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Wheat Crop-Share Leases in Central Kansas 1974-1993

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Wheat production is a major crop enterprise on many of the 67,000 farms in Kansas. Kansas' central and south central regions are in the heart of the wheat producing area. The 1987 Census of Agriculture reports approximately 56 percent of farm operations in Kansas lease part or all of the land in the farming operation. Because of the importance of farmland leasing, this fact sheet will focus on an economic evaluation of wheat crop-share leasing arrangements, specifically for operations in the south central part of the state. How the share arrangement can be evaluated to determine if it is fair for both landowners and operators is also addressed. A historical review of wheat production cost budgets and traditional wheat crop-share leasing arrangements forms the basis for much of the discussion.

Leasing: Background and Principles

Farm operators utilize resources such as land, machinery, labor, and other purchased inputs to produce marketable commodities. Most farm operators utilize both owned and rented land in their farming operations. Leasing allows producers to spread machinery investments over more acres. Leasing also allows these tenant operators to control more acres at both reduced financial risk and with little initial investment. Purchasing farmland requires significant capital investment and locks the producer into financial obligations for the future. Operating with leased land, a producer can more easily adjust the overall size of the farm business as economic conditions change. (Crop Share Rental Arrangements for Your Farm)

In a cash rental arrangement, the tenant operator secures the services of the landlord's land with a negotiated cash payment per year. In a crop-share rental arrangement, the landowner provides the land resource and also may pay a portion of the variable factors of production, and the rent is paid in the form of a share of the crop production. The farm operator usually provides the machinery, labor, management, and other fixed and variable factors of production. Crop-share rental arrangements vary widely, however there are traditional arrangements that dominate the market for rented land.

Among leasing arrangements, the crop-share lease is the most favored by wheat farmers in Kansas. A 1991 study of Farm Management Association members found that nearly 70 percent of the leasing arrangements involved crop-shares rather than cash lease payments. Crop-share arrangements permit the landlord to benefit from higher-than-average yields and crop prices rather than taking a set cash payment for the use of the land. Share leasing also may allow the operator or landlord to establish material participation in a business enterprise to gain a tax advantage.

Landowners and farm operators should follow several management and economic principles when they develop their crop-share lease arrangement. First, they should share crop yields or returns in the same proportion as they contribute resources. This allows for a "fair" division of proceeds at the end of the production season or lease period.

Second, the cost of variable production inputs that increase yields should normally be shared in the same proportion as the crop returns. This compensates both parties for yield-enhancing technologies.

Third, when new production technologies are adopted, the share arrangements should be evaluated to determine if the initial share arrangement remains valid. New technology may influence input mix, resulting in a different level of expenditure for capital investment or for variable inputs.

Finally, if there are expenditures for inputs by either party that are not fully utilized in the production process, there should be fair compensation at the termination of the lease arrangement. Communication of the terms and conditions of the lease during the production period is essential to a satisfactory business arrangement for both parties. Written lease agreements permit clear communication, increase the understanding of the lease terms and conditions, and outline the responsibilities of both parties.

Central and south central Kansas wheat producers and nonoperator farmland owners commonly use crop-share lease arrangements that distribute one-third of the production to the landlord and the remainder, or two-thirds of the production, to the farm operator. The 1991 survey of Farm Management Association members showed that almost 95 percent of the landlords for south central farmers received one-third of the crop in the lease arrangement for cropland producing wheat. There are other lease arrangements in the rental market, but the one-third/two-thirds lease is dominant. The remainder of this paper discusses whether this share represents a “fair lease” based upon budgeted values for the fixed and variable factors of production.

Analysis Method

Fair lease arrangements are derived by comparing the economic value of resource contributions of land owners and farm operators. A “fair” lease is one that distributes production or value of production in the same ratio as resource contributions.

For several years, Kansas State University has published cost-of-production budgets for the major crop and livestock enterprises in Kansas. The factors used for each budget determine the input item costs that are projected in the budget. Seed, fertilizer, and chemical input estimates are based upon Kansas State University recommendations. Cropland value is determined from statewide statistics on the real estate market published by the State Board of Agriculture. Table 1 shows land values and cash rental rates for nonirrigated cropland in the central and south central agricultural statistical districts in the state for 1977 to 1992. Values for agricultural purposes are used in the budgeted estimates of production costs. Machinery investment per acre, labor hours per acre, and other costs are determined from aggregate records of members in the Kansas Farm Management Associations for the south central and north central parts of the state. Based upon aggregate records of Farm Management Association member farms, the budgets represent the best estimate of production costs for average-sized Kansas farms in the central part of the state.

Land Lease Analysis is a computer spreadsheet application developed by Leo Figurski, Extension agricultural economist at KSU, that has been in use for several years and allows easy accounting for the resources utilized in crop-share production of wheat and other single crops in Kansas. This spreadsheet utilizes input cost estimates to develop an estimate of total cost for producing a crop. Each of the input costs is allocated to the provider of the input to determine the percentage of inputs provided by the land owner versus the percentage of inputs provided by the tenant operator. Cost estimates of production inputs for the 20-year study period were systematically used in *Land Lease Analysis* to determine the best estimate of the “fair lease” distribution of production to the landlord and to the farm operator for each year of the study.

Calculated resource shares for a landlord and a tenant operator are shown in Table 2. Annual charges for all production inputs are shown in the “annual charge” column and then allocated to the provider of the input. Total economic costs for producing an acre of wheat are estimated to be $153.11. The resources provided by the landlord have an annual economic value of $43.76. The resources provided by the tenant operator have an annual economic value of $109.35. The landlord’s share of production inputs is 28.6 percent of the total; the tenant’s share of production inputs is 71.4 percent of the total.

Table 3 shows the results of similar analysis for each year’s guide budget for the wheat enterprise from 1974

Table 1. *Cropland Values and Cash Rental Rates Central Kansas and South Central Kansas 1979-1994*

	Cropland Values		Cash Rental Rates	
Year	**Central Kansas**	**South Central Kansas**	**Central Kansas**	**South Central Kansas**
1979	$604	$756	$28.08	$31.28
1980	691	862	30.52	33.22
1981	738	873	30.67	24.77
1982	706	916	31.54	35.52
1983	748	831	31.90	35.30
1984	718	877	32.90	35.60
1985	598	686	31.20	34.50
1986	507	581	29.23	32.33
1987	457	524	27.56	30.47
1988	508	583	29.48	32.61
1989	519	589	29.10	32.18
1990	560	633	28.50	33.10
1991	551	591	29.40	33.30
1992	579	604	31.90	33.60
1993	585	638	32.30	32.50
1994	552	625	32.80	32.10

Source: Kansas Agricultural Statistics, Kansas Board of Agriculture, U. S. Department of Agriculture through 1993. Some of the resource values and resulting cost estimates are provided by the guide budget author rather than coming from a standardized source. Interest rates on land are kept constant at 6 percent. Interest rates on machinery are kept constant at 9 percent. Land values, machinery investment, and other costs varied during the period, based upon actual costs or farm records of crop expense or investment. Cropland value per acre, machinery depreciation plus interest on machinery investment per acre, total costs, landlord share percentage, and tenant share percentage are shown in the table.

Figure 1 shows the landlord's calculated share of resources provided in the production of wheat for the period of 1974 to 1993. The commonly used one-third/two-thirds crop-share arrangement is shown with the calculated fair landlord share line to show the years when the economic "fair share" arrangement differed from the one-third/two-thirds arrangement. When the landlord's share line is above the customary arrangement line, an economic evaluation of a fair lease would have allocated more production to the landlord. Similarly, the figure shows the analysis for recent years for a "fair lease" would have distributed less than one-third of crop production to the landlord.

Over the 20 years of the study, the fair lease landlord share averaged 31.93 percent and the tenant operator share averaged 68.07 percent. On the whole, this calculated average of fair shares is approximately the same as the common one-third/two-thirds crop-share arrangement, however analysis shows fair lease arrangements developed during most of the study years would have allocated production and crop value quite differently.

Conclusions

Cash and crop-share lease arrangements for wheat cropland are important to Kansas wheat producers and resource owners. Traditional lease

***Table 2.** Kansas Cooperative Extension Service Crop Share Worksheet—Single Crop*

I. General Data

A. Crop	Wheat
B. Acres in Lease	1
C. Acres Planted	1
D. Set-Aside Acres	0
E. Acres of Fallow	0

II. Fixed Costs — Landowner=1 Tenant=2 Shared =3

Item	Value per Leased Acre	Charge	L T	Annual Charge	Land-Owner	Tenant
	(per leased acre)					
A. Land and Interest	$575	6.0%	1	$34.50	$34.50	$0.00
B. Real Estate Tax	$5.75	—	1	$5.75	$5.75	$0.00
C. Land Maintenance	$0.00	—	0	$0.00	$0.00	$0.00
D. Crop Machinery Inventory	$224	—	—	—	—	—
E. Depreciation (years)	—	10	2	$22.40	$0.00	$22.40
F. Repairs	$12.40	—	2	$12.40	$0.00	$12.40
G. Taxes and Insurance	—	0.3%	2	$0.56	$0.00	$0.56
H. Interest on Machinery	—	9.0%	2	$10.08	$0.00	$10.08
I. Labor/crop acre (hrs)	1.8	$8.00	2	$14.40	$0.00	$14.40
J. Labor/idle acre (hrs)	0.0	$0.00	0	$0.00	$0.00	$0.00
K. Management Charge						
L. Total Investment	$799	1.5%	—	$11.99	—	—
M. % Managed by Landowner	—	0.0%	—	—	$0.00	$11.99

III. Variable Costs — Landowner=1 Tenant=2 Shared =3

Item	Charge per Planted Acre	L T	Annual Charge	Land-Owner	Tenant
	(per planted acre)				
A. Fertilizer	$9.00	3	$9.00	$2.57	$6.43
B. Lime (per leased acre)	$0.00	0	$0.00	$0.00	$0.00
C. Seed	$3.90	2	$3.90	$0.00	$3.90
D. Crop and Fuel Oil	$8.20	2	$8.20	$0.00	$8.20
E. Energy for Irrigation	$0.00	0	$0.00	$0.00	$0.00
F. Herbicides and Rogueing	$9.86	2	$9.86	$0.00	$9.86
G. Insecticides	$0.00	0	$0.00	$0.00	$0.00
H. Custom Harvest and Hauling	$0.00	0	$0.00	$0.00	$0.00
I. Custom Tillage	$0.00	0	$0.00	$0.00	$0.00
J. Drying Costs	$0.00	0	$0.00	$0.00	$0.00
K. Crop Insurance	$2.75	3	$2.75	$0.73	$1.96
L. Crop Service	$0.00	0	$0.00	$0.00	$0.00
M. Miscellaneous and Other	$5.00	2	$5.00	$0.00	$5.00
N. Set-Aside Acre Expense	$0.00	0	$0.00	$0.00	$0.00
O. Fallow Acre Expense	$0.00	0	$0.00	$0.00	$0.00
P. Interest on Variable Costs (%)	9.0%	—	$@.33	$0.15	$2.17
Q. Landowner's Payment to Tenant	$0.00	—	—	$0.00	$0.00
TOTAL COSTS (per leased acre)			$153.11	$43.76	$109.35
Landlord's Share of Contribution				28.6%	
Tenant's Share of Contribution				71.4%	

arrangements, particularly the traditional crop-share lease arrangements, dominate the rental market for wheat cropland. The most common crop-share arrangement for wheat cropland is the one-third/two-thirds crop-share lease.

Farmland owners and tenant operators would develop more equitable lease arrangements through periodic and thorough economic analysis of resource values and input costs. Economic analysis of a "fair lease" for wheat for the years 1974 through 1993 indicates an equitable lease developed for many of these years would have differed significantly from the traditional one-third/two-thirds lease arrangement.

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Table 3. *Crop Share Lease Analysis for Wheat in Central Kansas 1974-1993*

Year	Cropland Value Per Acre	Machinery Costs Per Acre	Total Costs Per Acre	Tenant Landlord Percent	Percent
1974	$425	$12.00	$89.04	39.5	60.5
1975	475	16.50	98.25	37.3	62.7
1976	500	16.50	103.58	37.6	62.4
1977	500	18.00	104.46	37.0	63.0
1978	550	18.50	111.02	37.6	62.4
1979	600	19.50	120.22	37.2	62.8
1980	700	26.14	141.09	37.4	62.4
1981	700	30.36	149.65	35.2	64.8
1982	700	30.36	150.20	35.2	64.8
1983	700	27.86	161.80	32.2	67.8
1984	650	27.86	159.55	30.9	69.1
1985	550	23.43	149.73	28.7	71.3
1986	450	28.10	142.27	24.9	75.1
1987	410	25.97	137.08	23.7	76.3
1988	410	20.69	122.20	25.6	74.4
1989	425	16.23	115.55	28.1	71.9
1990	425	16.23	117.04	27.6	72.4
1991	570	36.00	160.81	26.4	73.6
1992	575	33.60	156.60	27.9	72.1
1993	575	32.48	153.11	28.6	71.4

Landlord Percent Average = 31.93.

Source: KSU Farm Management Guide Budgets for Wheat, 1974-1993.

Figure 1. *Landlord Percentage—"Fair" v. Customary 1974-1993*
(Note that the source numbers are in the "Landlord Percent" column of Table 3.)

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-2170 October 1995