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Structural Changes in Fed Cattle Industry: South Dakota vs. United States

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Summary

Between 1973 and 1993, there has been a major shift of fed cattle production in the United States from the Midwest and Southwest to the Central and Southern Plains. Average marketings per feedlot per year in the nation's 13 major cattle feeding states have more than doubled; average marketings per feedlot in AZ, CA, and WA are now 15,000 head or more. The degree to which the concentration has taken place in different states and regions is highly variant. South Dakota's average fed cattle marketings per feedlot have doubled over the past two decades. However, growth in fed cattle marketings in South Dakota has been limited to feedlots with a one-time capacity of 1,000 to 4,000 head, not in "mega-feedlots" as in the nation's four major cattle feeding states. The pattern of moderately-sized and relatively widely-dispersed feedlots in South Dakota confers to the state a major comparative advantage—relative to possible soil and water pollution from animal wastes.

Key Words: Fed Cattle, Concentration

Introduction

The United States fed cattle industry has become more geographically concentrated during the past two decades. Many commentators believe that the nature and degree of increased concentration is the same throughout the nation's major cattle feeding areas.

The purpose of this article is to show that this belief is false. In fact, the pattern of change over the past two decades in fed cattle concentration in South Dakota differs greatly from patterns of change in the United States' other 12 major cattle producing states.

Materials and Methods

Each quarter, the USDA reports data on numbers of (1) feedlots and (2) fed cattle marketed in each of the United States' 13 major cattle producing states [data on the tonnage of beef marketed, however, are unavailable]. These USDA data are taken into account in reports by the Livestock Marketing Information Center (LMIC) in Denver. [LMIC was earlier known as the Western Livestock Marketing Information Project.] The findings reported in this article are based on LMIC's fed cattle marketing data between 1973 and 1993 for the nation's 13 major cattle feeding states. Collectively, these 13 states account for 85% of the cattle and calves on feed nationally.

Results and Discussion

Regional Concentration in Fed Cattle Production

The total number of cattle fed in the United States' 13 major cattle feeding states has remained essentially unchanged over the past two decades at around 22.5 million (Table 1). Among regions, however, changes have been dramatic. From 1973 to 1993, the number of cattle fed in the five Central and Southern Plains major cattle feeding states has increased by 4.2 million or 32%. The largest increases have been in KS and NE, although TX continues to be the nation's leading cattle feeding state.

The increase in fed cattle marketings in the Central and Southern Plains, and to a lesser extent in the Northwest, has been at the expense of cattle feeding in the Southwest and

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Table 1. Changes in total number of fed cattle marketed, 1973 to 1993

Region/state	Number of fed cattle marketed per year ('000 head) 1973	1993	Change from 1973 to 1993 No. of head '000	Percent
Central and Southern Plains				
Texas	4,412	5,290	+ 878	+ 20
Nebraska	3,607	4,790	+ 1,183	+ 33
Kansas	2,500	4,160	+ 1,660	+ 66
Colorado	2,144	2,340	+ 196	+ 9
Oklahoma	564	835	+ 217	+ 48
Subtotal	13,227	17,415	+ 4,188	+ 32
Northwest				
Idaho	395	625	+ 230	+ 58
Washington	367	453	+ 86	+ 23
Subtotal	762	1,078	+ 316	+ 41
South Dakota	559	485	- 74	- 13
Southwest				
California	1,942	585	- 1,357	- 70
Arizona	919	378	- 541	- 59
Subtotal	2,861	963	- 1,898	- 66
Midwest-heartland states				
Iowa	3,389	1,445	- 1,944	- 57
Minnesota	875	485	- 390	- 45
Illinois	945	445	- 500	- 53
Subtotal	5,209	2,375	- 2,834	- 54
Thirteen state total	22,618	22,316	- 302	- 1

the Midwest. For example, the numbers of cattle fed in the Southwest's major cattle feeding states (CA and AZ) have dropped by 1.9 million or 66% and in the Midwest-heartland states (IA, MN, and IL) by 2.8 million or 54%.

Individual Feedlot Concentration

Between 1973 and 1993, the average number of fed cattle marketed per feedlot in the United States' 13 major cattle feeding states more than doubled to 504 head per year (Table 2). Again, patterns of change in average marketings per feedlot vary much among regions.

Absolute changes in marketings per feedlot have been greatest in AZ (an increase of over 15.2 thousand head per feedlot) and WA (13.1 thousand), followed by TX (5.4 thousand) and CO (4.4 thousand). On the other hand, average

Table 2. Changes in average number of fed cattle marketed per feedlot, 1973 and 1993

Region/state	Average number of fed cattle marketed per feedlot		Change from 1973 to 1993	
	1973	1993	Number of head	1993 as a multiple of 1973
Southwest				
California	10,729	15,000	+ 4,271	1.40
Arizona	19,146	34,364	+ 15,218	1.79
Northwest				
Idaho	695	4,464	+ 3,769	6.42
Washington	1,973	15,100	+ 13,127	7.65
Central and Southern Plains				
Texas	2,878	8,266	+ 5,388	2.87
Colorado	3,521	7,932	+ 4,411	2.25
Oklahoma	1,000	3,884	+ 2,884	3.88
Kansas	385	1,733	+ 1,348	4.50
Nebraska	210	798	+ 60	3.80
South Dakota	61	121	+ 6	1.98
Midwest-heartland states				
Iowa	100	94	- 6	.94
Illinois	63	62	- 1	.98
Minnesota	74	61	- 13	.82
Thirteen state total	232	504	+ 272	2.17

marketings per feedlot in the three Midwest-heartland states have decreased slightly.

Relative changes in marketings per feedlot have been greatest in the Northwest followed by the Central and Southern Plains and the Southwest. The states experiencing the greatest relative increases are WA (a 7.7-fold increase), ID (6.4 times), KS (4.5 times), OK (3.9 times), and NE (3.8 times).

South Dakota's Unique Fed Cattle Industry Structure

South Dakota usually ranks 8th to 10th nationally in total number of fed cattle marketed. In 1993, 485 thousand fed cattle were marketed in the state (Table 1). Over the past two decades, the number of cattle fed in South Dakota has remained more stable than that in any other state except CO.

The average number of 121 fed cattle marketed per feedlot per year in South Dakota in 1993—which has doubled since 1973—is not greatly different from the average marketings per feedlot in the Midwest-heartland (Table 2). However, it is only a tiny fraction (ranging from 1/7th to 1/284th) of the average marketings per feedlot in the nation's other major cattle feeding states.

The number of fed cattle marketed from feedlots in South Dakota with under a 1,000 head capacity grew 24% from 376 thousand in 1973 to 466 thousand in 1981 (Figure 1). By 1993, however, the number of fed cattle marketed from feedlots with under a 1,000 head capacity (120 thousand) had dropped to only about one-fourth of the number in 1981. The main reason for this striking decrease was closure of small feedlots.

The number of fed cattle marketed from feedlots with over a 4,000 head capacity has fluctuated a great deal from year to year over the past two decades. Numbers increased from 100 thousand in 1973 to a peak of 300 thousand in 1985. By 1993, however, they fell to 180 thousand.

The numbers of fed cattle marketed in two intermediate size-of-feedlot categories, however, have shown sustained increases. For feedlots with a 1,000 to 2,000 head capacity, numbers increased from 50 thousand in 1973 to 71 thousand in 1993. For feedlots with a 2,000 to 4,000 head capacity, the increase was from 32 thousand to 114 thousand.

The pattern of growth in feedlot sizes in South Dakota is greatly different from that in the nation's four largest cattle producing states. In those states, by far the largest growth in fed cattle production over the past two decades has been in feedlots with a one-time capacity of >32,000 head ("mega-feedlots"). Fed cattle marketings from mega-feedlots in TX (3.1 million cattle or 58% of the state's total fed cattle marketings) are more than double those in any other state (Table 3). Since 1973, the number of fed cattle marketed from mega-feedlots in TX has increased by 38%. In KS, CO, and NE, relative increases in mega-feedlot marketings have been greater, ranging from 1.9 to 3.2 times.

Conclusion

The strong trends toward greater concentration of fed cattle regionally in the United States and in individual feedlots are the source of environmental concern to many citizens and policy-makers. Since fed cattle are still relatively widely-dispersed in South Dakota, however, the chances of animal wastes contributing to possible soil and water pollution are much less here than in the states further south and west (except for NE) where mega-feedlots dominate fed cattle production.

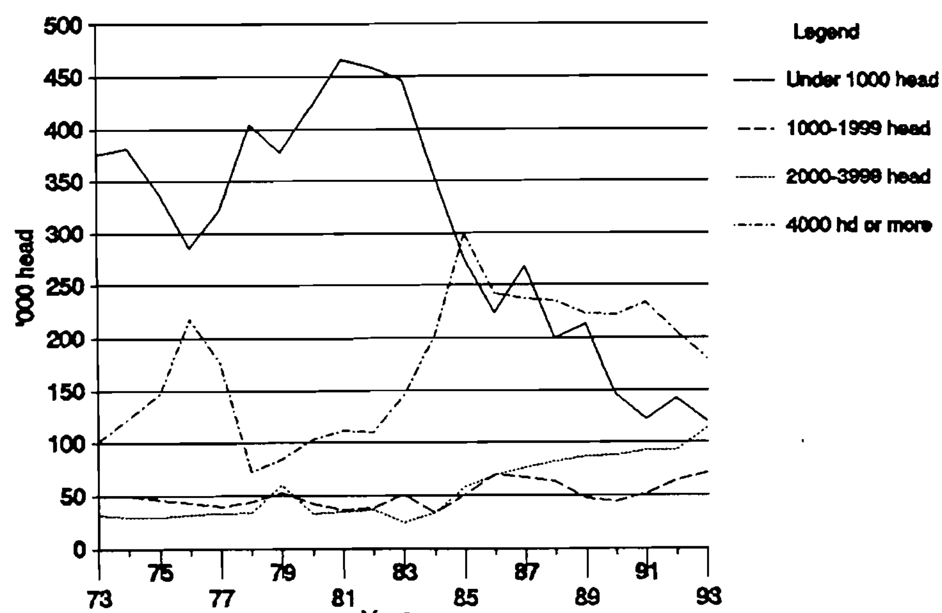

Figure 1. Fed cattle marketed by size-of-feedlot category, South Dakota, 1973-1993.

Table 3. Cattle marketed from feedlots with a capacity of >32,000 head, 1973 and 1993

	1973		1993		
	No. head ('000)	Percent of state total	No. head ('000)	Percent of state total	1993 as a multiple of 1973
Central and Southern Plains					
Texas	2,221	50.3	3,070	58.0	1.38
Kansas	450	18.0	1,450	34.9	3.22
Colorado	594	27.7	1,125	48.1	1.89
Nebraska	220	6.0	430	9.0	1.95
Southwest					
California	625	32.2	313	53.5	.50
Arizona	546	59.4	257	68.0	.47
Thirteen state total	4,656	20.6	7,838	35.1	1.68