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T. Donald Bell and Morris Hemstrom



IDAHO Agricultural
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Foreword

This report was written in cooperation with the Idaho Cattlemen's Association. The writers wish to thank the association, their executive vice president, Leon Weeks, and their secretary, Robert Henderlider, for their assistance.

Special thanks are due to Clarence White, agricultural statistician in charge, and to L. Duane Jewell, agricultural statistician of the United States Department of Agriculture, Agricultural Marketing Service, Agricultural Estimate Division, Boise, Idaho, for their help in furnishing and compiling data included in the report. Information concerning "Income and Expenditures" of cow-calf operations in the State was provided by Roland Bevan of the Agricultural Economics Department of the University of Idaho. Other statistical information concerning Idaho's cattle industry was provided by the Pacific Northwest Farm Quad, Spokane, Washington.

Pictures for the publication were provided by the Union Pacific Railroad Company, the American Aberdeen Angus Association, and the American Shorthorn Association.

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Dr. Bell taught at New Mexico A and M College from 1939 to 1942 and was with Texas A and M experiment station for the next year. From 1943 to 1950, he was professor of animal husbandry and chairman of the agricultural division at Utah State University's Branch College at Cedar City. He was professor of animal husbandry at Kansas State University from 1950 to 1957 when he came to the University in his present position.

Morris Hemstrom, Extension animal husbandman at the University of Idaho earned his Bachelor of Science degree in animal husbandry at Colorado A and M in 1950 after serving three years with the U.S. Marines in the South Pacific in World War II. He earned his M.S. degree at the University of Nebraska in 1959 after three years as county agent in Cherry and Sheridan counties in that state. For the next year he worked as Extension livestock specialist at the University of Nebraska. He came to Idaho in his present position in November of 1960.

IDAHO BEEF

The Growth and Development of Idaho's Beef Cattle Industry

T. Donald Bell and Morris Hemstrom

Sixty-seven percent of the total land area of the State of Idaho is owned by Federal and State agencies. The bulk of these lands is in the National Forests and in the Bureau of Land Management grazing districts that furnish spring, summer and fall grazing for many of Idaho's cattle and sheep. In addition, more than 10,000,000 acres of private lands are used either for pasture or the production of feed for livestock, raising the total percentage of Idaho's land used by and for livestock grazing and feeding to approximately 85 percent.

Idaho is an agricultural state with an estimated 24 percent of her people living on farms, compared to the national figure of 11 or 12 percent for other states. Idaho has the 5th highest ratio of farm income to total consumer spendable income in the United States, and the expanding beef-cattle industry now ranks as the number-one source of agricultural income. Estimates are that by 1968 the gross return from Idaho's beef cattle will be twice as large as the income from any other agricultural source within the state.

The cattle industry in Idaho had its origin shortly after the beginning of the second half of the last century. Settlers on their way through Idaho to Oregon and Mormon pioneers pushing up from the newly settled lands in Utah brought the first cattle into the state. The first record of range cattle dates back to 1854 when cattle were brought to the Salmon River country by a group of Mormons. Indian trouble forced a temporary abandonment of the Salmon settlement, but the settlers with their cattle returned and the development and settlement of ranches and homes in the fertile valleys continued through the 1850's and 1860's. Ranch sites were commonly located on streams or springs in the foothills or high valleys. A small amount of land was usually irrigated to provide winter feed for horses and perhaps a few head of milk cows. Grazing land was unlimited as the ranches were few and far apart and cattle were able to thrive both summer and winter with only range forage. Idaho was off the trail

An increasing number of the cattle produced on Idaho ranches and farms are now fattened in Idaho feedlots, and furnish a growing market for the grains, forages, and potato and sugar beet processing by-products that are being produced in abundance on farms and factories in the state.

Commercial slaughter has also expanded with the increased number of cattle available, and at the present time there are 101 slaughter plants operating in the state with several more in the planning stage. Marketing agencies have also increased in number and size and there are now 36 auctions in the state compared to 24 in 1955 and virtually none in 1930. While the auctions handle all classes of livestock, their big volume of trade is cattle. Many other businesses, such as transportation, feed dealers and processors, and equipment and supply firms have also expanded and grown with the cattle industry.

This bulletin has been prepared to review the growth and development of the beef cattle industry of the state and to point out the increasing importance of the industry to the entire economy of Idaho.

Early History

of the big herds moving from the Southwest into Wyoming and Montana and on to the eastern market. With the development of the mining industry during the 1860's and early 1870's, the demand for beef increased and the cattle industry thrived. Operational expenses were low as little labor and equipment were required. Some old records still in existence show that the cost of running a cow for a year was from \$1.00 to \$3.00. With cattle selling from 8 to 12 cents per pound on the hoof to the miners, it was only natural that outside cattle interests would be attracted to the state.

In the early 1870's range cattle began to be trailed in from outside range areas, primarily from Utah and Oregon. Most of these cattle were of Spanish type or unimproved longhorns and were wilder, with less beef breeding, than the cattle that had been brought in by early settlers. Some of the newcomers put together large holdings and one outfit ran as many as 175,000 head of cattle during the

late 1870's. Other cattle were trailed into the state, grazed on the ranges, and trailed to outside markets when the cattle were fattened. No thought was given to winter supplies of feed as grass was thought to be ample for both winter and summer.

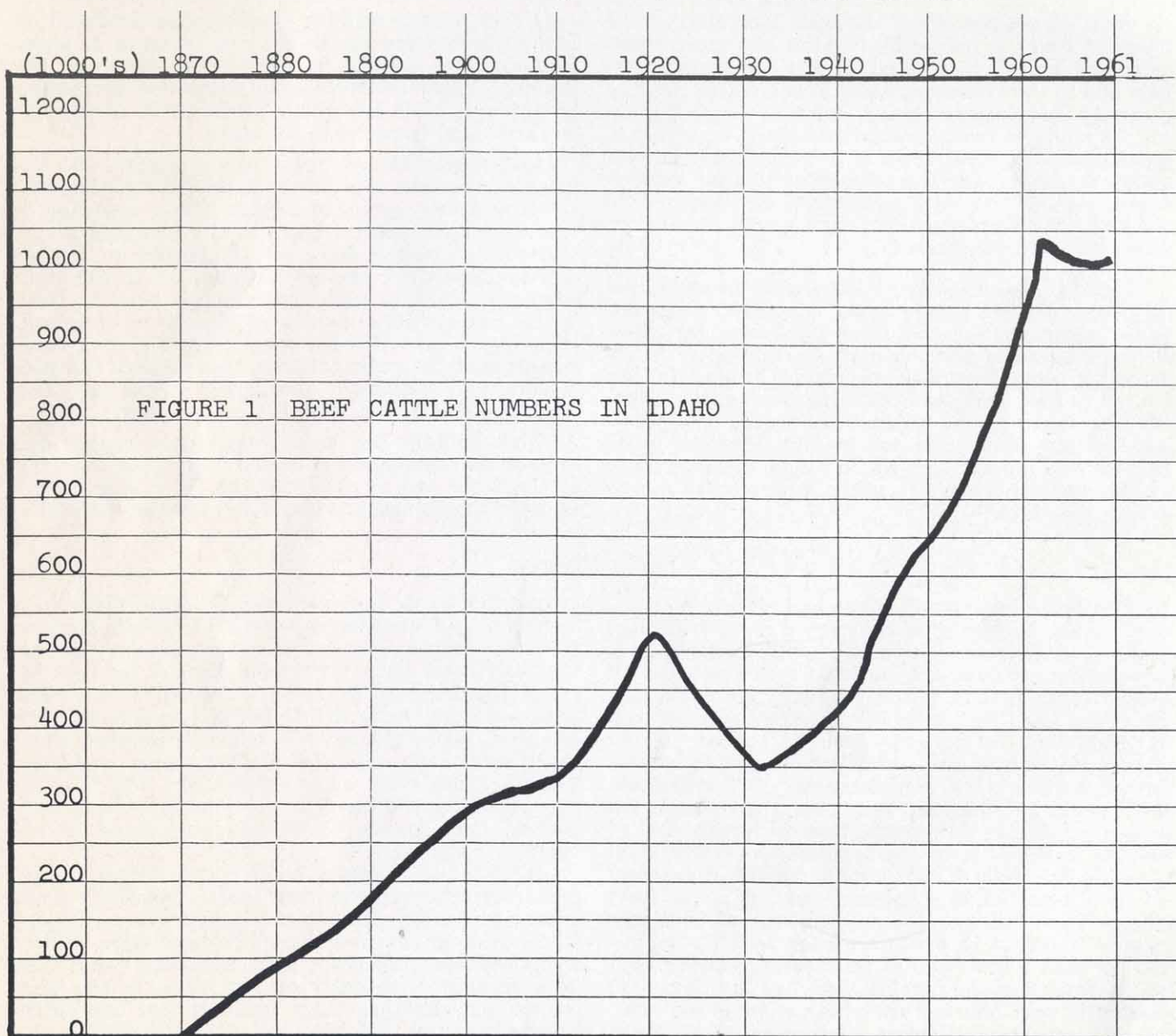
The years of reckoning came during the 1880's. A series of years with low rainfall were followed by several winters with extreme cold and much snow. The increased numbers of cattle, together with the increased numbers of range sheep, consumed all the available forage. None remained for winter feed. Cattle died by the thousands during the winters from 1886-1891, and the big outfits operating on a year around grazing basis were virtually wiped out.

Those cattle outfits that survived recognized the need for winter supplies of harvested feed and provided a foundation for the development of a more stable and permanent cattle industry.

Sheep continued to move into the state in large

numbers during the 1890's. Competition for the open range caused friction between cattlemen and sheepmen during this period. The establishment of the National Forests during the last ten years of the century plus the allocation of grazing rights within them tended to resolve some of the conflict, but lower elevations remained as open range until the passage of the Taylor Grazing Act in 1934.

The large irrigation projects in southern Idaho were developed during the period from 1900 to 1920 and provided an abundance of hay and grain for the developing sheep and cattle industries. Cattle numbers crept slowly upward from 1900 to 1920 but dropped slightly during the '20's and early '30's because sheep were more profitable. Since 1940 beef cattle numbers have moved steadily upward in Idaho despite some years of poor economic returns. They reached an all time high of over 1,000,000 in 1960—nearly 3 times as many as in 1940.

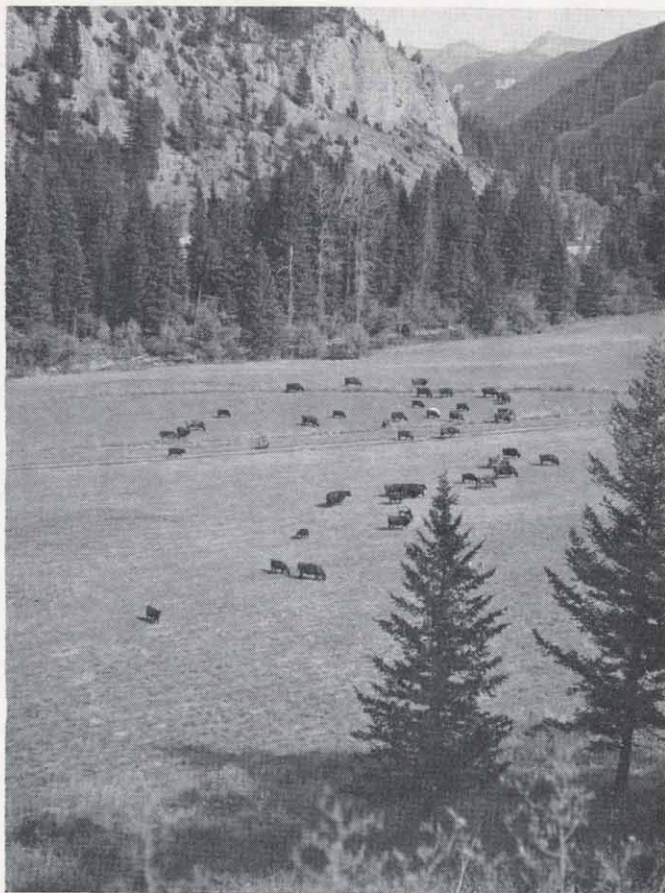


The Industry Today

From its humble beginning in 1854, Idaho's cattle industry has grown to become the state's leading source of agricultural income and affects virtually every segment of the state's economy. Ranchers now place more dependence on privately owned land. More labor, supplemental feed, facilities, equipment, and operating capital are required than in the early days of the industry. From the \$2.00 to \$3.00 yearly cost of running a cow in 1870, the figure has moved up to approximately \$100.00 per year in 1960 and 1961. Competition is keen in all segments of the industry. To take care of the ever increasing costs of production and make a sound economic return, today's cattleman must be constantly alert to improved methods of breeding, feeding, management, and marketing.

The business of beef production like all agricultural enterprises has become more and more specialized, and Idaho, with its varied and diversified land and agricultural production areas, encouraged and stimulated these different types or systems of cattle production. These different phases of the cattle industry are closely related and dependent upon each other but are sufficiently diverse to require separate discussion.

Commercial Cow-Calf Operations: This phase of the Idaho cattle business is carried on by those



Lush mountain meadows add pounds of beef.

cattlemen whose primary business is the production of calves or yearlings for the cattle feeder both in and out of the state. Size of the business varies from less than 100 head to several thousand head of cows run by a few operators. Most of these cattlemen depend almost entirely on the cattle business for their income, and operations including less than 200 or 300 head of cows may not yield enough net return for a satisfactory family income.

Cattlemen have had to make adjustments in their operations to meet the industry's changing demands. Although private land holdings have increased, most operators depend on the use of state and Federal lands for at least part of the spring, summer, and fall grazing. If further reductions in the use of Forest Service and Bureau of Land Management lands are in the offing, adequate forage resources will depend more and more on private lands.

Most of these old established cattle ranches are located at high elevations on the smaller water courses of the state and in areas not suitable to intensified farming operations because of topography or lack of moisture either as rain or irrigation water. Typical ranches of this type are the valleys of the Salmon, Lemhi, and the Big Lost and Little Lost rivers. Another cattle ranching area steeped in early Idaho cattle history is located in the vicinity of Soda Springs, Grays Lake, and the Blackfoot River. The bottom lands of Fort Hall, the Raft River Valley, and Hagerman Valley are also areas that have old and well established cattle ranches. Ranches which developed early in the valleys of the Boise, Weiser, and Payette rivers and in the Owyhee country continue to be important cattle-producing units. The rugged lowlands and upper benches of the lower Salmon and Snake rivers near Riggins and Whitebird and continuing down river to Lewiston provide another important area of commercial cattle production.

In most of these regions, operations are similar. Calves are born in the spring on the home ranch and go out with their mothers on private, state, or federal grazing lands as soon as spring forage is available. Summer grazing is provided by permits in National Forests, Bureau of Land Management Grazing Districts, or on private lands. Calves are weaned in the fall, replacement heifers selected, and the remaining calves sold as feeders or wintered over to graze the following summer and sold as yearlings. Cows and replacement stock are grazed on fall and winter pastures as long as forage and weather permit then taken to the home ranch or headquarters for supplemental feed.

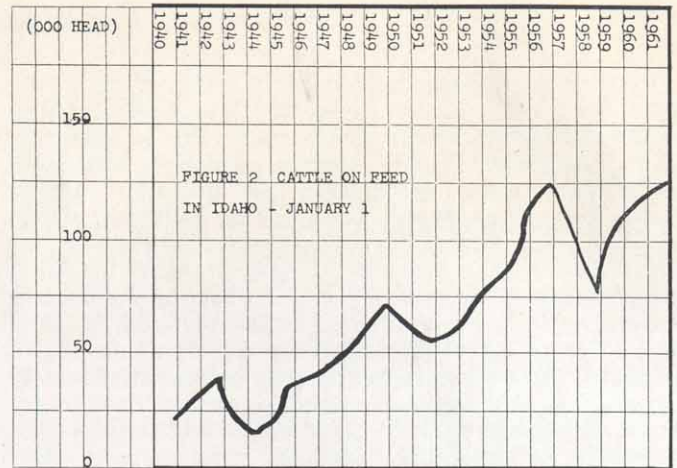
In addition to these range cattle producers whose primary income is from the sale of calves or yearlings, many farmers on irrigated farms of southern Idaho and on dry-land farms of central and northern Idaho produce calves or yearlings for sale. The numbers of their cows vary from largest to smallest. Their cattle operations may be limited to their own farms and ranches or they may also use additional range or grazing lands.

The Purebred Cattle Industry: Growth of the purebred cattle industry has paralleled development of the range or commercial cattle business. Idaho has excellent herds of Herefords, Aberdeen Angus, and Shorthorns, and some of the newer breeds. Purebred bulls are sold through organized sales and by private treaty to range cattlemen and commercial cow and calf producers. The use of purebred bulls and organized efforts of the cattlemen in the bull-grading program developed by the University has provided for the continued improvement of Idaho cattle.

The purebred breeder follows a more intensified system of breeding and feeding than the typical cow-calf operator and utilizes primarily privately owned ranch and farm lands. The number of cows in a purebred operation is usually much lower than in a commercial set-up, but the investment per cow unit is commonly much higher.

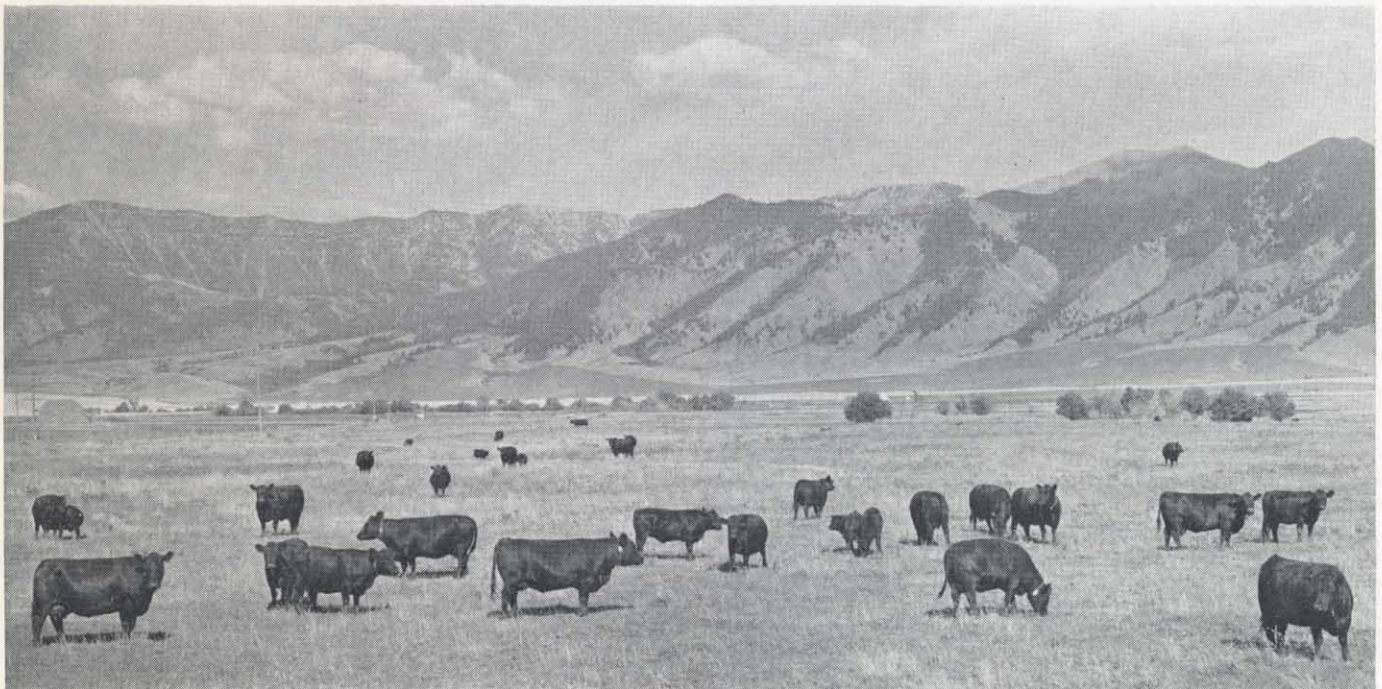
Cattle Feeding: In the early days when land and grass were comparatively unlimited, steers were held until they were 3, 4, and 5 years old and could be marketed for slaughter directly from grass range or pasture. Demands of the housewife and meat processors have changed, and grass is no longer free or cheap. Cattle are slaughtered at increasingly lighter weights and at younger ages. Calves weaned at 6-8 months of age may go directly into the feedlot for fattening and be ready for slaughter as yearlings. Others are wintered on growing rations following weaning, grazed on range or pasture the next summer, and fattened out as coming 2-year-olds the following fall and winter.

Interest in cattle feeding in the state has grown tremendously in the last 30 years. Approximately 28



percent of the farmers feed out some beef cattle. About 265 feedlots are registered in the state and the number of cattle fed has increased by more than 300 percent in the last 30 years. Among the western states, Idaho now ranks fourth in cattle-feeding, fifteenth in the nation. While cattle are fed in all areas of the state, the irrigated valleys along the Snake river in southern Idaho are especially adapted to beef-cattle feeding.

For many reasons, Idaho's cattle-feeding industry is expected to continue its expansion. For years, Idaho has produced a surplus of feeder cattle and shipped them to other states for feeding and final marketing. Even with the increased volume of feeding in the last several years, an estimated 50 percent of feeder calves and yearlings leave the state to be fattened elsewhere.



Range type purebred ranches furnish acclimated bulls for commercial producers.

The production of feed grains (excluding wheat) is nearly one million tons annually, a supply of about 1.1 tons per grain-consuming animal unit. This is a supply approximately 25 percent greater than estimated needs. However, considerable quantities of northern Idaho barley move out of state while southern Idaho feedlots ship in closer barley from Montana for the feedlots of the upper Snake River valley. Corn and sorghum grain from the Midwest and Southwest move into the state for cattle feeding when these grains can compete with the price of locally grown barley.

About one million acres of Idaho farm land is in hay crops and production is usually more than ample for the feeding needs within the state. Corn acreage has increased more than 200 percent in the past 10 years and the production of corn silage has grown from 100,000 tons in 1945 to 908,000 tons in 1961.

Idaho feedlots are in an increasingly favorable market situation, with an almost explosive population growth along the west coast. Idaho feeders, however, are not alone in their interest in this expanding market, and keen competition from other western and midwestern feeders will continue.

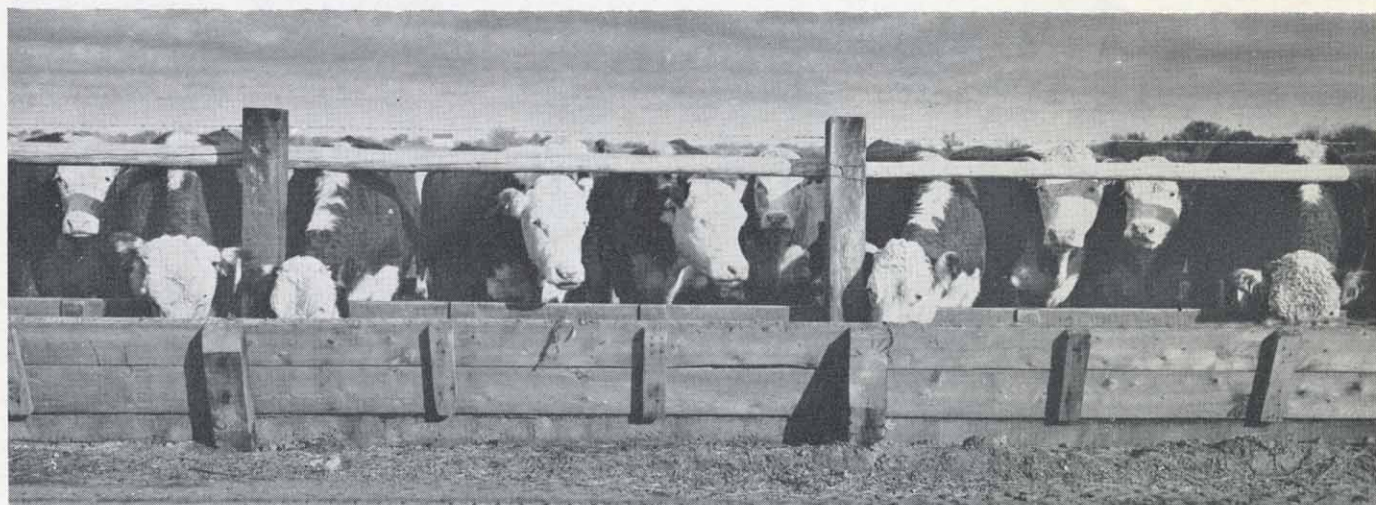
Table 1. Feed Available in Idaho.

Year	Barley ¹ (000) bu.	Oats ¹ (000) bu.	Grain ² corn (000) bu.	Corn silage (000) tons	All ³ hay (000) tons
1945	14,442	8,872	815	105	2,648
46	10,514	7,840	803	84	2,720
47	12,993	7,916	926	63	2,711
48	14,176	7,113	958	84	2,401
49	12,626	8,308	864	140	2,554
1950	16,081	10,634	740	138	2,679
51	12,173	9,295	750	168	2,666
52	13,119	9,800	740	300	2,858
53	12,637	9,631	768	351	3,078
54	20,737	11,154	960	403	3,177
1955	24,356	11,864	1,011	604	3,188
56	19,283	10,015	1,149	688	3,519
57	24,603	10,369	1,654	644	3,802
58	26,973	11,425	2,110	624	3,850
59	21,605	9,673	2,250	832	3,445
1960	19,446	8,425	1,755	899	3,462
61	21,278	7,605	1,945	908	3,464

¹ July 1 total stocks plus current year's production.

² October 1 total stocks plus current year's production, 1945-1949 includes sweet corn.

³ May 1 stock plus current year's production.



Idaho steers converting Idaho hay and grain to beef.

Income and Expenditures of Idaho's Beef Cattle Industry in 1960

Gross income from cattle in Idaho has climbed from around \$10,000,000 in 1935, when the cattle business produced 11 percent of the total agricultural income, to an all time high of more than \$112,000,000 in 1959, when cattle produced one-fourth of the total farm income. Slightly lower prices in 1960 brought the returns down to about \$100,000,000. This tremendous increase in gross income is a result of (1) an increase of 24 percent in cattle numbers from 1935 to 1960, and (2) to advancing prices during that period. The increase in price was not steady, however, and advanced from around \$5.50 per hundred weight in 1935 to an all time high of \$32.00 per hundred weight in 1951. Prices went down during the period from 1952 to 1956; came up during the next 3 years to reach a figure of approximately \$25.00 per hundred weight in 1959, and then dropped slightly in 1960. Perhaps even faster than gross income, expenditures have also been advancing steadily during the last 25 years. In order to present a more complete picture of investments, returns, and costs in the cattle business in Idaho, tabular breakdowns are presented for both major segments of the industry—commercial cow-calf production and cattle feeding.

Table 2 shows the capital investment in the business of producing Idaho's calves and yearlings. The total is estimated at \$441,000,000 or \$881 for each beef cow or yearling heifer. This figure is based on a \$400 per animal-unit potential sale price or current market value. Using a more conservative figure of \$250 per animal-unit carrying capacity, the total becomes \$338,000,000 to present an average investment of \$676 per cow or yearling heifer.

The sale income from the cow-calf operations was an estimated \$56,400,000 in 1960, cash expenditures an estimated \$36,200,000. As might be expected, extra or hired labor and feed supplies were two major

items of expense, but large expenditures for repairs on buildings and equipment, depreciation on machinery and buildings, and expenditures for gasoline and fuel for ranch cars, trucks, tractors, and other machinery may be surprising. These high costs reflect the industry's large degree of mechanization.

Taxes on real estate and personal property amounted to an estimated \$3,000,000 and do not include federal or state income taxes. The \$3,600,000 listed as "other" costs includes such items as hardware, hand tools, veterinary services and medicine, supplementary feed, insurance, short term interest, electricity, telephone, hired transportation and many other items. Most of these expenditures were made in Idaho and thus become gross income for Idaho businesses engaged in supplying these goods and services.

The difference between the total gross income of \$56,400,000 and total expenditures of \$36,200,000 left an estimated remainder of \$20,000,000 to take care of the interest on the capital investment and as payment for operators' labor and the labor of their families. This is money available to the producer after income taxes, family living expenses, savings, new capital investments, and payments on the principal of existing mortgages. Since an interest rate of 5 percent on the lower estimate of capital investments (\$338,000,000) amounts to nearly \$17,000,000, the cattle producers in the state, clearly, are receiving a rather poor rate of return on their total investment and for their labor and management efforts.

Approximately 240,000 head of cattle were fed in Idaho in 1960 in 265 registered feedlots and in an undetermined number of smaller unregistered lots. The total investments in land, buildings, and equipment together with the estimated costs and returns of the cattle feeding industry in Idaho for 1960 are shown in table 3.



Grass grown yearlings ready for finishing in Idaho feedlots.

Table 2. Cow-Calf Producers — Capital Investment, Income and Expenditures, 1960.

	Total for State	
Capital investment		
Lands and buildings	\$172,000,000	— at \$250 per A. U.*
Cattle	275,000,000	— at \$400 per A. U.*
Machinery and power	120,000,000	
Crops and supplies	28,000,000	
Crops and supplies	18,000,000	
Total	\$338,000,000	— Lands and buildings at \$250 per A. U.
.....	441,000,000	— Lands and buildings at \$400 per A. U.
Income		
Cattle and livestock products	\$ 56,000,000	
Other income	400,000	
Total	\$ 56,400,000	
Expenditures		
Hired labor	\$ 6,300,000	
Feed supplies	5,000,000	
Grazing fees and pasture rent	1,700,000	
Livestock purchases	3,900,000	
Taxes on real estate and personal property	3,000,000	
Repair building and equipment	3,600,000	
Crop expense	1,500,000	
Gasoline and fuel for farm use	2,600,000	
Depreciation on machinery and buildings	5,100,000	
Other	3,600,000	
Total	\$ 36,200,000**	

* The figure \$250 per animal unit is felt by many ranchers to be a more realistic figure than the \$400 per A. U. that is being paid for some of the ranches sold in 1960 and 1961.

** These costs do not include the value of the operator's or the labor of his family, nor any charges for interest.

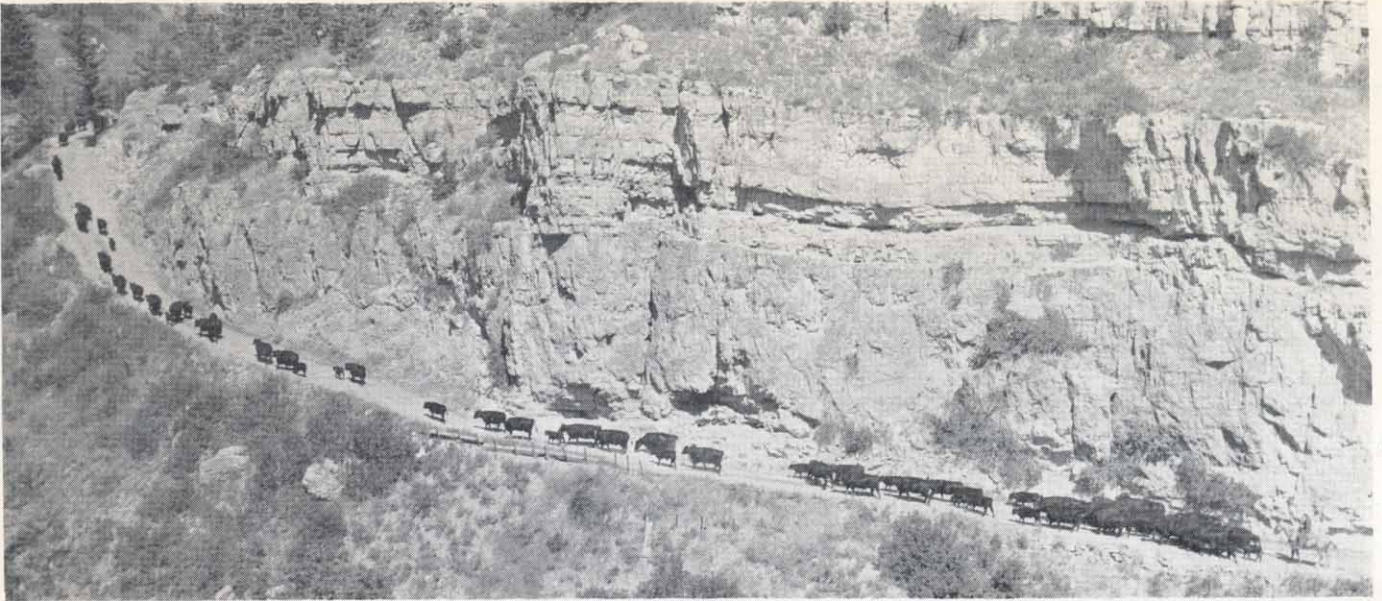
Cattle feeders have much less invested in land and equipment than the cow-calf producers although mechanization is increasing rapidly in the feeding industry. Such mechanization costs more and more for feed processing and feeding equipment, and feeders' investments are rising.

The need for readily available cash for operating expenses is apparent in the cattle feeding industry. Total cost of feeding cattle purchased in 1960 was estimated at \$34,560,000. Of this total, \$18,000,000 was spent for feed, \$1,580,000 for labor, and an additional \$2,024,000 was spent for other items including taxes, interest, depreciation and repair, insurance, veterinary costs and medicine, death losses, and other miscellaneous expenses.

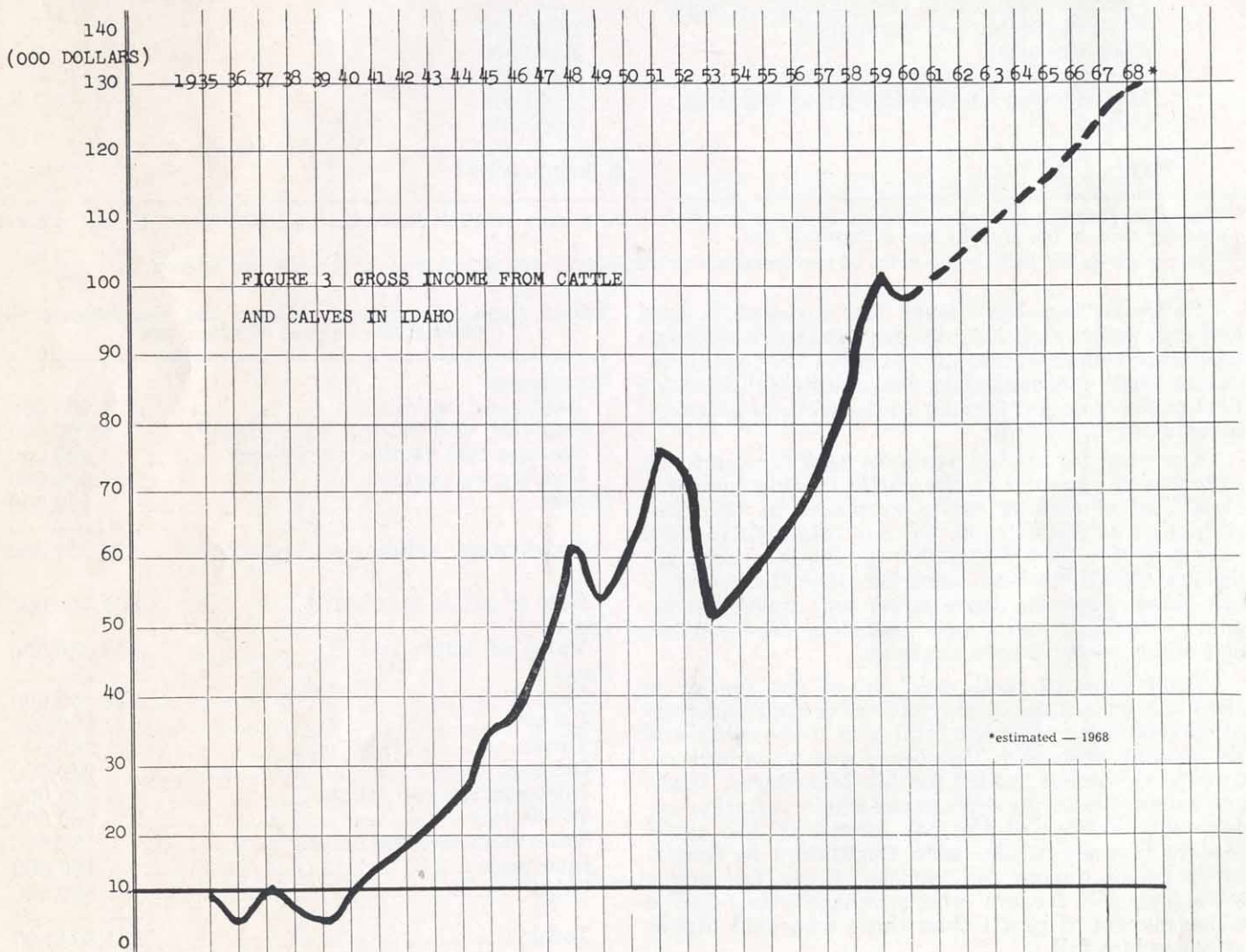
Total value of cattle sold out of the feedlot in 1960 was an estimated \$57,600,000 or approximately \$1,400,000 more than the total cost of the cattle and the feeding operation. This again was not a high return to the cattle feeder for his investment, labor, and management. In 1960 considerable variation undoubtedly existed in the net income of the cattle feeders because of the wide fluctuation in feeder-cattle prices during fall months. Early fall prices were low, and feeders who purchased then had a wider margin of profit than those who paid higher prices in late fall.

Table 3. Capital Investment, Income and Expenditures — Idaho Cattle Feeding Industry, 1960.

Investment	
Yards and buildings	\$ 2,400,000
Grinding and mixing equipment	3,700,000
Storage and loading equipment	1,500,000
Feeding equipment	1,500,000
Other	100,000
Total yards, building and equipment	\$ 9,200,000
Cost of cattle purchased	\$34,560,000
Income	
Value of cattle sold	\$57,600,000
Costs	
Feed	\$18,000,000
Labor	1,580,000
Taxes	280,000
Interest	240,000
Depreciation and repair	528,000
Death loss	360,000
Veterinary and medicines	136,000
Insurance	120,000
Other	360,000
Total	\$21,604,000



On their way to summer range.



The cattle feeder's expenditures, like those of the cow-calf producer, are made primarily in the state and produce personal and business income for those furnishing services and products to them.

Accurate estimates of capital investment, costs, and returns in the purebred cattle business are more difficult to make than in either the cow-calf business or in the cattle-feeding industry. Because of their intensified systems of breeding and management, the cost per animal unit is considerably higher. This is particularly true of the cost of livestock purchased to maintain and improve their breeding lines and of marketing and advertising expenditures in selling their animals. Costs of feed and labor are also proportionally higher than in other phases of cattle production.

Through special organized bull sales and by private treaty on their own ranches, Idaho's purebred breeders sell annually an estimated 5000 bulls, valued at \$2,250,000. Virtually all of their financial return is re-invested in services and products within the state and produces additional personal income for Idaho labor and for Idaho business.

In 1960 commercial plants in Idaho slaughtered approximately 203,000 head of cattle and 9,000 calves. This represents a 400 percent increase since 1944 when records were first kept by the Statistical Reporting Service of the United States Department of Agriculture. However, these plants also slaughter other classes of livestock, so separating costs and expenditures attributable to beef cattle becomes difficult. By using the 1960 figures for prices of choice

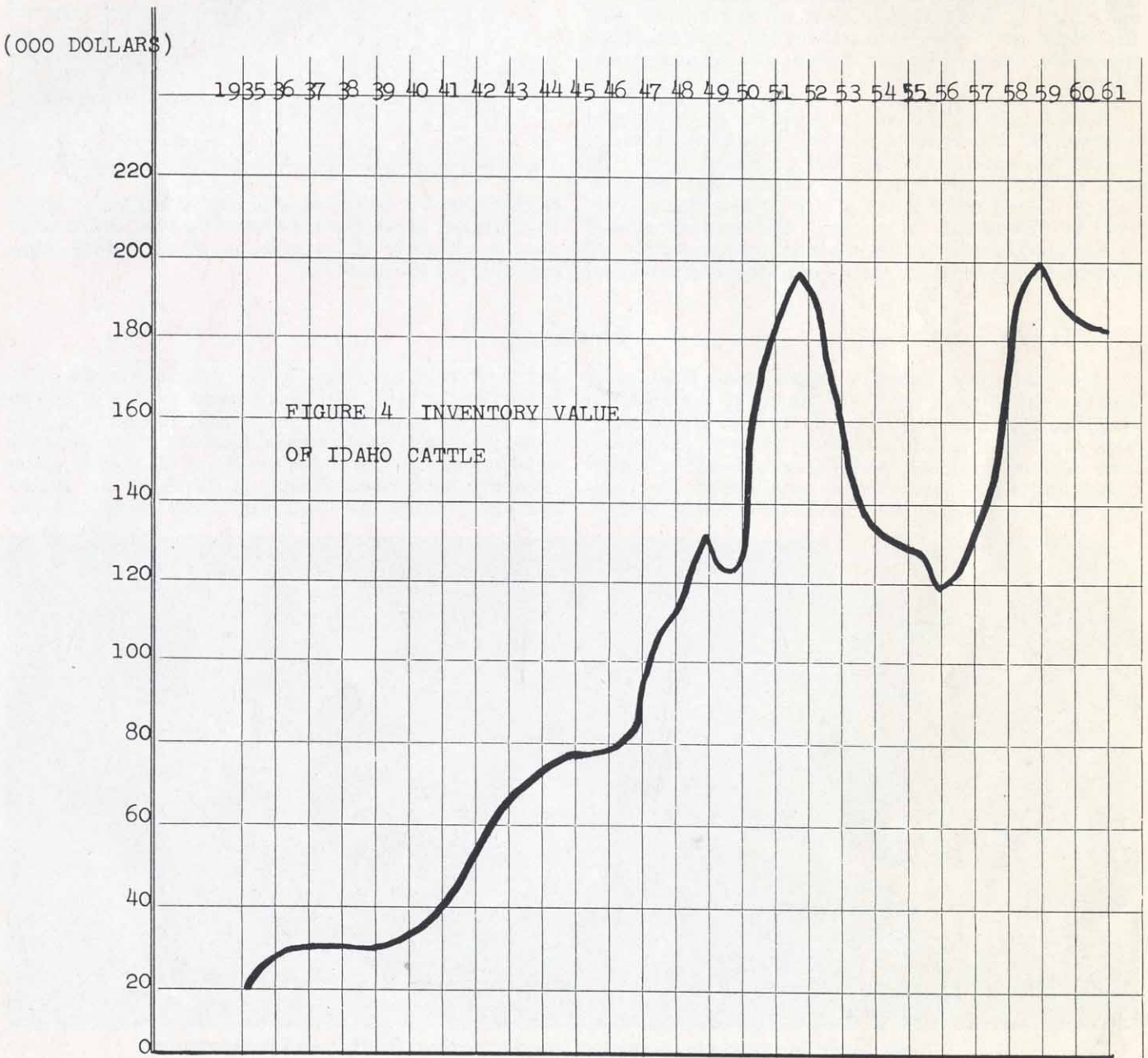
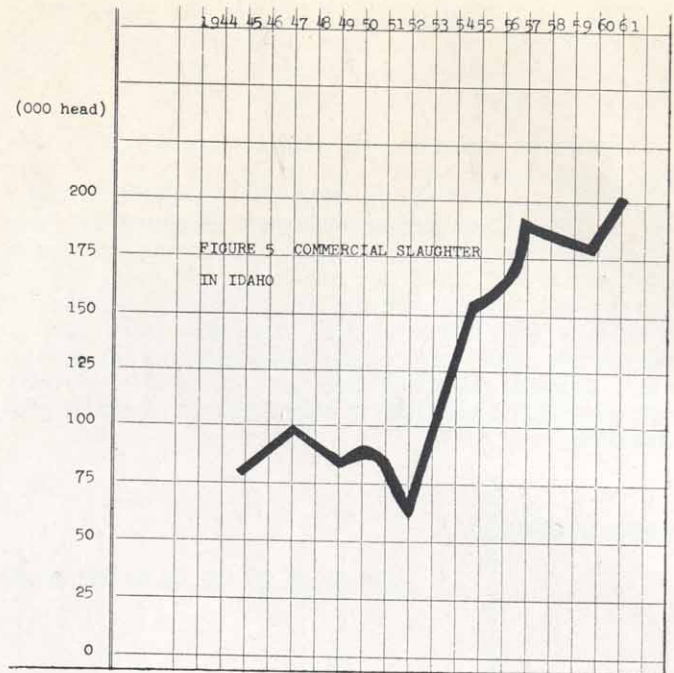


FIGURE 4 INVENTORY VALUE OF IDAHO CATTLE

beef steers on the hoof and the value of the carcasses and by-products following slaughter, the value of beef added by slaughter houses and packing plants is approximately \$6,000,000. This represents the amount available to the processor for wage and salary payments, for the purchase of supplies, containers, for payment of transportation costs, taxes, depreciation, interest, miscellaneous expenses, and for return on investment.

Retailing beef produced and processed in Idaho creates additional income attributable to the industry. Retailers buy carcasses and quarters which they cut for the retail trade. The retailing margin covers services performed in preparation and sale of the meat plus an allowance for weight losses from cutting, trimming, boning, and shrinkage. The value added to beef products by Idaho retailers in 1960 is estimated at \$18,000,000. Most of this money goes for wages and salaries to employees, for packaging materials, overhead costs, taxes, and return on investment.

From packing house to retailer, an estimated \$24,000,000 was created in 1960. This amount added to approximately \$101,000,000 received from the sale of live cattle from the ranches and feedlots makes a total of \$125,000,000 in gross income created by production, processing, and marketing beef in Idaho. This figure represents approximately 20 percent of the total annual income from agricultural

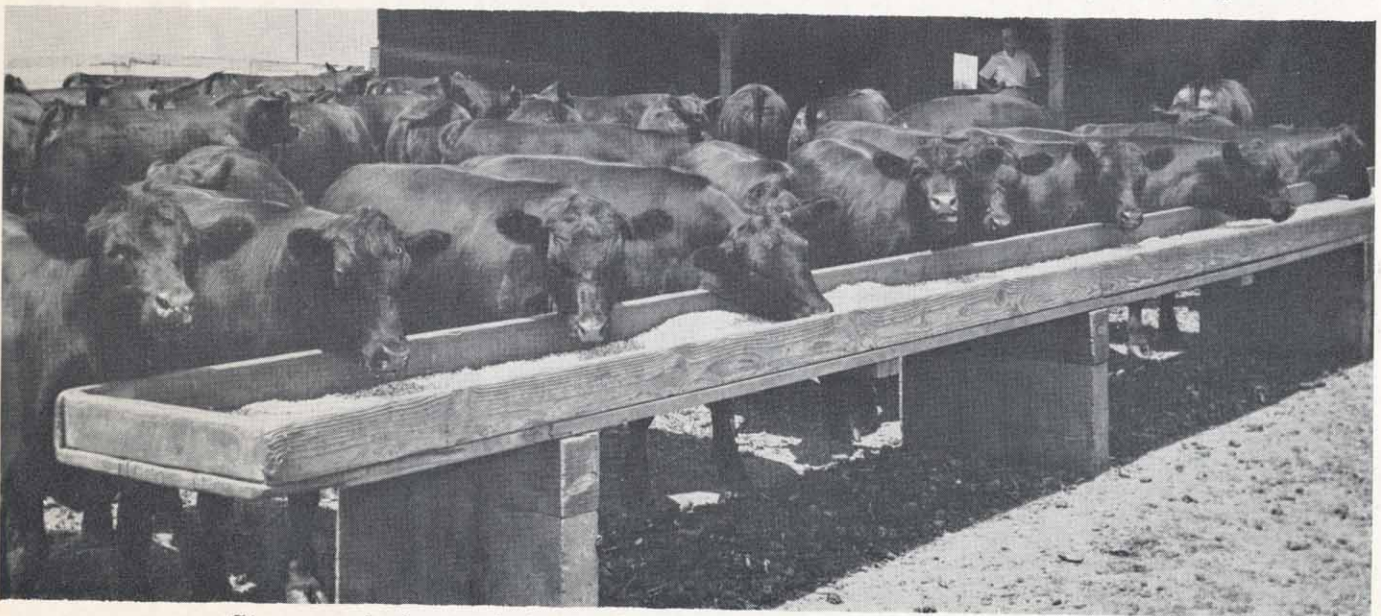


crops, livestock and products, lumbering and mining. In addition, gross income from the beef cattle business is virtually all re-spent in every county, city, and town of the state.

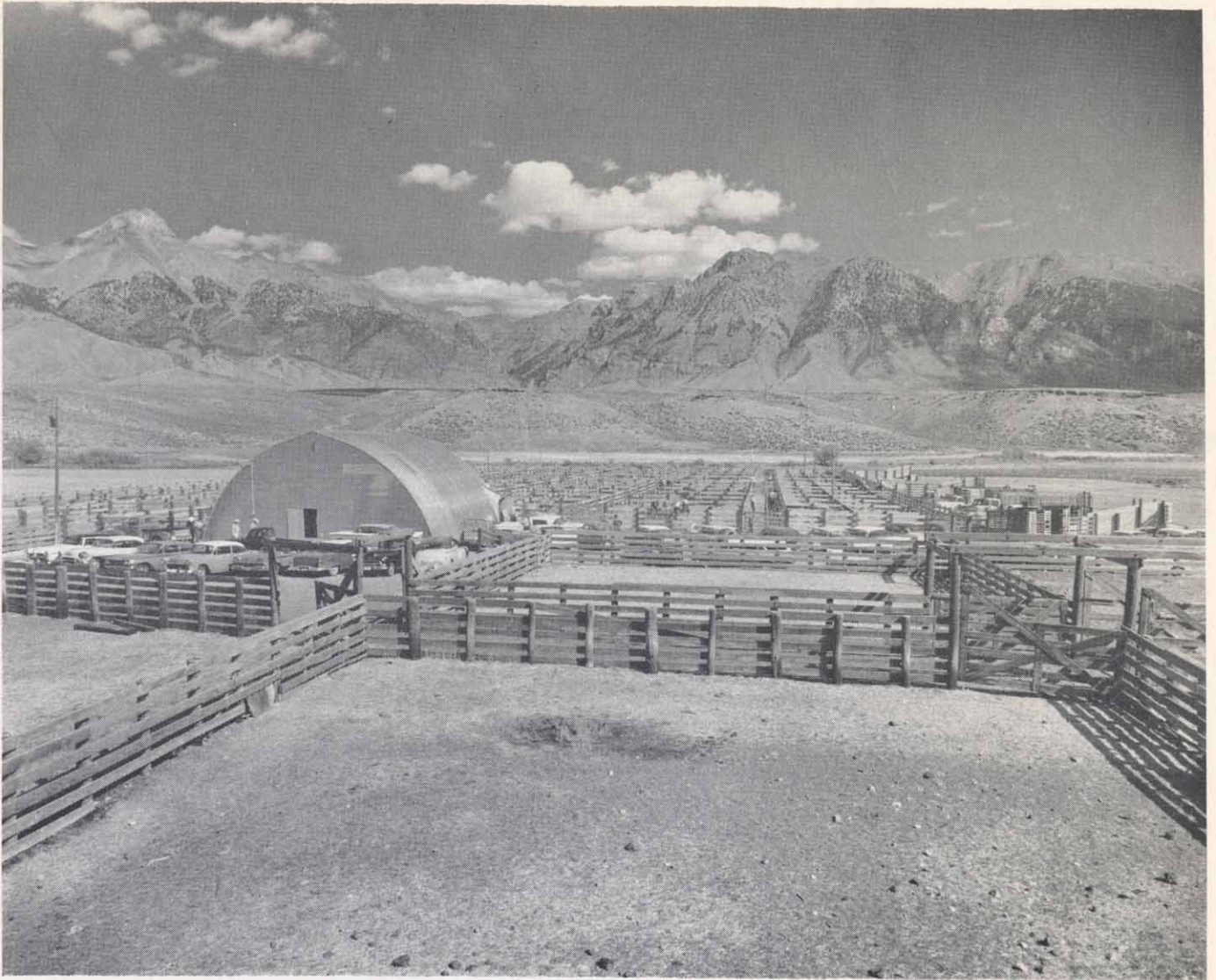
Summary

The Idaho beef industry began about 1850, grew and flourished with the development of the mines in the 1860's and 1870's, but reduction of cattle numbers came in the 1880's because of over expansion, lack of feed reserves, and adverse weather conditions. Surviving cattlemen re-established the business on a sounder, more conservative basis, balanc-

ing their range and feed resources with cattle numbers. Development of the irrigated valleys of southern Idaho shortly after the turn of the century provided abundant supplemental feed and allowed steady development of the industry. Since 1940 beef cattle numbers have risen sharply. Growth of the cattle-feeding business has been especially rapid and has



Steers ready for market—results of good breeding, feeding and management.



Marketing is an important phase of the beef-cattle industry.

increased more than 300 percent in the past 20 years.

Through the years, the cattle business has become increasingly complex, requiring more and more attention to improve methods of feeding, breeding, and management that will allow the cattleman to survive within the continually narrowing margin of return on his investment.

Idaho's cattle business represents an approximate investment of \$500,000,000 at current prices. In 1960, the estimated gross income from the pro-

duction, processing, and marketing of Idaho beef was \$125,000,000. The largest proportion, \$100,000,000, came from the sale of cattle from ranches and feedlots. Gross income added by packing houses and retailers amounted to an additional \$25,000,000. The \$125,000,000 gross income of 1960 represented approximately one-fifth of the total gross annual income from agriculture, lumbering, and mining. Nearly all the money from the beef business was spent in Idaho and created additional income and employment.

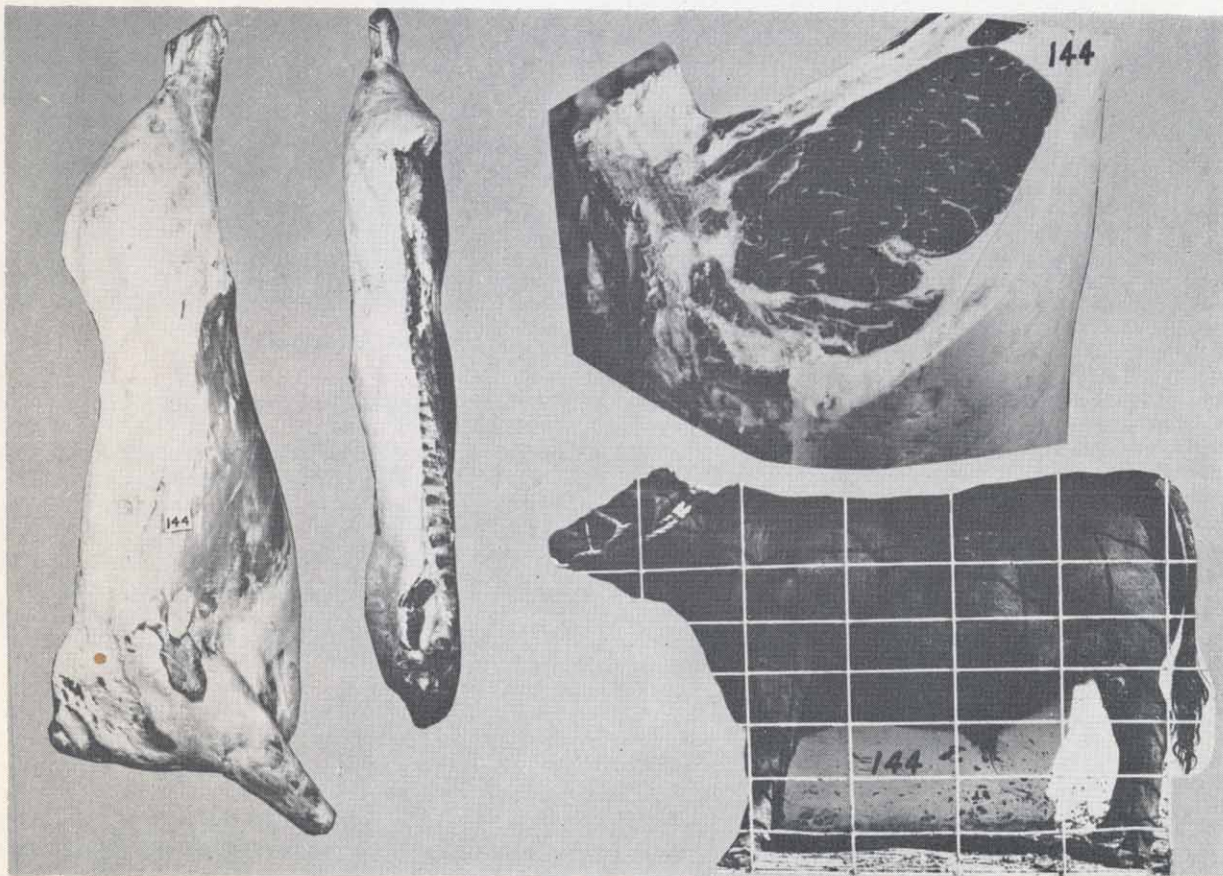
Appendix

Most figures for cattle numbers, feed requirements, feed supplies, and total gross income from Idaho's cattle business reported in this bulletin are based on U.S. Department of Agriculture data for the nation and for Idaho individually.

To obtain the estimated total income and expenditures for various segments of the cattle industry in Idaho and to obtain an estimate of the added gross income produced by packing houses and retailers, information from several sources was combined.

Sources of data and methods of estimating the information and statistics presented in the bulletin are listed below:

1. Land Use in Idaho. Source: 1959 census of Agriculture.
2. Ratio of farm income to total consumer spendable income in Idaho. Source: 1957 income estimates from June 15, 1958, Standard Rate and Data Service as reported in "Idaho Major Mass Market," published by the Pacific Northwest Farm Quad, 1959.
3. Early Cattle History. Source: "The Idaho Range, Past and Present," University of Idaho. Master's Thesis by E. F. Rinehart, 1932.
4. "Beef Cattle Numbers in Idaho," Figure 1. Source: 1870-1920, Master's Thesis by E. F. Rinehart, 1932. 1920-1960, Official Estimates U.S.D.A., Agricultural Marketing Service, Agricultural Estimates, Boise, Idaho.
5. "Cattle on Feed in Idaho on January 1," Figure 2.
6. "Feed Available in Idaho." Table 1. Summarized and supplied by U.S.D.A. Agricultural Marketing Service, Agricultural Estimates, Boise, Idaho.
7. Estimates of Feed Grain Requirements for the State of Idaho. Source: "Animal Units of Livestock Fed Annually 1909 to 1960." U.S.D.A. Economic Research Service. Statistical Bulletin No. 301.
8. Gross Income From Cattle and Calves in Idaho, Figure 3. Source: U.S.D.A. Statistical Reporting Service, Agricultural Estimates, Boise, Idaho.
"Gross Income" of Cattle and Calves in 1960 included the sales from:
 - (1) Farm, ranch or feedlot to slaughter.
 - (2) Farm or ranch to feeder out of state.
 - (3) Purebred bulls to buyers out of state.
9. "Cow-calf Producers—Capital Investment, Income and Expenditures, 1960," figure 2. Estimates of capital investments, expenditures and income per cow were obtained from:



Final product! Behind every steak and roast on today's dinner table, lies research and the land, labor, investment, and human resources of the beef industry.

- (a) A preliminary study of "Costs and Returns to Mountain Type Cattle Ranches in Central Idaho," Roland C. Bevan, Department of Agricultural Economics, University of Idaho. February, 1962.
- (b) "Farm Costs and Returns, Commercial Farms by Type, Size, and Location," U.S.-D.A. Economic Research Service, Agricultural Information Bulletin No. 230. Revised June, 1961.
- (c) Organization, Costs, and Returns Commercial, Family Operated Cattle Ranches—Northern Great Plains. Farm Economics Research Division, ARS, U.S.D.A. in Cooperation with Montana Agricultural Experiment Station. Bulletin 557, June, 1961. Estimates for 1960 of the total number of beef cattle in Idaho, one year old and over were obtained from: "Livestock and Meat Statistics," Supplement for 1960, U.S.D.A. Agricultural Marketing Service, Statistical Bulletin No. 230.

The total number of yearlings* and cows in the state was multiplied by the estimates of capital investments, costs, and returns per animal unit to give the estimated totals for the state of Idaho.

- 10. "Capital Investment, Income and Expenditure." Table 3. Idaho cattle feeding industry, 1960.
 - A. The total number of cattle fed during 1960 was obtained from U.S.D.A. Agricultural Marketing Service, Agricultural Estimates, Boise, Idaho.
 - B. Estimates of feed costs per head was obtained from the many steer feeding experi-

ments conducted by the University of Idaho Branch Experiment Station at Caldwell, Idaho.

- C. Estimates of non-feed costs from:
 - A. "Cattle Feeding in California," prepared by David L. Grove for the Economics Department of the Bank of America in California.
 - B. "Non-feed Costs of Arizona Cattle Feeding." Leo J. Moran, Technical Bulletin 138, Agricultural Experiment Station, University of Arizona, 1959.
 - C. Estimated purchase and selling prices of feeder and fed cattle. Source: U.S.D.A. Agricultural Marketing Service, Agricultural Estimates, Boise, Idaho.
- 11. Commercial Slaughter in Idaho, figure 4; Inventory Value of Idaho Cattle, figure 5; Cattle Production in Idaho, figure 6. Source: U.S.D.A. Agricultural Marketing Service, Agricultural Estimates, Boise, Idaho.
- 12. Estimates of gross income added by the processors and retailers were figured using: "Beef Marketing Margins and Costs," U.S.D.A. Misc. Publication 710, February, 1956. Adjustments were made to fit the 1960 prices more closely and the following figures were used in the calculation of total added gross income:
 - A. \$3.00 per 100 pounds of liveweight as the "live-to-wholesale margin."
 - B. A 33 $\frac{1}{3}$ % mark-up as the "wholesale-to-retail margin."