CED WORKING PAPER

BEEF CATTLE RAISING SYSTEMS IN THE UNITED STATES

Calvin C. Boykin, Roy N. Van Arsdall
Henry C. Gilliam, Jr., C. Kerry Gee,
and Jack Trierweiler

December 1976

COMMODITY
ECONOMICS DIVISION

ECONOMIC RESEARCH SERVICE U.S. DEPARTMENT OF AGRICULTURE

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SUMMARY

Beef cattle raising systems throughout the United States are determined by the topographic, climatic, soil and vegetative characteristics of the area. Conditions of these characteristics are considerations for raising feeder cattle, breeding cattle, and cattle and calves for direct slaughter. On many ranches, cattle raising is the sole or primary enterprise, while on other operations, cattle raising is a secondary source of farm or ranch income. Aggregate production response of beef cattle raisers to fluctuating prices received for cattle and other products, prices paid for inputs, changes in forage supplies as affected by weather, and changes in production techniques can be facilitated through use of increased knowledge about the overall structure and the integral systems involved.

As the demand for beef has grown, cattle raisers have responded vigorously to the higher feeder cattle prices. More recent events, including rising export demands for feed grains and adverse weather conditions for domestic feed grain production, have combined to increase feed grain prices. At the same time, a greater supply of beef has reduced fed cattle prices so that cattle feeding has become less profitable. Although these conditions may be temporary, adjustements in the proportions of cattle on feed and the length of the feeding period may fluctuate. These events influencing the demand for feeder cattle emphasize the importance of remaining flexible in their systems of production.

The objective of this report is to identify the major structural characteristics of feeder cattle and nonfed slaughter cattle systems throughout the Nation's major beef cattle raising subregions and regions. This includes identification of the cow-calf, cow-yearling, and stocker systems, along with the types, amounts, and seasonality of forage grazed, supplemental feeding practices, and timing of production. Cattle raising enterprise budgets are being constructed for the major cattle raising systems identified in each subregion. These budgets are weighted in importance by the number of cattle represented.

Almost all of the 1973 inventory of 40,725,000 head of beef cows in the 48 States are included in the systems identified in the five major beef cattle regions. Of this total, the Corn Belt-Lake States had 17.1 percent, the Southeast had 23.6 percent, the Southwest had 23.9 percent, the Northern Plains and Southern Mountain region had 25.1 percent, and the Western region had 9.3 percent. The number of beef cows in herds of less than 100 cows made up more than 53 percent of the national inventory. The bulk of the cows in these small herds were found in the Corn Belt-Lake States, where 83 percent of the beef cows in this region were in herds of less than 100 head; in the Southeast, 61 percent of the region's cows were in herds of this size.

Only slightly more than 28 percent of the 1973 inventory of beef cows were in herds of 200 cows or more. Most of the cows in herds of

this size were in the Southwest, where 41 percent of the region's cows were in these larger herds. Thirty percent of the beef cows in the Northern Plains and Southern Mountain region were located in herds of 200 cows or larger. These larger herds grazed on range and were frequently maintained independently of crop enterprises on the same operation.

Some 30 percent of the beef cows were located in parts of Colorado, Nebraska, Kansas, Oklahoma, and Texas, while an additional 20 percent were located just north and east of this major concentration. Smaller herds predominated in this "beef cow belt," many of which were included in operations with crop enterprises. At the same time, the larger herds, 200 beef cows or more, were concentrated in the Rocky Mountains, Nevada, the desert and semidesert areas of California and the Southwest, and parts of the Southeast.

The Corn Belt-Lake States region contains 8 subregions with 28 systems, and enterprise budgets are identified to represent 7 of the subregions where beef cattle raising was considered important. The Southeast region includes 15 subregions where 62 beef cow systems and 49 stocker systems are identified. In the Southwest region, 13 subregions are delineated with 44 beef cow and stocker systems, each described for budgeting. Six subregions constitute the Northern Plains and Southern Mountain region, where 22 beef cow and 7 stocker systems are provided for adequate budgeting representation. For the Western region, 25 beef cow and 8 stocker systems are listed and described for cattle raising enterprise budgets.

For all subregions beef cow and stocker herd sizes are identified to include the majority of the cattle; these sizes are 50, 150, 300, 700, and 1,500 as required for specific subregions. In addition to beef cow herd size, an indication is given as to calving season, calf or yearling sale season, source of feed by season of the year, and other characteristics. Other characteristics include such factors affecting the system, as whether the rangeland grazed is publicly or privately owned, cattle use of small grain and crop aftermath, and the proportions of calves sold as weaners or yearlings. The information used in determining the appropriate characteristics of each beef cattle raising system was obtained from previous research and from expert opinions of research and extension workers, beef cattle raisers, and others with knowledge about the industry in the various subregions. Once constructed, the budgets will be updated periodically and used in determining the effects of changes in forage supplies, prices, and technology in the economic well-being of producers, and in estimating aggregate supplies of cattle and beef, together with associated costs of producing cattle.

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BEEF CATTLE RAISING SYSTEMS IN THE UNITED STATES

by

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and Jack Trierweiler

INTRODUCTION

Beef cattle raising constitutes a relatively important agricultural enterprise in most regions of the United States. This enterprise occurs throughout a multitude of topographic, climatic, and edaphic situations favorable for the raising of feeder cattle for feedlot placement and cattle and calves for direct slaughter. On many operations cattle raising is the sole or primary enterprise, although on others cattle raising is a secondary source of farm or ranch income.

Background

A greater demand for beef became evident in the early 1970's as a result of population growth, rising per capita incomes, and changing consumer tastes and preferences favoring beef. Increased placement of cattle in feedlots and lengthening feeding periods have become the primary means of satisfying this demand. This growth in demand, accompanied by higher beef and cattle prices, stimulated a record inventory buildup of cattle and calves during this period. It appeared that improvements in cattle and forage production techniques would be required if cattle raisers were to service the increasing demands for feeder cattle.

Recent events, including the 1972 and 1974 shortfalls in grain production and the large grain exports to the Soviet Union in 1972-73 and the developing countries in 1973-74, resulted in sharp increases in domestic grain prices. As cattle feeding became less profitable because of these higher feed grain prices, the demand for feeder cattle declined with their prices, and cattle raisers became hard-pressed to earn a pro-

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[1/] Regional analysts, Meat Animals Program Area, Commodity Economics Division, U.S. Department of Agriculture, located as follows: Calvin C. Boykin, College Station, Texas; Roy N. Van Arsdall, Urbana, Illinois; Henry C. Gilliam, Jr., Raleigh, North Carolina; C. Kerry Gee, Ft. Collins, Colorado; Jack Trierweiler, Corvallis, Oregon. Other Meat Animals Program Area personnel who assisted with this publication include Richard J. Crom, Program Area Leader, and Ronald A. Gustafson, both located in Washington, D.C.

fit. Meanwhile, increases in beef production continued from record-level inventories. A larger proportion of cattle which bypassed feedlots entirely on their way to slaughter increased. Others entered feedlots at heavier weights or came out at lighter weights, resulting in a shorter feeding period in feedlots.

Although limited feed grain supplies and higher feed grain prices suggest a continuing downward pressure on feeder cattle prices and a shift away from previous levels of feedlot placements, a bumper grain crop, coupled with a decline in export demand for grain, could result in a return of profitable opportunities for cattle feeding to meet consumer demand for higher quality beef. Similarly, an increase in fed cattle prices relative to feed grain prices could result in profitable feeding opportunities. Temporary or not, such changes have had an impact upon cattle raising systems. Growing out yearlings on pasture and range forage reduces the forage available for the breeding herd. With the record-high inventory of breeding cows and only 10 million cattle in feedlots for slaughter, over 90 percent of the cattle inventory now draws on the Nation's forage supplies. Furthermore, the ever-present possibilities of extreme weather conditions that affect both feed grain and forage supplies could affect the profitability and structure of the beef cattle raising industry.

Because of radical changes in beef cattle producing systems resulting from these conditions, additional knowledge is needed about the sizes of beef cattle herds, the degree of dependence upon range and other sources of feed and forage, the integration of livestock and crop enterprises on the same operation, tenure of operators, forage and cattle systems used, and other structural characteristics. Such knowledge can assist researchers, policymakers, and producers in understanding the possible effects of changes in the industry. In addition, this knowledge would also be helpful in identifying profitable adjustments, determining alternate resource inputs in beef cattle production, and estimating different qualities and quantities of beef produced. Beef cattle raising enterprise budgets are being constructed for the dominant systems identified for use in dealing with many of these issues.

Objectives

This report identifies the size distributions of beef cattle herds, major forage grazed, and cattle systems used, as well as other structural characteristics of feeder cattle and nonfed slaughter cattle production in the major cattle raising areas of the United States. More specific objectives are to:

1) Identify subregions of the country that are relatively homogeneous in terms of basic resources, including climate, topography, soils, and vegetation, but also in terms of beef cattle and forage production techniques, management practices, and herd size distributions.

2) Identify the various cattle raising systems used in each area, including those used to produce stockers, feeders, and slaughter cattle. Included in these system identifications are the kinds and amounts of forage grazed, seasons of use, supplemental feeding practices, and timing of production.

3) Determine the proportion of all beef cattle raisers and total beef cattle raised for each system identified.

Sources of Structural Data

Statistical Reporting Service (SRS) estimates were used in determining breeding cow and stocker cattle numbers for each type of enterprise defined. Herd size distribution estimates were projected to 1973 based on distributions in special livestock reports from the 1964 and 1969 Census of Agriculture, the latest figures available for these purposes. In addition, the 1969 Census of Agriculture was used to denote structural characteristics such as land use, tenure, and enterprise combinations, also the latest source available. Systems used in cattle raising were identified from the results of previous livestock studies and from the opinions solicited from livestock producers and other experts, including those in research, extension, and action agencies. Only those systems with a relatively large number of producers and cattle are included in this report.

BEEF CATTLE HERD AND LAND USE CHARACTERISTICS

Location of Beef Cattle

Seven cattle raising regions, identical to those used in an earlier report (1)[2], are used as a basis for comparing structural characteristics of the beef cattle industry. Each region contains different amounts and qualities of land and climatic characteristics which influence beef cattle production. The absolute numbers and proportionate shares of the Nation's beef cows and stocker cattle in 1973 indicate that both beef cows and stockers were fairly well distributed over the contiguous United States (table 1). Important cattle feeding regions are the Southwest, Northern Plains and Corn Belt (table 2).

The Southeast, and Southwest, each with nearly one-fourth of the Nation's beef cows, are the most important beef cattle raising regions (table 1). The Southeast became increasingly important in cattle raising as cotton moved westward after the forties and old cropland was planted to pasture. Although many dairy cattle have been replaced by beef cattle in the Northeast, this area reported only 375,000 head of

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[2] Underscored numbers in parentheses refer to literature citations listed at the end of this report.

Table 1 -- Estimated number of beef cows and stocker cattle and distribution by region and 48 States, January 1, 1973

State and Region	Beef cows			Stocker cattle [1]		
	Number	Proportion of: Regional total	Proportion of: U.S. total	Number	Proportion of: Regional total	Proportion of: U.S. total
	Thousands	- - Percent - -		Thousands	- - Percent - -	
Northeast[2]	375	100.0	0.9	1,221	100.0	3.0
Michigan	196	17.6	0.5	472	15.1	1.2
Minnesota	602	54.2	1.5	1,508	48.2	3.7
Wisconsin	313	28.2	0.7	1,151	36.7	2.8
Lake States	1,111	100.0	2.7	3,131	100.0	7.7
Illinois	810	14.0	2.0	1,301	16.3	3.2
Indiana	498	8.6	1.2	785	9.9	1.9
Iowa	1,820	31.4	4.5	3,080	38.6	7.6
Missouri	2,260	39.1	5.5	2,085	26.1	5.1
Ohio	399	6.9	1.0	728	9.1	1.8
Corn Belt	5,787	100.0	14.2	7,979	100.0	19.6
Kansas	2,042	28.6	5.0	2,864	36.4	7.0
Nebraska	2,094	29.3	5.2	2,503	31.9	6.2
North Dakota	1,120	15.7	2.8	865	11.0	2.1
South Dakota	1,890	26.4	4.6	1,625	20.7	4.0
Northern Plains	7,146	100.0	17.6	7,857	100.0	19.3
Kentucky	1,176	11.8	2.9	1,096	16.8	2.7
North Carolina	363	3.6	0.9	290	4.4	0.7
Virginia	593	5.9	1.5	536	8.2	1.3
Tennessee	1,124	11.2	2.8	770	11.8	1.9
West Virginia	221	2.2	0.5	142	2.2	0.4
Alabama	1,000	10.0	2.5	683	10.4	1.7
Florida	1,136	11.3	2.8	535	8.2	1.3
Georgia	909	9.1	2.2	658	10.1	1.6
South Carolina	295	2.9	0.7	177	2.7	0.4
Arkansas	1,038	10.4	2.5	579	8.8	1.4
Louisiana	910	9.1	2.2	423	6.5	1.1
Mississippi	1,249	12.5	3.1	649	9.9	1.6
Southeast	10,014	100.0	24.6	6,538	100.0	16.1
Arizona	342	3.6	0.8	289	3.6	0.7
New Mexico	680	7.1	1.7	515	6.5	1.3
Oklahoma	2,283	24.0	5.6	2,411	30.2	5.9
Texas	6,210	65.3	15.3	4,768	59.7	11.7
Southwest	9,515	100.0	23.4	7,983	100.0	19.6

See footnotes at end of table.

Continued

Table 1 -- Estimated number of beef cows and stocker cattle and distribution by region and 48 States, January 1, 1973 -- Continued

State and Region	Beef cows			Stocker cattle [1]		
		Proportion of:			Proportion of:	
	Number	Regional total	U.S. total	Number	Regional total	U.S. total
	Thousands	- - Percent - -		Thousands	- - Percent - -	
Colorado	1,106	22.6	2.7	1,225	32.7	3.0
Idaho	659	13.4	1.6	633	16.9	1.6
Montana	1,685	34.4	4.2	923	24.6	2.3
Nevada	340	6.9	0.8	170	4.5	0.4
Utah	328	6.7	0.8	260	6.9	0.6
Wyoming	784	16.0	1.9	540	14.4	1.3
Mountain States	4,902	100.0	12.0	3,751	100.0	9.2
California	915	48.8	2.3	1,275	57.3	3.2
Oregon	669	35.7	1.6	501	22.5	1.2
Washington	291	15.5	0.7	448	20.2	1.1
Pacific States	1,875	100.0	4.6	2,224	100.0	5.5
48-State total	40,725		100.0	40,684		100.0

Source: Supplement for 1973 to Livestock and Meat Statistics, Statis. Bul. 522, Econ. Res. Serv., July 1974.

[1] Includes "other" nonreplacement heifers 500 pounds and over, steers 500 pounds and over, and steers, heifers, and bulls under 500 pounds on feed.

[2] Includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, Delaware, Maryland, New Jersey, New York, and Pennsylvania.

Table 2 -- Cattle and calves on feed and distribution, by region and 48 States, January 1, 1973 and 1974

State and Region	1973			1974		
	Number	Proportion of:		Number	Proportion of:	
		Regional total	U.S. total		Regional total	U.S. total
	Thousands	- - Percent - -		Thousands	- - Percent - -	
Maryland	21	15.9	0.2	23	17.4	0.2
New Jersey	5	3.8	1/	5	3.8	1/
New York	14	10.6	0.1	14	10.6	0.1
Pennsylvania	87	65.9	0.6	86	65.2	0.6
New England 2/	5	3.8	1/	4	3.0	1/
Northeast	132	100.0	0.9	132	100.0	0.9
Michigan	245	27.8	1.7	220	26.8	1.6
Minnesota	494	56.0	3.4	464	56.6	3.4
Wisconsin	143	16.2	1.0	136	16.6	1.0
Lake States	882	100.0	6.1	820	100.0	6.0
Illinois	585	17.2	4.1	530	17.4	3.9
Indiana	276	8.1	1.9	263	8.7	1.9
Iowa	1,922	56.7	13.3	1,715	56.5	12.6
Missouri	310	9.1	2.1	250	8.2	1.8
Ohio	300	8.9	2.1	280	9.2	2.1
Corn Belt	3,393	100.0	23.5	3,038	100.0	22.3
Kansas	1,250	38.4	8.7	1,160	37.2	8.5
Nebraska	1,581	48.6	11.0	1,525	49.0	11.2
North Dakota	47	1.4	0.3	49	1.6	0.4
South Dakota	378	11.6	2.6	381	12.2	2.8
Northern Plains	3,256	100.0	22.6	3,115	100.0	22.9
Kentucky	38	10.1	0.3	39	10.7	0.3
North Carolina	45	11.9	0.3	48	13.1	0.3
Virginia	39	10.4	0.3	31	8.5	0.2
Tennessee	14	3.7	0.1	11	3.0	0.1
West Virginia	11	2.9	0.1	12	3.3	0.1
Alabama	37	9.8	0.2	38	10.4	0.3
Florida	58	15.4	0.4	55	15.1	0.4
Georgia	65	17.2	0.4	63	17.3	0.5
South Carolina	26	6.9	0.2	30	8.2	0.2
Arkansas	18	4.8	0.1	19	5.2	0.1
Louisiana	12	3.2	0.1	10	2.7	0.1
Mississippi	14	3.7	0.1	9	2.5	0.1
Southeast	377	100.0	2.6	365	100.0	2.7

See footnotes at end of table.

Continued

Table 2 -- Cattle and calves on feed and distribution, by region and 48 States, January 1, 1973 and 1974 -- Continued

State and Region	1973			1974		
	Number	Proportion of:		Number	Proportion of:	
		Regional total	U.S. total		Regional total	U.S. total
	Thousands	- - Percent - -		Thousands	- - Percent - -	
Arizona	655	19.3	4.5	609	18.2	4.5
New Mexico	226	6.6	1.6	232	7.0	1.7
Oklahoma	272	8.0	1.9	292	8.7	2.1
Texas	2,245	66.1	15.6	2,205	66.1	16.2
Southwest	3,398	100.0	23.6	3,338	100.0	24.5
Colorado	1,050	67.8	7.3	930	67.8	6.8
Idaho	205	13.3	1.4	172	12.5	1.3
Montana	160	10.3	1.1	122	8.9	0.9
Nevada	50	3.2	0.4	51	3.7	0.4
Utah	53	3.4	0.4	58	4.2	0.4
Wyoming	31	2.0	0.2	39	2.9	0.3
Mountain States	1,549	100.0	10.8	1,372	100.0	10.1
California	1,181	82.6	8.8	1,204	83.6	8.8
Oregon	69	4.8	0.5	77	5.3	0.6
Washington	180	12.6	1.2	160	11.1	1.2
Pacific States	1,430	100.0	9.9	1,441	100.0	10.6
48-State total	14,417		100.0	13,621		100.0

Source: Supplement for 1973 to Livestock and Meat Statistics, Statis. Bul. 522, Econ. Res. Serv., July 1974.

[1] Less than 0.5 percent.

[2] Includes Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut and Deleware.

beef cows in 1973, less than 1 percent of the U.S. total.

In comparing the number of beef cows and stocker cattle as derived from the SRS statistics, it was apparent that in 1973, beef cows outnumbered stocker cattle in the three major calf producing regions, the Southeast, Southwest, and Mountain States (table 1). The Corn Belt-Lake States and Northern Plains region, however, devoted a major proportion of their feed and forage resources to stocker systems.

Changes in Beef Cow Inventory

Periodic changes in the beef cow inventory, regionally as well as nationally since 1950, have been quite dramatic (table 3). The United States experienced a 50-percent increase in beef cows between 1950 and 1955. But the largest percentage increase, with the exception of the Northeast which began with a low base, occurred in the Southeast at almost 100 percent. During the same period, the Corn Belt-Lake States also showed a large increase, nearly 84 percent.

Because the cattle cycle had peaked, a widespread drought had occurred, and the price incentive to increase output did not exist, only slight increases in beef cows occurred between 1955 and 1960. However, all regions showed dramatic increases in beef cow numbers between 1960-1965, 1965-1970, and 1970-1974, as a result of rising consumer real incomes and increasing consumer preference for beef. As feed grain prices remained relatively low and more cattle were grain fed, cattle raisers had every price incentive to produce more feeder cattle for the feedlots.

During this spurt in beef cow numbers, regionally as well as nationally, each region maintained a rather constant proportion of the national inventory (table 4). The Corn Belt-Lake States increased its share from over 12 percent in 1950 to over 17 percent in 1974. Southwestern cattle feeders successfully bid cattle away from Corn Belt-Lake State stocker systems, freeing feed supplies for expansion of beef cow herds in this area. The Northern Plains and Southern Mountain States, and the Southwest lost relative proportions of the national inventory mainly because of the more dramatic increases in numbers that occurred in the Southeast and Corn Belt-Lake States.

Beef Cow Herd Sizes

In 1969, over 40 percent of all commercial farms and ranches reported having beef cows (table 5). The largest proportion of these operators, 66 percent, was in the Southwest; the smallest proportion, 15 percent, was in the Northeast.

The average size of a beef cow herd in the United States was a relatively small 42 head. Although the Northeast, Corn Belt-Lake States, and Southeast regions were below this average, the remaining regions

Table 3 -- Change in January 1 beef cow inventory by region, 48 States, selected intervals, 1950-74

Region	1950-55	1955-60	1960-65	1965-70	1970-74
			Percent		
Northeast	165.3	5.5	10.5	11.2	52.7
Corn Belt-Lake States	83.5	4.5	25.0	18.5	25.7
Northern Plains	54.1	-4.5	30.3	7.2	17.5
Southeast	99.6	6.6	24.3	23.0	13.9
Southwest	24.2	4.0	22.7	11.7	9.7
Mountain States	33.2	1.0	21.1	16.3	7.8
Pacific States	46.9	3.9	17.6	0.8	4.7
48-State total	53.2	2.7	24.1	14.4	14.4

Table 4 -- Distribution of January 1 beef cow inventory by region, 48 States, 1950-74

Region	1950	1955	1960	1965	1970	1974
				Percent		
Northeast	0.5	0.8	0.8	0.7	0.7	0.9
Corn Belt-Lake States	12.4	14.8	15.1	15.2	15.7	17.3
Northern Plains	18.6	18.8	17.4	18.3	17.1	17.6
Southeast	16.8	21.9	22.8	22.8	24.5	24.4
Southwest	30.3	24.6	24.9	24.6	24.1	23.1
Mountain States	14.8	12.6	12.6	12.3	12.5	11.8
Pacific States	6.6	6.3	6.4	6.1	5.4	4.9
48-State total	100.0	100.0	100.0	100.0	100.0	100.0

Table 5 -- Average size of beef cow herd and proportion of farms and ranches with beef cows, by region, 48 States, 1969

State and Region	Average beef cow herd size	Proportion of farms with beef cows
	Number	Percent
Northeast 1/	16	15
Michigan	18	17
Minnesota	21	26
Wisconsin	16	18
Lake States	19	21
Illinois	21	35
Indiana	18	32
Iowa	28	44
Missouri	30	63
Ohio	16	25
Corn Belt	25	41
Kansas	41	59
Nebraska	50	58
North Dakota	44	52
South Dakota	59	66
Northern Plains	48	59
Kentucky	24	56
North Carolina	16	20
Virginia	29	44
Tennessee	25	57
West Virginia	28	63
Alabama	40	57
Florida	121	37
Georgia	32	52
South Carolina	31	29
Arkansas	36	47
Louisiana	53	51
Mississippi	45	57
Southeast	35	46
Arizona	169	34
New Mexico	118	60
Oklahoma	46	72
Texas	60	65
Southwest	59	66
Colorado	78	51
Idaho	61	45
Montana	108	66
Nevada	270	63
Utah	68	44
Wyoming	137	69
Mountain States	95	55
California	92	17
Oregon	72	44
Washington	42	33
Pacific States	70	25
48-State total	42	43

Source: Derived from 1969 Census of Agriculture.

[1/] Includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, Delaware, Maryland, New Jersey, New York, and Pennsylvania.

were above it. The largest average herd size, 95 head, was reported in the Mountain region where the larger range cattle operations were located.

Size distribution of beef cow herds, as estimated in the Census of Agriculture, included dairy cows. By considering the small proportion of dairy cows relative to beef cows, a fair picture of the distribution of beef cow herds may be obtained from the size distribution for all herds (tables 6 and 7).

As of 1964, nearly 66 percent of the farms and ranches in the United States had cow herds under 20 head, and almost half of the cows and heifers that had calved were in herds of 20-99 head (table 6). The Northeast, Corn Belt-Lake States, and Southeast regions had the largest proportion of farms and ranches with small cow herds. Although the Southwest, Mountain, and Pacific States had large proportions of farms and ranches with small herds, the larger range cattle operations in these regions increased the average size of the herd for the area.

Although the size of the cow herds remained essentially unchanged from those in 1964, by 1969 all regions had experienced an increase in cow herd size. Over 53 percent of the farms and ranches managed 52 percent of the total cows in herds between 20-99 head (table 7). In each region, except the Southeast, the largest proportion of farms and ranches reporting cows in 1969 managed herds with 20-99 head. The largest proportion of cows were also in this same grouping, with the exception of the Pacific region, which reported 200-499 head (table 8).

Dramatic shifts in herd size and in the number of cows and heifers that had calved resulted in an increase from the smaller size herds (1-19 and 20-99) to the larger size herds (100 and over). Nationwide, the proportion of farms and ranches reporting fewer than 20 head, and the proportion of cows and heifers that had calved in herds of fewer than 20 head, decreased faster than the average for all sizes.

Range and Pasture

Beef cattle raising has long been an intensive forage system largely dependent upon grazing on range, pasture, and crop residue. However, the total acres grazed on by livestock, including cropland, pasture, permanent pasture, woodland pasture, and off-farm pasture, has been declining since 1949 (table 9). In 1949, total pasture amounted to 1.02 billion acres, but by 1969, it had declined 13 percent. The Northern Plains and Southwest region were the only areas that increased in pasture acreage.

Increased use of cropland for pasture occurred in all regions except the Northeast and the Pacific States. Off-farm pasture, including State and Federal lands used by livestock producers in conjunction with privately owned lands, decreased more than 28 percent between 1949 and 1969, particularly in the Mountain States. The Mountain region, where

and 48 States, 1964

State and Region	Farms							Cows and heifers that have calved						
		Size of cow herd							Size of cow herd					
	Number	1-19	20-99	100-199	200-499	500-999	1,000 and over	Number	1-19	20-99	100-199	200-499	500-999	1,000 and over
		Percent							Percent					
Northeast 1/	133,261	52.5	46.3	1.1	0.1	2/	2/	3,004,930	15.1	77.2	5.9 3/	1.3 3/	0.3 3/	0.2 3/
Michigan	42,517	67.5	32.0	0.4	0.1	2/	2/	705,560	30.6	64.8	3.3	0.7	0.3 3/	0.3 3/
Minnesota	87,274	59.0	40.7	0.3	2/	2/		1,648,073	31.9	65.7	1.9	0.4 3/	0.1 3/	
Wisconsin	93,513	39.7	59.9	0.4	2/	2/		2,269,163	17.4	80.4	1.7	0.4 3/	0.1 3/	
Lake States	223,304	52.5	47.1	0.4	2/	2/	2/	4,622,796	24.6	72.8	2.0	0.4 3/	0.1 3/	0.1 3/
Illinois	71,967	68.6	30.9	0.4	0.1	2/	2/	1,199,146	33.6	61.7	3.2	0.9	0.4 3/	0.2 3/
Indiana	55,915	77.2	22.4	0.3	0.1	2/	2/	759,247	42.2	53.9	2.6	0.9	0.1 3/	0.3 3/
Iowa	99,831	58.6	40.8	0.5	0.1	2/	2/	1,982,748	28.3	67.2	3.2	1.0	0.2	0.1
Missouri	114,427	68.2	30.9	0.8	0.1	2/	2/	2,010,943	31.6	60.5	5.4	1.9	0.5 3/	0.1 3/
Ohio	65,614	76.7	23.0	0.3	2/			881,565	40.2	56.4	2.8	0.6		
Corn Belt	407,754	68.5	30.9	0.5	0.1	2/	2/	6,833,649	33.3	61.4	3.7	1.2	0.3 3/	0.1 3/
Kansas	63,177	50.2	46.0	2.9	0.8	0.1	2/	1,838,748	15.4	61.3	12.6	7.3	2.2	1.2
Nebraska	56,399	51.5	42.0	4.3	1.8	0.3	0.1	2,029,721	13.5	46.2	15.6	14.4	5.4	4.9
North Dakota	33,965	40.3	54.6	4.3	0.7	0.1	2/	1,165,838	11.8	65.8	15.6	5.4	1.1	0.3
South Dakota	39,883	32.5	57.8	7.2	2.2	0.2	0.1	1,800,509	7.5	54.9	20.8	12.8	2.9	1.1
Northern Plains	193,424	45.2	48.8	4.4	1.4	0.2	2/	6,834,816	12.2	55.9	16.2	10.5	3.1	2.1
Kentucky	95,285	80.7	18.6	0.6	0.1	2/		1,205,785	42.1	50.0	5.4	2.1	0.4	
North Carolina	62,803	90.6	8.9	0.4	0.1	2/	2/	458,353	44.4	44.9	7.5	2.2	0.7 3/	0.3 3/
Virginia	53,448	81.8	16.9	1.1	0.2	2/	2/	683,342	32.4	50.9	10.8	4.6	1.1 3/	0.2 3/
Tennessee	94,927	83.4	15.9	0.6	0.1	2/	2/	1,126,135	43.0	47.2	6.6	2.7	0.3 3/	0.2 3/
West Virginia	27,459	86.5	13.0	0.4	0.1			264,527	46.9	46.8	4.9	1.4		
Alabama	65,268	82.9	14.4	1.8	0.8	0.1	2/	981,227	27.0	37.0	16.2	14.2	4.1	1.5
Florida	17,501	65.3	23.9	4.8	3.7	1.4	0.9	1,046,975	6.6	16.4	10.7	18.2	15.5	32.6
Georgia	56,066	79.1	18.8	1.7	0.4	2/	2/	869,198	28.8	46.9	13.6	7.5	1.7	1.5

See footnotes at end of table.

Continued

Table 6 -- Distribution of farms and ranches, and of all cows and heifers that have calved, by size of cow herd, region and 48 States, 1964 -- Continued

State and Region	Farms							Cows and heifers that have calved						
	Number	Size of cow herd						Number	Size of cow herd					
		1-19	20-99	100-199	200-499	500-999	1,000 and over		1-19	20-99	100-199	200-499	500-999	and over
		- - - - - - - - - Percent - - - - - - - -							- - - - - - - - - Percent - - - - - - - -					
South Carolina	25,906	86.5	11.9	1.2	0.4	2/	2/	284,281	32.8	42.2	13.9	9.2	1.5 3/	0.4 3/
Arkansas	56,779	77.3	21.2	1.1	0.4	2/	2/	874,697	32.4	49.4	9.3	6.5	1.8	0.6
Louisiana	50,625	73.0	22.9	2.6	1.2	0.2	0.1	1,144,343	19.0	41.4	14.9	15.7	5.6	3.4
Mississippi	80,812	77.9	19.7	1.8	0.6	2/	2/	1,333,270	27.7	45.4	14.0	9.7	2.0	1.2
Southeast	686,879	81.0	17.1	1.3	0.5	0.1	2/	10,272,133	30.1	42.7	11.0	8.6	3.4 3/	4.2 3/
Arizona	3,099	47.4	23.4	11.5	12.4	3.9	1.4	371,096	2.0	9.7	13.3	31.1	22.1	21.8
New Mexico	9,558	50.8	32.8	8.7	5.8	1.2	0.7	645,892	4.9	22.3	17.3	25.0	12.1	18.4
Oklahoma	75,254	58.1	38.1	2.7	0.9	0.2	2/	2,046,334	18.1	53.4	12.9	9.3	4.1	2.2
Texas	162,917	63.9	30.1	3.7	1.8	0.4	0.1	5,263,490	15.2	37.4	15.0	15.5	7.3	9.6
Southwest	250,828	61.4	32.5	3.7	1.8	0.4	0.2	8,326,812	14.5	38.9	14.6	15.4	7.6	9.0
Colorado	18,592	45.7	40.8	8.6	4.1	0.6	0.2	949,732	6.0	36.9	22.3	22.2	8.0	4.6
Idaho	20,733	59.0	33.8	4.8	2.0	0.3	0.1	680,072	13.2	41.5	19.5	17.0	5.9	2.9
Montana	19,830	32.6	45.9	13.8	6.4	1.0	0.3	1,452,838	3.4	30.3	25.3	24.6	8.4	8.0
Nevada	1,585	31.7	31.0	13.8	13.8	5.8	3.9	311,966	1.0	7.7	9.5	21.7	20.2	29.9
Utah	9,758	55.3	36.8	5.5	2.1	0.2	0.1	343,652	9.4	44.8	20.3	16.3	3.4	5.8
Wyoming	7,007	32.7	40.7	14.2	9.5	2.2	0.7	676,149	2.4	20.4	20.1	28.2	15.1	13.8
Mountain States	77,505	45.7	39.5	9.2	4.5	0.8	0.3	4,414,409	5.6	31.5	21.5	22.6	9.4	9.4
California	25,007	54.1	26.7	10.7	6.9	1.2	0.4	1,598,431	4.5	19.6	22.8	30.6	11.9	10.6
Oregon	24,782	71.9	21.5	3.7	2.2	0.5	0.2	765,687	11.9	29.9	15.9	20.6	10.1	11.6
Washington	27,370	71.6	24.8	2.5	0.9	0.2	2/	572,229	17.2	49.6	15.6	11.4	4.5	1.7
Pacific States	77,159	66.0	24.4	5.5	3.3	0.6	0.2	2,936,347	8.9	28.1	19.6	24.2	10.0	9.2
48-State total	2,050,114	65.9	31.0	2.1	0.8	0.1	0.1	47,245,892	20.1	49.8	11.6	10.1	4.1	4.3

Source: Derived from 1964 Census of Agriculture.

1/ Includes Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

2/ Less than 0.5.

3/ Based on estimates; actual data were unreported.

Table 7 -- Distribution of farms and ranches and of all cows and heifers that have calved, by size of cow herd, region and 48 States, 1969

State and Region	Farms							Cows and heifers that have calved						
	Number	Size of cow herd						Number	Size of cow herd					
		1-19	20-99	100-199	200-499	500-999	1,000 and over		1-19	20-99	100-199	200-499	500-999	1,000 and over
		- - -	- - -	-Percent	- - -	- - -	- - -		- - -	- - -	-Percent	- - -	- - -	- - -
Northeast 1/	67,737	27.8	69.0	2.8	0.4	2/	2/	2,408,927	7.4	79.4	9.9	2.5 3/	0.5 3/	0.3 3/
Michigan	19,677	45.3	52.6	1.9	0.2	2/	2/	534,424	16.2	72.4	8.8	2.1	0.1 3/	0.4 3/
Minnesota	54,006	43.2	55.7	1.0	0.1	2/	2/	1,364,836	19.4	74.1	5.0	1.1	0.3 3/	0.1 3/
Wisconsin	63,720	26.9	72.1	0.9	0.1	2/	2/	1,935,603	10.8	84.9	3.5	0.7		0.1 3/
Lake States	137,403	35.9	62.9	1.1	0.1	2/	2/	3,834,863	14.6	79.3	4.8	1.1	0.1 3/	0.1 3/
Illinois	44,162	55.4	43.0	1.4	0.2	2/	2/	1,019,415	22.8	67.5	7.4	1.8	0.3 3/	0.2 3/
Indiana	29,851	62.8	36.2	0.9	0.1	2/		602,622	28.4	63.5	5.7	1.6	0.8	
Iowa	70,373	42.8	54.8	2.1	0.3	2/	2/	1,984,740	16.2	71.4	9.2	2.8	0.2 3/	0.2 3/
Missouri	61,726	39.4	57.2	2.9	0.5	2/	2/	1,946,750	13.5	69.5	11.7	4.5	0.5	0.3
Ohio	31,068	56.7	42.1	1.1	0.1			682,370	24.2	68.4	6.1	1.3		
Corn Belt	237,180	48.6	49.2	1.9	0.3	2/	2/	6,235,897	18.5	69.1	9.0	2.9	0.3 3/	0.2 3/
Kansas	44,007	33.5	59.2	5.7	1.4	0.2	2/	1,810,543	8.6	60.1	17.8	9.3	2.8	1.4
Nebraska	40,902	37.2	52.2	7.2	2.7	0.5	0.2	1,992,876	8.1	45.0	19.5	15.8	5.9	5.7
North Dakota	24,228	30.1	60.8	7.5	1.5	0.1	2/	1,084,620	7.1	60.6	21.3	8.9	1.6	0.5
South Dakota	30,488	22.7	62.3	11.0	3.5	0.4	0.1	1,758,455	4.5	49.0	25.1	16.5	3.6	1.3
Northern Plains	139,625	31.6	58.1	7.6	2.3	0.3	0.1	6,646,494	7.1	52.7	20.8	13.1	3.7	2.5
Kentucky	44,248	55.0	42.8	1.9	0.3	2/	2/	1,093,543	22.6	63.2	9.4	3.6	0.8 3/	0.4 3/
North Carolina	18,557	71.5	26.3	1.8	0.3	0.1	2/	335,658	24.1	56.7	12.6	4.7	1.5 3/	0.4 3/
Virginia	18,692	50.8	44.1	4.1	0.9	0.1	2/	572,063	14.1	58.3	17.4	7.8	1.4	1.0
Tennessee	33,693	52.1	44.9	2.6	0.4	2/	2/	899,854	19.6	63.3	12.0	4.3	0.7 3/	0.1 3/
West Virginia	5,276	41.5	55.3	2.7	0.5			158,647	15.1	69.7	11.0	4.2		
Alabama	19,156	47.3	43.3	6.4	2.6	0.3	0.1	770,604	10.1	44.7	21.0	18.0	3.7	2.5
Florida	8,028	32.7	42.9	11.0	8.3	3.0	2.1	1,080,306	2.1	14.3	10.8	18.1	15.6	39.1
Georgia	21,857	50.5	42.7	5.2	1.5	0.1	2/	742,771	12.8	51.8	19.7	12.2	1.7	1.8
South Carolina	6,080	53.6	38.9	5.4	1.8	0.2	0.1	205,490	11.4	48.4	20.9	13.7	4.4 3/	1.2 3/

See footnotes at end of table.

Continued

Table 7 -- Distribution of farms and ranches and of all cows and heifers that have calved, by size of cow herd, region and 48 States, 1969 -- Continued

State and Region	Farms							Cows and heifers that have calved						
		Size of cow herd							Size of cow herd					
	Number	1-19	20-99	100-199	200-499	500-999	1,000 and over	Number	1-19	20-99	100-199	200-499	500-999	1,000 and over
		Percent							Percent					
Arkansas	17,911	39.5	54.4	4.8	1.2	0.1	[2]	659,598	10.4	59.4	16.5	9.2	2.3	2.2
Louisiana	12,346	36.8	49.6	9.1	3.8	0.5	0.2	675,708	5.5	42.4	21.6	20.0	5.8	4.7
Mississippi	18,372	35.1	55.1	7.1	2.4	0.2	0.1	833,664	7.5	52.4	20.4	14.1	3.3	2.3
Southeast	224,216	49.4	44.4	4.4	1.5	0.2	0.1	8,027,906	12.4	49.7	15.7	11.4	4.1[3]	6.7[3]
Arizona	1,707	21.9	33.4	17.3	19.3	6.6	1.5	288,955	0.9	10.2	13.8	35.1	25.7	14.3
New Mexico	4,927	22.8	48.0	15.2	10.0	2.6	1.4	575,815	1.6	20.1	17.4	25.6	15.1	20.2
Oklahoma	39,176	29.0	62.1	6.4	2.1	0.3	0.1	1,842,206	6.8	55.6	17.6	12.4	4.4	3.2
Texas	82,918	31.7	54.8	8.5	4.0	0.7	0.3	5,023,643	5.2	39.7	18.5	18.6	7.9	10.1
Southwest	128,728	30.4	56.5	8.3	3.8	0.7	0.3	7,730,619	5.2	40.9	18.1	18.3	8.2	9.3
Colorado	12,335	26.9	51.5	13.5	7.1	1.2	0.2	929,615	3.0	32.6	24.0	26.5	9.9	4.0
Idaho	12,405	38.1	48.7	8.4	4.0	0.7	0.1	669,064	6.6	39.4	20.7	20.9	8.6	3.8
Montana	14,294	17.7	49.5	19.7	10.7	1.8	0.6	1,517,957	1.5	23.9	25.4	28.5	11.0	9.7
Nevada	1,123	16.7	35.9	17.6	18.6	6.2	5.0	281,686	0.5	7.3	9.2	22.7	16.7	43.6
Utah	5,267	29.6	55.7	9.1	4.8	0.6	0.2	322,953	4.3	41.7	19.5	22.2	6.1	6.2
Wyoming	5,338	18.2	44.6	19.3	13.5	3.2	1.2	696,770	1.2	17.0	20.5	29.9	16.3	15.1
Mountain States	50,762	26.2	49.5	14.3	8.0	1.5	0.5	4,418,045	2.7	27.2	22.2	26.3	11.2	10.4
California	12,969	29.9	37.5	15.7	13.2	2.7	1.0	1,478,888	2.0	15.9	19.0	33.5	15.3	14.3
Oregon	9,302	42.0	42.2	8.6	5.4	1.3	0.5	619,844	4.7	28.3	17.5	24.2	12.5	12.8
Washington	9,819	41.1	48.9	7.0	2.5	0.4	0.1	442,339	6.9	48.4	20.8	15.1	5.3	3.5
Pacific States	32,090	36.9	42.3	11.0	7.6	1.6	0.6	2,541,071	3.5	24.6	19.0	28.0	12.9	12.0
48-State total	1,017,741	39.6	53.2	4.9	1.9	0.3	0.1	41,843,822	9.5	52.0	15.5	12.8	4.9	5.3

Source: Derived from 1969 Census of Agriculture.

[1] Includes Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

[2] Less than 0.5.

[3] Based on estimates, actual data were unreported.

Table 8 -- Change between 1964 and 1969 in number of farms reporting cows and heifers that have calved and number of cows and heifers that have calved, by size of cow herd, region and 48 States

Region	Size of cow herd						Total
	1-19	20-99	100-199	200-499	500-999	1,000 and over	
				Percent			
Number of farms							
Northeast	-73.1	-24.2	33.8	51.7	21.4	0	-49.2
Lake States	-57.9	-17.8	94.0	96.2	0	150.0	-38.5
Corn Belt	-58.7	-7.4	115.6	122.1	26.9	14.3	-41.8
Northern Plains	-49.5	-14.0	23.5	20.9	18.7	12.9	-27.8
Southeast	-80.1	-15.4	11.3	2.7	-7.4	17.3	-67.4
Southwest	-74.6	-10.9	15.0	9.4	0.4	-1.8	-48.7
Mountain	-62.4	-18.0	2.1	15.4	18.9	11.7	-34.5
Pacific	-76.8	-27.7	-17.2	-2.5	9.6	11.7	-58.4
48-State total	-70.2	-14.8	-17.6	12.3	6.5	8.3	-50.4
Number of cows and heifers that have calved							
Northeast	-60.6	-17.5	35.3	54.8[1/]	12.0[1/]	7.2[1/]	-19.8
Lake States	-50.8	-9.6	100.6	103.5[1/]	-14.1[1/]	152.5[1/]	-17.0
Corn Belt	-49.3	2.7	121.5	121.8	12.5[1/]	17.2[1/]	-8.7
Northern Plains	-43.0	-8.2	25.2	20.8	15.9	14.5	-2.8
Southeast	-67.7	-9.0	12.0	2.6	-5.5[1/]	23.1[1/]	-21.8
Southwest	-66.9	-2.4	15.1	9.9	1.2	-3.9	-7.2
Mountain	-52.1	-13.3	3.3	16.4	19.6	9.8	0.1
Pacific	-66.1	-24.3	-16.3	0.002	12.0	13.8	-13.5
48-State total	-58.2	-7.6	18.1	12.8	7.3	8.7	-11.4

Source: Derived from the 1964 and 1969 Census of Agriculture.

[1/] Based on estimates; actual data were unreported.

Table 9 -- Pasture in farms and ranches and other land pastured by region and 48 States, 1949-69

Region and year	Pasture in farms and ranches				Nonfarm and nonranchland pasture	Total
	Cropland used for pasture	Permanent pasture	Woodland pasture	Total		
				1,000 acres		
Northeast:						
1949	1/	1/	1/	15,442	2,800	18,242
1954	3,777	6,701	3,836	14,314	2,237	16,551
1959	3,217	5,393	2,884	11,494	2,202	13,696
1964	2,559	4,987	2,332	12,878	3,364	16,242
1969	3,669	2,398	2,028	8,095	974	9,069
Corn Belt-Lake States:						
1949	1/	1/	1/	66,315	11,500	77,815
1954	19,419	22,412	21,876	63,707	8,506	72,213
1959	17,479	18,968	17,539	53,986	11,034	65,020
1964	15,447	18,648	16,334	50,429	12,954	63,383
1969	22,179	12,978	12,393	47,550	11,462	59,012
Northern Plains:						
1949	1/	1/	1/	78,265	6,529	84,794
1954	3,952	75,326	1,740	81,018	4,384	85,402
1959	4,695	75,980	1,370	82,045	5,199	87,244
1964	4,159	80,675	1,271	86,105	1,029	87,134
1969	11,273	71,741	1,209	84,223	2,348	86,571
Southeast:						
1949	1/	1/	1/	75,902	65,535	141,437
1954	20,824	26,375	37,713	84,912	56,788	141,700
1959	19,727	23,060	27,623	70,410	42,368	112,778
1964	17,923	26,207	25,933	70,063	35,192	105,255
1969	24,746	21,764	19,311	65,821	27,962	93,783

See footnotes at end of table.

Continued

Table 9 -- Pasture in farms and ranches and other land pastured by region and 48 States, 1949-69 -- Continued

Region and year	Pasture in farms and ranches				Nonfarm and nonranchland pasture	Total
	Cropland used for pasture	Permanent pasture	Woodland pasture	Total		
				1,000 acres		
Southwest:						
1949	1/	1/	1/	211,675	65,675	277,350
1954	10,388	173,454	37,489	221,331	59,011	280,342
1959	11,419	177,580	25,883	214,882	60,108	274,990
1964	9,464	186,154	21,979	217,597	59,879	277,476
1969	17,492	178,678	17,934	214,104	64,676	278,780
Mountain States:						
1949	1/	1/	1/	125,527	177,390	302,917
1954	3,264	122,407	6,621	132,292	165,372	297,664
1959	4,205	128,314	6,726	139,245	152,055	291,300
1964	4,047	131,913	5,825	141,785	138,735	280,520
1969	5,067	124,173	4,112	133,352	140,666	274,018
Pacific States:						
1949	1/	1/	1/	46,570	70,735	117,305
1954	4,446	33,204	11,877	49,527	56,341	105,868
1959	4,699	34,788	10,326	49,813	43,564	93,377
1964	3,764	38,768	8,488	51,020	39,619	90,639
1969	3,755	37,313	5,405	46,473	38,960	85,433
48-State total:						
1949	1/	1/	1/	619,696	400,164	1,019,860
1954	66,070	459,879	121,152	647,101	352,639	999,740
1959	65,441	464,083	92,351	621,875	316,530	938,405
1964	57,363	487,352	82,162	626,877	290,772	917,649
1969	88,181	449,045	62,392	599,618	287,048	886,666

1/ Not reported separately.

off-farm pasture is an important source of forage, showed over a 20-percent decrease in acreage.

Although the acreage devoted to range and pasture has decreased since 1949, the inventory of cows has increased, alluding to increased grazing pressures on these lands (table 10). The total acres of pasture per combined animal unit of beef cows, dairy cows, and stock sheep declined from over 22 acres in 1949 to about 16 acres in 1969 (table 11).

On an acreage basis, total pasture use consistently averaged less in the Northeast because the nutritional requirements for the region's larger dairy herds were primarily from nonpasture sources. The Corn Belt-Lake States also had less than average pasture acreage requirements because of the widespread use of crop residues and the highly productive pastures. To some extent, a similar situation prevailed in the Northern Plains. In contrast, more total pasture acres per animal unit of cows and stock sheep were used in the Mountain and Southwest regions than for the other regions, but even these ratios have been declining.

Bringing these ratios up-to-date by using 1969 acreage figures, the latest available, and 1974 cow and stock sheep numbers, a further decline in total pasture acres per animal unit was noted (table 12). A reduction in this ratio occurred in all regions except the Pacific because of an increase in livestock numbers.

Changes in Land-Livestock Ratios

Several factors affected the increase in cow inventories as the total pasture and range acreage slightly declined. The shift from dairy to beef cattle accounted for some decline in most regions, but the reduction in the number of stock sheep, particularly in the Southwest and Mountain States, left additional forage for beef cows. Although not evidenced here, the shift from forage fattening for slaughter to concentrate feeding of cattle in feedlots, making room for more beef cows to graze, has had a significant effect on the ability of range and pastures to support more cows. The use of more acreages of tame pastures in the Southeast, and the judicious integration of crop farming and beef cattle in the Corn Belt and Northern Plains, has had its effect on cattle and forage management practices.

CATTLE RAISING SYSTEMS

Cow-calf

The commercial cow-calf system for many years was confined to regions which had an abundance of comparatively inexpensive forage, such as that produced on range. In addition, those regions, such as the

Table 10 -- Beef cows, milk cows, and total cows 2 years old and older on farms and ranches, and acreage of pasture per cow, by region and 48 States, 1949-69

Region and year	Cows 2 years and older			Acres of pasture per cow		
	Beef cows	Milk cows	Total cows	Farm and ranchland pasture	Nonfarm and nonranchland pasture	Total pasture
	- - - - - - 1,000 head - - - - -			- - - - - - - - - - - - Acres - - - - - - - - - - - - - -		
Northeast:						
1949	1/	1/	3,619	4.3	0.8	5.1
1954	1/	1/	3,938	3.6	0.6	4.2
1959	210	3,533	3,743	3.1	0.6	3.7
1964	224	3,289	3,513	3.7	0.9	4.6
1969	250	2,739	2,989	2.7	0.3	3.0
Corn Belt-Lake States:						
1949	1/	1/	11,741	5.6	1.0	6.6
1954	1/	1/	13,408	4.8	0.6	5.4
1959	3,718	8,695	12,413	4.3	0.9	5.2
1964	4,714	7,643	12,357	4.1	1.0	5.1
1969	5,570	5,909	11,479	4.1	1.0	5.1
Northern Plains:						
1949	1/	1/	4,881	16.0	1.4	17.4
1954	1/	1/	6,386	12.7	0.7	13.4
1959	4,524	1,491	6,015	13.6	0.9	14.5
1964	5,716	1,163	6,879	12.5	0.2	12.7
1969	6,287	834	7,121	11.8	0.3	12.1
Southeast:						
1949	1/	1/	7,172	10.6	9.1	19.7
1954	1/	1/	10,430	8.1	5.5	13.6
1959	5,846	4,460	10,306	6.8	4.1	10.9
1964	7,232	3,279	10,511	6.7	3.3	10.0
1969	8,818	2,406	11,224	5.9	2.5	8.4

See footnotes at end of table.

Continued

Table 10 -- Beef cows, milk cows, and total cows 2 years old and older on farms and ranches, and acreage of pasture per cow, by region and 48 States, 1949-69 -- Continued

Region and year	Cows 2 years and older			Acres of pasture per cow		
	Beef cows	Milk cows	Total cows	Farm and ranchland pasture	Nonfarm and nonranchland pasture	Total pasture
	- - - - - -	1,000 head	- - - - -	- - - - - - - - - - - -	Acres	- - - - - - - - - - - - -
Southwest:						
1949	1/	1/	6,773	31.3	9.7	41.0
1954	1/	1/	7,895	28.0	7.5	35.5
1959	6,235	1,212	7,447	28.8	8.1	36.9
1964	8,096	881	8,977	24.2	6.7	30.9
1969	8,697	634	9,331	23.0	6.9	29.9
Mountain States:						
1949	1/	1/	3,169	39.6	56.0	95.6
1954	1/	1/	3,968	33.3	41.7	75.0
1959	3,337	651	3,988	34.9	38.1	73.0
1964	3,826	555	4,381	32.3	31.7	64.0
1969	4,484	447	4,931	27.1	28.5	55.6
Pacific States:						
1949	1/	1/	2,426	19.2	29.2	48.4
1954	1/	1/	2,921	16.9	19.3	36.2
1959	1,643	1,446	3,089	16.1	14.1	30.2
1964	1,921	1,273	3,194	16.0	12.4	28.4
1969	2,026	1,169	3,195	14.5	12.2	26.7
48-State total:						
1949	1/	1/	39,781	15.6	10.0	25.6
1954	1/	1/	48,946	13.2	7.2	20.4
1959	25,513	21,488	47,001	13.2	6.7	19.9
1964	31,729	18,083	49,812	12.6	5.8	18.4
1969	36,132	14,138	50,270	11.9	5.7	17.6

1/ Not reported separately.

Table 11 -- Total animal units of cows and stock sheep on farms and ranches, and ratios of pasture acreages per animal unit by region and 48 States, 1949-69

Region and year	Cows 2 years and older			Stock sheep	Total animal units	Ratio of total acres per animal unit		
	Beef cows	Milk cows	Total cows			Farm and ranch-land pasture	Nonfarm and nonranch-land pasture	Total pasture
	- - - - - - - - 1,000 animal units 1/	- - - - - -				- - - - - - - - Acres	- - - - - - - - - - - -	
Northeast:								
1949	73	3,546	3,619	100.2	3,719.2	4.1	0.8	4.9
1954	193	3,745	3,938	104.8	4,042.8	3.5	0.6	4.1
1959	210	3,533	3,743	117.6	3,860.6	3.0	0.6	3.6
1964	224	3,289	3,513	92.2	3,605.2	3.6	0.9	4.5
1969	250	2,739	2,989	67.0	3,056.0	2.7	0.3	3.0
Corn Belt-Lake States:								
1949	1,941	9,800	11,741	906.0	12,647.0	5.3	0.9	6.2
1954	3,696	9,712	13,408	1,016.8	14,424.8	4.4	0.6	5.0
1959	3,718	8,695	12,413	1,064.2	13,477.2	4.0	0.8	4.8
1964	4,714	7,643	12,357	786.4	13,143.4	3.8	1.0	4.8
1969	5,570	5,909	11,479	574.6	12,053.6	3.9	1.0	4.9
Northern Plains:								
1949	2,946	1,935	4,881	331.8	5,212.8	15.0	1.3	16.3
1954	4,610	1,776	6,386	406.0	6,792.0	11.9	0.7	12.6
1959	4,524	1,491	6,015	559.2	6,574.2	12.5	0.8	13.3
1964	5,716	1,163	6,879	522.4	7,401.4	11.6	0.2	11.8
1969	6,287	834	7,121	373.8	7,494.8	11.3	0.3	11.6
Southeast:								
1949	2,525	4,647	7,172	387.0	7,559.0	10.0	8.7	18.7
1954	5,402	5,028	10,430	391.6	10,821.6	7.8	5.3	13.1
1959	5,846	4,460	10,306	397.0	10,703.0	6.6	4.0	10.6
1964	7,232	3,279	10,511	206.2	10,717.2	6.5	3.3	9.8
1969	8,818	2,406	11,224	124.2	11,348.2	5.8	2.5	8.3

See footnotes at end of table.

Continued

Table 11 -- Total animal units of cows and stock sheep on farms and ranches, and ratios of pasture acreages per animal unit by region and 48 States, 1949-69 -- Continued

Region and year	Cows 2 years and older			Stock sheep	Total animal units	Ratio of total acres per animal unit		
	Beef cows	Milk cows	Total cows			Farm and ranch-land pasture	Nonfarm and nonranch-land pasture	Total pasture
	1,000 animal units 1/					Acres		
Southwest:								
1949	4,946	1,827	6,773	1,678.4	8,451.4	25.0	7.8	32.8
1954	6,382	1,513	7,895	1,397.6	9,292.6	23.8	6.4	30.2
1959	6,235	1,212	7,447	1,417.2	8,864.2	24.2	6.8	31.0
1964	8,096	881	8,977	1,338.0	10,315.0	21.1	5.8	26.9
1969	8,697	634	9,331	1,024.6	10,355.6	20.7	6.2	26.9
Mountain States:								
1949	2,433	736	3,169	1,590.4	4,759.4	26.4	37.3	63.7
1954	3,262	706	3,958	1,551.4	5,519.4	24.0	29.9	53.9
1959	3,337	651	3,988	1,595.0	5,583.0	25.0	27.2	52.2
1964	3,826	555	4,381	1,426.6	5,807.6	24.4	23.9	48.3
1969	4,484	447	4,931	1,127.4	6,058.4	22.0	23.2	45.2
Pacific States:								
1949	1,055	1,371	2,426	536.4	2,962.4	15.7	23.9	39.6
1954	1,505	1,416	2,921	552.0	3,473.0	14.3	16.2	30.5
1959	1,643	1,446	3,089	549.2	3,638.2	13.7	12.0	25.7
1964	1,921	1,273	3,194	494.2	3,688.2	13.8	10.8	24.6
1969	2,026	1,169	3,195	369.4	3,564.4	13.1	10.9	24.0
48-State total:								
1949	15,919	23,862	39,781	5,530.2	45,311.2	13.7	8.8	22.5
1954	25,050	23,896	48,946	5,420.2	54,366.2	11.9	6.5	18.4
1959	25,513	21,488	47,001	5,699.4	52,700.4	11.8	6.0	17.8
1964	31,729	18,083	49,812	4,866.0	54,678.0	11.5	5.3	16.8
1969	36,132	14,138	50,270	3,661.0	53,931.0	11.1	5.3	16.4

[1/] One cow = 1.0 animal unit; 1 head of stock sheep = 0.2 animal unit.

Table 12 -- Total animal units of cows and stock sheep on farms and ranches, and ratios of pasture acreages per animal unit by region and 48 States, 1974

Region	Cows 2 years and older			Stock sheep	Total animal units	Ratio of total acres per animal unit		
	Beef cows	Milk cows	Total cows			Farm and ranch-land pasture	Nonfarm and nonranch-land pasture	Total pasture
	- - - - - - - - 1,000 animal units 1/ - - - - - - - -					- - - - - - - - - Acres - - - - - - - - - - -		
Northeast	394	2,167	2,561	57.4	2,618.4	3.1	0.4	3.5
Corn Belt-Lake States	7,396	4,728	12,124	413.4	12,537.4	3.8	0.9	4.7
Northern Plains	7,534	605	8,139	305.2	8,444.2	10.0	0.3	10.3
Southeast	10,439	1,758	12,197	87.8	12,284.8	5.4	2.3	7.7
Southwest	9,871	566	10,437	789.4	11,226.4	19.1	5.7	24.8
Mountain States	5,049	359	5,408	829.6	6,237.6	21.4	22.5	43.9
Pacific States	2,098	1,086	3,184	291.4	3,475.4	13.4	11.2	24.6
48-State total	42,781	11,269	54,050	2,774.2	56,824.2	10.6	5.0	15.6

1/ 1 cow = 1.0 animal unit; 1 head of stock sheep = 0.2 animal unit.

Southwest, the southern parts of the Mountain region, the Pacific region, and more recently the Southeast, have had advantages in calf production that are related to shorter and less severe winters and yearlong grazing.

As the demand for beef increased, cattle raising became periodically more profitable, and many times offered at least a secondary enterprise for labor and other resources when farm and ranch adjustments became necessary. As cow-calf enterprises increased in other regions, particularly in the colder climates, more concentrates and forage were fed to make up the difference between annual nutritive requirements of the breeding herd and the nutrition obtained from ranges, pastures, and other sources of forage.

Cow-yearling

Because profitability is largely dependent on fluctuating forage supplies and cattle prices, the cow-calf system offers a certain flexibility. Lightweight calves may be sold following weaning, or, if forage is available, they may be carried longer and into a stocker phase. Many operators sold calves at lighter weights to stocker or feedlot operators who grazed them for a brief time on pastures and crop residues before placing them in feedlots. Operators carry calves to the yearling stage expecting weightgains and possible price increases to enhance profitability.

Yearlings raised in this fashion may go to slaughter directly from pasture or range, or go into the feedlots for finishing, depending upon feed grain and fed-cattle price relationships. Feed grain and beef related prices determine the amount of weight to place on yearlings before they enter and leave the feedlot. For a given operation, however, the breeding herd must be reduced in number if shifts are made from a well stocked cow-calf system to a predominantly cow-yearling system.

Stocker

A stocker is a young animal grazed or maintained in such a way that growth rather than improvement in condition is realized. Stockers are generally steers and heifers that are intended for slaughter; but more importantly, in recent years, they have been intended for fattening in feedlots. These cattle may be grown out in the area where they are bred and raised, by allowing them to graze on pastures and ranges similar to those used by the breeding herd. Alternatively, they may be shipped soon after weaning either to grazing areas not fully stocked with cows and young calves, or to grain growing sections where they will ultimately be fattened.

Many cattle feeders of the Corn Belt make a practice of buying their cattle as calves or yearlings in the fall and carrying them on stalk fields and legume pasture crops through the winter or for longer

periods before putting them into the feedlot. Competition from the High Plains feedlots for calves and yearlings from the Southwest and Southeast has spurred a turn toward cow-calf enterprises in the Corn Belt-Lake States.

Stockers are seldom carried more than a year before they are placed in a feedlot. Relatively inexpensive feed grains in the sixties and early seventies gave impetus to a shortening of the stocker phase, as the expanding feedlot sector bid higher for the available calf crop. Conversely, higher grain prices encourage lengthening of the stocker phase on less expensive forage before placing cattle into feedlots.

Systems Modifications

As previously discussed, the three basic cattle raising systems include only commercial-type herds and the principal feeder calf and feeder cattle production. Other products or byproducts of cow-calf and cow-yearling systems include cull cows, heifers, and bulls. Although considered culls by one operator, these animals may go into another operator's breeding herd.

Although grade cattle comprise a good part of the Nation's beef herds, some cattle raisers are involved in purebred or registered cattle breeding. These operations are either cow-calf, cow-yearling, or both, with a primary objective to produce quality bulls and heifers for the breeder market that will yield higher prices. Those that lack the desired quality, or are produced at a time when there is inadequate breeder demand, may still be marketed through regular channels as feeder or slaughter cattle. As crossbreeding becomes more common, but the need for quality purebreds becomes increasingly important, producer interest in maintaining heterosis is sustained.

Another modification of the basic systems concerns the treatment of the calf produced. In high milk-producing herds, calves are started on grain as soon as possible. The result is a highly specialized form of beef production called "baby beef," which when marketed, ranges from age 8 to 15 months and weighs from 650 to 950 pounds.

When grain becomes expensive, the forage system of producing grass-fed beef emerges to replace the "baby beef" program. Forage-produced cattle, slaughtered from age 15 months to 2 years, are occasionally fed grain for 60 to 90 days to avoid the yellow fat covering associated with grass-fed carcasses. In the past, these cattle were fed more grain in short, concentrated feeding periods before being shipped to commercial feedlots for finishing.

Other aspects of these systems involve the sources and amounts of forage grazed or fed in the raising of cattle. Reference to the diversity of climatic, topographic, and edaphic situations, and the resulting

possibilities for growing forage for livestock, have been made earlier. The nature of these differences partly account for the potential of raising beef cattle with little supplemental feed, such as in the Southwest, to a considerable proportion of total feed requirements being met through forage and silage feeds, such as in the Northern Plains.

The dispersion of cropland among rangeland, often on the same farm or ranch operation, provides a reason why various mixtures of grazing on range, cropland pasture, and crop aftermath is used for some cattle herds. Carrying the breeding herd yearlong on rangeland with supplemental feeding in the winter, weaning calves onto sorghum stubble in the fall, followed by grazing on small grain, and finally going into the feedlot, is a common program in the plains of the Southwest. Similarly, grazing beef cows on tame pastures through spring and summer, then carrying cows on native ranges, or cows and weaned calves on native ranges overseeded with winter grasses, are common practices in the Southeast.

In sizeable parts of the Mountain, Southwest, and Pacific regions, grazing occurs on mixtures of private, State, and Federal rangelands and forests. Public ownership of forage resources adds another dimension to the cattle raising systems. Depending upon geographic, topographic, climatic, and edaphic factors, some ranges may be grazed only in the summer, such as high mountain ranges administered by the Forest Service, or only in the spring and fall, such as the low semidesert ranges administered by the Bureau of Land Management (BLM). Each operator must adhere to agency specifications concerning seasonal use and stocking rates, and in most situations, he must have base property which takes care of the remaining spatial and nutritional requirements of the cattle herd.

Attempts to identify these beef cattle raising systems must be done with the recognition that changes in weather, cattle prices, feed grain, and other input prices affect the mix of systems that evolve in any given year.

OTHER BEEF CATTLE RAISING CHARACTERISTICS

Numerous factors come into play when one attempts to characterize the structure of beef cattle raising across the United States. These factors involve the role of beef cattle enterprises in the total farm or ranch organization, the range, pasture, and supplemental feeds, cattle production rates, the ownership of cattle on farms and ranches, and the purposes for which cattle are marketed.

Enterprise Relationships

Among the cattle raising regions in 1969, the Southwest, Mountain, and Pacific States had the highest proportion of farms and ranches on which cattle were the only livestock raised (table 13). Cattle and hog enterprises were about equally numerous in the Corn Belt-Lake States,

Table 13 -- Combinations of livestock enterprises and percent of total farms reporting livestock sold, by region, 1969

Region	Farms reporting livestock sold	Cattle	Hogs	Sheep	Cattle and hogs	Cattle and sheep	Cattle, hogs, and sheep	Hogs and sheep
	- - Number - -	- - - - - - - - - - - - - - - - Percent - - - - - - - - - - - - - - - -						
Northeast	4,055	40	13	1	38	2	5	1
Corn Belt-Lake States	146,697	17	17	1/	57	1	6	2
Northern Plains	66,024	43	4	1	44	3	4	1
Southeast	30,095	44	13	1/	39	2	2	1/
Southwest	30,334	76	1	1	12	9	1	1/
Mountain States	21,922	69	2	3	11	11	3	1
Pacific States	7,943	77	2	5	6	9	1	1/

Source: Derived from 1969 Census of Agriculture.

1/ Less than 0.5 percent.

and over half of the region's livestock farms operated both enterprises. Joint cattle and sheep enterprises were of significance only in the Southwest, Mountain, and Pacific States.

Beef cattle and crop enterprise relationships are obtained by examining the use of pasture and the different cattle raising systems on the different farms classified by the 1969 U.S. Census of Agriculture (table 14). For instance, in the Corn Belt-Lake States over half of the cropland pasture and over half of all the pasture was on livestock farms. But significant proportions of farms reporting cows, and proportions of total cows, were on cash grain farms in this region.

Most of the total cows, as well as most of the farms and ranches reporting cows, in the Southwest region were on livestock farms. More than one-third of both the total farms and cows in the Pacific States were on other farms. Total pasture acreage was greatest on livestock farms and ranches.

Ownership of Cattle

According to the 1969 Census of Agriculture, more than 93 percent of the Nation's farms and ranches reportedly owned their own beef cattle; 96 percent of the beef cattle were owned by the operator or firm (table 15). This ownership pattern prevailed among all regions, although in the Corn Belt-Lake States, more landlords owned more beef cows. Aside from the Northeast, where cattle raising is relatively unimportant, the Southwest and Southeast regions had slightly more beef cattle operations with more operator-owned cattle than the other regions.

Purpose for Marketing Cattle

The 1969 Census of Agriculture data stated that, nationally, 78 percent of the cattle were sold for slaughter, 19 percent were sold for further feeding, and the remaining 3 percent were sold for breeding purposes (table 16).

The Northern Plains, Southeast, Southwest, and Mountain States, where relatively larger proportions of cattle were sold for further feeding, were below the U.S. sales level for slaughter. The Southeast and Mountain States sold slightly more cattle for breeding than the other regions. To some extent, the sale of breeding cattle indicates the relative importance of purebred operations in these regions. The Northern Plains and Southwest sold considerable numbers of purebred cattle for breeding.

Beef calves, sold for slaughter in 1969, amounted to a national average of 23 percent, with relatively higher proportions of total sales attributed to the Northeast and Southeast (table 17). Calves sold for further feeding in 1969 averaged 72 percent, nationally, with relatively

Table 14 -- Proportions of farms, pasture acreages, farms reporting cows, and cow numbers by type of farm regions and 48 States, 1969

Region and type of farm	Farms		Cropland		Cropland pastured		All pasture		Farms reporting beef cows		Beef cows	
	Number	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Number	Percent	Number	Percent
Northeast:												
Cash grain	6,780	6.1	2,270	15.7	131	4.5	350	5.3	1,117	1.7	14	0.6
Cotton	--	--	--	--	--	--	--	--	--	--	--	--
Livestock farm	14,174	12.7	1,491	10.3	416	14.5	878	13.3	7,477	11.0	141	5.8
Livestock ranch	--	--	--	--	--	--	--	--	--	--	--	--
General farms	6,748	6.1	972	6.8	155	5.4	354	5.4	3,006	4.4	50	2.1
Other farms	83,426	75.1	9,692	67.2	2,170	75.6	5,005	76.0	56,137	82.9	2,204	91.5
All farms	111,128	100.0	14,425	100.0	2,872	100.0	6,587	100.0	67,737	100.0	2,409	100.0
Corn Belt-Lake States:												
Cash grain	191,145	29.2	48,483	37.1	2,717	14.7	5,428	14.0	53,459	14.0	1,027	8.4
Cotton	203	1/	302	0.3	6	1/	7	1/	61	1/	1	1/
Livestock farm	257,297	39.4	49,120	37.6	10,477	56.6	21,438	55.3	156,936	40.9	4,344	35.5
Livestock ranch	--	--	--	--	--	--	--	--	--	--	--	--
General farms	31,470	4.8	6,567	5.0	883	4.8	1,834	4.7	20,356	5.3	410	3.4
Other farms	174,037	26.6	26,108	20.0	4,430	23.9	10,101	26.0	152,609	39.8	6,442	52.7
All farms	654,152	100.0	130,580	100.0	18,513	100.0	38,808	100.0	383,421	100.0	12,224	100.0
Northern Plains:												
Cash grain	81,298	38.0	46,482	46.3	2,668	25.1	11,223	14.9	38,233	27.4	1,112	16.7
Cotton	--	--	--	--	--	--	--	--	--	--	--	--
Livestock farm	93,818	43.9	39,297	39.1	5,745	54.2	37,122	49.4	70,541	50.5	3,843	57.8
Livestock ranch	8,031	3.8	2,053	2.0	611	5.8	20,569	27.3	6,453	4.6	812	12.2
General farms	16,457	7.7	7,850	7.8	903	8.5	4,004	5.3	12,769	9.2	476	7.2
Other farms	14,173	6.6	4,794	4.8	677	6.4	2,326	3.1	11,629	8.3	403	6.1
All farms	213,777	100.0	100,476	100.0	10,604	100.0	75,244	100.0	139,625	100.0	6,646	100.0

See footnotes at end of table.

Continued

Table 14 -- Proportions of farms, pasture acreages, farms reporting cows, and cow numbers by type of farm regions and 48 States, 1969 -- Continued

Region and type of farm	Farms		Cropland		Cropland pastured		All pasture		Farms reporting beef cows		Beef cows	
	Number	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Number	Percent	Number	Percent
Southeast:												
Cash grain	37,847	9.5	13,218	22.3	923	5.5	2,218	4.8	11,591	5.1	341	3.8
Cotton	19,722	5.0	5,814	9.8	575	3.4	1,419	3.1	7,329	3.2	228	2.6
Livestock farm	110,481	27.9	14,496	24.5	7,558	45.0	18,211	39.3	87,323	38.3	3,750	42.4
Livestock ranch	3,799	1.0	631	1.1	513	3.1	6,742	14.6	3,386	1.5	690	7.8
General farms	37,363	9.4	7,606	12.8	1,805	10.8	4,355	9.4	25,993	11.4	865	9.8
Other farms	187,089	47.2	17,438	29.5	5,402	32.2	13,337	28.8	92,314	40.5	2,969	33.6
All farms	396,301	100.0	59,203	100.0	16,776	100.0	46,282	100.0	227,936	100.0	8,843	100.0
Southwest:												
Cash grain	28,093	15.2	14,264	27.4	1,317	10.4	5,289	3.1	13,219	10.3	436	5.6
Cotton	18,338	9.9	7,563	14.6	593	4.7	2,451	1.4	6,214	4.8	126	1.6
Livestock farm	52,034	28.2	13,143	25.3	3,747	29.7	16,191	9.4	41,269	32.1	1,910	24.7
Livestock ranch	47,874	26.0	6,982	13.4	4,844	38.4	137,626	80.1	42,151	32.7	4,133	53.5
General farms	17,064	9.3	6,495	12.5	1,004	7.9	4,694	2.7	12,345	9.6	407	5.3
Other farms	21,014	11.4	3,512	6.8	1,120	8.9	5,590	3.3	13,530	10.5	719	9.3
All farms	184,417	100.0	51,959	100.0	12,625	100.0	171,841	100.0	128,728	100.0	7,731	100.0
Mountain States:												
Cash grain	15,236	10.7	15,761	42.6	580	12.9	6,778	5.8	6,019	9.9	247	5.6
Cotton	10	1/	5	1/	--	--	12	1/	1	1/	--	--
Livestock farm	27,047	19.1	11,189	30.2	1,939	43.3	18,576	15.8	20,646	33.9	1,769	40.0
Livestock ranch	12,700	9.0	4,246	11.5	1,202	26.8	86,947	74.1	10,665	17.5	1,855	42.0
General farms	9,066	6.4	2,943	8.0	354	7.9	2,814	2.4	4,666	7.7	172	3.9
Other farms	77,568	54.8	2,834	7.7	406	9.1	2,214	1.9	18,875	31.0	376	8.5
All farms	141,627	100.0	36,980	100.0	4,481	100.0	117,341	100.0	60,872	100.0	4,419	100.0

Continued

See footnotes at end of table.

Table 14 -- Proportions of farms, pasture acreages, farms reporting cows, and cow numbers by type of farm regions and 48 States, 1969 -- Continued

Region and type of farm	Farms		Cropland		Cropland pastured		All pasture		Farms reporting beef cows		Beef cows	
	Number	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Number	Percent	Number	Percent
Pacific States:												
Cash grain	8,910	9.6	8,790	37.5	273	8.8	3,007	7.2	2,855	8.9	101	4.0
Cotton	1,450	1.6	799	3.4	15	0.5	85	0.2	161	0.5	4	0.1
Livestock farm	13,111	14.1	2,920	12.5	800	25.8	4,726	11.3	9,107	28.4	558	22.0
Livestock ranch	7,092	7.6	1,937	8.3	1,089	35.1	29,520	70.9	5,686	17.7	832	32.7
General farms	8,323	9.0	3,675	15.7	221	7.1	1,591	3.8	2,689	8.4	86	3.4
Other farms	53,945	58.1	5,305	22.6	703	22.7	2,730	6.6	11,592	36.1	960	37.8
All farms	92,831	100.0	23,426	100.0	3,101	100.0	41,659	100.0	32,090	100.0	2,541	100.0
48 States:												
Cash grain	369,309	20.6	149,268	35.8	8,609	12.5	34,293	6.9	126,493	12.1	3,278	7.3
Cotton	39,723	2.2	14,483	3.5	1,189	1.7	3,974	0.8	13,766	1.3	359	0.8
Livestock farm	567,962	31.7	131,656	31.6	30,682	44.5	117,142	23.5	393,299	37.8	16,315	36.4
Livestock ranch	79,496	4.4	15,849	3.8	8,259	12.0	281,404	56.5	68,341	6.6	8,322	18.6
General farms	126,491	7.0	36,110	8.6	5,325	7.7	19,646	4.0	81,824	7.9	2,466	5.5
Other farms	611,252	34.1	69,683	16.7	14,908	21.6	41,303	8.3	356,686	34.3	14,073	31.4
All farms	1,794,233	100.0	417,049	100.0	68,972	100.0	497,762	100.0	1,040,409	100.0	44,813	100.0

Source: Derived from 1969 Census of Agriculture.

[1/] Less than 0.5 percent.

Table 15 -- Distribution of farms reporting beef purpose cows and number of beef purpose cows by ownership, region and 48 States, 1969

Region	Farms reporting beef purpose cows	Farms			Beef purpose cows	Cows		
		Operator-owned	Landlord-owned	Others		Operator-owned	Landlord-owned	Others
	Number	- - - - - - -	Percent	- - - - - - -	Number	- - - - - - -	Percent	- - - - - - -
Northeast	1,237	96	2	2	45,125	99	1	1/
Corn Belt-Lake States	79,469	91	7	2	2,942,528	95	4	1
Northern Plains	50,890	93	3	4	4,123,810	96	2	2
Southeast	24,626	94	3	3	2,493,901	97	2	1
Southwest	25,664	95	2	3	3,817,180	97	1	2
Mountain States	18,993	92	3	5	3,152,917	96	1	3
Pacific States	6,339	93	2	5	1,199,566	94	1	5
48-State total	207,218	93	4	3	17,775,027	96	2	2

Source: Derived from 1969 Census of Agriculture.

1/ Less than 0.5 percent.

Table 16 -- Total beef purpose cattle sold and percent sold for slaughter, further feeding, and for breeding, by region and 48 States, 1969

Region	Total cattle	Cattle sold for slaughter	Cattle sold for further feeding	Cattle sold for breeding
	- - Number - -	- - - - - - - - - - - - -	Percent	- - - - - - - - - - - - -
Northeast	226,491	92	6	2
Corn Belt-Lake States	7,967,753	90	8	2
Northern Plains	7,421,332	75	22	3
Southeast	1,310,252	66	23	11
Southwest	6,774,340	74	23	3
Mountain States	4,054,009	68	27	5
Pacific States	3,297,310	80	17	3
48-State total	31,051,487	78	19	3

Source: Derived from 1969 Census of Agriculture.

Table 17 -- Total beef purpose calves sold and percent sold for slaughter, for further feeding, and for breeding, by region and 48 States, 1969

Region	Total calves	Calves sold for slaughter	Calves sold for further feeding	Calves sold for breeding
	- - Number - -	- - - - - - - - - - - - -	Percent	- - - - - - - - - - - -
Northeast	63,472	62	35	3
Corn Belt-Lake States	2,232,168	30	64	6
Northern Plains	3,227,120	15	80	5
Southeast	1,521,076	38	56	6
Southwest	3,487,427	27	68	5
Mountain States	2,036,445	11	82	7
Pacific States	830,843	16	79	5
48-State total	13,398,551	23	72	5

Source: Derived from 1969 Census of Agriculture.

higher proportions sold in the Mountain States, Northern Plains, and Pacific States. Calves sold for breeding averaged 5 percent, nationally, with the Corn Belt-Lake States, Southeast, and Mountain States selling slightly more than this average. An estimated 86 percent of the cattle sold for slaughter in 1969 had been fattened on grain and concentrates (table 18). Only the Southeast had a significantly lower regional proportion of cattle that had been fattened before slaughter. Cattle and calves fed on grain and concentrates and then sold for further feeding varied considerably among regions, but stood lowest in the Mountain States and Southeast.

Supplemental Feeding

Cattle feeding other than in feedlots is interpreted as fattening and feeding to supplement cattle grazing on forage from crop aftermath, pasture, and range (table 19). These feeding proportions may be related to forage supply differences among regions, resulting from annual weather variations, which would tend to obscure the usual contribution of grazed forage in relation to the total feed.

Using 1969 as a year of comparison, it is evident that cattle in the colder climates and shorter grazing seasons of the Corn Belt-Lake States, Northern Plains, and Mountain States require more supplemental forage and silage feeds than the cattle in the warmer climates and longer grazing seasons of the Southwest, Southeast, and Pacific States (table 19). Operators in the Pacific, Southeast, and Mountain States fed less concentrate feeds per head in 1969 than those in other regions. The relatively high feeding rate of concentrate feeds in the Southwest was counteracted by the lower feeding rate of forage and silage.

Production Rates

Statistics are available for calculating several production rates for cattle on a statewide and regional basis. These ratios include calf crop, death loss, net production per head, and weight per head of animals marketed (tables 20 and 21). These data include range, farm, dairy, and feedlot cattle, so production rates for specific types of cattle are obscured.

Calf crop percentage before 1970 was obtained by dividing the number of calves born by the number of cows and heifers 2 years and older in the January 1 inventory. After 1970, the number of calves born were divided by the number of cows and heifers that had calved. Death losses of cattle were derived by dividing the number of cattle lost by the number of cattle on hand January 1; for calves, the number that died was divided by the number born.

The figure per head was obtained by adding the number of cattle and calves sold to the number slaughtered at home, adding inventory

Table 18 -- Beef purpose cattle sold for slaughter and percent fattened on grain and concentrates; beef purpose cattle and calves sold for further feeding and percent fattened on grain and concentrates, 1969

Region	Cattle sold for slaughter		Cattle sold for further feeding		Calves sold for further feeding	
	Total	Fattened on grain and concentrates	Total	Fattened on grain and concentrates	Total	Fattened on grain and concentrates
	- Number -	- - Percent - -	- Number -	- - Percent - -	- Number -	- - Percent - -
Northeast	209,245	82	13,599	48	22,310	13
Corn Belt-Lake States	7,167,523	88	635,098	35	1,439,876	18
Northern Plains	5,578,022	87	1,632,978	28	2,591,320	14
Southeast	861,569	56	301,280	19	854,306	9
Southwest	4,995,225	87	1,544,183	22	2,386,426	13
Mountain States	2,777,736	84	1,080,058	18	1,667,326	11
Pacific States	2,648,094	85	559,768	20	653,235	13
48-State total	24,237,414	86	5,766,964	24	9,614,799	13

Source: Derived from 1969 Census of Agriculture.

Table 19 -- Feed and feed supplements fed to cattle other than in feedlots, by region and 48 States, 1969

Region	Cattle on farms reporting	Commercially mixed feeds	Ingredient feeds	Feed grains[1/]	Forage and silage feeds
	Number	cwt. per head			
Northeast	96,161	1.87	.56	8.62	39.36
Corn Belt-Lake States	4,642,565	1.34	.27	6.18	22.34
Northern Plains	7,174,782	1.17	.40	4.13	27.50
Southeast	3,115,235	1.24	.69	1.79	15.52
Southwest	5,387,780	2.07	.83	1.63	6.24
Mountain States	4,558,377	1.11	.45	2.32	21.49
Pacific States	1,638,528	1.12	.84	1.42	17.27
48-State total	26,613,428	1.38	.54	3.25	19.28

Source: Derived from 1969 Census of Agriculture.

[1/] Weights calculated at 56 pounds per bushel.

Table 20 -- Cattle production rates in major cattle producing regions of the 48 States, 1963

Region	Calf crop	Death loss		Net production per head	
		calves	all cattle [1]	animals [2]	weight [3]
	Percent	Percent	Percent	Number	Pounds
Northeast	84	8.4	1.9	.46	191
Corn Belt-Lake States	89	6.7	2.1	.32	322
Northern Plains	92	5.0	2.0	.32	360
Southeast	81	5.8	2.4	.41	254
Southwest	83	5.2	2.0	.40	318
Mountain States	90	5.3	1.9	.39	351
Pacific States	88	5.4	2.0	.33	335
48-State total	86	5.9	2.1	.36	312

[1] Excluding calves.

[2] Number of cattle and calves sold plus the number slaughtered at home, plus increased inventory minus purchases and decreased inventory; divided by the number of cattle and calves in the January 1 inventory.

[3] Production of cattle and calves adjusted for inshipments and changes in inventory divided by the number of cattle and calves in the inventory.

Table 21 -- Cattle production rates in major cattle producing regions of the 48 States, 1973

Region	Calf crop	Death loss		Net production per head	
		calves	all cattle [1]	animals [2]	weight [3]
	------ Percent	------		Number	Pounds
Northeast	93	11.4	2.0	.42	205
Corn Belt-Lake States	96	11.2	2.5	.31	326
Northern Plains	99	8.2	2.1	.33	407
Southeast	90	7.2	2.4	.43	281
Southwest	90	7.0	2.3	.34	353
Mountain States	96	10.5	2.5	.36	368
Pacific States	93	10.6	2.5	.31	411
48-State total	94	9.0	2.4	.35	342

[1] Excluding calves.

[2] Number of cattle and calves sold plus the number slaughtered at home, plus increased inventory minus purchases and decreased inventory; divided by the number of cattle and calves in the January 1 inventory.

[3] Production of cattle and calves adjusted for inshipments and changes in inventory divided by the number of cattle and calves in the inventory.

increases, then subtracting purchases and inventory decreases. The result was then divided by the number of cattle and calves in the inventory. To obtain net production per head in pounds, the production of cattle and calves was adjusted for inshipments and inventory changes. The result was divided by the number of cattle and calves in the January 1 inventory. Some insight may be gained into the nature of cattle raising and feeding by examining these production rates for 1963 and 1973 (tables 20 and 21). In addition, regional calf crop and death loss estimates, dating back to 1950, are found in appendix tables 1 and 2.

Nationally, fewer animals were produced per head of cattle and calves in 1973 than in 1963. At the same time, there was a production weight increase per head of cattle and calves in the inventory by 30 pounds. As feedlot feeding picked up, the slaughter of lightweight calves decreased, and the number of head sold in the inventory decreased. In 1963 and 1973, ratios of 0.41 and 0.43, respectively, in the Southeast were indications of the absence of feedlot feeding, as were the relatively lower weights produced per head of cattle and calves in the inventory. Southwest feedlot feeding effects were evidenced through the decrease in the number of animals produced per head in 1963 and 1973, from 0.40 to 0.34, respectively, and through the increase in cattle production from 318 pounds per head in 1963 to 353 pounds in 1973.

For these two periods, it appeared that the turnover in sales decreased, while the pounds per head produced increased. These ratios were a result of feed grain and fed-cattle prices, and were subject to change with the prices.

BEEF CATTLE RAISING SYSTEMS BY REGIONS AND SUBREGIONS

Most of the foregoing information concerning the structure of the beef cattle raising industry has been based on statewide statistics. In order to make use of these data for structural identification purposes, it was necessary to aggregate the states into relatively homogeneous regions. These regions generally follow those previously described and analyzed, and include the Corn Belt-Lake States, Southeast, Southwest, Northern Plains and Southern Mountain, and Western regions. These regions still contain wide variations in physical, biological, and economic characteristics.

Homogeneous beef cattle raising subregions were identified, and their dominant systems of cattle raising were defined. These subregions are delineated on the Firm Enterprise Data System (FEDS) production area map (fig. 1). The names of the various subregions and the assigned FEDS codes are listed in table 22. Each cattle raising region contains more than one region as delineated by FEDS.

Figure 2 illustrates the cattle raising regions as defined by state boundaries with three exceptions. The western boundary of the Northern Plains and Southern Mountain region excludes western Montana but includes

Figure 1.-- FIRM ENTERPRISE DATA SYSTEM Production Areas

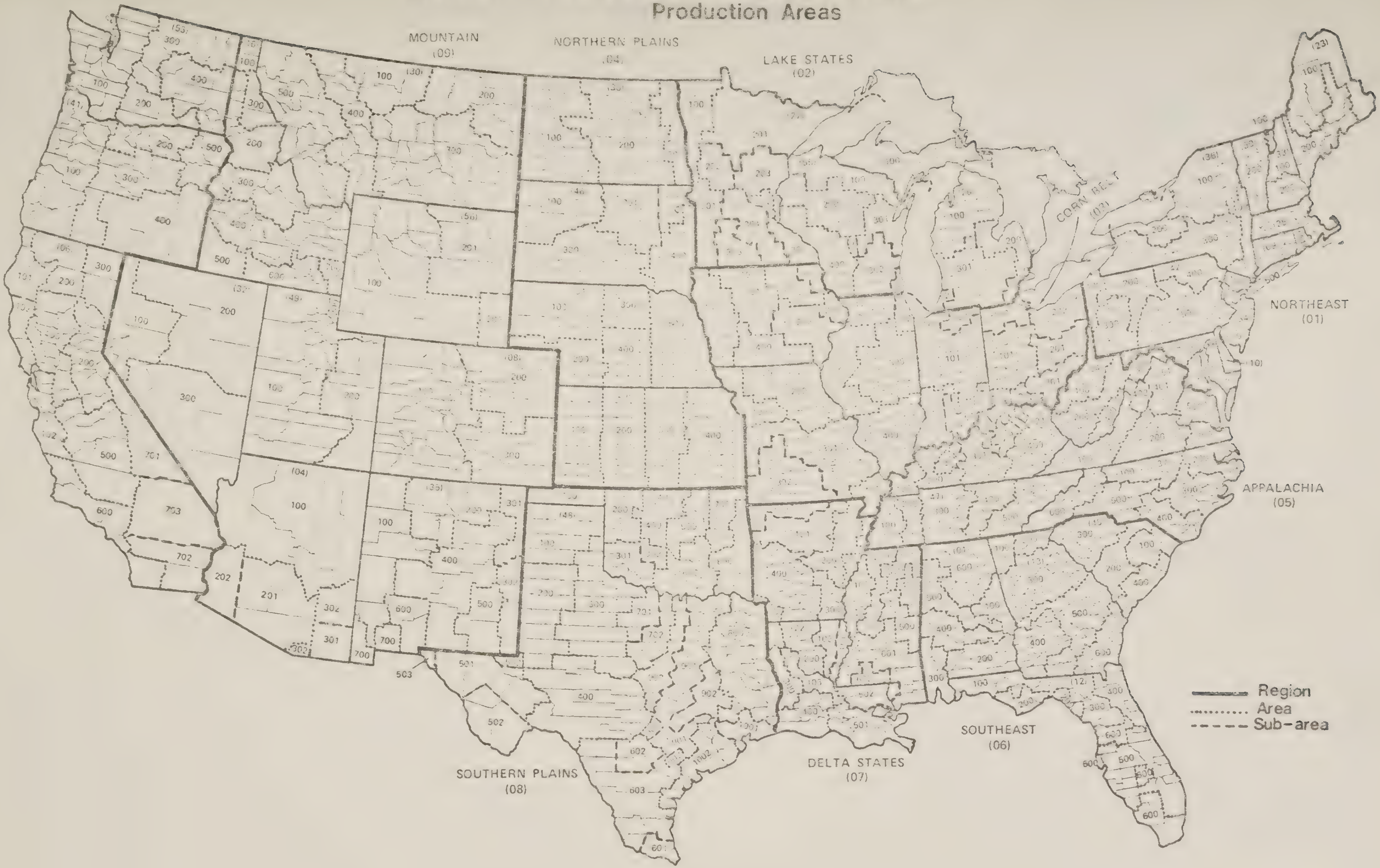
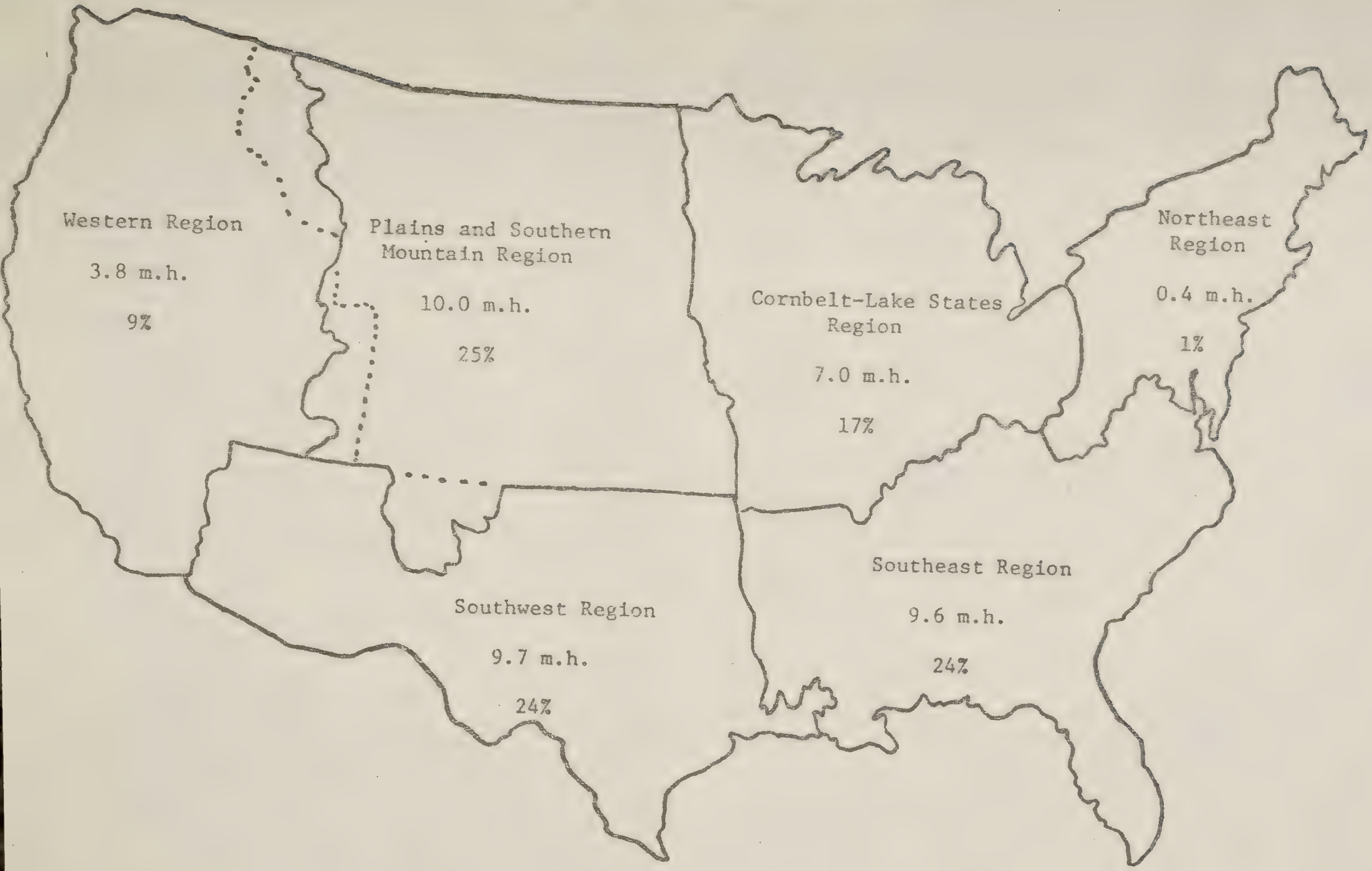


FIGURE 2.--1973 BEEF COW INVENTORY



Region and Subregion	FEDS Code						Short Code
Corn Belt-Lake States:							
Northern Lake States	02270100	02550100	02270200	02260100			1
Southern Lake States	02270300	02550400	02550300	03190300	02550200	02260200	2
	02260300						
Western Corn Belt	02190100	03170100	03180200	03170200			3
Northern Missouri	03190400	03290200	03290100				4
Eastern Corn Belt	03170300	03390100	03180100	03390200			5
Ozarks	03290300						6
Southern Corn Belt	03170400	03390300	03180200				7
Southeast Missouri	03290400						8
Southeast:							
Northern Piedmont	05510400	05370100	05510200				1
Northern Coastal Plain	05510500	05370200	05370400	05510300	05370300	06450100	2
Southeast Coastal Plain	06450200	06130500	06120400	06450400	06130600	06120300	3
Central and Southern Florida	06120500						4
Southern Appalachian Mountains	05510100	05370600	06130200	05210400	05470500		5
Southern Piedmont	05370500	06130300	06450300	06010100			6
Southern Coastal Plain	06130400	06120100	06010200	06120200			7
Bluegrass and Cumberland Plateau	05210300	05470400					8
Limestone Valleys, Sand Mountains, and Clay Hills	06130100	06010500	07280200	06010600	07280300	07280500	9
Black Prairie	06010400	07280400					10
Tennessee Brown Loam, Central Basin, Highland Rim and Pennyroyal	05210100	05470100	05470300	05210200	05470200		11
Mississippi Valley Uplands and Lower Coastal	06010300	07220500	07280600				12
Mississippi Delta and Alluvial	07050200	07050500	07220100	07050300	07280100		13
Ozark Highlands and Boston Mountains	07050100						14
Forested Coastal and Flatwoods	07050400	07220300	07220200				15

Continued

Region and Subregion	FEDS Code						Short Code
Southwest:							
Southern Intermountain	09040100	09350100					1
Southwest Desert	09040200						2
Southern Desert	09040300	09350500	09350700	09350400	09350600	08480500	3
High Plains	09350300	08480100	08400100	08480200			4
Rolling Plains	08400200	08480300	08400300				5
Edwards Plateau and Central Basin	08480400						6
Rio Grande Plain	08480600						7
Reddish Prairie and Cross Timbers	08400400	08400600	08400500	08480700			8
Blacklands and Grand Prairie	08480900						9
Cherokee Prairie	08400700						10
Highlands and Mountains	08400800						11
East Texas Timberlands	08480800						12
Coastal Prairie	08481000	07220400					13
Plains and Southern Mountain Region:							
Northern Plains							
spring wheat	04380100	04380300	04380200	04460200			1
range	09300100	09300300	09300200	09560200			2
Central Plains							
range	04460100	09080200	04310100	04460300	09080300	04310300	3
	04310400						
winter wheat	04200100	04200300	04200200	04310200			4
Mountain	09080100	09560100	09490200	09350200	09160700	09320100	5
Corn Belt	04200400	04460400	04310500				6
Western Region:							
Willamette-Puget Sound	10410100	10530100					1
Wenatchee-Okanogan Highlands	10530300	09160100					2
Columbia Plateau	10530200	10410200					3
Central Plains-Palouse Hills	10530400	09160200					3
Central Oregon	10410300	10410500					2

Continued

Region and Subregion	FEDS Code			Short Code
Wallowa-Baker Valley	10410500			2
Oregon High Desert	10410400	09160500		5
Montana and Idaho Mountains	09160300	09300500	09300400	2
Snake River Valley	09160400			4
Utah and South Central Idaho	09160600	09490100		4
Northeast Nevada	09320200			5
Western Nevada	09320100	10060300		5
California-Sierra Nevada Mountains	10060200			6
Southern Nevada-Mojave Desert	10060700	09320300		5
Sacramento Valley	10060400			7
California Northern Coast	10060100	10060400		6
California Southern Coast	10060600			7
San Joaquin Valley	10060500			7

a few mountain counties in eastern Utah and the high mountains of north-central New Mexico. Meanwhile, the Coastal Plains in Texas is extended to include the southwestern rice area of Louisiana.

In delineating these subregions, efforts were not only made to encompass homogeneous cattle raising situations as much as possible, but also to include a significant proportion of the total beef cattle population in a subregion. As of 1973, the Northeast region had 375,000 head of beef cows representing only 0.9 percent of the U.S. total. For this reason, the 11 states that constitute the Northeast region are omitted from further consideration.

Of the 40.7 million beef cows in the Nation's inventory at the beginning of 1973, the Corn Belt-Lake States region had 17 percent; the Southeast region had 24 percent, the Southwest region had 24 percent, the Northern Plains and Southern Mountain region had 25 percent, and the Western region had 9 percent. The following sections present, on a subregional basis, the estimated size distributions for beef cattle herds and systems, together with the estimated proportions of the 1973 regional beef cattle population, as represented by each system.

Corn Belt-Lake States Region

The climate of this region is characterized by adequate precipitation and rather severe winters. Highly productive soils make crop production the leading type of enterprise, with livestock fattening second. Thus, most of the beef cow enterprises become a residual claimant to less productive land. Eight beef cattle raising areas are delineated -- their boundaries closely following the recognized types of farming areas.

Northern Lake States

Soils in the Northern Lake States, subregion 1, are relatively unproductive and are primarily suitable for timber and recreation. Cold winters and cool summers limit the growing season, and the crop and forage production. In 1973, two-thirds of the beef cows in the subregion were in herds of 20-99 head. A budgeted system of 50 cows, calving during the spring, grazing on pasture during the summer, and feeding on hay in a shed during the winter, represented 73 percent of the beef cows in the region (table 23 and 24). No significant expansion in beef cow herds is expected.

Southern Lake States

The Southern Lake States, subregion 2, has productive soils ranging from prairie soils in Minnesota and Iowa to a predominance of timber soils in Wisconsin and Michigan. The climate is characterized by cold, moist winters and cool summers; annual precipitation ranges from 25 to

Table 23 -- Corn Belt-Lake States: Estimated distribution of beef cows by size of herd and subregion, 1973

Subregion	Size of cow herd							
	1-19		20-99		100 and over		All sizes	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	38,000	16	159,000	66	73,000	18	240,000	3
2	148,000	17	592,000	68	130,000	15	870,000	12
3	162,000	9	1,317,000	73	325,000	18	1,804,000	26
4	29,000	4	542,000	75	152,000	21	723,000	10
5	429,000	26	1,007,000	61	214,000	13	1,650,000	24
6	55,000	5	805,000	73	243,000	22	1,103,000	16
7	121,000	23	332,000	63	74,000	14	527,000	8
8	10,000	26	24,000	61	5,000	13	39,000	1
Total	992,000	14	4,778,000	69	1,186,000	17	6,956,000	100

Table 24 -- Corn Belt-Lake States: Proposed beef cow-calf budgets and proportion of cows represented, 1973

Subregion	Herd size	Calving season	Source of feed		Other char-acteristics	Cows represented	
			Summer	Winter		Thousands	Percent
1	50	spring	pasture	hay in barn	shed	154	2.2
2	15	do	do	do	do	159	2.3
	50	do	do	do	do	636	9.1
	150	do	do	do	do	140	2.0
3	15	do	do	do		162	2.3
	50	do	do	do		1,067	15.3
	do	do	do	field-fed hay		250	3.6
	150	do	do	hay in barn		153	2.2
	do	do	do	field-fed hay		78	1.1
	do	do	do	corn residue		94	1.4
4	50	do	do	hay in barn		439	6.3
	do	do	do	field-fed hay		103	1.5
	150	do	do	hay in barn		100	1.4
	do	do	do	field-fed hay		52	0.8
5	15	do	do	hay in barn	shed	429	6.2
	50	do	do	do	do	1,007	14.5
	150	do	do	do	do	135	1.9
	do	do	do	corn residue	do	79	1.1
6	50	do	do	hay in barn		496	7.1
	do	do	do	field-fed hay		116	1.7
	do	fall	do	hay in barn		193	2.8
	150	spring	do	do		197	2.8
	do	do	do	hay in field		46	0.7
7	15	do	do	hay in barn		121	1.7
	50	do	do	do		204	2.9
	do	fall	do	do		80	1.2
	do	spring	do	hay in field		48	0.7
	150	do	do	hay in barn		74	1.1
8	none	none	none	none	none	144	2.1

30 inches. With 13 percent of the region's total number of beef cows in 1973, the dominant systems included herds with 15, 50, and 150 head, calving during the spring, grazing on pasture during the summer, and feeding on hay in a shed during the winter. This subregion has good potential for moderate increases in beef cows, particularly as some dairy enterprises shift to beef.

Western Corn Belt

The Western Corn Belt, subregion 3, is characterized by highly productive prairie soils suitable for row crops. The growing season is about 1 month longer than in the Southern Lake States. Annual precipitation ranges from 30 to 35 inches. The summers are warm and the winters are cold and wet. Pasture grasses in this subregion include bluegrass, which is missing in pastures farther north. Almost three-fourths of the cows were in herds of 20-99 head in 1973. Representing most of the beef cows in this area were systems of 15, 50, and 150 head, grazing on pasture during the spring and feeding on hay either in the field or in a barn during the winter (table 24). There is potential for beef cow herd expansion in this subregion.

Northern Missouri

The Northern Missouri, subregion 4, shares many of the same climatic characteristics as the Western Corn Belt. The soil, also a prairie soil, is lighter in color and much less productive. Although annual precipitation averages higher than in the Western Corn Belt, midsummer droughts are more frequent. Ten percent of the region's beef cows were in this subregion. Seventy-five percent of these cows were in herds of 20-99 head and 21 percent were in herds of 100 head or more (table 23). Herd sizes of 50 and 150 head, calving during the spring, grazing on pasture during the summer, and feeding on hay either in a barn or in the field during the winter, represented most of the beef cows in this subregion (table 24).

Eastern Corn Belt

The Eastern Corn Belt, subregion 5, includes the remainder of the central climatic belt, which is dominated agriculturally by cash-grain production. Ranging from prairie soils in east-central Illinois to timber soils in Indiana and Ohio, the land is highly productive with a higher percentage available for row crops than any other subregion. Annual precipitation averages nearly 35 inches, with good summer moisture conditions. Although beef cowherds were predominantly in the 20-99 head size, more than one-fourth of the cows were in the 1-19 head size class (table 23). Herds with 15, 50, and 150 head, calving during the spring, grazing on pasture during the summer, and feeding on hay or corn residue in a shed during the winter, represented the dominant cattle raising

system in the area (table 24). Beef cattle raising potential is strong in this area.

Ozarks

Soils in the Ozarks, subregion 6, are relatively unproductive timber soils, but respond well to fertilizer. Tall fescue is the major cultivated grass; alfalfa, timothy, and clover are also grown, but not as widely as in the northern subregions. Although annual precipitation averages 40 inches or more, midseason droughts often occur. Temperate winters and hot summers extend the grazing season to about 7 months. In 1973, almost three-fourths of the cows in this subregion were in herds of 20-99 head, and nearly one-fourth were in herds of 100 head or more (table 23). Representative systems include herds with 50 and 150 head, calving primarily during the spring, but also during the fall, grazing on pasture during the summer, and feeding on hay in a barn and in the field during the winter.

Southern Corn Belt

The Southern Corn Belt, subregion 7, has essentially the same climatic and agricultural characteristics as the Ozarks, although the soils are higher in productivity in this subregion. Small cow herds of 1-19 head accounted for almost one-fourth of the subregion's beef cows, while the 20-99 size herds accounted for 63 percent (table 23). Therefore, herds with 15, 50, and 150 head represented most of the subregion's beef cows, with spring and some fall calving predominating, grazing on pasture during the summer, and feeding on hay in a barn and in the field during winter (table 24).

Southeast Missouri

Because there were only 144,000 head of beef cows in Southeast Missouri, subregion 8, this area was dropped from further consideration as a beef cattle raising location.

A special survey taken during the winter of 1973-74 from Illinois farm record-keepers indicated 44 percent of their calves were fed out on the farms, 35 percent were sold through auctions, and 21 percent were sold direct. Operator tenure on these farms was as follows: owner, 14 percent; part owner, 57 percent; and tenant, 29 percent.

Southeast Region

The great diversity of farms and ranches in the Southeast region necessitated dividing the area into 15 subregions. Climatic characteristics include moderate temperatures and heavy precipitation. Calving

occurs year-round, although it tends toward the spring in the northern part. Calf sales occur mainly during the summer and fall. In the southern part, winter feed consists of a combination of pasture and crop residue; farther north, feeding on hay and grazing on accumulated summer and fall forage supplements winter pastures.

Among the 15 subregions, the proportion of the region's beef cow herds, as of 1973, ranged from 2 percent in the Northern Coastal Plain to 10 percent in the Bluegrass and Cumberland Plateau subregion; Limestone Valleys, Sand Mountain, and Clay Hills subregion; Black Prairie subregion; and Mississippi Delta and Alluvial subregion. The names of the 15 subregions and their abbreviated codes are listed in table 22. The herd size distributions and proportionate inventories of beef cows are found in table 25, and the systems are identified in tables 26, 27, and 28.

Northern Piedmont

The Northern Piedmont, subregion 1, includes the fluecured tobacco producing area, which covers the northern Piedmont of North Carolina, the southern Piedmont of Virginia, and the Shenandoah Valley area in north-central Virginia. Most of the land is in predominantly small farms located in the southern part of the subregion. Fescue, orchard grass, and bluegrass, separate or combined with white clover or annual lespedeza, are the major pasture species. Hay cut from pasture mixtures, such as alfalfa or small grains, and corn silage are used as winter feed for beef cattle. Smaller herds are located predominantly on small tobacco farms, where they are maintained on land not suited for easy cultivation. In 1973, over 40 percent of all cows in the subregion were in herds of 20-99 head. Herds of 15, 50 and 150 head represented all the beef cow systems in the subregion, with calving during the winter and spring, grazing on pasture during the summer and feeding on hay and silage during the winter; calf sales occur during the fall.

Northern Coastal Plain

The Northern Coastal Plain, subregion 2, is composed of cash crop farms, specializing in peanuts and corn production along the Virginia-North Carolina border; fluecured tobacco, soybeans, corn, and cotton are produced in the more southern counties. Most beef cattle operations are small cow-calf enterprises maintained on land that is too poorly drained or too sandy for profitable crop production. Cool-season grasses, such as fescue, and warm-season species, such as common and coastal Bermuda grass, usually provide an annual 10-month grazing season. Crop and hay residue cut from pasture during the flush growing season are used for winter feed. In 1973, over 80 percent of the beef cows in this subregion were in herds of less than 100 head. Herds with 15, 50, and 150 head, calving in the spring and winter, grazing on pasture during the summer and feeding on crop residue, annual pasture, and hay supplements during

Table 25 -- Southeast Region: Estimated distribution of beef cows by size of herd and subregion, 1973

Subregion	Size of beef cow herd													
	1-19		20-99		100-199		200-499		500-999		1,000 and over		All sizes	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	39,000	9	184,000	43	146,000	34	60,000	14					429,000	4
2	40,000	25	92,000	57	21,000	13	8,000	5					161,000	2
3	108,000	18	288,000	48	96,000	16	78,000	13	30,000	5			600,000	6
4	42,000	5	101,000	12	93,000	11	126,000	15	143,000	17	338,000	40	843,000	9
5	143,000	22	351,000	54	98,000	15	58,000	9					650,000	7
6	122,000	19	371,000	58	96,000	15	51,000	8					640,000	7
7	26,000	5	256,000	50	128,000	25	102,000	20					512,000	5
8	203,000	21	552,000	57	155,000	16	58,000	6					968,000	10
9	179,000	18	516,000	52	169,000	17	129,000	13					993,000	10
10	15,000	4	58,000	15	85,000	22	88,000	23			139,000	36	385,000	4
11	257,000	26	653,000	66	60,000	6	20,000	2					990,000	10
12	54,000	8	221,000	33	74,000	11	47,000	7			275,000	41	671,000	7
13	46,000	5	252,000	27	140,000	15	112,000	12			382,000	41	932,000	10
14	88,000	18	323,000	66	49,000	10	30,000	6					490,000	5
15	47,000	13	227,000	63	57,000	16	29,000	8					360,000	4
Total	1,409,000	15	4,445,000	46	1,467,000	15	996,000	10	173,000	2	1,134,000	12	9,624,000	100

and proportion of cows represented, 1973

Subregion	Herd size	Calving season	Calf sale season	Source of feed		Supplemental feed	Cows represented	
				Summer	Winter		thousands	percent
1	15	winter	fall	pasture	hay		39	0.4
	50	do	do	do	do		122	1.3
	do	do	do	do	silage		62	0.6
	150	spring	do	do	hay		75	0.8
	do	winter	do	do	silage		131	1.4
2	15	spring	do	do + annual	stump + residue	hay	40	0.4
	50	winter	do	pasture	residue + annual	hay	92	1.0
	150	do	do	do	residue	do	29	0.3
3	15	fall	summer	do	residue + annual		108	1.1
	50	winter	do	do	do	hay	288	3.0
	150	do	fall	do	do		96	1.0
	300	spring	do	do	do	hay	108	1.1
4	50	do	do	do	pasture	do	143	1.5
	150	do	summer	do	do	do	93	1.0
	300	do	do	do	do	do	126	1.3
	700	winter	do	do	do	do	143	1.5
	1,500	spring	fall	do	do	do	338	3.5
5	15	do	do	do	hay		143	1.5
	50	do	do	do	do		200	2.1
	do	winter	do	do	silage		151	1.6
	150	do	do	do	do		156	1.6
6	15	do	do	do	stump	hay	122	1.3
	50	do	do	do	do	do	371	3.8
	150	fall	summer	do	do	do	147	1.5
7	50	winter	fall	do	residue + annual	do	282	2.9
	150	do	summer	do	residue	do	128	1.3
	300	do	do	do	do	silage	102	1.1
8	15	do	fall	do	stump + annual	hay	203	2.1
	50	do	do	do	stump	do	442	4.6
	do	spring	winter	do	silage		110	1.1
	150	fall	spring	do	stump	hay	88	0.9
	do	summer	do	do	silage		125	1.3

Continued

Continued

Subregion	Herd size	Calving season	Calf sale season	Source of feed		Supplemental feed	Cows represented	
				Summer	Winter		thousands	percent
9	15	winter	fall	pasture	stump	hay	179	1.9
	50	do	do	do	do	do	441	4.6
	do	spring	do	do	silage		75	0.8
	150	do	do	do	annual	hay	169	1.8
	300	summer	spring	do	silage		129	1.3
10	50	spring	winter	do	stump + residue	hay	73	0.8
	150	do	do	do	residue	do	173	1.8
	700	fall	summer	do	stump + annual	do	139	1.4
11	15	winter	fall	do	stump + residue	do	257	2.7
	50	do	do	do	do	do	400	4.2
	do	spring	winter	do	stump	do	253	2.6
	150	do	do	do	do	do	30	0.3
	do	winter	fall	do	silage		50	0.5
12	15	do	do	do	residue + annual	hay	54	0.6
	50	do	do	do	annual	do	221	2.3
	150	fall	summer	do	residue	do	121	1.3
	700	winter	fall	do	annual	do	180	1.9
	do	fall	summer	do	silage		95	1.0
13	50	spring	fall	do + annual	annual	hay	298	3.1
	150	winter	summer	pasture	stump	hay	140	1.4
	300	spring	fall	do		do	112	1.2
	700	do	do	do		do	100	1.0
	do	fall	spring	do		do	145	1.5
	do	winter	summer	do		do	137	1.4
14	15	spring	winter	do		do	88	0.9
	50	winter	fall	do		do	323	3.3
	150	spring	winter	do		do	79	0.8
15	15	do	do	do		do	47	0.5
	50	winter	fall	do		do	227	2.3
	150	spring	do	do		do	86	0.9

Table 27 -- Southeast Region: Estimated stocker cattle production, total and by size of enterprise, 1973

Subregion	Size of stocker cattle herd											
	1-19		20-99		100-199		200-499		500-999		All sizes	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	11,000	5	54,000	24	75,000	33	55,000	24	33,000	14	228,000	11.4
2	3,000	20	8,000	53	4,000	27	0		0		15,000	0.8
3	31,000	17	56,000	32	55,000	31	0		36,000	20	178,000	8.9
4	0		4,000	5	25,000	30	45,000	53	10,000	12	84,000	4.2
5	12,000	5	42,000	18	180,000	77	0		0		234,000	11.7
6	2,000	4	33,000	66	15,000	30	0		0		50,000	2.5
7	28,000	22	86,000	66	16,000	12	0		0		130,000	6.5
8	32,000	13	59,000	24	115,000	47	40,000	16	0		246,000	12.3
9	15,000	8	117,000	61	55,000	29	4,000	2	0		191,000	9.5
10	3,000	2	7,000	6	71,000	54	50,000	38	0		131,000	6.5
11	30,000	29	40,000	38	34,000	33	0		0		104,000	5.2
12	15,000	13	81,000	72	17,000	15	0		0		113,000	5.6
13	3,000	2	13,000	8	141,000	90	0		0		157,000	7.8
14	8,000	18	31,000	71	5,000	11	0		0		44,000	2.2
15	15,000	15	80,000	82	3,000	3	0		0		98,000	4.9
Total	201,000	10	659,000	33	848,000	42	228,000	11	79,000	4	2,003[1]	100.0

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[1] Excludes the Southwest rice area of Louisiana, where stocker cattle production was estimated to total about 5,000 head in 1973.

Table 26 -- Southeast Region: Estimated stocker cattle production by herd size, type of feed, and production period, 1973

Subregion and herd size 1/	Animal class 2/	Type of feed	Acquisition		Sale		Thousand head represented	
			Date	Weight	Date	Weight		
				Pounds		Pounds	Number	Percent
Subregion 1:								
1-19	S&H	Pasture and hay	Sep. 1	485	Apr. 1	750	11	0.5
20-99	S&H	Residue, hay, and pasture	Nov. 1	425	Sep. 15	775	54	2.7
100-199	H	Silage	Sep. 1	450	Mar. 1	685	20	1.0
100-199	S	Silage	Sep. 1	500	Apr. 1	815	32	1.6
100-199	S	Silage and pasture	Nov. 1	450	Oct. 1	850	23	1.2
200-499	H	Silage	Nov. 1	400	Apr. 1	580	15	0.8
200-499	S	Silage	Nov. 1	450	Apr. 1	675	40	2.0
500 and over	S	Silage	Sep. 1 and Mar. 1	400	Feb. 1 and Aug. 1	625	33	1.7
Subregion 2:3/								
Subregion 3:								
1-19	S&H	Residue, hay, and pasture	Oct. 1	325	Sep. 1	700	31	1.6
20-99	S&H	Winter annual	Nov. 1	350	May 1	600	30	1.5
20-99	S	Residue and hay	Oct. 1	450	Apr. 15	650	26	1.3
100-199	S	Winter annual	Nov. 1	400	Apr. 15	650	35	1.8
100-199	S	Pasture	Apr. 15	450	Sep. 15	600	20	1.0
500 and over	S	Silage	Sep. 1 and Mar. 1	400	Feb. 1 and Aug. 1	625	36	1.8
Subregion 4:								
100-199	S	Pasture	Oct. 1	350	June 1	600	25	1.2
200-499	S	Pasture	Oct. 1	350	June 1	600	45	2.2
Subregion 5:								
20-99	S	Hay and pasture	Oct. 15	325	Sep. 30	750	42	2.1
100-199	H	Silage	Oct. 15	400	Apr. 1	600	50	2.5
100-199	S	Silage	Oct. 15	425	Apr. 1	650	55	2.7
100-199	S	Silage and pasture	Oct. 15	400	Sep. 15	825	75	3.7

See footnotes at end of table.

Continued

Table 28 -- Southeast Region: Estimated stocker cattle production by herd size, type of feed, and production period, 1973 -- Continued

Subregion and herd size 1/	Animal class 2/	Type of feed	Acquisition		Sale		Thousand head represented	
			Date	Weight	Date	Weight		
				Pounds		Pounds	Number	Percent
Subregion 6:								
20-99	S	Residue, stump and hay	Oct. 1	450	Apr. 1	650	33	1.7
Subregion 7:								
1-19	S&H	Hay	Oct. 15	400	Mar. 15	550	28	1.4
20-99	S	Winter annual	Nov. 1	425	May 1	675	86	4.3
Subregion 8:								
1-19	S&H	Hay and pasture	Dec. 1	400	July 1	650	32	1.6
20-99	H	Hay	Dec. 1	475	May 1	625	25	1.2
20-99	S	Hay and pasture	Dec. 1	400	July 1	650	34	1.7
100-199	S	Hay	Dec. 1	400	May 1	550	25	1.2
100-199	S	Silage	Dec. 1	500	May 1	725	40	2.0
100-199	S	Supplemented silage and pasture	Dec. 1	400	July 1	725	50	2.5
200-499	S	Silage	June 15 and Dec. 1	500	Nov. 15 and May 1	725	40	2.0
Subregion 9:								
20-99	H	Winter annual	Nov. 1	375	May 1	625	47	2.4
20-99	S	Winter annual	Nov. 1	400	May 5	675	70	3.5
100-199	S	Silage	Nov. 1	500	Apr. 1	725	55	2.7
Subregion 10:								
100-199	H	Hay and winter annual	Oct. 1	400	Apr. 1	650	25	1.2
100-199	S	Hay and winter annual	Oct. 1	425	May 1	725	46	2.3
200-499	S	Silage and grain	Nov. 1	450	Apr. 1	675	25	1.2
200-499	S	Pasture and grain	June 1	475	Nov. 1	700	25	1.2

See footnotes at end of table.

Continued

Table 28 -- Southeast Region: Estimated stocker cattle production by herd size, type of feed, and production period, 1973 -- Continued

Subregion and herd size 1/	Animal class 2/	Type of feed	Acquisition		Sale		Thousand head represented	
			Date	Weight	Date	Weight		
				Pounds		Pounds	Number	Percent
Subregion 11:								
1-19	S&H	Hay and winter annual	Oct. 15	475	Mar. 15	700	30	1.5
20-99	H	Pasture	Mar. 15	300	Sep. 30	570	20	1.0
20-99	S	Pasture	Mar. 15	350	Sep. 30	640	20	1.0
100-199	S	Hay and winter annual	Oct. 15	500	Mar. 15	725	34	1.7
Subregion 12:								
20-99	H	Winter annual	Dec. 1	375	May 1	575	25	1.2
20-99	S	Winter annual	Dec. 1	400	May 1	625	56	2.8
Subregion 13:								
100-199	H	Winter annual	Nov. 1	350	May 1	575	40	2.0
100-199	S	Winter annual	Nov. 1	400	May 1	675	70	3.5
100-199	S	Silage	Nov. 1	500	Apr. 1	725	31	1.6
Subregion 14:								
20-99	S&H	Hay and pasture	Dec. 1	435	June 1	615	31	1.6
Subregion 15:								
20-99	S&H	Winter annual and pasture	Dec. 1	435	June 1	700	50	2.5
20-99	S	Pasture and hay	Aug. 1	475	Mar. 1	700	30	1.5
Total:							2003	100.0

[1/] Number of cattle started annually on a stocker program.

[2/] S = Steer; H = Heifer

[3/] < 1% of region's stocker cattle production.

the winter represented cattle raising systems in this subregion. Calf sales occur during the fall.

Southeastern Coastal Plain

Cotton, soybeans, and corn are the main crops in the Southeastern Coastal Plain, subregion 3. Although small grains are grown throughout the subregion, tobacco and peanuts are also important in some counties. Warm-season perennial grasses, such as Bermuda grass and bahia, are the predominant pasture species. Crop residue and fall-seeded small grains are frequently used to extend the grazing season to 9 months or longer, and Bermuda grass hay is normally fed during the winter. Most beef calves are sold at weaning, but some are grazed for an additional 3 to 6 months before sale. Beef cows in this subregion composed 6 percent of the region's total number of beef cows in 1973. About 66 percent of the beef cows were in herds of 99 head or less. However, herd sizes with 15, 50, 150, and 300 head of beef cows were representative cattle raising systems in the subregion, with fall, winter, and spring calving, summer grazing on pasture, and winter feeding on crop residue, annual pastures, and hay. Calf sales occur during the summer and fall.

Citrus and Vegetable Area of Florida

The Citrus and Vegetable Area of Florida, subregion 4, has large cattle ranches and farms which produce citrus fruits or commercial vegetables common throughout central and southern Florida. Although abundant, native range provides relatively low nutrition levels to cattle, which contribute to common low calving rates. Year-round grazing on native range is supplemented with pastures of bahia, pangola, and other warm-season grasses. Yearling feeder cattle are frequently imported by feedlot operators in the subregion, but most calves are sold as light weaners and exported from the State. More than half of the beef cows were maintained in herds of 500 or more head in 1973, and units of several thousand cattle are still maintained in this area. In 1973, 40 percent of the beef cows on farms and ranches were in herds of 1,000 head or more, and only 5 percent were in herds of less than 20 head. Representative herd sizes included 50, 150, 300, 700, and 1,500 head of beef cows, with calving during the spring and grazing on pasture year-round; hay was supplementally fed when necessary. An estimated 65 percent of the stocker cattle were in herds of 200 head or more.

Southern Appalachian Mountains

Less than 25 percent of the total land in the Southern Appalachian Mountains, subregion 5, is classed as cropland and open pastureland. Most of the open land is concentrated in narrow valleys and along lower mountain slopes. Corn, small grains, and hay crops occupy most of the cropland, but burley tobacco, apples, potatoes, and vegetables are also

important sources of agricultural income. Pastures, consisting primarily of Kentucky bluegrass and white clover, predominate on the steeper, cleared slopes, while improved pastures of ladino clover and fescue are more common on the tillable lower slopes and valleys. Grass hay and corn silage are usually fed during the winter nongrazing season which ranges from 5 months or longer. In 1973, 76 percent of the beef cows in this subregion were on farms in herds of less than 100 head. Herds of 15, 50, and 150 beef cows represented beef cattle raising systems in this area, with calving during the spring and winter, grazing on pasture during the summer, and feeding on hay and silage during the winter. More than half of all calves are sold at weaning during the fall. Small stocker operations based on corn silage during the winter are more common in this subregion than any other areas of the Southeast. An estimated 77 percent of the stocker cattle were in herds of 100-199 head in 1973.

Southern Piedmont

In the Southern Piedmont, subregion 6, farmland once devoted to cotton is now occupied by soybeans, pasture, and pine trees. Perennial grasses, both warm and cool-season, are predominant in pastures throughout the area, providing 8 to 9 months of annual grazing when fertilized heavily and managed properly. In 1973, an estimated 77 percent of the beef cows in this subregion were in herds of less than 100 head. Small herds were common on rural residences and small part-time farms, and large herds were frequently maintained on the larger general crop farms. Representative cow herds were 15, 50, and 150 head, with calving during the fall or winter, grazing on pasture during the summer, and feeding on dried, mature grass and hay supplements during the winter. Calf sales occur during the fall. Only 2.5 percent of the Southeast's stocker cattle in 1973 were located in this area; about one-third of these animals were in herds of 20-99 head.

Southern Coastal Plain

The Southern Coastal Plain, subregion 7, includes the major peanut-producing areas of Georgia and Alabama. Cotton, soybeans, corn, and small grains are other important crops in this subregion. In 1973, more than half of the beef cows were in herds of less than 100 head, and a fifth were in herds of 200-499 head. Representative cow-calf systems included herds with 50, 150, and 300 head of beef cows, calving during the winter. Grazing is on pasture during the summer, and on crop residue plus hay and silage supplements, during the winter. Calf sales occur during the summer and fall. Perennial warm-season grasses and crop residues are the major sources of forage for beef cattle, although grass and peanut vine hay or corn silage are normally fed during the short winter period. Over 6 percent of the Southeast's 1973 inventory of stocker cattle were located in this subregion, with two-thirds of these animals in herds of 20-99 head.

Bluegrass and Cumberland Plateau

The Bluegrass and Cumberland Plateau, subregion 8, includes areas of Kentucky and Tennessee which comprise a rather heterogeneous subregion. Most of the Bluegrass area is farmland, of which about 40 percent is primarily bluegrass pasture; about 80 percent of the Cumberland Plateau area is forest land. Burley tobacco is the most important crop in the subregion, and feeder calf production represents the major livestock enterprise. In 1973, over 20 percent of the cows were in herds of fewer than 20 head. These herds were dominant in the Cumberland area. By contrast, herds of 100 head of cows or more, which are common in the Bluegrass area, accounted for 22 percent of the total beef cows in the subregion. On these larger farms, corn silage is a major winter feed for brood cows and weaned calves. Representative herd sizes included 15, 50, and 150 head of beef cows, calving year-round, grazing on pasture during the summer, and feeding on forage and hay during the winter. Calf sales occur during the fall. In 1973, over 12 percent of the Southeast's stocker cattle inventory was located in this subregion, with almost half of this inventory in herds of 100-199 head.

Limestone Valleys, Sand Mountain, and Clay Hills

Cotton, soybeans, corn, and grain sorghum are the major crops in subregion 9, although livestock provides about two-thirds of the farm income. Farms, averaging about 225 acres, are about half woodland. Pastures comprise about 80 percent of the open land. Volunteer or seeded sods of Bermuda grass, bahia, dallisgrass, fescue, and annual lespedezas are most common. In 1973, nearly 18 percent of the beef cows in this subregion were in herds of fewer than 20 head, 52 percent were in herds of 20-99 head, and 30 percent were in herds of 100 head or more. About 30 percent of these larger farms retained many of their calves after weaning on pasture and silage as feeder steers, although weaned calves were almost always sold from the smaller herds. Representative beef cow herds included 15, 50, 150, and 300 head, calving in the winter, spring, and summer. These herds grazed on pasture during the summer and dry, mature pasture or annual pasture during the winter, with silage or hay fed. Calf sales occur primarily during the fall. Over 9 percent of the Southeast's stocker cattle were located in this subregion, with over half in herds of 100-199 head each.

Black Prairie

Pastures in the Black Prairie, subregion 10, occupy a large part of the open land in the Blackbelt of Alabama and Mississippi. Cow-calf enterprises are maintained on most of the pastureland. Brood cow herds of 100 head or more each contained more than one-third of the beef cows in the subregion, while only 4 percent were in herds with less than 20 head. About one-third of these larger operators retained a few weaned calves on perennial or small-grain pastures rather than selling them as weaners.

This subregion was probably the most concentrated beef cattle production area in the Southeast. Beef cow herds of 50, 150, and 700 head were used to represent beef cattle raising in this subregion, with calving during the spring and fall, grazing on pasture during the summer, and feeding on dried grasses and crop residue during the winter. Calf sales occur during the summer and winter. Over 6 percent of the Southeast's inventory of stocker cattle in 1973 were in this subregion; one-half were in herds of 100-199 head.

Tennessee Brown Loam, Central Basin, Highland Rim, and Pennyroyal

Subregion 11 is composed of a wide diversity of soils, topographies, and farming systems. It extends from the land along the Mississippi River in Tennessee through sandstone, shale hills, and limestone plateau area to the steep ridge slopes and narrow valleys of the Southern Highland rim area. Accumulated cool-season perennial grasses and crop residues are used to prolong the grazing season. Grass or alfalfa hay is normally used as winter feed, although a few large farms in western Kentucky depend primarily on silage. Over 90 percent of the 1973 inventory of beef cows in this subregion were contained in herds of less than 100 head. Representative cow-calf herds were 15, 50 and 150 head, calving during the winter or spring, and selling calves during the fall or winter. The 1973 stocker cattle inventory amounted to about 5 percent of the regional total, with the largest proportion, 38 percent, in herd sizes of 20-99 head.

Mississippi Valley Uplands and Lower Coastal

In the Mississippi Valley Uplands and Lower Coastal area, subregion 12, cotton, soybeans, corn, and grain sorghum are principal crops. Although bayous and marshland are prevalent in southeastern Louisiana, more than three-fourths of the area is forest land. A long growing season provides almost year-round grazing from volunteer stands of warm-season perennial or native grasses. In 1973, about one-third of the beef cows in this subregion were in herds of 20-99 head each, but over 40 percent were in herds of 1,000 head or more. Calving occurs during the fall or winter, and most of the calves are sold as relatively light weaners during the summer or fall. It was necessary to include all cow herd sizes from 15 to 700 head to represent beef cattle raising systems in this subregion. These herds grazed on pasture during the summer and on annual pastures during the winter. Some supplemental feeding from crop residue, silage, and hay was provided. Nearly 6 percent of the region's total 1973 inventory of stocker cattle occurred in this subregion, with almost three-fourths in herds of 20-99 head.

Mississippi Delta and Alluvial

The Mississippi Delta and Alluvial area, subregion 13, is known

largely for cotton in the Mississippi Delta, Ouachita, and Red River Valley areas, but rice is more important in the loessial terrace upland area of Arkansas. Soybeans and, in some areas, corn are other important crops. The rich loessial soils and warm, moist climate result in abundant forage growth from volunteer and seeded grasses. Although a high proportion of the open land is cropped, farms in the area are frequently large enough to support large beef cow herds on acreages not well suited for cultivation. Over 40 percent of the beef cows were maintained in herds of 500 head or more in 1973. Nearly half of the owners of these large herds grazed or fed out their weaned calves, but most calves from the smaller herds were sold at weaning. Representative herd sizes included 50, 150, 300 and 700 head of beef cows, calving either during the fall, winter, or spring, and selling calves during spring, summer, or fall. Sources of feed included pasture during the summer and hay during the winter. Nearly 8 percent of the Southeast's stocker cattle, as of 1973, were inventoried in this subregion, with 90 percent of this number in herds of 100-199 head each.

Ozark Highlands and Boston Mountains

Crop production is relatively important in subregion 14, with soybeans the major crop. A large proportion of the open land is in pastures composed primarily of native grasses. Beef cow herds from which weaned calves are sold are the predominant livestock enterprise. Most of the cow herds were small in 1973, with 84 percent of the cows in herds of less than 100 head. Representative beef cow systems included only those with 15, 50, and 150 head in size, with calving during the winter or spring, and calf sales during the fall or winter. Sources of feed included pasture in summer and hay in winter. This was not a substantial stocker area, with slightly over 2 percent of the 1973 Southeast region's total stockers.

Forested Coastal Plains and Flatwoods

More than three-fourths of the Forested Coastal Plains and Flatwoods, subregion 15, is forest land, but pastures occupy most of the open land. Dairy and poultry, as well as beef cow-calf enterprises, are common. More than three-fourths of the beef cows were in herds with less than 100 head in 1973. Calves weaned at about 7 to 9 months of age, weighing 300 to 425 pounds, were the main source of revenue for these cattlemen. Native and volunteer grasses during the spring, summer, and fall, and grass hay during the winter represented the typical feed sources for cattle. Representative beef cow herds of 15, 20, and 150 head accounted for most of the cows in the subregion. Calving occurred during the winter or spring, then the calves were sold during the fall or winter. Pasture during the summer and hay during the winter were the primary feed sources. Stocker cattle, in herds of less than 100 head, accounted for nearly 5 percent of the region's total numbers in 1973. Most of the stockers were located in herds of less than 100 head.

Southwest Region

In the context of cattle raising systems, the Southwest region is composed of four States -- Arizona, New Mexico (except for the north-central part), Oklahoma, and Texas -- and a nine-county segment of southwestern Louisiana. About as much difference exists among these states in topography, climate, soils, and vegetation as between this region and other beef cattle raising regions of the United States. The average annual precipitation ranges from 52 inches along the upper Texas Gulf Coast and extreme southeastern part of Oklahoma to 15-20 inches along eastern New Mexico, decreasing to 10 inches or less over much of western Arizona and southwestern New Mexico.

Moving westward from the hardwood and pine areas of eastern Oklahoma and eastern Texas, vegetation changes to tall grass savannahs and mixed prairie, to the short grass of western Oklahoma, eastern New Mexico and western Texas, on to the semidesert grass of Arizona, southern New Mexico, and central and southern Texas. The desert shrub vegetation covers much of southwestern Arizona, southern New Mexico, far-west Texas, and banks of the Rio Grande River. The region is a mixture of plains, plateaus, mountains, and open and heavily wooded land.

Most of the region's precipitation comes in the form of rain during the spring and summer months, combining with warm temperatures conducive to vegetative growth. From central Texas westward, there is a marked tendency for alteration of above and below average rainfall every 3 to 4 years. Extended droughts have occurred in the region, but the more recent ones were the droughts of the thirties and fifties.

An indication of relative stocking potential over the region may be obtained by converting the average annual rainfall in inches to animal units grazed yearlong per section of rangeland. For instance, within the 32-inch rainfall belt, 32 animal units of livestock would usually be able to graze comfortably yearlong on 640 acres of rangeland. While yearlong grazing is common over the region, exceptions may be found in the higher mountain areas of central Arizona and New Mexico where summer grazing is practiced, and in the southern desert shrub areas of Arizona where winter grazing is common.

From less than an acre per animal month of grazing in eastern Oklahoma and Texas, grazing capacities decreased to four and six acres over much of the New Mexico and Texas plains area, and to 10 and 16 acres per animal month in southern New Mexico and far-west Texas. Over 16 acres per animal month were required in the southwestern parts of Arizona, New Mexico, and Texas.

In identifying homogeneous beef cattle raising situations, it was necessary to divide the Southwest region into 13 subregions. Subregion names, FEDS code numbers, and abbreviated code numbers are listed in table 22. Beef cow and stocker herd size distributions, and proportionate numbers of the region's beef cow and stocker inventories and systems,

as of 1973, by subregions, are listed in tables 29, 30, 31, and 32.

Southern Intermountain

Much of the Southern Intermountain area, subregion 1, is occupied by Indian reservations or is owned by the Federal Government. Desert shrubs, pinyon-juniper, and open grass-shrub cover much of the land. Although potatoes and sugar beets are important cash crops, a small percentage of the land, which has been cultivated and irrigated, is used to grow hay or tame pasture grasses. Small areas are also dry-farmed to hay and grain. Dependency on Federal grazing permits from the Bureau of Land Management (BLM) and Forest Service is a factor in rounding out many cattle ranching operations, although in some instances, federally owned ranges are grazed in conjunction with privately owned ranges. Containing 3 percent of the region's total beef cows in 1973, the Southern Intermountain had 40 percent of its beef cows in herds of 500 head and larger. Cow-calf and cow-yearling systems were common in the subregion, but the stocker system was relatively minor.

Representative cow-calf systems for this subregion included herds of 50, 150, 300, and 700 head, calving during the spring, selling calves during the fall, and grazing on range yearlong, with supplemental feeding of protein and hay during the winter.

Southwest Desert

More than half of the land in the Southwest Desert, subregion 2, is owned by the Federal Government, and much of the remainder is owned by local governments and Indians. Forest Service and BLM ranges are used in conjunction with private and, in some instances, State-owned lands.

Desert vegetation, consisting of creosote bush, cacti, mesquite, short grasses, and, at higher elevations, pinyon-juniper, cover much of the land. Most of the area is used for range and only a small percentage is cultivated and irrigated for growing vegetables, cotton, citrus fruits, and tame pasture. In the western part of the subregion, ranches maintain small base herds and purchase steers every 3 or 4 years when the rainfall is sufficient to produce additional forage. In the eastern part, ranches are cow-calf or cow-yearling, the latter holding over steer calves to be wintered and sold the following spring. Stocker cattle systems were quite important relative to the cow-calf and cow-yearling systems.

Only 1 percent of the region's total number of beef cows existed in the Southwest Desert subregion in 1973, but 42 percent of these were in herds of 500 head or more. Representative herd sizes included those with 150, 300, and 700 head, calving during the spring, selling calves during the fall, and grazing on range yearlong. Supplemental feeding of protein and hay was provided.

Table 29 -- Southwest Region: Estimated number of cattle in the three beef cattle raising systems by subregion, 1973

Subregion	Code	Cow-calf system	Cow-yearling system	Stocker system	Total beef cows[1]
			thousand head		
Southern Intermountain	1	253	34	51	287
Southwest Desert	2	87	44	87	131
Southern Desert	3	448	90	209	538
High Plains	4	438	219	438	657
Rolling Plains	5	781	235	547	1,016
Edwards Plateau and Central Basin	6	370	23	69	393
Rio Grande Plain	7	928	58	174	986
Reddish Prairie and Cross Timbers	8	1,265	181	361	1,446
Blacklands and Grand Prairie	9	1,588	318	1,271	1,906
Cherokee Prairie	10	218	109	218	327
Highlands and Mountains	11	219	120	60	339
East Texas Timberlands	12	949	0	105	949
Coast Prairie	13	731	41	32	772
Total		8,275	1,472	3,622	9,747

Source: Total numbers derived from SRS livestock reports. Basic systems apportionment based on responses from mail surveys in 1971 of livestock production and marketing experts in each state in the Southwest region.

[1] Total number of beef cows in each area is equal to the total number in the cow-calf system plus the total number in the cow-yearling system, and is equal to the total number of cows in the area as reported by SRS January 1, 1973.

Table 30 -- Southwest Region: Estimated distribution of beef cows by size of herd and subregion, 1973

Subregion	Size of beef cow herd													
	1-19		20-99		100-199		200-499		500-999		1,000 and over		All sizes	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	1,000	1	30,000	10	40,000	14	101,000	35	74,000	26	41,000	14	287,000	3
2	1/	1/	7,000	5	19,000	15	49,000	38	36,000	27	20,000	15	131,000	1
3	3,000	1	62,000	11	105,000	19	155,000	29	91,000	17	122,000	23	538,000	6
4	12,000	2	225,000	34	141,000	21	142,000	22	60,000	9	77,000	12	657,000	7
5	19,000	2	469,000	46	206,000	20	177,000	18	70,000	7	75,000	7	1,016,000	10
6	11,000	3	143,000	36	80,000	20	81,000	21	34,000	9	44,000	11	393,000	4
7	14,000	2	209,000	21	256,000	26	258,000	26	110,000	11	139,000	14	986,000	10
8	23,000	2	625,000	43	311,000	22	267,000	18	107,000	7	113,000	8	1,446,000	15
9	34,000	2	848,000	44	343,000	18	347,000	18	147,000	8	187,000	10	1,906,000	20
10	4,000	1	186,000	57	64,000	19	45,000	14	16,000	5	12,000	4	327,000	3
11	1,000	1/	193,000	57	68,000	20	48,000	14	17,000	5	12,000	4	339,000	3
12	3,000	1/	479,000	51	157,000	16	158,000	17	67,000	7	85,000	9	949,000	10
13	2,000	1/	262,000	34	171,000	22	171,000	22	73,000	10	93,000	12	772,000	8
Total	127,000	1	3,738,000	38	1,961,000	20	1,999,000	21	902,000	9	1,020,000	11	9,747,000	100

1/ Less than 0.5 percent.

Subregion	Herd size	Calving season	Calf sale season	Source of feed		Other characteristics	Cows represented			
				Summer and fall	Spring and winter 1/		C-C2/	C-Y2/	Total	Percent
							- - - - Thousands - - -			
1	50	spring	fall	range	protein + hay	private-federal	28		28	0.3
	150	do	do	do	do	do	35	5	40	0.4
	300	do	do	do	do	do	89	12	101	1.0
	700	do	do	do	do	do	65	9	74	0.8
2	150	do	do	do	do	do	13	6	19	0.2
	300	do	do	do	do	do	33	16	49	0.5
	700	do	do	do	do	do	24	12	36	0.4
3	150	do	do	do	do	do	87	18	105	1.1
	300	do	do	do	do	do	129	26	155	1.6
	700	do	do	do	do	do	76	15	91	0.9
4	50	do	do	do	do	+ stubble	150	75	225	2.3
	150	do	do	do	do	do	94	47	141	1.4
	300	fall	summer	do	do	+ small grain	95	do	142	1.5
	1,500	spring	fall	do	do	+ stubble	51	26	77	0.8
5	50	fall	summer	do	do	+ small grain	360	108	468	4.8
	150	spring	fall	do	do	+ stubble	159	48	207	2.1
	300	do	do	do	do		136	41	177	1.8
	500	do	do	do	do		58	17	75	0.8
6	50	fall	summer	do	do	+ stubble	135	8	143	1.5
	150	all year	fall	do	do	do	75	5	80	0.8
	300	do	do	do	do	do	76	5	81	0.8
	700	do	do	do	do		32	2	34	0.4
7	50	do	do	do	do	+ tame pasture	197	12	209	2.1
	150	spring	do	do	do	do	241	15	256	2.6
	300	do	do	do	do		243	15	258	2.6
	1,500	do	do	do	do		131	8	139	1.4

See footnotes at end of table.

Continued

Table 31 -- Southwest Region: Proposed beef cow-calf budgets and proportion of cattle raising systems represented, 1973 -- Continued

Subregion	Herd size	Calving season	Calf sale season	Source of feed		Other characteristics	Cows represented			
				Summer and fall	Spring and winter [1]		C-C[2]	C-Y[2]	Total	
							- - - -	Thousands	- - -	Percent
8	50	spring	fall	range	protein + hay	+ small grain	546	78	624	6.4
	150	fall	summer	do	do	+ tame pasture	272	39	311	3.2
	300	do	do	do	do	+ small grain	234	33	267	2.7
9	50	spring	fall	do	do	+ tame pasture	707	14	721	7.4
	150	fall	summer	do	do	+ small grain	286	6	292	3.0
	300	do	do	do	do	+ tame pasture	289	6	295	3.0
10	50	spring	fall	do	do	+ small grain	124	62	186	1.9
	150	do	do	do	do		43	21	64	0.7
	300	do	do	do	do		30	15	45	0.5
11	50	do	do	do	do	+ small grain	125	68	193	2.0
	150	do	do	do	do		44	24	68	0.7
	300	do	do	do	do		31	17	48	0.5
12	50	do	do	do	tame pasture		479		479	4.9
	150	do	do	do	do		157		157	1.6
	300	do	do	do	do		158		158	1.6
13	50	do	do	do	do	+ rice straw	249		249	2.6
	150	do	do	do	do	do	161		161	1.7
	300	do	do	do	range	range	162		162	1.7
Total							6,909	981	9,747	100.0

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[1] Supplemental feeding on range.

[2] C-C = cow-calf; C-Y = cow-yearling.

Subregion and herd size	Acquisition		Sale		Supplemental feeding	Forage Sources	Thousand head represented	
	Date	Weight	Date	Weight				
		Pounds		Pounds			Number	Percent
Subregion 1:								
300	May-June	300-400	Sep.-Oct.	630-640		Range; woodland pasture[1]	18	0.5
700	do	do	do	do		do	13	0.4
1,500	do	do	do	do		do	7	0.2
Subregion 2:								
300	Apr.-May	350-370	Oct.-Nov.	630-640		Range[1]	33	0.9
700	do	do	do	do		do	24	0.7
1,500	do	do	do	do		do	13	0.4
Subregion 3:								
300	Nov.	400-500	April	550-650		Small grain pasture	60	1.6
	Apr.-May	380-400	Sep.-Oct.	630-640		Range[2]		
700	do	do	Mar.-Apr.	550-650		do	36	1.0
1,500	do	do	do	do		do	47	1.3
Subregion 4:								
50	Oct.-Mar.	400	Sep.-Oct.	600	Nov.-Mar. 20% cubes	Range	150	4.1
	Sep.-Jan.	375	Mar.-Apr.	550	do	Wheat; sorghum stubble		
	do	do	do	600	do	Irrigated wheat; sorghum stubble		
150	do	do	do	do	do	do	94	2.6
300	do	do	do	do	do	do	95	2.6
1,500	do	do	do	do	do	do	51	1.4
Subregion 5:								
50	Sep.	450	July	700	CSC; hay	Range	252	7.0
	do	do	Aug.	750	do	Sudan; range		
	Oct.	do	Mar.	600	Hay in bad weather	Small grain		
150	do	do	do	do	do	do	111	3.1
300	do	do	do	do	do	do	95	2.6
1,500	do	do	do	do	do	do	40	1.1

See footnotes at end of table.

Continued

Subregion and herd size	Acquisition		Sale		Supplemental feeding	Forage Sources	Thousand head represented	
	Date	Weight	Date	Weight				
		Pounds		Pounds			Number	Percent
Subregion 6:								
50	Aug.-Sep.	275-350	Mar.	575-675	Sep.-Oct. CSM	Range; sorghum stubble, small grain	16	0.4
150	do	do	do	do	do	do	14	0.4
300	do	do	do	do	do	do	14	0.4
700	do	do	do	do	do	do	6	0.2
Subregion 7:								
50	Sep.-Oct.	400	Mar.-Apr.	600		Small grain; sorghum stubble	37	1.0
150	do	do	do	do		do	45	1.2
300	do	do	do	do		do	46	1.3
1,500	do	do	do	do		Small grain; sorghum stubble	25	0.7
	do	350	May-June	620	CSM; pear	Range		
Subregion 8:								
50	Oct.	450	Mar.	615	CSC; hay	Small grain	156	4.3
	do	do	May	750	None	Rye-vetch		
	do	do	Aug.	715	CSC; hay	Range		
150	do	do	do	do	do	do	78	2.2
300	do	do	do	do	do	do	67	1.8
Subregion 9:								
50	Apr.	425	Sep.	625	None	Coastal bermuda	564	15.6
	Nov.	do	Aug.	750	CSC; coastal hay	Coastal bermuda; small grain		
	do	do	June	780	None	Small grain		
	Apr.	400	Sep.	645	do	Hybrid sudan; grass		
150	do	do	do	do	do	do	230	6.4
300	do	do	do	do	do	do	230	6.4
1,500	do	do	do	do	do	do	126	3.5

See footnotes at end of table.

Continued

Subregion and herd size	Acquisition		Sale		Supplemental feeding	Forage Sources	Thousand head represented	
	Date	Weight	Date	Weight				
		Pounds		Pounds			Number	Percent
Subregion 10:								
50	Oct.	450	Mar.	600	CSC; hay	Small grain	124	3.4
	do	do	Aug.	700	do	Range		
150	do	do	do	do	do	do	43	1.2
300	do	do	do	do	do	do	30	0.8
Subregion 11:								
50	do	do	Mar.	615	Hay	Small grain	34	0.9
	do	do	Aug.	710	CSC; hay	Range		
150	do	do	do	do	do	do	12	0.3
300	do	do	do	do	do	do	8	0.2
Subregion 12:								
50	Fall	325-450	May-July	600-700	Some hay and grain	Small grain	53	1.5
	do	do	June-July	600-625	Some grain	Coastal bermuda; range		
150	do	do	do	do	do	do	17	0.5
300	do	do	do	do	do	do	18	0.5
Subregion 13:								
50	Fall	325-450	May-July	600-700	Some hay and grain	Small grain	19	0.5
	do	do	June-July	600-625	Some grain	Coastal bermuda; range		
150	do	do	do	do	do	do	6	0.2
300	do	do	do	do	do	do	7	0.2

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[1] Mixtures of private and Federal land.

[2] Mixtures of private, Federal, and State land.

Southern Desert

About one-third of the Arizona and New Mexico parts of the Southern Desert, subregion 3, is owned by the Federal Government. Mixtures of State, BLM, and Forest Service lands are grazed in conjunction with private range. Short grasses and desert shrubs grow at lower elevations, while pinyon-juniper woodlands and ponderosa pine cover much of the higher elevations. More than half of the subregion is range of low-carrying capacity. A small percentage of the land, consisting mainly of narrow, discontinuous strips along the Rio Grande and Pecos Rivers, is irrigated. Cantaloupes, vegetables, grain sorghum, alfalfa and other feed and forage crops are grown.

Combined sheep and cattle operations are found in the eastern part of this subregion. Although stocker cattle are important, most of the beef cattle raising systems are cow-calf. The Southern Desert had 6 percent of the region's total beef cows in 1973, with 40 percent of these in herds of 500 head or larger. Representative cow-calf systems included herds with 150, 300, and 700 head, calving during the spring, selling calves during the fall, and feeding on range yearlong. Protein and hay supplements were fed during the winter.

High Plains

Most of the High Plains area, subregion 4, is in farms and ranches. About one-third of the area, the smooth uplands, is dry farmed to winter wheat and grain sorghum, and nearly one-fifth is irrigated. Cotton, grain sorghum, soybeans, and vegetables are the major crops. The range consists of native grasses and shrubs grazed by beef cattle. The cow-calf system is the dominant cattle raising system in the High Plains, although stocker cattle are quite numerous on small grain pastures and ranges.

About 7 percent of the Southwest region's total number of beef cows in 1973 were located in this area. Smaller herds occurred more frequently here than in the subregions farther west where less cropland was used with beef cattle enterprises. In 1973, over half of all beef cows in this subregion were in herds of 20-199 head.

Representative beef cow herds included those with 50, 150, 300, and 1,500 head, calving during the spring or fall, selling calves during the fall or summer, and grazing on range during the summer. Crop stubble and small grain provided winter and spring grazing.

Rolling Plains

Most of the Rolling Plains area, subregion 5, is in farms and ranches. About half the area, mainly the more sloping parts, is in range or pasture grazed by beef cattle. Winter wheat is the major crop throughout the sub-

region, but cotton is also important south of the Cimarron River. Grain sorghum and alfalfa occupy large acreages, and peanuts are important locally on some of the sandy soils.

The cow-calf system is the dominant cattle raising system in the subregion, although cow-yearling herds are important during years of abundant forage. Stocker cattle are prevalent, depending largely on stubble and small grain grazing. Ten percent of the Southwest region's beef cows were found in this subregion in 1973. Mixtures of cropland and rangeland, often on the same unit, gave impetus to small beef cow herds, as indicated by over 45 percent of the subregion's total cows in herds of fewer than 100 head. Four cow herd sizes were required to represent cattle raising systems, ranging from 50 to 1,500 head, with calving during the fall or spring and selling calves during the summer or fall. Grazing on rangeland year-round, with sorghum stubble and small grain during the fall-winter-spring period was provided. Winter grazing was supplemented with protein and some hay.

Edwards Plateau and Central Basin

About four-fifths of the broad dissected limestone plateau comprising the Edwards Plateau and Central Basin, subregion 6, is in range grazed on by beef cattle, sheep, and goats. All three of these animals occur frequently on the same ranch. In the west, the cover consists of short grasses and shrubs; in the east, the range is open woodland of scrub oak and cedar that has a grass ground cover. Small grains, grain sorghum, peanuts, and cotton are the main crops, although less than 5 percent of the total area is cropland.

All three basic beef cattle raising systems occur in this subregion, but the cow-calf system is the most dominant. With part of the rangeland being used by sheep and goats, only 4 percent of the region's total number of beef cows were located in this area in 1973. About one-third of these cows were in herds of 20-99 head. Representative beef cow systems included herds of 50 to 700 head. Calving occurs throughout the year, with calf sales occurring from the early summer to fall. Year-round grazing on range, stubble, and on small grain pasture during the winter was practiced by ranches with cropland.

Rio Grande Plain

About four-fifths of the Rio Grande Plain, subregion 7, is in rangeland consisting of native shrubs and grasses grazed by beef cattle. Nearly 10 percent of the area, mainly along the Rio Grande and Nueces Rivers, is irrigated. Cotton, corn, citrus fruit, melons, and many kinds of vegetables are grown. Cotton, grain sorghum, and hay are grown under dryland conditions in the northern and the eastern parts of this subregion.

The cow-calf system of cattle raising predominated in this subregion in 1973, and accounted for 10 percent of the Southwest region's total number of beef cows. While 26 percent of these cows were in herds of 100-199 head each, 14 percent of the total number of cows were in herds of 1,000 head or larger. Thus, sizes from 50 to 1,500 head of beef cows were required to adequately represent the major cattle raising systems in the subregion. Calves, born usually in the spring, are sold in the fall. Feed requirements for cattle are met by year-round grazing on range, plus supplemental feed during the winter. Some of the smaller units have access to tame pasture, consisting largely of buffel grass.

Reddish Prairies and Cross Timbers

Most of the land in the Reddish Prairies and Cross Timbers, subregion 8, is in farms and ranches. Less than half of this area is cropland, with most of the remainder in rangeland consisting of shrubs, grasses, and open woodland to the east, where beef cattle graze on a grass understory. Although winter wheat, small grains, grain sorghum, alfalfa, cotton, and hay are the principal crops in the area, peanuts, tree fruits, and vegetables are important in some areas of the southeastern part of the subregion.

The cow-calf system of cattle raising is dominant in this subregion, and accounted for 15 percent of the region's total number of beef cows in 1973. Over 40 percent of these cows were contained in herds of 20-99 head each. Three systems, with sizes of 50, 150, and 300 head of beef cows each, adequately represented beef cattle raising in the area. Calves born in the fall or spring are sold in the summer or fall. Yearlong grazing on range, with supplemental feeding during the winter, and small grain or tame pasture fed seasonally, were provided.

Blacklands and Grand Prairie

The Blacklands and Grand Prairie, subregion 9, includes the Cross Timbers, Grand Prairie, Blackland Prairie, and Claypan areas, each with different crop production characteristics. Nearly two-thirds of the cropland is located in the Blackland Prairie. Three-fourths of the Cross Timbers is range and open woodland, half of the Grand Prairie is range, and most of the Claypan area is covered with post oak savannahs and woodlands. Small grains, grain sorghum, cotton, and corn are grown in all areas of the subregion, but lands suited to these crops, particularly the Claypan and Blackland areas, are giving way to pastures and beef cattle raising.

The cow-calf system of production is dominant in the subregion, although stocker cattle are grazed in large numbers. Twenty percent of the Southwest region's total numbers of beef cows in 1973 were located in this area. At the same time, 44 percent of these cows were in herds of 20-99 head each. Representative herd sizes included 50, 150, and 300

head, with calving during the spring or fall and selling calves during summer or fall. Primary sources of feed were yearlong grazing on range, with protein and hay supplements during the winter and spring, and small grain or tame pasture.

Cherokee Prairie

About one-third of the Cherokee Prairie, subregion 10, is mainly in pastures of tame grasses and legumes, but native grasses are on the more sloping parts. Wet bottomland and steep valley slopes are woodland. Winter wheat, soybeans, corn, grain sorghum, and hay are the major crops. The cow-calf system is dominant, but the stocker cattle system is also important. Primarily because of the relatively small area, only 3 percent of the Southwest region's 1973 beef cow inventory occurred in this subregion. Nearly 65 percent of these cows are in herds of 100-199 head each. Representative beef cow systems included herds of 50, 150, and 300 head, calving during the spring and selling calves during the fall. Yearlong grazing on range was the primary source of feed, but supplemental feeding of protein and hay was provided during the winter. Small grain pastures were important in the smaller units.

Highlands and Mountains

From one-half to three-fourths of the Highlands and Mountains, subregion 11, is forest land, parts of which are federally owned. Pastures, mainly of tame grasses and legumes grow throughout, except for small areas of native prairie grasses along the western part. Corn, feed grains, cotton, and hay for beef cattle and dairy enterprises are the principal crops grown, while fruits and vegetables are grown locally. Lumbering, wood-using industries, and recreation are important land uses, particularly in the Oachita Mountains.

The cow-calf system is dominant, but because of the relatively small area, only 3 percent of the region's beef cow inventory occurred in this subregion. Over 55 percent of the total cows were in herds of 20-99 head. Representative cow herd sizes included herds with 50, 150, and 300 head, calving during the spring and selling calves during the fall. Yearlong grazing on range, with protein and hay fed as winter supplements, was provided. Small grain pasture is an important feed source for the smallest herds.

East Texas Timberlands

Between one-half and three-fourths of the East Texas Timberlands, subregion 12, is woodland. Most of the land is in small holdings, but some is in large tracts. A relatively small acreage is owned by the Federal Government. Forestry is the major enterprise in this subregion. The trend has been toward more pastureland and less cropland, although in

some areas cotton, vegetables, and corn remain important crops. Tame pasture, particularly of common and coastal Bermuda grass, is an important forage source used in beef cattle production.

The cow-calf system is the dominant cattle raising system in this subregion. In 1973, this system contained 10 percent of the region's total. More than one-half of the beef cows were in herds of 100-199 head each. Representative systems included herds of 50, 150, and 300 head, calving primarily during the spring, but sometimes year-round, and selling calves during the fall. Feed sources included grazing on range during the summer and fall and tame pasture during the spring and winter. Hay mowed from tame pastures was provided occasionally during the dry summers and winter, as was protein supplement. Few stocker systems exist in the subregion, although when calf prices are low and forage is plentiful, the tendency for producers to hold calves to heavier weights increases.

Coast Prairie

Nearly all of the Coast Prairie, subregion 13, is in farms and ranches. Rice, cotton, corn, and grain sorghum are major crops. A large acreage is in pasture or range of native grasses, tame grasses, and legumes.

Approximately 8 percent of the Southwest region's total inventory of beef cows were located in the Coast Prairie in 1973. In relative terms, the cow-calf system predominates, although when forage is sufficient and calf prices are relatively low, the tendency to move to the cow-yearling system increases. Sizes of beef cow herds in 1973 were variable, with 34 percent of the cows in herds of 20-99 head and 22 percent in herds of sizes 100-199 and 200-499. Representative herd sizes were estimated at 50, 150, and 300 head, with calving during the spring and selling calves during the fall. Year-round grazing on range and tame pasture, with rice straw fed supplementally, was provided. Stocker systems were relatively insignificant in this area.

Northern Plains and Southern Mountain Region

This region, heterogeneous in topographic, edaphic, climatic, and vegetative features, covers the Northern Plains' spring wheat and range subregions, the Central Plains' range and winter wheat subregions, the Mountain subregion, and the Corn Belt subregion.

As of January 1, 1973, over 25 percent of the Nation's inventory of beef cows were located in this subregion, slightly exceeding the proportion of total cows in the Southeast and Southwest regions (table 33). Other representations included in budget development are listed in tables 34, 35, and 36.

Table 33 -- Northern Plains and Southern Mountain Region: Estimated distribution of beef cows by size of herd and subregion, 1973

Subregion	Size of beef cow herd													
	1-19		20-99		100-199		200-499		500-999		1,000 and over		All sizes	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	115,000	6	1,032,000	54	516,000	27	191,000	10	38,000	2	19,000	1	1,911,000	18
2	16,000	1	350,000	22	366,000	23	462,000	29	207,000	13	191,000	12	1,592,000	15
3	15,000	1	461,000	31	505,000	34	386,000	26	104,000	7	15,000	1	1,486,000	14
4	12,000	1	175,000	15	304,000	26	385,000	33	175,000	15	117,000	10	1,168,000	11
5	159,000	6	1,301,000	49	557,000	21	425,000	16	159,000	6	53,000	2	2,654,000	25
6	253,000	14	1,118,000	62	253,000	14	126,000	7	36,000	2	18,000	1	1,804,000	17
Total	570,000	5	4,437,000	42	2,501,000	23	1,975,000	19	719,000	7	413,000	4	10,240,000	100

Table 34 -- Northern Plains and Southern Mountain Region: Proposed beef cow-calf budgets and proportion of cows represented, 1973

Subregion	Herd size	Calving rate[1/]	Calf sale weight[2/]	Source of feed		Other characteristics[3/]	Cows represented	
				Summer	Winter		Thousands	Percent
	Number	Percent	Pounds					
1	50	89	420	Pasture and range	Hay and concentrate	C-66, Y-36	1,032	9.7
	150	do	do	do	do	do	516	4.9
2	50	86	421	Pasture and range[4/]	do	C-78,Y-22	350	3.3
	150	do	do	Range[4/]	do	do	366	3.4
	300	do	do	do	do	do	462	4.4
	700	do	do	do	do	do	207	4.0
	1,500	do	do	do	do	do	191	1.8
3	50	do	416	Pasture and range[4/]	Hay	C-69, Y-31	461	4.3
	150	do	do	do	do	do	505	4.8
	300	do	do	do	do	do	386	3.6
4	50	85	377	Range	Hay and concentrate	C-80, Y-20	175	1.7
	150	do	do	do	do	do	304	2.9
	300	do	do	do	do	do	385	3.6
	700	do	do	do	do	do	175	1.7
5	50	90	437	Pasture and range	do	C-82, Y-18	1,301	12.2
	150	do	do	do	do	do	557	5.2
	300	do	do	do	do	do	425	4.0
	700	do	do	do	do	do	159	1.5
6	15	89	412	Pasture	Hay and silage	C-39, Y-61	253	2.4
	50	do	do	do	do	do	1,118	10.5
	150	do	do	do	do	do	253	2.4
	300	do	do	do	do	do	126	1.2
Total							10,240	100.0

[1/] Weaning percentage.

[2/] Weaning weight.

[3/] Percentage of farms selling most calves as weaners C-C, and farms retaining some calves after weaning for further growth C-Y.

[4/] Public and private range.

Table 35 -- Northern Plains and Southern Mountain Region: Stocker cattle budgets and proportion of all stocker cattle, 1973

Subregion	Feed source	Herd size	Stockers represented
		Number	Percent
3	range	150	100
4		150	100
5	grass	50	50
5	wheat pasture	150	50
6		50	100

Table 36 -- Northern Plains and Southern Mountain Region: Proposed beef cow budgets and proportion of total beef cows represented, 1973

Subregion	Herd size	Timing of production	Feed source	Cows represented	
				Thousands	Percent
3	50	Nov.-Sep.	range	616	21.0
4	150	do	range	969	33.0
5	50	do	grass	426	15.0
5	50	Sep.-Apr.	wheat pasture	425	14.0
6	50	Nov.-Aug.		499	17.0

Northern Plains Wheat

Most of the land in the Northern Plains Wheat area, subregion 1, is in farms and ranches. Some 40 to 75 percent of the land is cropland, with spring wheat being the most important cash-grain crop. Other small grains, flax, hay, and pastures are also important, and are located in small, irrigated areas along river bottoms. Native grasses and shrubs cover the rangeland.

An estimated 18 percent of the region's total inventory of beef cows were located in this subregion in 1973. Over half of these cows were in herds numbering 20-99 head, while over a fourth were in herds numbering 100-199 head. Representative systems included herds of 50 and 150 head. Almost two-thirds of the cows were in the cow-calf system, while the remainder were retained after weaning. A stocker system of 150 head adequately represented the stockers in this subregion.

Northern Plains Range

Approximately three-fourths to four-fifths of the Northern Plains Range, subregion 2, consists of native grasses and shrubs grazed on by cattle and sheep. Most of the land is in farms and ranches, but in some localities, as much as one-fifth is owned by the Federal Government. Many operations have small sections of irrigated or tame pasture. Wheat, sugar beets, potatoes, vegetables, hay, and feed grains are principal crops.

Almost 15 percent of the region's total number of beef cows in 1973 were in this subregion. Twenty-two percent of the cows were in herds of 20-99 head, 23 percent were in herds of 100-199 head, and 25 percent were in herds of 500 head or more.

About two-thirds of the representative cattle raising systems in the subregion were strictly cow-calf, and the remainder held calves after weaning. Five herd sizes represented the cattle raising structure in the subregion, ranging from 50 to 1,500 head. A stocker system of 150 head represented the stockers in this subregion.

Central Plains Range

Nearly all of the land of the Central Plains, subregion 3, is in farms and ranches, although in local areas, as much as one-fifth of the land is owned by Federal Government. From half to almost all of the land is devoted to the grazing of cattle and sheep. Wheat, feed grains, hay, flax, and in some locations, sugar beets, potatoes, and vegetables are the main crops. Small acreages of these crops are grown under irrigation.

An estimated 14 percent of the region's 1973 inventory of beef cows

were located in this subregion. Two-thirds of these cows were maintained in herds of less than 200 head. Representative cattle raising in this subregion included herds of 50, 150, and 300 head. Approximately 70 percent of the farms and ranches used the cow-calf system, while the remainder retained calves after weaning. A 150-head stocker system represented the stockers in this subregion.

Central Plains Winter Wheat

The Central Plains Winter Wheat area, subregion 4, produced approximately 11 percent of the Northern Plains and Southern Mountain region's 1973 inventory of beef cows. For the most part, except for a few local areas, land in the subregion is privately owned and used for farms and ranches. Range covered with native grasses and a few shrubs in some localities furnish grazing for beef cattle and some sheep. Dryland farming predominates, with winter wheat as the major crop, but producers in several areas also grow grain sorghum, corn forage crops, and hay for livestock. Small segments of irrigated land are used for producing hay, feed crops, and some alfalfa.

In 1973, about 80 percent of the operations were involved in the cow-calf system of beef cattle raising, while the remainder retained some calves after weaning for further growth and sale as yearlings. A 150-head stocker unit on wheat pasture and a 50-head stocker unit on grass represented the stockers in this subregion, while 50, 150, 300, and 700 cow units represented the cow-calf and cow-yearling systems. Thirty-three percent of the cows were estimated to be in herds of 200-499 head, although 25 percent were estimated to be in herds of 500 head and over.

Mountain

Timber production, recreation, wildlife habitat, and localized mining constitute major land uses over much of the high and rough terrain of the Mountain area, subregion 5. Much of the land is federally owned, and livestock grazing is permitted through the auspices of the Forest Service. Semidesert range at the lower elevations, some of which is managed by the BLM, is grazed on by domestic livestock. The mountains may be grazed seasonally by sheep, and to some extent cattle, while mountain meadows are grazed by cattle. Irrigation provides many of the small valleys with the most important crops such as hay, feed grains, and tame pasture, although in some areas potatoes, vegetables, fruit, and sugar beets are grown. Wheat, peas, and beans are the major crops on the limited areas of dryland farming.

In 1973, approximately 25 percent of the region's beef cows were located in this subregion; 55 percent of these cows were in herds of less than 100 head. The distribution of herd sizes is such that herds of 50, 150, 300, and 700 head adequately represented the bulk of the cows

in the subregion. Over 80 percent of the operations were involved in the cow-calf system, while the remainder retained some calves after weaning. A 150-head stocker system represented the stocker cattle in this subregion.

Corn Belt

The gently sloping to rolling plains of the Corn Belt, subregion 6, are mainly developed for farming. Most of the land is in farms and ranches, with ranges of native grasses and tame pasture used for cattle grazing. One-half to two-thirds of the area is cropland, on which corn, wheat, soybeans, alfalfa, and hay are produced.

About 17 percent of the region's total 1973 inventory of beef cows were located in this subregion, and over three-fourths were in herds of less than 100 head. Herds of 15, 50, 150, and 300 cows adequately represented the beef cattle raising systems in the subregion. Given the relatively large acreages of wheat and feed grains interspersed with range and tame pasture, about two-thirds of the farms and ranches with beef cows retained calves past weaning for further growth on cropland pastures, including the crop aftermath. A 50-head stocker cattle system represented the stockers in this subregion.

Western Region

The Western region's 1973 inventory of 3.8 million beef cows comprised over 9 percent of the Nation's total herd. Beef cattle raising in this region, as in other regions, occurs under diverse climatic, edaphic, topographic, and vegetative situations. In light of these diversities it was necessary to delineate seven subregions to attain the homogeneity required for proper identification of the dominant beef cattle raising systems. For the entire region, the dominant herd sizes appeared in the 20-99, 100-199, and 500-999 head ranges, although a considerable difference was exhibited in the distribution among the subregions (table 37).

Willamette-Puget Sound

Depending on the locality, from one-sixth to three-fifths of the area in the Willamette-Puget Sound, subregion 1, is owned by State and Federal governments. Because the area is forested, lumbering is a major industry, but recreation and wildlife habitat are also important land uses. Less than one-fifth of the total area is cropland or tame pasture, but deciduous fruits, berries, vegetables, seed crops, and grain, the major crops, are grown under intensive management. Hay and grain for dairy feed are also grown and some of the alpine meadows provide summer range for livestock.

Only 6 percent of the region's total inventory of beef cows in 1973

able 37 -- Western Region: Estimated distribution of beef cows by size of herd and subregion, 1973

ubregion	Size of beef cow herd													
	1-19		20-99		100-199		200-499		500-999		1,000 and over		All sizes	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	18,000	8	108,000	47	76,000	33	27,000	12					229,000	6
2	3,000	1/	261,000	25	245,000	23	331,000	32	126,000	12	82,000	8	1,048,000	28
3			210,000	58	61,000	17	43,000	12	27,000	7	24,000	6	365,000	10
4	25,000	4	307,000	48	127,000	20	142,000	22	29,000	4	12,000	2	642,000	17
5			46,000	7	63,000	9	168,000	24	128,000	18	297,000	42	702,000	18
6	6,000	2	35,000	10	69,000	21	159,000	47	65,000	19	3,000	1	337,000	9
7	4,000	1	35,000	8	84,000	18	202,000	44	71,000	15	64,000	14	460,000	12
otal	56,000	2	1,002,000	26	725,000	19	1,072,000	28	446,000	12	482,000	13	3,783,000	100

1/ Less than 0.5 percent.

were located in this subregion, and 55 percent of these were in herds of less than 100 head. Cow herds of 50 and 150 head represented the major beef cattle raising systems in the subregion, with calving during the spring, grazing on summer pasture, and feeding on hay during the winter. Stocker systems were insignificant in this subregion.

Central Oregon, Wallowa-Baker Valley, and Montana and Idaho Mountains

Subregion 2 is a mixture of private, State, and Federal land. Most of the private land is in farms and ranches, the public lands are in parks and forests, and the forests furnish some grazing for livestock. Lumbering, wildlife habitat, recreation, and, to some extent, mining, are important land uses. From one-fourth to three-fourths of the land is range for cattle and, to a lesser extent, sheep. The main dryland crops are wheat and peas, with localized areas of sugar beets and potatoes. Small areas of irrigated land are used to produce hay, tame pasture, and feed grains for livestock, and limited areas are used to produce fruits and vegetables.

In 1973, about 28 percent of the region's beef cows were located in this subregion, with almost one-third in herds of 200-499 head. About 20 percent of the cows were in herds of 500 head or more, resulting in representative herd sizes of 50, 150, 300, 700, and 1,500 head. These herds grazed on public ranges during the summer and fed on hay and crop aftermath during the winter. Stocker cattle systems were represented by herds of 100 head, feeding on hay and supplements from November-May and grazing on public range from May-July.

Columbia Plateau and Central Plains-Palouse Hills

Depending on location, 10-80 percent of subregion 3 is Federally owned, with the remaining area, except for urban areas, in farms and ranches. Range livestock (i.e., cattle and some sheep) are important enterprises, but much of the land is used for timber, recreation, and wildlife habitat. Wheat and peas are the major crops in dryland farm areas; small grain, forage, grain, and, to a lesser extent, fruits and vegetables are produced on irrigated cropland.

As of 1973, 10 percent of the region's beef cows were found in this subregion; 58 percent of these cows were in herds of 20-99 head. Herd sizes of 50 and 150 head represented the major cattle raising systems. These cows grazed on pastures during the summer, fed on hay during the winter and calved during the spring. A 100-head stocker unit represented most of the stockers in this subregion, although two production periods were involved: November-April on pasture with hay fed supplementally, and April-July on pasture.

Snake River Valley, Utah, and South Central Idaho

Depending on locality, from one-half to nearly all of subregion 4 is owned by the Federal Government. Small to rather large areas are devoted to irrigated crop production, with potatoes, grain, and sugar beets as the major cash crops. The remainder of the irrigated cropland is used to grow hay and grain for livestock production, which partly depends on private and Federal range. Scattered mountainous areas are forested, with lumbering, recreation, and wildlife habitat as important land uses.

In 1973, an estimated 17 percent of the region's total inventory of beef cows were located in this subregion, and over half of these were in herds of fewer than 100 head. The preponderance of relatively small herds limited the need to increase the representative cow herd sizes beyond 300 head, although public and private ranges are grazed during the summer. Hay was fed to cattle during the winter in all situations. Two stocker systems, 100 head each, represented all stockers in this subregion: one on pasture with hay fed supplementally, from November-April and one on pasture from April-July.

Oregon High Desert, Northeast and Western Nevada, and Southern Nevada-Mojave Desert

From half to nearly all of the land in subregion 5 is owned by the Federal Government. Precipitation is light, and the sparse vegetation consists of desert shrubs at the lower elevations and native grasses, sagebrush, and timber at the higher elevations. Range livestock and limited timber production are the primary agricultural enterprises. Small, irrigated proportions of the land along valley floors and streams are used primarily to grow grain, hay, and tame pasture for cattle and sheep, although some acreages are used to produce sugar beets, fruits, potatoes, and vegetables.

Eighteen percent of the Western region's 1973 beef cow inventory were located in this subregion; the largest proportion, 42 percent, were in herds of 1,000 head or larger. Given the herd size distribution at the smaller categories, four cow herd sizes represented the dominant systems in the subregion (table 38). In addition, three stocker cattle budgets were also required (table 39).

California-Sierra Nevada Mountains and California Northern Coast

With the exception of the central California valleys, from a fourth to one-half of the land in subregion 6 is owned by the Federal Government. Timber at higher elevations provides a foundation for a lumber industry. Open woodlands and range, together with the forests, are used for livestock grazing, wildlife habitat, and recreation. There is little dryland farming in this area. Small irrigated areas in valleys and along streams are used to grow hay and grain for livestock and pasture. In

Table 38 -- Western Region: Proposed beef cow-calf budgets and proportion of cows represented, 1973

Subregion	Herd size	Calving season	Calf sale season	Source of feed		Other characteristics	Cows represented	
				Summer	Winter		Thousands	Percent
1	50	spring	fall	pasture	hay	hill pastures	108	2.8
	150	do	do	do	do	do	76	2.0
2	50	do	do	public range	do	FS permits	260	6.9
	150	do	do	do	do	do	245	6.5
	300	do	do	do	do	do	331	8.8
	700	do	do	do	do	do	129	3.4
	1,500	do	do	do	do	do	82	2.2
3	50	do	do	pasture	do	crops residue	140	3.7
	150	do	do	do	do	do	61	1.6
4	50	do	do	do	do	mixed farming	129	3.4
	150	do	do	do	do	do	54	1.4
	50	do	do	do	do	do	180	4.8
	300	do	do	public range	do	BLM and FS	143	3.8
5	150	do	do	do	do	BLM permits	62	1.6
	300	do	do	do	do	do	166	4.4
	700	do	do	do	do	do	127	3.4
	1,500	do	do	do	do	do	293	7.7
6	150	do	do	pasture	do	BLM and FS	69	1.8
	300	do	do	public range	do	do	56	1.5
	do	do	do	pasture	do	do	103	2.7
7	150	fall	do	do	pasture	hay in pasture	63	1.7
	300	do	do	do	hay	dry lot	100	2.6
	700	do	do	do	pasture	hay in pasture	58	1.5
	1,500	do	do	do	do	do	52	1.4
	300	do	do	do	do	do	100	2.6
Total							3,783	100.0

Table 39 -- Western Region: Proposed stocker cattle budgets and proportion of stockers represented, 1973 [1]

Subregion	Herd size	Timing of production	Feed source	Cattle represented	
				Thousands	Percent
2, 6	100	Nov.-May	hay, supplement	27.0	40
2, 6	100	May-July	public range	20.0	30
3, 4	100	Nov.-Apr.	pasture, hay	9.4	40
3, 4	100	Apr.-July	pasture	5.6	30
5	200	Nov.-May	hay, supplement	4.3	25
5	200	May-July	public range	3.4	20
6, 7	100	Nov.-Apr.	hay, pasture	4.7	30
6, 7	100	Apr.-July	pasture	3.2	20

[1] Generally these are thought of by ranchers as yearling operations. Percent kept as yearlings has declined considerably since 1950.

some sections, truck crops, fruits, nuts, and potatoes are grown.

Only 9 percent of the region's total 1973 inventory of beef cows were located in this subregion. Almost half of these cows were contained in herds of 200-499 head. Herds of 150 and 300 head represented the main cattle raising systems, although both public and private ranges are needed for the 300-head unit (table 38). Hay is fed during the winter. Stocker systems that represented stocker cattle in the subregion included two 100-head units: one system used pasture grazing from November-April with hay fed supplementally; the other system used pasture grazing from April-July (table 39).

Sacramento Valley, California Southern Coast, San Joaquin Valley

About one-fifth to four-fifths of the total land in some areas of subregion 7 is owned by the Federal Government. Widespread urban areas occupy nearly one-fifth of the land area in some locations, and brush-covered hills serve as watersheds for domestic water supplies. Up to 10 percent of the land area is irrigated cropland, with major crops consisting of potatoes, corn, fruits, small grain, grapes, hay, and pasture. Open woodlands and brushlands, interspersed with native grasses, furnish grazing for livestock.

About 12 percent of the region's total 1973 inventory of beef cows were located in this subregion and were distributed among herds more uniformly than in the other subregions. For this reason 4 different herd sizes, 150, 300, 700, and 1,500 head each, adequately represented cattle raising in the subregion. All use private range in the summer for feed with hay fed during the winter. Stocker systems that were important in the subregion included two 100-head units: one grazing pasture November-April with hay fed supplementally, the other grazing pasture April-July (table 39).

CONCENTRATION OF BEEF CATTLE RAISING

Now that consideration has been given to the geographic distribution of beef cow and stocker herds by region and subregion, which included a view of herd sizes, cattle raising systems, and other structural characteristics, attention is directed to some other aspects of beef cattle raising and the focal points of the industry.

As noted in a separate report (2), in which some of the subregions are aggregated, 30 percent of the beef cows are located in parts of Colorado, Nebraska, Kansas, Oklahoma, and Texas. An additional 20 percent are located just north and east of the major concentration. Thus, one-half of the cows are concentrated in the central part of the United States. At the same time, there is more dispersion among subregions where the numbers of beef cows in herds of 200 or more head exceed half of the cows in the region. These larger herds are concentrated in the

Rocky Mountains, Nevada, desert and semideserts of California and the Southwest, and parts of the Southeast. Smaller herds predominate in the farming areas, which include many of the cows in the "beef cow belt," that are generally in herds of less than 200 head.

USE OF STRUCTURAL CHARACTERISTICS

The foregoing determination of structural characteristics of the Nation's beef cattle raising industry only touches on the many factors that influence the nature, size, and extent of the numerous cattle raising systems.

The systems, as identified, should be sufficient in number and distribution for use in preparing enterprise budgets representative of the beef cattle raising industry. Updated periodically for changes in prices paid and received, and for changes in systems, these budgets should be useful in estimating the economic status of the beef cattle raiser and provide him with guidelines for evaluating profitable adjustments.

In addition, use of the budgets should facilitate an evaluation, at the aggregate level, of the impacts on cattle and beef supplies, and of changes in management practices and techniques, fluctuations in weather and forage supplies, and changes in prices paid and received. These budgets, both at the farm or ranch and in the aggregate, could provide a means for evaluating government policies and programs aimed at assuring the Nation's consumers of an adequate supply of beef at reasonable prices consistent with prices received for cattle by the producer.

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pendix table 1 -- Beef cows, milk cows, and total cattle on farms January 1; calves born and calving percentage, by region, 1950, 1955, 1960-73

Region and year	Beef cows 1/	Milk cows 1/	Total cattle 1/, 2/	Calves born 3/	Calving percentage 4/
	Thousands				Percent
orn Belt-Lake States:					
1950	2,070	9,717	23,805	10,695	91
1955	3,799	9,534	28,749	12,093	91
1960	3,969	8,081	28,747	10,703	89
1961	4,061	8,027	28,943	10,932	90
1962	4,228	8,007	29,480	10,871	89
1963	4,456	7,818	30,208	10,891	89
1964	4,714	7,643	30,624	11,206	91
1965	4,962	7,473	30,747	11,002	88
1965	5,260	6,785	30,010	10,679	89
1967	5,329	6,404	29,559	10,621	91
1968	5,513	6,121	29,174	10,484	90
1969	5,570	5,906	28,963	10,482	91
1970	5,822	5,750	29,252	10,537	91
1971	5,925	5,102	29,417	10,854	98
1972	6,622	4,952	30,295	11,132	96
1973	6,898	4,881	30,616	11,281	96
orthern Plains:					
1950	3,121	1,903	11,380	4,497	90
1955	4,809	1,735	14,680	5,845	89
1960	4,592	1,332	14,521	5,356	90
1961	4,744	1,305	14,904	5,528	91
1962	4,980	1,280	15,762	5,720	91
1963	5,282	1,214	16,781	5,946	92
1964	5,716	1,163	17,785	6,328	92
1965	5,982	1,134	17,754	6,443	91
1966	6,093	999	18,547	6,365	90
1967	6,118	935	18,612	6,502	92
1968	6,177	883	18,413	6,567	93
1969	6,287	834	18,396	6,659	94
1970	6,410	798	18,822	6,837	95
1971	6,473	697	19,506	7,016	98
1972	6,900	648	20,264	7,360	98
1973	7,146	629	20,596	7,664	99
Southern Mountain:					
1950	2,473	717	6,574	2,776	87
1955	3,293	692	8,247	3,585	90
1960	3,326	614	8,370	3,481	88
1961	3,384	594	8,167	3,516	88
1962	3,465	582	8,292	3,614	89
1963	3,636	567	8,850	3,768	90
1964	3,826	555	9,437	3,937	90
1965	4,027	537	9,643	4,134	91

Continued

See footnotes at end of table.

ppendix table 1 -- Beef cows, milk cows, and total cattle on farms January 1; calves born, and calving percentage, by region, 1950, 1955, 1960-73 -- Continued

Region and year	Beef cows 1/	Milk cows 1/	Total cattle 1/, 2/	Calves born 3/	Calving percentage 4/
	- - - - - - - - - - - -	-Thousands - - -	- - - - - - - - -	- - - -	Percent
1966	4,219	468	10,037	4,221	90
1967	4,245	453	10,117	4,254	91
1968	4,397	446	10,440	4,454	92
1969	4,484	447	10,615	4,603	93
1970	4,683	445	10,940	4,729	92
1971	4,691	412	11,385	4,890	96
1972	4,800	373	11,690	4,929	95
1973	4,902	370	11,881	5,060	96
Southeast Region:					
1950	2,816	4,767	13,201	5,948	78
1955	5,622	4,862	18,178	8,282	79
1960	5,993	3,716	17,244	7,708	79
1961	6,090	3,639	17,415	7,843	81
1962	6,429	3,556	17,745	8,085	81
1963	6,798	3,441	18,033	8,291	81
1964	7,232	3,279	18,635	8,519	81
1965	7,452	3,136	18,886	8,996	85
1966	8,281	2,767	19,651	9,025	82
1967	8,308	2,617	19,631	9,260	85
1968	8,492	2,512	19,967	9,482	86
1969	8,813	2,406	19,995	9,863	88
1970	9,167	2,356	20,407	9,911	86
1971	9,148	2,100	20,515	10,312	92
1972	9,500	1,923	21,234	10,484	92
1973	10,014	1,865	21,927	10,661	90
Southwest Region:					
1950	5,081	1,827	12,692	5,954	86
1955	6,311	1,452	13,925	6,695	86
1960	6,564	1,037	14,631	6,400	84
1961	6,832	984	15,113	6,541	84
1962	7,153	965	15,591	6,868	85
1963	7,702	931	16,416	7,126	83
1964	8,096	881	16,728	7,356	82
1965	8,055	834	16,675	7,524	85
1966	8,200	729	17,350	7,563	85
1967	8,279	689	17,554	7,759	87
1968	8,428	664	17,958	7,960	88
1969	8,697	634	18,841	8,309	89
1970	8,995	635	19,885	8,456	88
1971	9,004	588	21,130	8,477	88
1972	8,590	574	21,709	8,487	93
1973	9,515	577	23,795	9,065	90

Continued

See footnotes at end of table.

Appendix table 1 -- Beef cows, milk cows, and total cattle on farms January 1; calves born, and calving percentage, by region, 1950, 1955, 1960-73 -- Continued

Region and year	Beef cows [1]	Milk cows [1]	Total cattle [1], [2]	Calves born [3]	Calving percentage [4]
	------------	------------	Thousands	------------	Percent
Western Region:					
1950	1,107	1,369	4,645	1,985	80
1955	1,626	1,431	6,509	2,680	88
1960	1,689	1,341	6,703	2,621	87
1961	1,706	1,342	6,850	2,644	87
1962	1,748	1,322	6,966	2,698	88
1963	1,795	1,304	7,397	2,723	88
1964	1,921	1,273	7,660	2,833	89
1965	1,987	1,269	7,728	2,894	89
1966	2,050	1,201	7,793	2,862	88
1967	2,080	1,196	7,830	2,877	88
1968	2,066	1,191	7,849	2,865	88
1969	2,026	1,169	7,765	2,838	89
1970	2,004	1,158	7,714	2,832	90
1971	1,943	1,105	7,494	2,845	93
1972	1,936	1,042	7,553	2,768	93
1973	1,875	1,068	7,613	2,817	93
Northeast Region:					
1950	75	3,553	5,666	2,991	82
1955	199	3,756	6,304	3,395	86
1960	210	3,406	5,834	3,084	85
1961	211	3,451	5,927	3,105	85
1962	225	3,436	5,946	3,105	85
1963	224	3,385	5,827	3,017	84
1964	224	3,289	5,663	2,959	84
1965	232	3,191	5,524	2,860	84
1966	241	3,018	5,233	2,733	84
1967	237	2,886	5,098	2,638	84
1968	241	2,792	5,101	2,574	85
1969	250	2,739	5,057	2,582	86
1970	258	2,716	5,055	2,543	86
1971	258	2,395	4,873	2,503	94
1972	367	2,252	4,863	2,479	95
1973	375	2,219	4,855	2,410	93

[1] Cows and heifers 2 years and older on January 1, except for 1970-73, which includes only cows that have calved.

[2] Includes all cows, heifers, calves, steers, and bulls kept for beef and milk.

[3] Calves born during the year.

[4] Computed by dividing the number of calves by all cows and heifers 2 years or older on January 1, except for 1970-73, in which only cows that have calved is the divisor.

Appendix table 2 -- Death losses from all cattle and calves on farms January 1; by region, 1950, 1955, 1960-73

Region and year	Calves			Cattle 1/		
	Born	Deaths		On farms	Deaths	
	- -Thousands- -		Percent	- -Thousands- -		Percent
Corn Belt-Lake States:						
1950	10,695	704	6.6	18,068	417	2.3
1955	12,093	710	5.9	20,838	483	2.3
1960	10,703	756	7.1	20,800	455	2.2
1961	10,932	723	6.6	20,915	439	2.1
1962	10,871	755	6.9	21,106	450	2.1
1963	10,891	727	6.7	21,534	450	2.1
1964	11,206	741	6.6	21,812	464	2.1
1965	11,002	737	6.7	21,607	481	2.2
1966	10,679	733	6.9	21,049	477	2.3
1967	10,621	740	7.0	20,593	480	2.3
1968	10,484	727	9.9	20,275	453	2.2
1969	10,482	788	7.5	19,983	428	2.1
1970	10,537	800	7.6	20,179	434	2.2
1971	10,854	842	7.8	21,388	455	2.1
1972	11,112	993	8.9	22,060	483	2.2
1973	11,281	1,260	11.2	22,285	568	2.5
Northern Plains:						
1950	4,497	260	5.8	7,920	196	2.5
1955	5,845	263	4.5	9,849	215	2.2
1960	5,356	313	5.8	9,732	230	2.4
1961	5,528	289	5.2	9,926	233	2.3
1962	5,720	304	5.3	10,397	232	2.2
1963	5,946	295	5.0	11,074	219	2.0
1964	6,328	325	5.1	11,706	201	1.7
1965	6,443	335	5.2	11,745	222	1.9
1966	6,365	306	4.8	12,022	215	1.8
1967	6,502	299	4.6	11,977	189	1.6
1968	6,567	294	4.5	11,804	205	1.7
1969	6,659	344	5.2	11,780	223	1.9
1970	6,837	370	5.4	12,027	231	1.9
1971	7,016	364	5.2	13,760	225	1.6
1972	7,360	480	6.5	14,330	239	1.7
1973	7,664	626	8.2	14,683	305	2.1
Southern Mountain:						
1950	2,776	175	6.3	4,801	117	2.4
1955	3,585	222	6.2	5,823	131	2.2
1960	3,481	213	6.1	5,909	121	2.0
1961	3,516	196	5.6	5,902	117	2.0
1962	3,614	209	5.8	5,952	125	2.1
1963	3,768	198	5.3	6,294	122	1.9
1964	3,937	256	6.5	6,580	136	2.1
1965	4,134	252	6.1	6,800	133	2.0
1966	4,221	191	4.5	7,012	138	2.0

Continued

See footnotes at end of table.

Appendix table 2 -- Death losses from all cattle and calves on farms January 1; by region, 1950, 1955, 1960-73 -- Continued

Region and year	Calves			Cattle 1/		
	Born	Deaths		On farms	Deaths	
	- -Thousands- -		Percent	- -Thousands- -		Percent
1967	4,254	223	5.2	7,095	121	1.7
1968	4,454	226	5.1	7,353	124	1.7
1969	4,603	234	5.1	7,468	153	2.0
1970	4,729	263	5.6	7,688	169	2.2
1971	4,890	253	5.2	8,113	160	2.0
1972	4,929	327	6.6	8,441	178	2.1
1973	5,060	530	10.5	8,607	211	2.5
Southeast Region:						
1950	5,948	386	6.5	10,441	314	3.0
1955	8,282	444	5.4	14,459	332	2.3
1960	7,708	472	6.1	13,318	342	2.6
1961	7,843	473	6.0	13,418	323	2.4
1962	8,085	484	6.0	13,651	335	2.5
1963	8,291	483	5.8	13,937	335	2.4
1964	8,519	488	5.7	14,292	339	2.4
1965	8,996	499	5.5	14,380	356	2.5
1966	9,025	485	5.4	15,062	336	2.2
1967	9,260	499	5.4	14,910	324	2.2
1968	9,482	503	5.3	15,183	315	2.1
1969	9,863	525	5.3	15,280	321	2.1
1970	9,911	547	5.5	15,581	336	2.2
1971	10,312	583	5.7	15,855	363	2.3
1972	10,484	641	6.1	16,241	373	2.3
1973	10,661	772	7.2	16,754	397	2.4
Southwest Region:						
1950	5,954	334	5.6	9,591	207	2.2
1955	6,695	350	5.2	10,400	211	2.0
1960	6,400	387	6.0	10,562	221	2.1
1961	6,541	396	6.1	10,860	224	2.1
1962	6,868	379	5.5	11,137	224	2.0
1963	7,126	367	5.2	11,834	233	2.0
1964	7,356	388	5.3	12,157	239	2.0
1965	7,524	384	5.1	12,023	238	2.0
1966	7,563	357	4.7	12,345	250	2.0
1967	7,759	380	4.9	12,440	225	1.8
1968	7,960	372	4.7	12,726	236	1.9
1969	8,309	345	4.2	13,317	230	1.7
1970	8,456	379	4.5	13,889	233	1.7
1971	8,477	400	4.7	14,855	251	1.7
1972	8,487	473	5.6	15,154	300	2.0
1973	9,065	630	7.0	16,977	387	2.3
Western Region:						
1950	1,985	128	6.4	3,678	93	2.5
1955	2,680	146	5.4	5,022	103	2.1

Continued

See footnotes at end of table.

Appendix table 2 -- Death losses from all cattle and calves on farms January 1; by region, 1950, 1955, 1960-73 -- Continued

Region and year	Calves			Cattle 1/		
	Born	Deaths		On farms	Deaths	
	- -Thousands- -		Percent	- -Thousands- -		Percent
1960	2,621	142	5.4	5,063	106	2.1
1961	2,644	144	5.4	5,173	101	2.0
1962	2,698	149	5.5	5,189	114	2.2
1963	2,723	147	5.4	5,535	112	2.0
1964	2,833	160	5.6	5,735	118	2.1
1965	2,894	151	5.2	5,791	118	2.0
1966	2,862	131	4.6	5,774	110	1.9
1967	2,877	139	4.8	5,852	113	1.9
1968	2,865	140	4.9	5,835	110	1.9
1969	2,838	167	5.9	5,736	118	2.1
1970	2,832	154	5.4	5,674	115	2.0
1971	2,845	174	6.1	5,802	122	2.1
1972	2,768	203	7.3	5,722	131	2.3
1973	2,817	300	10.6	5,812	145	2.5
Northeast Region:						
1950	2,991	310	10.4	4,740	101	2.1
1955	3,395	300	8.8	5,303	98	1.8
1960	3,084	248	8.0	4,852	92	1.9
1961	3,105	260	8.4	4,927	93	1.9
1962	3,105	256	8.2	4,941	96	1.9
1963	3,017	252	8.4	4,883	92	1.9
1964	2,959	242	8.2	4,724	87	1.8
1965	2,860	239	8.4	4,612	89	1.9
1966	2,733	213	7.8	4,391	81	1.8
1967	2,638	225	8.5	4,219	70	1.7
1968	2,574	209	8.1	4,207	61	1.4
1969	2,582	200	7.7	4,168	64	1.5
1970	2,543	215	8.5	4,156	71	1.7
1971	2,503	215	8.6	4,123	74	1.8
1972	2,479	233	9.4	4,035	71	1.8
1973	2,410	275	11.4	4,002	81	2.0
48-State total:						
1950	34,846	2,297	6.6	59,239	1,445	2.4
1955	42,575	2,435	5.7	71,694	1,573	2.2
1960	39,353	2,531	6.4	70,236	1,567	2.2
1961	40,109	2,481	6.2	71,121	1,530	2.2
1962	40,961	2,536	6.2	72,373	1,576	2.2
1963	41,762	2,469	5.9	75,091	1,563	2.1
1964	43,138	2,600	6.0	77,006	1,584	2.1
1965	43,853	2,597	5.9	76,958	1,637	2.1
1966	43,448	2,416	5.6	77,655	1,607	2.1
1967	43,911	2,505	5.7	77,086	1,522	2.0
1968	44,386	2,471	5.6	77,383	1,504	1.9
1969	45,336	2,603	5.7	77,732	1,537	2.0
1970	45,845	2,728	6.0	79,194	1,589	2.0
1971	46,897	2,831	6.0	83,896	1,650	2.0
1972	47,619	3,350	7.0	85,983	1,775	2.1
1973	48,958	4,393	9.0	89,120	2,094	2.4

1/ Excluding calves