RENTAL AGREEMENTS AND RESOURCE CONTRIBUTIONS ON IRRIGATION LEASES, CADDO COUNTY, OKLAHOMA

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pe and Method of Study: Tenancy on irrigation farms has become an important tenure group in those areas of Oklahoma where irrigation has developed. Although irrigation is not generally practiced throughout the State, the findings of this study will have application to all irrigation areas. Fifteen non-related tenants were interviewed for information relative to their lease arrangements, the quantity and quality of resources used and the provisions of the leases for sharing those costs associated with developing the ground water resources and the operation of the irrigation installation. The analyses were limited to a comparison of the results of the different lease arrangements on resources used and measuring the equitableness of the different type of leases.

lings and Conclusions: The fifteen irrigation leases were about equal divided into two groups. Eight of the leases retained the customary 25 per cent dryland peanut and cotton rental arrangements, in which the lessees and lessors shared most phases of operating expenses. The lessees contributed from 50 to 90 per cent of the investment capital on these leases. Since a large share of the annual investment costs were assumed by the lessees on these leases their contributions exceeded their proportion of receipts. The other seven leases were for 40 and 50 per cent of the peanut crop rental and various proportions of the cotton produced. The lessors made contributions equivalent to 60 per cent and received only 40 per cent of the returns. The irrigation resources were used less extensively on these farms.

ADVISOR'S APPROVAL_____

RENTAL AGREEMENTS AND RESOURCE CONTRIBUTIONS ON IRRIGATION LEASES, CADDO COUNTY, OKLAHOMA

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PREFACE

County agents are asked frequently by farmer operators and farm ers to assist in developing rental agreements. In most instances, istance was needed when new practices and changes occurred in the tomary system of farming. Ground water development for irrigation resulted in new and different resource situations and concurrent k elements which have disturbed the established landlord-tenant ationships.

Lease agreements for irrigation farming in Caddo County are atively new. The most difficult problems of an irrigation agreement e to determine equitable contributions of numerous levels of increased uts of labor and capital for the parties to the irrigation lease. The lity of resources that owners and tenants propose to provide also ded to create additional problems.

This study was developed under the direction of the faculty of the artment of Agricultural Economics, Oklahoma State University, to vide information about irrigation between owners and tenants. The ults will serve as a guide for additional leases in the area and for ure irrigation lease agreements in other areas. Since little factual ormation was available, personal judgments were relied upon to tiate new contractual arrangements. As a result, inequitable lease angements for tenants and landowners have arisen, however, there were data to analyze the lease arrangements. Through the process of trial error rental agreements have evolved for irrigation farming.

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CHAPTER I

INTRODUCTION

rigation Development and Tenure Changes in Caddo County, Oklahoma

Irrigation in Caddo County was initiated prior to 1940. According he Census of Agriculture there were 6 irrigation enterprises or farms irrigated some land in the county in 1939. Five farms were irrigat- 91 acres of cropland. One other farm irrigated one acre of pasture.[1] rding to an irrigation supplement for the same period, one of the 6 s irrigated only one acre of pasture and the other 5 farms irrigated acres of cropland or an average of 44.3 acres of cropland per farm.[2] rmation was not available from the Census relative to the source of gation water in 1939. It was assumed that surface water was pumped Washita River. A well was the source of water on one farm.

The information was more complete for 1950. Ten farms were reported rrigation farms but there were only nine irrigation enterprises. At t two farms were irrigated from the same distribution system. These arms irrigated 443 acres of land, of which 30 acres were pasture. ty acres of the pasture were native pasture and ten tame pasture. ently irrigation did not always insure a harvested crop. Two farms

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[1] Sixteenth Census of the United States, 1940, Vol. 1, pt. 5. West h Central States, (United States Department of Commerce, Bureau of Census, Washington, D. C.), p. 225.

[2] Irrigation of Agricultural Land, Arkansas and Oklahoma, United es Census of Agriculture, Vol. III, pt. 2, (United States Department ommerce, Bureau of the Census, Washington, D. C.), pp. 38 and 41.

ırted not harvesting and not pasturing 67 acres of the cropland that irrigated.[3] At least one irrigation enterprise used a diversion dam .940. It was probably located on the Washita River and more than ıly the cropland was on the flood plain of the river which resulted ıhe 67 acres of cropland not being harvested.

These six irrigation enterprises had invested, prior to January 1,), a total of $9,787, about $1,631 per farm. From January 1, 1940 to ıary 1, 1950, ten farms had invested an additional $44,150 in irriga- ı enterprises, making a total investment of $53,973. This increased average per farm investment to $5,397, an increase of about three and ·third times between Census periods. The increased cost per farm was ıly related to the source of water for irrigation.

In 1934 water was secured from one well compared with 1949 when 5 ıs pumped water from 8 wells. The source of ground water was likely ıvium as the average lift was reported to be only 97 feet. The wells ıhe Rush Spring Sandstone averaged close to 200 feet of lift in 1956.[4]

The capital requirement per irrigation installation and the sprinkle: ıem ranged from $4,988 to $14,155 and averaged $9,343 in the Rush ıng Sandstone in 1956. However, this was not so great where water was ıed from shallow wells and the flood method was used.[5]

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[3] Ibid., p. 40.

[4] K. C. Davis, "Economics of Ground Water Development in Southwest ıhoma", (unpublished thesis, Okla. Expt. Sta., Dept. of Agri. Econ., ıhoma State University, 1958.)

[5] Ibid.

Size of Farms and Tenure of Operators

The number of farms in Caddo County reached 5,961 in 1930 and has de-
ed since that time (Table I). Since all land in farms has remained
nd 800,000 acres in Caddo County, the average size of farms has in-
sed as the number of farms decreased from 129 acres in 1930 to 279
s in 1954. Full owners and tenants were 1,632 and 3,914 in 1930
ared with 944 and 1,119 in 1954, respectively. The number of full
rs operating farms declined 42 per cent during the 25 year period
1929 to 1954, but the number of tenants had declined 71 per cent.
ver, tenancy, that is, the amount of land leased has not declined as
dly as the number of tenants (Table I).

An important tenure group developed in Caddo County during this
od, 1930-1954. There were 399 part owners who operated 109,576 acres
930. The number of part owners increased to 819, slightly over 50
cent; however, the significant change was the increase in acres farmed
his tenure group. The acreage operated by part owners increased to
895 acres, 400 per cent of the 1930 Census period. Part owners
ated on the average 100 acres in 1930; they were operating 277 acres
farm in 1954. Indications are that this tenure group has continued
ncrease the acreage operated.

There are many economic, social, and institutional forces that in-
nce the tenure system, and the tenant-landlord relationships which
beyond the scope of this report. The number of tenants has declined,
ver, tenants continue to operate more than 25 per cent of the land
addo County. Although, operating farm owners were the pioneers in

	1954	1949	1945	1940	1930
All farms:	2,888	3,638	4,373	4,425	5,961
All land in farms	806,993	796,012	818,001	800,543	772,110
Average size of farm	279.4	218.8	187.1	180.9	129.5
Total cropland harvested	309,978	334,290	397,961	354,662	432,220
Farms by tenure of operator:					
Full owners	944	1,145	1,402	1,243	1,632
Part owners	819	811	585	535	399
Managers	6	3	10	25	16
All tenants:	1,119	1,679	2,376	2,622	3,914
Cash tenants	420	703	1,229	1,042	976
Share-cash tenants	244	266	158	338	
Share tenants	380	531	729	995	
Other tenants	75	179	260	247	2,938
Land in farms by tenure of operator:					
Full owners	155,146	159,969	180,630	176,777	202,493
Part owners	394,895	305,765	226,997	204,813	109,576
Managers	4,191	3,608	5,772	7,916	3,005
All tenants	252,761	326,670	404,602	411,037	457,036
Cash tenants	84,212	124,082	193,265	153,015	123,242
Share-cash tenants	75,087	73,924	39,908	74,108	
Share tenants	80,485	101,105	133,195	167,740	
Other tenants	12,977	27,559	38,234	16,174	324,794

Source: Census of Agriculture, Oklahoma.

rrigation development in Caddo County, tenancy on irrigated farms has ncreased.*

According to the Agricultural Census of 1950, 4 of the 10 irrigate arms were operated by tenants. This proportion has not continued sinc 950. There are indications, however, that a larger number of the farm racticing irrigation will be operated by tenants, provided an equitabl ease can be developed.

The purpose of this study was twofold: (1) to determine the type f irrigation leases and to discover those features of the leases which ncourage landowners and tenants to develop farm organizations that tilize resources more effectively, and (2) this study, although a stud f particular irrigation leases, was designed to provide general inform ion which would apply to all areas of the state.

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*Note: The funds available for irrigation development were indirectly limited to landowners. Soil and water conservation loans were ade under the Soil and Water Conservation Facility Act, 1937, as amend 954.

Loans were secured by real estate or chattel mortgages. However, hattel mortgage was limited to $1,500. Although fifteen hundred dolla as adequate for most soil conservation practices, it generally ruled o rrigation which required larger capital investments. Chattel mortgage ere limited to a maximum of 7 years. Real estate mortgages for soil a ater were secured by a first or second mortgage.

Since tenants had short-term lease arrangements, leases that did n xtend over the loan period did not qualify for loans. The tenants re- orted in the survey that they had long-term leases, however, none of hem had written leases--hence, they were tenants-at-will or from year ear.[6]

[6]William J. Coleman and H. Alfred Hockley, "Legal Aspects of Landl enant Relationships in Oklahoma", Okla. Agri. Expt. Sta. Bul. 241, 194 . 14.

Physiography and Geological Characteristics of Northern Caddo County

The physiography of northern Caddo County is undulating to gentle nding slopes that were formed from the weathering of the soft Rush ings sandstone, which is exposed at the surface in this section of the nty. This section of the county is the western extremity of the oss Timbers" (Figure 1). It is a large wooded area of rolling, hilly istone uplands which extends from Texas to Kansas. More recent ex- rations supports the findings of earlier geologists that Caddo County a segment of a large delta that was created by the two large rivers ch drained to the north and west which reached the sea in central Okla- a.[7] These rivers had their source in a large volcanic highland to the th. The formations underlying this area, the Chickasha and Duncan istore formations, were created by these rivers. The Duncan formation ends northward to the Canadian River but the Chickasha which overlies Duncan can be traced northward to Kingfisher. The sandstones of this mation contain clay conglamerates which distinguish it from the other istones of this area.[8]

As a result of erosion no one geological formation dominates a large a. The most recent formation of the Permian period is the Cloud Chief sum which is evident as cap rocks on many small buttes that remain in thern Caddo County. These caps, the only remnants of the Cloud Chief sum in this area consists of impure dolomite, gypsum, gypsiferons sand- ne and shale.[9] These contain enough sandstone in many areas to make

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[7]Hugh D. Miser, "Llanoria, A Paleozoic Land in Eastern Texas", Amer. . Science 5th Series, Vol. 2, p. 61-89, 1921.

[8]Leon V. Davis, "Ground Water in the Pond Creek Basin, Caddo County, homa", Mineral Report No. 22, Okla. Geological Survey, 1950.

[9]Ibid.

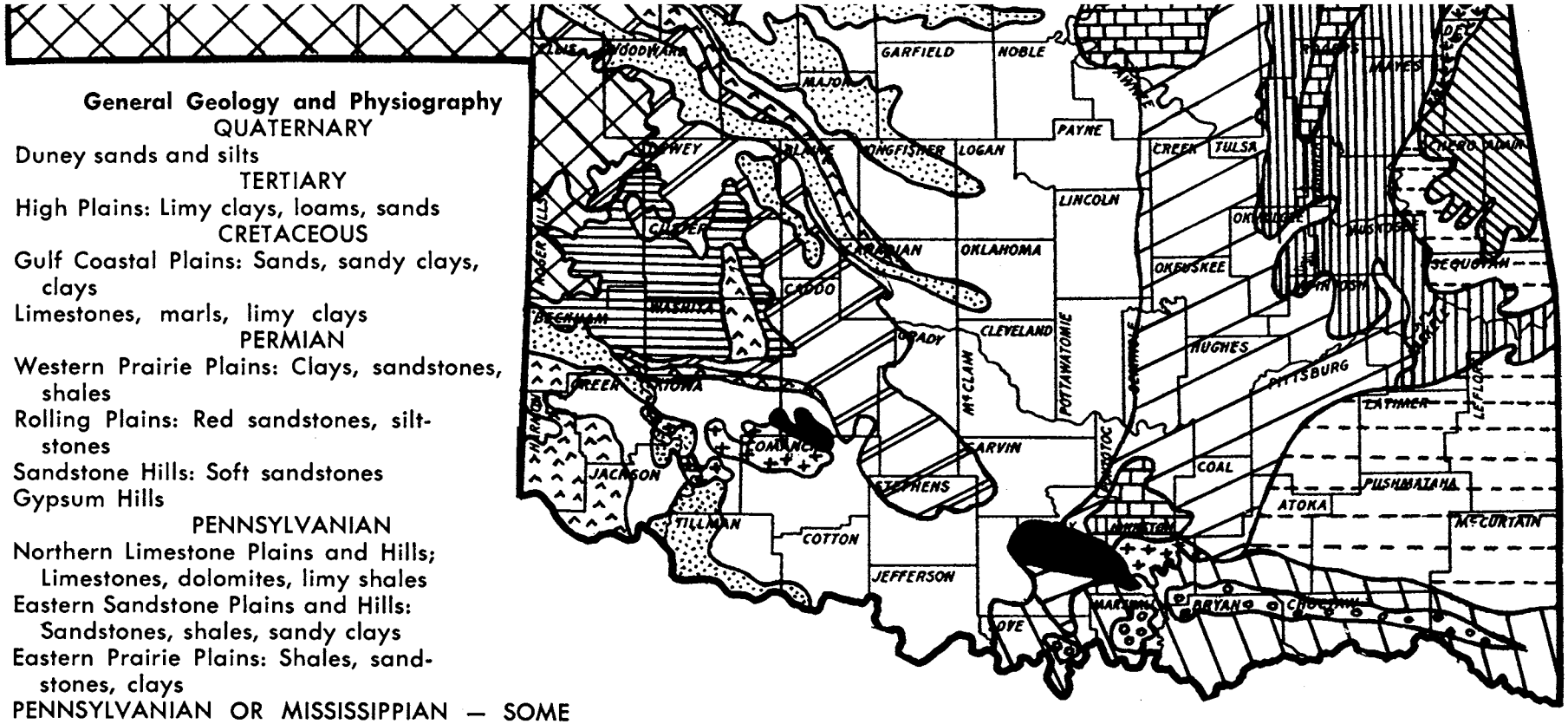

Figure 1. General Geology and Physiographic Areas of Oklahoma

difficult to distinguish Cloud Chief from the Rush Springs sandstone ch underlies the area. However, they are darker in color, have a grea dness and more resistant to erosion.[10]

The Rush Springs sandstone formation, a member of the Whitehorse gro exposed at the surface over most of northern Caddo County. This forma n was first described by Reeves as "a friable reddish-brown, cross-bed regular-bedded sandstone which weathers rapidly producing a thick soil sand that is subject to wind erosion and forms sand dunes in many alities."[11] The maximum depth of the Rush Springs sandstone may reach feet but generally it is considered to not average over 330 feet.

Underlying the Rush Springs sandstone is the Marlowe formation. It an ever-bedded, red sandstone and red shale with bands of white sands. sum may occur but it disseminated throughout the formation. It tends be impermeable compared with the Rush Springs sandstone and yields onl mall quantity of water.[12]

The Marlowe formation is underlain by the Dog Creek shale. In north Caddo County it is known to be 400 feet thick. It is primarily red le with silt lenses, a discontinuous strata, occurring throughout the mation. The high shaley nature of this formation makes it a poor ifer for ground water.[13]

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[10] Ibid.

[11] Frank Reeves, "Geology of the Cement Oil Field, Caddo County, Okla a", U. S. Geological Survey Bulletin 726-B, p. 21, 1921.

[12] Op. Cit., Mineral Report No. 22, p. 6.

[13] R. W. Sawyer, "Areal Geology of a Part of Southwestern Oklahoma", Assn. Petroleum Geologists Bulletin, Vol. 8, p. 315, 1924.

The Blaine gypsum underlies the Dog Creek shale. It is a large strat nterbedded dolomite, gypsum as well as red shale. There are indicatio this formation is a potential aquifer for ground water in sufficient tities for irrigation. The gypsum is highly soluble and solution nels have been the sources of large quantities of water in the Duke of Jackson County and the Hollis basin of Harmon County.[14] However, this formation has not been fully explored for ground water, e are reports that water in this aquifer is under artesian pressure it is likely that the static water level in irrigation wells developed this aquifer may be higher than the level in the Rush Springs sand-es.[15]

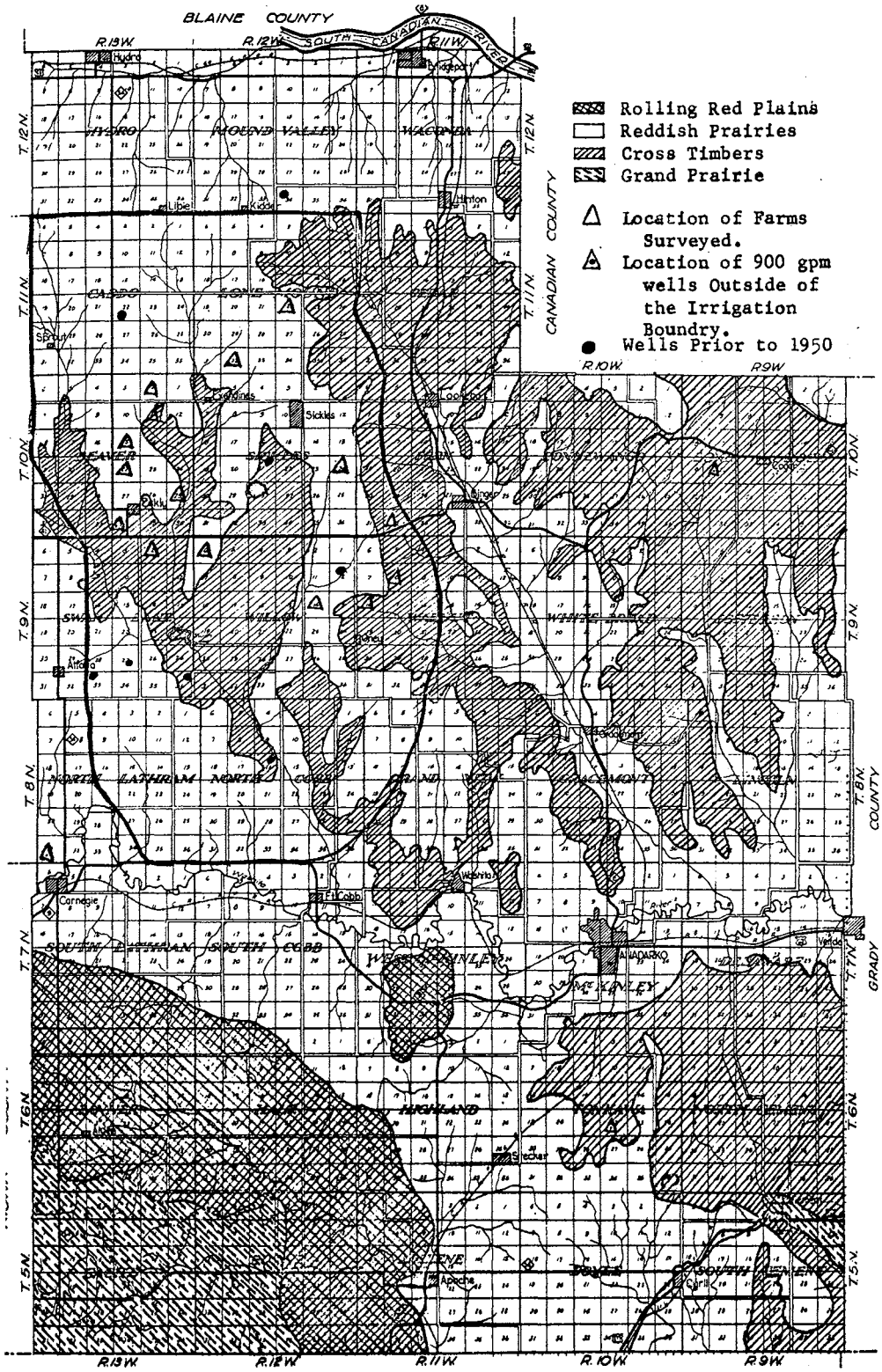
Soil Associations of Northern Caddo County

The general geology and physiography of Caddo County place the area st entirely with two distinct soil resource areas, the Cross Timbers the Western Prairie Plains. A detailed soil association map of this prepared by the soil conservation reveals that Caddo County is an where four major soil resources are diffused (Figure 2). In terms of square miles a larger proportion of Caddo County is sh Prairie soils. Next in importance are the Cross Timbers and Roll-Red Plains. A small area in the extreme southwest is classified as d Prairie. There are no irrigation developments in the latter soil

[14] S. L. Schaff, "Ground Water Irrigation in the Duke Area, Jackson Greer Counties, Oklahoma", Okla. Geological Survey Mineral Report No. 1948.

[15] Op. Cit., Davis, Mineral Report No. 22, p. 7.

'IGURE 2. AN OUTLINE MAP OF CADDO COUNTY SHOWING THE LOCATION OF FARMS SURVEYED IN RELATION TO PREDOMINATE SOIL ASSOCIATIONS, 1958



Source: Reproduced from a Soil Conservation Service work map, Anadarko, Oklahoma.

The Reddish Prairie soil is usually smooth to rolling lands and gets name from the red sedimentary rocks of the "Red Beds" formation, whicl characteristic of all the soils formed during the Permian geological lod. The soils formed from the "Red Beds" contain differing proportio clayey red beds, sandy shales, and sandstones.[16] This soil diffuses the Cross Timbers in northern Caddo County which is also underlain sandstones in this area and is covered with tall grassy scrub forests blackjack and post oak. In the northern Caddo County area the local lef is much greater than the 100 feet from stream to divide which is racteristic of the smoother portions.

The Reddish Prairie soils have loamy surface soils 8 to 12 inches ck and have reddish loamy to clayey subsoils. The nutrient content les from high to low in phosphate and are moderate to low in nitrogen. ce the soils in this area are sandy they are leached much deeper than finer textured soils that have a higher clay content.[17]

The Reddish Prairie soils lying high above the Canadian and Washita ers in Caddo County are further classified into the Cobb-Quinlan associ n. The Nash soil is also present in this area although it is generall ociated with the Pond Creek soils in the area north of the Canadian er.[18] The Cobb soils are brown, sandy loam soils with reddish clay n subsoils which have high moisture retentive qualities. These soil is are found on smooth upland ridges with slopes of 1-4 per cent gure 3). These soils developed in weakly consolidated Rush Springs

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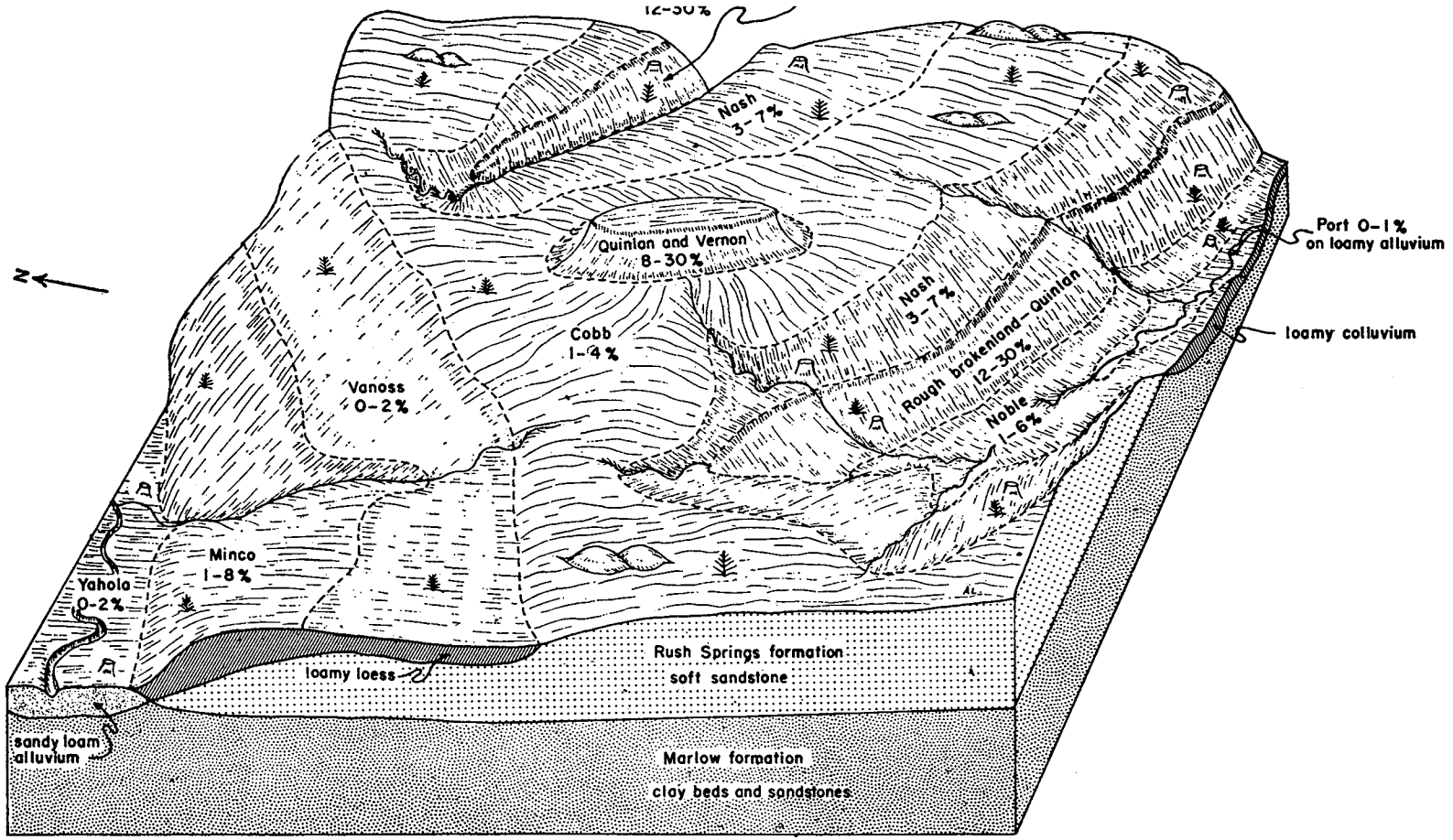
[16] Fenton Gray and H. M. Galloway, Soils of Oklahoma, Misc. Pub. 56, ahoma State University Experiment Station, July, 1959, p. 36.

[17] Ibid., p. 38.

[18] Ibid., p. 39.

Figure 3. Oklahoma's Land Resource Areas and Soil Associations



Soils of the Reddish Prairie in west central Oklahoma's ridge and canyon country developed over soft Permian red sandstones. Canadian River to north is source of loess. Areas on Cobb ridges may be thinly loess mantled. A few low dunes have formed on Cobb. Quinlon and Vernon knobs occur on remnants of higher lying Cloud Chief formation.

ORIGINAL VEGETATION

No. 19

dstone are one of the most productive ground water bearing formations Oklahoma. Many hundreds of irrigation wells are pumping from this ifer, some of which yield more than 1000 gpm, but so far the water le has not been appreciably lower. Recharge of this sandstone aquifer from precipitation directly on the area.[19]

The moderately deep reddish Nash soil, developed on more sandy parent erial, is found on the slopes of 3-7 per cent and lies below the re- ively smooth and more productive Cobb soils. This soil grades on eper slopes to narrow bodies of shallow Quinlan.[20]

Irrigation Resources of Leased Farms

Resources of the irrigation leases are indicated by the capacity of irrigation wells and the irrigable acres. The wells ranged in capaci m 260 to 920 gallons per minute (Table II). The lessees had estimated l yields very closely, however, the distribution system operating unde degrees of pressure, were designed to deliver water at slightly differ· rates. These computed yields were used as the basis for determining itations of the resources.

The 160 acre farm predominated in the irrigation leases. The acres cropland exceed the acres irrigated on the leases with the exception lease Ie_3. Lease O_1 with 140 acres of cropland irrigated only 40 acre 29 per cent and lease N_2 irrigated only 31 per cent of the 190 acres cropland. Four of the leases irrigated less than 50 per cent of the

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[19] Leon V. Davis, "Oklahoma's Underground Water", Oklahoma Geology es, Oklahoma Geological Survey, Vol. 18, No. 12, December, 1958.

[20] Op. Cit., Gray, p. 39.

INVESTMENT PER 100 GALLONS OF WATER PUMPED PER HOUR, AND [illegible]
ALSO THE LAND CLASSIFICATION AND CROPLAND USE IN RELATION TO IRRIGATION.
FIFTEEN IRRIGATION LEASES, CADDO COUNTY, 1958.

Lease*	Leasee Estimated Yield	Computed Yield[1]	Acre-Inches Pumped Each Setting[2]	Acres Irrigated Each Setting[3]	Acres in Lease	Acres in Cropland	Acres Irrigated 1958	Percent of Cropland Irrigated
	Gallons	Gallons	Number	Number	Number	Number	Number	Percent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A_3	250	260	6.38	1.32	160	90	70.5	78
B_3	950	610	14.85	2.42	160	122	74.0	61
C_3	400	400	9.68	1.82	320	105	52.0	49
De_3	900	620	14.96	3.03	160	140	74.0	53
E_3	700	440	10.67	1.82	80	78	66.0	85
Fe_2	800	370	9.13	2.42	160	100	48.0	48
G_2	350	390	9.46	2.15	155	55	43.0	78
H_2	850	460	11.33	2.15	80	73	57.0	78
Ie_4	850	840	20.46	4.13	160	100	100.0	100
J_2	750	700	12.21	2.26	160	130	72.0	55
K_1	360	310	7.48	1.82	320	110	44.0	40
L_2	900	920	22.44	5.54	320	90	54.5	60
M_2	650	640	15.51	2.23	160	75	54.5	73
N_2	700	570	13.97	2.42	200	190	59.0	31
O_1	800	540	13.09	2.52	160	140	40.0	29

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of power.

[1]Obtained by converting engineering design to 100 percent of rated output. Efficiency assumed at 100 percent. Hence the quantity of water pumped would be the amount shown times the efficiency level of operation. Extension engineers estimate the overall level to be 60 percent of rated capacity.

[2]A setting equals 11 hours of pumping.

[3]Length of laterals times the spacing of laterals divided by 43,560 square feet per acre.

Lease*	Acres Irrigable With Amount of Water Pumped[4]		Acres[5]			Irrigation Investment Per Lease		
	10-Day Schedule	14-Day Schedule	Peanuts	Cotton	Peanuts and Cotton	Total	Per Acre Irrigated	Per 100 GPM Pumped
	Number	Number	Number	Number	Total	Dollars	Dollars	
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
A_3	26	37	23.5	22.0	45.5	6,300	89	2,386
B_3	48	67	39.0	23.0	62.0	9,700	131	1,593
C_3	36	51	37.0	25.0	62.0	7,750	149	1,957
De_3	60	84	49.0	10.0	59.0	9,000	121	1,461
E_3	36	51	30.0	31.0	61.0	7,300	111	1,659
Fe_2	48	68	33.6	14.5	48.1	7,475	156	1,999
G_2	43	60	31.0	12.0	43.0	7,100	165	1,821
H_2	43	60	36.0	21.0	57.0	9,574	168	2,059
Ie_4	83	116	54.0	13.0	67.0	8,500	85	1,012
J_2	45	63	46.0	26.0	62.0	11,000	153	1,562
K_1	36	57	44.0	58.0	102.0	9,000	205	2,920
L_2	111	155	31.6	23.0	54.6	7,000	128	758
M_2	45	62	29.2	25.3	54.5	9,450	173	1,477
N_2	48	68	43.0	16.0	59.0	12,200	207	2,125
O_1	50	70	40.0	30.0	70.0	9,000	225	1,667

*Ibid.

[4]The customary irrigation pattern was to irrigate each peanuts every 14th day.

[5]The cotton acreage includes dryland cotton.

pland and 8 other leases irrigated less than 80 per cent of the crop-
d. Without considering other factors the amount of irrigated cropland
ld be increased on all leases except one.

The limiting factor, however, was the amount of water pumped from
wells on the leases. Only one lease, L_2, had sufficient water to
igate all the cropland on the lease. A yield of 920 gallons per
ute produced a sufficient supply of water to irrigate 111 acres if a
day schedule were used and 155 acres if a 14-day schedule were used.
s lease irrigated only 54.5 acres of peanuts and cotton. Since a
day irrigation schedule was customary, lease Ie_3 had sufficient water,
ugh for 116 acres, which exceeded the cropland acres. This was the
y lease that irrigated the entire cropland. Leases K_1 and O_1 irrigate
y peanuts (Table II). Lease K_1, with a small well, was limited to 57
es if a 14-day schedule were followed which was inadequate to irrigate
102 acres of peanuts and cotton on this lease. Lease O_1 had sufficie
er for the 70 acres of cotton and peanuts, however, only 40 acres of
nuts were irrigated. Lease De_3 made as many applications of water to
ton as were made on peanuts. With the exceptions of C_3, E_3, and K_1,
leases had sufficient water to irrigate the entire cotton and peanut
eage if a 14-day schedule were used for both crops. Although leases
B_3, C_3, De_3, and E_3 irrigated three crops and Ie_4 irrigated four crop
y the latter had sufficient water to irrigate the entire cropland.
se leases that irrigated three crops reported a larger acreage irrigat
n the water supply could cover if a 14-day irrigation schedule were us
ing the summer. This was accomplished by reducing the number of irrig
ns on peanuts and not maintaining a 14-day irrigation schedule on any

the crops. Three of these leases irrigated wheat in addition to cotto peanuts which did not conflict with the demand for water from the mer grown crops.

The investment per irrigated acre ranged from $85 for lease Ie_4 to 5 for lease O_1. These two leases had the largest and smallest acreage igated (Table II). The investment per 100 gallons pumped per minute wed a greater variation. It ranged from $758 for lease L_2 to $2,920 lease K_1. If a well can only supply sufficient water to irrigate 10 es adequately for each 100 gallons of water pumped, these two wells ha and $292 invested per acre irrigated. This indicated that lease L_2 ld effectively reduce the investment of $128 per acre better than 40 cent by irrigating a greater percentage of the cropland. Only 60 per t of the cropland on this lease was irrigated. However, lease K_1, witl imited water supply, had reduced the capital investment to $205 per e by irrigating 44 acres which indicated that the maximum acreage had n irrigated and the cost per acre foot of water will remain high.

Irrigation Lease Problems

The basic economic problem in the development and use of irrigation m leases stems directly from the purpose of the lease. The problem is determine what provisions are necessary in the lease to allow and ourage landowners and tenants to organize the farm efficiently and vide a means of sharing the products of their resources.

Numerous questions have arisen within the existing leasing arrange- ts which indicate that owners of irrigation resources have been unable satisfactorily define the provisions of the lease. These stem directl

)m the diverse nature of irrigation resources and indirectly from the nitations imposed by the agricultural program upon the decisions to tlize irrigation resources. Peanut allotments prevent irrigation re- ırces from their best alternative uses. Also, the elements of risk in ; new undertaking are preventing the recognition of the value of re- ırces contributed.

The lease is a method of obtaining the use of farm land and build- ;s by tenants and a method of obtaining the services of farm operators i their capital by landowners. Essentially, leases are contracts be- ;en a landowner and a tenant wherein they agree concerning use of their ;ources for a given period and for a given payment. Hence, the economi le of a lease is twofold: (1) provides owners of scarce resources mean combining resources for profitable employment, and (2) provides a mean distributing income between landowner and farm operator.

Numerous questions arise in the development of an irrigation lease ;arding the valuation of the resources, the amount of resources to use, ; choice of enterprises on which to utilize the irrigation resources. the irrigation leases encourage resource owners to combine their land,)ital and management there are certain incentives which the leases)vide: (1) the share of variable input be the same as the share of :put of product obtained from the input, (2) the shares of all product the same, (3) each resource owner receives the full share of the produ :ned by the resources he contributes, and (4) each resource owner has opportunity to receive return on investment made in one production :iod but not received until a later period.[21]

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[21]Virgil L. Hurburt, "Farm Rental Practices and Problems in the Mid- st", North Central Regional Publication No. 50, October, 1954.

The owners and tenants realize that these incentives are not provide their lease. They ask, "What should be our share of irrigation operat ; expenses?" "Should not this be the tenants obligation since it was ; contribution under the dryland agreement?" "Will not my contribution an irrigation resource owner be great enough to compensate the tenant : his increased contribution?" "Can a lease provide the security of ure to encourage tenants to make capital investments?"

The purpose of this study was twofold: (1) to determine the types irrigation leases, and to discover those features of the leases which couraged landowners and tenants to develop farm organizations that lize resources more efficiently, and (2) this study, although a study particular irrigation leases, was designed to provide information licable to other areas in the state.

CHAPTER II

PROCEDURES

Fifteen tenants located in the Rush Springs sandstone area in Caddo ıty were surveyed. Related tenants were purposely omitted from the ʏey since these had many variations in their arrangements. Only tenant ıgating from wells and with sprinkler distribution systems were surveye ıgation experiences of these fifteen tenants ranged from one to four ːs.

This study was concerned with only cropland lease arrangements. Live ːk arrangements were not encountered although inclusion of livestock ːhe rental agreement would likely give the tenants employment during winter, and increase the income from irrigation for both tenants and ılords. However, the tendency has been to eliminate livestock enterɜe from the farm organization.

It was necessary to rely upon the operators estimates of water pumped hour. However, adjustments were made where the reported pumping rate ɐeded the engineering design of the distribution systems. The amount ʍater applied was calculated at 60 per cent of the rate that the inllation would distribute to allow for evaporation, run-off, and ıciency.

An eight year depreciation schedule was used to arrive at fixed cost this corresponded with the length of the loan for capital to make the tallations. A sixteen year depreciation was also used in the analysis contributions by owners and tenants and the relation to rental shares.

erience may justify a longer period, however, indications are that a stantial amount of the original capital will be replaced by the end of s period. This study attempted to determine only the additional costs which the owners and tenants obligated themselves when irrigation was d and their proportionate share of these added expenses. In all inces the amount of the outlays were secured or estimated by using ces and costs comparable to the community. In view of the fact that costs were not included, only those associated with irrigation, it is a cost of production study. Thus, the analysis of contributions and urns were limited to a comparison of the share of inputs and outputs owners and tenants.

CHAPTER III

IRRIGATION RESOURCE COMBINATIONS

Irrigation Development Costs and Kinds

The fifteen farms had only one irrigation installation per farm. :hough, the source of water for all farms was from wells drilled into ɜ soft sandstone formation underlying the area which was uniform in ɔth the individual installations varied greatly in the type and costs. velopment costs ranged from $6,300 to $12,200. The amount of invest- ɪt was not related to the amount of water pumped per unit of time. The ɔth of wells, particularly the depth of setting and the lift, determine ɜ size of horsepower motor needed to pump a given quantity of water.

Another important item that influenced investment was the distribu- ɔn system. The sandy, undulating topography necessitated the use of rinkler systems. The location of the wells in relation to the cropland rigated and the shape of the fields determined the proportion of pipes ɪt were mainline and lateral pipes which also affect the amount of pital. About 50 per cent of the land owners furnished the entire irri- tion installation, but others furnished only the well and pump installa ɔn and the tenants furnished the distribution systems. Tenants quite equently furnished the entire irrigation system except the wells.

Twelve of the installations were powered by industrial motors, and ree used electric motors. Liquified petroleum was the only fuel used the industrial motors. The electric powered installations had a stanc

rge of eight dollars per rated horsepower of the motor in addition to cost of the fuel consumed.

The standby charge of eight dollars per rated horsepower was treated an operating expense in the analyses of irrigation expenses. This ense was shared by the owner and tenant on two of the farms. On the er farm this expense was paid by the tenant. In this particular renta angement the tenant had made no contribution to investment cost and lessee paid all of the expense for fuel (Table IV, Lease De_3).

Classifying the standby charge as an operating expense prevented h owners and tenants from recognizing the opportunity cost of a limite ource, as these leases used more water per acre than returns justify. cost of fuel for the n^{th} hour of operation was the same for the irrig n installations using industrial motors. However, producers with ctrical installations had decreasing cost throughout the entire range water inputs, as the standby charge was twice as great as the charge current used.

Depreciation, as a part of the total fixed cost, was estimated to be lve and one-half per cent of the total capital investment. This may e been excessive for pumps and electric motors and not great enough fo lustrial motors and parts of the distribution system which have a short e expectancy. This is slightly greater than the principal payment rat amortizing the loans secured to finance development of irrigation. T e used a longer depreciation period in view of the repayment schedule ld have overstated returns for family living and investments. This bles other producers to evaluate irrigation as a means of employing ources to secure larger family incomes and to meet repayment schedules

borrowed funds. The heavier depreciation rate also allows for a marg error in estimating the maintenance cost and the unknown element of ri

The experienced maintenance cost was inadequate for establishing an ected schedule of expenses over a given period. Each incident reporte the study became a part of the operating cost for that particular leas angement. The study was primarily concerned with finding how this ense was shared by the owners and tenants and not the absolute amounts all instances, repair expenses were the responsibility of the party wh ed the equipment repaired.

Contributions to Investment Expenditures

The contributions of investment capital for the development of irrig n by tenants and owners followed two patterns. Seven of the tenants plied a larger portion of the capital and eight tenants supplied none the investment capital (Table IV). Four of these seven tenants suppli rything but the drilling of the well. In one of the seven leases, the ant supplied the capital to drill (lease Fe_3) but the owner supplied ee-fourths or $775 for land leveling which was equivalent to the cost drilling and casing a well. There was a definite relationship between portion of investment capital supplied by the parties to the lease an crop rent share.[1] On leases A_3 and B_3 the tenants and owners shared ut equally the investment capital. The land owners furnished the ital for drilling the well and installing the pump and motor, and the ants supplied all the capital for the distribution system.

There was considerable variation in the annual fixed cost and the es irrigated on each lease. The annual investment cost alone ranged

[1]Ibid., p. 4.

n $945 for both owner and tenant in lease A_3 to $1,830 for the owner lease N_2. The annual investment costs and acres irrigated were not sely related. The acres irrigated ranged from 40 to 100 and was greate n the variation in annual investment cost, hence, the acres irrigated each lease had more effect on the investment cost per acre than the olute cost of the individual installation. The acreage irrigated was fixed as lessees changed the acreage irrigated from year to year. On ht leases only peanuts or peanuts and cotton were irrigated. Leases and O_1 irrigated only peanuts and the investment costs per acre of pea- s irrigated are identical with investment costs per acre irrigated. se C_3 did not irrigate cotton in 1958 but had irrigated wheat during winter and one other crop. To compare data for all leases, annual ed costs for each lease were allocated to all acres irrigated, and to peanut acreage only.

It was evident that on those leases where investment capital was red that the tendency was to spread investment costs by irrigating er crops. On those leases where all or a large portion of the invest- t capital was contributed by either the tenant or owner, only peanuts peanuts and a few acres of cotton were partially irrigated. The high- annual investment costs were associated with those leases which did expand the acreage irrigated to include crops other than peanuts and ton. These leases also had lower returns per dollar of input (Table).

Taxes were assessed against both irrigation plants and distribution tems and were paid by the owners of the equipment. Seven of the lesse owners of irrigation installations and distribution systems incurred

es as a fixed expense compared with eight of the lessors. The wells e not taxed and seven lessors did not incur taxes as a fixed expense ble IV). Fixed expenses in the nature of an advalorem tax ranged from cents to $2.43 per acre irrigated, and ranged from $1.50 to $3.90 per nut acre irrigated. Land owners and tenants incurred fixed costs of s nature but only owners on those leases where the tenants owned no ipment. None of the lessors insured their investments against fire storm damage on those leases where 25 per cent crop rentals were paid, the lessees had insured their distribution systems against storm age.

The amount of annual investment cost plus taxes and insurance, per e irrigated, ranged from $13.35 for lease Ie_4, to $33.62 for lease N_2 for peanut acreage only, it ranged from $25.11 for lease Ie_4, to .31 for lease M_2.

Dryland and Irrigation Farming Practices

In order to discover the deviation from farming practices after the roduction of irrigation, changes in the seeding rates, the amount of tilizer applied, and the use of insecticides, cultural practices were ured from the tenants. These deviations provided a basis for urately estimating the contributions to tenants and owners to irriga- n farming.

In all instances the tenants reported that seeding rates for peanuts e increased when irrigation was practiced. The indications were that ding rates were not changed for cotton production. The most common ctice was to double the seeding rate for peanuts. The increased use

fertilizer was more nearly 150 per cent of the dryland application, ever, there was a tendency to double certain fertilizer elements. se G_2 did not fertilize under either dryland conditions or irrigation. peanut yield per acre in 1958 on this particular lease was 1,691 poun ch was low compared with other leases. The number of water applicatio this lease was five, which was one greater than the customary practice four (Table V).

Although irrigation has probably introduced some insects, fungi, and teria and definitely increased the probability of insects, fungi, and teria damage to plant growth and a reduction in yield. Only one lease d chemicals. Prior to the development of irrigation, no treatments fo eases and fungi were reported as a practice, although seed treated for d-rot was usually purchased. Infestations of red-necked peanut worm e heavy and widespread reducing peanut yields below expectations in 7 and 1958.[2] No practice was followed for the control of this insect the lessees but some lease arrangements indicated that the parties to leases had agreed to share proportionately this expense. Evidently, experimental results in 1957 were not sufficiently effective to ourage similar action by farmers although the mean yield was signifi- tly higher than check plots at the one per cent level.[3] The tests in 7 were made under a high population of the red-necked peanut worm, but e initiated after the peanuts had been damaged by thrips and the first eration red-necked peanut worms. The experimental results were effec- e. According to most observers, peanut yields were reduced in 1958 by h fungi "leaf spots" and insects.

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[2]R. R. Walton and Ralph S. Matlock, "A Progress Report of Studies of Red-Necked Peanut Worm in Oklahoma, 1957 and 1958", Processed Series 20, April, 1959.

[3]Ibid.

CHAPTER IV

TYPE OF LEASES

The rental arrangements on the 15 farms followed very closely the ustomary dryland practices. Eight of the irrigation leases were for t ustomary 1/4 crop share of cotton and peanuts, six of the leases were 0 per cent one for 50 per cent of the peanuts and various portions of otton. According to the tenants interviewed, the lease terms had not hanged since they were adopted. Most of these leases had been in effe or more than two years (Table III).

Without exception the tenants reported only oral leases and three he tenants who owned part of the irrigation equipment reported that a epreciation schedule had been agreed upon for the capital investment hich would enable them to cancel the lease satisfactorily. Although o ral leases were reported, eight of the tenants reported that their lea ere for periods in excess of one year. Four reported five year leases wo had eight year leases, one was for ten years, and another for only hree years. In all instances except one, these leases had half or les f the lease period remaining (Table III).

None of the tenants furnished all of the irrigation capital and th enants who were paying a peanut crop rental greater than 25 per cent h ot made any contribution to the investment for irrigation. This also nfluenced the contributions to operating expenses. More tenants, with eanut rentals greater than 25 per cent, had less irrigation experience ompared with the owners of the farms that they were operating than

FARMS, CADDO COUNTY, 1938

Farm	Rental Rates: Peanuts %	Rental Rates: Cotton %	Irrigation Experience: Owner Years	Irrigation Experience: Tenant Years	Characteristics of Lease Arrangement: Length of Lease Years	Characteristics of Lease Arrangement: Period in Operation Years	Characteristics of Lease Arrangement: Period to Complete Years	Characteristics of Lease Arrangement: Type of Lease	Characteristics of Lease Arrangement: Provisions to Terminate	Percentage of Capital Investment: Owner	Percentage of Capital Investment: Tenant
A	25	25	3	3	8	3	5	Oral	None	51	49
B	25	25	5	5	10	5	5	Oral	None	41	59
C	25	25	2	2	5	2	3	Oral	None	9	91
D	25	25	5	5	10	5	5	Oral	None	100	0
E	25	25	4	1	5	1	4	Oral	Yes	11	89
F	25	25	4	4	1	4	-	Oral	None	10	90
G	25	25	3	2	3	2	1	Oral	Yes	14	86
H	25	25	3	3	5	3	2	Oral	Yes	15	85
I	40	25	3	2	5	2	3	Oral	None	100	0
J	40	40	4	4	1	4	-	Oral	None	100	0
K	40	25[a]	4	1	1	1	-	Oral	None	100	0
L	40	25	4	2	1	2	-	Oral	None	100	0
M	40	33	3	3	1	3	-	Oral	None	100	0
N	40	40	4	4	1	4	-	Oral	None	100	0
O	50	25[a]	4	2	1	1	-	Oral	None	100	0

ants who paid 25 per cent crop rent for peanuts. Further study would ely show that the owners had operated the irrigation installations on ir farms prior to leasing the farm to the present tenant since there no indications of a prior lease with another tenant.

The introduction of irrigation and a different crop rental for peanut not bring about many changes in the crop share rental for other crops. tenants who paid a peanut crop share of 25 per cent continued to pay same rent for other crops. This applied whether or not the crop was igated. However, two of the leases, Ie_4 and L_2, which had 40 per cent nut crop share agreements had 25 per cent crop share rentals for cotton se specific arrangements were likely influenced by the relative positio cotton in the cropping program on these leases. In the case of lease , it had 54 acres of peanuts but only 13 acres of cotton. The other se, L_2, had 23 acres in cotton, which was more than the average, but cotton was irrigated only one time compared with peanuts which were igated four times. Two of the leases, J_2 and N_2, were for 40 per cent the irrigated peanuts and cotton but in both instances cotton received s water than peanuts (Tables V and X). Lease M_2 deviated from the tomary pattern. The agreement was for one-fourth per cent of the nuts and one-third of the cotton. In this particular lease, cotton eived only one irrigation compared with six for peanuts. With one eption, lease De_3, all leases irrigated peanuts more than cotton, and this lease the cotton acreage was smaller than on any of the other ses. This lease does not conform to the pattern of the other leases oughout the study.

Crop Rental Shares on Irrigation Leases

Eight of these 15 leases were for 1/4 peanut crop rent, six paid 40 cent of the crop and one paid 50 per cent. The higher rental rates without exception associated with leases where the lessors supplied investment capital. On lease D_3, 1/4 crop share rent was paid and lessor supplied all investment capital. However, this lease did not ride for any contribution by the lessor to additional expenses associat irrigation. The lessor supplied over 50 per cent of the total in- ised costs associated with the increase in production of peanuts and rental share was 25 per cent (Tables IV and VII).

As a general rule the cotton rental share, where cotton was irrigated lowed the pattern established for peanuts on the dryland rental rate 25 per cent. Leases Ie_4 and L_2 were for 40 per cent peanut crop rent retained the customary dryland rental rate for irrigated cotton. Two es paid 40 per cent crop rent for both peanuts and cotton. One of the per cent peanut rental leases made a slight deviation in the cotton al rate. One-third cotton rent was paid on this lease. The cotton age was equal to the peanut acreage whereas on the other leases, cotto not important, measured in terms of acres, as peanuts (Table III).

Contributions of Operating and Added Expenditures

The proportionate share of the fuel expenditure was indeterminate. lease K_1 the lessee paid all fuel expenditures, and the other six sees in this group shared fuel expenditures with the lessors. This se had one of the largest acreages of peanuts and one of the higher lds which resulted in returns to the tenant of $4.70 per dollar of

OF THESE COSTS TO ALL ACRES IRRIGATED, AND THE PEANUT ACREAGE ONLY.
FIFTEEN IRRIGATION FARM LEASES, CADDO COUNTY, 1958
(EIGHT YEAR LIFE EXPECTANCY ASSUMED).

	Peanuts Planted						Annual Investment Cost[1]		Acres Irrigated[2]
	Acres		Yield		Capital Investment				
	1957	1958	1957	1958	Owner	Tenant	Owner	Tenant	1958
Lease*	Number	Number	Pounds	Pounds	Dollars	Dollars	Dollars	Dollars	Number
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A_3	23.5	23.5	2,866	2,307	3,200	3,100	480	465	70.5
B_3	39.0	39.0	3,522	2,348	4,000	5,700	600	855	74.0
C_3	37.0	37.0	2,270	2,100	700	7,050	105	1,058	52.0
De_3	49.0	49.0	2,842	1,895	9,000	---	1,350	---	74.0
E_3	N	30.0	N	1,759	800	6,500	120	975	66.0
Fe_2	33.0	33.6	2,700	2,320	775	6,700	116	1,005	48.0
G_2	31.0	31.0	2,536	1,691	1,000	6,100	150	915	43.0
H_2	36.0	36.0	3,193	2,684	1,454	8,120	218	1,218	57.0
Ie_4	54.0	54.0	2,620	2,588	8,500	---	1,275	---	100.0
J_2	46.0	46.0	1,550	1,283	11,000	---	1,650	---	72.0
K_1	44.0	44.0	1,760	2,509	9,000	---	1,350	---	44.0
L_2	31.6	31.6	1,440	1,035	7,000	---	1,050	---	54.5
M_2	29.0	29.2	2,909	1,833	9,450	---	1,418	---	54.5
N_2	45.0	43.0	2,455	2,578	12,200	---	1,830	---	59.0
O_2	40.0	40.0	2,920	2,572	9,000	---	1,350	---	40.0

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

[1]Interest of 5 percent and depreciation based on a life expectancy of eight years.

[2]Per acre irrigated in 1958 may have been greater or smaller than previous years. In most instances a larger acreage had been irrigated. The peanut acreage irrigated had not changed.

N1958 was the first year to irrigate on this lease.

Lease*	Annual Investment Cost[1]				Taxes				Insurance	
	Per Acre Irrigated[2]		Peanut Acres Only[2]		Per Acre Irrigated[2]		Peanut Acres Only[2]		Per Acre Irrigated[2]	
	Owner Dollars	Tenant Dollars	Owner Dollars	Tenant Dollars	Owner Dollars	Tenant Dollars	Owner Dollars	Tenant Dollars	Owner Dollars	Tenant Dollars
(1)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
A_3	6.81	6.60	20.42	19.79	---	.79	---	2.40	---	.23
B_3	8.11	11.55	15.38	21.92	.98	1.21	1.85	2.29	---	.44
C_3	2.02	20.35	2.84	28.59	---	1.69	---	2.37	---	.31
De_3	18.24	---	27.55	---	1.77	---	2.67	---	---	---
E_3	1.82	14.77	4.00	32.50	---	.76	---	1.67	---	.48
Fe_2	2.42	20.94	3.45	29.91	---	1.84	---	2.63	---	1.33
G_2	3.49	21.28	4.84	29.52	---	2.81	---	3.90	---	---
H_2	3.82	21.37	6.06	33.83	---	1.57	---	2.48	---	---
Ie_4	12.75	---	23.61	---	.60	---	1.50	---	---	---
J_2	22.92	---	35.87	---	.83	---	1.30	---	.45	---
K_1	30.68	---	30.68	---	1.62	---	1.62	---	.73	---
L_2^1	19.27	---	33.23	---	N	---	N	---	.59	---
M_2	26.02	---	48.56	---	2.02	---	3.77	---	---	---
N_2	31.02	---	42.56	---	2.43	---	3.33	---	.17	---
O_2	33.75	---	33.75	---	2.42	---	2.42	---	---	---

*Ibid.

[1]Interest of 5 percent and depreciation based on a life expectancy of eight years.

[2]Per acre irrigated in 1958 may have been greater or smaller than previous years. In most instances a larger acreage had been irrigated. The peanut acreage irrigated had not changed.

N1958 was the first year to irrigate on this lease.

Lease*	Insurance Peanut Acres Only[2]		Total Fixed Costs							
			Per Acre Irrigated[2]				Peanut Acreage Only[2]			
	Owner	Tenant	Owner		Tenant		Owner		Tenant	
	Dollars	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars
(1)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
A_3	---	.69	47	6.81	53	7.62	47	20.42	53	22.88
B_3	---	.82	41	9.09	59	13.20	41	17.23	59	25.03
C_3	---	.43	8	2.02	92	22.35	8	2.84	92	31.39
De_3	---	---	100	20.01	0	---	100	30.22	0	---
E_3	---	1.07	10	1.82	90	16.01	10	4.00	90	35.24
Fe_2	---	1.75	9	2.42	91	24.11	9	3.45	91	34.29
G_2	---	---	13	3.49	87	24.09	13	4.84	87	33.42
H_2	---	---	14	3.82	86	22.94	14	6.06	86	36.31
Ie_4	---	---	100	13.35	0	---	100	25.11	0	---
J_2	.70	---	100	24.20	0	---	100	37.87	0	---
K_1	.73	---	100	33.03	0	---	100	33.03	0	---
L_2	1.01	---	100	19.86	0	---	100	34.24	0	---
M_2	---	---	100	28.04	0	---	100	52.33	0	---
N_2	.23	---	100	33.62	0	---	100	46.12	0	---
O_2	---	---	100	36.17	0	---	100	36.17	0	---

*Ibid.

[2]Per acre irrigated in 1958 may have been greater or smaller than previous years. In most instances a larger acreage had been irrigated. The peanut acreage irrigated had not changed.

uts which was greater than the leases with 25 per cent rental rates ble VII). There are no other quantitative measurements of resource lities to distinguish this lease from the others. It had one of the er yielding irrigation wells which limited the acres irrigated to the nut acreage.

The leases were in agreement regarding the sharing of added expendi- es for peanut seed and cotton seed. Without exception, the tenants orted increased expenditures for peanut seed and bore this added ex- diture regardless of the rental share paid for the lease. In several tances, the expenditures for peanut seed were doubled (Table V). enditures for fertilizers, insecticides and fungicides followed the tern established by the lease share agreement, the tenant shared 75 cent of the crop. There were exceptions among the eight leases where rental share was 25 per cent but there were no exceptions reported ng those leases for a rental share greater than 25 per cent (Table V).

The proportionate contributions of owners and tenants to other rating and added expenses were also varied. Fertilizer, insecticides, l fungicides were usually shared but none of the increased expenses for ds. When the fuel expenses were not shared, proportionate contributio lessors were relatively low. With one exception, lease K_1, the owner l tenant tended to share operating expenses on the same basis as the ital share. The 1/4 peanut and cotton crop share leases differed in y more respects than the leases for a larger rental share. Leases A_3 l B_3, as well as De_3 and E_3, paid all fuel expenses. The lessors nished the well, pumps, and motors which were about 50 per cent of the igation investment on the first two leases but on lease De_3 the tenant

FUEL, LABOR AND MAINTENANCE COSTS, AND THE PROPORTIONAL CONTRIBUTION OF OWNERS AND TENANTS, FIFTEEN IRRIGATION FARM LEASES, CADDO COUNTY, 1958

Lease*	Peanut Acres 1958	Peanut Yield Per Acre, 1958	Rental Share	Comparative Practices							
				Seed		Fertilizer Pounds					
				Dryland	Dryland	Dryland			Irrigated Land		
	Number	Pounds	Percent	Pounds	Pounds	N	P	K	N	P	K
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A_3	23.5	2,307	25	40	90	5	20	20	10	40	40
B_3	39.0	2,348	25	40	60	5	20	20	15	50	50
C_3	37.0	2,100	25	25	30	7	14	7	7	14	7
De_3	49.0	1,895	25	40	60	7	14	7	14	28	14
E_3	30.0	1,759	25	40	66	10	20	10	15	30	15
Fe_2	33.6	2,320	25	35	60	7	14	7	14	28	14
G_2	31.0	1,691	25	35	50	--	--	--	--	--	--
H_2	36.0	2,684	25	25	55	--	--	--	15	30	15
Ie_4	54.0	2,588	40	40	80	5	20	20	15	50	50
J_2	46.0	1,283	40	20	40	2	14	7	10	40	40
K_1	44.0	2,509	40	30	45	--	--	--	5	20	20
L_2	31.6	1,035	40	45	75	5	20	20	10	40	40
M_2	29.2	1,833	40	30	60	--	--	--	4	12	4
N_2	43.0	2,578	40	20	40	5	20	20	12	48	48
O_1	40.0	2,572	50	50	82	--	--	--	0	45	0

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

	Additional Costs and Proportionate Contributions									
	Insecticides-Fungicides		Seed				Fertilizer			
	Dryland	Irr. Land	Owner		Tenant		Owner		Tenant	
Lease*	Dollars	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars
(1)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
A_3	--	--	0		100	7.50	25	1.12	75	3.38
B_3	--	--	0		100	2.50	25	1.69	75	5.06
C_3	--	--	0		100	.62	25	1.02	75	3.08
De_3	--	--	0		100	2.50	0	--	100	4.50
E_3	--	--	0		100	2.00	25	.51	75	1.54
Fe_2	--	--	0		100	3.12	25	1.02	75	3.08
G_2	--	--	0		100	1.88	0	--	100	--
H_2	--	6.00	0		100	3.75	25	1.54	75	4.61
Ie_4	--	--	0		100	5.00	40	2.70	60	4.05
J_2	--	--	0		100	2.50	40	1.66	60	2.50
K_1	--	--	0		100	1.87	40	1.80	60	2.70
L_2	--	--	0		100	3.75	40	1.80	60	2.70
M_2	--	--	0		100	3.75	40	1.52	60	2.28
N_2	--	--	0		100	2.62	40	1.80	60	2.70
O_1	--	--	0		100	7.04	50	2.00	50	2.00

*Ibid.

Lease*	Additional Costs and Proportionate Contributions				Operating Costs and Contributions			
	Insecticides-Fungicides				Fuel Cost Per Acre of Peanuts			
	Owner		Tenant		Owner		Tenant	
	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars
(1)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
A_3	25	--	75	--	0	--	100	4.25
B_3	25	--	75	--	0	--	100	7.02
C_3	25	--	75	--	25	1.78	75	5.32
De_3	25	--	75	--	0	--	100	10.30
E_3	25	--	75	--	0	--	100	4.30
Fe_2	25	--	75	--	25	5.41	75	16.24
G_2	0	--	100	--	25	3.69	75	11.06
H_2^2	25	1.50	75	4.50	25	3.43	75	10.29
Ie_4		--		--	40	3.75	60	5.63
J_2	40	--	60	--	40	3.75	60	5.63
K_1^2	40	--	60	--	0	--	100	9.59
L_2	N	--	N	--	40	2.21	60	3.31
M_2	N	--	N	--	40	4.26	60	6.40
N_2^2	40	--	60	--	40	3.94	60	5.91
O_1	50	--	50	--	50	6.81	50	6.81

*Ibid.

NNo arrangement reported.

Lease*	Operating Costs and Contributions: Maintenance Cost Per Acre, Owner	Maintenance Cost Per Acre, Tenant	Labor Per A., Tenant	Water Applied Ac./in.	Applications	Operating and Added Costs Contributions to Production Expense: Owner		Tenant	
	Dollars	Dollars	Dollars	Number	Number	Percent	Dollars	Percent	Dollars
(1)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
A_3	--	1.02	2.55	9	3	7	1.12	93	18.70
B_3	--	.95	3.59	17	5	8	1.69	92	19.12
C_3	--	--	4.54	9	3	17	2.80	83	13.56
De_3	--	--	2.40	9	3	0	--	100	19.70
E_3	--	.42	2.67	15	4	5	.51	84	10.93
Fe_2	1.49	--	5.09	12	6	19	7.92	81	27.53
G_2	--	--	5.00	15	5	17	3.69	83	17.94
H_2	--	--	6.54	17.5	5	18	6.47	82	29.69
Ie_4	--	--	4.50	9	3	25	6.45	75	19.18
J_2	2.24	--	5.78	14	7	30	7.21	70	16.85
K_1	--	--	3.72	6	3	9	1.80	91	17.88
L_2	--	--	6.08	10	4	20	4.01	80	15.84
M_2	--	--	5.34	21	6	25	5.78	75	17.77
N_2	--	--	4.42	20	5	25	5.74	75	15.65
O_1	--	--	2.40	9	3	33	8.81	67	18.25

*Ibid.

FIFTEEN IRRIGATION FARM LEASES, CADDO COUNTY, 1958.

Lease*	Rental Share	Harvesting and Marketing Costs Per Acre, 1958					
		Combining		Sacks[2]		Hauling[2]	
	Percent	Dryland Dollars	Irrigated Dollars	Dryland Dollars	Irrigated Dollars	Dryland Dollars	Irrigated Dollars
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A_3	25	8.00	8.00[1]	2.35	3.60	1.53	2.50
B_3	25	8.50	8.50[1]	2.35	3.75	1.53	2.54
C_3	25	15.00	15.00	2.35	3.15	1.53	2.15
De_3	25	8.50	8.50[1]	2.35	2.55	1.53	1.78
E_3	25	7.50	7.50[1]	2.35	2.25	1.53	1.55
F_2	25	15.00	17.00	2.35	3.60	1.53	2.53
G_2	25	15.00	18.50	2.35	2.10	1.53	1.43
H_2	25	8.00	8.00[1]	2.35	4.50	1.53	3.17
Ie_4	40	15.00	17.00	2.35	4.35	1.53	3.00
J_2	40	15.00	20.00	2.35	1.05	1.53	.72
K_1	40	8.00	8.00[1]	2.35	4.05	1.53	2.86
L_2	40	7.50	7.50[1]	2.35	.45	1.53	.30
M_2	40	8.50	8.50[1]	2.35	2.40	1.53	1.67
N_2	40	15.00	18.75	2.35	4.20	1.53	2.98
O_1	50	8.00	8.00	2.35	4.20	1.53	2.98

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

[1]Harvesting cost was estimated by operator where tenant furnished combine, others are cash outlay for hired combining.

[2]Added cost for sacks were calculated by assuming one additional sack valued at $.15 for each 60 pounds increase in production----and hauling at $.175 for each additional hundred pounds produced.

Lease*	Contributions of Owners and Tenants for Added Harvesting and Marketing Cost						
	Combining Tenant	Sacks Tenant	Hauling Tenant	Harvesting and Marketing Cost			
				Owner		Tenant	
	Percent	Percent	Percent	Percent	Dollars	Percent	Dollars
(1)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
A_3	100	75	75	25	1.52	75	4.57
B_3	100	75	75	25	1.57	75	4.72
C_3	75	75	75	25	1.32	75	3.98
De_3	100	100	75	10	.44	90	3.89
E_3	100	100	75	10	.39	90	3.41
F_2	75	75	75	25	2.03	75	6.10
G_2	75	75	75	25	1.76	75	5.27
H_2	75	75	75	25	1.92	75	5.75
Ie_4	60	60	60	40	3.74	60	5.61
J_2	60	60	60	40	2.71	60	4.06
K_1	100	60	100	23	1.62	77	5.29
L_2	60	60	60	40	.30	60	.45
M_2	60	60	60	40	1.63	60	2.44
N_2	60	60	60	40	4.37	60	6.56
O_1	100	50	100	29	2.10	71	5.08

*Ibid.

not supply any of the capital investment, however, on lease E_3 the ınt had supplied about 89 per cent of this capital (Table IV).

Harvesting and marketing expenses were shared in proportion to rent :es on the 40 per cent crop share leases with the exception of lease which deviated from the usual pattern throughout all phases of the ;e arrangement. The lessors and lessees with the 1/4 peanut and cott :e rentals shared different phases of the harvesting and marketing ;nse. Four of the tenants paid 75 per cent of the harvesting. The : that paid all harvesting expenses owned peanut combines. This was) true of lease K_1 which was a 40 per cent peanut crop rental lease.

Crop Rental Shares Other Than Peanuts

Two of the leases, K_1 and O_1, irrigated no other crops and lease C ;gated no cotton but did irrigate other crops. Three of the fifteen ;es made changes in the crop rental share for cotton. Without excep· ı, those leases with a twenty-five per cent peanut crop rental share) retained the customary dryland rental of twenty-five per cent for :on. Both irrigated and non-irrigated cotton was grown on several o; ;e leases. However, the rental share for other crops including cott· ;ars to follow the rental share for peanuts, and were not the result ıdjusting to the innovation of irrigation. Lease M_2 would be an ;ption. On this lease the crop rental share for peanuts was 40 per : and all other crops were 1/3 including cotton, grain sorghum, and ılfa.

Two of the 40 per cent peanut crop rental leases, Ie_4 and L_2, had ;er cent cotton share rentals (Table X). The leasing agreement

lowed closely those for peanuts, that is, the lessors contributed 40 cent of the fertilizer, insecticides, and fuel expenses. As a result, lessors were contributing 85 and 96 per cent of the expenses for lying the water to cotton (Table X, Cols. 17 and 19). A prorated shar fixed costs were included in these contributions.

There are indications that the lessees and lessors did not consider t cotton should be charged with any of the annual fixed cost. If no ed costs, depreciation on the irrigation equipment, interest on the ey, insurance and taxes, are charged against cotton the contributions cost of irrigating cotton are less for the lessors than for the lessee ble XII, Cols. 15 and 17). The relative contributions are reversed. sees Ie_4 and L_2 contributed 91 and 86 per cent respectively. The same proportionate share of contributions exists for the other leases if fixed costs are charged against the other crops. The lessors receive m $.50 to $39.30 for each dollar contributed to cotton production ble XII, Cols. 19 and 21). The lessees received from $.60 to $2.30 fo h dollar contributed to irrigation of cotton.

It is evident that equitable lease arrangements are influenced by (1 the fixed costs are prorated among the enterprises on the farm (2) how the lessors and lessees share in these costs.

Comparison of Contributions and Receipts

The contributions to increased operating costs on irrigation leases 40 per cent of the peanut crop were without exception the reverse of crop share (Table IV). The tenants contributed less than 40 per cent received 60 per cent of the production. Although lessee K_1 had

ıtributed all the fuel, and several other operating and harvesting ex-
ıses which were shared on the other leases, contributions per acre on
.s lease conformed very closely to the other leases. Lease De_3 con-
.buted none of the fixed expenses and total contributions were only 43
· cent of the fixed and variable expenses for peanut production com-
·ed with the other leases with 1/4 peanut crop rentals who contributed
›m 76 to 90 per cent of the cost associated with irrigation (Table IV).

The 1/4 crop share leases varied more in regard to contributions tha
: leases for 40 per cent or more of the crop share of peanuts. Without
:eption, the lessees contributed in greater proportion than they shared
the increased returns. On leases A_3, B_3, and C_3 total contributions
ıformed very closely to the proportionate share of crop received. The
ısees owned the distribution system only in leases A_3 and B_3 and paid
. the fuel although the lessors had furnished the pumps and power
ınts. Lessee C_3, however, supplied all the new capital with the excep-
›n of the well but the lessor contributed 25 per cent of the fuel.
ısees E_3, Fe_2, G_2, and H_2 supplied from 85 to 90 per cent of all new
restment capital and their total contributions to increased costs were
about these levels. The lessors tended to share the fuel expenditures
the above leases.

With one exception, lease Ie_4, the leases for 40 and 50 per cent
ınut crop rental shares were more favorable for the lessees than the
ısors. Two of these leases, J_2 and L_2, were not profitable for the
ısors, and lease J_2 returned only $1.30 to the lessee. Lessee L_2 also
i a loss. The increased costs for irrigation were large for these
ıses but these costs were not out of proportion to the other leases.

income resulting from the increased peanut yield was only a fraction the increased income on the other leases (Table IV, Col. 4). Individu sees with the higher rental payments received larger returns than sees with lower rental payments (Table VII, Col. 14). The method of lysis considered the ratios of increased income to increased costs did not compare total returns per acre. Total returns per acre were erally greater for the lessees with the lower rental rates.

TABLE VII. COMPARISON OF ADDED RETURNS AND COSTS PER ACRE ASSOCIATED WITH IRRIGATION OF PEANUTS AND THE PROPORTIONATE CONTRIBUTIONS AND SHARES OF OWNERS AND TENANTS AS AFFECTED BY THE ALLOCATION OF FIXED COSTS. FIFTEEN IRRIGATION FARM LEASES, 1958. (EIGHT YEAR LIFE EXPECTANCY ASSUMED)

	Irrigate Peanuts		Added	Added	Added Returns		Fixed Costs Plus Operating and Added Cost Per Acre[3]			
	Acres	Yield	Output[1]	Value[2]	Owner	Tenant	Owner		Tenant	
Farm*	Number	Pounds	Pounds	Dollars	Dollars	Dollars	Percent	Dollars	Percent	Dollars
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
A_3	23.5	2,307	1,433	154.66	38.66	115.99	23	9.45	77	30.89
B_3	39.0	2,348	1,474	159.19	39.80	119.39	25	12.35	75	37.04
C_3	37.0	2,100	1,226	132.41	33.10	99.30	13	6.14	87	39.89
De_3	49.0	1,895	1,021	110.27	27.57	82.70	46	20.45	54	23.59
E_3	30.0	1,759	885	95.58	23.89	71.68	9	2.72	92	30.35
Fe_2	36.6	2,320	1,446	156.17	39.04	117.13	18	12.37	82	57.74
G_2	31.0	1,691	817	88.24	22.06	66.18	16	8.94	84	47.30
H_2	36.0	2,684	1,810	195.48	48.87	146.61	17	12.21	83	58.38
Ie_4	54.0	2,588	1,714	185.11	74.04	111.07	49	23.54	51	24.79
J_2	46.0	1,283	419	44.82	17.93	26.89	62	34.12	38	20.91
K_1	44.0	2,509	1,635	176.58	70.63	105.95	61	36.45	39	23.17
L_2	31.6	1,035	161	17.39	6.96	10.43	60	24.17	40	16.29
M_2	29.2	1,833	957	103.36	41.34	62.02	64	35.45	36	19.61
N_2	43.0	2,578	1,704	184.03	73.61	110.42	66	43.73	34	22.21
O_1	40.0	2,572	1,698	183.38	91.69	91.69	58	32.61	42	23.33

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

[1]Added yields in 1958 were estimated as increases above the county average of 874 pounds of peanuts per acre for the period 1925-55.

[2]See Appendix Table A.

[3]Fixed costs were allocated proportionately to each acre irrigated. See Table IV, Columns 8 and 9.

Farm*	Ratios: Added Income to Costs For Peanuts: Owner: Output Dollars	Owner: Input Dollars	Tenant: Output Dollars	Tenant: Input Dollars	All Fixed Costs: Plus Operating And Added Costs Per Acre[4]: Owner: Percent	Owner: Dollars	Tenant: Percent	Tenant: Dollars	Ratios: Added Income to Costs All Fixed Cost Charged to Peanuts[4]: Owner: Output Dollars	Owner: Input Dollars	Tenant: Output Dollars	Tenant: Input Dollars
(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
A_3	4.10	1.00	3.80	1.00	33	23.06	67	46.15	1.70	1.00	2.50	1.00
B_3	3.20	1.00	3.20	1.00	30	20.49	70	48.87	1.90	1.00	2.40	1.00
C_3	5.40	1.00	2.50	1.00	12	6.96	88	48.93	4.80	1.00	2.00	1.00
De_3	1.30	1.00	3.50	1.00	57	30.66	43	23.59	.90	1.00	3.50	1.00
E_3	8.80	1.00	2.40	1.00	9	4.90	91	52.27	5.00	1.00	1.40	1.00
Fe_2	3.20	1.00	2.00	1.00	16	13.40	84	67.92	2.90	1.00	1.70	1.00
G_2	2.50	1.00	1.40	1.00	15	10.29	85	56.63	2.10	1.00	1.20	1.00
H_2	4.00	1.00	2.50	1.00	17	14.45	83	71.75	3.40	1.00	2.00	1.00
Ie_4	3.10	1.00	4.50	1.00	59	35.30	41	24.79	2.10	1.00	4.50	1.00
J_2	.50	1.00	1.30	1.00	70	47.79	30	20.91	.40	1.00	1.30	1.00
K_1	1.90	1.00	4.60	1.00	61	36.45	39	23.17	1.90	1.00	4.60	1.00
L_2	.30	1.00	.60	1.00	70	38.55	30	16.29	.20	1.00	.60	1.00
M_2	1.20	1.00	3.20	1.00	75	59.74	25	20.21	.70	1.00	3.10	1.00
N_2	1.70	1.00	5.00	1.00	72	56.23	28	22.21	1.30	1.00	5.00	1.00
O_1	2.60	1.00	3.70	1.00	[illegible]	32.61	42	23.33	2.80	1.00	3.90	1.00

*Ibid.

[4]All fixed costs were charged against the peanut acreage to assure comparable data, since two leases irrigated only peanuts.

CHAPTER V

EQUITABLE IRRIGATION LEASE AGREEMENTS

The equitableness and/or inequitableness of lease arrangements are erally measured in terms of contributions of the parties to the agree- t compared with their proportionate share of returns from the under- ing. However, parties agree to share the proceeds of an undertaking a predetermined basis, such as 25 and 75, 50 and 50, without knowing agreeing what the proportionate contributions are to be. Leasing eements are only estimates, particularly when there are many undetermine l unmeasurable elements of costs in the undertaking. The repair expenses l the absolute depreciation costs are examples of elements that are yet leterminable.

On several of the leases no repair expenses were reported, but on e lease an expenditure in excess of $800 was required to repair a or. Such variations are expected but unpredictable and are a risk at parties to undertakings assume. A comparison of the contributions en such an unusual item is included makes the agreement appear to be in vor of the other party to the agreement. This is an exceptional exper- nce, but it demonstrates that the most equitable arrangement may become equitable. However, such inequities can be provided for if precautions e used when agreements are formed. Most of the lease agreements had de provisions for expenditures which were never incurred, and some made penditures which were not a part of the lease and were borne by the rty making the expenditure. Several of the leases had no provision for

aring fertilizer and insect expenses, and none were used. The failure use fertilizer on several of the leases may have been the lack of an reement for sharing this expense. Experiments in the area by the periment station demonstrated the necessity of fertilizer to obtain ximum yields.[1]

The depreciation cost is always a difficult item to estimate and st remain an undetermined amount in any undertaking. Experience has ovided sufficient data to make judgments relative to the expected life pectance for most farm machinery. The irrigation installations are new d the water resource is unproven, although the geological information pports the concept of ground water as a flow resource and not a stock source with a short life expectancy. The contributions of the party to e lease who furnished the irrigation investment capital were only timates prepared on the basis of relevant situations and precautions re taken not to understate. For this study an eight-year life pectancy was used. Contributions of the owners of investment capital e overestimated if a useful life in excess of ten years is experienced. is was demonstrated in the analyses by using an eight-year and sixteen-ar depreciation schedule.[2] The annual fixed cost was decreased from per cent to 8.75 per cent of the initial investment. Depreciation for e sixteen-year schedule was 58 per cent of the eight-year schedule. Hov er, other fixed expenses are not changed. Taxes and insurance were

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[1] Ralph S. Matlock, "Opportunities for Increasing Efficiency Through e Use of Commercial Fertilizer", Proceedings Peanut Improvement Working oup, May, 1959.

[2] The data in Tables VIII and IX, as well as X and XIV are to be mpared with the data in Tables IV and VII and those data in Tables IX d XII.

THESE COSTS TO ALL ACRES IRRIGATED AND THE PEANUT ACREAGE ONLY. ------
IRRIGATION FARM LEASES, CADDO COUNTY, 1958. (SIXTEEN YEAR LIFE EXPECTANCY ASSUMED.)

Lease*	Peanuts Planted: Acres 1957	Peanuts Planted: Acres 1958	Peanuts Planted: Yield 1957	Peanuts Planted: Yield 1958	Capital Investment		Annual Investment Cost[1]		Acres Irrigated	Annual Investment Cost: Per Acre Irrigated[2]		Annual Investment Cost: Peanut Acres Only[2]	
					Owner	Tenant	Owner	Tenant	1958	Owner	Tenant	Owner	Tenant
	Number	Number	Pounds	Pounds	Dollars	Dollars	Dollars	Dollars	Number	Dollars	Dollars	Dollars	Dollars
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
A_3	23.5	23.5	2,866	2,307	3,200	3,100	280	271	70.5	3.97	3.84	11.91	11.53
B_3	39.0	39.0	3,522	2,348	4,000	5,700	350	499	74.0	4.73	6.74	8.97	12.79
C_3	37.0	37.0	2,270	2,100	700	7,050	61	617	52.0	1.17	11.87	1.65	16.68
De_3	49.0	49.0	2,842	1,895	9,000	---	788	---	74.0	10.65	---	16.08	---
E_3	N	30.0	N	1,759	800	6,500	70	569	66.0	1.06	8.62	2.33	18.97
Fe_2	33.0	33.6	2,700	2,320	775	6,700	68	586	48.0	1.42	12.21	2.02	17.44
G_2	31.0	31.0	2,536	1,691	1,000	6,100	88	534	43.0	2.05	12.42	2.84	17.23
H_2	36.0	36.0	3,193	2,684	1,454	8,120	127	710	57.0	2.23	12.46	3.53	19.72
Ie_4	54.0	54.0	2,620	2,588	8,500	---	744	---	100.0	7.44	---	13.78	---
J_2	46.0	46.0	1,550	1,283	11,000	---	962	---	72.0	13.36	---	20.91	---
K_1	44.0	44.0	1,760	2,509	9,000	---	788	---	44.0	17.91	---	17.91	---
L_2	31.6	31.6	1,440	1,035	7,000	---	612	---	54.5	11.23	---	19.37	---
M_2	29.0	29.2	2,909	1,833	9,450	---	827	---	54.5	15.17	---	28.32	---
N_2	45.0	43.0	2,455	2,578	12,200	---	1,068	---	59.0	18.10	---	24.84	---
O_2	40.0	40.0	2,920	2,572	9,000	---	788	---	40.0	19.70	---	19.70	---

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

[1]Interest of 5 percent and depreciation were based on a life expectancy of sixteen years.

[2]Per acre irrigated in 1958 may have been greater or smaller than previous years. In most instances a larger acreage had been irrigated.

[N]First year to irrigate.

Lease*	Taxes				Insurance				Total Fixed Cost			
	Per Acre Irrigated[2]		Peanut Acres Only[2]		Per Acre Irrigated[2]		Peanut Acres Only[2]		Per Acre Irrigated		Peanut Acres Only	
	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant
	Dollars:	Dollars:	Dollars:	Dollars:	Dollars:	Dollars:	Dollars:	Dollars:	Dollars:	Dollars:	Dollars:	Dollars
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
A_3	--	.79	--	2.40	--	.23	--	.69	3.97	4.86	11.91	14.62
B_3	.98	1.21	1.85	2.29	--	.44	--	.82	5.71	8.39	10.82	15.90
C_3	--	1.69	--	2.37	--	.31	--	.43	1.17	13.87	1.65	19.48
De_3	1.77	--	2.67	--	--	--	--	--	12.42	--	18.75	--
E_3	--	.76	--	1.67	--	.48	--	1.07	1.06	9.86	2.33	21.71
Fe_2	--	1.84	--	2.63	--	1.33	--	1.75	1.42	15.38	2.02	21.82
G_2	--	2.81	--	3.90	--	--	--	--	2.05	15.23	2.84	21.13
H_2	--	1.57	--	2.48	--	--	--	--	2.23	14.03	3.53	22.20
Ie_4	.60	--	1.50	--	--	--	--	--	8.04	--	15.28	--
J_2	.83	--	1.30	--	.45	--	.70	--	14.64	--	22.91	--
K_1	1.62	--	1.62	--	.73	--	.73	--	20.26	--	20.26	--
L_2	N	--	N	--	.59	--	1.01	--	11.82	--	20.38	--
M_2	2.02	--	3.77	--	--	--	--	--	17.19	--	32.09	--
N_2	2.43	--	3.33	--	.17	--	.23	--	20.70	--	28.40	--
O_2	2.42	--	2.42	--	--	--	--	--	22.12	--	22.12	--

*Ibid.

[2]Per acre irrigated in 1958 may have been greater or smaller than previous years. In most instances a larger acreage had been irrigated.

[N]First year to irrigate.

AND THE PROPORTIONATE CONTRIBUTIONS AND SHARES OF OWNER AND TENANT

BY THE ALLOCATION OF FIXED COSTS. FIFTEEN IRRIGATION FARM LEASES, 1958, (SIXTEEN YEAR LIFE EXPECTANCY ASSUMED).

Farm*	Irrigate Peanuts		Added Output[1]	Added Value[2]	Added Income		Fixed Cost Plus Operating And Added Costs Per Acre[3]			
	Acres	Yield			Owner	Tenant	Owner		Tenant	
	Number	Pounds	Pounds	Dollars	Dollars	Dollars	Percent	Dollars	Percent	Dollars
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
A_3	23.5	23.07	14.33	154.66	38.66	115.99	19	6.61	81	28.13
B_3	39.0	23.48	14.74	159.19	39.80	119.39	22	8.97	78	32.23
C_3	37.0	21.00	12.26	132.41	33.10	99.30	14	5.29	86	31.41
De_3	49.0	18.95	10.21	110.27	27.57	82.70	35	12.86	65	23.59
E_3	30.0	17.59	8.85	95.58	23.89	71.68	7	1.96	92	24.20
Fe_2	36.6	23.20	14.46	56.17	39.04	117.13	19	11.37	81	49.01
G_2	31.0	16.91	8.17	88.24	22.06	66.18	16	7.50	84	38.44
H_2	36.0	26.84	18.10	195.48	48.87	146.61	18	10.62	82	49.47
Ie_4	54.0	25.88	17.14	185.11	74.04	111.07	43	18.23	58	24.79
J_2	46.0	12.83	4.19	44.82	17.93	26.89	54	24.56	46	20.91
K_1	44.0	25.09	16.35	176.58	70.63	105.95	51	23.68	49	23.17
L_2	31.6	10.35	1.61	17.39	6.96	10.43	50	16.13	50	16.29
M_2	29.2	18.33	9.57	103.36	41.34	62.02	56	24.60	44	19.61
N_2	43.0	25.78	17.04	184.03	73.61	110.42	58	30.81	42	22.21
O_1	40.0	25.72	16.98	183.38	91.69	91.69	44	18.56	56	23.33

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

[1]Added yields were increases above the county average of 173 pounds of lint cotton for the period, 1925-1955.

[2]See Appendix Table A.

[3]Fixed were allocated proportionately to each acre irrigated. See Table IV, Columns 8 and 9, also footnote.

Farm*	Ratios: Added Income to Costs For Peanuts, Columns 6 & 7 ÷ 9 & 11				All Fixed Costs: Plus Operating And Added Costs Per Acre[4]				Ratios: Added Income to Costs For Peanuts, Columns 6 & 7 ÷ 9 & 11			
	Owner		Tenant		Owner		Tenant		Owner		Tenant	
	Outputs Dollars	Inputs Dollars	Outputs Dollars	Inputs Dollars	Percent	Dollars	Percent	Dollars	Outputs Dollars	Inputs Dollars	Outputs Dollars	Inputs Dollars
(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
A_3	5.85	1.00	4.12	1.00	33	23.06	67	46.15	1.68	1.00	2.51	1.00
B_3	4.47	1.00	3.70	1.00	30	20.49	70	48.87	1.94	1.00	2.44	1.00
C_3	6.26	1.00	3.16	1.00	12	6.96	88	48.93	4.76	1.00	2.03	1.00
De_3	2.14	1.00	3.51	1.00	57	30.66	43	23.59	.90	1.00	3.51	1.00
E_3	12.19	1.00	2.96	1.00	9	4.90	91	52.27	4.88	1.00	1.37	1.00
Fe_2	3.43	1.00	2.39	1.00	16	13.40	84	67.92	2.91	1.00	1.72	1.00
G_2	2.94	1.00	1.72	1.00	15	10.29	85	56.63	2.14	1.00	1.17	1.00
H_2	4.60	1.00	2.96	1.00	17	14.45	83	71.75	3.38	1.00	2.04	1.00
Ie_4	4.06	1.00	4.48	1.00	59	35.30	41	24.79	2.10	1.00	4.48	1.00
J_2	.73	1.00	1.29	1.00	70	47.79	30	20.91	.38	1.00	1.29	1.00
K_1	2.98	1.00	4.57	1.00	61	36.45	39	23.17	1.94	1.00	4.57	1.00
L_2	.43	1.00	.64	1.00	70	38.55	30	16.29	.18	1.00	.64	1.00
M_2	1.68	1.00	3.16	1.00	75	59.74	25	20.21	.69	1.00	3.07	1.00
N_2	2.39	1.00	4.97	1.00	72	56.23	28	22.21	1.31	1.00	4.97	1.00
O_1	4.94	1.00	3.93	1.00	58	32.61	42	23.33	2.81	1.00	3.93	1.00

*Ibid.

[4]Fixed costs were charged to the peanut acreage only, to provide comparable data since two leases irrigated only peanuts. See Table IV.

OF COTTON BY OWNERS AND TENANTS. ANNUAL INVESTMENT COSTS AND OTHER RELATED FIXED COSTS ALLOCATED AMONG ACRES IRRIGATED. FIFTEEN IRRIGATION FARM LEASES, CADDO COUNTY, 1958 (EIGHT YEAR LIFE EXPECTANCY ASSUMED.)

Lease*	Cotton Planted Acres 1957	Cotton Planted Acres 1958	Yield 1957	Yield 1958	Fixed Cost Per Acre Irrigated[1] Owner	Fixed Cost Per Acre Irrigated[1] Tenant	Fuel Cost Per Acre Owner	Fuel Cost Per Acre Tenant	Water Applied Ac./in.	Applications
	Number	Number	Pounds	Pounds	Dollars	Dollars	Dollars	Dollars	Number	Number
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				Cotton Rental Share Twenty-Five Percent to Land Owner						
A_3	22	22	360	360	6.81	7.62	--	1.91	4.0	2
B_3	25	23	500	360	9.09	13.20	--	.79	6.8	2
De_3	12	10	360	500	20.02	--	--	2.50	9.0	3
E_3	--	31	--	360	1.82	16.01	--	1.70	7.4	2
Fe_2	15	15	240	260	2.42	24.11	.74	2.21	4.0	2
G_2	12	12	250	300	3.49	24.09	.60	1.80	7.0	2
H_2	21	21	515	400	3.82	22.94	.65	1.96	7.0	2
Ie_4	13	13	240	960	13.35	--	.62	.91	9.0	3
L_2	21	23	120	360	19.86	--	.36	.54	2.5	1
				Cotton Rental Share Thirty-Three Percent to Land Owner						
M_2	29	29.2	260	470	28.04	--	.58	.87	3.5	1
				Cotton Rental Share Forty Percent to Land Owner						
J_2	27	26	300	525	24.20	--	1.06	1.58	8.0	2
N_2	16	16	250	300	33.62	--	.30	.44	3.0	1

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

[1]A subdivision of fixed cost is given in Table IV.

Lease*	Labor Cost Per Acre	Experienced Repair Cost Per Acre		Operating Cost Per Acre Irrigated		Total Fixed and Operating Cost Per Acre Irrigated			
						Owner		Tenant	
	Tenant	Owner	Tenant	Owner	Tenant				
	Dollars	Dollars	Dollars	Dollars	Dollars	Percent	Dollars	Percent	Dollars
(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
				Cotton Rental Share Twenty-Five Percent to Land Owner					
A_3	1.14	--	1.02	--	4.07	37	6.81	63	11.69
B_3	1.28	--	.95	--	3.02	36	9.09	64	16.22
De_3	2.40	--	--	--	4.90	80	20.02	20	4.90
E_3	1.29	--	.42	--	3.41	9	1.82	91	19.42
Fe_2	1.60	1.49	--	2.23	3.81	14	4.65	86	27.92
G_2	2.42	--	--	.60	4.22	13	4.09	87	28.31
H_2	2.00	--	--	.65	3.96	14	4.47	86	26.90
Ie_4	1.85	--	--	.62	2.76	84	13.97	16	2.76
L_2	.35	--	--	.36	.89	96	20.22	4	.89
				Cotton Rental Share Thirty-Three Percent to Land Owner					
M_2	.87	--	--	.58	1.74	94	28.61	6	1.74
				Cotton Rental Share Forty Percent to Land Owner					
J_2	1.85	2.24	--	3.30	3.43	89	27.50	11	3.43
N_2	.88	--	--	.30	1.32	96	33.92	4	1.32

*Ibid.

FIFTEEN IRRIGATION FARM LEASES, CADDO COUNTY, 1958.

Lease*	Rental Share Paid	Comparative Practices							
		Seed		Fertilizer					
				Dryland			Irrigated Land		
	Percent	Dryland Pounds	Irri. Land Pounds	N	P	K	N	P	K
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A_3	25	16	24	8	24	8	16	24	16
B_3	25	16	24	5	20	20	15	50	50
De_3	25	16		7	14	7	14	28	14
E_3	25	16		10	20	10	15	30	15
Fe_2	25	16		7	14	7	14	28	14
G_2	25	16		--	--	--	--	--	--
H_2	25	16		--	--	--	15	30	15
Ie_4	25	16		5	20	20	15	50	50
L_2	25	16	16	5	20	20	10	40	40
		Cotton Rental Share Thirty-Three Percent							
M_2	33	16		--	--	--	--	--	--
		Cotton Rental Share Forty Percent							
J_2	40	16		7	14	7	10	40	40
N_2	40	16		5	20	20	6	24	24

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" used electricity as a source of fuel. Leases C_3, K_1, and O_1 did not irrigate cotton but cotton was dryland farmed under the customary 1/4 rental.

[1]Added harvesting costs were estimated on the basis of $2.00 per hundred and 480 pounds of lint per 1,800 pounds of seed cotton.

	Comparative Practices		Costs and Proportionate Share[2]							
	Insecticides Applied		Seed				Fertilizer			
	Dryland	Irri. Land	Owner		Tenant		Owner		Tenant	
Lease*	Dollars	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars
(1)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
A_3	--	--	0	--	100	1.00	25	1.84	75	5.66
B_3	--	6.96	0	--	100	1.00	25	1.69	75	5.06
De_3	--	6.75	0	--	100	--	0	--	100	4.50
E_3	--	8.00	0	--	100	--	25	.60	75	1.80
Fe_2	--	--	0	--	100	--	25	1.02	75	2.08
G_2	--	--	0	--	100	--	25	--	75	--
H_2	--	10.00	0	--	100	--	25	1.54	75	4.61
Ie_4	--	--	0	--	100	--	40	2.70	60	4.50
L_2	--	--	0	--	100	--	40	1.80	60	2.70
Cotton Rental Share Thirty-Three Percent										
M_2	--	--	0	--	100	--	33	--	67	--
Cotton Rental Share Forty Percent										
J_2	--	--	0	--	100	--	40	2.05	60	6.15
N_2	--	--	0	--	100	--	40	1.80	60	2.70

*Ibid.

[2]See Appendix Table A.

Lease*	Costs and Proportionate Share[2] Insecticides Owner Percent	Owner Dollars	Tenant Percent	Tenant Dollars	Added Harvest Expense Tenant Dollars	Costs of Added Inputs Per Acre For Irrigated Cotton Owner Percent	Owner Dollars	Tenant Percent	Tenant Dollars
(1)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
A_3	25	2.84	75	8.52	11.20	15	4.68	85	26.38
B_3	--	--	100	6.96	11.20	6	1.69	94	24.22
De_3	--	--	100	6.75	19.20	0	--	100	30.45
E_3	25	2.00	75	6.00	9.60	13	2.60	87	17.40
Fe_2	25	--	75	--	1.60	22	1.02	78	3.68
G_2	25	--	75	--	4.80	0	--	100	4.80
H_2	25	2.50	75	7.50	12.80	14	4.04	86	24.91
Ie_4	40	--	60	--	25.60	8	2.70	92	30.10
L_2	40	--	60	--	9.60	13	1.80	87	12.30
Cotton Rental Share Thirty-Three Percent									
M_2	33	--	67	--	18.40	0	--	100	18.40
Cotton Rental Share Forty Percent									
J_2	40	--	60	--	22.80	7	2.05	93	28.95
N_2	40	--	60	--	4.80	19	1.80	81	7.50

*Ibid.

[2]See Appendix Table A.

(EIGHT YEAR LIFE EXPECTANCY ASSUMED).

	Irrigated Cotton						All Fixed Costs Prorated Among Acres Irrigated Plus Other Expenses[3]				Ratios: Output/Input	
							Total Added Costs				Owner	
	Acres	Yield	Added Output[1]	Added Value[2]	Added Returns		Owner		Tenant		Outputs	Inputs
Lease*	Number	Pounds	Pounds	Dollars	Owner Dollars	Tenant Dollars	Percent	Dollars	Percent	Dollars	Dollars	Dollars
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
A_3	22	360	140	42.00	10.50	31.50	23	11.49	77	38.07	.90	1.00
B_3	23	360	140	42.00	10.50	31.50	21	10.78	79	40.44	1.00	1.00
De_3	10	480	240	72.00	18.00	54.00	36	20.02	64	35.35	.90	1.00
E_3	31	360	120	36.00	9.00	27.00	11	4.42	89	36.82	2.00	1.00
Fe_2	15	260	20	6.00	1.50	4.50	15	5.67	85	31.60	.30	1.00
G_2	12	300	60	18.00	4.50	13.50	11	4.09	89	33.11	1.10	1.00
H_2	21	400	160	48.00	12.00	36.00	14	8.51	86	51.81	1.40	1.00
Ie_4	13	560	320	96.00	24.00	72.00	34	16.67	66	32.86	1.40	1.00
L_2	23	360	120	36.00	9.00	27.00	63	22.02	37	13.19	.40	1.00
					33 Percent Rental							
M_2	29.2	470	230	69.00	22.77	46.23	59	28.61	41	20.14	.80	1.00
					40 Percent Rental							
J_2	26	525	285	85.50	34.20	51.30	48	29.55	52	32.38	1.20	1.00
N_2	16	300	60	18.00	7.20	10.80	80	35.72	20	8.82	.20	1.00

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel. Leases C_3, K_1, and O_1 did not irrigate cotton, but cotton was dryland farmed under the customary 1/4 rental.

[1]Expected dryland yields were 240 pounds of lint.

[2]See Appendix Table A.

[3]Capital investments were divided by the acres irrigated in 1958. On seven leases other crops in addition to peanuts and cotton were irrigated. An eight year life expectancy was assumed.

Lease*	All Fixed Costs Prorated Among Acres Irrigated Plus Other Exp.[3] Ratios: Output/Input		Only Operating and Added Expenses That Result From Irrigation[4]							
	Tenant		Expenses				Ratios: Output/Input			
			Owners		Tenants					
	Outputs Dollars	Inputs Dollars	Percent	Dollars	Percent	Dollars	Outputs Dollars	Inputs Dollars	Outputs Dollars	Inputs Dollars
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
A_3	.80	1.00	13	4.68	87	30.45	2.30	1.00	1.00	1.00
B_3	.80	1.00	6	1.69	94	27.24	6.20	1.00	1.20	1.00
De_3	1.50	1.00	0	--	100	35.35	18.00	1.00	1.50	1.00
E_3	.70	1.00	11	2.60	89	20.81	3.50	1.00	1.30	1.00
Fe_2	.10	1.00	30	3.25	70	7.49	.50	1.00	.60	1.00
G_2	.40	1.00	6	.60	94	9.02	7.50	1.00	1.50	1.00
H_2	.70	1.00	14	4.69	86	28.87	2.60	1.00	1.20	1.00
Ie_4	2.20	1.00	9	3.32	91	32.86	7.20	1.00	2.20	1.00
L_2	2.00	1.00	14	2.16	86	13.19	4.20	1.00	2.00	1.00
				33 Percent Rental						
M_2	2.30	1.00	3	.58	97	20.14	39.30	1.00	2.30	1.00
				40 Percent Rental						
J_2	1.60	1.00	14	5.35	86	32.38	6.40	1.00	1.60	1.00
N_2	1.20	1.00	19	2.10	81	8.82	3.40	1.00	1.20	1.00

*Ibid.

[3]Capital investments were divided by the acres irrigated in 1958. On seven leases other crops in addition to peanuts and cotton were irrigated. An eight year life expectancy was assumed.

[4]All capital investment and related expenses such as taxes and insurance were charged to the peanut acreage.

COSTS ALLOCATED AMONG ACRES IRRIGATED. FIFTEEN IRRIGATION FARM LEASES, CADDO COUNTY, 1958. (SIXTEEN YEAR LIFE EXPECTANCY ASSUMED).

Lease*	Cotton Planted Acres 1957 Number	Cotton Planted Acres 1958 Number	Cotton Planted Yield 1957 Pounds	Cotton Planted Yield 1958 Pounds	Fixed Cost Per Acre Irrigated[1] Owner Dollars	Fixed Cost Per Acre Irrigated[1] Tenant Dollars	Fuel Cost Per Acre Owner Dollars	Fuel Cost Per Acre Tenant Dollars	Water Applied Ac./Ins. Number	Applications Number
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				Cotton Rental Share Twenty-Five Percent						
A_3	22	22	360	360	3.97	3.84	--	1.91	4.0	2
B_3	25	23	500	360	4.73	6.74	--	.79	6.8	2
De_3	12	10	360	500	10.65	--	--	2.50	9.0	3
E_3	--	31	--	360	1.06	8.62	--	1.70	7.4	2
Fe_3	15	15	240	260	1.42	12.21	.74	2.21	4.0	2
G_2	12	12	250	300	2.05	12.42	.60	1.80	7.0	2
H_2	21	21	515	400	2.23	12.46	.65	1.96	7.0	2
Ie_4	13	13	240	960	7.44	--	.62	.91	9.0	3
L_2	21	23	120	360	11.23	--	.36	.54	2.5	1
				Cotton Rental Share Thirty-Three Percent						
M_2	29	29.2	260	470	15.17	--	.58	.87	3.5	1
				Cotton Rental Share Fifty Percent						
J_2	27	26	300	525	13.36	--	1.06	1.58	8.0	2
N_2	16	16	250	300	18.10	--	.30	.44	3.0	1

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel.

[1]A subdivision of fixed cost is given in Table IV.

Lease*	Labor Cost Per Acre Tenant Dollars	Experienced Repair Cost Per Acre Owner Dollars	Experienced Repair Cost Per Acre Tenant Dollars	Operating Cost Per Acre Irrigated Owner Dollars	Operating Cost Per Acre Irrigated Tenant Dollars	Total Fixed And Operating Cost Per Acre Irrigated Owner Percent	Total Fixed And Operating Cost Per Acre Irrigated Owner Dollars	Total Fixed And Operating Cost Per Acre Irrigated Tenant Percent	Total Fixed And Operating Cost Per Acre Irrigated Tenant Dollars
(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
				Cotton Rental Share Twenty-Five Percent					
A_3	1.14	--	1.02	--	4.07	33	3.97	67	7.91
B_3	1.28	--	.95	--	3.02	33	4.73	67	9.76
De_3	2.40	--	--	--	4.90	68	10.65	32	4.90
E_3	1.29	--	.42	--	3.41	8	1.06	92	12.03
Fe_3	1.60	1.49	--	2.23	3.81	19	3.65	81	16.02
G_2	2.42	--	--	.60	4.22	14	2.65	86	16.64
H_2	2.00	--	--	.65	3.96	15	2.88	85	16.42
Ie_4	1.85	--	--	.62	2.76	74	8.06	26	2.76
L_2	.35	--	--	.36	.89	93	11.59	7	.89
				Cotton Rental Share Thirty-Three Percent					
M_2	.87	--	--	.58	1.74	90	15.74	10	1.74
				Cotton Rental Share Fifty Percent					
J_2	1.85	2.24	--	3.30	3.43	83	16.66	17	3.43
N_2	.88	--	--	.30	1.32	93	18.40	7	1.32

*Ibid.

COUNTY, 1958. (SIXTEEN YEAR LIFE EXPECTANCY ASSUMED).

							All Fixed Costs Prorated Among Acres Irrigated Plus Other Expenses[3]					
	Irrigated Cotton		Added	Added	Added Returns		Total Added Costs				Ratio:Output/Input Owner	
	Acres	Yield	Output[1]	Value[2]	Owner	Tenant	Owner		Tenant		Output	Input
Lease*	Number	Pounds	Pounds	Dollars	Dollars	Dollars	Percent	Dollars	Percent	Dollars	Dollars	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
A_3	22	360	140	42.00	10.50	31.50	20	8.65	80	34.29	1.21	1.00
B_3	23	360	140	42.00	10.50	31.50	16	6.42	84	33.98	1.64	1.00
De_3	10	480	240	72.00	18.00	54.00	23	10.65	77	35.35	1.69	1.00
E_3	31	360	120	36.00	9.00	27.00	11	3.66	89	29.43	2.46	1.00
Fe_3	15	260	20	6.00	1.50	4.50	24	4.67	76	19.70	.32	1.00
G_2	12	300	60	18.00	4.50	13.50	11	2.65	89	21.44	1.70	1.00
H_2	21	400	160	48.00	12.00	36.00	14	6.92	86	41.33	1.73	1.00
Ie_4	13	560	320	96.00	24.00	72.00	25	10.76	75	32.86	2.23	1.00
L_2	23	360	120	36.00	9.00	27.00	50	13.39	50	13.19	.67	1.00
					33 Percent Rental							
M_2	29.2	470	230	69.00	22.77	46.23	44	15.74	56	20.14	1.45	1.00
					40 Percent Rental							
J_2	26	525	285	85.50	34.20	51.30	37	18.71	63	32.38	1.83	1.00
N_2	16	300	60	18.00	7.20	10.80	70	20.20	30	8.82	.36	1.00

*Numerical subscripts indicate the number of crops irrigated in 1958. Those with an "e" subscript used electricity as a source of fuel. Leases C_3, K_1, and O_1 did not irrigate cotton, but cotton was dryland farmed under the customary 1/4 rental.

[1]Expected dryland yields were 240 pounds of lint per acre.

[2]See Appendix Table A.

[3]Capital investments were divided by the acres irrigated in 1958. On seven leases other crops in addition to peanuts and cotton were irrigated.

Lease*	All Fixed Costs Prorated Among Acres Irrigated Plus Other Expenses[3] Ratio: Output/Input Tenant Output Dollars	Input Dollars	Only Operating and Added Expenses That Result From Irrigation[4] Expenses Owner Percent	Owner Dollars	Tenant Percent	Tenant Dollars	Ratios: Output/Input Outputs Dollars	Inputs Dollars	Outputs Dollars	Inputs Dollars
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
A_3	.92	1.00	13	4.68	87	30.45	2.30	1.00	1.00	1.00
B_3	.93	1.00	6	1.69	94	27.24	6.20	1.00	1.20	1.00
De_3	1.53	1.00	0	--	100	35.35	18.00	1.00	1.50	1.00
E_3	.92	1.00	11	2.60	89	20.81	3.50	1.00	1.30	1.00
Fe_3	.23	1.00	30	3.25	70	7.49	.50	1.00	.60	1.00
G_2	.63	1.00	6	.60	94	9.02	7.50	1.00	1.50	1.00
H_2	.87	1.00	14	4.69	86	28.87	2.60	1.00	1.20	1.00
Ie_4	2.19	1.00	9	3.32	91	32.86	7.20	1.00	2.20	1.00
L_2	2.05	1.00	14	2.16	86	13.19	4.20	1.00	2.00	1.00
				33 Percent Rental						
M_2	2.30	1.00	3	.58	97	20.14	39.30	1.00	2.30	1.00
				40 Percent Rental						
J_2	1.58	1.00	14	5.35	86	32.38	6.40	1.00	1.60	1.00
N_2	1.22	1.00	19	2.10	81	8.82	3.40	1.00	1.20	1.00

*Ibid.

[3]Capital investments were divided by the acres irrigated in 1958. On seven leases other crops in addition to peanuts and cotton were irrigated.

[4]All capital investment and related expenses such as taxes and insurance were charged to the peanut acreage. A sixteen year life expectancy was assumed.

ble amounts, although taxes decline each year, the absolute amounts ot influenced by actions and decisions of individual operators.[3] The t was a contribution somewhat lower for the supplier of investment al when the sixteen-year schedule was used, but not in proportion to hange in the number of years.

Spreading the annual fixed investment cost over sixteen years decreased elative contribution of the owner of the investment capital compared the eight-year depreciation schedule (Tables VII and IX). A reduc- in the contributions of annual investment expenses without a corres- ng change in the contributions to operating expense increased the rtion of operating and other expenses relative to the total.

The lessors who contributed 100 per cent of the annual investment al were contributing 60 per cent of all expenses for the production anuts (Table IV) The change from an eight-year depreciation schedule sixteen reduced their contributions to approximately 51 per cent le VIII). The change in the depreciation schedule from an eight-year to a sixteen-year base decreased the relative contributions of the lier of investment capital. A sixteen-year schedule did not affect proportionate share of contributions on those leases where the shares apital investments approximated the proportionate share of other nditures.

The role of the annual investment cost was more clearly demonstrated ssuming that the total irrigation investment was to be charged against

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[3]Taxes were assessed on the declining balance principle. From the gros (investment) is deducted all costs for developing, drilling, and casing well to determine the net value. The property is then depreciated 10 cent the following January 1, to establish its taxable value, and is ssed 40 per cent of this value. An additional 10 per cent is allowed 5 additional years. From this time on it is assessed at a "flat rate".

peanut acreage (Table VII, Cols. 8, 9, 16, and 18). If all fixed costs charged against the peanut acreage and the proportionate share of ating costs as well as the added costs associated with irrigation, the ributions of the owners of investment capital were increased more than change in the life expectancy of investment capital from eight years ixteen years. The ratios of added income to added expenses are also rsely affected for the owners of investment capital (Table VII, Cols. nd 25; and Table XII, Cols. 19 and 21). Where no investment expenses charged against cotton the contributions toward operating expenses disproportionately in favor of the owner of investment capital and ns to each dollar of increased costs reached $39.30 for the lessor ease M_2.

The primary objective of lease agreements is to provide an equitable ractual arrangement whereby the owners of capital, labor, and manage- can combine their resources for their mutual benefit. These leases as a general rule, accomplish this objective. That is, the lessors lessees benefited from their combined undertaking. The values of the l products were about four times their added costs. Hence, these es were mutually beneficial, but returns were not in proportion to ributions. The leases for 40 per cent or greater peanut crop rental ned the lessees more than the lessors. If the owners of the invest- capital had no other comparable opportunities to invest their capital, ning the same degree of risk, then those leases are also equitable. ver, such an assumption assumes one level of marginal productivity apital and another for labor and management, and implies a lack of ledge and immobility of factors. The differential marginal products

ore than likely the result of different degrees of risk. The lessees the 25 per cent peanut crop rentals who supplied investment capital ved a greater return than the lessors who supplied investment capital, ugh they received 40 and 50 per cent peanut crop rentals. The risk rimarily insecurity of tenure associated with tenancy.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The irrigation leases in Caddo County were adaptations of the dryland
:s. Nine of the lessors furnished all of the investment capital, five
ıe lessees supplied all the investment capital except the well, and
/o leases the lessors and lessees share about equally the investment
ıse.

The eight leases, Ie_4 to O_1, on which the entire investment capital
ıupplied by the lessors attempted to adjust contributions and the
: of returns by changing the customary dryland peanut crop rental to
ıd 50 per cent of the irrigated crop. On lease De_3 the lessor also
.ied all the investment capital, but the customary 25 per cent crop
ıl was retained and operating expenses were adjusted in an effort to
ınsate for the disproportionate share of expenditures contributed by
.essor.

The five leases, C_3, E_3, Fe_2, G_2, and H_2, on which the lessees
.ied the greater proportion of the investment capital retained the
ımary dryland rental arrangements. The lessors and lessees shared
ıperating expenses for fuel as well as the added production expenses
:ertilizers and insecticides. The lessors on these leases contributed
: 13 to 18 per cent of irrigation expenses and received 25 per cent
ıe proceeds. If the lessors had shared the increased expense for
ıt seed, these leases would have met the test for equitableness.

On leases A_3 and B_3 the lessors and lessees shared about equally the vestment expenses. On both leases the lessees supplied the distribution stems. On lease A_3 the distribution systems was equivalent in value to e well cost, and motor and pump cost. On lease B_3 the distribution syst quired a greater investment than the well, motor, and pump cost. The stomary dryland rental rate of 25 per cent was retained and the lessors ntributed 25 per cent of fertilizers, insecticides, but none of the erating expense for fuel, although the lessors owned the motors. These o leases met the tests for equitable leases. Under the eight-year preciation schedule, the lessor contributed 23 and 25 per cent, but 19 d 22 per cent when the sixteen-year depreciation schedule was used. e lower relative contributions was caused by the incident of insurance en the sixteen-year schedule was used. The lessors did not have any surance on their pumps and motors, whereas the tenants insured their stribution systems against wind damage. However, these leases were uitable leases only for peanut production. Since the lessors contribute none of the fuel expense, the lessors' rental share of cotton exceeded ntributions, and made the irrigation of cotton a profitable use of the rigation resources for the lessors. As a general rule, irrigation of tton, as it was practiced on these leases, was not profitable for the ssees with 25 per cent crop rental share agreements. The opposite isted for the lessees that supplied none of the investment capital.

The most equitable irrigation farm leases were those leases where ie lessor and lessee furnished equal proportions of the investment capit id contributed to operating expenses and other increased cost on the sam sis that they shared returns, 25 and 75 per cent, respectively. The

ssee contributed all the planting seed which was a large expense. An ternative lease arrangement would be for the lessee to furnish all the vestment capital and the lessor to contribute 25 per cent of all operat- g expenses, as well as the increased costs for seeds, fertilizers, and secticides plus 25 per cent of taxes and insurance.

Where the lessors contributed all the investment capital, their ntributions were 60 per cent or more of all expenses including seed and rvest expenses. Their shares were 40 per cent of the product. A more uitable lease would be a 50-50 share of expenses and income. However, ie contributions to the production of other crops would need to be ljusted which makes this lease agreement complex. An alternative solu- on would be to sell the lessee the distribution system and make the ease arrangement comparable to the dryland rental rates of 25 per cent the peanut and cotton crops. This could be achieved by the lessee ssuming 50 per cent of the capital investment expense, providing a atisfactory depreciation rate was agreed upon by the lessor and lessee.

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APPENDIX A

APPENDIX TABLE 1. BASIC PRICE DATA FOR 1958[1]

	Item	Unit	Kind or Ratio	Price
ıuts	Seed	Pound	Treated	$ .22
ıuts	Sacks	Each	Burlap	.15
ıuts	Hauling	Ton	Sacked	3.50
:on	Planting Seed	Pound	Treated	.125
:on	Harvesting	Hundred	Pulling	2.00
ton & nuts	Fertilizer	Pound	1-4-4	.045
			1-2-1	.041
			1-3-1	.038
			0-45-0	.04
ton & nuts	Fuel	Gallon	Liquid Petroleum	.10
	Electricity	Rated Horsepower	Standby Charge	8.00
		KWH	1 to 600	.015
			601 and Over	.01
:ces Received				
ınuts	Farmer Stock Nuts	Pound	70 Grade	.108
:ton	Lint	Pound	SM 15/16	.30

[1]Insecticide cost and fuel costs were estimated by farmers. It was sumed that cotton seed paid for ginning, bagging, and ties.

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