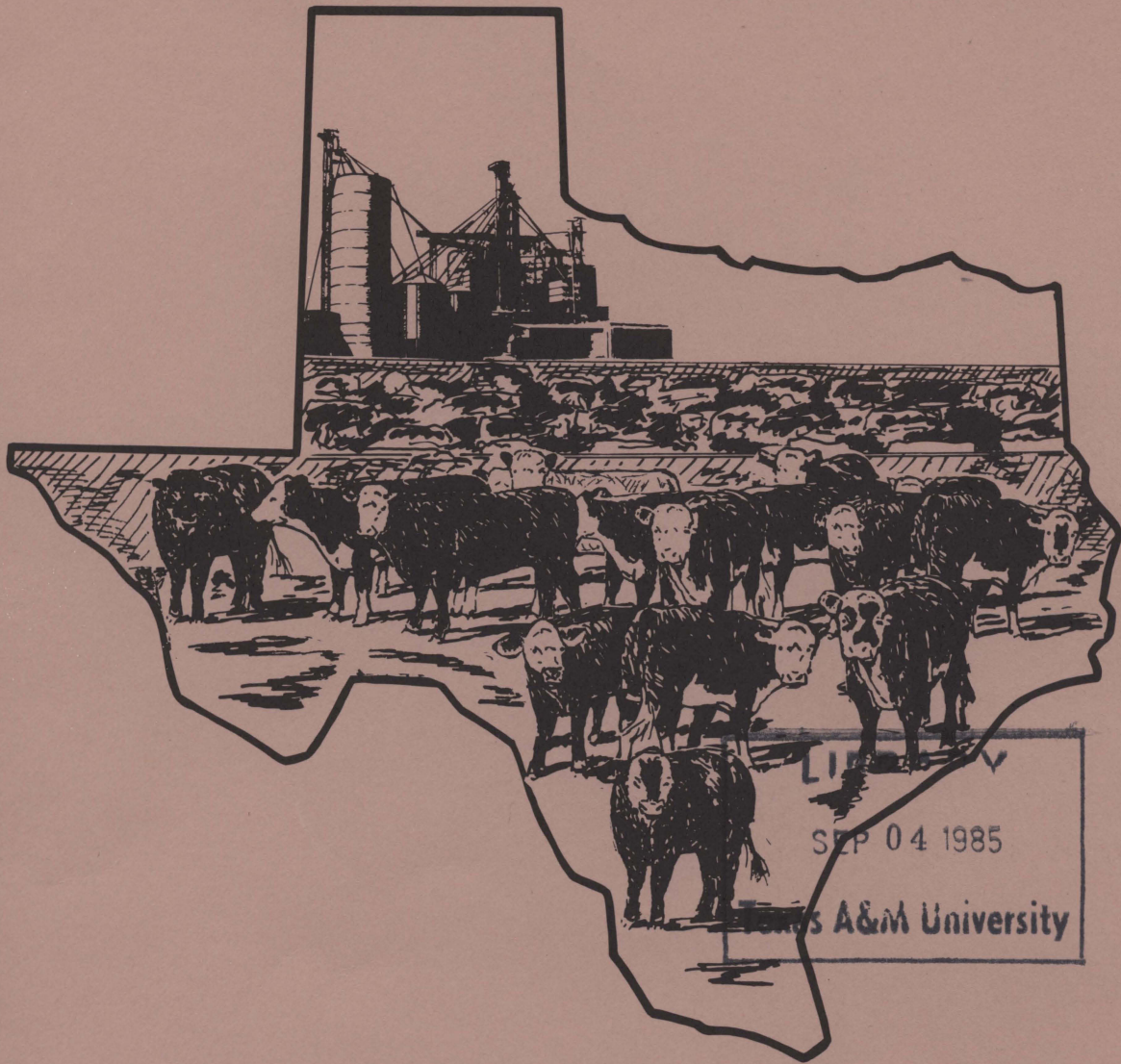


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# The Texas Cattle Feeding Industry-



## Operations, Management, and Costs

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# **THE TEXAS CATTLE FEEDING INDUSTRY— OPERATIONS, MANAGEMENT, AND COSTS**

**R. A. Dietrich, P. J. Thomas, and D. E. Farris**



## Highlights

The Texas cattle feeding industry is composed primarily of large scale, highly efficient feeding operations located predominantly in the Panhandle-Plains area where more than 85% of Texas cattle are fed annually. Feedlots with 16,000 head or more capacity, which accounted for almost 80% of the cattle marketed from Texas feedlots in 1981, generally enjoyed a cost advantage over smaller size feedlot operations. The Texas cattle feeding industry, currently the largest in the United States, is a high risk industry dependent upon skilled management for dealing with rapidly changing economic conditions and the competitive nature of cattle feeding.

This study provides estimates of costs and economies of size in Texas feedlot operations during 1980-81, and also provides information on current management and operational practices of Texas feedlots by size of feedlot and feeding area.

Feedlots with less than 16,000 head capacity were generally at a disadvantage when competing with larger feedlots with respect to annual fixed costs per pound of gain. The largest decrease in annual fixed costs per pound of gain occurred as feedlot size increased from less than 1,000 head capacity to 4,000 head capacity. Results revealed generally more variability in costs among smaller feedlots compared to larger lots with a few smaller feedlots exhibiting cost structures similar to larger feedlots.

Total capital investment in equipment and facilities averaged about \$75 per head of capacity. Total capital investments decreased from \$133 per head of capacity for the smallest size feedlots to \$63 for the largest size group. The major items of capital investments were milling equipment, pens, and associated equipment. Other major items of capital investment were land, feed, storage facilities, and feed distribution equipment.

Variable costs comprised more than 95% of the total feeding costs with annual fixed costs accounting for the remaining feeding cost. Feed accounted for 78% of the variable costs, followed by interest costs of 15%. Interest and depreciation accounted for more than three-fourths of the total annual fixed costs.

Almost three-fourths of the cattle were fed on a custom basis during 1980-81. Custom clients not affiliated with feedlots owned two-thirds of the custom-fed cattle and members of the feedlot company or corpora-

tion owned the remaining custom cattle. Ranchers owned over 55% of the custom-fed cattle.

More than 60% of the cattle placed on feed in Texas feedlots originated from sources within Texas. Feedlots tended to reach out further for feeder cattle supplies as well as relying on a larger number of geographic sources as feedlot size increased. Weights of cattle placed on feed were influenced largely by geographic location and sex of cattle. Steer placement weights by Panhandle-Plains feedlots ranged primarily from 500 to 799 lb while heifer placements ranged mostly from 400 to 699 lb. Placement weights in the Gulf Coast-Rio Grande Plains and Plateau-Pecos areas, which fed predominantly heifers, ranged mostly from 300 to 599 lb.

Days on feed tended to vary more by feeding area than by size of feedlots since most feedlot size groups were also located within the various feeding areas. Steers were fed an average of 149 days and heifers 142 days during 1980-81. Feedlots in the Gulf Coast-Rio Grande Plains area generally fed cattle (predominantly heifers) an average of 10 to 15 fewer days than did Panhandle-Plains feedlots.

English breeds and English crosses represented more than 50% of the cattle placed on feed. Brahman and Brahman crosses accounted for another one-third of the placements, followed by Exotic European crosses with about 7%.

As the Texas cattle feeding industry has matured, it has moved closer to the older cattle feeding areas in terms of market weights and days on feed. In 1966-67, more than 40% of the cattle fed in Texas feedlots were marketed at less than 800 lb compared to 14% in 1980-81. During 1980-81, market weights of steers averaged almost 1,050 lb while heifers averaged about 865 lb.

Almost 70% of the fed steers marketed from Texas feedlots graded U.S. Choice or higher compared to 50% for fed heifers. Fed cattle marketed from Panhandle-Plains feedlots were predominantly U.S. Choice or higher in contrast to Gulf Coast-Rio Grande Plains feedlots where more than two-thirds of the fed cattle were estimated to grade U.S. Good.

More than 90% of the fed cattle were sold to packers within Texas during 1980-81 in contrast to 1966-67 when about one-half of the fed cattle were sold to out-of-state slaughter plants.



# THE TEXAS CATTLE FEEDING INDUSTRY—OPERATIONS, MANAGEMENT, AND COSTS

R. A. Dietrich, P. J. Thomas, and D. E. Farris\*

## INTRODUCTION

The Texas cattle feeding industry is characterized by large scale, highly specialized and mechanized commercial feedlot operations which are concentrated predominantly in the Texas Panhandle. There are, however, various sizes and types of feedlots dispersed throughout the state. The growth and development of the Texas feeding industry occurred primarily in the 1960's and early 1970's (Dietrich, 1968; Dietrich et al., 1972). The rapid growth and development of the Texas cattle feeding industry encouraged the establishment of large scale beef slaughtering and fabrication facilities with national systems of distribution adjacent to feedlot operations in the Texas Panhandle and Southern Plains. The rapid growth of the Texas feeding industry, however, has not been without problems.

The feeding industry in Texas enjoyed favorable profit margins until the early 1970's when feedlot firms began to face highly volatile economic conditions. These conditions resulted from inflation, consumer beef boycotts, sharp increases in feed grain prices, rapid fluctuations in feeder cattle and fed slaughter cattle prices, mushrooming interest costs, and escalating energy costs. The changing economic environment resulted in prolonged periods of unpredictable and often negative profit margins for cattle feeders during much of the 1970's and early 1980's (Clary and Dietrich, 1979). The net results were that some feedlot firms ceased operations, some lots declared bankruptcy, while other lots either merged with existing feedlot firms or were acquired by allied agriculture interests.

The purpose of this study is to analyze the Texas cattle feeding industry relative to: (1) the structure of the cattle feeding industry, (2) the feeding and management practices employed, (3) marketing practices, and (4) costs and economies of size of feedlot operations. A secondary purpose is to update two earlier studies concerning the structure and operational characteristics of Texas feedlots (Dietrich, 1968) and costs and economies of size in Texas feedlot operations (Dietrich, 1969).

Data for this study were obtained through personal interviews of Texas feedlot firms concerning feedlot oper-

ations during June 1980 to July 1981. Respondents for this study were selected on a random sample basis by feedlot size and feeding area. Cattle feeding areas, as outlined in this study, are shown in Figure 1.

Since a minimum of five feedlots was specified in the sample for each feedlot size group and feeding area, the total sample rate was relatively high (Table 1). Feedlots sampled accounted for more than 45% of the cattle fed in their respective feeding area and almost 55% of the total cattle fed in Texas during 1980-81.

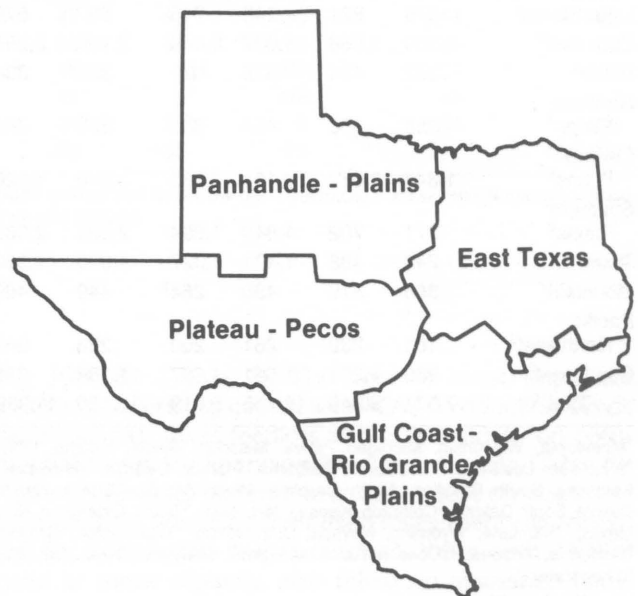


Figure 1. Texas cattle feeding areas.

## ORGANIZATIONAL CHARACTERISTICS OF THE INDUSTRY

### U.S. Cattle Feeding Characteristics

The Central Plains, Corn Belt, and the Southern Plains accounted for 74% of the U.S. cattle fed on January 1, 1983 (Table 2). Feedlots in the Southwest and the Lake States accounted for another 8 and 6%, respectively, of the cattle on feed on January 1, 1983.

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TABLE 1. THE SAMPLING PERCENT, THE NUMBER OF FEEDLOTS IN THE SAMPLE, AND SAMPLE QUESTIONNAIRES COMPLETED, BY SIZE OF FEEDLOT, FOR ACTIVE FEEDLOTS, TEXAS, 1980-81

| Feedlot Capacity (head) | Sampling Percent | Feedlots in Sample | Sample Questionnaires Completed |
|-------------------------|------------------|--------------------|---------------------------------|
|                         | Percent          | Number             | Percent                         |
| Less than 2,000         | 92.3             | 12                 | 58.3                            |
| 2,000-3,999             | 81.8             | 9                  | 44.4                            |
| 4,000-7,999             | 68.2             | 15                 | 93.3                            |
| 8,000-15,999            | 69.2             | 20                 | 65.0                            |
| 16,000-31,999           | 51.2             | 21                 | 100.0                           |
| 32,000-49,999           | 42.3             | 11                 | 63.3                            |
| 50,000 and over         | 100.0            | 4                  | 100.0                           |
| Total                   | 63.0             | 92                 | 76.1                            |

TABLE 2. CATTLE ON FEED BY REGIONS AND STATE, JANUARY 1, 1960-83

| Region and State             | 1960                 | 1965  | 1970   | 1975             | 1980   | 1983   |
|------------------------------|----------------------|-------|--------|------------------|--------|--------|
|                              | -----1,000 Head----- |       |        |                  |        |        |
| Pennsylvania                 | 83                   | 80    | 88     | 83               | 79     | 75     |
| Lake States <sup>1</sup>     | 670                  | 821   | 945    | 715              | 667    | 670    |
| Corn Belt <sup>2</sup>       | 2,909                | 3,568 | 4,037  | 2,440            | 2,400  | 2,255  |
| South <sup>3</sup>           | 362                  | 434   | 376    | NA               | 335    | 334    |
| Northern Plains <sup>4</sup> | 368                  | 458   | 424    | 381              | 389    | 384    |
| Central Plains <sup>5</sup>  | 1,344                | 2,012 | 3,164  | 2,835            | 3,910  | 4,220  |
| Southern Plains <sup>6</sup> | 371                  | 702   | 1,849  | 1,694            | 2,539  | 2,369  |
| Texas                        | 248                  | 488   | 1,471  | 1,327            | 1,970  | 1,920  |
| Mountain <sup>7</sup>        | 356                  | 376   | 480    | 264 <sup>8</sup> | 449    | 469    |
| Pacific                      |                      |       |        |                  |        |        |
| Northwest <sup>8</sup>       | 181                  | 232   | 251    | 200              | 228    | 247    |
| Southwest <sup>9</sup>       | 930                  | 1,263 | 1,541  | 1,007            | 1,184  | 966    |
| Total <sup>10</sup>          | 7,574                | 9,946 | 13,155 | 9,619            | 12,180 | 11,989 |

<sup>1</sup>Minnesota, Wisconsin, Michigan. <sup>2</sup>Iowa, Missouri, Illinois, Indiana, Ohio. <sup>3</sup>Arkansas, Louisiana, Mississippi, Alabama, Florida, Georgia, Tennessee, Kentucky, South Carolina, North Carolina, West Virginia, Virginia. <sup>4</sup>North Dakota, South Dakota. <sup>5</sup>Colorado, Kansas, Nebraska. <sup>6</sup>Texas, Oklahoma, New Mexico. <sup>7</sup>Montana, Wyoming, Nevada, Utah, Idaho. <sup>8</sup>Washington, Oregon. <sup>9</sup>California, Arizona. <sup>10</sup>Does not include Hawaii, Maryland, New York, and "other states."

NA—Not Available.

Source: Livestock and Meat Statistics, U.S. Department of Agriculture.

Regional shifts in location and numbers of cattle on feed are readily apparent from 1960 to 1983 (Table 2). The Central Plains, which accounted for more than one-third of the U.S. cattle on feed on January 1, 1983, showed a threefold increase in numbers of cattle on feed from 1960 to 1983. The Southern Plains, influenced predominantly by Texas' feeding practices, accounted for one-fifth of the U.S. cattle on feed on January 1, 1983, but showed a sixfold increase in numbers of cattle on feed from 1960 to 1983. The Corn Belt, which also accounted for almost 20% of the U.S. cattle on feed on January 1, 1983, revealed a decrease in numbers of

cattle on feed from 1960 to 1983 in contrast to the Central and Southern Plains where large increases in cattle feeding occurred.

Numbers of feedlots by size group and numbers of fed cattle marketed by feedlot size group have changed substantially from 1970 to 1981 (Tables 3 and 4). Feedlots with less than 1,000 head capacity, generally referred to as farmers feeders, comprised 99% of the U.S. feedlots in 1970 while accounting for 45% of the fed cattle marketings. However, by 1981, marketings from feedlots with less than 1,000 head capacity, which represented 98% of the U.S. feedlots, accounted for more than one-fourth of the U.S. fed cattle marketings. Conversely, these data reveal that 2% of the U.S. feedlots, those with 1,000 head or more capacity accounted for almost three-fourths of the U.S. fed cattle marketings in 1981. Tables 3 and 4 show that feedlots with 8,000 head or more capacity increased from 356 in 1970 to 408 in 1981. However, fed cattle marketings from these large feedlots, which are located primarily in the Central and Southern Plains and the Southwest, increased from 37% of the U.S. total in 1970 to 53% in 1981.

The proportion of fed cattle marketed by feedlot size groups reveals that cattle feeding by farmer-feeders is continuing to decline at a rapid rate. Farmer-feeders accounted for 45% of the U.S. fed cattle marketings in 1970 compared to 27% in 1981 (Table 4). Most of the decrease in cattle feeding by farmer-feeders occurred in the Corn Belt where cattle fed by farmer-feeders decreased almost 60% from 1970 to 1981. The rapid expansion of cattle feeding by large commercial feedlots is highlighted by the growth of feedlots in the 8,000 and over size group in the Central Plains and feedlots with 16,000 or more capacity in the Southern Plains from 1970 to 1981 (Table 4). Feedlots with 8,000 head or more capacity accounted for 39% of the cattle fed in the Central Plains in 1970 compared to 55% in 1981. Southern Plains feedlots with 16,000 head or more capacity, during the same period, accounted for 76% of the total cattle fed in 1981 compared to 55% in 1970.

### Texas Cattle Feeding Characteristics

Cattle feeding in Texas is concentrated predominantly in the Panhandle-Plains area which accounted for more than 86% of the Texas fed cattle marketings in 1981 (Table 5). The Gulf Coast-Rio Grande Plains and Plateau-Pecos areas accounted for almost all of the remaining fed cattle marketings. Table 5 also reveals that cattle feeding increased substantially in the Panhandle-Plains from 1968 to 1981, while decreasing sharply in the Gulf Coast-Rio Grande Plains and East Texas areas.

Major contributing factors to the increased concentration of cattle feeding in the Panhandle-Plains area compared to other areas in Texas include economies of size in feedlot operations, proximity to feed grain supplies and large beef slaughter plants, favorable climate, readily available supplies of feeder cattle, and locational advantage with respect to shipping beef supplies to southern, eastern, and western markets (Clary, Dietrich, and Farris, 1984). The average one-time capacity of commercial feedlots in the Texas Panhandle-Plains area during 1980

TABLE 3. NUMBER OF FEEDLOTS, BY SIZE GROUP, 23 MAJOR CATTLE FEEDING STATES, UNITED STATES, 1970 AND 1981

| Year, Region,<br>and<br>State  | Feedlot Capacity (Head) |                 |                 |                 |                  |                   |                    | Total<br>1,000 or<br>more | Total<br>Marketings |
|--------------------------------|-------------------------|-----------------|-----------------|-----------------|------------------|-------------------|--------------------|---------------------------|---------------------|
|                                | Under<br>1,000          | 1,000-<br>1,999 | 2,000-<br>3,999 | 4,000-<br>7,999 | 8,000-<br>15,999 | 16,000-<br>31,999 | 32,000<br>and over |                           |                     |
| -----Feedlots-----             |                         |                 |                 |                 |                  |                   |                    |                           |                     |
| 1970                           |                         |                 |                 |                 |                  |                   |                    |                           |                     |
| Pennsylvania                   | 5,997                   | 3*              | NR              | NR              | NR               | NR                | NR                 | 3                         | 6,000               |
| Lake States <sup>1</sup>       | 27,628                  | 59*             | 13              | NR              | NR               | NR                | NR                 | 72                        | 27,700              |
| Corn Belt <sup>2</sup>         | 105,192                 | 190*            | 83*             | 30*             | 5                | NR                | NR                 | 308                       | 105,500             |
| Northern Plains <sup>3</sup>   | 10,828                  | 50              | 17*             | 5*              | NR               | NR                | NR                 | 72                        | 10,900              |
| Central Plains <sup>4</sup>    | 27,922                  | 408             | 198             | 118             | 63               | 36*               | 7                  | 830                       | 28,752              |
| Southern Plains <sup>5</sup>   | 2,076                   | 85              | 67              | 55              | 55               | 42*               | 15                 | 319                       | 2,395               |
| Texas                          | 1,300                   | 60              | 44              | 36              | 39               | 33                | 15                 | 227                       | 1,527               |
| Mountain <sup>6</sup>          | 970                     | 75              | 44              | 32              | 11               | 4                 | NR                 | 166                       | 1,136               |
| Pacific Northwest <sup>7</sup> | 581                     | 20              | 26              | 9               | 12*              | NR                | NR                 | 67                        | 648                 |
| Southwest <sup>8</sup>         | 161                     | 74              | 84              | 65              | 58               | 28                | 16                 | 325                       | 486                 |
| Total                          | 181,355                 | 960             | 530             | 316             | 207              | 107               | 42                 | 2,162                     | 183,517             |
| 1981                           |                         |                 |                 |                 |                  |                   |                    |                           |                     |
| Pennsylvania                   | 5,890                   | 10*             | NR              | NR              | NR               | NR                | NR                 | 10                        | 5,900               |
| Lake States                    | 16,900                  | 75              | 25*             | NR              | NR               | NR                | NR                 | 100                       | 17,000              |
| Corn Belt                      | 55,790                  | 618*            | 148*            | 30              | 10               | NR                | NR                 | 806                       | 56,596              |
| Northern Plains                | 7,386                   | 38              | 15              | 11*             | NR               | 4                 | NR                 | 68                        | 7,454               |
| Central Plains                 | 14,211                  | 354             | 169             | 104             | 92               | 50                | 20                 | 789                       | 15,000              |
| Southern Plains                | 1,215                   | 15              | 32*             | 37              | 47               | 53*               | 30                 | 214                       | 1,429               |
| Texas                          | 955                     | 10              | 16              | 23              | 28               | 38                | 30                 | 145                       | 1,100               |
| Mountain                       | 226                     | 27              | 33              | 27              | 15               | 5*                | NR                 | 107                       | 333                 |
| Pacific Northwest              | 524                     | 15              | NR              | 12*             | 11*              | 5*                | NR                 | 43                        | 567                 |
| Southwest                      | 25                      | 6               | 19*             | 21              | 20               | 23*               | 16                 | 105                       | 130                 |
| Total                          | 102,167                 | 1,154           | 437             | 242             | 198              | 135               | 75                 | 2,242                     | 104,409             |

<sup>1</sup>Minnesota, Wisconsin, and Michigan. <sup>2</sup>Iowa, Missouri, Illinois, Indiana, and Ohio. <sup>3</sup>North Dakota and South Dakota. <sup>4</sup>Colorado, Kansas, and Nebraska. <sup>5</sup>Texas, Oklahoma, and New Mexico. <sup>6</sup>Montana and Idaho. <sup>7</sup>Washington and Oregon. <sup>8</sup>California and Arizona.

\*Lots from other size groups are included to avoid disclosing individual operations.

NR—None Reported.

Source: Livestock and Meat Statistics, U.S. Department of Agriculture.

was more than 31,000 head, compared to almost 11,000 head in the Plateau-Pecos area, almost 9,500 head in the Gulf Coast-Rio Grande Plains, and more than 3,000 head in East Texas where feeding is very limited. In addition, the Panhandle-Plains area annually accounts for about two-thirds of the Texas corn production, more than 70% of the wheat production and almost 40% of the sorghum production (*Texas Department of Agriculture, Texas Field Crop Statistics and Texas Small Grains Statistics, selected issues*).

### Legal Form of Feedlot Ownership

The predominant form of ownership in Texas feedlots during 1980-81 were corporations followed by partnerships and single proprietorships (Table 6). Incorporated feedlots have become prominent in the Texas feeding industry as the size of feedlots has increased. In 1966-67, the predominant forms of ownership in Texas feedlots were single proprietors, followed by partnerships and incorporated feedlots (Dietrich, 1968).

### Source of Financing

The primary sources for operating capital for all sizes of feedlot operations were commercial banks dur-

ing 1980-81 (Table 7). The second most important source for operating capital was PCA's (Production Credit Associations). Texas feedlots also relied mostly on commercial banks for financing fixed investments (Table 8). However, feedlots became less dependent on commercial banks for financing their fixed investments as feedlot size increased. The larger feedlots, those with 16,000 head or more capacity, also relied on insurance companies as a source of funds for fixed investments.

## FEEDING AND MARKETING PRACTICES

### Feeding Practices

Type of cattle placed on feed, source of feeder cattle, and feeding practices varied by size of feedlot and feeding area during 1980-81.

*Feeder Cattle Placements.* Panhandle-Plains feedlots accounted for 85% of the 4.3 million head of cattle placed on feed in Texas feedlots from July 1980 through June 1981 (Table 9). Almost all of the remaining 15% were fed in Gulf Coast-Rio Grande Plains and Plateau-Pecos feedlots. Steers comprised 57% of the Texas placements with heifers accounting for the remaining 43%.



TABLE 4. FED CATTLE MARKETED, BY SIZE OF FEEDLOT, 23 MAJOR CATTLE FEEDING STATES, UNITED STATES, 1970 AND 1981

| Year, Region, <sup>1</sup><br>and<br>State | Feedlot Capacity (Head) |                 |                 |                 |                  |                   |                    | Total<br>1,000 or<br>more | Total<br>Marketings |
|--|-------------------------|-----------------|-----------------|-----------------|------------------|-------------------|--------------------|---------------------------|---------------------|
|  | Under<br>1,000          | 1,000-<br>1,999 | 2,000-<br>3,999 | 4,000-<br>7,999 | 8,000-<br>15,999 | 16,000-<br>31,999 | 32,000<br>and over |                           |                     |
| -----1,000 Head-----                       |                         |                 |                 |                 |                  |                   |                    |                           |                     |
| 1970                                       |                         |                 |                 |                 |                  |                   |                    |                           |                     |
| Pennsylvania                               | 119                     | 9*              | NR              | NR              | NR               | NR                | NR                 | 9                         | 128                 |
| Lake States                                | 1,237                   | 77*             | 34              | NR              | NR               | NR                | NR                 | 111                       | 1,348               |
| Corn Belt                                  | 6,646                   | 280*            | 215*            | 174*            | 65               | NR                | NR                 | 734                       | 7,380               |
| Northern Plains                            | 520                     | 49              | 37*             | 36*             | NR               | NR                | NR                 | 122                       | 642                 |
| Central Plains                             | 2,419                   | 602             | 638             | 881             | 946              | 1,528*            | 390                | 4,985                     | 7,404               |
| Southern Plains                            | 153                     | 92              | 190             | 411             | 993              | 1,282*            | 952                | 3,920                     | 4,073               |
| Texas                                      | 98                      | 53              | 112             | 281             | 727              | 915               | 952                | 3,040                     | 3,138               |
| Mountain                                   | 94                      | 65              | 103             | 131             | 116              | 109               | NR                 | 524                       | 618                 |
| Pacific Northwest                          | 80                      | 22              | 63              | 61              | 288*             | NR                | NR                 | 434                       | 514                 |
| Southwest                                  | 21                      | 21              | 108             | 256             | 689              | 857               | 874                | 2,805                     | 2,826               |
| Total                                      | 11,289                  | 1,202           | 1,367           | 1,937           | 3,128            | 3,203             | 2,807              | 13,644                    | 24,933              |
| 1981                                       |                         |                 |                 |                 |                  |                   |                    |                           |                     |
| Pennsylvania                               | 75                      | 27*             | NR              | NR              | NR               | NR                | NR                 | 27                        | 102                 |
| Lake States                                | 973                     | 99              | 93*             | NR              | NR               | NR                | NR                 | 192                       | 1,165               |
| Corn Belt                                  | 2,777                   | 840*            | 397*            | 150             | 130              | 88                | NR                 | 1,605                     | 4,382               |
| Northern Plains                            | 519                     | 46              | 37              | 123*            | NR               | NR                | NR                 | 206                       | 725                 |
| Central Plains                             | 1,698                   | 661             | 747             | 911             | 1,582            | 1,654             | 1,642              | 7,197                     | 8,895               |
| Southern Plains                            | 67                      | 25              | 85*             | 268             | 744              | 2,023*            | 1,660              | 4,805                     | 4,872               |
| Texas                                      | 50                      | 20              | 50              | 220             | 510              | 1,450             | 1,660              | 3,910                     | 3,960               |
| Mountain                                   | 15                      | 14              | 58              | 83              | 219*             | 238*              | NR                 | 612                       | 627                 |
| Pacific Northwest                          | 20                      | 17              | NR              | 49*             | 133*             | 369*              | NR                 | 568                       | 588                 |
| Southwest                                  | 8                       | 9               | 45*             | 75              | 200              | 666*              | 855                | 1,650                     | 1,658               |
| Total                                      | 6,152                   | 1,688           | 1,437           | 1,615           | 2,991            | 4,323             | 4,808              | 16,862                    | 23,014              |

<sup>1</sup>See Table 3 for definition of regions.

\*Marketing from other size groups are included to avoid disclosing individual operations.

NR—None Reported.

Source: Livestock and Meat Statistics, U.S. Department of Agriculture.

TABLE 5. FED CATTLE MARKETINGS BY FEEDING AREA, TEXAS, 1968 AND 1981

| Feeding Area <sup>1</sup>        | 1968    | 1981  |
|----------------------------------|---------|-------|
|                                  | Percent |       |
| Panhandle-Plains                 | 70.7    | 86.3  |
| Plateau-Pecos                    | 5.7     | 5.0   |
| East Texas                       | 6.7     | 0.5   |
| Gulf Coast-<br>Rio Grande Plains | 16.9    | 8.2   |
| Total                            | 100.0   | 100.0 |

<sup>1</sup>Feeding Areas and Associated Crop Reporting Districts are: Panhandle-Plains—1N, 1S, 2N, 2S and 3; Plateau-Pecos—6 and 7; East Texas—4, 5N and 5S; and Gulf Coast-Rio Grande Plains—8N, 8S, 9, 10N, and 10S.

Source: Texas Livestock, Dairy, and Poultry Statistics, Texas Department of Agriculture and U.S. Department of Agriculture, 1969 and 1982.

TABLE 6. LEGAL FORMS OF OWNERSHIP BY FEEDING AREA, TEXAS 1980-81

| Form<br>of<br>Ownership | Feeding Area              |                   |               |   | Total  |
|-------------------------|---------------------------|-------------------|---------------|---|--------|
|                         | Pan-<br>handle-<br>Plains | Plateau-<br>Pecos | East<br>Texas | Gulf<br>Coast-<br>Rio<br>Grande<br>Plains |        |
|                         | Percent                   |                   |               |   |        |
| Single<br>Proprietor    | 7.1                       | 9.1               | NR            | NR  | 5.6    |
| Partnership             | 16.7                      | 9.1               | NR            | 46.2                                      | 19.4   |
| Cooperative             | NR                        | NR                | NR            | NR  | NR     |
| Corporation             | 76.2                      | 81.8              | NR            | 53.8                                      | 73.6   |
| Other                   | NR                        | NR                | NR            | NR  | 1.4    |
| Total                   | 100.00                    | 100.00            | NR            | 100.00                                    | 100.00 |

NR—None reported by respondents interviewed.

TABLE 7. PRIMARY SOURCE OF FINANCING FOR OPERATING CAPITAL, BY SIZE OF FEEDLOT, TEXAS, 1980-81

| Source of Financing | Size of Feedlot               |                              |                              |                               |                                |                                |                               |
|---------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                     | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity | 50,000 head and over capacity |
|                     | Percent                       |                              |                              |                               |                                |                                |                               |
| Commercial Bank     | 77.8                          | 60.0                         | 75.0                         | 50.0                          | 72.7                           | 71.4                           | 100.0                         |
| PCA                 | NR                            | 20.0                         | 16.7                         | 38.9                          | 13.6                           | 14.3                           | NR                            |
| Finance Co.         | 11.1                          | NR                           | NR                           | NR                            | 4.6                            | NR                             | NR                            |
| Insurance Co.       | NR                            | NR                           | NR                           | NR                            | NR                             | NR                             | NR                            |
| Individual          | 11.1                          | NR                           | NR                           | 11.1                          | NR                             | NR                             | NR                            |
| Private Firm        | NR                            | NR                           | 8.3                          | NR                            | 9.1                            | 14.3                           | NR                            |
| Funds               | NR                            | NR                           | NR                           | NR                            | NR                             | NR                             | NR                            |
| Other               | NR                            | 20.0                         | NR                           | NR                            | NR                             | NR                             | NR                            |
| Total               | 100.0                         | 100.0                        | 100.0                        | 100.0                         | 100.0                          | 100.0                          | 100.0                         |

NR—None reported by respondents interviewed.

TABLE 8. PRIMARY SOURCE OF FINANCING FOR FIXED INVESTMENTS BY SIZE OF FEEDLOT, TEXAS, 1980-81

| Source of Financing | Size of Feedlot               |                              |                              |                               |                                |                                |                               |
|---------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                     | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity | 50,000 head and over capacity |
|                     | Percent                       |                              |                              |                               |                                |                                |                               |
| Commercial Bank     | 66.6                          | 80.0                         | 64.3                         | 42.1                          | 52.4                           | 50.0                           | 40.0                          |
| PCA                 | NR                            | NR                           | 14.4                         | 31.6                          | NR                             | NR                             | NR                            |
| Finance Co.         | 16.7                          | NR                           | NR                           | NR                            | NR                             | NR                             | NR                            |
| Insurance Co.       | NR                            | NR                           | 7.1                          | 5.3                           | 33.3                           | 33.3                           | 40.0                          |
| Individual          | 16.7                          | NR                           | 7.1                          | 10.5                          | NR                             | NR                             | 20.0                          |
| Private Firm        | NR                            | NR                           | 7.1                          | 5.3                           | 9.5                            | 16.7                           | NR                            |
| Other               | NR                            | 20.0                         | NR                           | 5.3                           | 4.8                            | NR                             | NR                            |
| Total               | 100.0                         | 100.0                        | 100.0                        | 100.0                         | 100.0                          | 100.0                          | 100.0                         |

NR—None reported by respondents interviewed.

TABLE 9. FEEDER CATTLE PLACEMENTS, BY SEX AND FEEDING AREAS, TEXAS FEEDLOTS, 1980-81

| Sex     | Feeding Area          |               |            |                              | Total |
|---------|-----------------------|---------------|------------|------------------------------|-------|
|         | Pan-handle-Plains     | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|         | -----1,000 head ----- |               |            |                              |       |
| Steers  | 2,339                 | 31            | 1          | 67                           | 2,437 |
| Heifers | 1,281                 | 199           | 20         | 318                          | 1,818 |
| Total   | 3,620                 | 230           | 20         | 385                          | 4,255 |

<sup>1</sup>Less than 1,000 head.

Source: *Texas Cattle on Feed*, Texas Crop and Livestock Reporting Service, Austin, 1980 and 1981 and 1980-81 Feedlot Survey.

Distinctive feeding patterns have emerged in Texas. Steers comprised approximately two-thirds of the Panhandle-Plains placements, while heifers accounted for 82% or more of the placements in all other feeding areas of Texas (Table 9). Even though heifers represented only one-third of the Panhandle-Plains placements, they comprised more than 70% of the heifer placements in Texas. Steer placements in Panhandle-Plains feedlots accounted for 96% of the steers fed in Texas during 1980-81.

*Kind of Cattle Placed on Feed.* English breeds and English crosses represented more than 50% of the cattle placed on feed during 1980-81 followed by Brahman and Brahman crosses which accounted for another one-third of the total (Table 10). Exotic European crosses accounted for another 7% of the placements. English breeds and English crosses were most popular in the Panhandle-Plains and East Texas feedlots, while Brahman and Brahman crosses were the preferred feeder cattle in the warmer climates of the Gulf Coast-Rio Grande Plains and Plateau-Pecos areas.

English breeds and English crosses were the predominant kind of cattle placed on feed as feedlot size

TABLE 10. KIND OF CATTLE PLACED ON FEED BY FEEDING AREA, TEXAS, 1980-81

| Breed                                       | Feeding Area     |               |            |                              | Total |
|---|------------------|---------------|------------|------------------------------|-------|
|   | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|   |                  |               | Percent    |                              |       |
| English Breeds and English crosses          | 55.4             | 42.8          | 53.8       | 27.2                         | 50.8  |
| Brahman and Brahman crosses                 | 29.4             | 44.0          | 24.4       | 61.0                         | 34.4  |
| Holstein and Dairy crosses                  | 3.1              | 3.6           | NR         | .4                           | 2.8   |
| Exotic European crosses                     | 6.4              | 5.0           | 21.8       | 7.4                          | 6.6   |
| Santa Gertrudis and Santa Gertrudis crosses | 2.4              | 3.7           | NR         | 3.6                          | 2.6   |
| Mexican Cattle                              | 3.2              | .9            | NR         | .4                           | 2.7   |
| Other                                       | .1               | NR            | NR         | NR                           | .1    |
| Total                                       | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

TABLE 11. KIND OF CATTLE PLACED ON FEED BY SIZE OF FEEDLOT, TEXAS, 1980-81

| Breed                                       | Size of Feedlot               |                              |                              |                               |                                |                                |       | 50,000 to and-more capacity |
|---|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|-------|-----------------------------|
|   | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity |       |                             |
|   |                               |                              |                              |                               |                                |                                |       |                             |
|   |                               |                              |                              | Percent                       |                                |                                |       |                             |
| English Breeds and English crosses          | 78.4                          | 37.3                         | 42.4                         | 45.9                          | 45.9                           | 53.1                           | 62.0  |                             |
| Brahman and Brahman crosses                 | 19.7                          | 62.7                         | 45.4                         | 42.4                          | 37.1                           | 27.1                           | 26.9  |                             |
| Holstein and Dairy crosses                  | .2                            | NR                           | 1.6                          | .9                            | 5.2                            | 1.7                            | 1.2   |                             |
| Exotic European crosses                     | .9                            | NR                           | 4.2                          | 5.1                           | 8.2                            | 4.8                            | 6.9   |                             |
| Santa Gertrudis and Santa Gertrudis crosses | .8                            | NR                           | 4.8                          | 4.0                           | 3.2                            | .9                             | 1.2   |                             |
| Mexican Cattle                              | NR                            | NR                           | .9                           | 1.7                           | .4                             | 12.4                           | 1.6   |                             |
| Other                                       | NR                            | NR                           | .7                           | NR                            | NR                             | NR                             | .2    |                             |
| Total                                       | 100.0                         | 100.0                        | 100.0                        | 100.0                         | 100.0                          | 100.0                          | 100.0 |                             |

NR—None reported by respondents interviewed.

increased (Table 11). Feedlots with 2,000 to 7,999 head capacity, which are characteristic of feedlots in the Gulf Coast-Rio Grande Plains, placed more Brahman and Brahman crosses on feed than other kinds of feeder cattle.

*Geographic Origin of Feeder Cattle.* More than 60% of the cattle placed on feed in Texas feedlots originated from sources within Texas (Table 12). The Southeast was the second most important source followed by Oklahoma and Colorado-Kansas. Feedlots in the Panhandle-Plains, which are composed primarily of large scale feedlots, relied less on Texas sources for feeder cattle than did other feeding areas.

Table 13 reveals that as feedlot size increases, feedlots tend to reach out further for feeder cattle supplies as well as relying on a larger number of geographic sources for feeder cattle supplies than do smaller feedlots. Smaller feedlots tend to rely predominantly on local or in-state sources for feeder cattle supplies. These purchasing patterns, by size of feedlot and feeding area, in general, have not changed substantially from those reported in 1966-67 (Dietrich, 1968).

*Weights of Cattle Placed on Feed.* Weights of cattle placed on feed in Texas feedlots are influenced largely by the placement patterns of Panhandle-Plains feedlots (Table 14). This is especially true for steer placements where 80% of the feeder steers placed on feed by Panhandle-Plains feedlots weighed between 500 and 799 lb. Gulf Coast-Rio Grande Plains feedlots placed feeder steers on feed at substantially lighter weights than did Panhandle-Plains feedlots.

Panhandle-Plains feedlots also placed heifers on feed at heavier weights than did other feeding areas of Texas. For example, heifers placed on feed in the Panhandle-Plains averaged 540 lb, compared to 472 lb in the Plateau-Pecos area, and 405 lb in the Gulf Coast-Rio Grande Plains feedlots. Panhandle-Plains feedlots placed both steer and heifer feeder cattle on feed at heavier weights and also finished these cattle at heavier weights than other feeding areas in Texas due to lower feed costs and to meet the requirements of larger, specialized beef slaughtering and boxed beef processing plants in the Panhandle-Plains area. Plateau-Pecos and Gulf Coast-Rio Grande Plains feedlots concentrated their



TABLE 12. GEOGRAPHIC SOURCE OF FEEDER CATTLE BY FEEDING AREA, TEXAS, 1980-81

| State                                 | Feeding Area     |               |            |                              | Total |
|---------------------------------------|------------------|---------------|------------|------------------------------|-------|
|                                       | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                                       |                  |               | Percent    |                              |       |
| Texas                                 | 58.5             | 78.1          | 100.0      | 69.5                         | 61.9  |
| Oklahoma                              | 10.3             | NR            | NR         | .2                           | 8.1   |
| New Mexico                            | 5.1              | .8            | NR         | NR                           | 4.1   |
| Missouri-Arkansas                     | 1.8              | .2            | NR         | .4                           | 1.5   |
| Mississippi-Alabama-Georgia-Louisiana | 9.3              | 17.2          | NR         | 16.1                         | 10.7  |
| Florida                               | 5.1              | 3.6           | NR         | 9.1                          | 5.4   |
| Colorado-Kansas                       | 7.6              | .1            | NR         | 4.7                          | 6.5   |
| Other                                 | 2.3              | NR            | NR         | NR                           | 1.8   |
| Total                                 | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

TABLE 13. GEOGRAPHIC SOURCE OF FEEDER CATTLE, BY SIZE OF FEEDLOT, TEXAS, 1980-81

| State                                 | Size of Feedlot               |                              |                              |                               |                                |                                |                               |
|---------------------------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                                       | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity | 50,000 head and-over capacity |
|                                       |                               |                              |                              | Percent                       |                                |                                |                               |
| Texas                                 | 83.7                          | 96.7                         | 76.5                         | 80.7                          | 66.5                           | 61.1                           | 47.4                          |
| Oklahoma                              | NR                            | NR                           | 8.8                          | 2.7                           | 5.2                            | 13.9                           | 15.0                          |
| New Mexico                            | 15.9                          | NR                           | 2.9                          | 1.0                           | 4.0                            | 5.3                            | 6.6                           |
| Missouri-Arkansas                     | .4                            | NR                           | 2.8                          | .9                            | 1.4                            | NR                             | 3.0                           |
| Mississippi-Alabama-Georgia-Louisiana | NR                            | NR                           | 3.8                          | 9.1                           | 10.5                           | 19.0                           | 11.6                          |
| Florida                               | NR                            | 3.3                          | 4.8                          | .2                            | 8.3                            | NR                             | 9.0                           |
| Colorado-Kansas                       | NR                            | NR                           | NR                           | 4.2                           | .7                             | NR                             | 5.6                           |
| Other                                 | NR                            | NR                           | .4                           | 1.2                           | 3.4                            | .7                             | 1.8                           |
| Total                                 | 100.0                         | 100.0                        | 100.0                        | 100.0                         | 100.0                          | 100.0                          | 100.0                         |

NR—None reported by respondents interviewed.

feeding activity on lighter weight heifers to satisfy the market demand for this type of fed beef in South and Southeast Texas.

*Grades of Cattle Placed on Feed.* Feeder cattle grades varied by feeding area and size of feedlots. Almost 57% of the feeder cattle were estimated to be medium frame with another 37% classified as large frame feeder cattle (Table 15). The Panhandle-Plains area fed higher proportions of large and medium frame cattle than did other feeding areas. The Gulf Coast-Rio Grande Plains and Plateau-Pecos feedlots fed the highest proportion of small frame feeder cattle.

Feeder cattle grades, by size of feedlot, revealed two distinct patterns (Table 16). Feedlots with 8,000 or more head capacity, which are characterized primarily by Panhandle-Plains feedlots, fed relatively high proportions of medium frame and large frame cattle. Feedlots with 2,000 to 7,999 head capacity, which predominate in the

Gulf Coast-Rio Grande Plains and Plateau-Pecos, fed mostly medium frame and small frame cattle.

*Feedlot Placements by Month.* Although Texas feedlots placed substantial numbers of cattle on feed each month, the peak placement periods during 1980-81 were August through October and April and May (Table 17). The lightest placement months were December through February which normally represent the months of harshest or inclement weather in the Panhandle-Plains area. Heavier August through October placement periods coincides with the early fall cow-calf weaning practices of many Texas cow-calf producers. Many of the March through May placements occur as a result of feeder or stocker cattle being moved off winter wheat pastures in the Panhandle-Plains and other winter grazing areas. Depending upon weather conditions and availability of winter wheat pastures, stocker and/or feeder steer owners are often able to "growout" or add weight at

TABLE 14. WEIGHT OF CATTLE PLACED ON FEED BY SEX AND FEEDING AREA, TEXAS, 1980-81

| Sex and Weight  | Feeding Area     |               |              |                              | Total        |
|-----------------|------------------|---------------|--------------|------------------------------|--------------|
|                 | Panhandle-Plains | Plateau-Pecos | East Texas   | Gulf Coast-Rio Grande Plains |              |
|                 | Percent          |               |              |                              |              |
| <b>Steers:</b>  |                  |               |              |                              |              |
| Under 300       | NR               | NR            | NR           | .3                           | .1           |
| 300-399         | 1.5              | 1.3           | NR           | 6.4                          | 2.1          |
| 400-499         | 9.1              | 2.9           | 1.2          | 3.7                          | 8.4          |
| 500-599         | 13.9             | 1.2           | .5           | 7.0                          | 13.2         |
| 600-699         | 24.1             | 7.5           | NR           | NR                           | 19.7         |
| 700-799         | 13.5             | .6            | NR           | NR                           | 11.8         |
| Over 800        | 2.5              | NR            | NR           | NR                           | 2.0          |
| <b>Heifers:</b> |                  |               |              |                              |              |
| Under 300       | 1.2              | 2.8           | 3.7          | 8.7                          | 2.1          |
| 300-399         | 1.6              | 21.3          | NR           | 31.1                         | 6.6          |
| 400-499         | 9.7              | 24.5          | 61.6         | 34.1                         | 13.5         |
| 500-599         | 12.9             | 30.6          | 33.0         | 6.9                          | 12.6         |
| 600-699         | 7.4              | 5.9           | NR           | 1.8                          | 5.9          |
| 700-799         | 2.1              | 1.4           | NR           | NR                           | 1.6          |
| Over 800        | .5               | NR            | NR           | NR                           | .4           |
| <b>Total</b>    | <b>100.0</b>     | <b>100.0</b>  | <b>100.0</b> | <b>100.0</b>                 | <b>100.0</b> |

NR—None reported by respondents interviewed.

TABLE 15. FEEDER CATTLE GRADES BY FEEDING AREA, TEXAS, 1980-81

| Grade                | Feeding Area     |               |              |                              | Total        |
|----------------------|------------------|---------------|--------------|------------------------------|--------------|
|                      | Panhandle-Plains | Plateau-Pecos | East Texas   | Gulf Coast-Rio Grande Plains |              |
|                      | Percent          |               |              |                              |              |
| <b>Large Frame:</b>  |                  |               |              |                              |              |
| No. 1                | 22.0             | 2.4           | NR           | 8.5                          | 19.1         |
| No. 2                | 15.5             | 22.9          | NR           | 26.0                         | 17.0         |
| No. 3                | 1.3              | .3            | NR           | .2                           | 1.1          |
| <b>Medium Frame:</b> |                  |               |              |                              |              |
| No. 1                | 28.5             | 24.2          | 46.4         | 14.9                         | 26.7         |
| No. 2                | 28.3             | 37.0          | 53.6         | 28.3                         | 29.1         |
| No. 3                | .5               | .7            | NR           | 2.8                          | .8           |
| <b>Small Frame:</b>  |                  |               |              |                              |              |
| No. 1                | 2.3              | 4.5           | NR           | 4.2                          | 2.8          |
| No. 2                | 1.5              | 8.0           | NR           | 13.4                         | 3.1          |
| No. 3                | .1               | NR            | NR           | 1.7                          | .3           |
| <b>Total</b>         | <b>100.0</b>     | <b>100.0</b>  | <b>100.0</b> | <b>100.0</b>                 | <b>100.0</b> |

NR—None reported by respondents interviewed.

substantially lower costs than by placing such cattle directly into feedlots at weaning.

*Length of Feeding Period.* During 1980-81, Texas feedlots fed steers an average of 149 days and heifers 142 days (Table 18). However, very few cattle were fed less than 90 days or more than 180 days. Days on feed tended to vary more by feeding area than by size of feedlots since most feedlot size groups are also located within the various feeding areas. With the exception of the Gulf Coast-Rio Grande Plains heifer feeding program,

Plateau-Pecos and Gulf Coast-Rio Grande Plains feedlots tended to feed cattle as long or longer than did Panhandle-Plains feedlots. This feeding pattern has emerged since Gulf Coast-Rio Grande Plains and Plateau-Pecos place cattle on feed at substantially lighter weights than do Panhandle-Plains feedlots.

*Death Loss.* Death losses in Texas feedlots averaged 1.5% during 1980-81 (Table 19). Highest death losses were sustained in the non-Panhandle-Plains feedlots which concentrate on feeding relatively light-weight heifers.

TABLE 16. FEEDER CATTLE GRADES BY SIZE OF FEEDLOT, TEXAS, 1980-81

| Grade        | Size of Feedlot                        |                                       |                                       |  |   |   |  |
|--------------|--|---------------------------------------|---------------------------------------|--|---|---|--|
|              | Less than<br>2,000<br>head<br>capacity | 2,000 to<br>3,999<br>head<br>capacity | 4,000 to<br>7,999<br>head<br>capacity | 8,000 to<br>15,999<br>head<br>capacity | 16,000 to<br>31,999<br>head<br>capacity | 32,000 to<br>49,999<br>head<br>capacity | 50,000<br>head<br>and-more<br>capacity |
|              | Percent                                |                                       |                                       |  |   |   |  |
| Large Frame  |  |                                       |                                       |  |   |   |  |
| No. 1        | 26.1                                   | 6.6                                   | 12.6                                  | 7.2                                    | 13.5                                    | 29.9                                    | 30.6                                   |
| No. 2        | 14.1                                   | 22.4                                  | 6.3                                   | 23.7                                   | 19.0                                    | 12.7                                    | 14.3                                   |
| No. 3        | 4.8                                    | NR                                    | NR                                    | .1                                     | 1.2                                     | .8                                      | 1.5                                    |
| Medium Frame |  |                                       |                                       |  |   |   |  |
| No. 1        | 28.2                                   | 21.2                                  | 22.8                                  | 28.3                                   | 17.5                                    | 38.5                                    | 35.6                                   |
| No. 2        | 26.0                                   | 19.4                                  | 24.0                                  | 37.2                                   | 42.0                                    | 15.1                                    | 12.6                                   |
| No. 3        | .8                                     | NR                                    | .8                                    | 1.5                                    | 1.4                                     | .1                                      | .6                                     |
| Small Frame  |  |                                       |                                       |  |   |   |  |
| No. 1        | NR                                     | 15.2                                  | 10.5                                  | .4                                     | 1.9                                     | 2.5                                     | 3.5                                    |
| No. 2        | NR                                     | 15.2                                  | 20.0                                  | 1.6                                    | 3.3                                     | .3                                      | 1.3                                    |
| No. 3        | NR                                     | NR                                    | 3.0                                   | NR                                     | .2                                      | .1                                      | NR                                     |
| Total        | 100.0                                  | 100.0                                 | 100.0                                 | 100.0                                  | 100.0                                   | 100.0                                   | 100.0                                  |

NR—None reported by respondents interviewed.

TABLE 17. FEEDER CATTLE PLACEMENTS BY MONTH AND FEEDING AREA, TEXAS, 1980-81

| Month     | Feeding Area         |                   |               |                                     | Average |
|-----------|----------------------|-------------------|---------------|-------------------------------------|---------|
|           | Panhandle-<br>Plains | Plateau-<br>Pecos | East<br>Texas | Gulf Coast-<br>Rio Grande<br>Plains |         |
|           | Percent              |                   |               |                                     |         |
| January   | 5.6                  | 6.2               | 5.0           | 7.0                                 | 5.8     |
| February  | 5.7                  | 5.7               | 5.0           | 6.8                                 | 5.7     |
| March     | 7.4                  | 4.0               | 5.0           | 6.0                                 | 7.1     |
| April     | 8.8                  | 6.6               | 10.0          | 9.1                                 | 8.7     |
| May       | 9.5                  | 6.6               | 10.0          | 7.0                                 | 9.2     |
| June      | 7.6                  | 5.3               | 10.0          | 5.2                                 | 7.3     |
| July      | 8.6                  | 10.1              | 10.0          | 8.8                                 | 8.7     |
| August    | 10.8                 | 14.1              | 10.0          | 11.7                                | 11.0    |
| September | 10.0                 | 11.5              | 5.0           | 10.1                                | 10.1    |
| October   | 13.9                 | 12.8              | 10.0          | 11.7                                | 13.6    |
| November  | 7.3                  | 10.1              | 15.0          | 10.6                                | 7.7     |
| December  | 4.8                  | 7.0               | 5.0           | 6.0                                 | 5.1     |
| Total     | 100.0                | 100.0             | 100.0         | 100.0                               | 100.0   |

Source: Texas Cattle on Feed, Crop, and Livestock Reporting Service, U.S. Department of Agriculture.

### Fed Cattle Marketing Practices

Fed cattle marketing practices of cattle feeders revealed the diverse market segments being supplied by the Texas cattle feedlot industry. This is demonstrated by large variations among feeding areas in the grades and weights of fed cattle marketed.

*Weights of Fed Cattle Marketed.* Fed steers sold out of Texas feedlots averaged almost 1,050 lb compared to 865 lb for heifers during 1980-81 (Table 20). Steers and heifers marketed from Panhandle-Plains feedlots were about 200 and 160 lb heavier, respectively, than those marketed from Gulf Coast-Rio Grande Plains feedlots. Plateau-Pecos feedlots fed steers to accommodate the

market weights demanded by slaughtering firms in the Panhandle-Plains as well as South Texas where they fed heifers primarily to the specifications of regional slaughtering firms.

Weights of fed cattle marketed varied less by feedlot size than by feeding area (Table 21). Panhandle-Plains steer feeding practices are evident in feedlots with 16,000 head and over capacity. In contrast, South Texas heifer feeding practices are evident in the market weights reported by feedlots with less than 32,000 head capacity.

*Grades of Fed Cattle Marketed.* Almost 70% of the fed steers marketed from Texas feedlots were estimated to grade U.S. Choice or higher during 1980-81 com-



TABLE 18. LENGTH OF FEEDING PERIOD BY FEEDING AREA AND SEX, TEXAS, 1980-81

| Days on Feed | Feeding Area     |               |            |                              | Total |
|--------------|------------------|---------------|------------|------------------------------|-------|
|              | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|              | Percent          |               |            |                              |       |
| Steers:      |                  |               |            |                              |       |
| Under 60     | NR               | NR            | NR         | .6                           | .1    |
| 60-89        | *                | NR            | NR         | NR                           | *     |
| 90-119       | 3.7              | 1.7           | .1         | .4                           | 3.1   |
| 120-149      | 35.6             | 1.8           | 1.7        | 3.4                          | 28.1  |
| 150-180      | 17.3             | 7.6           | NR         | 13.0                         | 15.7  |
| Over 180     | 8.2              | 2.4           | NR         | NR                           | 6.5   |
| Heifers:     |                  |               |            |                              |       |
| Under 60     | NR               | NR            | 3.6        | NR                           | *     |
| 60-89        | *                | NR            | NR         | 1.8                          | .2    |
| 90-119       | 5.0              | 4.9           | 13.2       | 3.9                          | 5.0   |
| 120-149      | 18.6             | 57.0          | 81.4       | 70.1                         | 29.3  |
| 150-180      | 6.6              | 17.5          | NR         | 6.8                          | 7.5   |
| Over 180     | 5.0              | 7.1           | NR         | NR                           | 4.5   |
| Total        | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

TABLE 19. DEATH LOSS BY FEEDING AREA, TEXAS, 1980-81

| Death Loss | Feeding Area     |               |            |                              | Total |
|------------|------------------|---------------|------------|------------------------------|-------|
|            | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|            | Percent          |               |            |                              |       |
| Death Loss | 1.3              | 1.8           | 2.9        | 2.1                          | 1.5   |

TABLE 20. WEIGHT GROUPS OF FED CATTLE MARKETED BY SEX AND FEEDING AREA, TEXAS, 1980-81

| Sex and Weight | Feeding Area     |               |            |                              | Total |
|----------------|------------------|---------------|------------|------------------------------|-------|
|                | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                | Percent          |               |            |                              |       |
| Steers:        |                  |               |            |                              |       |
| Under 600      | NR               | 1.6           | NR         | .6                           | .2    |
| 600-699        | NR               | NR            | NR         | .5                           | .1    |
| 700-799        | .3               | NR            | .4         | .9                           | .4    |
| 800-899        | NR               | NR            | .9         | .8                           | .1    |
| 900-999        | 2.1              | NR            | .4         | 1.2                          | 1.8   |
| 1,000-1,099    | 44.6             | 9.6           | NR         | 13.0                         | 37.0  |
| 1,100-1,199    | 16.2             | 2.2           | NR         | .3                           | 12.7  |
| 1,200 and over | 1.5              | NR            | NR         | NR                           | 1.2   |
| Heifers:       |                  |               |            |                              |       |
| Under 600      | .4               | 4.4           | NR         | .9                           | .4    |
| 600-699        | .6               | 30.8          | 2.7        | 21.2                         | 3.6   |
| 700-799        | 1.6              | 30.0          | 27.7       | 41.4                         | 9.6   |
| 800-899        | 7.1              | 21.4          | 46.5       | 14.1                         | 10.5  |
| 900-999        | 22.5             | NR            | 21.4       | 5.1                          | 20.1  |
| 1,000-1,099    | 2.4              | NR            | NR         | NR                           | 1.8   |
| 1,100-1,199    | .4               | NR            | NR         | NR                           | .3    |
| 1,200 and over | .3               | NR            | NR         | NR                           | .2    |
| Total          | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

TABLE 21. WEIGHT GROUPS OF FED CATTLE MARKETED BY SIZE OF FEEDLOT, TEXAS, 1980-81

| Sex and Weight  | Size of Feedlot                     |                                    |                                    |                                     |                                      |                                      |                                     |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|
|                 | Less than<br>2,000 head<br>capacity | 2,000 to<br>3,999 head<br>capacity | 4,000 to<br>7,999 head<br>capacity | 8,000 to<br>15,999 head<br>capacity | 16,000 to<br>31,999 head<br>capacity | 32,000 to<br>49,999 head<br>capacity | 50,000 head<br>and-over<br>capacity |
|                 | Percent                             |                                    |                                    |                                     |                                      |                                      |                                     |
| <b>Steers:</b>  |                                     |                                    |                                    |                                     |                                      |                                      |                                     |
| Under 600       | NR                                  | NR                                 | .9                                 | 1.5                                 | NR                                   | NR                                   | NR                                  |
| 600-699         | 1.5                                 | NR                                 | NR                                 | NR                                  | NR                                   | NR                                   | NR                                  |
| 700-799         | .1                                  | NR                                 | 1.9                                | 1.8                                 | NR                                   | NR                                   | NR                                  |
| 800-899         | *                                   | 1.2                                | 1.4                                | *                                   | NR                                   | NR                                   | NR                                  |
| 900-999         | .9                                  | NR                                 | 1.6                                | 1.8                                 | .7                                   | .7                                   | 4.5                                 |
| 1,000-1,099     | 6.7                                 | 1.6                                | 7.5                                | 23.8                                | 35.0                                 | 44.0                                 | 55.7                                |
| 1,100-1,199     | 8.0                                 | NR                                 | 12.4                               | 5.7                                 | 13.2                                 | 18.4                                 | 14.1                                |
| 1,200 and over  | NR                                  | NR                                 | NR                                 | NR                                  | 2.2                                  | .7                                   | .8                                  |
| <b>Heifers:</b> |                                     |                                    |                                    |                                     |                                      |                                      |                                     |
| Under 600       | NR                                  | NR                                 | 1.8                                | NR                                  | .7                                   | NR                                   | NR                                  |
| 600-699         | 21.0                                | 5.8                                | 12.1                               | 9.1                                 | 3.2                                  | NR                                   | NR                                  |
| 700-799         | 14.6                                | 40.3                               | 36.1                               | 17.8                                | 9.2                                  | 3.3                                  | NR                                  |
| 800-899         | 16.3                                | 13.9                               | 17.5                               | 11.3                                | 13.3                                 | 9.7                                  | 2.9                                 |
| 900-999         | 29.0                                | 37.2                               | 4.8                                | 26.6                                | 19.2                                 | 20.2                                 | 20.1                                |
| 1,000-1,099     | 1.9                                 | NR                                 | 2.0                                | .5                                  | 1.9                                  | 2.9                                  | 1.9                                 |
| 1,100-1,199     | NR                                  | NR                                 | NR                                 | .1                                  | .8                                   | .1                                   | NR                                  |
| 1,200 and over  | NR                                  | NR                                 | NR                                 | NR                                  | .6                                   | NR                                   | NR                                  |
| Total           | 100.0                               | 100.0                              | 100.0                              | 100.0                               | 100.0                                | 100.0                                | 100.0                               |

NR—None reported by respondents interviewed.

pared to more than 50% of the fed heifers (Table 22). Fed steers and heifers marketed from Panhandle-Plains feedlots were predominantly U.S. Choice or higher in contrast to Gulf Coast-Rio Grande Plains feedlots where more than two-thirds of the fed steers and heifers were estimated to grade U.S. Good. Plateau-Pecos feedlots fed steers to grade mostly U.S. Choice while most of the heifers were fed to grade U.S. Good.

Grades of fed cattle marketed from feedlots with 16,000 head or more capacity, which are located predominantly in the Panhandle-Plains area, reflect both heavier market weights and higher proportions of fed cattle grading U.S. Choice or higher compared to smaller feedlots (Table 23). Feedlots with less than 16,000 head capacity were, in general, fairly evenly divided with respect to the proportion of fed cattle grading U.S. Choice or U.S. Good.

Panhandle-Plains feedlots sell fed cattle primarily to large packers who market-fed beef on a national basis. Most of these large packers also have boxed beef programs which often feature U.S. Choice beef. Non-Panhandle-Plains feedlots, in contrast, sell fed cattle mostly to smaller packers who generally market their fed beef in South Texas or in nearby southeastern states.

*Geographic Area of Sale.* More than 90% of the cattle fed in Texas feedlots were sold to packers within Texas during 1980-81 (Table 24). The establishment of large scale beef slaughtering establishments in the Panhandle-Plains has sharply decreased the number of fed cattle sold to out-of-state packers. For example, during 1966-67, almost one-half of the Panhandle-Plains fed cattle were sold to out-of-state slaughter plants (Dietrich, 1969). Out-of-state sales in 1980-81 were mostly to

nearby states north, west, and southeast of the major Texas feeding areas.

*Selling Arrangements.* More than 93% of the fed cattle were sold on a direct-live weight basis in 1980-81 (Table 25). Grade and carcass weight, which is often used for merchandising over-finished cattle, accounted for about 5% of the Panhandle-Plains fed cattle sales. Rail or carcass weight selling was also used occasionally in all feeding areas during 1980-81. Almost all cattle marketed on a liveweight basis were sold with a 4% shrink with an overnight stand.

## OWNERSHIP OF CATTLE ON FEED AND CUSTOM FEEDING ARRANGEMENTS

### Ownership of Cattle on Feed

During 1980-81 almost three-fourths of the cattle fed in Texas were done so on a custom basis (Table 26). Custom clients were grouped into two broad classifications: (1) members of the feedlot company, and (2) feeders not affiliated with the feedlot. Custom clients not affiliated with feedlots accounted for almost 50% of the cattle fed while members of the feedlot company accounted for 24% of the total. Although the Gulf Coast fed the highest percentage of custom cattle during 1980-81, Panhandle-Plains feedlots feed the predominant majority of the custom cattle in Texas.

During 1980-81 feedlots with 4,000 to 31,999 head capacity fed higher proportions of cattle on a custom basis than did feedlots in excess of 32,000 head capacity (Table 27). However, feedlots with less than 4,000 head capacity owned almost 60% or more of the cattle on feed

TABLE 22. U.S. GRADE EQUIVALENTS OF FED CATTLE MARKETED BY SEX AND FEEDING AREA, TEXAS, 1980-81

| Sex and U.S. Grade | Feeding Area     |               |            |                              | Total |
|--------------------|------------------|---------------|------------|------------------------------|-------|
|                    | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                    | Percent          |               |            |                              |       |
| <b>Steers:</b>     |                  |               |            |                              |       |
| U.S. Prime         | 1.6              | NR            | NR         | NR                           | 1.2   |
| U.S. Choice        | 43.9             | 7.3           | .9         | 5.1                          | 35.3  |
| U.S. Good          | 18.5             | 6.0           | .9         | 11.8                         | 16.5  |
| U.S. Standard      | .7               | .2            | NR         | .5                           | .5    |
| U.S. Commercial    | NR               | NR            | NR         | NR                           | NR    |
| <b>Heifers:</b>    |                  |               |            |                              |       |
| U.S. Prime         | .2               | NR            | NR         | NR                           | .1    |
| U.S. Choice        | 21.9             | 36.1          | 52.8       | 21.7                         | 24.5  |
| U.S. Good          | 11.6             | 45.4          | 45.4       | 55.9                         | 20.5  |
| U.S. Standard      | .4               | 5.0           | NR         | 3.1                          | 1.1   |
| U.S. Commercial    | .2               | NR            | NR         | 1.9                          | .3    |
| Total              | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

TABLE 23. U.S. GRADE EQUIVALENTS OF FED CATTLE MARKETED BY SIZE OF FEEDLOT, TEXAS, 1980-81

| Sex and U.S. Grade | Size of Feedlot               |                              |                              |                               |                                |                                |                               |
|--------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                    | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity | 50,000 head and-over capacity |
|                    | Percent                       |                              |                              |                               |                                |                                |                               |
| <b>Steers:</b>     |                               |                              |                              |                               |                                |                                |                               |
| U.S. Prime         | NR                            | NR                           | .5                           | .1                            | .2                             | .6                             | 4.5                           |
| U.S. Choice        | 12.2                          | 1.3                          | 6.0                          | 17.1                          | 33.3                           | 47.5                           | 50.5                          |
| U.S. Good          | 5.1                           | 1.5                          | 8.8                          | 17.3                          | 17.5                           | 14.7                           | 18.8                          |
| U.S. Standard      |                               | .1                           | .3                           | .2                            | .1                             | 1.1                            | 1.3                           |
| U.S. Commercial    | NR                            | NR                           | NR                           | NR                            | NR                             | NR                             | NR                            |
| <b>Heifers:</b>    |                               |                              |                              |                               |                                |                                |                               |
| U.S. Prime         | 1.2                           | NR                           | .4                           | NR                            | .1                             | .4                             | NR                            |
| U.S. Choice        | 29.8                          | 6.5                          | 35.3                         | 30.6                          | 25.4                           | 25.1                           | 16.6                          |
| U.S. Good          | 51.7                          | 65.8                         | 46.6                         | 31.7                          | 22.6                           | 9.8                            | 6.9                           |
| U.S. Standard      | NR                            | 2.9                          | 2.1                          | 3.0                           | .8                             | .5                             | 1.0                           |
| U.S. Commercial    | NR                            | 21.9                         | NR                           | NR                            | NR                             | .3                             | .4                            |
| Total              | 100.0                         | 100.0                        | 100.0                        | 100.0                         | 100.0                          | 100.0                          | 100.0                         |

NR—None reported by respondents interviewed.

compared to average ownership patterns ranging from 16 to 40% for the larger feedlot size groups.

### Ownership of Custom Fed Cattle

Ranchers owned over 55% of the custom cattle fed (Table 28). "Other," which includes cattle buyers and investors owned 35% of the custom cattle. Packers and feeding funds accounted for a small percent of the custom cattle in Texas feedlots during 1980-81. The laws reducing the tax advantages for cattle feeding fund investors apparently have greatly reduced the investment incentive in limited partnership arrangements, especially

for nonagriculturally related investors. For example, during 1972-74, the primary occupation of over 90% of the cattle feeding fund investors in Texas feedlots was nonagriculturally related (Dietrich, Levi, and Martin, 1977).

### Financing and Selling Custom Cattle

More than 80% of the feedlots servicing custom clients offered some form of financing for feed. Although most feedlots provided potential customer assistance in obtaining financing for cattle purchases, they generally did not finance feeder cattle purchases. Commercial



TABLE 24. GEOGRAPHIC AREA OF FED CATTLE SALES BY FEEDING AREA, TEXAS, 1980-81

| Sales Area                     | Feeding Area     |               |            |                              | Total |
|--------------------------------|------------------|---------------|------------|------------------------------|-------|
|                                | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                                |                  |               | Percent    |                              |       |
| Texas                          | 91.5             | 82.2          | 47.6       | 98.4                         | 91.1  |
| Oklahoma                       | 2.4              | NR            | 8.7        | NR                           | 2.0   |
| New Mexico                     | .6               | 9.0           | NR         | NR                           | 1.2   |
| California                     | .2               | .5            | NR         | NR                           | .2    |
| Kansas-Nebraska                | 1.8              | NR            | NR         | NR                           | 1.4   |
| Arkansas-Louisiana-Mississippi | 2.7              | 6.9           | 43.7       | 1.6                          | 3.3   |
| Alabama-Georgia-Florida        | —                | NR            | NR         | NR                           | —     |
| Colorado                       | NR               | NR            | NR         | NR                           | NR    |
| Other                          | .8               | 1.4           | NR         | NR                           | .8    |
| Total                          | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

TABLE 25. TYPE OF SELLING ARRANGEMENT USED FOR MARKETING FED CATTLE BY FEEDING AREA, TEXAS, 1980-81

| Selling Arrangements     | Feeding Area     |               |            |                              | Total |
|--------------------------|------------------|---------------|------------|------------------------------|-------|
|                          | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                          |                  |               | Percent    |                              |       |
| Direct-Liveweight        | 92.5             | 97.2          | 95.6       | 95.5                         | 93.3  |
| Grade and Carcass Weight | 5.3              | NR            | NR         | NR                           | 4.2   |
| Rail or Carcass Weight   | 2.2              | 2.8           | 4.4        | 4.5                          | 2.5   |
| Public Market            | NR               | NR            | NR         | NR                           | NR    |
| Packer Consignment       | NR               | NR            | NR         | NR                           | NR    |
| Other                    | NR               | NR            | NR         | NR                           | NR    |
| Total                    | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

TABLE 26. OWNERSHIP OF CATTLE ON FEED BY FEEDING AREA, TEXAS, 1980-81

| Ownership of Cattle        | Feeding Area     |               |            |                              | Total |
|----------------------------|------------------|---------------|------------|------------------------------|-------|
|                            | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                            |                  |               | Percent    |                              |       |
| Feedlot                    | 29.6             | 30.0          | 43.5       | 7.8                          | 26.8  |
| Members of Feedlot Company | 24.1             | 14.3          | NR         | 28.6                         | 23.7  |
| Not Feedlot Owned          | 46.3             | 55.7          | 56.5       | 63.6                         | 49.5  |
| Total                      | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

banks were the primary source of financing for feeder cattle. Margins, or down-payment requirements of most banks, ranged from 25 to 50% of the purchase price. The feedlots reported that hedging was not widely used as a tool for reducing risk. Bad experiences and lack of understanding were primary reasons given for not using the futures market.

Almost all fed cattle sales were handled by the feedlot manager or a feedlot representative. The owners of custom cattle, however, are often consulted or advised regarding market conditions prior to offering such cattle for sale. The feedlot managers or feedlot representatives in all feedlots, including the smaller feedlots, have access to market information services and are in a position to

TABLE 27. OWNERSHIP OF CATTLE ON FEED BY SIZE OF FEEDLOT, TEXAS, 1980-81

| Ownership of Cattle        | Size of Feedlot               |                              |                              |                               |                                |                                |                               |
|----------------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                            | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity | 50,000 head and over capacity |
|                            | Percent                       |                              |                              |                               |                                |                                |                               |
| Feedlot                    | 69.3                          | 58.3                         | 28.4                         | 20.1                          | 16.1                           | 58.8                           | 36.7                          |
| Members of Feedlot Company | 23.4                          | 19.5                         | 2.6                          | 31.0                          | 27.6                           | 4.7                            | 19.3                          |
| Not Feedlot Owned          | 7.3                           | 22.2                         | 69.0                         | 48.9                          | 56.3                           | 36.5                           | 44.0                          |
| Total                      | 100.0                         | 100.0                        | 100.0                        | 100.0                         | 100.0                          | 100.0                          | 100.0                         |

TABLE 28. OWNERSHIP OF CUSTOM CATTLE FED BY FEEDING AREA, TEXAS, 1980-81

| Ownership of Custom Cattle | Feeding Area     |               |            |                              | Total |
|----------------------------|------------------|---------------|------------|------------------------------|-------|
|                            | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                            | Percent          |               |            |                              |       |
| Packer                     | 2.3              | 15.6          | 50.0       | 4.0                          | 4.3   |
| Retailer                   | 1.8              | NR            | 4.7        | 2.7                          | 1.9   |
| Rancher                    | 60.7             | 25.5          | 24.9       | 49.9                         | 55.3  |
| Funds                      | 4.3              | NR            | NR         | .7                           | 3.3   |
| Other                      | 30.9             | 58.9          | 20.4       | 42.7                         | 35.2  |
| Total                      | 100.0            | 100.0         | 100.0      | 100.0                        | 100.0 |

NR—None reported by respondents interviewed.

advise custom clients on a daily or hourly basis concerning current market conditions.

### Methods of Assessing Custom Feeding Charges

Custom feeding charges were generally assessed on a cost of feed plus a markup above basic feed costs to cover handling, milling, labor costs, and feedlot management. Feedlots reported that markups averaged about 15 percent and ranged from 10 to 25 percent above feed costs. Cost of feed ranged from \$85.00 to \$170.00 per ton (as fed) depending upon ingredients. Assessments for medication, vaccination, branding, dehorning, etc., were generally made on a per head basis and were not included in custom feeding charges. Feedlots reported that custom clients were billed bi-weekly, monthly, or at the end of the feeding period.

### COSTS ASSOCIATED WITH CATTLE FEEDING

Costs associated with feeding cattle include (1) fixed investments, (2) annual fixed costs, and (3) variable costs. Fixed investments include expenditures for durable goods including the feed milling equipment, pens and feeding facilities, office, etc. Annual fixed costs occur without regard to the number of cattle fed, and include depreciation, long term interest, taxes, insurance, and fixed labor. Variable costs are those costs that vary with the number of cattle placed on feed and include such items as feed, labor, fuel, medication, etc.

### Investment In Equipment and Facilities

Total fixed investments averaged almost \$75.00 per head of capacity in Texas feedlots during 1980-81 (Table 29). Fixed investments in Texas feedlots during 1966-67 were about \$35 per head of capacity (Dietrich, 1969). However, when the \$35 per head of capacity fixed investment in 1966-67 is adjusted for inflation, the 1966-67 fixed investment per head of capacity would have been in excess of \$100 per head of capacity in 1981.

The two major items of fixed investments in Texas feedlots during 1980-81 were milling equipment and pens and equipment (Table 29). Milling equipment was generally a relatively higher cost item for the Panhandle-Plains feedlots, where most of the large, highly specialized feedlots are located. Land, feed distribution equipment, and feed storage equipment were the next highest cost items.

Fixed investments varied by feeding area, generally in relation to the presence of large scale feedlot operations within the area (Table 29). For example, feedlots within the Panhandle-Plains area are predominantly large-scale feeding operations as evidenced by lowest fixed investments per head of capacity within that area compared to other feeding areas. Although the Plateau-Pecos and Gulf Coast-Rio Grande Plains feeding areas contain some large-scale commercial feeding operations, most of the feedlot operations within these areas are less than 8,000 head capacity.

TABLE 29. FIXED INVESTMENT PER HEAD OF CAPACITY BY MAJOR ITEMS OF EQUIPMENT AND FEEDING REGION, TEXAS, 1980-81

| Item                        | Region           |               |            |                              | Total   |
|-----------------------------|------------------|---------------|------------|------------------------------|---------|
|                             | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |         |
|                             |                  |               |            |                              | Dollars |
| Pens and Equipment          | 19.60            | 26.48         | 40.00      | 34.19                        | 21.60   |
| Water and Equipment         | 3.33             | 3.88          | 5.00       | 5.83                         | 3.59    |
| Milling Equipment           | 24.92            | 20.50         | 34.09      | 18.41                        | 24.06   |
| Feed Storage Facilities     | 4.90             | 6.69          | 6.82       | 9.85                         | 5.48    |
| Feed Distribution Equipment | 4.60             | 6.04          | 6.36       | 4.69                         | 4.76    |
| Manure Equipment            | 1.62             | 1.04          | .82        | 2.23                         | 1.60    |
| Transportation Equipment    | 1.45             | 6.28          | 8.18       | 1.84                         | 2.02    |
| Repair Facilities           | 1.06             | 1.09          | 1.14       | 1.29                         | 1.08    |
| Land                        | 5.43             | 9.15          | 17.73      | 6.29                         | 5.97    |
| Office                      | 1.97             | 2.33          | 1.36       | 3.43                         | 2.11    |
| Scales                      | 2.73             | 1.63          | 5.68       | 2.20                         | 2.61    |
| Total                       | 71.61            | 85.11         | 127.18     | 90.25                        | 74.88   |

TABLE 30. FIXED INVESTMENTS PER HEAD OF CAPACITY BY MAJOR ITEMS OF EQUIPMENT AND SIZE OF FEEDLOT, TEXAS 1980-81

| Item                        | Size of Feedlot               |                              |                              |                               |                                |                                |                               |
|-----------------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|
|                             | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity | 50,000 head and over capacity |
|                             |                               |                              |                              |                               |                                |                                | Dollars                       |
| Pens and Equipment          | 35.43                         | 26.86                        | 35.28                        | 29.74                         | 22.42                          | 19.57                          | 14.55                         |
| Water and Equipment         | 7.78                          | 3.72                         | 6.67                         | 4.20                          | 3.98                           | 3.16                           | 2.34                          |
| Milling Equipment           | 14.44                         | 17.44                        | 31.75                        | 28.94                         | 26.79                          | 18.96                          | 22.00                         |
| Feed Storage Facilities     | 13.95                         | 5.58                         | 13.47                        | 5.33                          | 4.81                           | 3.39                           | 5.24                          |
| Feed Distribution Equipment | 12.84                         | 5.37                         | 10.63                        | 5.64                          | 5.47                           | 3.74                           | 2.62                          |
| Manure Equipment            | 1.60                          | 6.12                         | 1.69                         | 1.07                          | 1.87                           | .43                            | 2.54                          |
| Transportation Equipment    | 7.70                          | 2.56                         | 3.99                         | 4.75                          | 1.75                           | .88                            | 1.59                          |
| Repair Facilities           | .62                           | 1.33                         | 1.28                         | 1.17                          | 1.29                           | 1.02                           | .77                           |
| Land                        | 27.81                         | 10.00                        | 8.39                         | 7.21                          | 5.28                           | 4.81                           | 5.70                          |
| Office                      | 2.71                          | .99                          | 3.80                         | 2.12                          | 2.94                           | 1.26                           | 1.31                          |
| Scales                      | 8.40                          | 4.79                         | 3.85                         | 2.92                          | 1.60                           | 1.62                           | 4.78                          |
| Total                       | 133.28                        | 84.76                        | 120.80                       | 93.09                         | 78.20                          | 58.84                          | 63.44                         |

When fixed investments per head of capacity are analyzed by size of feedlot, it is readily apparent that economies of scale are present for total fixed investments and all major items of equipment with the exception of milling equipment (Table 30). Although scale economies varied by major item of equipment, economies of scale relative to total fixed investments could generally be classified into four groups. Feedlots with less than 2,000 head capacity reported the highest fixed investments per head of capacity. The second highest fixed investments per head of capacity were feedlots with 2,000 to 15,999 head capacity, followed by feedlots with 16,000 to 31,999 head capacity, and feedlots with more than 32,000 head capacity (Table 30).

#### Annual Fixed Costs

Annual fixed costs revealed a fairly consistent economies of scale pattern (Table 31). Feedlots with less than

2,000 head capacity reported annual fixed costs of almost 12 cents/lb of gain compared to 2.2 cents/lb of gain for lots with 50,000 head or more capacity. All costs in this study which are quoted on the basis of pound of gain are market weights with a 4% shrink at the feedlot.

Interest and depreciation, the two major annual fixed costs components, accounted for more than three-fourths of the total annual fixed costs (Table 32). Repairs were the third most important annual fixed cost item. Total annual fixed costs were lowest in the Panhandle-Plains feedlots followed by the Gulf Coast-Rio Grande Plains feedlots.

#### Variable Costs

Variable costs are those cost items that vary directly with the number of cattle placed on feed. Feed, which was the major variable cost item, accounted for 78% of the total variable costs (Table 33). Interest was the sec-

TABLE 31. ANNUAL FIXED COSTS PER POUND OF GAIN BY SIZE OF FEEDLOT, TEXAS 1980-81

| Item         | Size of Feedlot                     |                                    |                                    |                                     |                                      |                                      |                                |
|--------------|-------------------------------------|------------------------------------|------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|--------------------------------|
|              | Less than<br>2,000 head<br>capacity | 2,000 to<br>3,999 head<br>capacity | 4,000 to<br>7,999 head<br>capacity | 8,000 to<br>15,999 head<br>capacity | 16,000 to<br>31,999 head<br>capacity | 32,000 to<br>49,999 head<br>capacity | 50,000<br>and over<br>capacity |
|              | Dollars                             |                                    |                                    |                                     |                                      |                                      |                                |
| Depreciation | .0313                               | .0094                              | .0175                              | .0158                               | .0118                                | .0090                                | .0092                          |
| Interest     | .0656                               | .0224                              | .0237                              | .0246                               | .0154                                | .0131                                | .0080                          |
| Taxes        | .0008                               | .0005                              | .0018                              | .0009                               | .0008                                | .0007                                | .0010                          |
| Insurance    | .0031                               | .0011                              | .0011                              | .0012                               | .0007                                | .0006                                | .0004                          |
| Repairs      | .0033                               | .0012                              | .0016                              | .0032                               | .0020                                | .0015                                | .0013                          |
| Labor        | .0123                               | .0092                              | .0079                              | .0075                               | .0044                                | .0026                                | .0020                          |
| Total        | .1164                               | .0438                              | .0536                              | .0532                               | .0351                                | .0275                                | .0219                          |

TABLE 32. ANNUAL FIXED COST PER POUND OF GAIN BY REGION, TEXAS 1980-81

| Item         | Region               |                   |               |                                     | Total |
|--------------|----------------------|-------------------|---------------|-------------------------------------|-------|
|              | Panhandle-<br>Plains | Plateau-<br>Pecos | East<br>Texas | Gulf Coast-<br>Rio<br>Grande Plains |       |
|              | Dollars              |                   |               |                                     |       |
| Depreciation | .0109                | .0149             | .0185         | .0113                               | .0113 |
| Interest     | .0133                | .0250             | .0319         | .0173                               | .0147 |
| Taxes        | .0008                | .0009             | .0008         | .0013                               | .0008 |
| Insurance    | .0006                | .0012             | .0015         | .0008                               | .0006 |
| Repairs      | .0016                | .0035             | .0018         | .0021                               | .0018 |
| Labor        | .0034                | .0079             | .0060         | .0064                               | .0040 |
| Total        | .0306                | .0534             | .0605         | .0392                               | .0332 |

TABLE 33. VARIABLE COSTS PER POUND OF GAIN BY REGION, TEXAS 1980-81

| Item                            | Region               |                   |               |                                     | Total |
|---------------------------------|----------------------|-------------------|---------------|-------------------------------------|-------|
|                                 | Panhandle-<br>Plains | Plateau-<br>Pecos | East<br>Texas | Gulf Coast-<br>Rio<br>Grande Plains |       |
|                                 | Dollars              |                   |               |                                     |       |
| Feed                            | .5160                | .5145             | .4671         | .4634                               | .5112 |
| Labor                           | .0117                | .0165             | .0104         | .0160                               | .0124 |
| Interest                        |                      |                   |               |                                     |       |
| Feed                            | .0334                | .0339             | .0276         | .0277                               | .0329 |
| Feeder Cattle                   | .0664                | .0595             | .0553         | .0503                               | .0644 |
| Labor                           | .0008                | .0011             | .0006         | .0010                               | .0008 |
| Other                           | .0013                | .0018             | .0016         | .0013                               | .0013 |
| Death Loss                      | .0125                | .0164             | .0279         | .0179                               | .0134 |
| Veterinary and Medical Supplies | .0094                | .0129             | .0174         | .0132                               | .0101 |
| Gas and Oil                     | .0023                | .0034             | .0052         | .0021                               | .0024 |
| Electricity                     | .0034                | .0045             | .0017         | .0027                               | .0034 |
| Natural Gas                     | .0022                | .0029             | NR            | .0017                               | .0022 |
| Telephone                       | .0007                | .0010             | .0017         | .0005                               | .0007 |
| Other                           | .0024                | .0023             | .0014         | .0014                               | .0023 |
| Total                           | .6625                | .6707             | .6179         | .5992                               | .6575 |

NR—None reported by respondents interviewed.



and most important cost item accounting for more than 15% of the variable cost in 1980-81. Dietrich (1969) reported that feed accounted for more than 80% of the variable costs while interest made up only 8% of the total variable cost items. These statistics reflect the impact of the current sharply higher interest rates upon the cattle feeding industry.

Total variable costs were lowest in the Gulf Coast-Rio Grande Plains as expected since feedlots in that area feed a high proportion of heifers, which are placed on feed and also marketed at lighter weights, than is true for other feeding areas (Table 33). In contrast, Panhandle-Plains feedlots not only placed a high proportion of steers on feed, but placed both steer and heifer feeder cattle on feeder at heavier weights and also finished these cattle at heavier weights. This is reflected in the higher feed costs per pound of gain in the Panhandle-Plains compared to the Gulf Coast-Rio Grande Plains feedlots.

Total variable cost per pound of gain was generally fairly consistent over all feedlot size groups except that it was lower in the 4,000 to 7,999 and 50,000 and over head capacity feedlots (Table 34). The 4,000 to 7,999 capacity feedlots are generally characteristic of the feedlots in the Gulf Coast-Rio Grande Plains which specialize in feeding heifers. Feedlots with 50,000 head or higher capacity are located in the Panhandle-Plains and reported lower costs for most variable cost items than did feedlots with 8,000 to 49,999 head capacity which are also located predominantly in the Panhandle-Plains.

### Total Feeding Costs

Variable costs comprised more than 95% of the total feeding costs in Texas feedlots during 1980-81 (Table 35). Fixed costs per pound of gain were highest in East Texas and Plateau-Pecos, followed by Gulf Coast-Rio Grande Plains. This suggests that feeding regions

with lower fixed costs per pound of gain as the Panhandle-Plains enjoyed both economies of size advantages over other Texas feeding areas and also maintained higher feedlot utilization rates than did other feeding areas.

Feedlots with less than 2,000 head capacity had substantially higher feeding cost per pound of gain compared to larger feedlots (Table 36). Much of this higher feeding cost per pound of gain was due to higher annual fixed costs per pound of gain. Smaller feedlots generally incur higher fixed investments per head of capacity as shown in Table 30. In addition, feedlot utilization rates are also generally lower in smaller feedlots which tends to increase fixed costs per pound of gain. Feedlot utilization rates by capacity of feedlot were as follows: (1) less than 2,000 head, 38%; (2) 2,000 to 3,999, 49%; (3) 4,000 to 7,999 head, 70%; (4) 8,000 to 15,999, 68%; (5) 16,000 to 31,999 head, 74%; (6) 32,000 to 49,999 head, 69%; and (7) 50,000 head or more, 71%.

### ECONOMIES OF SIZE

Analyses of cost curves are useful for determining the efficiency of feedlots relative to the level of output or production. Short-run average cost curves (SAC1, SAC2, SAC3) (Fig. 2) represent three specific but successively larger feed mills for three different sizes of feedlot as output increases or decreases in relation to feedlot utilization rate. The long-run average cost curve (LAC) represents an envelope curve which is tangent to each of the short-run average cost curves and is a theoretical expansion path of minimum per-unit production costs as feedlots increase in size.

Levels of production as indicated in Figure 2 at point A on SAC1, point B on SAC2 and point C on SAC3 represent least cost long-run feeding levels for these outputs. Each of the short-run average costs curves represents an infinitesimal number of costs whose points

TABLE 34. VARIABLE COST PER POUND OF GAIN BY SIZE OF FEEDLOT, TEXAS 1980-81

| Item                   | Size of Feedlot                     |                                    |                                    |                                     |                                      |                                      |                                |
|------------------------|-------------------------------------|------------------------------------|------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|--------------------------------|
|                        | Less than<br>2,000 head<br>capacity | 2,000 to<br>3,999 head<br>capacity | 4,000 to<br>7,999 head<br>capacity | 8,000 to<br>15,999 head<br>capacity | 16,000 to<br>31,999 head<br>capacity | 32,000 to<br>49,999 head<br>capacity | 50,000<br>and over<br>capacity |
|                        | Dollars                             |                                    |                                    |                                     |                                      |                                      |                                |
| Feed                   | .4982                               | .5191                              | .4874                              | .5195                               | .5119                                | .5248                                | .4988                          |
| Labor                  | .0276                               | .0137                              | .0138                              | .0140                               | .0144                                | .0114                                | .0090                          |
| Interest               |                                     |                                    |                                    |                                     |                                      |                                      |                                |
| Feed                   | .0293                               | .0288                              | .0314                              | .0320                               | .0340                                | .0335                                | .0314                          |
| Feeder Cattle          | .0718                               | .0597                              | .0538                              | .0638                               | .0621                                | .0699                                | .0656                          |
| Labor                  | .0015                               | .0008                              | .0009                              | .0009                               | .0009                                | .0007                                | .0006                          |
| Other                  | .0017                               | .0008                              | .0012                              | .0014                               | .0016                                | .0013                                | .0011                          |
| Death Loss             | .0155                               | .0292                              | .0134                              | .0178                               | .0144                                | .0132                                | .0097                          |
| Veterinary and Medical |                                     |                                    |                                    |                                     |                                      |                                      |                                |
| Supplies               | .0133                               | .0081                              | .0100                              | .0103                               | .0113                                | .0107                                | .0074                          |
| Gas and Oil            | .0058                               | .0060                              | .0037                              | .0026                               | .0029                                | .0021                                | .0012                          |
| Electricity            | .0031                               | .0008                              | .0021                              | .0036                               | .0036                                | .0037                                | .0035                          |
| Natural Gas            | .0044                               | .0002                              | .0007                              | .0027                               | .0024                                | .0022                                | .0020                          |
| Telephone              | .0014                               | .0004                              | .0007                              | .0009                               | .0011                                | .0004                                | .0002                          |
| Other                  | .0006                               | .0003                              | .0012                              | .0023                               | .0026                                | .0018                                | .0027                          |
| Total                  | .6742                               | .6679                              | .6203                              | .6718                               | .6632                                | .6757                                | .6332                          |

TABLE 35. TOTAL FEEDING COSTS PER POUND OF GAIN BY REGION, TEXAS 1980-81

| Item               | Region           |               |            |                              | Total |
|--------------------|------------------|---------------|------------|------------------------------|-------|
|                    | Panhandle-Plains | Plateau-Pecos | East Texas | Gulf Coast-Rio Grande Plains |       |
|                    | Dollars          |               |            |                              |       |
| Annual Fixed Costs | .0307            | .0533         | .0606      | .0393                        | .0332 |
| Variable Costs     | .6625            | .6707         | .6179      | .5992 <sup>a</sup>           | .6575 |
| Total              | .6932            | .7240         | .6785      | .6385 <sup>a</sup>           | .6907 |

<sup>a</sup>Lower variable cost mainly due to feeding younger-lighter weight cattle.

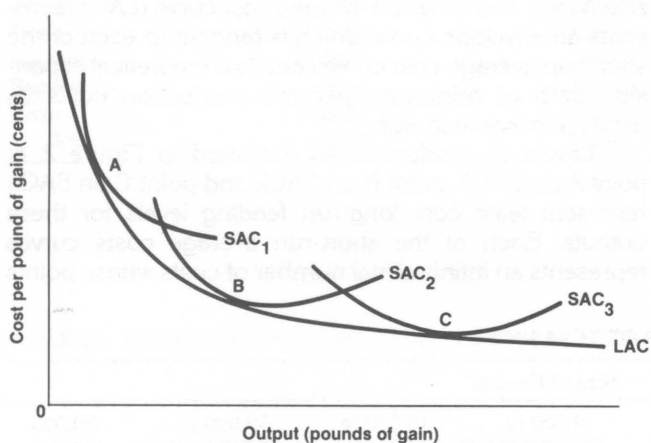


Figure 2. Theoretical cost curves for a feedlot.

are determined by varying feedlot utilization rates for the specified feed mill capacity. When feeding facilities as represented by SAC1 are under-utilized, costs per pound of gain tend to move to the left on SAC1 from point A. In contrast, when feeding facilities are over-utilized, costs tend to rise and move to the right on the short-run curve from the minimum point. The intersection of SAC1 and SAC2 represents that point at which a feedlot would be expected to expand its feeding facilities and install a larger feed mill.

If the long-run average cost curve declines as output increases, then successively larger sizes of feedlots are more efficient than the smaller feedlots as a result of existing economies of size. As a general rule, economies of size are available in those industries in which division and specialization of labor are present and in which advanced technological developments in machinery and equipment can readily be applied. However, increases in the long-run average costs beyond the minimum point on the long-run average cost curve indicate that successively larger scales or sizes of feedlots become less and less efficient. That is, average costs per unit of output for successively larger feedlots tend to increase. With new technology and capital restrictions, it is possible that no feedlots have been constructed in the Southern Plains that exceed the minimum point on the cost curve.

The regression model adopted for use in this study was a nonlinear model in which the variables are expressed in logarithms. Cost functions were developed for measuring the relationship between: (1) feedlot size and various items of fixed cost, and (2) feedlot size and total fixed cost under varying assumptions regarding degree-of-feedlot-utilization rates.

### Relationship Between Total Fixed Costs and Size of Feedlot

Figure 3, which depicts the estimated relationship between annual fixed costs per pound of gain and size of feedlot, reveals that substantial economies of size existed in Texas feedlot operations during 1980-81. For example, feedlots with 4,000 head capacity incurred annual fixed costs of 7.1 cents/lb of gain during 1980-81 compared to 2.4 cents/lb of gain for feedlots with 40,000 head capacity. Figure 3 reveals that most of the competitive advantages attributed to economies of size were realized once feedlot size reached 20,000 head capacity.

TABLE 36. TOTAL FEEDING COSTS PER POUND OF GAIN BY SIZE OF FEEDLOT, TEXAS 1980-81

| Item               | Size of Feedlot               |                              |                              |                               |                                |                                |                          |
|--------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------|
|                    | Less than 2,000 head capacity | 2,000 to 3,999 head capacity | 4,000 to 7,999 head capacity | 8,000 to 15,999 head capacity | 16,000 to 31,999 head capacity | 32,000 to 49,999 head capacity | 50,000 and over capacity |
|                    | Dollars                       |                              |                              |                               |                                |                                |                          |
| Annual Fixed Costs | .1164                         | .0438                        | .0536                        | .0532                         | .0351                          | .0275                          | .0218                    |
| Variable Costs     | .6742                         | .6679                        | .6203 <sup>a</sup>           | .6718                         | .6632                          | .6757                          | .6332                    |
| Total Costs        | .7906                         | .7117                        | .6739 <sup>a</sup>           | .7250                         | .6983                          | .7032                          | .6550                    |

<sup>a</sup>Many of the Gulf Coast and Rio Grande Plains feeders were in this size group and feed younger-lighter weight cattle.

However, annual fixed costs per pound of gain continued to decrease as feedlot size increased. Such decreases in annual fixed costs per pound of gain as feedlot size increases can generally be attributed to higher feedlot utilization rates, more specialized labor and management, and higher degrees of mechanization.

### Relationship Between Size of Feedlot, Feedlot Utilization Rates, and Total Fixed Costs

When feedlot utilization rates are held constant over feedlot size groups, competitive advantage due to size tend to decrease (Fig. 4). For example, when feedlot utilization rates were held constant at 50%, annual fixed costs were 7 cents/lb of gain for a 4,000 head lot compared to 3.4 cents for a 40,000 head feedlot or a difference of 3.6 cents/lb of gain attributable to economies of size. However, when feedlot utilization rates were held constant at 75%, annual fixed costs per pound of gain were 5.4 cents for a 4,000 head lot compared to 2.7 cents for a 40,000 head feedlot or a difference 2.7 cents/lb of gain attributable to economies of size. Competitive advantages due to economies of size tend to decrease even more as feedlot utilization rates approach 100%. However, Figure 4 demonstrates that as feedlot size increases, larger feedlots tend to enjoy a competitive advantage over smaller feedlots with respect to annual fixed costs per pound of gain in the absence of relatively large, offsetting utilization rates.

### IMPLICATIONS OF FINDINGS

The Texas cattle feeding industry is diverse, dynamic, and undergoing constant change in an effort to adjust

to rapidly changing economic conditions. The primary short-term costs associated with cattle feeding are feed, feeder cattle, and interest costs, all of which are subject to instability. Such conditions result in a high risk industry which uses a variety of methods to spread and/or decrease risk through frequent and regular patterns of feeder cattle placements and fed cattle marketings, custom feeding whereby risk is spread over many owners, limited partnership arrangements and/or hedging on the futures market.

The commercial cattle feeding industry is a capital intensive industry which requires high levels of expertise in such areas as buying and selling cattle, purchasing feed, feeding cattle, health care, and financial and personnel management. Cattle feeding firms which are not able to adopt the most efficient feeding practices and technologies have difficulty competing in the highly competitive cattle feeding industry.

Findings revealed that feedlots with less than 16,000 head capacity were generally at a disadvantage when competing with larger feedlots with respect to annual fixed costs. Other advantages in marketing and feed procurement often also accrue to larger feedlots. Such general cost and marketing advantage of larger lots have implications for future trends and structure within the industry. For example, recent research results revealed that the Panhandle-Plains area, Western Oklahoma, Kansas, and Nebraska enjoy considerable competitive advantages in cattle feeding due to proximity to feed grain and feeder cattle supplies, access to growing fed-beef markets in the South and Southwest, and economies of size associated with the feeding and slaughter industries (Clary, Dietrich, and Farris, 1984). Results further indi-

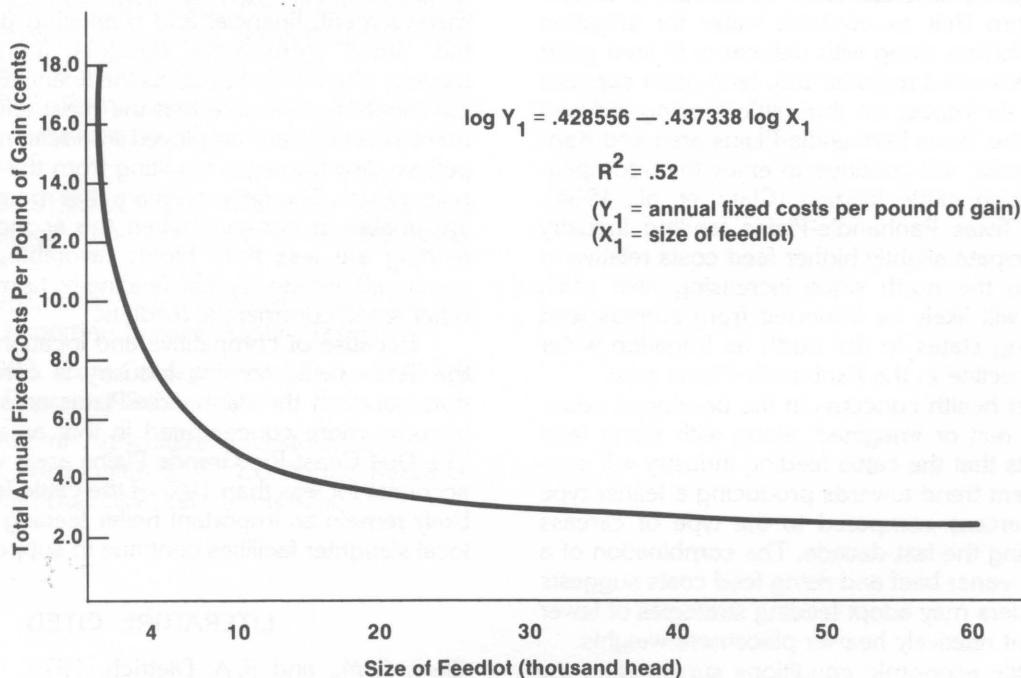
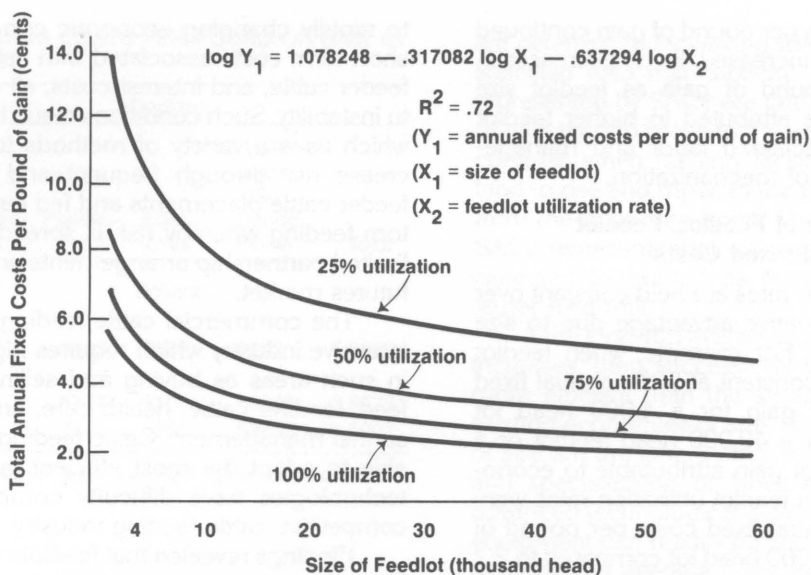


Figure 3. Relationship between size of feedlot and total annual fixed cost, per pound of gain, Texas, 1980-81.





**Figure 4. Relationship between size of feedlot and total annual fixed costs, per pound of gain, with varying degrees of feedlot utilization, Texas, 1980-81.**

cated that Southern and Central Plains and Corn Belt feeders would likely account for 80% or more of all cattle fed in the United States.

Texas feedlots, predominantly Panhandle-Plains feedlots, imported more than 25% of their feed grain requirements from states to the north in 1980-81 compared to 2% in 1966-67 (Dietrich, 1968). Questions arise concerning the ability of feedlots in the Panhandle-Plains to compete with commercial cattle feeders in the Central Plains and Corn Belt as available water for irrigation continues to decline along with decreases in feed grain production. Estimated regional U.S. feed grain supplies for 1990 and its impact on the cattle feeding industry revealed that the Texas Panhandle-Plains area and Kansas and Nebraska, will continue to enjoy their competitive advantage in cattle feeding (Clary, et. al., 1984). However, the Texas Panhandle-Plains feeding industry can likely anticipate slightly higher feed costs relative to competitors to the north since increasing feed grain requirements will likely be imported from surplus feed grain producing states to the north as irrigation water continues to decline in the Panhandle-Plains area.

Consumer health concerns in the developed countries, whether real or imagined, along with rising feed costs, suggests that the cattle feeding industry will continue the current trend towards producing a leaner type of fed beef carcass compared to the type of carcass produced during the last decade. The combination of a trend towards leaner beef and rising feed costs suggests that cattle feeders may adopt feeding strategies of fewer days on feed at relatively heavier placement weights.

The volatile economic conditions surrounding the cattle feeding industry during the last decade will likely continue during the next decade. Sharp swings in prices of feed, feeder cattle, and fed cattle in the highly competi-

tive cattle feeding industry suggests that efficient feedlot managers adopt strategies which either offset and/or minimize the economic impact of sharply fluctuating input or fed cattle prices. Large commercial feedlots, as in the Texas Panhandle-Plains have the capability to access the most current and detailed commodity and wholesale-retail price information, use current computer technology, and employ consultants to assure that they are utilizing the most economical and efficient feedlot management, financial and marketing practices possible. Small commercial feedlots, including farmer-feeders, often do not possess the financial or technological capability to assure that the most efficient management practices are employed in addition to their competitive disadvantages resulting from the lack of economies of size. The net results are that many small feeders are unable to compete when the economics of cattle feeding are less than highly favorable resulting in a continued decline of cattle feeding by farmer-feeders and other small commercial feedlots.

Because of competitive and locational advantages, the Texas cattle feeding industry is concentrated predominantly in the Panhandle-Plains area and will likely become more concentrated in that area in the future. The Gulf Coast-Rio Grande Plains area, which currently accounts for less than 10% of the cattle fed in Texas, will likely remain an important heifer feeding area, provided local slaughter facilities continue to support the industry.

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