

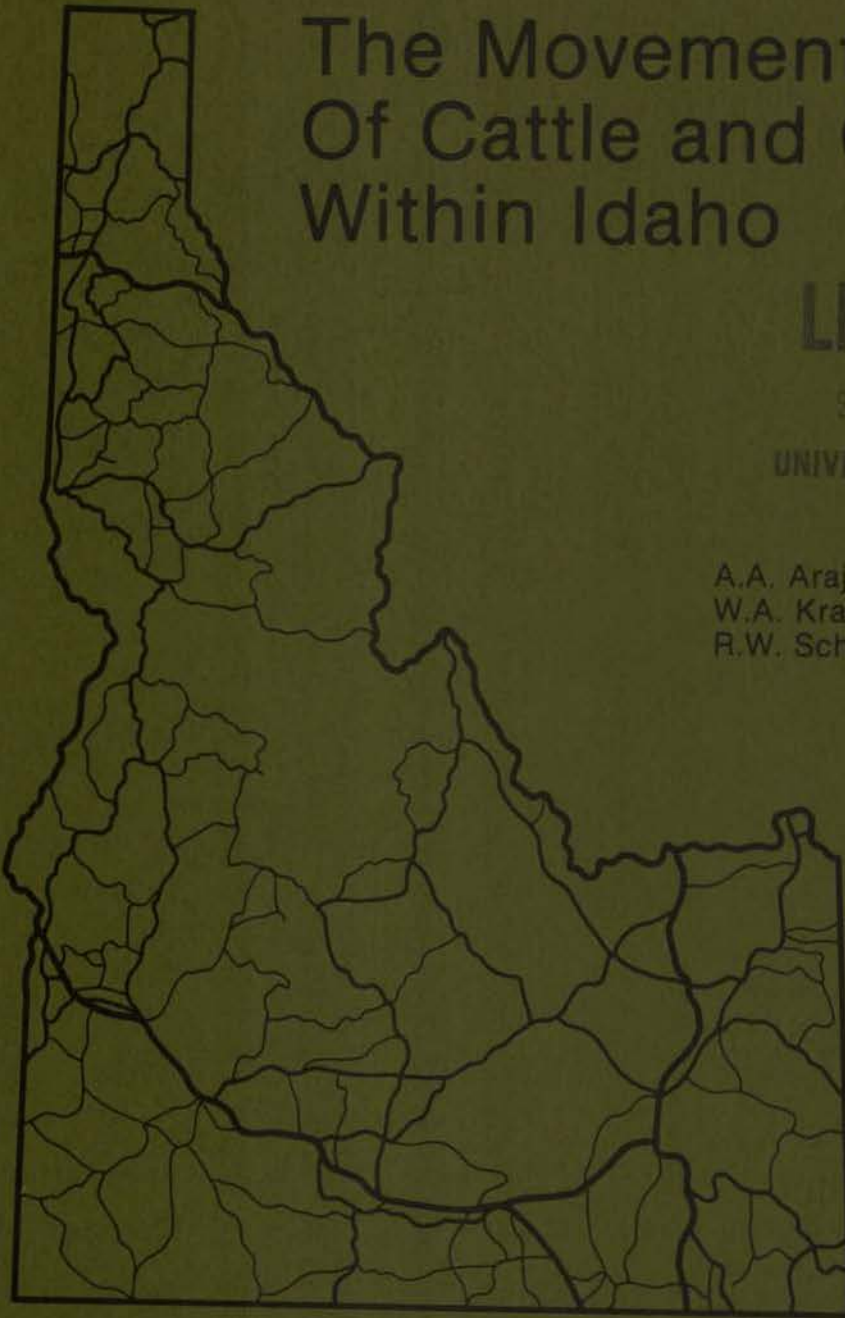
The Movement Of Cattle and Calves Within Idaho

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Agricultural Experiment Station

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About This Research

This bulletin is the second in a series of four research reports evaluating the movement of beef and beef products. The first bulletin reported on movement of beef and beef products between Idaho and other states. This publication looks at the movement of feeder cattle, fed beef and cows, bulls and calves within Idaho.

The four reports are:

- Bulletin No. 557: The Interstate Movement of Beef and Beef Products.
- Bulletin No. 559: The Movement of Cattle and Calves Within Idaho.
- Bulletin No. 563: The Economic Impact of the Idaho Beef Industry.
- Bulletin No. 583: Costs of Transporting Idaho's Beef and Beef Products.

The Authors

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Summary

The Idaho beef industry depends significantly on local production of animals for its supply of feeder cattle and fed beef. About 70% of the feeder cattle placed annually in Idaho feedlots come from Idaho. Idaho meat packers depend on local cattle for over 68% of their annual slaughter.

In 1971, 675,903 cattle and calves were marketed within Idaho. Of this total, 40% were feeder cattle, 31.7% fed cattle, 14.5% cows, 10.9% calves, and 2.9% bulls.

Of the 269,666 feeder cattle involved in transactions within the state, 88% were beef type and 12% dairy type. Nearly 51% were marketed directly and 49% were marketed through auctions. District 2 was the point of origin of 33% of feeder cattle and the final destination for 52%. District 4 was the point of origin for 32% and the final destination for 21%. District 3 had movements of 27 and 21.5% and District 1 had 9 and 6. In general, the flow of feeder cattle was from surplus Districts 1 and 4 to deficit Districts 3 and 4.

Over 38% of the feeder cattle were marketed in September, October, and November and just 15% in May, June, and July.

Of the 214,240 fed beef marketed and slaughtered in Idaho plants, 45% came from District 2. Another 51,881 fed beef were shipped into this district from other areas in Idaho, making District 2 the final destination for 68% of the fed cattle transacted internally within Idaho. District 3 was the point of origin for 44% of the fed beef and the final destination for 28%; District 4 originated 11% of fed cattle marketed within Idaho and was final destination for only 3%. District 1 accounted for less than 1% of the fed beef movement within the state.

Over 36% of the fed cattle transactions within Idaho occurred in the fourth quarter of the year — October through December. Highest proportion of movement was in September, October, and December and the lowest was in June, July, and August.

Of the 191,997 cows, bulls, and calves marketed within the state in 1971, 30% of the bulls were marketed the first quarter, 30% of the cows were marketed in the fourth quarter, and 40% of the calves were marketed in the fourth quarter. These figures reflect the beef production cycle in Idaho, with spring calving, summer breeding, fall culling, and early winter purchase of replacement stock.

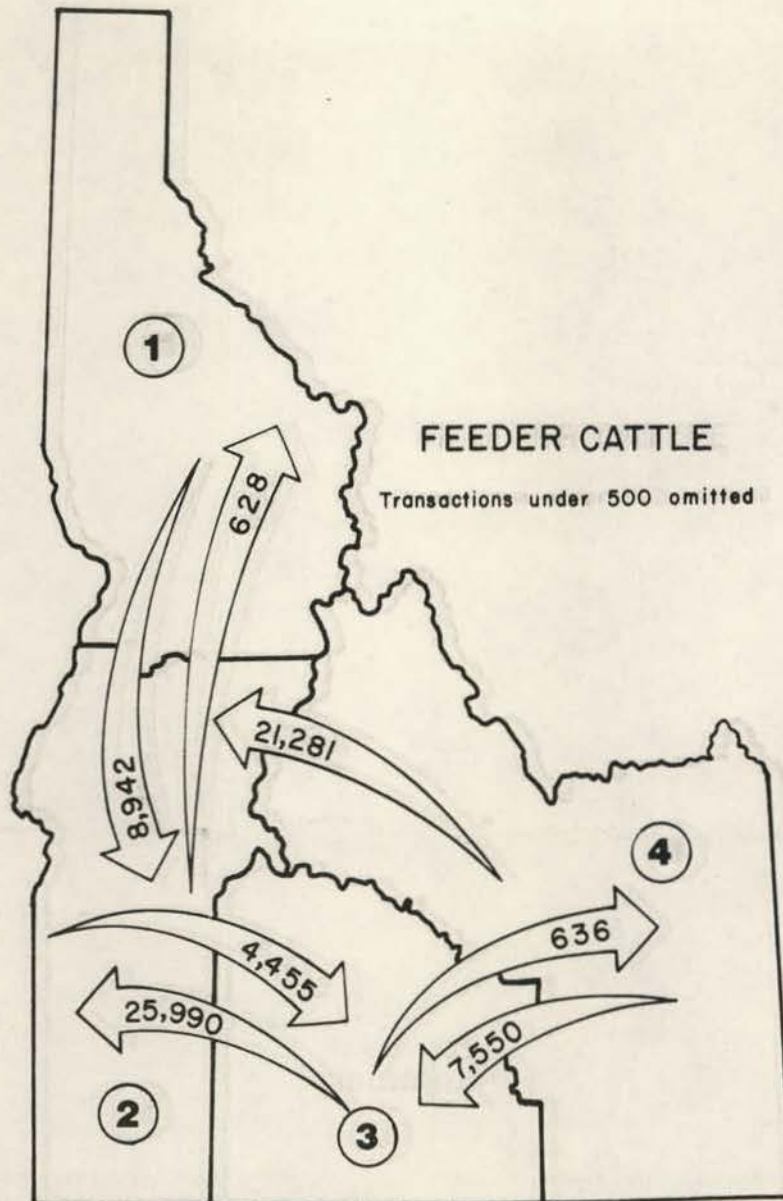


Fig. 1. Feeder cattle movement among crop reporting districts in Idaho, 1971.

Key to districts:

1. Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce, and Shoshone counties.
2. Ada, Adams, Boise, Canyon, Elmore, Gem, Owyhee, Payette, Valley, and Washington counties.
3. Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, and Twin Falls counties.
4. Bannock, Bear Lake, Bingham, Bonneville, Butte, Caribou, Clark, Custer, Franklin, Fremont, Jefferson, Lemhi, Madison, Oneida, Power, and Teton counties.

The Movement of Cattle and Calves Within Idaho

A. A. Araji, W. A. Krasselt, R. W. Schermerhorn

The Idaho beef industry depends significantly on local production for its supply of feeder cattle and fed beef. About 70 percent of the feeder cattle placed on feed annually by Idaho feedlots originate in Idaho and over 68 percent of the Idaho meat packing industry's annual slaughter is local cattle. The geographic distribution of feeder cattle production, feedlots, and slaughtering facilities creates complex flows of cattle within Idaho. Evaluation of the intrastate movement of cattle provides information on sources of supply and the seasonal variations of supply which may lead to more orderly marketing of beef animals within Idaho.

Objectives of the Study

The objectives of this study were:

- (1) To estimate the number and seasonal variations of feeder cattle movement within Idaho by points of origin and destination.
- (2) To determine the number and seasonal variations of fed cattle movement within Idaho by points of origin and destination.
- (3) To determine the number and seasonal variations of cows, bulls, and calves movement within Idaho and by points of origin and destination.

Method and Study Area

Information on the movement of cattle and calves within Idaho was obtained from the Idaho brand inspector district offices. The intrastate movement of beef cattle was analyzed by points of origin and destination, sex, and market channels used. The seasonal variation of the movement of cattle and calves within Idaho was analyzed for each class of beef animal.

Intrastate Movement of Feeder Cattle

A total of 675,903 cattle and calves were marketed between areas of Idaho in 1971. Of these, 40% were feeder cattle, 32% fed cattle, 14% cows, 11% calves and 3% bulls.

The 269,666 head of feeder cattle involved in intrastate transactions were by far the largest movement of any class of cattle. Most of these, 88%, were beef-type feeders; 12% were dairy-type. Direct transaction accounted for 51.1% and auctions handled 48.9% of the intrastate movement of feeder cattle. About 58% of the beef-type feeders were marketed directly and 42% were marketed through

auctions. Over 94% of the dairy-type feeders were marketed through auctions, with less than 6% marketed directly (Table 1).

Movement of Feeder Cattle Between Crop Reporting Districts

The movement of feeder cattle between the four crop reporting districts of Idaho is shown in Fig. 1. District 1 marketed only 23,245 feeder cattle within Idaho, representing 8.6% of the intrastate movement of feeders. Of this total, 14,303 head were moved within counties in District 1 and 8,942 head moved to District 2. Only 755 feeders moved into District 1 from the other three districts, so overall District 1 accounted for the least intrastate movement of feeder cattle.

District 2 marketed 88,658 feeder cattle within Idaho — about 33% of the total intrastate movement. Over 94% moved within the counties in District 2 and 6% was marketed in Districts 1, 3, and 4. District 2 was the final destination for about 52% or 139,712 of the feeder cattle moved within Idaho. About 60% originated in District 2, 6% in District 1, 19% in District 3, and 15% in District 4. District 2 is the only district that shipped in more feeder cattle from the other districts than it shipped out to those districts.

District 3 originated about 27% — 72,544 head — of the feeder cattle movement within Idaho, with 45,875 head of these moving between counties within the district. About 25,990 head moved to District 2, while Districts 1 and 4 received only 43 head and 636 head, respectively. District 3 was the final destination for 21.5% — 57,880 head — of the feeder cattle movement within Idaho. In addition to the 45,875 head that originated in District 3, 4,455 head were shipped in from District 2 and 7,550 head from District 4.

Approximately 32% — 85,219 head — of the feeder cattle movement within Idaho originated in District 4. Of this total, 56,804 head moved between areas within District 4 and 21,281 head moved to District 2, 84 to District 1 and 7,550 head to District 3. District 4 shipped in 76 head from District 2 and 636 head from District 3.

Seasonal Variation

Nearly a third of the intrastate marketing of feeder cattle, 87,172 head, occurred in the fourth quarter of the year (Table 2). The least intrastate movement occurred in the second quarter, with the low points during June and July. The largest proportion of intrastate movement occurred in September and October. The other months of the year were fairly even.

Table 1. Intrastate movement of feeder cattle by market channel, sex, and type, Idaho, 1971.

Market Channel	Beef					Dairy					Total
	Steers		Heifers		Subtotal	Steers		Heifers		Subtotal	
	No.	%	No.	%		No.	%	No.	%		
Direct	89,773	65.4	47,456	34.6	137,229	164	9.1	1,648	90.9	1,812	139,041
Auction	59,472	59.4	40,620	40.6	100,047	20,097	65.8	10,436	34.2	30,533	130,625
TOTAL	149,245	62.9	88,076	37.1	237,321	20,261	62.6	12,084	37.4	32,345	269,666

Table 2. Seasonal variation of intrastate movement of feeder cattle, Idaho, 1971.

Month	No. of Head	%
January	19,846	7.4
February	23,150	8.6
March	21,851	8.1
First Quarter	64,847	24.1
April	23,212	8.6
May	17,585	6.5
June	12,730	4.7
Second Quarter	53,533	19.8
July	11,658	4.3
August	19,049	7.1
September	33,407	12.4
Third Quarter	64,114	23.8
October	41,382	15.3
November	29,252	10.9
December	16,530	6.1
Fourth Quarter	87,172	32.3
TOTAL	269,660	100.0

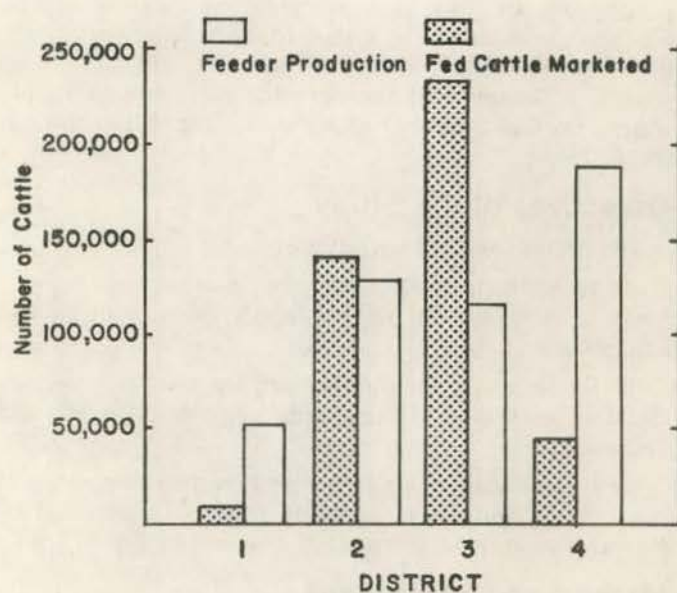


Fig. 2. Production-utilization of feeder cattle by crop reporting districts in Idaho, 1971.

Table 3. Estimated feeder cattle production in Idaho by crop reporting districts, 1971.

District	Beef		Dairy		Total	
	No.	%	No.	%	No.	%
1	47,192	11.6	4,402	5.6	51,594	10.6
2	101,707	25.0	26,492	33.7	128,199	26.4
3	95,198	23.4	20,753	26.4	115,951	23.9
4	162,732	40.0	26,963	34.3	189,695	39.1
Total	406,829	100.0	78,610	100.0	485,439	100.0

Feeder Cattle Movement and Feedlot Location

The pattern of feeder cattle movement within Idaho is influenced by the location of feedlots. Of the 423,058 head of fed beef marketed from Idaho's feedlots in 1971, 55% were fed in District 3 and 33% in District 2. Districts 4 and 1 accounted for 1% and 11% respectively.

Considering production and use of feeder cattle in the four districts (Fig. 2), Districts 2 and 3 had a feeder cattle deficit of 12,678 and 117,795 head respectively while Districts 1 and 4 had surpluses of 47,943 and 144,911 head. Consequently, the intrastate flow of feeder cattle, influenced by the geographical distribution of feedlots and the cow herds, is from Districts 1 and 4 to Districts 2 and 3.

This formula is used to estimate annual feeder cattle production by district:

$$Y = (Z_1 - Z_2) - (V_1 + V_2 + V_3)$$

where:

- Y = the number of feeder calves available year t
- a₁ = the number of cows and heifers at least 2 years old and older on farms year t-1
- a₂ = the calving rate, number of calves born per 100 cows and heifers 2 years old and older on farms year t-1
- Z₁ = a₁ · a₂, the number of calves born year t-1
- Z₂ = the calf death year t-1
- Z₁ - Z₂ = the net weaners available year t-1
- V₁ = heifer calves kept for replacement in year t equaling 18% of net beef weaners at year t-1 and 25% of net dairy weaners at year t-1
- V₂ = the calves kept for bull replacements at year t, equaling 1.25% of beef cows 2 years and older on farms year t-1 for beef and .5% of the net dairy weaners available year t-1 for dairy
- V₃ = the calf death at year t equaling 2% of the net weaners available year t-1.

Estimating by use of this formula, approximately 485,439 head of yearlings weighing about 700 pounds each were produced in Idaho in 1971 (Table 3). District 4 produced the most — over 39% of this total, and District 1 produced the least, 11%. Districts 2 and 3 accounted for 26% and 24% respectively.

Intrastate Movement of Fed Cattle

The fed slaughter cattle originating at Idaho's feedlots and ending at Idaho's slaughtering plants amounted to 214,240 head in 1971 and represented 32% of the total cattle and calves movement within Idaho. Of this total, 153,230 head were steers and 61,010 head were heifers. Direct marketings accounted for 59.5% of the fed cattle movement within Idaho and auctions handled 40.5%.

The movement pattern of finished beef between Idaho's crop reporting districts is shown in Fig. 3. Of the total fed slaughter cattle marketed within Idaho, 45% or 96,616 head originated in District 2. This district also shipped in 157

head from District 1, 44,191 head from District 3, and 7,533 head from District 4 for slaughter. Overall, then, District 2 was the final destination for 146,037 head or 68% of the total fed beef marketed within Idaho in 1971.

District 3 was the point of origin for 94,331 head or 44% of the total fed beef moved between areas in Idaho. Of this total, 48,392 head originated and were slaughtered in District 3, 44,191 head moved to District 2 for slaughter, and 1,748 head moved to District 4 for slaughter. District 3 also shipped in 2,460 head from District 2 and 9,945 head from District 4. In total, District 3 was the final destination for 60,797 head or 28% of the total fed cattle moved within Idaho.

District 4 was the point of origin for 22,860 head or 11% of the total fed beef moved within Idaho. Less than a quarter of these — 5,382 head — were slaughtered in District 4; 7,533 head moved to District 2, and 9,945 head moved to District 3 for slaughter. District 4 also shipped in 1,748 head of fed beef from District 3. The district was the final destination for 7,130 head, only 3.3% of the total beef moved within Idaho.

District 1 accounted for less than 1% — 433 head — of the fed cattle transactions between areas in Idaho. Only 276 of these were slaughtered in District 1 and 157 moved for slaughter in District 2. District 1 did not ship in fed cattle from other areas in Idaho.

Seasonal Variation

Over 36 percent of the fed beef movement within Idaho occurred in the fourth quarter of the year (Table 4). Movement in the other quarters was consistent at 20 to 22% of the total. The highest proportion of the fed beef movement within Idaho — 16% — occurred during October and the lowest, 4.5%, during July.

Intrastate Movement of Cows, Bulls, and Baby Calves¹

Approximately 191,970 head of cows, bulls, and baby calves were marketed within Idaho in 1971, representing 28% of the intrastate movement of cattle and calves. Of this total, 97,903 were cows, 73,942 head were baby calves, and 20,125 head were bulls (Table 5).

The largest number of bulls, 5,930 head, were marketed in the first quarter of the year, while another 5,835 head were marketed during the second quarter. The largest percentage of cows were marketed in the fourth quarter, and nearly three-fourths of the calves moved to markets within the state during the fourth and first quarters of the year.

In summary, transactions during the first and fourth quarters of the year accounted for 63% of the intrastate movement of bulls, cows, and calves. The seasonality of the movement of these three classes of cattle reflects the beef production cycle in Idaho of spring calving, summer breeding, fall calving, and early winter buying of replacement stock.

¹Bulls and cows include both beef and dairy that were marketed for breeding purposes or as culls for slaughtering purposes. Baby calves are those animals that are transacted for the purpose of slaughter as veal, to replace calves that have died on ranches, or to be fed and raised to stocker or feeder weight.

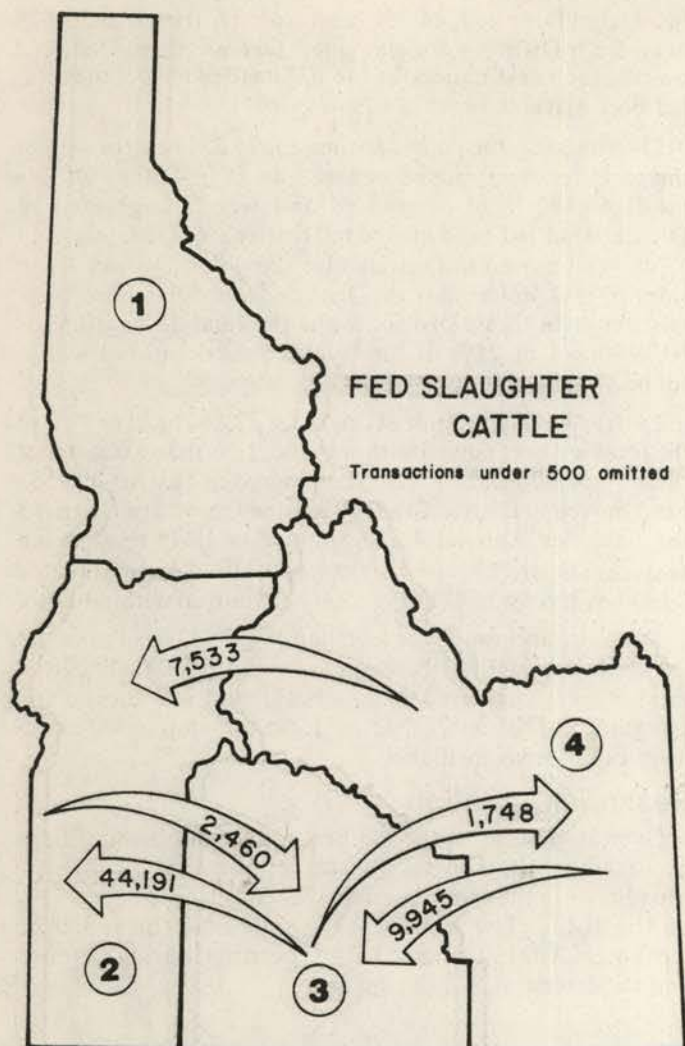


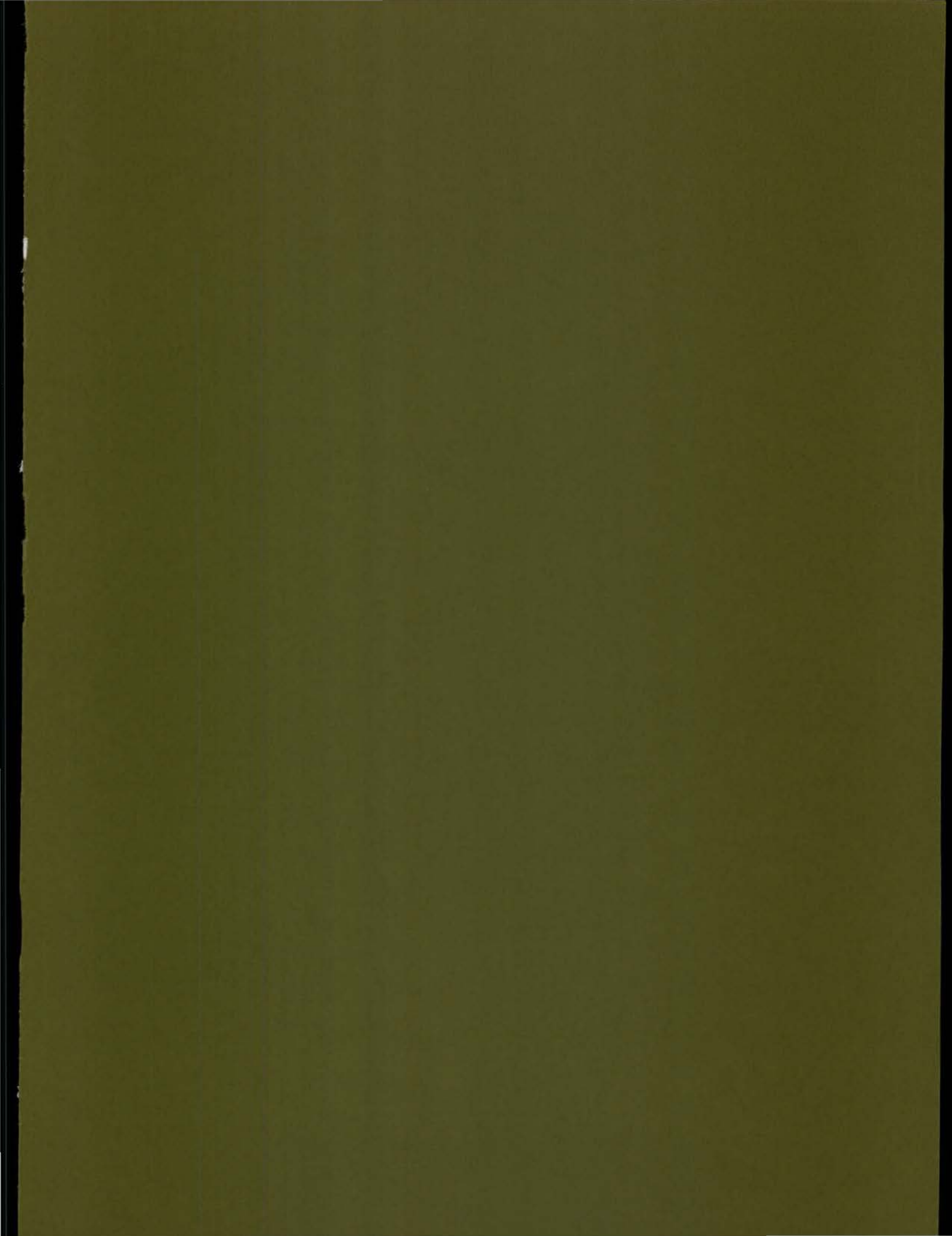
Fig. 3. The movement of fed slaughter cattle among crop reporting districts in Idaho, 1971.

Table 4. Seasonal variation in the intrastate movement of fed slaughter cattle, Idaho, 1971.

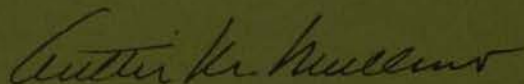
Month	No. of Head	%
January	13,783	6.4
February	15,240	7.1
March	14,225	6.6
First Quarter	43,248	20.1
April	20,499	9.6
May	15,602	7.3
June	12,790	6.0
Second Quarter	48,891	22.9
July	9,698	4.5
August	13,400	6.3
September	21,410	10.0
Third Quarter	44,508	20.8
October	34,477	16.1
November	17,979	8.4
December	25,137	11.7
Fourth Quarter	77,593	36.2
TOTAL	214,240	100.0

Table 5. Intrastate movement of bulls, cows, and baby calves by quarter, Idaho, 1971.

Quarter	Bulls		Cows		Calves		Total
	No.	%	No.	%	No.	%	
1	5,930	29.5	28,041	28.6	23,782	32.2	57,753
2	5,835	28.9	20,600	21.1	11,986	16.2	38,421
3	3,857	19.2	19,803	20.2	8,490	11.5	32,150
4	4,503	22.4	29,459	30.1	29,684	40.1	63,646
Total	20,125	100.0	97,903	100.0	73,942	100.0	191,970



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