

**FARM RENTAL ARRANGEMENTS ON IRRIGATED
FARMS IN ARIZONA**

by

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CHAPTER I

INTRODUCTION

Private unencumbered owner-operated farms¹ long have been considered a major goal of American land tenure policy. However, for most farmers this tenure goal represents the end product of a dynamic process, the last rung on the agricultural ladder. In the process of moving up the agricultural ladder, many farm families find it expedient to use leasing arrangements as a means of obtaining additional capital to employ in their business. Moreover, with progress of the technological revolution in agriculture and the large and rapid expansion which is taking place in size of the farm business, many families find unencumbered farm ownership incompatible with living standard goals and use rented property to provide part of their capital on a more or less permanent basis.

It has been argued that normal operation of the American land tenure system calls for some sort of tenancy arrangement on between

¹ Farm is defined to include ranch throughout this thesis. Farmer is also defined to include rancher.

one-fourth and one-third of the farms in the country.¹ Thus, information on and analysis of leasing arrangements is needed to aid farmers and others who are interested in making intelligent decisions relative to production in agriculture. While considerable work has been done on tenancy in other parts of the country, only two studies, completed twenty years ago, have been made in Arizona. In 1941 Greisinger and Barr made a study of land ownership and operating tenure in the Casa Grande Valley.² Tetreau followed this investigation with a study of farm leases in Arizona in 1942.³ Both studies were largely descriptive of rental arrangements being used. They presented very little analysis to serve as a guide to equity in rental arrangements and to operating policies which facilitate conservation of resources and maximization of income.

The plan of this report is first to outline the role of tenancy in the land tenure system and, second, to present a picture of land tenure in Arizona with a comparison to the tenure picture for the United States. Such a portrayal will indicate the relative importance of tenancy in

¹ Johnston, V. Webster and Raleigh Barlowe, Land Problems and Policies, McGraw Hill Book Co., 1954, p. 276.

² Greisinger, Philip and George W. Barr, Agricultural Land Ownership and Operating Tenure in Casa Grande Valley, Univ. of Ariz. Agr. Expt. Sta. Bull. 175, Tucson, 1941.

³ Tetreau, E. D., Arizona Farm Leases, Univ. of Ariz. Agr. Expt. Sta. Bull. 179, Tucson, 1942.

Arizona and the trends which are taking place. It will also provide a background for delineating the objectives of the study and for the discussion of the data used. Requirements of a model lease are then given, following which the data are presented and analyzed in terms of this model to provide a basis for suggested improvements in leasing practices.

Relationship of Tenancy to Land Tenure

To facilitate understanding and analyzing the role of tenancy in agriculture, its relationship to the whole broad spectrum of land tenure must first be understood. Land tenure has been defined by Wehrwein as "all the relationships established among men determining their varying rights in the use of land."¹ Note that this definition embodies two concepts: (1) rights in use of land, and (2) relationships among men which both determine and result from determining and using such rights. In other words, tenure relates to the "bundle of rights" which society has accorded to land, and to the man-to-man and man-to-society relationships which arise when the "bundle of rights" is divided among different parties.² These "rights" establish the degree of managerial freedom

¹ Quoted in Webster and Barlowe, op. cit., p. 251.

² It is more accurately said that the "bundle" is composed of rights, liberties, duties, and exposures. Each "right" has a correlative "duty" and each "liberty" a correlative "exposure" all of which make up the "tenure" bundle. However, for purposes of simplicity and for lack of a better expression, the words "rights" and "responsibilities" are used throughout this discussion to mean both rights or liberties and duties or exposures.

over land use. That is, the degree of freedom of choice or action and the extent to which the one possessing this freedom (making the choices) will reap the benefits or suffer the consequences from the decisions is determined by the content of the bundle. This aspect of the relationship of tenancy to land tenure will be considered in more detail in the next section.

Government ownership of land generally means that the government involved holds the entire "bundle of rights" to the land, except insofar as others have permissive or mandatory rights in the land granted under law. With unencumbered private ownership the private (nongovernmental) land owner generally holds most of the "rights," with government retaining a minimum of four: eminent domain, taxation, police power, and escheat. However, when the private land owner mortgages his land, he transfers a portion of his "bundle of rights" to the lender, the portion transferred generally depending upon the relative amount of indebtedness involved and the relative bargaining strengths of the parties to the contract. Farmers with relatively small indebtedness and strong bargaining power transfer few of their rights to the lender, whereas those with heavy debts and little bargaining strength, such as Farmers' Home Administration borrowers, transfer a major portion of their rights to the lender. Similarly, when a private land owner rents his land he transfers a portion of his rights to the tenant, the portion depending upon the type of lease involved and its

terms. Thus, tenure can be viewed as a scale of freedom of choice with debt-free ownership at one end, having the highest degree of managerial freedom, through decreasing stages of freedom to the most restrictive types of encumbered ownership and tenancy. In other words, tenure refers to the various arrangements under which the whole or part of the "bundle of rights" society has accorded to land is held by the various interested parties. Tenancy, in turn, comprises only one part of tenure, referring to the temporary possession of land belonging to another, or the temporary sharing of the "bundle of rights" held by another.

What is included in the "bundle of rights" held by individuals in unencumbered ownership of land? The "bundle" may be outlined as follows:

1. Right to occupy the land, free from molestation.
2. Right to income produced on the land.
3. Freedom of production management.
 - a. Selection of enterprises.
 - b. Determination of inputs.
 - c. Timing of operations.
4. Freedom to exploit, abuse, or even destroy the land involved.
5. Freedom to conserve or improve the land (make investments).

6. Freedom to transfer any part or all the rights to anyone with or without compensation.
7. Liability for the risks and uncertainties to which the possessor of the "bundle" is exposed.

Sharing of Rights Involves Sharing Responsibilities

All opportunities which comprise the "bundle of rights" are correlated with certain "exposures." Freedom to choose courses of action carries with it the exposure to the results of this choice whether good or bad. The greater the area of opportunity or freedom, the greater the area of responsibility. For example, item (1) in the list of "rights" just presented, the right to occupy land, carries no specific responsibility except that which may be imposed by custom and law. On the other hand, the right to income produced (item 2) carries with it the liability for risks and uncertainties (item 7). Similarly, freedom of management, as outlined in item (3), involves carrying the associated risk and uncertainty. However, the possessor of a freedom may be able to pass the correlative responsibility to another. An example of the burden of responsibility not being entirely borne by the person enjoying the freedom is found in those situations where the government guarantees the farmer a certain minimum price without requiring compliance with regulations. The farmer has the right to whatever income is produced, but his exposure to risk is reduced.

Item (4), the freedom to exploit, abuse, or destroy the land, is a means of collecting income from the land with a minimum of inputs and without any correlative duty to conserve or improve the land. However, exercising item (4) does not exempt one from responsibility for the consequences of such action. That is, future income may be diminished or exhausted by such choices. However, the one enjoying this freedom may not suffer all its consequences. Society almost invariably suffers some of the consequences of abuse by private individuals. That is, an individual may transfer the "value" of a resource from its original state to another, say his own bank account, but society loses the resource.

Sharing of "Rights" in Tenancy

The preceding discussion has proceeded from the standpoint of private owner-operatorship. How do these "rights" and "responsibilities" differ under private tenancy arrangements? With any rental arrangement the landlord (owner) transfers part of his rights and responsibilities to the tenant (renter); however, he does not transfer all such rights. If such were the case, he would no longer be the "owner" as he would have no "rights" in the land. Some of the rights which are customarily not transferred to the tenant include the freedom to sell, give away, trade, bequeath, mortgage, grant easements on, or subdivide

the land. However, the rights and responsibilities transferred differ somewhat as between different types of leases.

Cash Leases

In a cash leasing arrangement the landlord transfers certain rights from his "bundle" to the tenant in exchange, usually, for a regular specified payment as "rent." In return, the tenant has (item 1) the right to occupy the land, and also (item 2) the right to all net income produced after the landlord's rent has been paid. In most cases, the tenant has (item 3) freedom of production management; however, this may in some cases be restricted. Under some cash leases the tenant can (item 4) exploit, abuse, or destroy the land within such limits as may be specified in the contractual arrangement. The tenant can (item 5) conserve or improve the land; however, the extent to which he will do so will depend on the lease provisions, especially as to long-run security of occupancy as well as by the profitability of doing so. The cash tenant usually has greater freedom of management (item 3) than the share tenant, but he is also exposed to greater risks and uncertainties.

Share Leases

Share leasing arrangements differ from cash leasing arrangements in that less rights are usually transferred from the landlord to the tenant.

Managerial freedom (item 3) frequently is more restricted under a share lease than under a cash lease. Moreover, the tenant carries less risk and uncertainty (item 7), with a share lease than a cash lease. The freedom (item 4) to exploit, abuse, or destroy land may be enjoyed by the share tenant, but the landlord sometimes shares expenses, and management decisions are arrived at jointly which may restrict this freedom. The freedom (item 5) to conserve or improve the land is almost always transferred to the tenant; however, the right to enjoy the fruits of such investment seldom is transferred, consequently, the "right" is a hollow one under share tenancy. Unless otherwise stated, a share tenant may sublease the land the same as a cash tenant, but he has the responsibility of seeing that the landlord receives his agreed share. This involves (item 6) the freedom to transfer rights. The tenant can only transfer such rights as he has received and sometimes is restricted by the contract terms from doing even this.

The Land Tenure System in Arizona

Land Ownership

The latest statistics available, 1956 data, indicate that privately owned land accounts for about one-sixth (16.52 percent) of Arizona's 72,688,000 acres. Land in Indian reservations amounts to 26.78 percent. State and local governments own 13.65 percent of Arizona's total

land area. The federal government is the largest landowner in Arizona, owning 43 percent of the total area (Table 1).

By way of comparison, the percentage of land owned by private owners in the United States is much larger than for Arizona, the figures being 70.59 percent for the United States in 1954¹ and 16.52 percent for Arizona in 1956. Indian lands make up only 2.77 percent of United States, while the percentage of Indian land in Arizona is much higher, being 26.78 percent. The percentage of state owned land is less for the United States than for Arizona, the figures being 5.2 and 13.65 percent, respectively. Likewise, the percentage of federally owned land is less for the United States than for Arizona, being 21.44 and 43.05, respectively.

Tenure Status of Farms and Farm Land²

Full owners³ operate more than half of the farms in Arizona; however, as a group they seem to be decreasing in importance. In 1950 they operated 64 percent of the farms and only 55 percent in 1959 (Table 2).

¹ The latest data available on privately owned land in the U. S. were for 1954.

² Figures for Arizona are based upon "white farm operators" to avoid the possible complicating factor of Indian reservations. In some cases an entire Indian reservation is counted as one farm in the U. S. Census.

³ A full owner is defined as one who owns all the land he operates. Land owned includes all land held under title, purchase contract, homestead law, or as one of the heirs or trustees of an undivided estate.

Table 1. The Land Ownership Pattern of Arizona and the United States, 1956.

Item	Arizona ¹		United States (48 states)	
	Thousands of Acres	Percent	Thousands of Acres	Percent
Privately owned	12,012	16.52	1,344,000 ²	70.59 ²
Indian reservation	19,457	26.78	52,800	2.77
State owned	9,927	13.65	98,800	5.20
Federally owned	31,292	43.05	408,200	21.44
Total	72,688	100.00	1,903,800	100.00

¹ Correspondence between the Department of Agricultural Economics, University of Arizona and the Arizona State Land Department, 1952 and 1956.

² U. S. Dept. of Agriculture Yearbook, Land, U. S. Gov't. Printing Office, Washington, D. C., 1958, pp. 46-48, 273. The latest data available for privately owned land in the United States were in 1954. All other data for the United States are for 1956.

Table 2. Tenure Status of Farms and Farmland in Arizona and the United States in Selected Years.

Year	Total	Numbers and Percent in the Hands of								
		Full Owners			Part Owners		All Tenants		Managers	
		No.	%	No.	%	No.	%	No.	%	
Arizona ¹										
<u>Farms</u>										
1950	9,317	5,963	64	1,957	21	1,118	12	279	3	
1954	8,650	5,363	62	2,076	24	952	11	259	3	
1959	6,785	3,732	55	1,900	28	814	12	339	5	
<u>Land in Farms (thousands of acres)</u>										
1950	20,428	3,064	15	11,848	58	817	4	4,699	23	
1954	21,241	2,549	12	14,444	68	1,062	5	3,186	15	
1959	19,251	1,155	6	13,091	68	962	5	4,043	21	
<u>Cropland Harvested (thousands of acres)</u>										
1950	807	234	29	339	42	129	16	105	13	
1954	1,028	298	29	463	45	154	15	113	11	
1959	916	220	24	430	47	119	13	147	16	
United States ²										
<u>Farms (thousands)</u>										
1950	5,382	3,068	57	807	15	1,453	27	54	1	
1954	4,783	2,726	57	861	18	1,148	24	48	1	
1959	3,708	2,113	57	816	22	742	20	37	1	
<u>Land in Farms (millions of acres)</u>										
1950	1,159	417	36	429	37	209	18	104	9	
1954	1,160	394	34	476	41	186	16	104	9	
1959	1,123	348	31	506	45	157	14	112	10	
<u>Cropland Harvested (millions of acres)</u>										
1950	334	120	36	124	37	60	18	30	9	
1954	334	114	34	137	41	53	16	30	9	
1959	314	85	27	141	45	66	21	22	7	

¹ U. S. Bureau of the Census, U. S. Census of Agriculture: 1959, Vol. I, Counties, Part 43 Arizona, U. S. Government Printing Office, Washington, D. C., 1961, p. 6. All white farm operators.

² U. S. Bureau of the Census, U. S. Census of Agriculture: 1959, unpublished data.

Despite this high percentage, full owners operate only a small proportion of the land in farms. It is down from 15 percent in 1950 to 6 percent in 1959. From the standpoint of cropland harvested, they are somewhat more important, but seem to be decreasing in importance in this category also. Although Table 2 does not show 1940 data, full owners operated 31 percent of cropland harvested for that period.

Part owners¹ make up the most important group of farm operators in Arizona. From 1950 to 1959 the proportion of farms operated by this group rose from 21 to 28 percent. The importance of this group is brought out more fully by examining the tenure status of total land in farms and total cropland harvested as given in Table 2. In 1950 part owners operated 58 percent of the land in farms. By 1959 this figure had risen to 68 percent. Cropland harvested rose from 42 to 47 percent during this same period.

Tenancy is somewhat less important in Arizona. Only about 12 percent of the farms are in this group. This figure was up to 20 percent in 1940, although not shown in the table. Tenants² operate only about 5 percent of the total land in farms in the state, and the percentage of cropland harvested decreased from 16 percent in 1950 to 13 percent in 1959.

¹ A part owner is defined as one who owns part of the land he operates. and rents part from others. The definition of owned land is the same as that given in footnote 3, p. 10.

² A tenant is defined as one who rents all the land he operates.

Although managers¹ operated only about 5 percent of the total farms in Arizona in 1959, they operated 21 percent of the total farmland and 16 percent of the cropland. The proportions were about the same in 1950 but somewhat lower in 1954. Figures for 1954 are lower than for both 1950 and 1959 (Table 2).

For the United States as a whole the picture is somewhat different than in Arizona (Table 2). Farms operated by full owners comprised 57 percent of the total throughout the 1950's. This differs only slightly from the 1959 figure for Arizona. However, there is a big difference in percentage of farmland operated by full owners. In 1959, 31 percent of all farmland in the United States was operated by full owners, as compared to 6 percent for Arizona. However, the percentage of cropland harvested is only slightly greater for the United States than for Arizona being 27 percent compared with 24 percent in 1959.

Part owners are somewhat more important as a group in Arizona than in the United States. The proportion of all farmers which are part owners has been increasing in both cases with Arizona staying about 6 percentage points ahead of the United States during the decade of the 1950's. The proportion of all land in farms operated by part owners is relatively larger for Arizona than for the United States, the percentages being 68 and 45 percent, respectively, in 1959. A similar

¹ A manager is defined as one who operates a farm for someone else on a salary basis.

relationship holds for cropland harvested; however, the difference is relatively small. In 1959 part owners harvested 47 percent of the total cropland harvested in Arizona compared with 45 percent for the United States.

Tenancy is much less important in Arizona than in the United States as a whole. In 1959, 12 percent of the farms in Arizona were tenant operated compared with 20 percent for the United States. It is noteworthy, however, that the proportion of tenant operated farms in the United States declined from 27 percent in 1950 to 20 percent in 1959, whereas the percentage in Arizona remained constant. In 1959 the percentage of land operated by tenants in Arizona was 5 percent while the corresponding figure for the United States was 14 percent. Similarly, the proportion of cropland harvested by tenants in Arizona in 1959 was 13 percent as compared to 21 percent for the United States.

Managers are less important in the United States than in Arizona. From 1950 to 1959 only one percent of all farms in the United States was operated by managers, while the percentage for Arizona during the same period increased from 3 to 5 percent. In 1959, 10 percent of the land in farms in the United States was operated by managers compared to 21 percent in Arizona. For the same period the percentage of cropland harvested by managers in the United States was 7 percent as compared to 16 percent for Arizona.

Types of Leases

Cash leases are the most common type in Arizona, accounting for 54 percent of all "white operator" leases in 1959 (Table 3). Data for "white operators" were used for Arizona to avoid the possible complicating factor of Indian reservations, some of which are counted as single farms in the United States Census. Crop-share leases were quite important, rising from 24 percent of the total in 1950 to 28 percent in 1954; however, in 1959 they accounted for only 11 percent of the total. Livestock-share and share-cash leases are relatively unimportant in the state, accounting in 1959 for only 3 and 6 percent, respectively, of the total. Leases in the "Other" classification accounted for 26 percent of the total in 1959. This category includes all types of flexible leases and others which are unspecified.

Cash leases are considerably more important in Arizona than in the United States (Table 3), whereas 54 percent of Arizona leases were cash leases in 1959, only 15 percent of the United States' total were of this type. On the other hand, all other types of leases were less important in Arizona in 1959 than in the United States. Crop-share leases comprised 11 percent of the total in Arizona and 27 percent in the United States. Livestock-share leases accounted for only 3 percent of all leases in Arizona compared with 12 percent for the United States. The combination share-cash lease also was more widely used in the

Table 3. Types of Tenants in Arizona and the United States, by Percent.

Year	Cash	Share-cash	Crop-share	Live-stock Share	Other	All
<u>Arizona</u> ¹						
1950	41.7	4.6	23.8	4.8	25.1	100
1954	42.6	5.8	28.1	2.7	20.8	100
1959	53.8	5.6	11.1	2.9	26.6	100
<u>United States</u> ²						
1950	14.8	13.3	29.1	8.0	34.8	100
1954	13.9	14.2	28.5	9.4	34.0	100
1959	14.6	18.0	27.3	11.7	28.4	100

¹ U. S. Bureau of the Census, U. S. Census of Agriculture: 1959, Vol. I, Counties, Part 43, Arizona, U. S. Government Printing Office, Washington, D. C., 1961, p. 6.

² U. S. Bureau of the Census, U. S. Census of Agriculture, 1959, unpublished data.

United States, accounting for 18 percent of the total compared with 6 percent for Arizona. Twenty-eight percent of the leases in the United States were in the "Other" classification in 1959. This figure includes share-cropping, a form of tenancy used in the South where the landlord furnishes all resources and the tenant receives a share of the crop in payment for his labor.

Size of Farm by Tenure

On the average, Arizona farms are relatively large. The average for "white operator" farms in 1959 was 2,837 acres. Part owners operated the largest farms, averaging 6,948 acres, and full owners the smallest, averaging 311 acres. Tenants also operate large farms, with the average for all tenants being 1,196 acres in 1959. Sizes of farms for the other types of tenants are given in Table 4 also.

The average farm in the United States was 303 acres in 1959 which was considerably smaller than the average for Arizona of 2,837 acres (Table 4). Average acres of farmland for every tenure group was larger for Arizona than for the United States as a whole. The greatest difference, however, was in the part owner group. The average for the United States in 1959 was 409 acres as compared to 6,948 acres for Arizona. The average acreage of all tenants in Arizona is about seven times that of the United States, being 1,196 and 161 acres, respectively.

Table 4. Average Acres Per Farm in Arizona and the United States, 1959.

Item	All Farms	Full Owners	Part Owners	Tenants, by Type of Lease				
				All	Cash	Crop-share	Share-cash	Other
-----Acres-----								
<u>Arizona</u> ¹								
All land in farms	2,837	311	6,948	1,196	1,403	588	520	1,177
Cropland harvested	135	60	229	140	128	260	311	85
<u>United States</u> ²								
All land in farms	303	261	409	161	267	148	221	134
Cropland harvested	98	56	168	114	79	124	194	77

¹ U. S. Bureau of the Census, U. S. Census of Agriculture: 1959, Vol. I, Counties, Part 43, Arizona, U. S. Government Printing Office, Washington, D. C., 1961, p. 6. Arizona state figures are based upon "white farm operators" to avoid the possible complicating factor of Indian reservations in size computations. Only 388 nonwhite operators are listed in the 1959 Census for Arizona. The average cropland acreages for these is 196 compared with 135 for the 6,785 white operators.

² U. S. Bureau of the Census, U. S. Census of Agriculture, 1959, unpublished data.

By type of tenant, the greatest difference is in the cash tenant and "other" tenant groups. The cash tenant in the United States farms an average of 267 acres as compared to 1,403 acres in Arizona. "Other" tenants in the United States farm an average of 134 acres while the average in Arizona is 1,177 acres.

The average acres of cropland harvested is also larger for Arizona than for the United States in all tenure groups; however, the differential is not so great as with total farm acres. This may be partially explained by the fact that Arizona ranches, which are included in the farm acreage data, are quite large and, hence, raise the average of all land but contain little cropland. In 1959 the average acres of cropland harvested by all farm operators in Arizona was 135 acres as compared to 98 acres for the United States. Full owners harvested an average of 60 acres in Arizona and 56 acres in the United States. The greatest difference was found in part owner farms. Arizona part owners harvested 229 acres on the average as compared to 168 acres for the United States. The average for all tenants in Arizona was 140 acres and the average for the United States was 114 acres. Tenant-wise, the greatest difference was in the crop-share and cash tenant groups. In Arizona the crop-share tenant harvested an average of 260 acres while the figure for the United States was 124 acres. The cash tenant in Arizona harvested an average of 128 acres as compared to

79 acres for the United States as a whole. The averages for the other types of tenants were also greater in Arizona than in the United States as a whole as can be seen in Table 4.

Objectives of This Study

The problem in farm tenancy is essentially one of determining the allocation of rights and responsibilities of farm operatorship between landlord and tenant in order to attain some desired end. It involves the contribution of management and the supplying of capital and labor as well as the sharing of risk and income. The problems arising from the distribution of these rights and responsibilities make tenancy a complex institution within the tenure system.

The over-all objective of this study was to investigate leasing arrangements commonly used in renting irrigated farms in Arizona and their effect on farm organization and operation. However, data were not available for all irrigated areas and types of irrigated farms in the state; and it was not possible to do the field work necessary to provide the needed data. Thus, empirical phases of the study were limited to farms having cotton allotments in Cochise, Graham, Maricopa, Pinal, and Yuma Counties. These counties include the major part of the irrigated land in the state.

Within this over-all framework, specific objectives of the study are: (1) to outline characteristics of a model lease, including economic

and other characteristics necessary for profit maximization and a harmonious relationship between landlord and tenant; (2) to portray current leasing practices on irrigated farms in the designated counties, including types of leases used, length of lease period, amount of rent paid, and other lease provisions; (3) to analyze current leasing practices in light of characteristics of the model lease to determine if there are any weaknesses in common leasing practices that cause or can cause inefficient farm organization and operation, or cause discord between landlord and tenant; and (4) to outline changes in current leasing practices which would improve the situation.

Data Used in the Study

Data from 169 leases for the crop year 1961 were used in analysis of farm rental arrangements in this study. The number of leases in each of the five counties for which data were available was as follows:

<u>County</u>	<u>Number of Leases</u>
Cochise	27
Graham	23
Maricopa	56
Pinal	33
Yuma	<u>30</u>
Total	169

Information on most of these leases was available in the Agricultural Economics Department, University of Arizona, which had obtained lease data from County Agricultural Stabilization Committee (ASC) office records maintained in connection with the cotton allotment program. Some supplemental information on farm and cropland acres for each of the leases was obtained directly from the ASC offices in the spring of 1962. Since the number of leases available from the ASC office records was relatively small for Graham and Cochise Counties, information on a few additional leases was obtained from financial institutions and by farm interviews.

It should be recognized that the leases used in this study do not constitute a random sample. Moreover, the number of cases is relatively small compared with the number of tenant and part owner operated farms reported in the United States Census. This is due partly to the fact that the ASC offices do not require a copy of each lease agreement. A copy of a lease contract may be requested if there is some question concerning the lease arrangement. Also, copies of leases are required when a tenant or a part owner requests that all or part of the farmland he operates be combined into one unit as far as cotton allotment records are concerned. But, if the farm operator requesting "combination" is well known to the ASC office personnel, a copy of the leasing agreement(s) may not be required. Thus, in a county with a relatively small number of farms, only a few lease contracts may be

filed with the ASC office since all or most of the farm operators may be known personally by the ASC office personnel. On the other hand, a county with a relatively large number of farms may have a proportionately larger number of lease contracts on file since the office personnel may be acquainted with only a small portion of the farm operators.

Hence, except where the lease information was obtained by farm interview and from financial institutions, many of the leases used in this study likely represent operators who operate more than one tract of land and have requested "combination." Moreover, these operators are probably not too well known by the ASC office personnel or some aspect of their leasing arrangement(s) has been questioned. Although many of the leases used in this study may represent this particular segment of farm operators, there is no reason to believe that the leasing arrangements differ materially from those which were not filed with the ASC offices. While these conditions constitute definite limitations, it is believed that the data are adequate to provide fairly reliable information on some types of leases. The number of cases in some categories was large enough to provide fairly stable samples considering the degree of uniformity which prevailed in the data.

CHAPTER II

CHARACTERISTICS OF A MODEL LEASE

To facilitate analysis of current leasing arrangements, characteristics of a model lease¹ are outlined. The test of a lease is in its effect upon efficiency and production and upon the relationships between landlord and tenant. Anything less than the efficiency and production achieved under owner-operatorship would denote an imperfect leasing arrangement. Full accord between landlord and tenant may not always be feasible, but a lease should contain provisions which will minimize landlord-tenant misunderstandings and discord. An economic model is presented first to indicate the economic characteristics which a lease should include. It is based upon two assumptions: First, that the economic setting within which the leasing system operates is competition, except for imperfections growing out of the leasing system; and second, that the pricing system is an appropriate means for expression of consumer preference and hence for allocation of resources in the most

¹ Model lease, as used here, is a leasing arrangement which allows meeting of necessary conditions for profit maximization for the firm equivalent to owner-operatorship and which encourages a harmonious relationship between landlord and tenant.

efficient manner. Following presentation of the economic factors of the model lease, other lease characteristics are outlined which other studies have shown will facilitate harmony and minimize discord in landlord-tenant relationships.

Economic Characteristics of a Model Lease

Maximum profit may be attained by the firm only if it has reached equilibrium. Given that, in our society, equilibrium under conditions of owner-operatorship is taken as ideal; the owner-operated farm firm, acting rationally with respect to maximization of profits from resources it controls, is an appropriate tool for evaluation of leasing systems. A model lease, therefore, from an economic point of view, is one which will permit the firm's achieving equilibrium on rented farms the same as on owner-operated farms. That is, equilibrium achieved by the tenant-firm should be optimum for the landlord-firm also and hence for the farm firm as a whole. A lease is thus imperfect if it hinders allocation of resources as necessary to maximize profits for the farm firm as a whole.

Necessary Conditions for Profit Maximization of a Firm

Three conditions necessary for firm equilibrium and profit maximization are as follows:

1. A combination of enterprises which will equate marginal returns on resources used in each.
2. Application of factors of production such that the ratio of their marginal productivities is equal to the ratio of their prices.
3. A scale of operations which equates marginal costs and returns at a level consistent with normal uncertainties of production and of the market.

These conditions are attainable under leasing arrangements only if certain requirements are met. In the following sections the lease provisions necessary to allow meeting of these three conditions are outlined.

Share Lease Requirements Necessary for Profit Maximization

(1) Direct variable costs must be shared on the same proportionate basis as returns. Direct variable costs, which are of greatest significance here, are costs of factors of production such as fertilizer, insecticide, water, etc., whose "productive life" is limited to the life of the lease contract, and which when varied have a significant effect on quantity of output. If a crop is to be shared on a 50-50 basis, direct variable costs must also be shared on a 50-50 basis. Any other sharing of direct variable costs may cause inefficient production and less than maximum profit for the farm firm. In turn, society may suffer through inefficient resource use and less than maximum product.

Assume, for example, a certain factor input costs \$8 and produces a marginal return of \$10. The owner-operator could profitably operate at this point and expand production somewhat since marginal returns exceed marginal costs. With a 50-50 sharing of both costs and returns, the landlord and tenant could both profitably operate at this point and profitably expand production the same as the owner-operator, since in each case marginal returns exceed marginal costs.

Now assume that returns are shared on a 50-50 basis but that the entire cost of the factor is paid by the tenant. The tenant's marginal return for the factor input is \$5 and his marginal cost is \$8, making use of the factor unprofitable at that level of production. Under such circumstances, for maximum profits the tenant would want to reduce the amount of the factor used to the point where his marginal returns would cover his factor costs. The landlord, on the other hand, having no marginal costs for the factor, would want to expand its use beyond the firm's optimum to the point where production was at the physical maximum. Thus, a situation would be created where the landlord and tenant would disagree on the amount of the factor which should be used.

If the tenant's view prevailed, production of the firm would be inefficient since less than the optimum quantity of the factor would be combined with other variable and fixed factors in the production process. Also, the combination of enterprises may be affected by the shift in combination of resources. For example, if the factor involved

in the cost sharing were fertilizer, a relative reduction in its use may change the profitability of cotton and grain crops relative to alfalfa, with the result that relatively more alfalfa may be produced on the farm than if it were owner-operated. Moreover, since less than the firm's optimum amount of the factor would be used the scale of operations would be restricted even though the acreage of the farm remained constant. In turn, this would restrict the volume of product produced for society and the combined landlord-tenant income as compared to the owner-operatorship or firm maximization ideal.

If the landlord's view prevailed to the degree that use of the factor exceeded the optimum amount for the firm, inefficient use of resources would occur since more of the factor would be combined with other factors in production than would be justified by production and economic relationships. This, in turn, may affect the combination of enterprises and may result in expanding the scale of operations beyond the firm's optimum. And, of course, the landlord would profit at the expense of the tenant, although, here too, their combined returns would be less than under firm maximization. Even if the landlord's view prevailed to the degree that use of the factor reached optimum for the firm, he would profit at the expense of the tenant if direct variable costs were not shared on the same basis as returns.

If the returns were shared on a 50-50 basis and the landlord rather than the tenant paid all the costs of the factor, the same analysis

would apply. Only the tenant would benefit at the expense of the landlord, and their combined incomes would be below that possible under "unified management."

Equal sharing of returns and costs is pertinent, particularly in the case of those costs which can be varied whose productive life equates with the life of the lease, or which it would pay to vary, significantly in the production process. Not all variable costs fall in this category. For example, seed bed preparation and the amount of seed per acre might be slightly less than optimum where the tenant pays all the associated costs, but these are basic inputs which must be applied to grow a crop. There is not much opportunity to reduce such costs if a crop is to be produced. Absence of the lease provision for equal sharing of direct variable costs and returns likely does not affect the operator's decision with regard to defoliating or purchasing hail insurance. Likewise, harvesting and ginning operations will not be affected by absence of the provision. However, inputs such as fertilizer, water, insecticides, deep plowing, and number of cultivations can be varied in production of a crop. If costs for such inputs are not shared on the same proportionate basis as income, the party paying costs in greater proportion than returns received will likely reduce the amount of the factor employed to less than the optimum because his marginal costs and returns will be equated at a lower level of input.

(2) The shares of competitive enterprises must be the same.

Two enterprises are competitive in the use of resources if the output of one can be increased only through a decrease in production of the other. If two competing enterprises are shared on an equal basis, both landlord and tenant will have the same incentive in enterprise choice. The lease will not inhibit a combination of enterprises which will equate marginal returns on resources used in each the same as with an owner-operator. To illustrate, suppose that costs and returns of enterprise A are shared on a 50-50 basis. A net return of \$30 per acre is expected so each party would receive \$15. Now suppose that costs and returns of enterprise B are also shared on a 50-50 basis and that the net returns expected amount to \$40 per acre. Each party will have a net return of \$20 per acre. Since both parties receive a larger net return from enterprise B, both will have the same enterprise preference.

To show what might happen if returns from these two enterprises are not shared on the same basis, let the net returns to each party from enterprise A be the same as in the previous example--\$15. Let costs and returns of enterprise B, however, be shared on a 1/4-3/4 basis with total net returns remaining at \$40 per acre. The landlord would receive \$10 and the tenant \$30. Thus, the landlord's share of \$15 from enterprise A is greater than his return of \$10 from enterprise B, so he favors enterprise A. The tenant, however, favors enterprise B because his net returns are greater from that enterprise.

Unequal sharing of competitive enterprises may not always result in a difference of enterprise preference. For example, let enterprise A again produce a net return of \$15 to each party. Let it be assumed that costs and returns of enterprise C are shared on a 1/4-3/4 basis with a total net return of \$80 per acre. This would give the landlord a return of \$20 and the tenant a net return of \$60 per acre. Although returns from these two enterprises are shared differently, both parties would favor enterprise C over enterprise A. This is similar to the situation with cotton, grains, and alfalfa in Arizona. The returns per acre of cotton are so much greater than for the other crops that both landlord and tenant prefer to raise the maximum cotton allowed even though other competing crops may be shared on a different basis.

As the above examples illustrate, the manner in which returns from different enterprises are shared may affect enterprise preference. The party with the greatest bargaining power would likely specify enterprise choice. If the enterprise choice were not the one producing the greatest net returns to the firm, the lease would be imperfect. The firm's marginal returns on resources used in the various enterprises would not be equal, factor combinations may not be consistent with their prices, and the scale of operations may not be in harmony with maximization of returns to the firm.

(3) The prospects of returns over time, considering the normal uncertainties of production and of the market, must be the same under

the lease as they would in its absence. In other words, the allocation of resources over time within the farm firm should be the same under a lease as under conditions of owner-operatorship. Because of normal uncertainties the owner-operator may discount expected returns from resource investments. A tenant may discount future returns at a higher rate than an owner-operator due to the added uncertainties of his tenure. This may adversely affect factor combinations, enterprise combinations, and scale of operations.

Uncertainty, caused by the time span of the lease, may affect factor-factor combinations because productivities of factors which are transformed into product over a period of years may be discounted at higher rates than those of factors transformed into product during a single production period. It might be profitable from the farm firm standpoint to substitute factors that are transformed into product over a period of years for factors transformed in one or a short span of years. However, if a lease creates additional uncertainty, it may be more profitable for the tenant to employ factors which can be transformed into product over shorter periods, say one production period. Hence, uncertainty, caused by the time span of a lease, may result in less than optimum factor combinations for the farm firm. As an example, the owner-operator may increase profits over time by deep plowing every few years. This, however, may not be a profitable investment for a tenant with a short-term lease. If he has additional

capital to invest he may rent additional land rather than try to increase yields on existing acreage by deep plowing. Likewise, land leveling may be profitable to an owner-operator, but it may not be profitable to a tenant with a short-term lease.

The time span of a lease may create uncertainty to a different degree for different enterprises. If such is the case, production will be shifted from enterprises in which uncertainty is greater to those in which uncertainty is less. In other words, returns from enterprises with higher uncertainty will be discounted more than returns from enterprises with lesser uncertainty.

If the time span of the lease creates uncertainty of the same degree for each enterprise, no change in enterprise combination will result. The scale of operations will be curtailed, however, since the equation of the farm firm's marginal costs and returns would be reached at a lower scale of operations than would be if uncertainty were not so great.

Thus, as the discussion indicates, short-term leases or long-term leases subject to termination on short notice create uncertainty which may affect factor-factor-combinations, enterprise combinations, and scale of operations. This imperfection may be alleviated through (a) long-term leases, or (b) compensation for unexhausted resources. Alleviation, to a lesser degree, of this imperfection might also be possible with a provision for arbitration of differences, since the tenant

may feel that his chances of getting compensation, where not provided for, are increased. However, such a provision should not be considered as sufficient to alleviate the input imperfection. A long-term lease secures the tenant's tenure and thus enables long-run planning and investments. However, problems are involved with compensation for unexhausted resources and some discussion is necessary.

Suppose that profits over time can be increased by installing cement ditches, but the landlord is unwilling to finance the installation. The tenant may wish to do so providing the lease period is long enough for him to recover his original investment plus a reasonable return, or providing the landlord will compensate him for the unexhausted productivity of the improvement in the event that the landlord terminates the lease. The lease should contain a provision outlining the conditions under which compensation would be paid and how it would be handled. Provisions concerning compensation are needed to cover situations where the tenant takes it upon himself to make an improvement and either he or the landlord terminates the lease and situations where the tenant makes an improvement in concurrence with the landlord and either he or the landlord terminates the lease.

(4) The division of returns between landlord and tenant should be based on the product of the resources furnished by each. This provision comes into play primarily with fixed factors and provides the

base for model lease requirement (1), relative to sharing of direct variable costs and returns on the same basis. To be equitable, returns should be shared on the same proportionate basis as total costs. If this is not done, there will not only be inequity in the leasing arrangement, but the organization and operation of the farm may be affected. Unequal sharing of total costs and returns may result from one party having more bargaining power than the other, and this party may specify resource use commensurate with his own goals. This may not produce maximum profit for the farm firm as a whole.

Table 5 illustrates how the fixed contributions of landlord and tenant can be determined and thus provide an equitable basis for division of variable costs and returns. The estimated total value of each fixed asset should be determined on the basis of current market value or present usefulness for agricultural purposes. In some cases, present usefulness may be more appropriate since, in the case of land near an urban center, the current market value may be out of line with agricultural usefulness. The estimated annual cost is determined by multiplying each of these figures by an appropriate interest rate, which may well be the going interest rate for investments with similar returns and risk. These costs are then entered in the appropriate columns, according to who contributes the factor.

Table 5. Table for Estimating Rent.¹

Item of Expense	Estimated ² Total Value to the Farm	Estimated Interest Rate	Estimated Annual Cost		
			Whole Farm	Landlord's Share	Tenant's Share
	dollars	percent	dollars	dollars	dollars
FIXED EXPENSES					
<u>Fixed investment expenses</u>					
Land	500,000	6	30,000	30,000	
Tractor and truck	10,000	8	800		800
Machinery and equipment	15,000	8	1,200		1,200
Operating cash	20,000	8	1,600		1,600
Total			33,600	30,000	3,600
<u>Fixed operating expenses</u>					
Labor					
Tenant's			4,000		4,000
Unpaid family					
Landlord's					
Hired					
Management			1,000		1,000
Depreciation					
Buildings, fences, and others			100	100	
Tractor and truck			800		800
Machinery and equipment			1,400		1,400
Repairs					
Buildings, fences, and others			50	50	
Machinery and equipment			150		150

Table 5. (Continued).

Item of Expense	Estimated ²	Estimated	Estimated Annual Cost		
	Total Value to the Farm <u>dollars</u>	Interest Rate <u>percent</u>	Whole Farm <u>dollars</u>	'Landlord's' Share <u>dollars</u>	Tenant's Share <u>dollars</u>
<u>Fixed operating expenses (cont'd)</u>					
Taxes			300	300	
Real estate insurance			200	200	
Total			8,000	650	7,350
Total investment and operating expenses			41,600	30,650	10,950
Percent contributed				74%	26%

¹ U. S. Department of Agriculture, Your Crop-Share-Cash Farm Lease, Misc. Pub. No. 838, Washington, D. C., 1961, p. 4. The outline of this table was taken from this publication but modified somewhat to more nearly fit farming conditions in Arizona. Hypothetical figures were used to facilitate explanation.

² The estimated total value required here is the value of each asset to this farm as a concern and not its full market value where the latter is higher than the former due to speculative or nonagricultural values attaching to it.

Following the section on fixed investment expenses is a section on fixed operating expenses. These are costs that can be determined at the beginning of the lease year such as labor, management, depreciation, repairs, taxes, and real estate insurance.

Labor is a major fixed operating expense. While the landlord furnishes all of the land, the tenant usually commits all of his own labor, as well as family labor in some cases, to the farm business. The amount of the landlord's labor, if any, that is committed to the farm business can be determined at the beginning of the lease year. If the amount of hired labor is constant for the lease year and is known at the beginning of the year, it can be treated as a fixed operating expense. Such hired labor is fixed since it will be employed regardless of the level of production. Hired labor that may vary with the level of production should be treated as a variable expense.

Management is an important fixed operating expense. Although it is probably the most difficult expense item to estimate accurately, it is a valuable resource and should not be overlooked.

Depreciation is a fixed operating expense that must be met by the resource owner and should be figured in the conventional manner.

The annual cost for repairs and maintenance should be estimated and included in this section. It may be argued that these are variable expenses that should be determined from actual repair bills, but it generally works out best to include them in the fixed operating section.

When estimating the annual expense, only materials and necessary hired labor should be included since the landlord's and tenant's labor has already been considered.

Taxes and insurance should also be included if they have not already been included in the annual costs of property in the fixed operating expenses.

After all costs have been estimated and the total contribution of each party determined, the proportion that each contributes is then figured. This calculation shows how the variable costs should be shared and also how returns should be shared. In this hypothetical case, the landlord's share of fixed expenses is 74 per cent and the tenant's 26 per cent. All other costs and returns should be shared thusly, or in this case, a $3/4-1/4$ division would not be out of line.

Cash Lease Requirements Necessary for Profit Maximization

Cash leases, as a rule, allow more freedom of management than share leases. Rent is not a function of output of specific crops, hence the landlord may not be concerned with the "whats" and "hows" of production as he would with a share lease. Thus, the cash lease requirements necessary for profit maximization are less restrictive than are those for share leases. The first share lease requirement pertaining to sharing of costs on the same basis as returns is not needed since generally with cash leases the tenant pays all operating expenses

and receives the full product from his inputs. Hence, he can equate marginal costs and returns and thus maximize profits for himself as well as for the farm firm.

Similarly, the second requirement, related to equal sharing of returns from competitive enterprises, is not needed since rent is predetermined and does not vary with changes in enterprise combination.

The third requirement, however, which relates to returns over time, is equally pertinent for cash leases as for share leases and the reasons are similar. The underlying problem here is the short-run tenancy and consequent uncertainty. The two tenancy forms may be similar in this regard.

The fourth requirement, stating that the returns between landlord and tenant should be based on the product of the resources furnished by each, also applies to cash leases the same as for share leases. That is, total income expected should be estimated and divided between landlord and tenant on the basis of the proportional contributions of each party to total costs, including the value of risk borne. The cash rent would be the amount of income assigned to the landlord. As the rent paid to the landlord is a fixed amount that must be paid regardless of changes in production or prices, the landlord does not share risk and a cash rent should be less than a share rent with the same contributions. That is, the rent should be reduced by the value of the additional risk borne by the tenant. With a share lease the landlord shares some

of the risk since his "rent" varies with changes in production and prices. Table 5 can be used as a guide for determining cash rent as well as share rent.

Other Desirable Features of a Lease

There are a number of provisions in addition to economic considerations which should be included in a lease. Experience has shown that the provisions discussed in the following paragraphs are among the more important ones that should be considered in preparing a lease.

A Written Lease

A farm lease is an agreement between landlord and tenant concerning the operation of a farm. Many leases are nothing more than verbal agreements between landlord and tenant. Unforeseen problems may be eliminated by putting the agreement in writing. A written lease becomes a record of the agreement and, when properly signed, is a legal document which transfers certain "rights" in the farmland from the landlord to the tenant. It also outlines privileges retained by the landlord or denied the tenant. Having a written lease is a sound business practice and should not be considered as a lack of trust by either party. The lease should be signed by both parties indicating that the terms are agreeable to both, and each should have a copy.

Legal Description

Since a lease is a record, it should give the legal description of the property in question. Sometimes not all of a farm is leased out by the landlord. What better way is there to describe what land the tenant may farm and what land he may not farm? Thus, any disputes that might arise concerning the actual farm can be settled by reference to the description and agreement in the lease.

Beginning and Ending Dates

A lease should show the beginning and ending dates so the landlord will know the period for which he has rented the property and the tenant will know when and for how long he may occupy the farm. These dates vary in different parts of the country, depending upon the custom and type of farming. For a given type of farming and within a given area, all leases should begin and end on the same date. This enables tenants to move from one farm to another in time to start preparations for the coming growing season. Where beginning and ending dates vary within a given area, some farms may be unoccupied for extended periods. Also, the soil preparation may be delayed if the new tenant cannot move onto the farm until the other moves off and the dates are such that a problem might arise.

Harvest after Termination of Lease

Occasionally, because of weather or other reasons, it may be impossible for the tenant to complete the harvest before the end of the lease period. If this were to happen, and the landlord had a mind to, he could cause trouble. A clause in a lease, allowing the tenant the right to harvest after the expiration date should harvest be delayed, would protect the tenant. This grace period should be for a specified time limit and should not interfere with necessary preparations for the following crop year.

Renewal or Termination

Some leases are drawn up for specified periods but may be renewed if the tenant so desires. For example, a lease may be for a three-year period, renewable for another three-year period providing the tenant serves notice prior to the date of termination. Although there is no law in Arizona concerning this aspect of leasing, the lease should specify a time period within which this notice must be given. For example, it could stipulate that notice must be served at least 60 days prior to the date of renewal. This would allow the landlord time to find a new tenant before the new crop-year should the tenant not renew the lease. This notice should be served in writing.

Other leases are drawn up for a specified period, say a year, with a provision for automatic renewal for a specified number of years. This type of lease allows the tenant more security of tenure than a non-renewable short-term lease, although perhaps not as much as a long-term lease. In order to terminate this type of lease, or a regular long-term lease, before the given date of termination, the party doing so should serve written notice of intent prior to the renewal date or end of lease year. The latest date of serving this notice of termination should be decided upon by both parties on the basis of how much time each feels he needs to plan for the following year should the other terminate the lease. That is, the landlord would need time to look for another tenant should the tenant terminate the lease, and the tenant would need time to look for another farm should the landlord terminate the lease. It should be mentioned that termination of a long-term lease should be limited to certain specified conditions, otherwise the advantages of long-term leasing would not be enjoyed by the tenant.

Improving, Conserving, and Maintaining the Farm

It is unlikely that a tenant would care for the farm he rents as if it were his own. Some leasing arrangements are conducive to exploitation of resources by the tenant. As a means of protecting the landlord, an agreement should be reached between both parties concerning

the care of the farm. Compensation for unexhausted improvements, as discussed in requirement (3) of the model lease might well be a part of this agreement.

Accurate Records

Keeping an accurate set of records is a good business practice for any farm operator, but is especially desirable under leasing arrangements, particularly share leasing arrangements. This is important for share leases since costs and returns are shared by the landlord and tenant. Poor records may result in landlord-tenant disputes relative to sharing of costs and returns. The lease should specify that an accurate set of records be kept.

No Partnership Created

A perfect share lease approaches a partnership arrangement since costs and returns would be shared. However, most landlords and tenants do not want to create a partnership since, with such an agreement, each party is responsible for the acts of the other. To eliminate the possibility of such an interpretation a clause should be included in the lease stating that no partnership is created. In addition, the manner in which business transactions are to be carried out should be specified to make the clause fully effective.

Arbitration of Differences

It may not be possible to foresee every problem at the time a lease agreement is made. Most problems can be worked out by the landlord and tenant, but occasionally a dispute may arise that cannot be settled by the two. A provision in the lease should outline the method by which an arbitration committee would be chosen to settle such disagreements, the decision to be binding upon both parties.

CHAPTER III

CURRENT LEASING PRACTICES, ANALYSIS AND IMPLIED IMPROVEMENTS

Proportion of Cash and Crop-Share Leases

As indicated in the discussion of data used, the 169 leases which provided data for the study were from five southern Arizona counties. The number of cash and crop-share leases from each county is given in Table 6.¹ Of the total number, 54 per cent were cash leases and 46 per cent were crop-share leases. The individual counties varied somewhat from this over-all relationship. In Maricopa and Yuma Counties, 68 percent and 87 percent, respectively, were cash leases, while in Cochise and Graham Counties, 30 percent and 17 percent, respectively, were cash leases. In Pinal county, there were approximately the same number of crop-share and cash leases.

Of the 169 leases included in the study, 96 were by part owners and 73 by tenants (Table 7). For the five counties combined, part owner leases were divided about equally between cash and crop-share rental

¹ There was also a crop-share-cash lease and a flexible cash lease but since these were the only ones of their kind, they were not included in the study.

Table 6. Number and Proportion of Cash and Crop-share Leases, by County.

County	Cash Leases		Crop-share Leases		Total
	Number	% of Total	Number	% of Total	
Cochise	8	30	19	70	27
Graham	4	17	19	83	23
Maricopa	38	68	18	32	56
Pinal	16	48	17	52	33
Yuma	26	87	4	13	30
Total	92	54	77	46	169

Table 7. Types of Leases Used by Part Owners and Tenants, by County.

County	Number of Cash Leases	Number of Crop-share Leases	Total No.
<u>Part owners</u> ¹			
Cochise	4	12	16
Graham	3	14	17
Maricopa	13	9	22
Pinal	11	11	22
Yuma	18	1	19
Total	49	47	96
Percent of total	51	49	100
<u>Tenants</u> ²			
Cochise	4	7	11
Graham	1	5	6
Maricopa	25	9	34
Pinal	5	6	11
Yuma	8	3	11
Total	43	30	73
Percent of total	59	41	100

¹ A part owner is defined as one who owns part of the land he operates and rents part from others. Land owned includes all land held under title, purchase contract, homestead law, or as one of the heirs or trustees of an undivided estate.

² A tenant is defined as one who rents all the land he operates.

arrangements. This same relationship held for Pinal County, while in Maricopa County there were a few more cash than crop-share leases. In Yuma County, practically all the leases were of the cash type, while in Cochise and Graham Counties most of the leases were crop-share leases.

Cash leases were used by a larger proportion of the tenants than of the part owners. Whereas about half of the part owners used cash leases, 59 percent of the tenants used this type. The difference in type of lease used by part owners and tenants is particularly evident in Maricopa County.

Size of Tracts Rented

Tenants generally rented more cropland than part owners (Table 8). Tenants in the five counties combined rented an average of 538 acres of cropland compared with 332 acres for part owners. Only in Maricopa County was the cropland acreage rented by part owners larger than the acreage rented by tenants. In Cochise, Graham, and Pinal Counties, the cropland acreage rented by tenants substantially exceeded the acreage rented by part owners.

While part owners generally rented a smaller acreage than tenants, their total acres of cropland generally was larger because of their owned land. This relationship held true for all counties except

Table 8. Average Acres Cropland Owned and Rented by Part Owners and Rented by Tenants by County.

County	Part Owners			Tenants
	Owned	Rented	Total	
Cochise	239	223	462	367
Graham	140	166	306	439
Maricopa	129	274	403	242
Pinal	812	724	1,536	1,338
Yuma	92	272	364	306
Average all counties	283	332	614	538

Graham. In Maricopa County, total cropland acreage operated by part owners substantially exceeded the acreage operated by tenants.

As might be expected, more small than large tracts were rented (Table 9). About one-third of the tracts rented had less than 60 acres of cropland, while about 10 percent had 480 acres or more. The fact that 28 percent of the crop-share leases and 17 percent of the cash leases were in the size category of 240 acres and above may indicate that share leases are favored where larger acreages are involved.

Length of Lease Period

Most of the crop-share leases for which the lease periods were given were short-term leases (Table 10). Combined one- and two-year leases comprised 56 percent of the total. Sixteen percent of the total crop-share leases were for terms of three years, eight percent were four-year leases, 19 percent were five-year leases, and only one percent of the leases were over five years in length. Graham County was the only county which had more relatively long-term than short-term leases, with eight leases for five-year terms and six for one-year terms.

Cash Leases

As Table 10 indicates, 56 percent of the cash leases were for one-year terms. Three- and five-year leases were also important with

Table 9. Number of Leases by Acres of Cropland Rented.

County	Under 60 Acres	60-119	120-239	240-479	480 Acres and Over	Total
<u>Cash leases</u>						
Cochise	2	2	3	1	--	8
Graham	2	2	--	--	--	4
Maricopa	14	11	5	5	3	38
Pinal	5	--	5	--	6	16
Yuma	7	8	10	--	1	26
Total	30	23	23	6	10	92
Percent	33	25	25	6	11	100
<u>Crop-share leases</u>						
Cochise	1	7	5	5	1	19
Graham	8	1	3	5	2	19
Maricopa	11	1	3	2	1	18
Pinal	6	1	4	3	3	17
Yuma	--	--	4	--	--	4
Total	26	10	19	15	7	77
Percent	34	13	25	19	9	100

Table 10. Number of Leases by Length of Lease Period and by Type, by County.

County	1 Year		2 Years		3 Years		4 Years		5 Years		Over 5 Years		Total Number ¹	
	Cash	Crop Share	Cash	Crop Share	Cash	Crop Share	Cash	Crop Share	Cash	Crop Share	Cash	Crop Share	Cash	Crop Share
Cochise	5	1	2	2		4		1					7	8
Graham	3	6		1		1		1		8	1		4	17
Maricopa	24	11	4	2	8	5			2				38	18
Pinal	12	11	1	2	1			1	2	2		1	16	17
Yuma	7		1		11		1	2	5	2	1		26	4
Total	51	29	8	7	20	10	1	5	9	12	2	1	91	64
Percent of total	56	45	9	11	22	16	1	8	10	19	2	1	100	100

¹ Lease period is unknown for one cash lease and 11 share leases in Cochise county. Lease period is unknown for two share leases in Graham County. Therefore, two totals do not coincide with those of previous tables.

22 and 10 percent, respectively. Nine percent of the leases were for two-year terms. Only two percent of the leases were for terms exceeding five years.

Crop-share Lease Provisions and Appraisal in Terms of
Economic Requirements of the Model Lease

Crop-share leasing provisions relative to sharing of returns and expenses, as determined from the leases examined, are presented in outline form for each county. Included in each outline also is an appraisal of these aspects of the leases in light of model lease requirement (1), equal sharing of direct variable costs and returns. This appraisal is incorporated in the outline since there was considerable variation in arrangements for sharing returns and expenses, making it advisable to appraise each type of arrangement individually as it was presented. Much less variation occurred in the leases with respect to model lease requirements (2), (3), and (4). Therefore, appraisal in terms of these requirements is deferred until after presentation of crop-share lease data for all counties.

Another area of appraisal will be in terms of "Other Desirable Features of a Lease," as outlined in the model lease. However, since most of these features apply to both crop-share and cash leases, it is advisable to make the appraisal by combining both lease types into one group. Therefore, this appraisal will not be presented until after the

cash leases also have been appraised in terms of the economic requirements of the model lease.

Outline of Lease Provisions and Appraisal in Terms of the First Model Lease Requirement

Maricopa County

- I. In 15 of the 18 leases, one-half the crop was paid as rent.
 - A. Of these, 4 specified the landlord would pay one-half the "operating expenses." Costs included in "operating expenses" were not given.
 1. In 3 of these it was specified the landlord would also pay one-half the water costs. Seed credits were also to be shared 50-50. The acreage of cotton allotment ranged from 29 to 35 percent of the cropland, with an average of 32 percent. These leases were in the Roosevelt Irrigation District.

Appraisal: These leases meet model lease requirement (1), equal sharing of direct variable costs and returns, assuming that "operating expenses" include all direct variable costs that may be varied in the production process.
 2. The other lease specified the landlord would pay the first two acre feet of water and that tenant labor was

not to be considered as an operating cost. Of the total cropland, 44 percent was under cotton allotment. This farm was in the Salt River Irrigation Project.

Appraisal: This lease meets model lease requirement (1), equal sharing of direct variable costs and returns, providing water in excess of the first two acre feet is considered as an "operating expense."

B. In 8 of the 15 leases, the landlord paid one-half fertilizer, seed, dusting, and harvesting expenses.

1. Of these, 5 specified the landlord would pay the first two acre feet of water plus one-half the excess. Defoliating costs were also to be shared 50-50. An average of 40 percent of cropland was under cotton allotment. These leases were in the Salt River Irrigation Project.

Appraisal: These leases do not fully meet model lease requirement (1), equal sharing of direct variable costs and returns, since some direct variable costs, among which are those incurred in cultivating, are not shared. However, since most of the major direct variable costs, which can be varied significantly in the production process, are shared, the deviations from the model lease

with respect to requirement (1) are not exceedingly great.

2. In 2 of the 8 leases it was specified the landlord would also pay the first two acre feet of water plus one-half the excess and one-half the ginning costs. An average of 64 percent of cropland was under cotton allotment. These leases were in the Salt River Irrigation Project.

Appraisal: A similar appraisal applies to these leases as with the preceding five leases.

3. The other lease specified the landlord would pay one-half the water costs. Sixty-seven percent of the cropland was under cotton allotment. This lease was in the Roosevelt Water Conservation District.

Appraisal: The same appraisal applies to this lease as with the preceding seven leases.

- C. In 3 of the 15 leases, the landlord was to pay one-half the fertilizer and dusting expense.

1. Of these, 2 specified the landlord would also pay one-half the seed, harvesting, and ginning costs.

- a. One of these specified the landlord would pay the first two acre feet of water plus one-half the fourth and fifth acre feet. Thirty-five percent of the

cropland was under cotton allotment. This lease was in the Salt River Irrigation Project.

Appraisal: This lease is likely no less imperfect than the preceding ones even though the cost of the third acre foot of water is not shared, since in this farming region, the third acre foot would not likely constitute the marginal input.

- b. The other specified the landlord would pay for the first two acre feet of water. Of the total cropland, 49 percent was under cotton allotment. The irrigation district was not known.

Appraisal: This lease does not fully meet model lease requirement (1), equal sharing of direct variable costs and returns, since some direct variable costs are not shared, the more significant ones of which are water and cultivation costs.

2. The other lease specified the landlord would pay one-half the water costs. Sixty-two percent of the cropland was under cotton allotment. This lease was in the Salt River Irrigation Project.

Appraisal: This lease does not fully meet model lease requirement (1), equal sharing of direct variable costs

and returns since some direct variable costs are not shared, among which are cultivation costs.

II. In the other 3 of the 18 leases one-half net income was paid as rent.

A. In 2 of these cases, net income was determined by deducting all costs of planting, cultivation, irrigation, and harvesting from gross income. These leases were in the Roosevelt Irrigation District. An average of 32 percent of the cropland was under cotton allotment.

Appraisal: Since rent is one-half net income, the landlord automatically pays one-half the variable costs mentioned above. Therefore, these leases meet model lease requirement (1), equal sharing of direct variable costs and returns.

B. The other lease did not specify how net income was to be determined; however, it is assumed that at least all variable costs were deducted from gross income to arrive at net income. This lease was not in an irrigation district. Sixty-seven percent of the cropland was under allotment.

Appraisal: Assuming that all variable costs were deducted from gross income to determine net income, this lease meets model lease requirement (1), equal sharing of direct variable costs and returns.

Summary. As the outline indicates, the customary rent in Maricopa County, according to the 18 leases examined, was one-half the gross product, but many different arrangements were used for sharing expenses. Data indicate that the more significant direct variable costs were shared on the same basis as returns in most cases. This was the case for fertilizer, seed, dusting, and harvesting costs. Ginning costs were shared in only one-half of the cases; however, it is unlikely that sharing of ginning costs would materially affect production. A common weakness in most of the leases was the absence of a provision to share cultivating costs. Thus, the tenant may tend to reduce the number of cultivations since he must pay the entire expense involved.

Water costs were shared the same as returns in nine of the eighteen leases; however, in another six leases water in excess of two acre feet was shared the same as returns. Still another lease specified that the landlord would share the cost of the fourth and fifth acre feet of water. Hence, in 16 of the 18 leases, water costs were shared in such a manner that production should not be affected.

There is some indication that the landlord pays less expenses as the proportion of cotton allotment to total cropland increases, although there were exceptions (Table 11). Only the leases from the Salt River Irrigation Project were included in the table. Lack of knowledge of water costs in the other areas prohibit their inclusion.

Table 11. Average Per Acre Costs of Various Farming Operations in the Salt River Project Area, 1961, and the Landlord's Share of Expenses Given in the Table According to Leases Examined.

Percent Cotton Allotment of Total Cropland	Average Costs Per Acre ¹ (Total of items shown, \$122.70)								Landlord's Share	
	Water \$21	Ferti- lizer \$25.25	Seed \$3.35	Dust- ing \$22.60	Har- vesting \$25.90	Ginning, \$17.25	Haul- ing \$1.75	Defoli- ating \$5.60	Total Dollars	Per- cent of Total
	-----Landlord's Share--Fraction-----									
68	1st 2 A.ft. + 1/2 excess	1/2	1/2	1/2	1/2	1/2			59.19	48
62	1/2	1/2		1/2					34.42	28
60	1st 2 A.ft. + 1/2 excess	1/2	1/2	1/2	1/2	1/2			59.19	48
44	1st 2 A.ft. + 1/2 excess	1/2	1/2	1/2	1/2			1/2	53.37	43
44	1st 2 A.ft.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	53.37	43
43	1st 2 A.ft. + 1/2 excess	1/2	1/2	1/2	1/2			1/2	53.37	43
42	1st 2 A.ft. + 1/2 excess	1/2	1/2	1/2	1/2			1/2	53.37	43
42	1/2	1/2	1/2	1/2	1/2				49.04	40
35	1st 2 A.ft. and 1/2 4th and 5th ft.	1/2	1/2	1/2	1/2	1/2			57.16	47
23	1st 2 A.ft. + 1/2 excess	1/2	1/2	1/2	1/2			1/2	53.37	43

¹ Arizona Agriculture, 1962, Univ. of Ariz. Agr. Expt. Sta. Bull. A-21, 1962, p. 15. These are not all the costs associated with cotton farming, but only those which were mentioned in the leases.

Pinal County

I. In 13 of the 17 leases the rent was one-half "net income."

Costs which are deductible for determining net income are given below in discussion of the various cases.

A. Of these, 4 stated that "...costs of producing and harvesting...including gravity water assessments..." would be deducted from gross income in order to determine net income. An average of 68 percent of cropland was under cotton allotment. These leases were in the San Carlos Irrigation Project.

Appraisal: These leases meet model lease requirement (1), equal sharing of direct variable costs and returns.

B. One specified that net income would be determined by deducting "growing, planting, water, insecticide, fertilizer, hail insurance, picking, hauling, and ginning costs."

Thirty-seven percent of the cropland was under cotton allotment. This farm was not in an irrigation project.

Appraisal: This lease meets model lease requirement (1), equal sharing of direct variable costs and returns.

C. In 2 of the 13 leases net income was determined by deducting pump insurance, water, fertilizer, seed, dusting, and harvesting costs. One of these stated that pump repairs were also deductible. The proportion of cropland under

cotton allotment for each of these leases was 38 percent. Both were in the San Carlos Irrigation Project.

Appraisal: These leases do not fully meet model lease requirement (1), equal sharing of direct variable costs and returns, since some direct variable costs are not shared, among which are cultivation costs.

- D. In one lease net income was determined by deducting "production costs including, but not limited to land preparations, seed, fertilizers, insecticides, labor, insurance, water cost, maintenance of farm equipment, hauling, processing and ginning." It was further specified that the landlord "...shall aid and assist lessee in the actual repair and maintenance of pumps, pumping plants, machinery and equipment, inclusive of materials, without additional cost to lessee." Forty-three percent of the cropland was under cotton allotment. This farm was in the San Carlos Irrigation Project.

Appraisal: Assuming that "production costs" include cultivation, and other direct variable costs not mentioned, this lease meets model lease requirement (1), equal sharing of direct variable costs and returns.

- E. In 2 leases "producing and harvesting costs" were deducted to determine net income.

Appraisal: These meet model lease requirement (1), equal sharing of direct variable costs and returns, assuming that all direct variable costs that can be varied in the production process are included in "producing and harvesting costs."

1. One lease specified all above-ground pump repairs would be shared 50-50. For alfalfa, the landlord would furnish seed plus one-half water, dusting, and fertilizer expense. Fifty-six percent of the cropland was under cotton allotment. This farm was in the San Carlos Irrigation Project.
 2. The other lease was not in an irrigation project. Of the total cropland, 45 percent was under cotton allotment.
- F. In one lease net income was determined by deducting "all costs of production" including real estate taxes. Of the total cropland, 27 percent was under cotton allotment and 7 percent was under wheat allotment. The farm was not in an irrigation district.

Appraisal: This lease meets model lease requirement (1), equal sharing of direct variable costs and returns.

- G. One lease specified net income from all crops would be determined by deducting "costs of production, marketing, and harvesting of crops." The tenant could charge the custom picking rate if he used his own picker. Nine percent of the cropland

was under cotton allotment and six percent was under wheat allotment. This farm was not in an irrigation project.

Appraisal: This lease meets model lease requirement (1), equal sharing of direct variable costs and returns.

- H. One lease provided for "costs of planting, irrigation, cultivation, and harvesting" to be deducted for determining net income. Forty-five percent of the cropland was under cotton allotment. This farm was not in an irrigation project.

Appraisal: This lease meets model lease requirement (1), equal sharing of direct variable costs and returns.

- II. In 3 of the 17 leases, rent was one-fourth gross income.

- A. One lease also specified the landlord would get one-fourth of the cotton seed credits. The landlord was to pay one-fourth of the fertilizer and insecticide plus the costs of application. The tenant was to pay the first \$100 on above-ground pump repairs. Thirty-five percent of the cropland was under cotton allotment. This farm was not in an irrigation district.

Appraisal: This lease does not fully meet model lease requirement (1), equal sharing of direct variable costs

and returns, since some direct variable costs are not shared, among which are water and cultivation costs.

- B. Another lease specified the landlord would pay real estate taxes; the first two acre feet of water; pump repairs, except those resulting from negligence on the part of the tenant; one-fourth alfalfa and clover seed; and one-fourth fertilizer and dusting costs of same. Of the total cropland, 44 percent was under cotton allotment and 9 percent was under wheat allotment. This farm was in the San Carlos Irrigation Project.

Appraisal: A similar appraisal applies to this lease as with the preceding one.

- C. One lease specified one-half of all crops to be paid as rent, and the landlord was to pay one-half the water costs. Twenty-seven percent of the cropland was under cotton allotment. This farm was not in an irrigation project.

Appraisal: This lease does not meet model lease requirement (1), equal sharing of direct variable costs and returns, since some direct variable costs are not shared, among which are fertilizer, insecticide, and cultivation costs.

- III. In one lease, "one-fifth of all crops less ginning expense" was to be paid as rent. It was specified that the tenant would pay the water costs. Fifty-two percent of the cropland was under

cotton allotment. The farm was not in an irrigation project.

Appraisal: This lease does not meet model lease requirement (1), equal sharing of direct variable costs and returns, since no direct variable costs are shared.

Summary. To summarize, most of the leases in Pinal County (13 out of 17) provided for one-half net income to be paid as rent. Presumably, these 13 leases would therefore meet model lease requirement (1), equal sharing of direct variable costs and returns; however, details in two of these leases lead one to question whether or not these two leases meet the requirement. That is, net income was determined by deducting various costs, but not all direct variable costs were mentioned. The other eleven leases, however, specified that net income would be determined by deducting costs of production from gross income. Some leases defined "costs of production" and some did not. In no case was depreciation on machinery and other fixed costs, except real estate taxes in one case, mentioned as costs of production. Costs of water, seed, fertilizer, insecticides, labor, insurance, maintenance on farm equipment, hauling, and ginning were mentioned as production costs in some cases, but the sharing of costs was not limited to these items. Costs of land preparation were mentioned in only one case, and cultivation costs were not mentioned; however, assuming that they were included in "costs of production," net income in all eleven cases was determined in a similar

manner. These eleven leases, therefore, meet model lease requirement (1), equal sharing of direct variable costs and returns, and thus do not hinder production as discussed in the model lease.

In the other four leases, rent was a proportion of gross income with the landlord paying a share of some of the direct variable costs; however, in none of these cases were all direct variable costs shared. Hence, none of these four leases fully meet model lease requirement (1).

There was no basis to suggest that fewer items of costs were deducted before determining net income as the proportion of cotton acreage to total cropland increased.

Cochise County

- I. In 14 of the 19 leases, rent was one-fourth gross income.
 - A. Of these, 6 specified the landlord would pay one-fourth the fertilizer and hail insurance costs. An average of forty-seven percent of cropland was under cotton allotment.

Appraisal: These leases do not meet model lease requirement (1), equal sharing of direct variable costs and returns, since some direct variable costs are not shared, among which are water, insecticide, and cultivation costs.
 - B. In 5 leases it was specified the landlord would pay one-fourth the fertilizer and dusting costs. In two of these the landlord was to pay one-fourth hail insurance costs also.

For the two leases in which the landlord was to pay a share of hail insurance costs, an average of 42 percent of the cropland was under cotton allotment. Of the total cropland in the other three leases, an average of 24 percent was under cotton allotment.

Appraisal: These leases do not fully meet model lease requirement (1), equal sharing of direct variable costs and returns, since some direct variable costs are not shared, among which are water and cultivation costs.

- C. One lease specified the tenant would pay the water costs. No other costs were mentioned. Thirty-five percent of the cropland was under cotton allotment.

Appraisal: This lease does not meet model lease requirement (1), equal sharing of direct variable costs and returns, since no direct variable costs are shared.

- D. The other lease had 24 percent of the cropland under cotton allotment. No provisions for sharing costs were given.

Appraisal: This lease does not meet model lease requirement (1), equal sharing of direct variable costs and returns, since no provisions for sharing costs were given.

- E. In one lease it was specified that one-fifth of the grain would be paid as rent in addition to the rent for cotton land. The landlord was to pay one-fourth the hail insurance on

cotton and one-fifth on grain. Twenty-two percent of the cropland was under cotton allotment.

Appraisal: This lease does not meet model lease requirement (1), equal sharing of direct variable costs and returns, since direct variable costs are not shared.

II. In 2 leases one-fifth of the crop was to be paid as rent.

A. One specified the landlord would pay one-fifth of the fertilizer, dusting, and hail insurance costs. Eighteen percent of the cropland was under cotton allotment.

Appraisal: This lease does not fully meet model lease requirement (1), equal sharing of direct variable costs and returns, since some direct variable costs are not shared. The more important costs not shared are water and cultivation costs.

B. In the other lease there were no provisions for sharing costs. Of the total cropland, 55 percent was under cotton allotment.

Appraisal: This lease does not meet model lease requirement (1), equal sharing of direct variable costs and returns, since no direct variable costs are shared.

III. In one lease one-half gross income was to be paid as rent. The tenant was to pay all "water costs" but the landlord was to pay

one-half the "operating expenses" including pump repair.

Seventeen percent of the cropland was under cotton allotment.

Appraisal: Assuming that "operating expenses" include all variable factors, the only deviation from model lease requirement (1), equal sharing of direct variable costs and returns, is that water costs are not shared.

- IV. One lease specified that rent would be one-third of the net income from cotton, one-half net income from alfalfa, and one-fourth net income from all other crops. The tenant was to pay the first \$100 toward each pump repair bill. The method of determining net income was not outlined, but it is assumed that all variable costs are deducted from gross income to arrive at net income. Of the total cropland, 25 percent was under cotton allotment.

Appraisal: This lease meets model lease requirement (1), equal sharing of direct variable costs and returns, assuming that at least all direct variable costs are to be deducted from gross income to determine net income.

- V. In one lease 29 percent of all crops was to be paid as rent. No provision for sharing costs were given. Twenty-nine percent of the cropland was under cotton allotment.

Appraisal: This lease does not meet model lease requirement

(1), equal sharing of direct variable costs and returns, since no provision for sharing costs were given.

Summary. In Cochise County, as the outline indicates, the common practice, according to the 19 leases examined, was to pay the landlord one-fourth gross income as rent. Only one lease provided for the landlord to share all direct variable costs, hence, this was the only lease which met model lease requirement (1), equal sharing of direct variable costs and returns. Fertilizer costs were shared in 12 cases and insecticide costs in four cases. Water, cultivation, and other direct variable costs were paid by the tenant in all but the one case mentioned above. Hence, in 18 of the 19 crop-share leases, production may be affected, as discussed in the model, since the leases do not meet model lease requirement (1), equal sharing of direct variable costs and returns.

Examination of the leases failed to reveal any basis for suggesting that fewer items of cost were shared as the proportion of cotton allotment to total cropland increased.

Graham County

- I. In 18 of the 19 leases, one-half gross income was to be paid as rent. "Operating" expenses were to be shared 50-50.
 - A. Of these, 10 specified that labor expense would not be shared by the landlord. Two of these specified that gas for cultivation would not be shared by the landlord. An

average of 44 percent of the cropland was under cotton allotment.

Appraisal: These leases do not fully meet model lease requirement (1), equal sharing of direct variable costs and returns, since labor in some cases and cultivation costs are not shared. "Operating" expenses presumably include all other direct variable costs.

B. In the other 8 leases, no mention was made of labor costs or gas for cultivation, but merely stated, "all operating costs will be shared 50-50." The average cotton allotment was 52 percent of total cropland.

Appraisal: These leases meet model lease requirement (1), equal sharing of direct variable costs and returns, assuming that all direct variable costs are included in "operating" costs.

II. In the other lease it was specified that one-half cotton, alfalfa, and grain would be paid as rent. All "operating costs" were to be shared 50-50. Forty-six percent of the cropland was under cotton allotment.

Appraisal: A similar appraisal applies to this lease as with the preceding eight leases.

Summary. In Graham County most of the leases (18 out of 19) provided for one-half gross income to be paid as rent. In eight of the eighteen leases it was specified that the landlord would pay one-half the "operating" expenses. Assuming that this includes all direct variable costs that can be varied in the production process, these leases meet model lease requirement (1), equal sharing of direct variable costs and returns. The other ten leases specified that all "operating" expenses except labor and cultivation costs would be shared. Since these costs are not shared, these leases do not fully meet model lease requirement (1), and production may be affected as discussed in the model lease.

The fact that the tenant paid labor and cultivation costs in some cases did not seem to be associated with any increase in the proportion of cotton allotment to total cropland.

Yuma County

- I. In 3 of the 4 leases rent was one-fourth cotton and seed credits.
The tenant paid all water costs.
 - A. In one of these cases the landlord was to pay one-fourth the ginning costs. Rent for hay and grain land was one-fifth of the crops. Of the total cropland, eight percent was under cotton allotment and six percent was under wheat allotment.

Appraisal: This lease does not meet model lease requirement (1), equal sharing of direct variable costs and returns, since no direct variable costs are shared.

- B. One lease provided for one-fourth of the hay and grain to be paid as rent in addition to rent for cotton land. The landlord was to pay one-fourth the mowing, raking, baling, hauling, and combining costs. Nine percent of the cropland was under cotton allotment.

Appraisal: A similar appraisal applies to this lease as with the preceding one.

- C. The other lease provided for one-third of the alfalfa to be paid as rent in addition to rent on cotton land. Fifteen percent of the cropland was under cotton allotment.

Appraisal: A similar appraisal applies to this lease as with the preceding leases.

- II. The other lease provided for one-fourth of gross income to be paid as rent. The tenant was to pay all "farming expenses" including pump repairs and water and power charges. Of the total cropland, 29 percent was under cotton allotment.

Appraisal: A similar appraisal applies to this lease as with the preceding leases.

Summary. As the outline indicates, each lease in Yuma County was different and the number of leases was too small to give an indication

of a common rental practice. None of the leases provided for a sharing of all of the direct variable costs associated with production, hence, none meet model lease requirement (1), equal sharing of direct variable costs and returns. In all cases, the tenant paid all water, fertilizer, insecticide, cultivation, and other direct variable costs. Thus, as was discussed in the model lease, the production process may be affected. In one case ginning costs were shared, and in another harvesting costs of alfalfa and combining costs of grain were to be shared; however, these variable costs are not those which materially affect production.

Appraisal of Crop-share Lease Provisions in Terms of Other Economic Requirements of the Model Lease

An appraisal of crop-share lease provisions relative to model lease requirement (1), equal sharing of direct variable costs and returns, was presented in the preceding outlines, together with a presentation of the lease provisions. Analysis of the leases, with respect to the other three economic requirements of the model lease, is presented in this section.

Shares of Competitive Enterprises

Of the 77 crop-share leases examined, all but four meet model lease requirement (2), equal sharing of returns from competitive enterprises. Two of these were from Yuma County and two were from Cochise County. Since the returns per acre of cotton land generally

differs so much from the returns from alfalfa and grain crops, it is doubtful that the unequal sharing in three of these cases would affect the organization and operation of the farm. The other lease, which was from Cochise County, provided for different shares of cotton, alfalfa, and grain crops to be paid as rent. Per-acre returns from alfalfa land may be near enough to returns from grain crops to affect the organization and operation of the farm in this case.

Returns Over Time

Requirement (3) of the model lease states that prospects for returns over time should be the same under conditions of a lease as in its absence. Lease provisions needed to meet this requirement are: (a) a long-term lease or (b) compensation for unexhausted resources.

Of the 64 crop-share leases for which the lease periods were given, 45 percent were one-year leases, 11 percent were two-year leases, and 16 percent were three-year leases. For four- and five-year terms there were 8 and 19 percent, respectively. Only one lease exceeded five years in length.

Only six crop-share leases provided for any sort of compensation for improvements. Actually, four of these did not provide for direct compensation, but permitted the tenant to remove any removable improvements he might construct. A five-year lease in Pinal County stated that in the event any capital improvements were necessary they

would be the responsibility of the landlord; however, if the tenant elected to pay the costs thereof, he could deduct the costs from the landlord's share of profits. A lease in Graham County stated that the tenant would be reimbursed for any "worthwhile" improvements.

Since the majority of the leases were for short terms and very few provided for compensation, only a small proportion meet model lease requirement (3), relative to prospects for returns over time. Removable improvements likely have little effect on the organization and operation of irrigated farms in Arizona, hence, this further decreases the number of leases which meet the requirement by eliminating four of the above six.

Returns and Total Resource Contributions

Requirement (4) of the model lease states that the share of income going to each party should represent the product of the resources furnished by each. Hence, it is necessary to know the contribution of fixed expenses of both landlord and tenant as well as their contribution of variable expenses. Since the leases did not give all the information needed for such an analysis, it is impossible to appraise the leases in terms of this requirement. However, due to the similarity of provisions for sharing returns, it is a reasonable assumption that this requirement was not met in all, if any, of the cases.

Cash Lease Provisions and Appraisal in Terms of
Economic Requirements of the Model Lease

Cash leasing practices, as determined from the leases examined, are presented in this section; however, since most of the type of information presented in the outlines in the crop-share lease section is not involved in cash leasing arrangements, there is much less material to present. Moreover, since cash leases do not involve sharing of returns and expenses, only economic requirements (3) and (4) of the model lease are pertinent in the appraisal of these leases. The amount of cash rent paid is summarized first, after which other provisions of the leases are presented and appraised in terms of economic requirements (3) and (4) of the model. The appraisal in terms of "Other Desirable Features of a Lease" is presented in the following section.

Rent Paid

Cash rent varied widely both among and within counties. Any average rent per acre was not very meaningful because the information upon which the rent was based was not known. Possibly the availability and cost of water had an influence on the rent paid. Also, whether or not the tenant paid the water costs might have been a factor of determination. Although some of the leases specified which party would pay the water costs, a statement concerning rent determination cannot be based on this alone.

Another rent determining procedure is based on yield potential.¹

In other words, those farms yielding three bales of cotton per acre would command a higher rent than a farm yielding only two bales per acre, all things remaining equal. Yield potential was not known, so it can only be said that this could have been a factor of determination.

Thirteen of the ninety-two cash leases stated that a specified rent per acre of cotton allotment would be charged as rent. Two of these were in Maricopa County, one at \$40 per acre of cotton allotment with 20 percent of the cropland under allotment and the other at \$65 per acre of cotton allotment with 43 percent under allotment.

Five leases in Pinal County specified a rent charge per acre of cotton allotment, and they ranged from \$50 to \$90. The lease with the lowest rent per acre of cotton allotment also had the lowest percentage of cropland under cotton allotment, being 26 percent, while the lease with the highest rent had 46 percent of the cropland under allotment. Leases with \$65, \$70, and \$75 rent per acre of cotton allotment had 41, and 48 percent, respectively, of their cropland under allotment.

Six leases in Yuma County specified a given rent per acre of cotton allotment, but the farms with the highest percentage of cropland under allotment did not command the highest rent. The lowest rent per

¹ Goldschmidt, Yaaqov, Economic Use of Limited Water and Land Resources in Cotton Production, Master of Science thesis, Dept. of Agr. Econ., Univ. of Ariz., Tucson, 1959, p. 6.

acre of cotton allotment was \$20 and only 4 percent of the cropland was under allotment, while a farm with 24 percent of cropland under cotton allotment had a rent of \$80 per acre of cotton land. A small farm of 8.5 acres, all of which was allotted to cotton, had a rent of \$35 per acre. Another farm had an allotment of 35.3 acres of cotton and 10.2 acres of peanuts, comprising 78 percent of the total cropland, and the rent was \$40 per acre for both cotton and peanut land and \$20 per acre for the balance of the cropland. The other two leases had rents of \$50 and \$24 per acre of cotton allotment with 7 and 57 percent, respectively, under allotment.

Appraisal of Cash Lease Provisions

Returns Over Time

The requirement of the model lease relative to prospects for returns over time applies equally to cash leases as to crop-share leases and the methods of overcoming the imperfections caused by uncertainty of tenure are the same; i.e., through (a) a long-term lease or (b) compensation for unexhausted resources.

The majority of the cash leases were for short terms with 56 percent being one-year leases, 9 percent two-year leases, 22 percent three-year leases, 1 percent four-year leases, and 10 percent five-year leases. Two percent of the leases were for terms exceeding five years.

Three leases specified that the tenant could remove any improvements he might make, providing there was no damage to the property. Of these leases, two were five-year leases and one of these was renewable for another five-year term. Another lease stated that if the tenant should establish a stand of alfalfa, the landlord would reimburse him for "actual expenditures of preparing and planting the alfalfa crop less any net income received by said second party (tenant) from said alfalfa crop." One five-year lease specified that the tenant could construct a maximum of 5 cement checks and "deduct the cost of materials from future rent." On this type of arrangement the tenant actually contributes only the labor for installation.

In summary, most cash leases do not contain the model lease provisions which permit prospects for returns over time the same as with owner operated farms.

Returns and Total Resource Contributions

The other requirement of the model lease pertaining to cash leases states that the share of income going to each party should represent the product of the resources furnished by each. As with the crop-share leases, it cannot be determined whether the cash leases meet this requirement, since the necessary information is not available.

Appraisal of Leases in Terms of Other Desirable Features
of the Model Lease

Since most of the "Other Desirable Features of a Lease", as presented in the model lease, apply to both crop-share and cash leases, the appraisals in this section are for both types of leases.

A Written Lease

The data for this study were taken from copies of leases obtained from County ASC offices, except in a few cases where information was obtained by farm interview, hence, most of the leases were written and thus meet this model lease requirement. This does not imply, however, that most leases in Arizona are written.

Legal Description

All written leases examined had legal descriptions of the land involved and thus meet this model lease requirement.

Beginning and Ending Dates

Beginning and ending dates were given in all the written leases except three. Thus most of the leases meet this requirement of the model lease. The three leases which did not show dates merely stated that the leases were for the 1961 crop-year. Of those leases that did specify dates, approximately 70 percent had beginning and ending dates

in January, 20 percent in February, and the remaining 10 percent were scattered throughout the year. There was no significant difference among counties with regard to the beginning and ending dates.

On most cotton farms in Arizona, January, and in some cases February, marks the ending of the production year. Hence, the majority of the leases were desirable from this standpoint, since most had beginning and ending dates in January and February.

Harvest after Termination of Lease

Of the 169 leases examined, 25 had provisions for harvesting after termination of the lease. Fourteen of these gave the tenant a "reasonable" time within which to complete the harvest. The others allowed additional time, ranging from 15 to 60 days. A lease from Pinal County allowed the tenant 15 days after termination of the lease in which to complete the harvest, after which he was to pay the landlord \$1,500 per month until harvest was completed.

The ending date of a lease with respect to harvest time is important in determining whether or not a provision for harvesting after termination of the lease should be included in the lease agreement. Most of the leases examined needed such a provision; however, only a minority provided for it.

Renewal or Termination

There were no leases which were automatically renewable, but eight of the 169 leases were renewable by serving the landlord notice of intent. Of these, one required delivery of a written notice 30 days prior to the expiration date and another required 90 days. The other leases did not specify a deadline by which the notice of renewal was to be delivered nor the method of delivery. Hence, most of the leases to which this feature was applicable were weak in this regard.

None of the leases examined, which were for terms exceeding one year, had any provisions concerning the cancellation of the lease prior to the effective date of termination. Since, under certain specified conditions, cancellation may be desirable, none of the leases which were for terms exceeding one year met this desirable feature of the model lease.

Improving, Maintaining, and Conserving the Farm

Approximately one-fourth of the leases specified that the tenant should care for the farm in a husband-like manner, fighting noxious weeds and maintaining the improvements in as good a state of repair as when he moved on the farm, natural wear and tear excepted. These also specified that the tenant should not permit any waste.

Since every farm lease should contain a provision for improving, maintaining, and conserving the farm, the majority of the leases were weak with regard to this lease feature.

Accurate Records

Of the 77 crop-share leases examined, only 6 specified that an accurate set of records should be kept, hence, this was a common weakness of most crop-share leases. No cash leases contained such a provision; however, costs are not usually shared in cash leasing arrangements and records are not needed except for the tenant's own use.

No Partnership Created

Of the 77 crop-share leases examined, only two stated that the agreement was not a partnership arrangement. Such a provision is pertinent where methods of doing business approximate partnership arrangements. Such may be the case with share leases, hence, most crop-share leases were weak in this feature. This provision is not necessary for cash leases.

Arbitration of Differences

None of the leases examined provided for arbitration of differences, hence, all 169 leases were weak with regard to this lease feature.

CHAPTER IV

SUMMARY AND APPRAISAL

Situation

Tenancy is an important part of the land tenure system. It involves the transferring of certain "rights" in the use of land from owner to user where the one who owns cannot use and the one in a position to use cannot own. The proportion of the "bundle of rights" which is transferred to the tenant establishes the degree of managerial freedom he enjoys with respect to the land. However, each "right" has a correlative responsibility which helps make up the bundle. Hence, the greater the degree of managerial freedom a tenant enjoys, the greater his responsibility or exposure to risk and uncertainty. The degree of freedom differs with different types of leasing arrangements. For example, the cash tenant usually has more freedom of management than the share tenant, but he is also exposed to more risk and uncertainty.

The problem in farm tenancy is essentially one of determining the allocation of rights and responsibilities of farm operatorship

between landlord and tenant in order to attain some desired end. Since it involves the contribution of management and the supplying of capital and labor as well as the sharing of risk and income, problems arise which make tenancy a complex institution within the tenure system.

Much of Arizona's agricultural industry is dependent upon farmers who rent all or a part of the land they farm. Census data indicate that in Arizona the percent of farms and the percent of total land in farms operated by full owners is decreasing, while the percent of farms and total land in farms operated by part owners is increasing. Not much change is noticed, however, in the percent of farms and the percent of land in farms operated by tenants. Census data for 1959 indicate that 55 percent of the farms in Arizona were operated by full owners and 28 and 12 percent, respectively, were operated by part owners and tenants. However, of the total land in farms, full owners are somewhat less important as a group, operating only 6 percent of the total acreage. Part owners, on the other hand, operate 68 percent and tenants 5 percent of the total farmland. A similar situation is noticed for the acres of cropland harvested. In 1959, full owners harvested 24 percent of the cropland harvested, while part owners harvested 45 percent. Tenants, on the other hand, are decreasing in importance as far as the percent of cropland harvested is concerned, harvesting only 13 percent of the cropland in 1959. Although full owners operate a larger percent of the number of farms than part owners and

tenants combined, the percent of cropland harvested by full owners is less than half that of the combined percentage of the other two groups. Hence, much of Arizona's cropland is operated under leasing arrangements.

Objectives

Leasing practices may cause inefficient farming practices and hence less than maximum profit for both landlord and tenant. That is, factor-factor and enterprise combinations as well as the scale of operations may be affected by the terms of a lease. Since in Arizona there is considerable farmland operated under leasing arrangements, it was deemed worthwhile to study the leasing situation. The specific objectives of this study were: (1) to outline characteristics of a model lease, including economic and other characteristics necessary for profit maximization and a harmonious relationship between landlord and tenant; (2) to portray current leasing practices on irrigated farms in selected counties; (3) to analyze current leasing practices in light of the characteristics of the model lease to determine if there are any weaknesses in common practices that might cause inefficient farm organization and operation; and (4) to outline changes in current leasing practices which would improve the situation.

Method of Study

As a standard for comparison and a guide for summarizing data, a model lease was developed. One phase of the model pertains to the economic aspects of leasing. Developed upon the basis of economic principle, the model permits profit maximization with a lease comparable to owner-operation. Four economic requirements needed for profit maximization under share leasing arrangements are as follows:

- (1) Direct variable costs and returns must be shared in the same proportion.
- (2) Returns from competitive enterprises must be shared in the same proportion.
- (3) The prospects for returns over time, considering the normal uncertainties of production and of the market, must be the same under the lease as they would in its absence.
- (4) The division of returns between landlord and tenant should be based on the product of the resource inputs furnished by each, usually considering to be met when returns and direct variable costs are shared in identical proportions to the sharing of the annual costs of fixed (nondirect, non-variable) inputs.

For cash leasing arrangements only requirements (3) and (4) are pertinent.

The other phase of the model lease pertains to other lease features which studies have shown are desirable since they facilitate decision making, farm operation, and harmony between landlord and tenant. These provisions of the model indicate that a lease should (a) be in writing, (b) show the legal description, and (c) specify the beginning and ending dates. Also, a lease should have provisions for (d) harvesting after termination of the lease, (e) improving, maintaining, and conserving the farm, (f) keeping accurate records, and (g) arbitration of differences. A lease should also (h) specify that the lease is not intended as a partnership arrangement.

The lease data were then presented and analyzed in light of the characteristics of this model lease to determine where weaknesses existed in the leasing practices and suggested improvements in leasing practices are outlined.

Findings

Analysis of leasing practices with regard to the economic requirements of the model lease revealed that there are weaknesses in some leasing arrangements in Arizona that may cause inefficient farming practices. A weakness evident in many crop-share leases was the lack of a provision for sharing direct variable costs and returns,

as discussed in model lease requirement (1). Although water, fertilizer, and insecticide costs were shared in almost all the leases from Maricopa, Pinal, and Graham Counties, cultivation costs were shared less frequently. These four costs are possibly the major direct variable costs that can be varied in the production process, hence, in these counties the major weakness lies in the fact that where the tenant pays all the cultivation costs he may tend to decrease the number of cultivations to less than the optimum. In Cochise County all direct variable costs were shared less frequently, particularly water, insecticide and cultivation costs. Where one party must pay the entire amount, the efficiency and scale of operations may be reduced to less than the optimum for the farm firm. None of the direct variable costs were shared in the few share leases available for Yuma County, hence, production may be affected as discussed in the preceding sentence.

Relative to model lease requirement (2), equal sharing of returns from competitive enterprises, all but one of the 77 crop-share leases examined met the requirement.

Model lease requirement (3), which states that the prospects for returns over time should be the same under conditions of a lease as in its absence, is applicable to both crop-share and cash leases. Since most leases were short-term in nature and only a few provided for compensation for unexhausted resources, the majority did not meet

requirement (3). Hence, efficiency and scale of operations may be less than optimum.

Applicable also to both crop-share and cash leases is model lease requirement (4), which states that the division of returns between landlord and tenant should be based on the product of resources furnished by each. The necessary information for determining whether or not the leases met this requirement was not available. There was no evidence in the leases to suggest that this requirement was being met.

Concerning the "Other Desirable Features of a Lease," as outlined in the model, some leases were desirable in some features but the general situation was one of lack of these desirable features. Due to the source of data, most of the leases examined were written, and all of these gave legal descriptions of the land. Beginning and ending dates were given in almost all the cases and came at a desirable time of the year as far as cotton production is concerned. Most leases did not, however, provide for harvesting after termination of the lease. Only a few leases had provisions for renewal of short-term leases, none of which were automatically renewable, or termination of long-term leases, under specified conditions. The majority of the leases did not outline provisions for improving, maintaining, and conserving the farm, and none provided for arbitration of differences. Other features, desirable particularly for crop-share leases, are for keeping

accurate records and stating that the lease agreement does not constitute a partnership. Only a few leases contained these provisions.

Improvements can be made in leasing practices in Arizona that may result in more efficient farming practices and better landlord-tenant relationships. Suggested areas of improvement relative to the economic requirements of the model lease involve provisions for: equal sharing of direct variable costs and returns in share leasing arrangements; long-term leases or compensation for unexhausted resources in both lease types; and division of returns or a cash payment based on the contributions of both landlord and tenant to total resource inputs. Other desirable improvements are the inclusion of provisions: for harvesting after termination of lease; for renewal of short-term leases and termination of long-term leases under specified conditions; for improving, maintaining, and conserving the farm; for keeping accurate records, particularly in share leasing arrangements; and specifying that the share lease does not constitute a partnership.

Appraisal

Two aspects of this study which are relatively weak pertain to the sample and the empirical testing of the model. Due to the source of data, the leases examined did not constitute a random sample. Only farm operators who are not well known to the ASC office personnel or whose leasing arrangements are subject to question are required to file

a copy of their lease agreement with their ASC office. Hence, there probably was a sample bias and the findings do not necessarily indicate the characteristics of the entire population. Moreover, the sample was small which also affects the reliability of the results.

The requirements of the model lease were accepted on authority from other studies as being necessary for maximization of profits to the farm firm under conditions of pure competition.¹ This does not mean that profits are maximized just for the tenant-firm or just for the landlord-firm but for the farm firm as a whole. In turn, total product is maximized for society. Various segments of the model were tested with hypothetical situations. The weakness lies in the fact that although testing of the leases against the model indicated weaknesses in some cases, the next step was not taken to determine empirically whether the leasing arrangements were actually retarding the efficiency, organization, and scale of operations.

Further research relative to leasing practices on irrigated farms is needed in Arizona to provide guides to landowners, tenants, and others interested in the subject of leasing arrangements. The research could be planned on the basis of the model developed in this thesis. An adequate random sample of tenant- and part owner-operated

¹ Heady, Earl O., "Economics of Farm Leasing Systems," Jour. of Farm Econ., Vol. XXIX, No. 3, Aug. 1947, pp. 659-678.

farms could be based upon county ASC office records since they maintain a list which shows the tenure status of all farm operators connected with the cotton allotment program. Data on leasing provisions and farm operations could then be obtained and indicated weaknesses in the leases tested empirically.

Proper recognition should be given the fact that this study was the first of its kind in Arizona. Despite the limitations of the study, it indicates that weaknesses probably exist in some leasing practices, thus suggesting the need for further research.

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