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by

Kenneth B. Boggs and Nellis A. Briscoe

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Oklahoma ranks fourth in the United States in grain sorghum production behind Texas, Kansas and Nebraska (Figure 1). These four states accounted for about 85 percent of the total United States production for the 1957-61 crop years (Table 1).

Historically, grain sorghum production in Oklahoma has been highly variable. Both year-to-year variation and trends in production have been influenced by weather, technological change, and price support—acreage control programs. However, sharp increases in the production of grain sorghum have occurred in Oklahoma since 1957 and this crop has become more important on many Oklahoma farms.

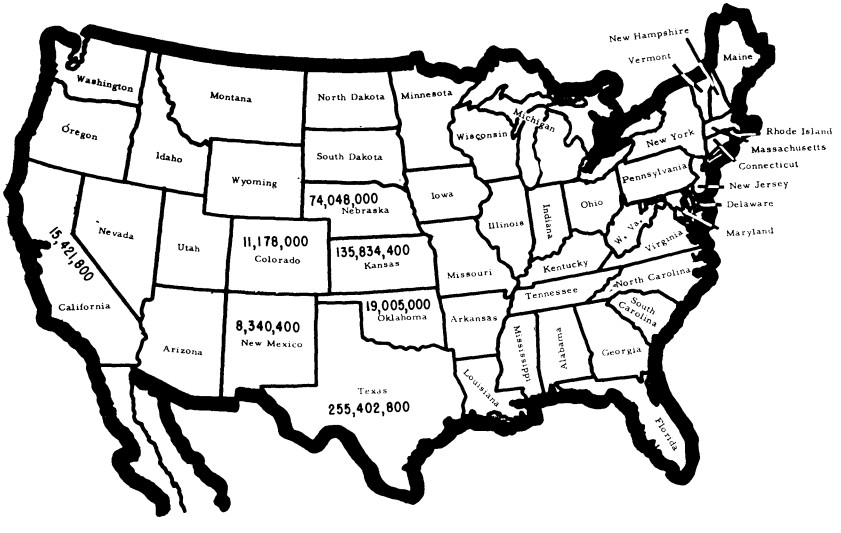

Figure 1. Five-year average production of grain sorghum as grain for selected states, 1957-61 (bushels).

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*Authors, Associate Professors, Department of Agricultural Economics.

Table I.—Production of Grain Sorghum in Selected States and United States, 1944-1961

Year	Texas		Kansas		Oklahoma		Nebraska		Colorado		New Mexico		United States
	1,000 Bushels	Percent of Total	1,000 Bushels	Percent of Total	1,000 Bushels	Percent of Total	1,000 Bushels	Percent of Total	1,000 Bushels	Percent of Total	1,000 Bushels	Percent of Total	1,000 Bushels
1944	99,229	53.7	49,261	26.6	14,685	7.9	2,564	1.4	3,768	2.0	6,111	3.3	184,978
1945	59,139	61.6	17,695	18.4	7,632	7.9	1,350	1.4	2,682	2.8	587	.6	96,063
1946	71,840	67.8	11,488	10.8	7,176	6.8	1,560	1.5	2,483	2.3	1,127	1.1	106,025
1947	65,421	70.2	10,933	11.7	4,840	5.2	1,125	1.2	2,400	2.6	1,764	1.9	93,217
1948	74,143	56.4	28,788	21.9	8,340	6.4	2,632	2.0	3,264	2.5	4,018	3.1	131,384
1949	84,996	57.3	29,928	20.2	8,494	5.7	2,572	1.7	5,298	3.6	9,213	6.2	148,299
1950	144,566	62.0	44,689	19.2	17,520	7.5	4,850	2.1	1,236	.5	8,417	3.6	233,278
1951	72,250	45.1	57,310	35.8	16,768	10.5	1,664	1.0	2,748	1.7	3,410	2.1	160,195
1952	48,236	58.1	18,536	22.3	4,248	5.1	2,231	2.7	896	1.1	903	1.1	83,024
1953	55,198	50.5	30,640	28.0	7,662	7.0	2,912	2.7	1,890	1.7	1,378	1.2	109,353
1954	125,340	57.5	47,894	22.0	6,447[1]	3.0	13,416	6.2	4,074	1.9	2,660	1.2	217,736[1]
1955	148,309	60.9	33,246	13.7	15,327[1]	6.3	7,920	3.2	4,950	2.0	5,550	2.3	243,449[1]
1956	124,202	60.5	24,390	11.9	5,145[1]	2.5	12,446	6.1	2,562	1.2	3,488	1.7	205,186[1]
1957	238,095	42.1	129,129	22.8	16,599[1]	2.9	77,337	13.7	16,400	2.9	6,590	1.2	565,710[1]
1958	273,066	44.7	128,964	21.1	19,175[1]	3.1	77,952	12.8	12,450	2.0	8,085	1.3	611,091[1]
1959	277,666	47.5	141,855	24.2	18,625[1]	3.2	61,683	10.5	9,292	1.6	8,474	1.4	585,086[1]
1960	258,552	41.7	167,544	27.1	23,760	3.8	90,698	14.6	8,760	1.4	9,243	1.5	619,867
1961	229,635	47.6	111,680	23.1	16,866	3.5	62,570	13.0	8,992	1.9	9,310	1.9	482,615

Source: Revised estimates from Annual Crop Production Summaries, U.S.D.A.

[1]Annual Crop Production Summary data were excluded for these year for Oklahoma and current revised data from the Oklahoma Crop Reporting Service, Oklahoma City, were substituted. This modification of the data differ from totals for the United States reported by the Annual Crop Production Summary. Presumably other states also are in the process of revising their estimates on the basis of the 1960 census. However, these were not available in published form at the time this manuscript was prepared.

This bulletin reports results of a study to determine production and utilization patterns of grain sorghum, harvested as grain, in Oklahoma.

Methods

Annual production estimates by counties and crop reporting districts from the Oklahoma Crop and Livestock Reporting Service were used as a point of reference for this analysis (Figure 2). However, most of the detailed information in this study was obtained through a personal interview with the county agent or his representative for each of the 77 counties in Oklahoma for the 1958 and 1960 grain sorghum crops and crop-marketing years. The percentage estimates made by county agents were used as a basis for estimating data for the crop reporting districts and for state totals.

Each county agent was asked to estimate the number of farms in his county as of January 1, 1959, for the 1958 crop and marketing year and for January 1, 1961, for the 1960 crop and marketing year. Estimates of the number of farms in each county was used as a basis for classifying all farms according to the type of farm enterprise-income operation which accounted for more than one-half of total farm income. For classification purposes, the following types of farm operations were considered: beef cattle, dairy, hog, cotton, cash grain, and other. All

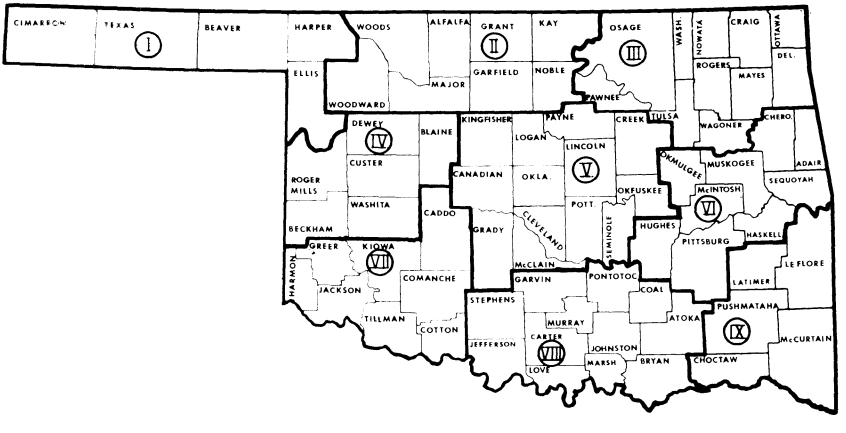

Figure 2. Crop Reporting Districts of Oklahoma.

farms with half or less than one-half of the total farm income from a single type of farm enterprise and farms with more than one-half of their total farm income from a single type but which could not be classified under the specific enterprise headings indicated, were classified as "other."

The percentage of farms harvesting 10 acres or more of grain sorghum in each county was estimated by the agents. These estimates were used to determine the relative concentration of grain sorghum producing areas of the state and particularly those areas where grain sorghum is considered a cash grain crop.

The analysis of grain sorghum utilization was based on percentage estimates of county production fed in counties where produced. The total amount of county production fed was distributed among the various classes of livestock according to percentage estimates.

Number of Farms in Oklahoma

According to census estimates, the number of farms in Oklahoma decreased about 20 percent between 1954 and 1959. This was a loss of 24,303 farms. Although a part of this decrease, 6,463 farms, may be attributed to the change in the census definition of a farm, the decrease in absolute numbers is significant (Table II).

Table II.—Number of Farms in Crop Reporting Districts of Oklahoma.

Crop Reporting Districts	Census Estimates		County Agents' Estimates		
			January 1, 1959		January 1, 1961
	1954	1959	1954 Census Definition of Farm	Adjusted to 1959 Census Definition	1959 Census Definition of Farm
I	4,654	4,089	4,098	4,062	4,041
II	12,826	11,122	11,938	11,727	10,713
III	16,763	13,558	13,893	12,544	13,336
IV	9,609	7,911	8,726	8,584	7,807
V	23,332	18,359	19,797	18,599	17,708
VI	15,731	11,750	13,266	11,875	11,021
VII	11,939	9,623	10,600	10,411	9,592
VIII	14,980	11,489	13,245	12,253	11,322
IX	9,145	6,775	8,100	7,145	6,580
Total	118,979	94,676	103,663	97,200	92,120

Source: U.S. Census 1954 and 1959, and Survey Data.

County agents' estimates of the number of farms in Oklahoma on January 1, 1959, totaled 103,663 farms. However, when this estimate was adjusted for the change in the definition of a farm, it was reduced to 97,200 which compared favorably with the census estimate of 94,676 farms. On January 1, 1961, county agents estimated a total of 92,120 farms in Oklahoma.

For the 1958 crop survey, county agents' estimates of the number of farms by crop reporting districts also appeared to be consistent with the census. However, in Crop Reporting Districts I and III, county agents estimated fewer farms than the census. In all other Crop Reporting Districts, the estimates were larger than those reported by the census.

The results of this study assume that the number and percentage estimates provided by county agents are reasonably reliable, particularly when the data are aggregated into crop reporting districts for comparison and analysis.

Grain Sorghum Production Areas in Oklahoma

Oklahoma grain sorghum production by selected crop reporting districts is shown in Table III. Districts I, IV, VII, V, and II, respectively, have been the leading grain sorghum producing areas in the state. Over 76 percent of the total production has been produced in the above-mentioned districts since 1955. District I was the leading grain sorghum producing area until the 1960 crop year. In 1960, District II led the state with District VII ranking a close second and District I ranking third. For the 1961 crop year, District I again led the state in grain sorghum production. District VII ranked second and District II ranked third.

Within crop reporting districts certain counties tend to be more consistent producers of grain sorghum than others. In District I, Texas and Cimarron counties have been the principal producing counties. In District IV, Washita has been the principal producing county with Beckham and Custer counties alternating between second and third place. Caddo County has led all counties in District VII since 1955. Tillman and Jackson counties have switched between second and third place, with Tillman having a slight edge in total production. Kay and Grant counties, in District II, have increased production substantially in the past 5 years and were the principal producing counties in 1959, 1960, and 1961. Canadian and Grady counties are the principal grain sorghum producing counties in District V.

Table III.—Grain Sorghum Production by Crop Reporting Districts, Oklahoma, 1955-1961

Year	State Total (Bushels)	I, II, IV, VII and V Total of Districts		District I			District II		
					Percent of:			Percent of:	
		Bushels	Percent of State	Bushels	District Total	State Total	Bushels	District Total	State Total
1955	15,327,000	13,362,000	87.3	4,806,000	36.0	31.4	1,449,000	10.8	9.5
1956	5,145,000	4,463,800	86.7	1,551,200	34.8	30.1	270,000	6.0	5.2
1957	16,599,000	15,010,000	90.3	8,257,800	55.0	49.7	1,034,200	6.9	6.2
1958	19,175,000	16,271,900	84.9	5,794,000	35.6	30.2	2,312,500	14.2	12.1
1959	18,625,000	16,022,600	86.0	5,026,000	31.4	27.0	2,220,000	13.9	11.9
1960	23,760,000	18,894,000	79.5	4,251,000	22.5	17.9	4,351,000	23.0	18.3
1961	16,866,000	12,959,000	76.8	3,669,000	28.3	21.7	2,447,000	18.9	14.5

Year	District IV			District V			District VII			All other Districts	
		Percent of:			Percent of:			Percent of:		Percent of:	
	Bushels	District Total	State Total	Bushels	District Total	State Total	Bushels	District Total	State Total	Bushels	State Total
1955	3,059,000	22.9	20.0	2,574,000	19.3	16.8	1,474,000	11.0	9.6	1,965,000	12.7
1956	1,007,500	22.6	19.6	1,160,900	26.0	22.6	474,200	10.6	9.2	681,200	13.3
1957	1,803,700	12.0	10.9	2,862,100	19.1	17.2	1,052,200	7.0	6.3	1,589,000	9.7
1958	2,783,600	17.1	14.5	3,780,200	23.2	19.7	1,601,600	9.8	8.4	2,903,100	15.1
1959	2,744,800	17.1	14.7	4,409,800	27.5	23.7	1,622,000	10.1	8.7	2,602,400	14.0
1960	3,550,000	18.8	14.9	4,314,000	22.8	18.2	2,428,000	12.9	10.2	4,866,000	20.5
1961	2,373,000	18.3	14.1	2,661,000	20.5	15.8	1,809,000	14.0	10.7	3,907,000	23.2

Source: Oklahoma Crop and Livestock Reporting Service.

Farms Harvesting 10 Acres or More for Grain

County agents were asked to estimate the number of farms harvesting 10 acres or more of grain sorghum as grain in order to determine the areas where it is considered a cash grain crop. The results were aggregated into crop reporting districts and are shown in Table IV.

An estimated 29,214 farms in Oklahoma harvested 10 acres or more of grain sorghum in 1959, which was 30.1 percent of all farms. In 1960, county agents estimated only 28,883 farms harvesting 10 acres or more of grain sorghum. Although there was an absolute decrease in the number of farms harvesting 10 acres or more in 1960, these farms made up 31.3 percent of the total number of farms. An absolute increase in the

Table IV.—Number and Percentage Distribution of Farms Harvesting Ten Acres or More of Grain Sorghum in Oklahoma, by Crop Reporting Districts, 1958 and 1960

District	Crop Year	All Farms	Farms Harvesting 10 acres or more Grain Sorghum as Grain		Farms Harvesting Grain Sorghum as a Cash Grain Crop		Farms Purchasing Additional Grain Sorghum for Seed		Grain Sorghum Sales as a Percent of Total Farm Income
		Number	Number	Percent	Number	Percent	Number	Percent	Percent
I	58	4,062	1,845	45.4	1,242	67.3	1,682	91.2	23.0
	60	4,321	1,769	40.9	1,006	56.9	1,667	94.2	21.6
II	58	11,727	3,665	31.3	1,441	39.3	3,360	91.7	10.6
	60	10,713	3,632	33.9	1,604	44.2	3,535	97.3	13.4
III	58	12,544	3,513	28.0	879	25.0	3,309	94.2	8.2
	60	13,336	4,044	30.3	1,124	27.8	3,830	94.7	12.0
IV	58	8,584	3,212	37.4	1,184	36.9	2,964	92.3	20.0
	60	7,807	2,961	37.9	824	27.8	2,922	98.7	16.0
V	58	18,599	5,066	27.2	1,102	21.8	4,522	89.3	13.8
	60	17,708	5,027	28.4	1,188	23.6	4,698	93.5	14.6
VI	58	11,875	2,038	17.2	811	39.8	2,009	98.6	9.7
	60	11,021	2,240	20.3	929	41.5	2,206	98.5	9.7
VII	58	10,411	5,772	55.4	4,187	72.5	5,615	97.3	12.5
	60	9,593	5,463	56.9	3,898	71.4	5,411	99.0	21.2
VIII	58	12,253	3,447	28.1	974	28.2	3,160	91.7	10.2
	60	11,322	3,256	28.8	759	23.3	3,078	94.5	14.0
IX	58	7,145	656	9.2	25	3.8	454	69.2	1.4
	60	6,580	491	7.5	22	4.5	491	100.0	16.0
State Totals	58	97,200	29,214	30.1	11,845	40.5	27,075	92.7	12.0
	60	92,401	28,883	31.3	11,311	39.2	27,823	96.3	14.8

Source: Survey Data

number of farms producing 10 acres or more occurred only in Crop Reporting Districts III and VI. However, in all areas except Districts I and IX, there was a percentage increase in the number of farms harvesting 10 acres or more of grain sorghum.

About 11,845 farms, or 40.5 percent of the farms in Oklahoma which harvested 10 acres or more of grain sorghum for grain also harvested grain sorghum as a cash grain crop in 1958. The percentage dropped to 39.2 percent in 1960 although the absolute drop in farm numbers was only 534 farms. Absolute increases in the number of farms harvesting 10 acres or more of grain sorghum as a cash grain crop were apparent in Districts II, III, V, and VI. Percentage increases occurred in Districts II, III, V, VI, and IX.

Farms Purchasing Additional Grain Sorghum for Seed

A relatively high percentage of the farms which harvested 10 acres or more of grain sorghum for grain also purchased grain sorghum for seed (Table IV). In 1958-59, 92.7 percent of these farms, or 27,075 farms purchased additional grain for seed purposes. In 1960-61, 96.3 percent, or 27,823 farms purchased additional grain sorghum for seed.

Grain Sorghum Sales and Farm Income

Grain Sorghum sales on farms harvesting 10 acres or more as a cash grain crop increased from 12 to 15 percent of the total farm income from 1958 to 1960 (Table IV). All crop reporting districts except I, IV, and VI, showed an increase in 1960-61 over 1958-59. Despite a decrease in 1960-61, grain sorghum accounted for 21 percent of the total farm income in District I, and 16 percent in District IV.

District VII had a larger number of farms producing grain sorghum as a cash grain crop, but District I showed a higher percentage of farm income received from grain sorghum sales.

During the latter half of the 1950 decade, District I produced 27 to 49 percent of the total grain sorghum while District VII produced about 19 to 27 percent (Table V). These figures may indicate some change in the relative importance of grain sorghum to total farm income.

Results indicated a general shifting of grain sorghum production in all districts from 1958 to 1960. Generally, the shifting tended to be toward districts other than those historically known as the major grain sorghum producing areas.

While the percentage of total farm income from the sale of grain sorghum on farms harvesting 10 acres or more as a cash grain crop does not appear to be strikingly important to most crop reporting districts, this aggregation may hide the relative importance to farm income in particular counties within a crop reporting district. Table V shows the number of counties within districts and their percentages of total farm income from the sale of grain sorghum.

In 1958, 46 counties indicated grain sorghum accounted for 10 percent or less of total farm income, 24 counties indicated 11-20 percent, and seven counties indicated 21 percent or more. In 1960, 41 counties indicated grain sorghum accounted for 10 percent or less of total farm income, 24 counties indicated 11-20 percent, and twelve counties indicated 21 percent or more. In five of these counties, grain sorghum sales accounted for over 40 percent of total farm income on farms harvesting 10 acres or more as a cash grain crop.

Table V.—Distribution of Counties by Percentage of Total Farm Income from Grain Sorghum Sales, on Farms Harvesting 10 Acres or More of Grain Sorghum as Grain, Oklahoma, 1958 and 1960

District	Total Counties	Year	Percent of Farm Income From Grain Sorghum Sales						
			0-10	11-20	21-30	31-40	41-50	51-60	Over 60
			Number of Counties						
I	5	1958	3	0	0	1	0	1	0
		1960	2	1	1	0	0	1	0
II	8	1958	5	2	1	0	0	0	0
		1960	4	3	1	0	0	0	0
III	11	1958	9	2	0	0	0	0	0
		1960	6	4	0	1	0	0	0
IV	6	1958	2	2	1	1	0	0	0
		1960	3	2	0	1	0	0	0
V	13	1958	7	5	0	0	0	1	0
		1960	7	4	1	0	1	0	0
VI	9	1958	5	4	0	0	0	0	0
		1960	6	3	0	0	0	0	0
VII	8	1958	4	3	1	0	0	0	0
		1960	3	3	1	0	0	1	0
VIII	12	1958	6	6	0	0	0	0	0
		1960	6	4	1	0	1	0	0
IX	5	1958	5	0	0	0	0	0	0
		1960	4	0	0	0	0	0	1
State Totals	77	1958	46	24	3	2	0	2	0
		1960	41	24	5	2	2	2	1

Source: Survey Data.

In all crop reporting districts except Districts IV and VI, counties in the lower percentage classification in 1958 tended to switch to a higher percentage classification in 1960. This suggests that grain sorghum is becoming relatively more important to total farm income in some counties. In most but not all counties where production was relatively high, the percentage of total farm income from sales of grain sorghum was also relatively high.

Grain Sorghum Utilization

Significant changes appear to have taken place between 1958-59 and 1960-61 in the amount as well as the percentage of total production fed to livestock in counties where produced (Table VI). In 1958-59, almost 57 percent of county production was fed to livestock in counties where produced. This increased to 69 percent in 1960-61. However, the total 1960 Oklahoma grain sorghum crop was larger than in 1958. This, plus the larger percentage fed to livestock in the 1960-61 crop-marketing year, increased the total amount fed to livestock in Oklahoma from 10,838,452 bushels in 1958-59 to 16,365,733 bushels in 1960-61 (Figure 3).

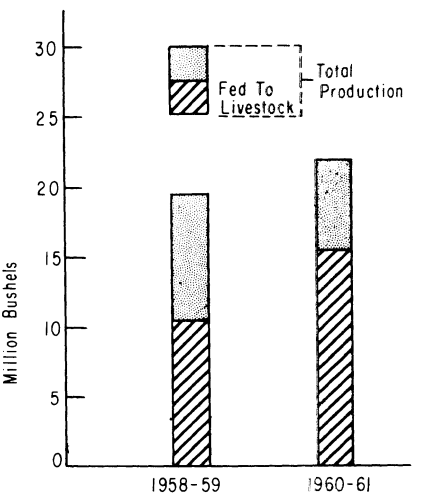

Figure 3. Grain Sorghum Production and Amount Fed to Livestock in Oklahoma, 1958-59 and 1960-61.

Significant changes also occurred within crop reporting districts (Figure 4). In District I, only 24.7 percent of total production was fed in 1958-59, compared with 47.7 percent in 1960-61. However, the amount fed increased only 66,526 bushels. This suggests that the bushels of county production fed in this district tends to be fairly stable even though the production may vary widely from year to year. In District II the percentage of county production fed to livestock dropped from 92.9 percent in 1958-59 to 84.9 percent in 1960-61, although the amount of grain sorghum fed almost doubled. This district fed more bushels of grain sorghum in counties where produced than in any other district in Oklahoma, both in the 1958-59 and 1960-61 crop-marketing years.

Table VI.—Distribution of Grain Sorghum Production Fed to Livestock Within Crop Reporting Districts, Oklahoma, 1958 and 1960[1]

District	Year	Production	Total Used for Feed		Beef Cattle		Dairy Cattle		Hogs		Poultry		Other Livestock	
		Bushels	Percent[2]	Bushels	Percent[2]	Bushels	Percent[2]	Bushels	Percent[2]	Bushels	Percent[2]	Bushels	Percent[2]	Bushels
	1958	5,794,000	24.7	1,431,078	65.8	941,182	26.2	375,318	5.5	79,079	1.3	19,230	1.2	16,269
I	1960	3,136,900	47.7	1,497,604	71.2	1,066,960	23.6	352,754	3.4	50,649	.6	9,036	1.2	18,203
	1958	2,312,500	92.9	2,147,576	47.9	1,028,622	17.2	369,082	20.7	444,543	9.8	209,649	4.5	95,680
II	1960	4,808,400	84.9	4,081,262	54.0	2,198,792	14.7	601,395	18.2	743,261	8.4	344,599	4.7	193,216
	1958	1,143,400	93.9	1,073,560	42.7	458,165	30.7	329,097	13.0	139,838	9.1	97,307	4.6	49,153
III	1960	2,784,100	88.8	2,471,790	41.4	1,024,833	32.6	805,738	13.4	330,770	9.0	222,553	3.6	87,893
	1958	2,783,600	52.8	1,469,780	43.0	632,315	36.7	538,984	12.6	184,961	3.9	56,946	3.8	56,560
IV	1960	3,811,100	66.4	2,529,081	51.8	1,311,065	29.6	748,495	13.2	334,651	3.2	80,320	2.2	54,550
	1958	1,601,600	84.9	1,359,817	30.0	407,411	29.4	399,364	27.5	374,048	6.6	89,772	6.6	89,223
V	1960	2,502,600	88.9	2,224,325	32.2	717,976	31.3	695,455	24.5	545,662	7.4	163,799	4.6	101,434
	1958	886,000	77.9	768,520	36.3	278,660	16.2	124,140	32.6	250,191	11.6	88,941	3.5	26,588
VI	1960	1,185,800	83.3	987,390	51.7	509,909	15.0	148,493	20.2	199,100	11.2	110,949	1.9	18,938
	1958	3,780,200	49.3	1,862,026	62.6	1,165,207	14.8	275,668	14.1	262,899	4.4	81,076	4.1	77,182
VII	1960	4,225,800	34.3	1,451,142	64.3	933,824	13.0	188,307	14.5	210,000	4.4	63,302	3.8	55,710
	1958	772,600	81.2	627,494	33.3	208,926	21.8	136,655	31.9	200,226	9.4	59,065	3.6	22,622
VIII	1960	1,230,300	85.2	1,048,289	34.3	359,196	31.9	334,835	19.8	207,416	9.7	101,941	4.3	44,902
	1958	101,100	97.5	98,601	30.0	29,547	11.3	11,120	31.9	31,477	25.3	24,908	1.6	1,549
IX	1960	75,000	99.8	74,850	31.4	23,480	12.4	9,264	30.7	22,995	20.0	14,958	5.5	4,153
State	1958	19,175,000	56.5	10,838,452	47.5	5,150,035	23.6	2,559,292	18.2	1,967,262	6.7	726,894	4.0	434,826
Totals	1960	23,760,000	68 9	16,365,733	49.8	8,146,035	23.7	3,884,736	16.2	2,644,504	6.8	1,111,457	3.5	578,999

[1]Estimates are for the amounts of 1958 and 1960 production fed to the various classes of livestock within counties where produced in the subsequent crop marketing year.

[2]A weighted average of county estimates of the total bushels fed to all kinds of livestock. The estimates of the amounts fed to various kinds of livestock are county totals and the percentage estimates computed as a percent of the total amount fed to livestock in counties where produced.

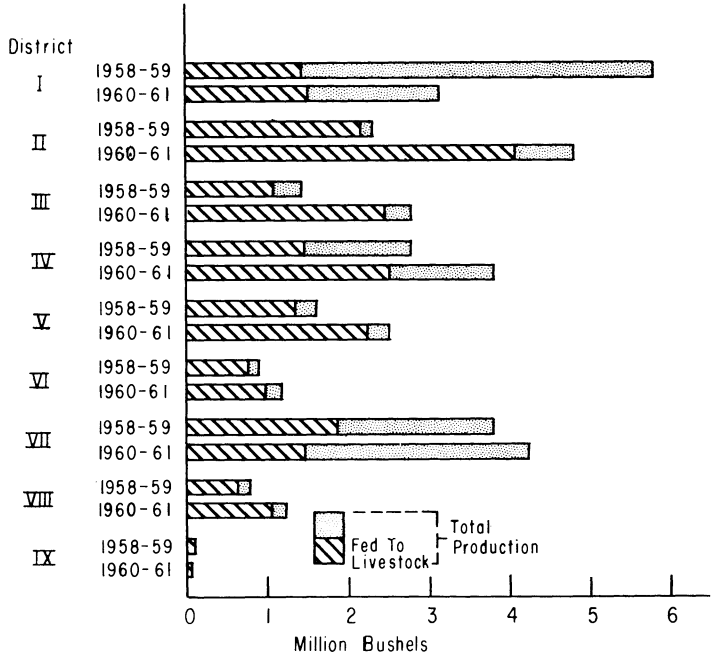

Figure 4. Grain Sorghum Production and Amount Fed to Livestock by Crop Reporting Districts in Oklahoma, 1958-59 and 1960-61.

In District III, the percentage change was also in the same direction as in District IV, changing from 93.9 percent of total production to 88.8 percent. In this area the amount of county production fed to livestock in counties where produced more than doubled in the two-year period, changing from 1,073,560 bushels in 1958-59 to 2,471,790 bushels in 1960-61.

In 1958-59, District IV fed 52.8 percent of its production, or 1,469,780 bushels, compared to 66.4 percent and 2,529,081 bushels in 1960-61. In District V, 84.9 percent, or 1,359,817 bushels of county-produced grain sorghum were fed in 1958-59, compared to 88.9 percent, or 2,224,325 bushels in 1960-61. In District VI, 77.9 percent, or 768,520 bushels of county production was fed to livestock in 1958-59, compared to 83.3 percent, or 987,390 bushels in 1960-61.

In District VII total production increased; however, the percentage fed as well as total bushels fed decreased in 1960-61, compared to 1958-

59. This reflects in part the price support program procedures and concurrent trucking of grain sorghum into gulf ports and elsewhere during this crop-marketing year. This was the only area in Oklahoma where the percentage as well as total bushels fed to livestock in counties where produced decreased between these two crop-marketing years.

In District VIII, the percentage of total county production fed increased from 81.2 percent to 85.2 percent between 1958-59 and 1960-61. In District IX, total production of grain sorghum decreased but the percentage of production fed to livestock increased from 97.5 percent in 1958-59 to 99.8 percent in 1960-61.

Figure 5 shows percentages of grain sorghum fed to different kinds of livestock in Oklahoma in 1958-59 and 1960-61. About 47.5 percent, or 5,150,035 bushels, of the total amount fed to livestock was fed to beef cattle in 1958-59. This increased to 49.8 percent, or 8,146,035 bushels, fed to beef cattle in the 1960 crop and marketing year.

Dairy cattle were the second largest consumers of grain sorghum in counties where produced. The absolute consumption of grain sorghum increased from 2,559,292 bushels in 1958-59 to 3,884,736 bushels in 1960-61.

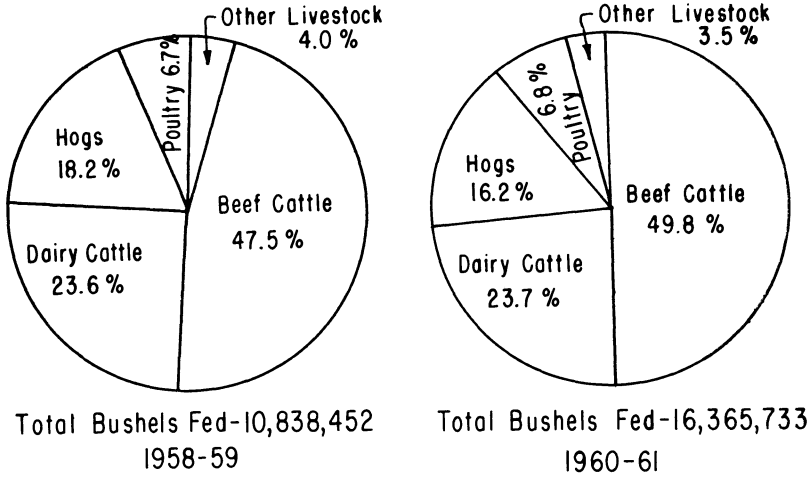

Figure 5. Distribution of Grain Sorghum Fed to Livestock in Oklahoma, 1958-59 and 1960-61.

Hogs were fed 18.2 percent of the 1958 crop but only 16.2 percent of the 1960 crop. However, the absolute amounts fed increased from 1,967,262 bushels for the 1958 crop to 2,644,504 bushels for the 1960 crop.

Poultry and other livestock, together, were fed 10.7 and 10.3 percent, respectively, of the 1958 and 1960 grain sorghum crops. The absolute amounts fed these groups were 1,161,720 bushels in 1958-59 as compared to 1,690,456 bushels in 1960-61.

Farm Enterprise-Income Types

Changes in the number and distribution of farms by major enterprise-income types may indicate potential changes in the marketing of grain sorghum in counties and crop reporting districts where produced. While descriptive in nature, the data in Table VII may be helpful in relating production patterns to potential in-state market uses for grain sorghum.

Beef cattle and cash grain farms combined accounted for 67.2 percent of all farms in 1958-59 and 71.4 percent in 1960-61. Beef cattle farms accounted for the larger part of these percentages in both years.

Livestock farms—beef, dairy and hog farms—accounted for about 50 percent of all farms in 1958-59 and over 54 percent of all farms in 1960-61. Crop farms—cash grain and cotton farms—accounted for approximately 37 percent of all farms in both 1958-59 and 1960-61. The slight percentage gain in livestock farms, primarily beef cattle farms, came largely at the expense of farms other than cash grain or cotton farms.

The total number of farms was estimated to be about 4,800 less in 1960-61 than in 1958-59. Significantly, during this period, 2,051 farms shifted their major source of income to beef cattle. All other enterprise-income types of farms decreased in numbers. These decreases were: 794 dairy farms, 384 hog farms, 1409 cash grain farms, 394 cotton farms and 3,869 "other" farms. The latter enterprise-income classification accounted for over half of the total decrease in the number of farms. While a few of these were specialized farms such as poultry and specialized crop farms other than cash grain and cotton, most of these were diversified farms having several sources of farm income, none of which accounted for more than half of total farm income.

Table VII.—Number and Percentage Distribution of Farms, by Enterprise-Income Source by Districts.

District	Year	All Farms	— Farm Enterprise-Income Source — Beef Farms		Dairy Farms		Hog Farms		Cash Grain Farms		Cotton Farms		Other Farms	
		Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I	1958	4,062	1,792	44.1	376	9.3	57	1.4	1,694	41.7	--	--	143	3.5
	1960	4,321	1,922	44.4	573	13.3	58	1.4	1,640	37.9	11	.3	117	2.7
II	1958	11,727	2,545	21.7	556	4.7	82	.7	8,031	68.5	--	--	513	4.4
	1960	10,713	2,341	21.9	581	5.4	111	1.0	7,202	67.2	--	--	478	4.5
III	1958	12,544	6,030	48.1	2,059	16.4	437	3.5	2,313	18.4	129	1.0	1,576	12.6
	1960	13,336	6,886	51.6	2,122	15.9	420	3.1	2,127	16.0	169	1.3	1,612	12.1
IV	1958	8,584	1,682	19.6	408	4.8	42	.5	3,867	45.0	2,133	24.8	452	5.3
	1960	7,807	1,573	20.1	387	5.0	35	.4	3,332	42.7	2,002	25.6	478	6.1
V	1958	18,599	6,654	35.8	2,658	14.3	385	2.1	5,998	32.2	483	2.6	2,421	13.0
	1960	17,708	6,980	39.4	2,454	13.9	374	2.1	5,597	31.6	510	2.9	1,793	10.1
VI	1958	11,875	6,770	57.0	844	7.1	384	3.2	945	8.0	1,324	11.2	1,608	13.5
	1960	11,021	6,777	61.5	770	7.0	243	2.2	1,283	11.6	1,238	11.2	710	6.5
VII	1958	10,411	1,857	17.8	463	4.4	37	.4	3,878	37.3	3,242	31.1	934	9.0
	1960	9,593	2,073	21.6	324	3.4	15	.2	3,409	35.5	2,829	29.5	943	9.8
VIII	1958	12,253	6,811	55.6	1,339	10.9	730	6.0	482	3.9	1,207	9.9	1,684	13.7
	1960	11,322	7,127	63.1	799	7.0	448	3.9	1,251	11.0	1,072	9.5	625	5.5
IX	1958	7,145	3,894	54.5	187	2.6	214	3.0	72	1.0	205	2.9	2,573	36.0
	1960	6,580	4,407	67.0	86	1.3	280	4.3	30	.4	498	7.6	1,279	19.4
State	1958	97,200	38,035	39.1	8,890	9.1	2,368	2.4	27,280	28.1	8,723	9.0	11,904	12.3
Total	1960	92,401	40,086	43.4	8,096	8.8	1,984	2.1	25,871	28.0	8,329	9.0	8,035	8.7

Source: Survey Data.

The number of beef cattle farms decreased in crop reporting Districts II and IV, although the percentage of beef cattle farms actually increased. Beef cattle farms increased in number as well as in the percentage of all farms in all other crop reporting districts. The largest number of beef cattle farms were in Districts VIII, V, III, and VI, respectively, which accounted for 69 percent of all beef cattle farms in Oklahoma in 1960-61.

In Crop Reporting Districts I, II, and III, the number of dairy cattle farms increased, although a percentage increase occurred only in District I. Dairy farms decreased in numbers and as a percentage of all farms in all other crop reporting districts. Dairy farms were more numerous in Districts V and III than in other areas in Oklahoma. These two districts accounted for 56 percent of all dairy farms in Oklahoma, with District V having more dairy farms than District III.

Hog farm numbers increased in Districts I, II, and IX between 1958-59 and 1960-61, although the increases were relatively small. The largest number of hog farms were in Districts VIII, III, and V, respectively. These districts accounted for 63 percent of all hog farms in Oklahoma.

Purchases of Grain Sorghum for Feed

More than five thousand farms which harvested 10 acres or more of grain sorghum purchased additional grain sorghum for feeding in 1960-61 (Table VIII). The number of farms purchasing additional grain sorghum for feed in District III, increased from 618 farms in 1958-59 to 1,334 in 1960-61. This was the largest increase in all districts.

Table VIII shows absolute increases in the number of farms purchasing additional grain sorghum for feeding purposes in Districts I, II, III, VI, VII, and VIII. A decrease occurred only in District IX.

Slightly over 21 percent of all farms, whether they grew sorghum or not, purchased 300 bushels or more of grain sorghum for feeding purposes in the 1960-61 marketing year. Comparing the 21 percent of all farms which purchased 300 bushels or more of grain sorghum to the 6.1 percent of all farms which harvested 10 acres or more of grain sorghum or grain suggests that many farms in Oklahoma are not producing adequate supplies for their own needs.

Importing and Exporting Counties[1]

An attempt was made to evaluate individual counties with respect to the production and utilization balance of grain sorghum. The results may indicate more specifically the pattern of production and marketing of this crop in Oklahoma.

In 1958-59, fifty counties were reported as net importing counties, 19 as net exporting counties and 8 counties unclassified. In 1960-61, forty-nine counties were reported as net importing and 20 as net exporting counties. Eight counties were not classified (Table IX). In both crop-marketing years, net exporting counties tended to be in the western part of the state, while net importing counties were concentrated in the eastern two-thirds of Oklahoma. Although the sources and amounts of imports and exports were not estimated, there appears to have been considerable movement of grain sorghum between adjoining counties

[1]The words "net importing" and "net exporting" refer to the movement of grain sorghum into and out of specific counties and not to foreign imports and exports.

Table VIII.—Grain Sorghum Purchases for Feed on all Farms, and on Farms Harvesting 10 Acres or More of Grain Sorghum for Grain, Oklahoma, 1958 and 1960.

District	Year	All Farms	Farms Harvesting 10 Acres or more of Grain Sorghum for Grain that Purchased Additional Grain for Feed		Farms Purchasing 300 bushels or More of Grain Sorghum for Feed	
		Number	Number	Percent	Number	Percent
I	1958	4,062	334	8.2	1,156	28.5
	1960	4,321	477	11.0	1,660	38.4
II	1958	11,727	404	3.4	1,433	12.2
	1960	10,713	452	4.2	1,421	13.3
III	1958	12,544	618	4.9	3,014	24.0
	1960	13,336	1,334	10.0	2,778	20.8
IV	1958	8,584	514	6.0	1,206	14.0
	1960	7,807	544	7.0	1,258	16.1
V	1958	18,599	1,413	7.6	3,776	20.3
	1960	17,708	1,265	7.1	4,578	25.9
VI	1958	11,875	461	3.9	1,729	14.6
	1960	11,021	486	4.4	1,469	13.3
VII	1958	10,411	499	4.8	1,628	15.6
	1960	9,593	628	6.5	1,547	16.1
VIII	1958	12,253	705	5.8	3,913	31.9
	1960	11,322	744	6.6	3,962	35.0
IX	1958	7,145	210	2.9	975	13.6
	1960	6,580	161	2.4	958	14.6
State	1958	97,200	5,158	5.3	18,830	19.4
Total	1960	92,401	5,601	6.1	19,631	21.2

Source: Survey Data.

within the state. This appears to be associated with the geographical location of production for grain sorghum within counties.

Changes in importing and exporting counties occurred in Crop Reporting Districts I, VI, and VII. In District I, three counties were reported as net importing counties in 1960-61, compared with two in 1958-59. One county switched from a net exporting to a net importing county. This was consistent with the reduction in total production between 1958-59 and 1960-61 for this crop reporting district. District VI reported one less exporting and one more importing county in 1960-61 than in 1958-59. District VII also reduced its net importing counties and added one more exporting county. No changes were indicated for all other crop reporting districts.

It appears that no major changes occurred in the two-year period, 1958-59 to 1960-61, sufficient to induce large numbers of counties in any given crop reporting district to switch from their past production and utilization balance positions. While changes have been and are taking place, the magnitude of these changes are evolutionary rather than revolutionary. Nevertheless, if these patterns persist over time, substantial changes in the production and marketing of grain sorghum in Oklahoma will occur.

Table IX.—Grain Sorghum Importing and Exporting Counties by Crop Reporting District, Oklahoma, 1958 and 1960

District	Counties In District	Year	Net Importing Counties	Net Exporting Counties	Undetermined Counties
	Number		Number	Number	Number
		1958	2	3	0
I	5	1960	3	2	0
		1958	2	2	4
II	8	1960	2	2	4
		1958	8	1	2
III	11	1960	8	1	2
		1958	2	4	0
IV	6	1960	2	4	0
		1958	10	1	2
V	13	1960	10	1	2
		1958	8	1	0
VI	9	1960	7	2	0
		1958	1	7	0
VII	8	1960	0	8	0
		1958	12	0	0
VIII	12	1960	12	0	0
		1958	5	0	0
IX	5	1960	5	0	0
		1958	50	19	8
State Total	77	1960	49	20	8

Source: Survey Data.

SUMMARY

Texas, Kansas, Nebraska and Oklahoma accounted for about 85 percent of the total United States production of grain sorghum for the 1957-61 crop years. Although Oklahoma accounted for only about 3.3 percent of the total United States production during this period, increases in production have changed the relative importance of this crop on many Oklahoma farms. Oklahoma Crop Reporting Districts I, II, IV, V, and VII have accounted for over 76 percent of the total state production since 1955.

Very little change occurred between 1958-59 and 1960-61 in the number of farms harvesting 10 acres or more of grain sorghum as a cash grain crop. Increases were apparent in Crop Reporting Districts II, III, V, and VI.

On farms harvesting 10 acres or more of grain sorghum as a cash grain crop, grain sorghum sales accounted for about 12 percent of total farm income in 1958, compared with 15 percent in 1960-61. In all Crop Reporting Districts except I, IV, and VI, grain sorghum sales as a percentage of total farm income increased between 1958-59 and 1960-61. Although Crop Reporting District VII had the largest number of farms producing grain sorghum as a cash grain crop, a higher percentage of farm income was received from sales of grain sorghum in District I.

Almost 57 percent of the grain sorghum crop was fed to livestock in counties where produced in 1958-59, compared with 69 percent in 1960-61. The amount of production fed to livestock in counties where produced increased from 10,838,452 bushels in 1958-59 to 16,365,733 bushels in 1960-61. Crop Reporting District VII was the only area in Oklahoma where the percentage as well as the total bushels fed to livestock, decreased between the 1958-59 and the 1960-61 crop marketing years.

About 47.5 percent of the total bushels of grain sorghum fed to livestock in counties where produced was fed to beef cattle in 1958-59, compared with 49.8 percent in 1960-61. Dairy cattle were the second largest consumers of grain sorghum in Oklahoma in 1958-59 and 1960-61, accounting for over 23 percent of the total amount fed in both crop marketing years.

The 5,158 farms harvesting 10 acres or more of grain sorghum, and also purchasing additional grain sorghum for feed in 1958-59, represented only 5.3 percent of all farms in Oklahoma. This compares with 19.4 percent of all farms which purchased 300 bushels or more of grain

sorghum for feed purposes. In 1960-61, 5,601 farms which harvested 10 acres or more of grain sorghum for grain also purchased additional grain for feed. The magnitude of the Oklahoma market, measured in terms of numbers of farms, appears to be restricted to about 20 percent of the total number of farms in Oklahoma. These numbers represent only points of sale and are not necessarily indicative of sales volume measured in either pounds or bushels.

The production and utilization balance of grain sorghum for individual counties for Oklahoma remained relatively unchanged between 1958-59, and 1960-61. In both crop marketing years, net exporting counties were in the Panhandle and southwestern part of the state, while net importing counties were concentrated in the eastern two-thirds of Oklahoma.

Oklahoma's Wealth in Agriculture

Agriculture is Oklahoma's number one industry. It has more capital invested and employs more people than any other industry in the state. Farms and ranches alone represent a capital investment of four billion dollars—three billion in land and buildings, one-half billion in machinery and one-half billion in livestock.

Farm income currently amounts to more than $700,000,000 annually. The value added by manufacture of farm products adds another $130,000,000 annually.

Some 175,000 Oklahomans manage and operate its nearly 100,000 farms and ranches. Another 14,000 workers are required to keep farmers supplied with production items. Approximately 300,000 full-time employees are engaged by the firms that market and process Oklahoma farm products.

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