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THE BEEF COW/CALF INDUSTRY IN OKLAHOMA IN PERSPECTIVE

by

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Cattle play a very important role in the Oklahoma economy. In 1984, they generated over one billion dollars of revenue within the state of Oklahoma. Agriculturally, they were ranked number one, followed by wheat that generated 639 million dollars in 1984. Cattle generated over 78 percent of the cash receipts from livestock and 54 percent from all agriculture commodities. They generated about 1.5 times the receipts from all crops sold.

The history of Oklahoma has been tied to the development of the cattle industry in this state. The trail drives of the Texas trail herds led ranchers to see the value of the forage resources available that range from stateline to stateline both north and south and east and west. As the state began to be settled, more and more intensive use of the forage occurred. In 1891, the first year of cattle number reports, there were 787,000 head of cattle in Oklahoma. On January 1, 1975, there were 6,500,000 head of cattle on Oklahoma farms and ranches. January 1, 1986 showed 5.2 million head, which is at about the same level as occurred during 1971. In 1892, Oklahoma achieved its first million head of cattle. It took 38 years to grow another million head, 20 years for the third million, 11 years for the fourth, and 6 years for the fifth million head of cattle. Since 1970, we have seen as high as the 6.5 million in 1975 to a turn-down of 5.3 million in 1986.

In 1982, the latest U.S. Census of Agriculture shows that in Oklahoma 63.8 percent or 20.6 million acres of land in farms was available to be grazed in some manner. This percent has changed very little over the last fifteen years. This then means that about 64 percent of the Oklahoma agriculture land base which is generally that part that is less suitable for intensive crop use generates over 50 percent of the cash receipts in agriculture. This does, however, also include receipts from cattle sold from feed lots.

Economic pressures and increased efficiencies and technology have allowed and encouraged more cattle to be produced in Oklahoma. When comparing the carrying capacity of Oklahoma's grazed land, it can be seen that changes have occurred. Table 1 also compares the carrying capacity changes over the last 25 years. In 1959 it took 17.64 acres to support one cow, while in 1982, it took 8.82 acres per cow.

TABLE 1: OKLAHOMA BEEF COW CARRYING CAPACITY*

	1982	1978	1964	1959
Land Grazed, Acres,	20,642,247	22,203,464	23,812,816	22,563,153
Beef Cows, Jan 1	2,340,000	2,186,000	1,892,000	1,279,000
Acres/Cow	8.82	10.16	12.59	17.64

*Source: 1982 Census of Agriculture, Oklahoma State and County Data, Volume 1 Part 36.

Information about the general economic condition of Oklahoma agriculture can provide an insight to the sluggishness of the state economy. When combined with a depressed oil economy, the impact of agriculture will be severely felt throughout state government.

Gross and net income per acre for agriculture are shown in Table 2. Realized gross farm income for the 16 years shown in the table has increased by over 318 percent and farm production expenses have increased by more than 382 percent. The per acre net income value for 1983 ($2.52) is approaching the level of 1977 ($1.60) that showed the impact of severely depressed grain and cattle prices. Per acre net income for 1984 of $13.56 is in line with the per acre net income values for the last 7 years.

Average farm size for Oklahoma is also reflected in Table 2. Average size has shown an increase from 1970 (412 acres) to 1979 (481 acres) but has shown a decrease since 1980 to an average size of 446 acres in 1984.

Farm production expenses have increased from 1969 to 1984 by $4.06 per acre per year. Is that change due to any one component of the costs or due to changes in all costs? The table also shows selected cost components for the period 1969 to 1984. The average change in operating costs was almost $2.79 per acre per year. Mortgage interest did account for an average change of $0.45 per acre per year and feed for $0.53 per acre per year.

Farm size as well as production expenses are changing over the time period considered in Table 2. Per acre values allow analysis to be done without the complete influence of farm size change. The feed expense per acre column indicates that factors strongly influenced feed expense in 1974 and again in 1979 and 1980. Interest expense was significantly affected in 1974 and again in 1978 through 1982.

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Net income per acre has shown large fluctuations and production expenses per acre have shown large increases in the last 16 years. Has this variation been due to changes in the agriculture sector or from outside influences that have impacted on the agriculture sector? We know that meal prices in 1974 impacted on the livestock sector through feed costs. We also know that the embargo in 1977 impacted on farm income. Again, in 1979 and 1980 meal prices and feed grain prices affected the feed expenses significantly. The mortgage interest expense was affected not only by the inflation rate but also by the increased values that resulted from that inflation. In evaluating the financial condition of Oklahoma farmers over time, it is useful to deflate the annual values by prices paid by Oklahoma farmers and by prices received by Oklahoma farmers.

TABLE 2: GROSS AND NET FARM INCOME AND PRODUCTION EXPENSES FOR OKLAHOMA, 1969-1984, PER ACRE*

YEAR	AVERAGE SIZE FARM	GROSS FARM INCOME	EXPENSES				NET FARM INCOME
			FEED	CURRENT OPERATING	MORTGAGE INTEREST	TOTAL PRODUCTION	
1984	446	$99.11	$12.13	$60.96	$ 8.11	$88.02	$13.56
1983	459	100.03	12.82	66.18	8.34	92.49	2.52
1982	459	112.79	12.48	65.92	8.30	92.80	15.31
1981	466	98.55	13.76	67.01	7.13	91.17	12.28
1980	481	103.19	15.44	64.54	5.55	85.78	12.62
1979	481	106.21	14.34	62.86	4.51	82.60	26.53
1978	479	76.71	9.96	44.38	3.86	63.08	11.06
1977	473	61.37	8.49	44.49	3.48	61.34	1.60
1976	428	66.34	9.74	40.24	3.48	57.52	5.79
1975	423	65.21	8.73	38.49	3.02	54.81	9.49
1974	424	56.03	11.30	40.70	2.83	56.56	10.23
1973	425	64.91	9.83	36.42	1.94	48.47	19.58
1972	420	43.94	5.82	25.91	1.60	35.31	9.55
1971	417	35.01	5.04	21.81	1.40	30.00	6.88
1970	412	35.51	4.13	17.86	1.06	24.80	7.67
1969	413	31.16	3.69	16.39	0.98	23.05	6.01

*SOURCE: OKLAHOMA AGRICULTURAL STATISTICS

Using the indexes presented in Table 3 and deflating the gross farm income per acre, values and the production expense per acre values begin to flatten out the increases seen over the 16 years being considered. Gross farm income was deflated using the prices received by Oklahoma farmers and the production expenses were deflated using the prices paid by Oklahoma farmers. Instead of the wide variation that appeared in Table 2, we now have gross farm income showing a slow but consistently increasing growth each year. Deflated production expenses also show a more consistent pattern with only minor swings out of trend. If the deflated production expense values are subtracted from the deflated gross farm income values, the resulting real net income per acre value that is shown in Table 3 indicates that only small variations have occurred in real terms over the last 16 years. There has, however, been a generally consistent trend upward from 1974 to 1982, with 1983 being down by less than $2.00 in real terms and 1984 not far off 1983 levels. Farmers in Oklahoma were better off in real terms during the years of 1979 through 1984 than any of the other years shown in Table 3. This does not, however, say anything about profitability. It can be used only to establish the trends of movement.

Beef cow numbers in Oklahoma have changed significantly in the last 30 years. There were 1,255,000 head of beef cows in Oklahoma in 1956(See Table 4). A high in numbers was reached in 1975 with 2,713,000 beef cows. On January 1, 1986 there were 1,857,000 beef cows inventoried in Oklahoma, which is about the same level as was present 1963. Major herd liquidations have occurred since 1975 to drop to current levels. Beef cow numbers have been reduced by over 32 percent in the last 11 years.

TABLE 3: GROSS FARM INCOME AND FARM PRODUCTION EXPENSES PER ACRE FOR OKLAHOMA IN DOLLARS, 1969-1984*

YEAR	GROSS FARM INCOME PER ACRE		PRODUCTION EXPENSES PER ACRE		REAL NET INCOME** PER ACRE	OKLAHOMA FARM PRICES INDEX**	
	ACTUAL	DEFLATED**	ACTUAL	DEFLATED**		RECEIVED	PAID
1984	$ 99.11	$15.27	$88.02	$7.77	$7.50	649	1133
1983	100.03	16.26	92.49	8.31	7.95	615	1112
1982	112.79	18.52	92.80	8.66	9.86	609	1071
1981	98.55	15.59	91.17	8.82	6.77	632	1033
1980	103.19	17.11	85.19	9.01	8.10	603	952
1979	106.21	17.67	82.60	9.76	7.91	601	846
1978	76.71	14.63	63.08	8.47	6.16	524	744
1977	61.37	13.42	61.34	8.92	4.50	457	687
1976	66.34	14.23	57.52	8.76	5.47	466	656
1975	65.21	14.05	54.81	8.67	5.38	464	632
1974	56.03	12.04	56.56	9.81	2.23	465	576
1973	64.91	14.85	48.47	9.77	5.08	437	496
1972	43.94	13.77	35.31	8.15	5.62	319	433
1971	35.01	12.28	30.00	7.31	4.97	285	410
1970	35.51	12.68	24.80	6.35	6.33	280	390
1969	31.16	11.37	23.05	6.17	5.20	274	373

*SOURCE: OKLAHOMA AGRICULTURAL STATISTICS
**INDEXES BASED ON 1910-14=100

The all cattle and calves numbers reported in Table 4 include all beef cattle from both cow-calf operations as well as stocker operations and feeders located in feedlots. It also includes cattle involved with milk production. The data series then does represent the total cattle sector in Oklahoma. From Table 4, it can be seen, however, that the percent of all cattle and calves that beef cows represent has varied by as much as 10 percent over the last 30 years. The division between beef cows and all cattle and calves, however, has remained relatively stable over that period of time until the last five years. Since 1981, the trend though has been downward from 42.37 percent to current levels (January 1, 1986) of 35.33 percent, which is the lowest percentage represented by beef cows in the last 30 years.

TABLE 4: NUMBER OF LIVESTOCK BY SELECTED CLASS FOR OKLAHOMA ON JANUARY 1, 1956-1985, IN THOUSAND HEAD

YEAR	ALL CATTLE AND CALVES	BEEF COWS	PERCENT OF ALL CATTLE
1986	5200	1837	35.33
1985	5300	1993	37.6
1984	5500	2090	38.0
1983	5350	2140	40.0
1982	5800	2340	40.34
1981	5400	2288	42.37
1980	5500	2160	39.27
1979	5300	2138	40.33
1978	5900	2186	37.05
1977	5650	2259	39.98
1976	6400	2673	41.76
1975	6500	2713	41.73
1974	6020	2379	39.51
1973	5660	2283	40.33
1972	5441	2165	39.79
1971	5085	2118	41.65
1970	4985	2110	42.32
1969	4659	2040	43.78
1968	4480	1985	44.30
1967	4308	1942	45.07
1966	4396	1983	45.10
1965	4352	1963	45.10
1964	4106	1892	46.07
1963	3837	1736	45.24
1962	3654	1622	44.38
1961	3513	1490	42.41
1960	3378	1390	41.14
1959	3217	1279	39.75
1958	2898	1205	41.58
1957	2957	1233	41.69
1956	3146	1255	39.89

*SOURCE: OKLAHOMA AGRICULTURAL STATISTICS

Beef cattle, occurring throughout Oklahoma, have seen shifts, however, in the areas of concentration. Farmers in western Oklahoma have shifted away from cow-calf operations to the more flexible stocker operations. There is also an increased effect of feedlots on non-cow numbers because of increased cattle feeding in western counties in recent years. Figures One and Two show the top counties in beef cow numbers in 1976 and in 1985. The shifts show that most of the counties that were ranked in 1976 in Western Oklahoma have decreased in county rank and counties in Eastern Oklahoma have increased in county rank in the last ten years. Of the top ten counties, currently seven counties are in Eastern Oklahoma and three are in Western Oklahoma. The county with the most beef cows is McCurtain County with Osage County being second.

Cattle prices have increased over the last 16 years. This, along with other factors such as heavier weights, greater feed efficiencies and improved genetics, is reflected in the increases shown in cattle and calves cash receipts over that period of time (See Table 5). Cash receipts have increased by more than two and a half times since 1969, while cattle numbers have increased only an additional 850,000 head.

TABLE 5: CASH RECEIPTS AND FEED EXPENSE FOR CATTLE AND CALVES PER HEAD FOR OKLAHOMA, 1969-1984*

YEAR	CASH RECEIPTS/HEAD CATTLE & CALVES ACTUAL	REAL	TOTAL/HEAD FEED EXPENSE ACTUAL	REAL	FEED AS PERCENT RECEIPTS	INDEX OF RECEIPTS/FEED REAL	OKLAHOMA FARM PRICES INDEX*** RCVD	PAID
1984	$252.35	$38.88	$72.78	$6.42	28.84	605.61	649	1133
1983	249.46	40.56	80.30	7.22	32.19	561.77	615	1112
1982	297.92	48.91	72.14	6.73	24.21	726.75	609	1071
1981	274.01	43.35	86.72\	8.39	31.65	516.69	632	1033
1980	334.10	55.40	97.24	10.21	29.11	542.61	603	952
1979	343.84	57.21	93.74	11.08	27.26	516.34	601	846
1978	240.76	45.94	59.07	7.93	24.53	579.32	524	744
1977	166.99	36.54	52.65	7.66	31.53	477.02	457	687
1976	159.91	34.31	48.23	7.35	30.16	466.80	466	656
1975	134.44	28.97	42.62	6.74	31.70	429.82	464	632
1974	151.76	32.63	60.05	10.42	39.60	313.15	465	576
1973	222.14	50.83	64.1	12.94	28.90	392.81	437	496
1972	170.24	53.36	39.57	9.13	23.24	584.45	319	433
1971	133.77	46.93	36.83	8.98	27.53	522.61	285	410
1970	128.28	45.81	30.73	7.87	23.96	582.08	280	390
1969	113.96	41.59	29.49	7.90	25.88	526.46	274	373

*SOURCE: OKLAHOMA AGRICULTURAL STATISTICS
: REAL COLUMN IS ACTUAL COLUMN DEFLATED BY OKLAHOMA FARM PRICES RECEIVED OR PAID INDEX, WHICHEVER WAS APPROPRIATE.
**INDEXES USED FOR DEFLATING BASED ON 1910-14=100

It becomes more accurate as well as more convenient to analyze trends in and impacts of cash receipts and feed expense by calculating a per head value for each. Table 5 shows that receipts per head have increased 221 percent over the 16 years considered, while feed expenses increased by 247 percent over the same period.

Feed expense is a significant part of the production costs in a cow-calf operation. In the last 16 years, feed expenses as a percent of cash receipts from cattle and calves have ranged from a low of 23 percent to a high of 39 percent. Feed expense for the years 1969 - 1972 averaged 25.15 percent of cattle and calf cash receipts, while in 1981 - 1984 averaged 29.22 percent, or a general upward, though slight, trend.

The volatility of the beef cow-calf operation is of concern in looking at analysis and strategies for producers. If receipts and expenses move together, then a portion of risk is reduced. Table 5 is constructed to provide some insight into the volatility of the beef industry. The basic premise of the analysis is that feed expenses are representative of the costs associated with the beef industry. By deflating the receipts and feed expenses per head to a 1910-1914 base and creating a receipts to feed index, the variations or risk involved in the beef industry become apparent. Deflated receipts show that there have been two highs and two down swings in 15 years. Deflated feed expense shows the same general pattern of movement but not in the same years.

The index of deflated receipts to deflated feed expenses that is shown in Table 5 show that there has been a basic swing from wider margins to narrow margins back to wider margins. It is interesting to note that the years 1980-81 are very similar to years 1970-71 in real terms, with 1982-84 showing an even better position for the beef industry than 1980-81.

It is always interesting to look at the average for an area or for a state because it does establish trends and allows a look at the comparable situation over time to see the impact of different components that are included. The previous information has looked at these trends, both actual and deflated.

The current conditions of the beef producer are difficult to analyze from a historical data perspective. It can be said, however, over the period considered, using this set of data, that beef producers have made better use of their forages over time;. that more smaller farms are currently operating because the average size of farm has decreased since 1980; that average real net income per acre peaked in 1982 and has decreased since, although, it is still higher than it was in 1969, in real terms; that even though there has been volatility in feed costs, the relationship of feed costs to receipts has increased over the period of time considered; and that beef cow numbers have an established downward trend since 1975.

Historical trends have shown higher costs in relation to the receipts or narrower margins for the cow/calf producer. The average size of farm in Oklahoma has decreased and the number of beef cows has decreased substantially since 1975. Smaller size, higher costs, and narrow margins require greater efficiency and better management. To survive under such conditions as currently exist, any cow/calf operation needs to have an "educated" manager that can evaluate the enterprise and objectively make decisions about the expense components, about the level of technology used, and about the marketing plan in operation to maintain positive returns to management.

FIGURE ONE: Beef Cow County Standings, Ranked by Inventory Numbers, January 1, 1976

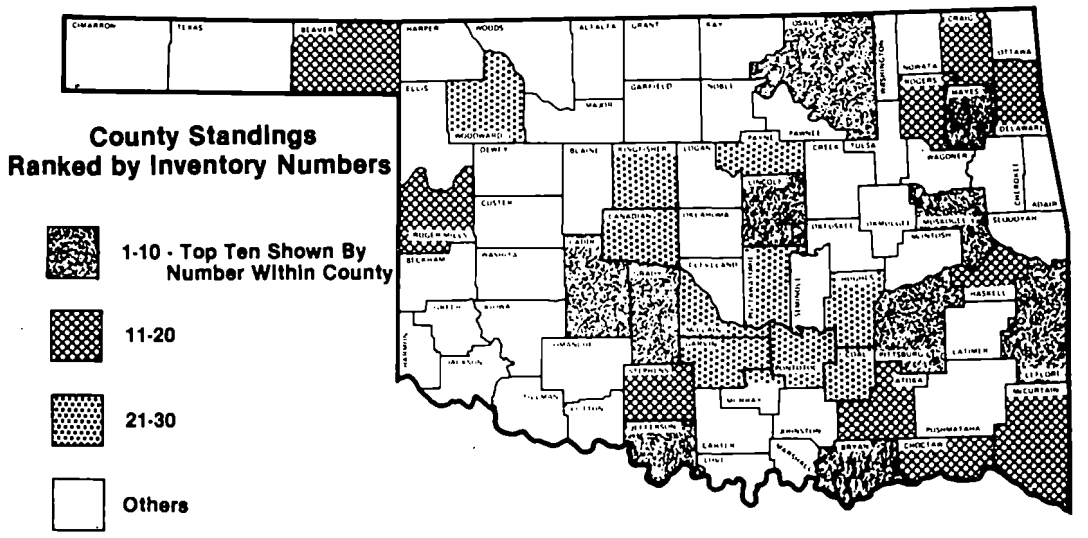
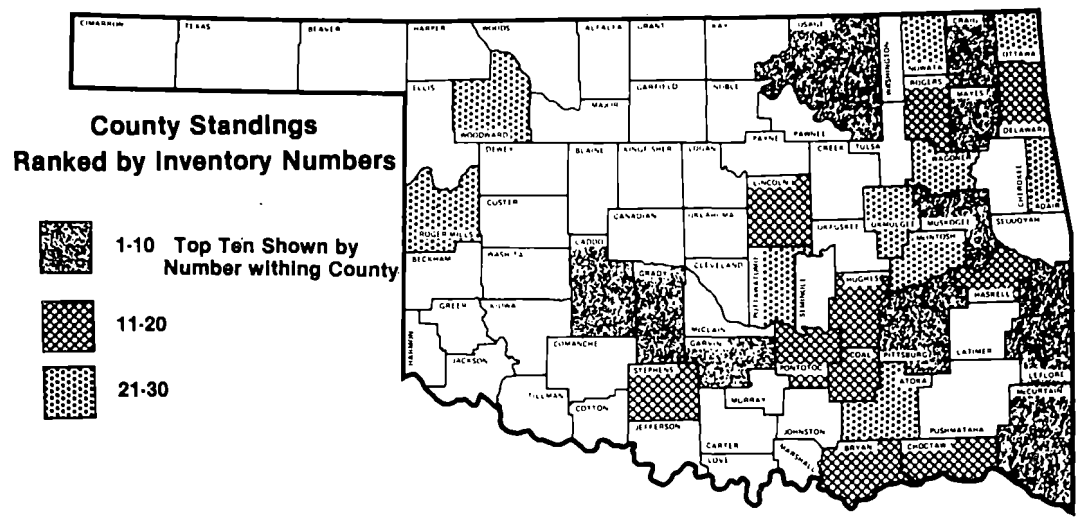


FIGURE TWO: Beef Cow County Standings, Ranked by Inventory Numbers, January 1, 1985



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