	--	--	3,012	3,012

1/ Includes purchases from all geographic sources.

2/ Included with calf since only a few firms handle veal.

cattle feeding conditions during the last decade. Consequently, almost all available calves were fed in feedlots before slaughter. Because of generally unfavorable cattle feeding conditions in 1974 and much of 1975, the 1975 non-fed steer and heifer slaughter in Texas and the nation may account for almost 25 percent of the total steer and heifer slaughter, compared with only 5 percent in 1972. Calf slaughter also is anticipated to double or possibly triple the 1974 volume, but this, nevertheless, would represent only about 5 percent of the total cattle and calf slaughter. Table 11 reveals that Texas steer and heifer slaughter and cow and beef slaughter in 1974 was approximately three times the volume in 1959 (2). The Texas hog slaughter at 230 million pounds dressed weight was about two-thirds the 1959 hog slaughter.

Approximately 94 percent of the steers and heifers slaughtered in Texas during 1974 graded either U. S. Choice or U. S. Good (Table 12). More than 50 percent of the steers and heifers were estimated to be U. S. Choice. Almost all of the cows and bulls slaughtered, which are used mostly for ground meat and sausage products, were estimated to be below U. S. Commercial. Calves were estimated to be mostly U. S. Choice or U. S. Good, with 13 percent grading U. S. Standard. Sheep and lamb slaughter consisted of two general groups, lambs and boning ewes. About 82 percent of the lambs were U. S. Choice, with 15 percent grading U. S. Prime. The cull sheep and boning ewes were predominantly U. S. Cull.

While approximately 55 percent of the steer and heifer beef were considered to be U. S. yield grade 3, about 11 percent more heifers than steers were U. S. yield grade 2, but 9 percent more steers than heifers yield graded U. S. 4 (Table 13). Additionally, a higher proportion of

Table 12. U. S. grade equivalents of livestock slaughtered, by type of livestock, Texas packers, 1974

Type of slaughter	U. S. grade equivalents						
	Prime	Choice	Good	Standard[1/]	Commercial[2/]	Other	Total
	---Percent---						
Beef							
Steers	3.0	53.0	41.2	2.8	3/	3/	100.0
Heifers	3.0	51.8	42.0	2.9	.3	3/	100.0
Cows and bulls	4/	4/	.2	.4	1.5	97.9	100.0
Calf	3/	47.6	39.2	13.1	.1	3/	100.0
Veal	4/	4/	55.4	4/	4/	44.6	100.0
Lamb and mutton	13.4	71.7	2.7	4/	12.2	--	100.0

1/ The lamb and mutton is U. S. Utility.

2/ The lamb and mutton is U. S. Cull. There is no Commercial grade for calf or veal.

3/ Less than .05 percent.

4/ None reported by respondents interviewed.

Table 13. U. S. yield grade equivalents of beef steers and heifers slaughtered by Texas packers, 1974

Type of slaughter	U. S. yield grade equivalents					
	1	2	3	4	5	Total
	---Percent---					
Steers	.8	14.8	57.2	24.1	3.1	100.0
Heifers	3.6	26.0	54.4	14.4	1.6	100.0

heifers yield graded U. S. 1 than steers, while a larger proportion of steers yield graded U. S. 5. Steers are generally fed for longer periods and are subsequently fed to heavier weights with more finish than heifers.

The carcass weight ranges of steers and heifers slaughtered by Texas packers in 1974 reflect the cattle feeding activity within the state (Table 14). Almost 90 percent of steers slaughtered by Texas packers were estimated to yield carcasses weighing from 500 to 799 pounds. Almost 45 percent of the steer carcasses weighed between 600 and 699 pounds. Two-thirds of the heifer carcasses weighed from 400 to 599 pounds. Texas packers reported that carcass weight ranges for cows were predominantly under 500 pounds, with bull carcass weight ranges varying widely.

More than 80 percent of the calves slaughtered by Texas packers yielded a carcass weighing from 200 to 299 pounds (Table 15). Veal carcass weight ranges were mostly under 60 pounds. The Texas lamb slaughter is represented primarily by carcasses in the 40-49 pound weight range. The remaining Texas lambs were about equally divided between the 50-59-pound weight range and the under-40-pound category.

Volume, Quality, and Form of Meat Purchased

Fresh pork represented more than 76 percent of the fresh meat purchased by Texas packers during 1974 (Table 11). Cow and bull meat was a distant second, with almost 20 percent of the total fresh meat purchases. Texas packers purchased small volumes of other fresh meat items and also sausage and variety meats, as well as smoked and cured pork items.

Steer beef purchases by Texas packers were about equally split between U. S. Choice and U. S. Good, while heifer beef purchases were

Table 14. Carcass weight ranges of steers, heifers and cows and bulls slaughtered by Texas packers, 1974

Carcass weight ranges	Beef		
	Steers	Heifers	Cows and bulls
	---------Percent---------		
Under 400	.3	11.9	44.9
400-499	2.9	31.7	42.9
500-599	17.3	36.2	5.9
600-699	44.6	17.9	3.8
700-799	26.7	2.3	2.1
800-899	7.3	1/	.3
900 and over	.9	1/	.1
Total	100.0	100.0	100.0

1/ None reported by firms interviewed.

Table 15. Carcass weight ranges of calf, veal, and lamb and mutton slaughtered by Texas packers, 1974

Type of livestock carcass weight ranges	Type of livestock		
	Calf	Veal	Lamb and mutton
	---------Percent---------		
Calf			
Under 200	6.5		
200 - 249	43.5		
250 - 299	39.0		
300 - 349	9.4		
350 - 399	1.6		
400 and over	1/		
Total	100.0		
Veal			
Under 60		74.3	
60 - 89		1/	
90 - 119		1/	
120 and over		25.7	
Total		100.0	
Lamb			
Under 40			19.3
40 - 49			64.4
50 - 59			16.3
60 and over			2/
Total			100.0

1/ None reported by firms interviewed.
2/ Less than .05 percent.

almost entirely U. S. Good (Table 16). Cow and bull beef was U. S. Commercial or lower, while calf was U. S. Good and lower. The small volume of dressed lamb and mutton purchases were predominantly boning ewes grading U. S. Cull.

The form of meat purchases by Texas packers varied considerably by kind of meat purchased (Table 17). Steer and heifer beef was purchased mostly as quarters, followed by subprimals and primals. In contrast, almost 44 percent of the cow and bull beef was purchased as carcass beef and another 36 percent was purchased as "other" or boneless meat. Calf was obtained either in the form of quarters or boneless meat, while veal was purchased in carcass form. The lamb and mutton purchases were of boneless meat for further processing into prepared meat items. Pork purchases, both fresh and smoked and cured, were obtained predominantly in the form of primals.

Meat Processing Operations

The primary fresh meat items transferred to "in-plant" processing by Texas packers were fresh pork and cow and bull meat (Table 18). Almost 39 percent of the fresh pork was processed into sausage and variety meats, while another 33 percent was processed into smoked and cured pork. Approximately 12 percent of the cow and bull meat was manufactured into sausage, with 88 percent being sold as fresh meat. The small percentages of steer and heifer beef, calf, and lamb and mutton transferred to sausage were primarily trimmings which were not sold as ground meat.

Supply Sources for Slaughter Livestock and Meat Purchases

Texas packers relied predominantly on Texas sources for slaughter

Table 16. U. S. grade equivalents of dressed meat purchased, by kind of meat, Texas packers, 1974

Kind of meat	U. S. grade equivalents					
	Prime	Choice	Good	Standard 1/	Commercial and lower 2/	Total
	Percent					
Beef						
Steer	3/	53.6	46.4	3/	3/	100.0
Heifer	3/	3.6	96.4	3/	3/	100.0
Cow and bull	3/	3/	3/	3/	100.0	100.0
Calf	3/	3/	31.6	21.1	47.3	100.0
Veal	4/	4/	4/	4/	4/	4/
Lamb and mutton 5/	3/	3/	3/	3/	100.0	100.0

1/ The lamb and mutton is U. S. Utility.

2/ The lamb and mutton is U. S. Cull. There is no Commercial grade for calf or veal.

3/ None reported by respondents interviewed.

4/ Not reported by respondents interviewed.

5/ Boning ewes.

Table 17. Form of meat purchases, by kind of meat, Texas packers, 1974

Kind of meat	Form of purchases							
	Carcass	Quarters	Primals	Sub-primals	Retail cuts	Ground meat	Other 1/	Total
	Percent							
Beef								
Steer and heifer	4.0	64.0	13.4	18.6	2/	2/	2/	100.0
Cow and bull	43.8	2.2	2/	10.5	2/	7.8	35.7	100.0
Calf	2/	52.6	2/	2/	2/	2/	47.4	100.0
Veal	100.0	2/	2/	2/	2/	2/	2/	100.0
Lamb and mutton	2/	2/	2/	2/	2/	2/	100.0	100.0
Fresh pork	2.5	2/	95.4	1.3	2/	2/	.8	100.0
Smoked and cured pork	3/	3/	98.9	.2	.9	3/	2/	100.0
Sausage, variety, and other	3/	3/	3/	3/	92.0	3/	8.0	100.0

1/ Primarily trimmings, boneless meat, or offal items.

2/ None reported by respondents interviewed.

3/ Not applicable.

Table 18. Percent of fresh meat items transferred to smoked and cured pork or to sausage and variety meat, Texas packers, 1974

Kind of meat	Transferred to: Smoked and cured pork	Sausage and variety meats	Total
	----------------Percent----------------		
Beef			
Steer	--	.8	.8
Heifer	--	1.1	1.1
Cow and bull	--	12.2	12.2
Calf	--	.5	.5
Veal	--	1/	1/
Lamb and mutton	--	1.9	1.9
Fresh pork	32.7	38.6	71.3

1/ None reported by respondents interviewed.

livestock in 1974: about three-fourths or more of all slaughter animals originated in Texas (Table 19). Almost all the slaughter calves and fed steers and heifers were obtained from Texas sources. The large proportion of steers and heifers procured from Texas reflects the development and expansion of the Texas cattle feeding industry even though seven large specialized beef slaughter plants have established slaughter facilities within or near the concentrated cattle feeding areas in the Texas Panhandle since the early 1960's. As these large slaughter facilities become more concentrated, they often have to reach out to more distant sources for available slaughter supplies. Inshipments of steers and heifers for slaughter during 1974 originated primarily from New Mexico and Oklahoma.

Oklahoma was the most important source for out-of-state supplies of slaughter cows and bulls, followed by "other" states which included primarily Louisiana and Arkansas. Lamb inshipments originated mostly from New Mexico and Colorado, while the Kansas-Nebraska area was the primary source for out-of-state slaughter hogs. Veal inshipments arrived mostly from the nearby Southeastern states.

Sources of steers, heifers, and lambs by type of market has undergone substantial change by Texas packers. In 1974, Texas packers purchased about 99 percent of their steers and heifers directly from feedlots, compared with 22 percent in 1959 (Table 20) (2). Additionally, Texas packers obtained more than 55 percent of their slaughter lambs directly from feedlots in 1974, compared with 6 percent in 1959. Feedlogs have, to a large extent, replaced public markets as a concentration point for slaughter livestock. Lamb finishing operations are not as

Table 19. Geographic sources of slaughter livestock, by kind of livestock, Texas packers, 1974

Geographic source	Steers and heifers	Cows and bulls	Calves	Veal	Lambs and mutton	Hogs
	Percent					
Texas	91.8	74.6	97.9	80.0	73.5	85.2
Oklahoma	2.1	11.5	.3	1/	4.0	1/
New Mexico	6.0	3.7	1/	1/	8.3	.6
Kansas-Nebraska	.1	1.6	1/	1/	3.7	9.1
Colorado	1/	2.2	1/	1/	7.6	1/
Other states	1/	6.4	1.8	20.0	2.9	5.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ None reported by respondents interviewed.

Table 20. Source of slaughter livestock, by type of market and kind of livestock, Texas packers, 1974

Type of market	Steers and heifers	Cows and bulls	Calves	Veal	Lambs and mutton	Hogs
	Percent					
Feedlots	98.9	.5	1/	2/	55.4	37.7
Public markets	.7	86.0	94.1	100.0	22.0	26.0
Country	.3	13.2	5.8	1/	19.5	23.0
Other	.1	.3	.1	1/	3.1	13.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ None reported by respondents interviewed.

2/ Not applicable.

concentrated as are cattle feedlots; consequently Texas packers also obtained substantial proportions of their slaughter lambs from public markets and country points. Further, lambs are often sold to packers directly off small grain or other pastures, as are milk fat lambs.

Public markets supplied approximately the same proportion of cows and bulls in 1974 as in 1959 -- about 86 percent. Commercial hog feeding operations have also been established in some areas of Texas as reflected by the data in Table 20. In 1974, Texas packers purchased almost 38 percent of their hogs directly from feedlots, compared with 3 percent in 1959. However, Texas packers obtained almost twice the proportion of hogs from country sources in 1959 as they did in 1974. Although country sources were not regarded as commercial feedlot operations, hogs originating from that source also receive substantial amounts of feedgrain similar to those originating from feedlots.

Texas packers purchased from 81 to 100 percent of their slaughter livestock (with the exception of cows and bulls) on a liveweight cash basis during 1974 (Table 21). Although almost 60 percent of the cows and bulls were bought on a liveweight cash basis, more than 36 percent were also purchased on a grade and weight basis. Liveweight cash purchases of steers and heifers at 87 percent by packers in 1974 was substantially higher than in 1959 when 74 percent were bought on a liveweight cash basis (2). A study of the Texas cattle feeding industry in the late 1960's revealed that Texas feedlots sold about 78 percent of their fed steers and heifers on a liveweight cash basis (3). The 82 percent of lambs and muttons purchased by packers on a liveweight cash basis in 1974 were substantially below the 97 percent obtained on a cash basis in 1959. However, Texas packers acquired almost 12 percent of their slaughter lambs on a guaranteed yield basis in 1974 (Table 21).

Table 21. Method of purchasing livestock, by kind of livestock, Texas packers, 1974

Kind of livestock	Purchasing method: Liveweight-cash	Grade and weight	Rail or carcass	Other 2/	Total
	Percent				
Steers and heifers	86.8	4.0	8.7	.5	100.0
Cows and bulls	58.5	36.1	5.4	1/	100.0
Calves	86.5	.8	12.0	.7	100.0
Veal	100.0	1/	1/	1/	100.0
Lambs and mutton	81.6	1.7	4.9	11.8	100.0
Hogs	96.7	3.0	.2	.1	100.0

1/ None reported by respondents interviewed.

2/ Primarily guaranteed yield, especially the lamb.

During 1974, Texas packers contracted less than one percent of their slaughter steers and heifers 30 days or more in advance of delivery. Packers interviewed did not acknowledge contracting for any other kind of slaughter livestock. In addition, approximately one percent of the steers and heifers were purchased on a formula basis, which was primarily a rail or carcass-weight purchasing method.

Geographic sources of dressed meat purchases by Texas packers varied considerably by type of meat item (Table 22). Texas packers obtained 73 percent or more of their dressed steer and heifer beef purchases, cow and bull beef purchases, and smoked and cured pork purchases

Table 22. Geographic sources of dressed meat purchased, by kind of meat, Texas packers, 1974

Kind of meat	Geographic source							
	Texas	Oklahoma	New Mexico	Kansas-Nebraska	Colorado	Iowa	Other states	Total
	Percent							
Beef								
Steer and heifer	73.2	1/	1/	22.3	4.5	1/	1/	100.0
Cow and bull	83.4	2.6	1/	7.4	1/	1/	6.6	100.0
Calf	52.6	1/	1/	1/	1/	1/	47.4	100.0
Veal	1/	1/	1/	1/	1/	50.0	50.0	100.0
Lamb and mutton	50.0	1/	50.0	1/	1/	1/	1/	100.0
Fresh pork	26.7	4.2	1/	25.3	.2	35.3	8.3	100.0
Smoked and cured pork	84.7	15.3	1/	1/	1/	1/	1/	100.0
Sausage, variety, and other	68.3	7.9	1/	1/	7.9	1/	15.9	100.0

1/ None reported by respondents interviewed.

from suppliers within Texas during 1974. Almost three-fourths of the fresh pork purchases were obtained from out-of-state suppliers, primarily in Iowa and Kansas-Nebraska. Slightly more than one-half of the dressed calf purchases originated from Texas sources, while most of the remainder was obtained from Southeastern states and the Australia-New Zealand area.

Texas packers obtained all of their fresh and processed meat purchases from other packers, with the exception of a small volume of cow and bull meat which was obtained from wholesalers.

Sales and Distribution Practices

Steer and heifer beef, calf and lamb have historically been sold primarily in carcass form. This was also true for Texas packers in 1974 (Table 23). Cow and bull meat, veal, and fresh pork were sold predominantly in noncarcass form. The proportion of total beef sold in

Table 23. Form of meat sales, by kind of meat, Texas packers, 1974

Kind of meat	Form of sales							
	Carcass	Quarters	Primals	Sub-primals	Retail cuts	Ground meat	Other 1/	Total
	Percent							
Beef								
Steer and heifer	61.2	11.2	11.0	14.9	.5	.9	.3	100.0
Cow and bull	30.3	5.2	.3	2.9	2/	1.0	60.3	100.0
Calf	76.9	10.9	9.5	2/	2.0	.2	.5	100.0
Veal	5.0	2/	2/	2/	2/	50.0	45.0	100.0
Lamb and mutton	89.0	3.0	2/	2/	2/	2/	8.0	100.0
Fresh pork	2/	2/	96.7	2.1	.8	.3	.1	100.0
Smoked and cured pork	3/	3/	30.1	.1	69.8	3/	2/	100.0
Sausage, variety, and other	3/	3/	3/	3/	72.9	1.0	26.1	100.0

1/ Primarily trimmings, boneless meat, or offal items.

2/ None reported by respondents interviewed.

3/ Not applicable.

carcass form in 1974, about 54 percent, was slightly below the 59 percent sold in carcass form in 1959 (2). This was not a sharp decline, although Texas packers shipped substantial volumes of steer and heifer beef, about 25 percent, as primals or subprimals in 1974. Cow and bull beef was sold primarily as boneless beef, with the remainder being sold mostly as carcass beef. Texas packers sold almost 90 percent of their lamb in carcass form, in contrast with fresh pork which was sold almost entirely in the form of primals. Smoked and cured pork was sold primarily as retail cuts, although some packers preferred to identify some smoked and cured items, including hams and picnics, as primals rather than retail cuts as indicated in Table 23.

In 1974, Texas packers sold about 56 percent of their total fresh and processed meat items directly to retailers (Table 24). Retailers were the major outlets for all meat items except cow and bull beef and veal. The next most important customers were wholesalers and processors, who accounted for 24 and 12 percent, respectively, of the packer sales. Consumer purchases accounted for less than one percent of the total packer meat sales. Processors were the principal outlets for cow and bull beef, while the HR&I trade was the primary outlet for veal.

Packer sales by kind of meat reveals that, while retailers were the major outlet for steer and heifer beef, the second most important outlet was wholesalers or jobbers, followed by processors and the HR&I trade (Table 24). Cow and bull beef is used mostly for processing into ground meat and sausage items as evidenced by the proportion of sales accounted for by processors and wholesalers. The retail trade accounted for about one-fifth of the cow and bull beef sales by packers. Retailers purchased higher proportions of calf directly from packers than any other

Table 24. Sales by type of buyer and kind of meat, Texas packers, 1974

Kind of meat	Consumers	Retailers	HR&I	Wholesalers or jobbers	Processors	Government	Other	Total
	Type of buyer							
	Percent							
Beef								
Steer and heifer	.7	59.8	5.7	28.2	4.7	.9	1/	100.0
Cow and bull	.1	21.0	.4	30.7	47.8	1/	1/	100.0
Calf	3.4	87.9	.8	4.8	2.5	.6	1/	100.0
Veal	1/	30.0	70.0	1/	1/	1/	1/	100.0
Lamb and mutton	1/	67.4	1/	24.7	6.7	.3	.9	100.0
Fresh pork	.3	77.5	5.7	4.6	8.7	3.2	1/	100.0
Smoked and cured pork	.3	84.3	11.2	3.3	1/	.9	1/	100.0
Sausage, variety, and other	.2	62.2	34.8	1.4	.1	1.3	1/	100.0
Average	.5	55.8	6.9	23.6	12.4	.8	2/	100.0

1/ None reported by respondents interviewed.
2/ Less than .05 percent.

meat item, as did consumers with slightly more than 3 percent of the total. Packers were dependent primarily upon retailers for lamb sales, while wholesalers or jobbers accounted for most of the remaining sales. Retailers were the primary customers for smoked and cured pork and sausage and variety meats, but the HR&I trade also obtained a substantial proportion of the sausage and variety meat items sold by packers.

Chain stores accounted for about two-thirds or more of all fresh and processed meat items sold to retailers by packers (Table 25). Chain store purchases, as a proportion of the total retail sales, were especially prevalent for steer and heifer beef, fresh and cured pork, lamb, and calf. The proportion of chain store purchases represented by national chain stores was highest for cow and bull beef, steer and heifer beef, and lamb (Table 25). It was lowest for calf, followed by fresh pork.

Texas packers sold about 50 percent of their total fresh and processed meat items to customers within Texas during 1974 (Table 26). The most important out-of-state markets from a volume standpoint were the Northeastern states, followed by the West Coast and the Southeastern states. Major market outlets, however, varied greatly by kind of meat item.

The recent construction and sales activities of numerous large, specialized beef slaughtering facilities within or near the concentrated cattle feeding area in the Texas Panhandle is reflected in the market outlets for steer and heifer beef (Table 26 and Figure 1). Texas' surplus fed beef situation is evidenced by the fact that about 60 percent of the total steer and heifer beef was shipped to out-of-state markets

Table 25. Chain store sales as a percent of total retail sales and national chain store sales as a percent of total chain store sales, by kind of meat, Texas packers, 1974

Item	Beef: Steer and heifer	Beef: Cow and bull	Calf	Lamb and mutton	Fresh pork	Smoked and cured pork	Sausage, variety and other
	Percent						
Percent of retail sales to chains	83.4	61.3	71.0	73.7	61.1	79.8	77.1
Percent of chain sales to national chains 1/	79.0	91.8	48.4	77.6	54.9	56.9	69.7

1/ Respondents were asked to delineate between national chain sales as opposed to regional or local chain sales.

Table 26. Geographic sales area for fresh and processed meat, by kind of meat, Texas packers, 1974

Kind of meat	Sales area: Texas	Oklahoma	New Mexico	West Coast	Southeastern states	Northeastern states	Other	Total
	Percent							
Beef								
Steer and heifer	40.7	.9	1.6	11.0	12.8	25.5	7.5	100.0
Cow and bull	44.6	4.0	.1	27.7	2.0	9.6	12.0	100.0
Calf	90.3	1/	1/	1/	7.8	.2	1.7	100.0
Veal	85.0	1.0	1/	1/	1.0	1/	13.0	100.0
Lamb and mutton	4.2	1/	1/	.7	8.1	79.4	7.6	100.0
Fresh pork	93.6	1.0	.5	.1	4.5	1/	.3	100.0
Smoked and cured pork	91.1	2.0	.9	.4	4.7	.2	.7	100.0
Sausage, variety, and other	88.4	1.3	1.4	.6	7.3	.3	.7	100.0
Average	50.4	1.5	1.1	11.7	9.3	19.1	6.9	100.0

1/ None reported by respondents interviewed.

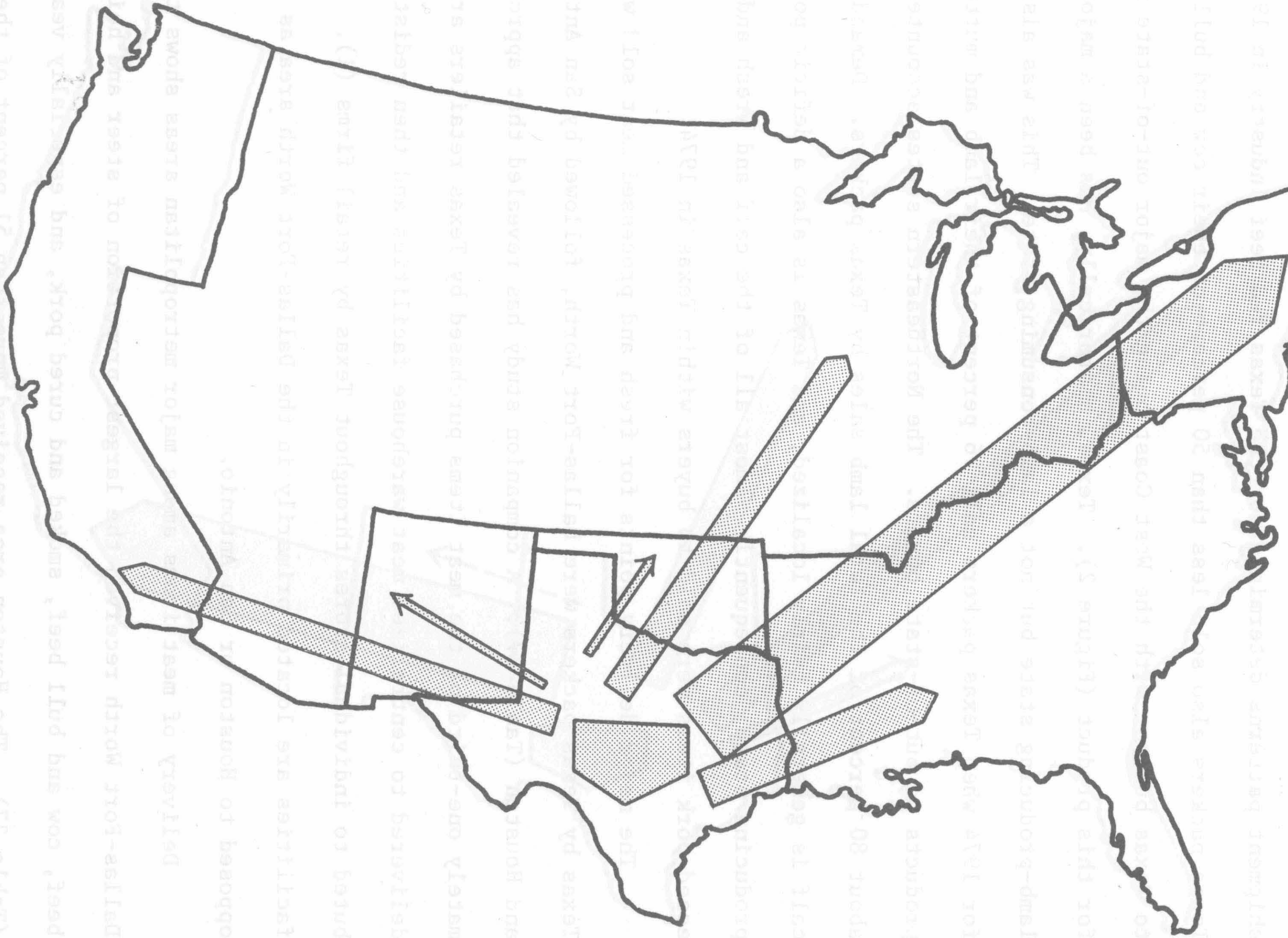

Figure 1. Steer and heifer beef distribution patterns, Texas packers, 1974. The width of the bars represents the proportionate distribution of 1,645 million pounds of steer and heifer beef.

in 1974. The largest out-of-state markets for fed beef were the deficit Northeastern states, followed by the Southeastern states and the West Coast. These distribution patterns coincide closely with the least cost shipment patterns determined for the Texas fed beef industry in 1971 (4). Texas packers also sold less than 50 percent of their cow and bull beef to Texas buyers, with the West Coast being the major out-of-state market for this product (Figure 2). Texas, historically, has been a major lamb-producing state but not a lamb-consuming state. This was also true for 1974 when Texas packers sold 96 percent of their lamb and mutton products to out-of-state buyers. The Northeastern states accounted for about 80 percent of the total lamb sales by Texas packers. Demand for calf is generally fairly localized, and Texas is also a deficit pork producing state; consequently almost all of the calf and fresh and processed pork items were sold to buyers within Texas in 1974.

The major delivery points for fresh and processed meat sold within Texas by Texas packers were Dallas-Fort Worth, followed by San Antonio and Houston (Table 27). A companion study has revealed that approximately one-third of the meat items purchased by Texas retailers are delivered to centralized meat warehouse facilities and then redistributed to individual stores throughout Texas by retail firms (1). Such facilities are located primarily in the Dallas-Fort Worth area as opposed to Houston or San Antonio.

Delivery of meat items among major metropolitan areas shows that Dallas-Fort Worth received the largest proportion of steer and heifer beef, cow and bull beef, smoked and cured pork, and especially veal (Table 27). The Houston area received more than 51 percent of the total calf sold by packers within Texas and the largest proportion of

Figure 2. Cow and bull beef distribution patterns, Texas packers, 1974. The width of the bars represents the proportionate distribution of 545 million pounds of cow and bull beef.

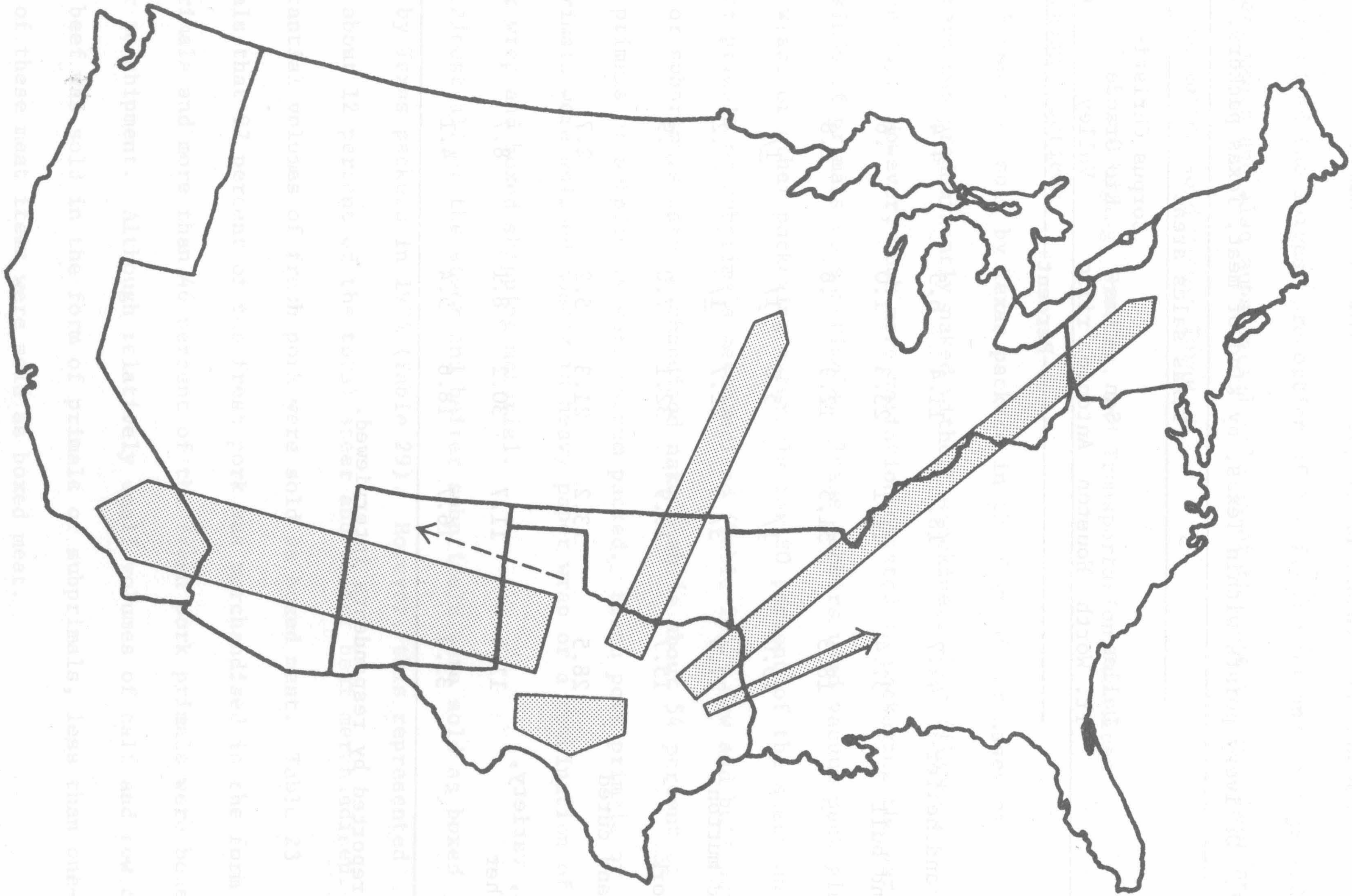

Table 27. Delivery points within Texas, by kind of meat, Texas packers, 1974.

Kind of meat	Texas sales areas: Dallas-Ft. Worth	Houston	San Antonio	Amarillo	Corpus Christi-Rio Grande Valley	Other	Total
	Percent						
Beef							
Steer and heifer	44.7	18.7	11.4	6.5	4.4	14.3	100.0
Cow and bull	31.4	11.1	23.3	1.0	.6	32.6	100.0
Calf	18.3	51.5	12.9	.6	2.8	13.9	100.0
Veal	75.0	1/	5.0	1/	1/	20.0	100.0
Lamb and mutton	27.6	37.3	22.7	1/	.2	12.2	100.0
Fresh pork	15.7	10.9	32.1	7.0	4.9	29.4	100.0
Smoked and cured pork	28.5	13.2	21.3	5.2	2.7	29.1	100.0
Sausage, variety, and other	11.4	11.7	30.2	8.1	8.7	29.9	100.0
Average	33.0	16.7	18.6	5.4	4.1	22.2	100.0

1/ None reported by respondents interviewed.

lamb and mutton among the major metropolitan areas. The San Antonio area received the largest proportion of the fresh pork and sausage and variety meats and also substantial volumes of the cow and bull beef and lamb and mutton sold within Texas.

Packaging, Grading, and Transportation Practices

Packaging Practices

Fresh meat sold by Texas packers in the form of carcasses or quarters was predominantly naked without stockinettes or film wrap (Table 28). However, much more variation existed in packaging the various kinds of primals or subprimals. Texas packers used vacuum packaging, film wrap, or other packaging materials for 80 percent of the steer and heifer primals or subprimals merchandised (Table 28). Cow and bull primals or subprimals were merchandised naked, while about 54 percent of the calf primals or subprimals were vacuum packed. Fresh pork primals or subprimals were shipped mostly in heavy paper wrap or a combination of paper wrap and boxed shipping material.

Almost all of the steer and heifer subprimals were sold as boxed meat by Texas packers in 1974 (Table 29). However, this represented only about 12 percent of the total steer and heifer beef merchandised. Substantial volumes of fresh pork were sold as boxed meat. Table 23 reveals that 97 percent of the fresh pork was merchandised in the form of primals and more than 46 percent of the fresh pork primals were boxed prior to shipment. Although relatively small volumes of calf and cow or bull beef was sold in the form of primals or subprimals, less than one-half of these meat items were sold as boxed meat.

The steer and heifer beef utilized in the boxed beef program by

Table 28. Packaging or wrapping materials used for fresh meat, by kind of meat and type of cut, Texas packers, 1974

Type of cut and packaging material	Beef: Steer and heifer	Beef: Cow and bull	Beef: Calf	Lamb and mutton	Fresh pork
	Percent				
Carcass and quarters					
Naked	84.3	98.1	80.1	96.8	100.0
Stockinette	1.6	.5	7.2	.6	1/
Film wrap	3.9	1/	1/	1/	1/
Other 2/	10.2	1.4	12.7	2.6	1/
Total	100.0	100.0	100.0	100.0	100.0
Primals and subprimals					
Naked	20.1	100.0	45.4	1/	.1
Stockinette	.4	1/	.7	1/	1/
Film wrap	15.7	1/	1/	1/	3.0
Vaccuum pack	47.4	1/	53.9	1/	9.6
Other 2/	16.4	1/	1/	1/	87.3
Total	100.0	100.0	100.0	100.0	100.0

1/ None reported by respondents interviewed.

2/ Paper bag or boxed meat.

Table 29. Percent of primals and subprimals sold as boxed meat, by kind of meat, Texas packers, 1974

Item	Beef: Steer and heifer	Beef: Cow and bull	Beef: Calf	Beef: Veal	Lamb and mutton	Fresh pork
	Percent					
Sold as boxed meat						
Primals	8.9	1/	49.6	1/	1/	46.3
Subprimals	85.8	45.0	1/	1/	1/	1/

1/ None reported by respondents interviewed.

Texas packers were equivalent primarily to U. S. yield grade 4 (Table 30). Carcasses with higher U. S. yield grade numbers often require more trimming to fit the requirements of retailers as well as yielding heavier type carcasses with more exterior fat than lower numbered U. S. yield grades. Since carcasses equivalent to U. S. yield grade 4 often require additional trimming, such carcasses were used more frequently by Texas packers in their boxed beef programs.

Grading Practices Utilized

Grading practices utilized by Texas packers varied considerably by kind of meat (Table 31). More than two-thirds of the steer and heifer beef was rolled with federal grades in 1974, while most of the remainder was not rolled with federal grades or marked with packer brands. More than 80 percent of the lamb and mutton and calf were also rolled with federal grades. Most of the calf not federally graded was packer branded, while the lamb or mutton not rolled with federal grades was usually not graded or marked with packer brands. The lamb and mutton not graded or branded were primarily boning ewes or cull sheep which were used for processing purposes. While pork items are not rolled with federal grades, almost all of the sausage items and smoked and cured pork were marked with packer brands. Most of the fresh pork was packer branded, and the remainder was unmarked with packer brands.

Transportation Practices

Fresh and processed meat items were shipped almost entirely by truck rather than by rail, air, or other modes of transportation by Texas packers during 1974 (Table 32). The smoked and cured meat and sausage items were also shipped almost entirely in company-owned or leased trucks.

Table 30. U. S. yield grade equivalents of steer and heifer beef in boxed beef program, Texas packers, 1974

Item	U. S. yield grade equivalents					
	1	2	3	4	5	Total
	Percent					
Percent distribution	.3	10.0	26.3	63.4	1/	100.0

1/ None reported by respondents interviewed.

Table 31. Grades or brands used for fresh and processed meat, by kind of meat, Texas packers, 1974

Kind of meat	Grade or brand				
	U. S. graded	Packer branded	U. S. graded and packer branded	Not graded or branded	Total
	Percent				
Beef					
Steer	67.2	6.8	4.1	21.9	100.0
Heifer	68.1	11.9	1.7	18.3	100.0
Cow and bull	24.2	7.8	1/	68.0	100.0
Calf	80.3	12.6	1/	7.1	100.0
Veal	1/	1/	1/	100.0	100.0
Lamb or mutton	84.2	3.3	1.5	11.0	100.0
Fresh pork	2/	55.2	2/	44.8	100.0
Smoked and cured pork	2/	89.0	2/	11.0	100.0
Sausage, variety, and other	2/	97.6	2/	2.4	100.0

1/ None reported by respondents interviewed.

2/ There are no U. S. grades for pork or sausage items.

Table 32. Transportation facilities used for distributing fresh and processed meat and percent of meat items transported in company owned or leased facilities, Texas packers, 1974

Item	Fresh meat	Smoked and cured meat	Sausage, variety and other
	----Percent----		
Transportation facilities utilized			
Truck	96.2	100.0	100.0
Rail	3.7	1/	1/
Air	1/	1/	1/
Other	.1	1/	1/
Total	100.0	100.0	100.0
Meat shipped in company or leased facilities			
Truck	53.4	95.2	97.0
Rail	1/	1/	1/
Air	1/	1/	1/
Other	1/	1/	1/

1/ None reported by respondents interviewed.

Slightly more than one-half of the fresh meat items were transported in company-owned or leased trucks.

Boxed meat loading equipment by packers consisted of either pallets and fork-lifts or automatic conveyors (Table 33). These two loading or handling methods were used almost equally by packers; lugers were used infrequently.

Pricing Practices

Although prices paid for live animals or prices charged for fresh and processed meat varied among packers, most packers operated within a framework of fairly well established pricing patterns. For example, most packers acknowledged using the National Provisioner "Yellow Sheet" as a pricing guide, while at the same time generally expressing considerable dissatisfaction with this source of price information, since it generally reflects prices for non-Texas markets and often also for different types of slaughter livestock than are available to Texas slaughtering plants. However, packers relied heavily on the Yellow Sheet because it was generally more timely than most other sources of price information. Packers also relied on price reports issued by the Market News Service of the U. S. Department of Agriculture to determine prices paid for live animals or prices charged for fresh and processed meat items.

Table 33. Percent of boxed meat handled by pallets and fork lifts, lugers, and automatic conveyors, Texas packers, 1974

Item	Pallets-fork lifts	Lugers	Automatic conveyors
	Percent		
Boxed meat handling method	48.5	2.9	48.6

More than 50 percent of the packers stated that market competition and supply and demand were the primary factors in determining the prices they paid for slaughter animals. At the same time, almost all of these packers had access to wire services providing daily and weekly price information from the National Provisioner Yellow Sheet and market reports from the U. S. Department of Agriculture. Almost 17 percent of the packers said they relied mostly on rail costs in determining prices paid for slaughter animals, while 14 percent said they were dependent primarily on the Yellow Sheet. Other packers relied on the dressed meat or wholesale markets in establishing prices.

When packers were queried about determining prices charged for fresh and processed meat, most again acknowledged using the Yellow Sheet as a guide, but almost two-thirds said market competition and supply and demand, including market area, was the prime consideration in establishing fresh and processed meat prices. With the establishment of large, specialized cattle slaughtering plants in the concentrated cattle feeding areas within the Southern and Northern Plains areas, these areas have become relatively large surplus fed beef areas. Consequently, packers in these areas compete for markets on a price and service basis since much of the fed beef produced in these areas are often quite similar. Other important factors or sources in determining prices charged for fresh and processed meat items were rail costs and the Yellow Sheet.

More than 80 percent of the packers said they did not use a predetermined markup in establishing a sales price. However, packers acknowledged that rail costs and processing costs were basic in establishing sales prices. Some packers also used cutting tests to determine prices for primals or subprimals depending upon the degree of "in-plant" fabrication.

Approximately 65 percent of the packers did not forward weekly price lists to customers, while the other 35 percent followed this practice fairly rigorously. Packers submitting weekly price lists to potential customers generally prepared such lists on Wednesday, Thursday, or

Friday. These bid sheets, which quote prices for specified weights and grades of meat items, are applicable for the following week. Packers occasionally lower quoted prices if market conditions dictate such adjustments; upward adjustments are rarely, if ever, made.

Summary

The Texas slaughtering industry has undergone some major changes in structure, location, and operational characteristics during the last decade. The enactment of the Wholesome Meat Act in 1967, the mushrooming cattle feeding industry, and the decision by large, specialized cattle slaughtering firms to locate plants within or near concentrated feeding areas were major contributing factors to the changing slaughter structure in Texas.

The Wholesome Meat Act in 1967 contributed strongly toward a decline in the number of slaughter establishments, especially smaller plants, and an increase in the number of plants electing to operate under federal inspection standards (FIS). The number of slaughter establishments electing to acquire FIS status more than doubled in the United States from 1968 to 1974, with most of the increase taking place in the Northeastern and North Central states. The number of FIS plants increased more than 55 percent in Texas during the 1968-74 period. However, the increase in the proportion of livestock slaughter accounted for by FIS over non-FIS plants from 1968 to 1974 was small since FIS plants were accounting for a predominant majority of the Texas livestock slaughter prior to the enactment of the Wholesome Meat Act.

Perhaps the single most important factor affecting the structure and operational characteristics of the Texas slaughter industry was the growth and rapid expansion of the Texas feedlot industry, especially in the Texas Panhandle area. With the rapidly expanding cattle feeding industry in the Texas Panhandle and Northern Plains areas in the late 1960's and early 1970's, numerous large, specialized cattle slaughtering firms with national systems of meat distribution located slaughter establishments within or near these concentrated cattle feeding areas. Texas Panhandle packers accounted for approximately three-fourths of the Texas steer and heifer beef slaughter in 1974, compared with one-third in 1964.

Texas packers produced about 2.6 billion pounds of red meat in 1974. Steer beef accounted for 52 percent of this total, followed by cow and bull beef with 23 percent, heifer beef with 11 percent, fresh pork with 9 percent, lamb and mutton with 3 percent, and calf with 2 percent. Steer and heifer beef, which was predominantly fed beef, accounted for 63 percent of the total.

Packers acquired 75 percent or more of all types of slaughter livestock from Texas sources during 1974. Packers obtained nearly all of their steers and heifers and calves from Texas sources. Inshipments of slaughter cows and bulls originated from almost all nearby states, but Oklahoma was a primary source. New Mexico and Colorado were a primary source for inshipments of slaughter lambs, while the Kansas-Nebraska area was the most important out-of-state source for slaughter hogs.

Packers purchased 99 percent of their steer and heifers at feedlots in 1974, while public markets were the predominant source of supply for slaughter cows and bulls, calves, and veal. The most important source for lamb and mutton and hogs were feedlots, followed by public markets and country points.

The quality of steers and heifers produced by Texas packers in 1974 reflects the development of the cattle feeding area in the Panhandle-Plains area. Almost all steers and heifers were U. S. Good or higher, with 55 percent U. S. Choice or higher. Lambs slaughtered by Texas packers were also predominantly U. S. Choice or higher. Calves slaughtered in 1974 were primarily U. S. Good or U. S. Choice, reflecting the heavier weight of calves slaughtered in Texas compared with slaughter weight in most other states.

Texas packers sold one-half of their total fresh and processed meat items to customers within Texas during 1974. The primary factor contributing to this large surplus meat situation was the establishment and rapid growth of the Texas cattle feeding industry. Texas was a deficit fed beef state in the early 1960's. In 1974, however, 60 percent of the steer and heifer beef produced by Texas packers was shipped to out-of-state customers. The primary out-of-state market for Texas fed beef were the Northeastern states, followed by the Southeastern states and the West Coast. Lamb produced by Texas packers, historically, has been sold predominantly to customers in the Northeastern states, and 1974 was no exception. More than 50 percent of the cow and bull beef was shipped out-of-state by Texas packers in 1974, with most of the shipments destined for the West Coast area. All other fresh and processed meat items were sold predominantly to customers within Texas.

Retailers were the major outlets for all types of fresh and processed meat items sold by Texas packers with the exception of cow and bull beef and veal. Texas packers relied primarily on processors and wholesalers or jobbers for cow and bull beef sales, while the HR&I trade was the most important outlet for veal. Wholesalers or jobbers also purchased substantial proportions of the steer and heifer beef and lamb merchandised by packers. The HR&I trade was also a principle outlet for sausage and variety meat items, as well as smoked and cured pork.

Two-thirds or more of the steer and heifer beef and more than 80 percent of the lamb and calf were marked with U. S. grades by packers in 1974. Packer brands were used for almost all of the sausage items and smoked and cured pork and for most of the fresh pork merchandised. Cow and bull beef and veal were generally not rolled with U. S. grades or marked with packer brands. Substantial volumes of fresh pork and steer and heifer beef were also sold without U. S. grades or packer brands in 1974.

Almost two-thirds of the steer and heifer beef, more than three-fourths of the calf, and almost 90 percent of the lamb was merchandised in carcass form by Texas packers in 1974. Fresh pork was sold almost entirely as primal cuts, and cow and bull beef were sold primarily as boneless meat. Substantial volumes of steer and heifer beef were also sold as subprimals, primals, or quarters during 1974.

Carcasses and quarters for all kinds of fresh meats were sold predominantly naked or without stockinettes, film wrap, or other types of packaging material. Primal meat sales were prevalent for fresh pork, and these items were generally packaged in paper bag material. Steer and heifer beef sold as primals or subprimals, about 22 percent of the total, was generally vacuum packed, although many of these cuts were packaged in film wrap or paper bag material. The calf primals and subprimals, almost 10 percent of the total, were mostly vacuum packed, with the remainder being sold without any packaging or wrapping materials.

Almost 14 percent of the steer and heifer beef, predominantly subprimals, was sold as boxed meat in 1974. However, 45 percent of the fresh pork was merchandised as boxed meat. Small volumes of calf and cow and bull beef were also merchandised as boxed meat.

Texas packers relied almost entirely on trucks for transporting fresh meat items in 1974. Trucks were used exclusively for shipping smoked and cured meat and sausage items. Packers owned or leased about one-half of the trucks used for transporting fresh meat items and 95 percent or more of the trucks used for transporting smoked and cured meats, sausage, and variety meat items.

Most packers operated within a framework of fairly well established pricing patterns relative to prices paid for live animals or prices charged for fresh and processed meat items. Packers generally acknowledged using the National Provisioner Yellow Sheet as a pricing guide since it was generally more timely than most other sources of price information. However, packers also relied heavily on price reports issued by the Market News Service of the U. S. Department of Agriculture.

Almost two-thirds of the packers stated that market competition and supply and demand, including market area, were prime considerations in establishing fresh and processed meat prices. With the establishment of large, specialized cattle slaughtering establishments in the concentrated cattle feeding areas within the Southern and Northern Plains areas, these areas have become relatively large surplus fed beef areas. *Consequently, packers in these areas compete for markets on a price and* service basis because much of the fed beef produced in these areas exhibits similar physical and quality characteristics. More than 80 percent of the packers did not use a predetermined markup in establishing a sales price. However, packers acknowledged that rail costs and processing costs were basic in establishing sales prices.

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