

ECONOMICS OF AGRICULTURAL
LEASING IN KANSAS

by

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A MASTER'S THESIS

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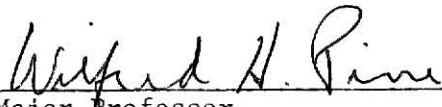
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CHAPTER I

INTRODUCTION

Preface

This study of the "Economics of Agricultural Leasing in Kansas," is the outgrowth of earlier work done by Wilfred H. Pine, Agricultural Economist, Kansas State University. Most recent works include "Kansas Farm Leasing Arrangements," in 1968,¹ and in 1970.²

This study was undertaken in an attempt to aid Kansas farm landowners and operators to develop and use satisfactory leases. Requests for help have been received directly from them and have also been received through extension personnel. A knowledge of present leasing arrangements and existing problems is needed to determine satisfactory arrangements under various circumstances.

The decision was made to survey Kansas Farm Management Association farmers rather than attempting to survey all Kansas farmers. Previous work has shown that the average Farm Management Association farmer in Kansas is above the average Kansas farmer, and choosing the FMA as the universe provided a list of farmers in Kansas to be studied. Previous surveys, the 1968 and 1970 studies mentioned above, sampled

¹Leo Figurski, Alan J. Harris, Wilfred H. Pine, and Wilton B. Thomas, Kansas Farm Leasing Arrangements (Manhattan, Kansas: Agricultural Experiment Station, Kansas State University, January, 1969).

²Alan J. Harris, Wilfred H. Pine, and Wilton B. Thomas, Kansas Farm Leasing Arrangements, Contribution No. 498 (Manhattan, Kansas: Agricultural Experiment Station, Kansas State University, November, 1972).

twelve and six counties in Kansas respectively. Some information for the 1974 leases had been obtained from Farm Management Association records. It was decided that with the funds available a questionnaire would be the best route in an effort to obtain current information on Kansas leases. This survey is of leases for the 1975 farm year.

Leasing in Kansas

Tenancy is a significant feature of American agriculture. A large portion of the nation's agricultural resources are currently employed on farms that are operating under one of various leasing arrangements. In Kansas in 1969, full owners farmed 40 percent of all farms, part-owners 41 percent, and 19 percent of all farms were tenant operated.¹ Fifty-two percent of the land in Kansas in 1969 was operated under leasing arrangements.

Of special importance in a study of leasing in Kansas is the fact that the majority of Kansas farmers are single, part-owners (single is used to mean sole-proprietor). According to 1974 Farm Management Association records, almost two out of every three Farm Management Association farmers are single, part-owners.²

The Problem

Requests for help with leasing arrangements have been received directly from Kansas farm landowners and operators. Other requests for help have been received through extension personnel.

¹U.S. Bureau of Census. Statistical Abstract of the United States, 95th Edition, Washington, D.C., 1974, p. 598.

²1974 Kansas Farm Management Association Records.

Because of the quantity of resources so controlled, the farm lease is important in considering the efficiency with which agricultural products are produced. Recognition of this fact, and knowing that rental payments have been determined by a maze of forces which in addition to competition include custom and elements of bilateral monopoly, are the major reasons why this study is thought valuable.

Although many of the aspects of leasing that are examined in this study were examined in previous studies, in this study an attempt was made to recognize changes that have taken place in leasing practices over time, and also to determine whether or not leasing arrangements respond to exogenous forces that should bring about change.

Increasing prices for agricultural products, plus many technological developments, have spurred the growth of irrigation in Kansas, as well as in other parts of the nation. Because of the increasing importance of irrigated land in Kansas (especially in the western part of the state), an effort has been made to determine some of the specific arrangements involved in leasing irrigated land. Chapter V is devoted to the leasing of irrigated land in Kansas.

Objectives

Efficient use of resources and adjustments within leases are important to society to the extent that leases contribute to the maximization of consumer satisfaction. Inefficient use of resources resulting from unsatisfactory leases could appreciably reduce agricultural output. According to a study by Reinsel and Johnson, the impact of inefficient resource use on rented land in 1964, could have

affected approximately 52.9 percent of Kansas' 50.3 million acres of farmland controlled through leases.¹ Broadly, the objective of this study is to determine whether leases governing the use of agricultural land in Kansas, provide satisfactory arrangements between participants.

More specifically, the objectives are:

- (1) to determine if existing leases are satisfactory, that is, lead to an equitable² division of the product between landlord and tenant, and an efficient³ use of resources.
- (2) to evaluate and compare this 1975 study to the 1951, 1968, and 1970 studies.

¹Robert D. Reinsel and Bruce Johnson, Farm Tenure and Cash Rents in the United States, Agricultural Economics Report No. 190 (Washington, D.C.: August, 1970), p. 18.

²Earl O. Heady, Economics of Agricultural Production and Resource Use (New York: Prentice-Hall, Inc., 1952), p. 589. "An equitable division of the product occurs when the return to any one of the resource owners is based on the marginal value productivity of the resources which the individual contributes."

³Heady, 1952, p. 590. "A test of the perfect leasing system is in its effect on the total product available to consumers. Resource and commodity prices should, in a perfect market, indicate the pattern of production and combination of resources which is most nearly consistent with a maximization of consumer satisfaction. Leasing systems should facilitate an organization of resources within the individual farm which will bring about this pattern."

CHAPTER II

REVIEW OF LITERATURE

Basic Principles

To define the principles of a "perfect lease," we must know, first of all, the type of economic environment within which we must operate. Therefore, for purposes of this analysis we will follow the usual procedure of economic analysis and assume "perfect competition." Basically this means that we are operating under the institutions of private resource ownership and markets that operate perfectly. According to Heady,¹ if we assume perfect competition, a perfect leasing system must result in "(I) the most efficient organization of resources on the farm relate to consumer demand as expressed in market prices, and (II) an equitable division of the product among the owners for the various resources employed in production."

Efficiency and Equity Criteria

The most common criterion of efficiency in leasing is total production. The most efficient agricultural production is that which provides greatest total production for consumers. "Resource and commodity prices should, in a perfect market, indicate the pattern

¹Earl O. Heady, Economics of Agricultural Production and Resource Use (New York: Prentice-Hall, Inc., 1952), p. 589.

of production and combination of resources which is most clearly consistent with a maximization of consumer satisfaction."¹ The perfect lease is one that encourages achievement of this goal of maximization of consumer satisfaction.

The equity criterion is concerned with the division of the product between the landlord and the tenant. An "equitable division of the product occurs when the return to any one of the resource owners is based on the marginal value productivity of the resources which the individual contributes."² This standard for equitable treatment is directly related to the efficiency criterion, for if a resource owner does not receive the marginal value productivity of the resources he contributes, he will be motivated to use them in ways that reduce the efficiency of the firm.

Intensity of Resource Use in the Short-Run

In leasing terms, the short-run is defined as that period of time during which there is no opportunity for the tenant to change the amount of land (landlord resources) that he rents and the landlord has no opportunity to get a different tenant. For a cash lease, the landlord typically provides only the land and buildings, and there is usually no change in the quantities of these in the short-run. Under a share lease, the landlord shares in the output, and may or may not share in the variable costs (fertilizer, herbicide, and various other possible inputs) with the tenant.

¹Heady, 1952, p. 590.

²Ibid., p. 589.

Given a certain fixed plant size in the short run, the only costs that will affect output will be variable costs (fixed costs do not vary with the level of production or yields, and therefore do not enter into marginal costs). Since optimal production will occur where marginal costs (MC) equal marginal returns (MR), any variation in MC will cause total output to change.

These principles have important implications for cash and share rents. Since cash rents enter into fixed costs (FC), in the short run, there is nothing in this type of lease that inhibits optimal production. But since share rents vary with yields, they are a function of output and therefore enter into MC.

Consider the case where the tenant bears all the variable costs, but shares the output with the landlord. In Figure II-1¹ assume that the tenant's variable costs correspond to the marginal cost curve MC_t . With this MC curve, the tenant would maximize his profits (MC=MR) at a level of output of Y_1 . If the landlord and tenant would share the costs of the inputs in the same ratio as they share the output, curve MC_b , they could produce a higher level of output (Y_2), and both could be better off. Society would also benefit from the increased output.

Intensity of Resource Use in the Long-Run

The long-run, with respect to leasing, is a period long enough to permit the tenant to change the amount of land (landlord resources) he uses either by making new arrangements with his current landlord or by renting from a different landlord. In this period the landlord also

¹Ibid., p. 597.

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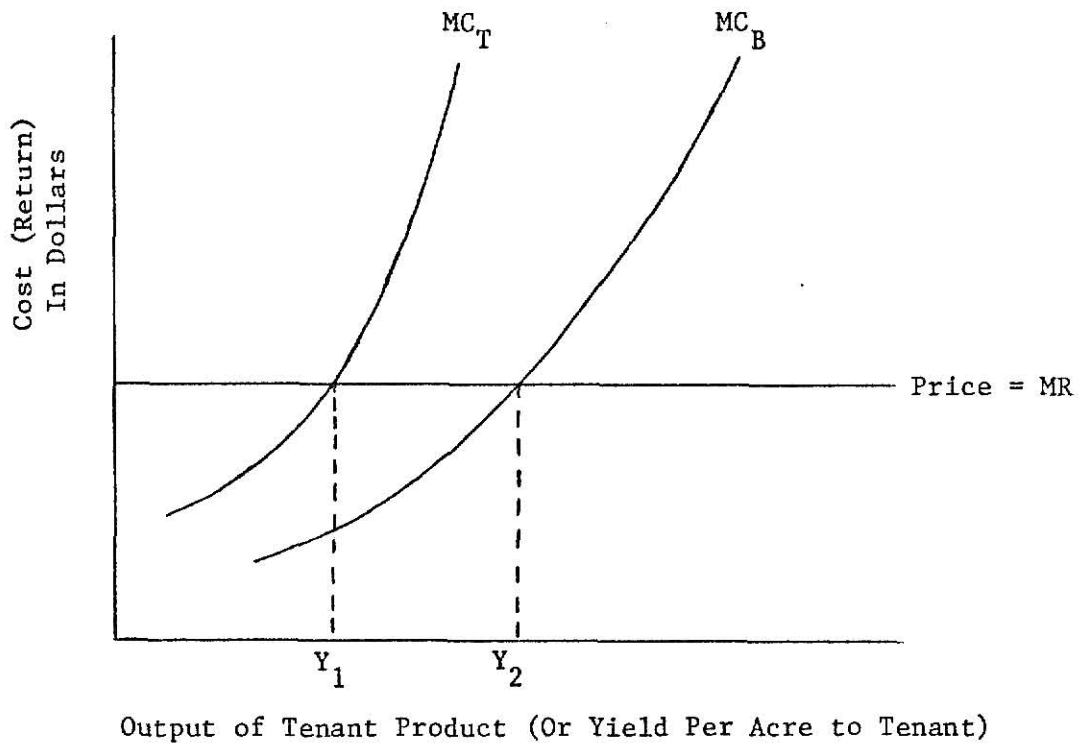


Fig. II-1. Leases and short-run intensity (tenant's incentive).

has the opportunity to change the amount of tenant resources used in conjunction with his own resources.

Even though this is the long-run, if the landlord or tenant each consider their own resources, they will probably find them relatively fixed even in this long-run period of time. The amount of land owned by the landlord is usually not varied as easily as the landlord can change tenants or tenant resources. Similarly, the tenant can probably not make substantial additions to his own labor and capital even in the long-run.

If the landlord and tenant each consider their own resources relatively fixed in this long-run period, each still has the problem of deciding how many resources he should try to obtain from the other party.

The landlord will, under a cash lease, be indifferent as to the amount of tenant resources to be combined with his resources, since his profits will be the same regardless. But under a share lease if we view the landlord as paying rent to the tenant for the use of the tenant resources, the following productivity conditions become relevant.¹

If the landlord's resources are fixed, the marginal product curves show the physical relationship upon extra output of adding tenant inputs. Curve MP is the full marginal product possible from adding tenant inputs. To maximize profits, the landlord should employ tenant resources up to the point where marginal value product of tenant resources is equal to the marginal cost of tenant resources. The tenant's two-thirds share of the total marginal value product² is, for the landlord, the marginal cost of using tenant resources. Therefore the landlord will attempt to add tenant resources (the tenant's two-thirds share of the total marginal value product) until the marginal productivity of tenant resources is zero (ox_3 in Figure II-2).

The tenant under a share or cash lease in the long-run will consider his resources to be fixed, while considering land to be variable. Figure II-3³ shows the marginal value product of land when it is varied, while holding labor (tenant resources) fixed. Under a one-third share lease, the tenant will maximize profits when the marginal value product of land is driven to zero. This would occur at ox_3 acres in the Figure II-3. But this would not be a very

¹Ibid., pp. 594-595.

²Ibid.

³Ibid., p. 597.

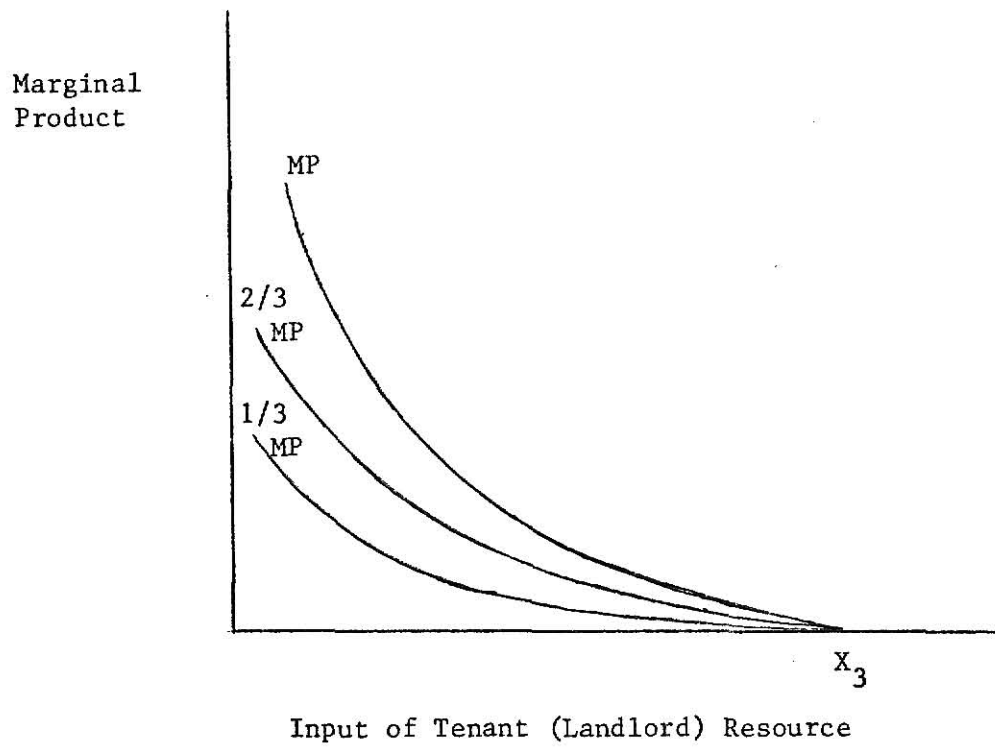


Fig. II-2. Share leases and decision-making factor-product relationships.

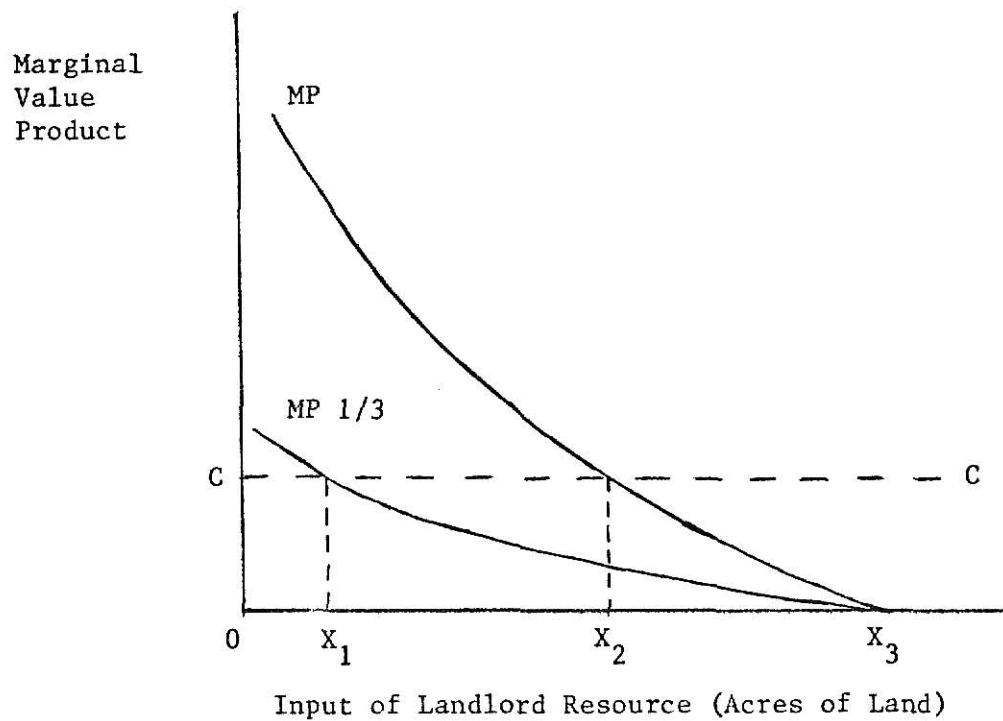


Fig. II-3. Leases and short-run intensity (landlord's incentive).

desirable arrangement from the viewpoint of the landlord. His per unit costs of land tend to be relatively constant. A line showing the cost of the marginal unit of land, to the landlord, would be a horizontal line, such as the one labeled C in Figure II-3. Since the landlord receives only $1/3$ of total production, the marginal product from his viewpoint is indicated by the $1/3$ MP line. The intersection of these two lines indicated that the landlord will have highest returns if he allows this tenant to rent only ox_1 of land.

Under the same production conditions a cash tenant will attempt to apply landlord resources up to only OX_2 acres. Since cash rent is the MC of land to the tenant, only at OX_2 units of land will $MC=MR$ for the cash tenant. The tenant will not, under a cash lease, push the marginal value product of land to zero, as he would under a share lease. Consequently, the optimum size of farm would clearly differ under the two leases.

Therefore, under a share lease the landlord would wish to expand the use of tenant resources (in conjunction with his fixed quantity of land) to the point where the marginal product of his labor and capital is zero. The tenant would want to restrict labor use to the point where $2/3$ (or whatever proportion corresponded to the tenant's share) of the marginal product had a value equal to the marginal cost of a unit of labor. The optimum amount of labor, from the view of the farm firm as a whole, would be somewhere between the tenant's choice and the landlord's choice.

This conflict generating potential of the share lease is in some respects, undesirable. Furthermore, the share-lease motivates choices by both tenant and landlord that depart from the efficient

choice of the owner-operator. Yet this imperfection is not easily overcome. According to Heady, "Perfection in this respect (with cash rental or owner operation as the benchwork of comparison) can be brought about only if both parties own some of each category of resource, the proportion depending on the share of product to be received by either. Thus perfect share leases would almost always require complete partnership arrangements."¹

Enterprise Combination in the Short-Run

Most rented farms produce more than one product and share-leases frequently call for different shares of the various products as rental payments. But leasing theory asserts that this sort of practice encourages inefficiency.

Consider a rented farm with a given amount of tenant resources, and for this illustration, let's say that there are two products produced on this farm. The rental payment on output Y_1 is one-half of production, while the rental payment on output Y_2 is one-third. The production possibilities curve ab in Figure II-4² shows the various combinations of the two products that can be produced on this farm.

Assuming that the axes in this figure carry the same scale and the price per unit is the same for the two products, the combination of Y_1 and Y_2 will provide greater returns than any other point on the ab curve. This represents most efficient production for the farm producing these two products. However, the ab curve is not the one that is relevant to the tenant's (or landlord's) decision-making

¹Ibid., p. 601.

²Ibid., p. 605, a version of Figure 9.

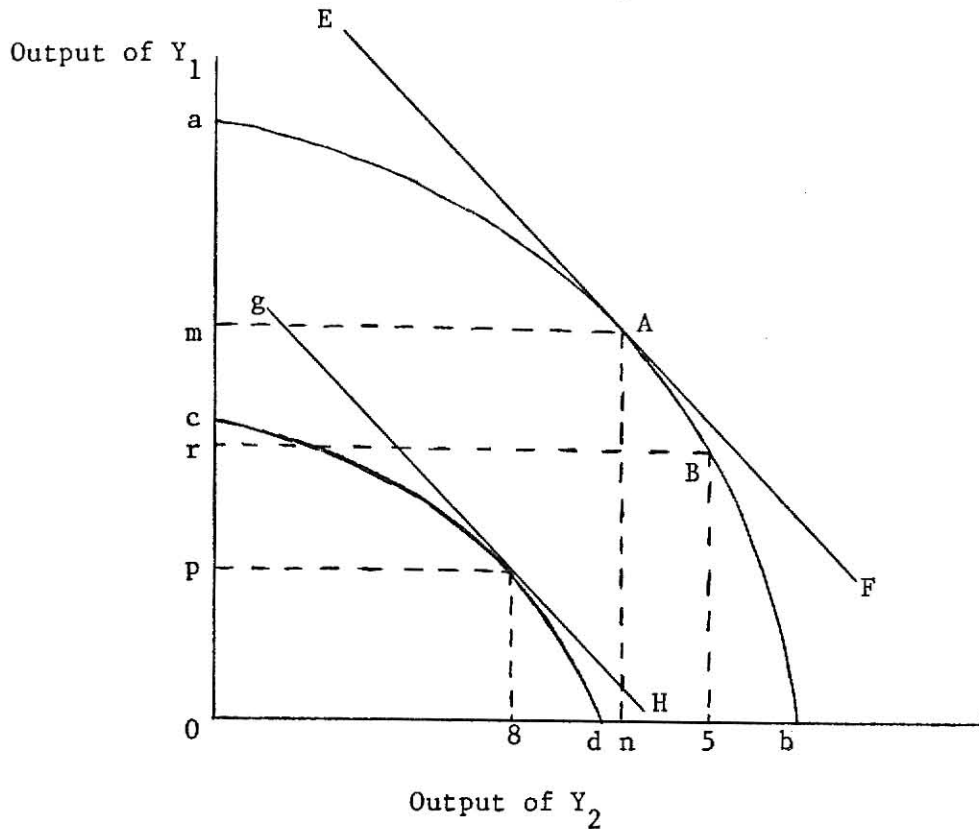


Fig. II-4. Leases and enterprise combination.

because he does not receive the full output of the farm. Instead, the possible combinations of products that the tenant has to choose from are shown on the cd curve. Each point on cd represents one-half the amount of Y_1 and two-thirds the amount of Y_2 that is represented by a corresponding point on the ab curve. When the price line is applied to the tenant's "post-share" possibility curve,¹ op of Y_1 and oq of Y_2 is shown as providing the highest returns to the tenant. But the point of tangency on the tenant's curve corresponds to a total farm production of or of Y_1 and os of Y_2 . The tenant is

¹"Post-share" possibility curve represents the quantity of total product remaining after share rent has been paid and can be derived by subtracting the landlord's share of Y_1 and Y_2 from each point on the "total" possibility curve.

motivated to produce at point B on the production possibility curve of the firm instead of choosing A, the point of greatest efficiency.

If a similar procedure were followed in analyzing what would provide maximum returns to the landlord, it would be shown that this kind of share lease would also encourage him to depart from maximum efficiency. His choice would place too much emphasis on the production of Y_1 at the expense of too little Y_2 .

The remedy for this imperfection is for the share rents from each enterprise to be the same fraction of the total output. This equality among shares will encourage both the tenant and the landlord to choose that combination of products that will provide maximum value of production for the farm firm.

Buildings and Leases

Under a crop-share lease, the return to the landlord is solely dependent on crop production. Yet the landlord may provide buildings, fences, pasture land, water systems, and various other resources that make little or no direct contribution to crop output. These resources are usually quite important because they either contribute to the tenant's livestock enterprises or the comfort and welfare of the tenant family, yet the landlord had little economic motivation to provide and maintain them in good condition. Even with a cash lease, the rental payment is frequently on a per acre basis with no direct return to the landlord for buildings, etc. Here too, his motivation to provide adequate facilities is weakened.

As a remedy for this failure of many leases, Heady says that a separate cash rent should be paid to the landlord for buildings

and other similar items.¹ These payments should be in line with the contributions made to the income of the farm or to the welfare of the tenant family. The separate payment would give the tenant an opportunity to express clearly how much he valued these added items, and the landlord would have a return that would motivate him to provide the items if the tenant's willingness to pay was sufficient to cover the cost.

The Part-Owner and Allocation of Resources

A part-owner has the task of deciding how his resources should be divided between use on his own land and use on the rented land he operates. This situation is analyzed by considering output from the owned land as one product and output from the rented land as a second product. If the part-owner resources and the landlord resources are fixed in quantity the production possibilities for the firm can be represented by the ab line in Figure II-5.² Assuming the axes of the graph to carry the same scale and the price per unit to be the same for the two products, the combination on of product from the owned land and or of product from the rented land will provide greatest returns to this part-owner operated firm taken as a whole. But the part-owner himself will look at a different production possibility curve in making his decisions. If he pays one-half share rent on the rented land, curve ac shows the different combinations of the two products that he will have to choose from in determining what he will have for himself. Applying the price line to this curve shows that the

¹Ibid., p. 601-602.

²Ibid., p. 611, Figure 11.

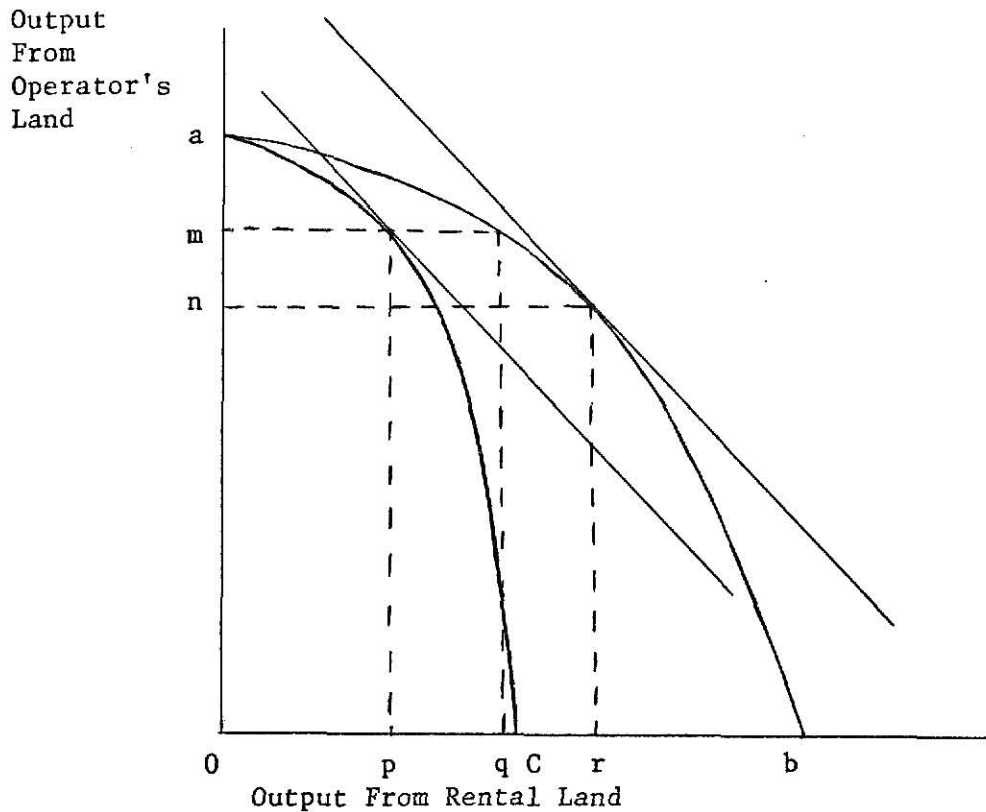


Fig. II-5. Part-owner farms--combination of ownership and share-leasing situation.

part-owner would have highest returns for himself if he obtained om of production from the land he owned and op of the product from the rented land. To obtain this combination, the operator would have to produce a total of om from the owned land and oq from the rented land.

The combination that would give the part-owner highest returns obviously is not the one that would result in maximum production for the farm. And the same would be true for the landlord and his returns. The landlord would prefer that the firm produce ob of output from the rented land. This is the maximum output possible from the rented land. Its production would require that nothing be produced on the owned land.

Heady says that there is only one share arrangement that will not lead to the conflicts indicated above. This arrangement is:

"The resource inputs applied to the rented land must be shared between tenant and landlord in exactly the same proportions as the product."¹

The Problem of Time Relationships

A majority of farm leases are for only one year, but some of the inputs contributed by the tenant may have beneficial effects over a much longer period of time. Although many leases are renewed from year to year, there is always the possibility that the tenant will not be allowed to stay on the farm long enough to realize the full benefit of his contribution. This uncertainty motivates a tenant to contribute these inputs only if the benefits he will receive during the period covered by the lease will be sufficient to compensate him for the cost of the input. A tenant with a one year lease would hesitate to use fertilizer costing \$4.00 and returning \$5.50 over a three year period if the return during the first year was only \$3.50.

In general, tenure uncertainty encourages the choice of enterprises and the use of resources that yield quick returns even when other enterprises and other uses of resources would provide higher profits in the long run. Continuous corn rather than a rotation including legumes is encouraged because the tenant is uncertain as to whether he will be on the farm long enough to receive the beneficial soil conditioning effects of the legume crop. Hog and

¹ Ibid.

poultry enterprises are encouraged in preference to dairy or beef cow herds. The tenant is discouraged from providing new buildings and drainage facilities because of the length of their productive lives. Conservation practices also require large outlays that are profitable only if one is able to realize the returns over a period of years.

These circumstances are expected to lead to less than maximum profits on tenant operated farms. All leases, whether share or cash, can contribute to this type of inefficiency in farm production. Only leases providing greater security of tenure, or for compensation to the tenant for unexhausted inputs, reduce the significance of this defect of leasing. While the uncertainty which leads to this distortion of resource use is probably greatest under one year leases, lengthening the term of the lease does not completely remedy the situation. Longer leases reduce the uncertainty, but do not eliminate it.

Intra-Firm Cost Transfers¹

Landlords sometimes make rental charges in ways that do not associate the charge with the item rented. For example, with a share lease a rather high per acre cash rent may be charged on hay and pasture land with the understanding that this charge includes the rental payment for the farm buildings. This practice tends to encourage an inefficient reallocation of land from hay and pasture use to grain crops because of the excessive marginal cost of the land to the tenant when used in producing forage. Another example is the payment of

¹Ibid., p. 616-617.

uniform rental shares on land of varying productivity within the same farm. The obvious correction to suggest for this situation is that each factor and input should receive a return determined by its productivity.

Leases and Uncertainty

Uncertainty of tenure has been touched on under the heading of time relationships. Leases can also increase uncertainty by magnifying the significance of price uncertainty and disease, weather, and pest hazards. The fixed rental obligation common to most cash leases and which must be paid regardless of crop yields and farm income is an extra burden of uncertainty born by the cash tenant that is not experienced by the share renter. This can be expected to motivate the cash tenant to choose more certain enterprises even at some sacrifice to long-run average returns. Also, with a given amount of capital, the cash tenant is likely to restrict himself to a smaller operation than the share tenant.

Methods of Eliminating Lease Imperfections

Heady makes it clear that leasing imperfections are not inherent in leases--but rather are the result of customs and practices that have grown up within leasing. "Perfect leasing systems are possible in theory."¹ The use of resources by the individual firm might thus be as efficient when the control is by lease as when the control is by ownership.

¹Ibid., p. 678.

There are four basic incentive conditions that are necessary withing the leasing arrangement to encourage operation at the maximum profit, from the combined resources of landlord and tenant.¹ They are as follows:

Incentive condition 1. The share of the factor of variable input must be the same as the share of output of product obtained from it.

Incentive condition 2. The shares of all products must be the same.

Incentive condition 3. Each resource owner must receive the full share of the product earned by each unit of resource he contributes.

Incentive condition 4. Each resource owner must have opportunity to receive return on investment made in one production period but not forthcoming until a subsequent period.

If these four conditions are met, the share lease will encourage optimal efficiency. The only relevant conditions for the cash lease are conditions 3 and 4.

The main imperfections in the cash lease are due to the risks and uncertainty attributable to the commitment of a large fixed payment in the future. Regardless of whether any returns are actually obtained, the rent remains the same. Another imperfection arises from the fact that the tenant receives the full product of any extra production he can get out of the land (just like the owner-operator)--but knows he will probably be on the land for only a short time. Therefore the tenant is inclined to exploit the land as much as possible before he moves.

Both share and cash leases have their advantages and disadvantages in promoting or retarding efficient farm management. More efficiency

¹Virgil L. Hurlburt, Farm Rental Practices and Problems in the Midwest, Iowa Agricultural Experimental Station Research Bulletin 416, Ames, Iowa, p. 86.

can be obtained to the degree in which the four principles can be realized. Principles 1 and 2 are straightforward and should be easily adaptable. Principles 3 and 4 are more difficult to satisfy. Without any extra provisions, the farm operated under lease is not conducive to investment opportunities that are feasible only in the long-run (a time period longer than that of the lease). Some provisions must be made here. Heady suggests that the tenant be compensated for unexhausted investments, or else the lease be long enough to guarantee full returns.¹ To the extent that the lease inhibits a tenant from acting in the manner of a full-owner, it is inefficient.

Flexible Cash Lease

One of the main imperfections in share-leasing is that, since the landlord has so much at stake under this type of arrangement, he inhibits the tenant from having complete management control. Thus the share-lease invites the possibility of conflict between the landlord and tenant. Also, perfect share-leases would, in the long-run, almost always require complete partnership arrangements.² This is because the marginal value products of investments in new techniques and added resource inputs, would be hard to approximate for such things as a new milkhouse, buildings, spraying for insects,...etc.

A major imperfection in cash leasing is due to the risks and uncertainty attributable to the commitment of a large fixed payment in the future. Regardless of whether any returns are actually obtained, the rent remains the same. Likewise if returns are greater than

¹Heady, 1952, p. 614.

²Ibid., p. 601.

expected, the landlord is at a disadvantage. As product prices and yields trend upward, there is a time lag before the cash lease can be changed and therefore the landlord loses; as prices and yields trend downward, again there is a time lag, and this time the tenant loses.

One of the best possibilities of correcting some of the problems mentioned above is the flexible cash lease. The flexible cash lease (FCL) contains the best provisions of the two leases. The FCL shares risks and uncertainty between the landlord and the tenant (one of the best provisions of share leases); it also allows the tenant to operate under complete management control (one of the best provisions of cash leases).

The flexible cash lease operates by having a "minimum" and "maximum" rent figure within a range of which the rent may vary within a given year. To accomplish this, a "normal" cash rent is established as a base. This base can be expressed in bushels of a particular crop, or dollars of a particular crop per acre, or for a whole tract of land.¹ This base cash rent can be determined by one of the three methods:

- (1) Customary sharing of crop production based on estimated annual gross receipts.
- (2) Maximizing the amount the tenant can afford to pay by estimating tenants return above production costs.
- (3) Estimating landlord's ownership costs.

Method (3) is the most common method of determining the base rent. After this is done, the landlord and tenant need to agree on a per acre: a) base rent in bushels, and b) base yield. Then the landlord

¹Don Pretzer, Kansas Farm Lease, Cooperative Extension Service, Kansas State University, Manhattan, Kansas. Kansas State Extension Service, 1974, Section III, p. 2.

and tenant should agree on a "minimum" and "maximum" rent per acre. Most landlords will want a minimum figure as a guarantee of covering their fixed costs of interest on investment, taxes, and depreciation and repairs if these exist. Likewise, the tenant will want a minimum figure to protect his cost of production beyond some range.

Next, the landlord and tenant need to agree on how to calculate current price. They must decide what day's price of the crop to use and what market to go by. Having agreed on these terms at the beginning of the lease, the current rent is determined when it is due by the formula:²

$$\text{Current Rent} = (\text{base bu. rent}) \times (\text{current yield/base yield}) \times (\text{current price})$$

Flexible cash leasing arrangements will probably not need to be reviewed as often as straight cash leases,² because current years data are automatically incorporated into the lease. The lease should be reviewed periodically, however, and the base rent figures changed to incorporate technology changes which will cause yield for a particular farm to change over time.

Lease Adjustments to Changes in Resource Prices and Technology

An adjustment by a cash or share lease to changes in resource prices and changes in technology can only occur at the time a new lease is drawn up. Adjustments of this type would involve a change in the cash payment under a cash lease, and a change in the sharing arrangement under a share lease. If both the landlord's and tenant's

¹Ibid., p. 4.

²Ibid., p. 7.

resources were affected equally no change in the lease would be necessary. As the marginal value product of land rises over time, flexible rents would maintain factor returns in line with productivity of either tenant or landlord resources (rule 3). Inflexible rents would result in returns to tenants beyond the productivity of their resources as the marginal value product (MVP) of land resources increases,¹ which may result in the use of too many tenant resources in agriculture.

The relative shares to the various factors of production remain constant over long time periods according to Heady.² He observed share rents in some sections of Iowa including two-fifths of the small grain and one-half of the corn over a period as long as thirty years. This type of inflexibility has also been observed in Kansas, and while it is obviously accompanied by some inefficiency, a minimal amount of research has been done in this area.

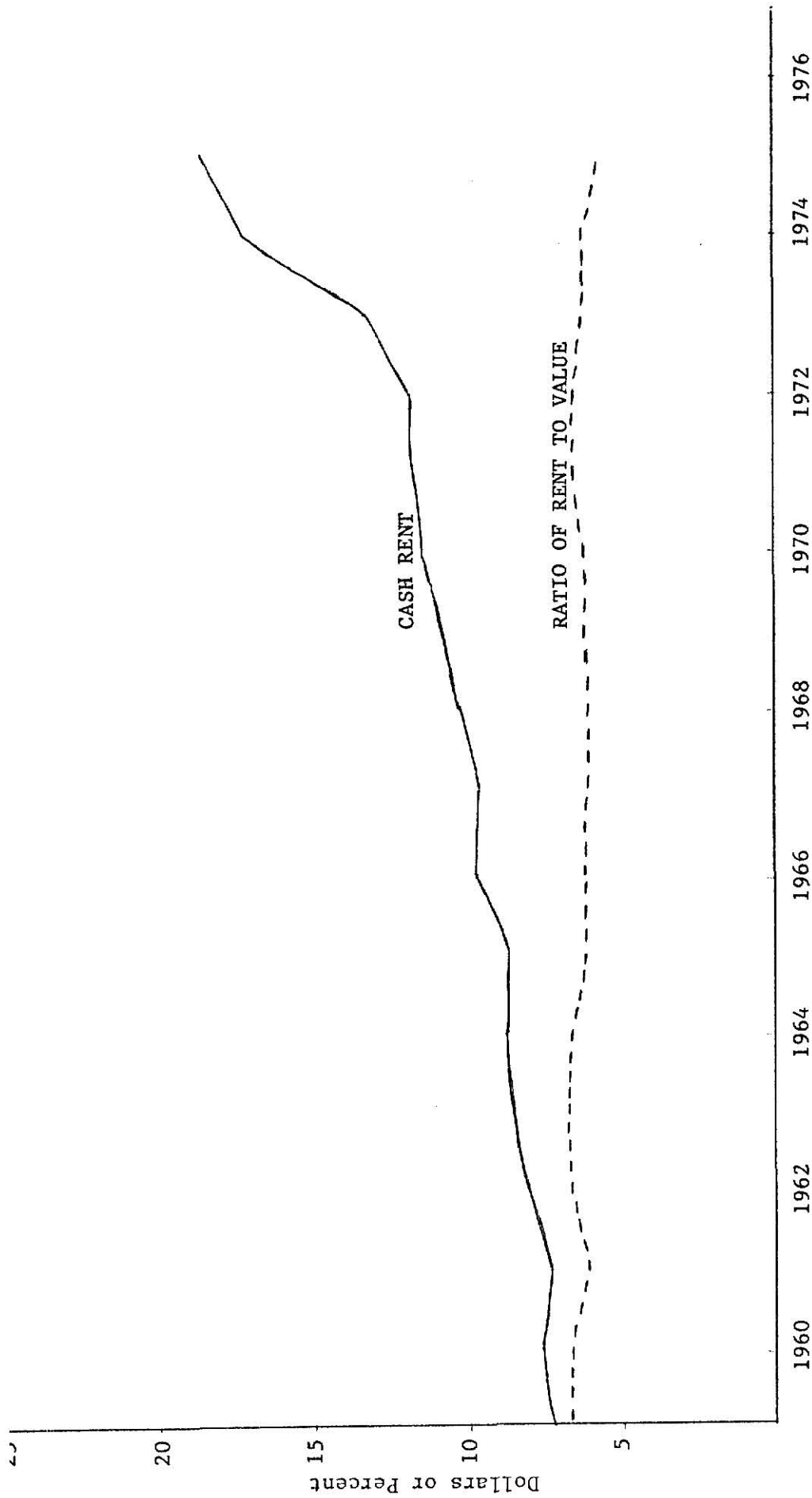
In contrast to these observed inflexibilities in share rents, cash rents have changed regularly in the past fifteen years. Rent has varied from 6.5 percent of value per acre in 1959 to 5.8 percent in 1975, and this percentage has remained remarkably stable over these years. (Graph on next page.)³

In spite of its obvious advantages over cash and share leases, use of the flexible cash lease is rare in Kansas. Some extension work has been done here at Kansas State University and work is continuing to be done in an effort to convince farmers of the advantages

¹Heady, 1952, p. 624.

²Ibid.

³Unpublished data computed from the Kansas Crop and Livestock Reporting Service.



SOURCE: Kansas Agricultural Experiment Station Bulletin 594, January 1976, p. 3.

Fig. II-6. Average cash rent per acre for farms and ranches rented for cash, and ratio of rent to value of farms, Kansas, 1959-75.

of this type of leasing arrangement. One of the main disadvantages of the FCL is that it is more complicated than cash or share-leases.

1951, 1968, Harris', and the 1970 Studies

The 1951, 1968, Harris', and the 1970 studies, each done at Kansas State University under the supervision and work of Dr. Pine, will be briefly reviewed here with the findings of these studies to be reviewed and compared to the 1975 study of Kansas leasing arrangements in Chapter IV.

The 1951 study of leasing arrangements in Kansas was undertaken as part of a regional survey involving Kansas, Indiana, Iowa, Minnesota, Nebraska, South Dakota, and Wisconsin. A summary of this study of Kansas was published by the Agricultural Experiment Station at Kansas State University.¹

The objective of this study in Kansas was to determine farm leasing practices in Kansas in 1951, evaluate existing practices with respect to economic principles of leasing, and consequently, to suggest improvements in farm leasing arrangements.

In the 1968 study,² instead of sampling all of the state as was done in the 1951 study, two counties in each of six Kansas study regions were chosen. Names of farmers in these twelve counties were provided by the County Committees of the Agricultural Stabilization

¹Wilfred H. Pine, Farm Leasing Arrangements in Kansas, Agricultural Experiment Station, Bulletin 374. Kansas State University, Manhattan, Kansas. April 1955.

²Alan J. Harris, Leo Figurski, Wilfred H. Pine, and Wilton B. Thomas, Kansas Farm Leasing Arrangements, Preliminary Summary of 1968 Survey, Department of Economics, Kansas Agricultural Experiment Station, Kansas Cooperative Extension Service, January 1969.

and Conservation Service. This study concentrated on the sharing of costs and returns. No information was gathered on cash leases.

The 1970 study,¹ like the one done in 1968, concentrated on share leases, gathering no information on cash leasing. Only six counties were sampled in the 1970 survey. This survey attempted to determine inputs used and shared by landlords for each crop, so it could be determined how well these leases meet leasing principles with respect to: (1) encouraging use of right resources and (2) providing equitable sharing of costs and returns.

In his dissertation² Alan Harris selected Thomas, Lane, and Edwards counties in western Kansas. He selected these three because they were in the 1967 study, and because approximately 90 to 95 percent of the landlords in these counties received one-third of the crop. Also important was the near absence of irrigation in these counties. The 1951 North Central Regional lease study (mentioned above) was used as the 1951 data source, in order to analyze changes between 1951 and 1970. Counties selected for the 1970 study included one county from each of the 1951 areas.

¹Alan J. Harris, Leo Figurski, Wilfred H. Pine, and Wilton B. Thomas, Kansas Farm Leasing Arrangements, Summary of 1970 Survey, Department of Economics, Kansas Agricultural Experiment Station, Kansas Cooperative Extension Service, Manhattan, Kansas. November 1972.

²Alan J. Harris, A Dissertation 1973, Kansas State University, Manhattan, Kansas. Department of Economics. Economic Incentives in Dryland Crop-Share Leases, Western Kansas. 1951 and 1970.

CHAPTER III

METHODOLOGY

Study Area

The study area for this survey is the six Farm Management Associations in Kansas. The entire geographical area of the state is included in these six associations (refer to map on next page).

It is desirable in a study of leasing practices, to know the leasing arrangements of the better-than-average farmers. Knowledge of the practices of the better-than-average should be especially helpful to other farmers in the region. This is the primary reason members of the Kansas Farm Management Associations (FMA) were chosen as the universe of this study. Previous work has shown that the average Farm Management Association farmer in Kansas is above the average Kansas farmer.

Choosing the FMA as the universe also provided a list of farmers in Kansas to be studied. Previous studies at Kansas State University relied on the Agricultural Stabilization and Conservation Service lists of farmers renting land. These lists are no longer available.

Data Necessary for the Study

In determining existing provisions of farm leases in Kansas, a substantial amount of information is necessary. To determine whether current leasing practices lead to an equitable division of the product

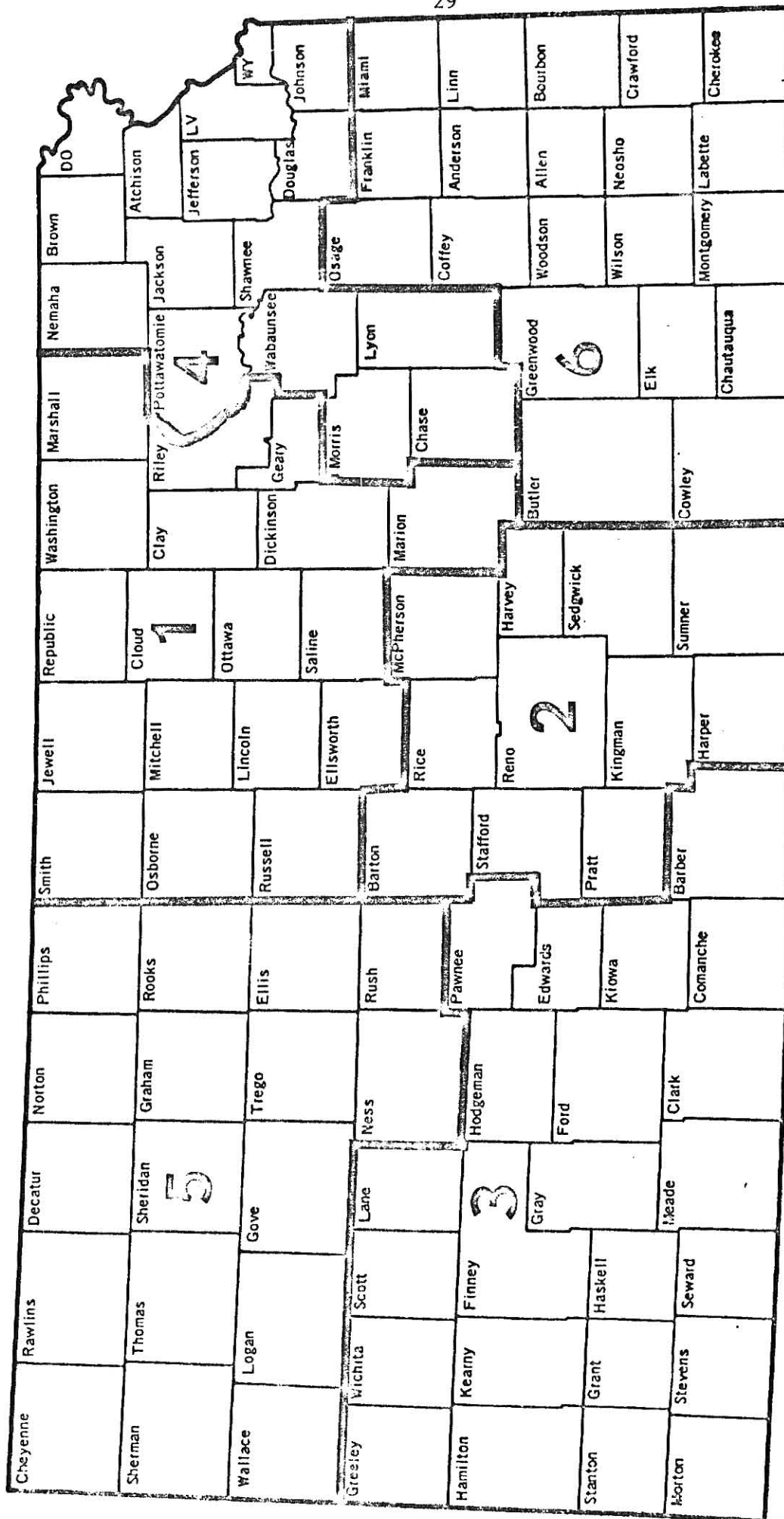


Fig. III-1. Kansas Farm Management Associations.

between landlord and tenant, we need to know not only how the output was handled, but also how the various costs of production were handled.

Information on the sharing of costs of production is especially important in determining if the lease contributed to the maximization of output on the rented farm. Also relevant to this point is information on whether the tenant was a part-owner or a full tenant, as production incentives can and do vary under these various forms of business organization.

Farm leases commonly have provisions indirectly related to the production process, such as maintenance, improvements, ...etc. Consequently, in an attempt to fully evaluate leases, information is needed on upkeep of property, paying of taxes, relationship of landlord to tenant, whether the tenant lives on the rented land,...etc. Therefore this type of information is also relevant to this study.

Sampling Procedure

The primary source of data for this study is a survey of renters, completed by renters. Secondary sources also incorporated into this study were farm records of members of the six Farm Management Associations in Kansas for 1974 and 1975.

With regard to the survey, the population (or universe) was Kansas Farm Management Association farmers. As mentioned earlier, previous studies have shown that members of the Kansas FMA as a group, are above the average of Kansas farmers in general.

We sampled one out of every four Kansas FMA members who completed records in 1974; a total of 616 farm operators. Of this sample, 343 questionnaires for 1975 were returned with 308 usable

(274 dryland and 34 irrigated land). Of the 616, 116 were full owners, and therefore were not renting land.

The survey questionnaires were sent to the fieldmen of the Kansas FMAs who were responsible for collecting and mailing in the completed questionnaire.

The questionnaires, as implied above, were to be answered by the tenants, rather than the landlords. The tenant is usually more familiar with the total operation of the farm and can be contacted more easily. To evaluate leasing practices on irrigated as well as on draland, two different questionnaires were used. Copies of these questionnaires are in the appendix. (Table 1A and 2A.) If the tenant was renting both dryland and irrigated land, he was asked to report only on the irrigated land.

Pretesting of these questionnaires was done by Farm Management Association fieldmen and others.

Data Processing

Most of the information obtained from the questionnaire and other sources were computer processed. Some of the information from the questionnaires did not lend itself to computer processing, and was therefore tabulated by hand. Certain other parts of the questionnaire were also hand tabulated.

CHAPTER IV

AN ANALYSIS OF DRYLAND LEASING ARRANGEMENTS IN KANSAS

Introduction

As was mentioned in the preceding chapter, a questionnaire was the primary source of data for this study. Although this questionnaire is short, a relatively good picture of the most important aspects of the lease was obtained. Also, a considerable amount of information from other sources was available.

According to the 1974 Farm Management Association records, two-thirds of farmers in the Farm Management Association in Kansas are single (sole proprietor), part-owners (Table 3A in Appendix). Single owners are the next largest group with 13 percent of the farmers.

A host of forces, some exogenous to the lease itself, serve to motivate the participants of the lease. A tenant with several simultaneously existing leasing arrangements may be motivated to act differently than a tenant with only one leasing arrangement. Therefore the number of leases an operator has needs to be known. According to this survey, on the average, an operator who rented some land in 1975 had three separate leasing arrangements. Data on the distribution of farms according to number of landlords of members of the Farm Management Associations in Kansas for 1975, are in Table 1.

TABLE IV-1

DISTRIBUTION OF FARMS ACCORDING TO NUMBER OF LANDLORDS OF A SAMPLE OF
MEMBERS OF FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975

Landlords	Association						Total
	1	2	3	4	5	6	
	NUMBER						
1	15	11	9	21	1	12	69
2	15	10	10	12	5	9	61
3	13	9	4	14	1	13	54
4	6	8	4	6	5	8	37
5	6	6	3	2	1	3	21
6 & More	5	11	4	7	1	4	32
TOTAL	60	55	34	62	14	49	274
	PERCENT						
1	25.0	20.0	26.5	33.9	7.1	24.5	25.4
2	25.0	18.2	29.3	19.4	35.7	18.4	22.2
3	21.7	16.4	11.8	22.6	7.1	26.5	19.7
4	10.0	14.5	11.8	9.7	35.7	16.3	13.5
5	10.0	10.9	8.8	3.2	7.1	6.2	7.6
6 & More	8.3	20.0	11.8	11.2	7.3	8.1	11.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Of the leases in this study, 20 percent were straight cash leases, 56 percent crop-share leases, and 23 percent were crop-share-cash leases. Only four cases were found of livestock share leases, not enough to analyze (Table 4A in Appendix). Thirteen percent of the leases sampled in Association 1, in north central Kansas, were cash leases, while 35 percent of the leases in Association 6 in southeastern Kansas were cash leases. Crop-share-cash leases were most common in Association 1 in north central Kansas, where 39 percent of the leases sampled were of this type.

Experience tells us that there are many cases of farmers helping their son, or a relative, to get started in farming. One of the most common means of helping a son or relative to get started involves leasing land--a vehicle whereby the son or relative can maintain control of the enterprise without/before buying. Because of the objective of keeping the farm in the family, leases between relatives may take on somewhat distorted forms. Instead of being based on the productive capability of the farm, the leasing arrangement is determined many times by something else. Leases between relatives, not based wholly on the productive capability of the land, contain transfers of income. It would be expected, therefore, that there would be a difference between leases between relatives and leases in general.

According to this survey, in 71 percent of all leases in Kansas, there was no relation between the landlord and tenant. In 13 percent of the cases the tenant was the son of the landlord. And in 16 percent of the cases, the landlord and tenant were related to each other in a way other than in a father-son relationship. (Table 5A in Appendix.)

Although the landlord and tenant were related in only 29 percent of the leases in Kansas, it must be remembered that the average operator renting land rented from three landlords. Therefore leasing arrangements between relatives involved a relatively large percentage of these tenants renting land in Kansas in 1975.

Not long ago (say 30 years), leasing of a farm almost always meant that the tenant would live on the rented farm. But changes in technology have enabled one man to handle a much greater number of acres effectively. Now one-operator farms, in many cases, three of the farms which existed 30 years ago. Also, according to the results of this study, about two-thirds of the tenants today are sole-proprietor-part-owners, and in many cases these people live on the land they own.

Consequently, we might expect to find fewer operators living on rented farms today than several decades ago. Because of its importance to leasing, this hypothesis was tested to find out how common it is for tenants to live on a rented farm today. According to this sample, only 8.4 percent of the FMA leases in Kansas in 1975 were concerned with the tenant living on the rented land.

The duration of leases has always been important in farming, and is at least as important today if not of greater importance than in the past. According to the survey done in 1951, 75 percent or more of all farm leases in Kansas were one-year leases.¹ As stated in Chapter II on "Basic Principles," even though the lease may be renewed again at the end of the year, there is the possibility that the tenant

¹Wilfred H. Pine, Farm Leasing Arrangements in Kansas, Agricultural Experiment Station, Kansas State University, Manhattan, Kansas. Bulletin 374. April 1955, p. 32

will not be allowed to stay on the farm long enough to realize the full benefit of his contribution. And this uncertainty motivated the tenant to contribute these inputs only if the benefits he will receive during the period covered by the lease will be sufficient to compensate him for the cost of these inputs. According to Heady, the perfect lease should encourage the tenant to act as a full owner, "The leasing system is imperfect if it does not encourage adoption of the most efficient combination of resources in the production of a unit of a given commodity."¹

Therefore short-term leases (one year) are inefficient on two counts; (1) they do not in many cases encourage adoption of the best combination of resources in producing a product, and (2) they motivate a tenant to use resources that yield quick returns even when other enterprises and other uses of resources would provide higher profits in the long run. Although short-term leases are inefficient in these respects, they may encourage the tenant to operate well to gain renewal.

The importance of the duration of a lease varies somewhat with the type of lease under which resources are combined. Under a crop-share lease, if the tenant expects to have the land a short time (say one year), he would have little economic incentive to farm it much differently than if he expects to farm it for twenty years. The tenant would still apply seed, fertilizer, herbicide...etc., much the same under both conditions (to the point where his $MC=MR$). But for inputs such as lime, terraces, other conservation practices,...etc.,

¹Heady, Economics of Agricultural Production and Resource Use, New York (Prentice-Hall, Inc.), 1952, p. 590.

which need to be applied only once in five or ten years and do not give high enough returns in one year to be profitable--these he would have little incentive to apply. Unless the lease has other provisions to compensate for this failure, the lease leads to inefficiency.

Cash leases suffer from this same malady if there is not security in a long-term lease, or compensating provisions. However, if the cash lease does not have long duration, it can have an even more detrimental side-effect. The tenant will have incentive to farm the leased land over-intensively, reducing the productive capabilities of future years.

In this study, the actual provisions of the 1975 leases with respect to duration were not determined. There is, therefore, little more than can be said in regard to the efficiency of Kansas leases in this respect. This study did determine the actual length of time which leases had been in effect. The average length of the leases in this survey was twelve years. It is suspected that the provision in most of these leases with respect to duration is one year.

Many of the current leasing arrangements which control agricultural resources are bound only by oral agreements. Eighty-two percent of all leases controlling farmland in Kansas were oral agreements in 1951.¹ The results of this study closely approximated the 1951 results with eighty-four percent of the leasing arrangements in this study being bound by oral agreements.

Oral leases work satisfactorily in many cases. But oral leasing arrangements can lead to problems between the landlord and tenant when

¹Wilfred H. Pine, Farm Leasing Arrangements in Kansas, Bulletin 374, Agricultural Experiment Station, Kansas State University, Manhattan, Kansas. April 1955.

everything that both parties intend to be interpreted into the lease is not correctly understood or specified beforehand. Leases, oral and written, are sometimes terminated because one party to the lease did not live up to the expectations (many times not clearly stated) of the other party. Some of the most common offenses involve conflicts over the responsibilities for maintenance of a home, buildings, and fences.

Written leases have an advantage in this respect. Many of the terms, unexpressed or implied, or simply not gone into in oral leases, tend to come out more specifically in the written lease. Especially important for young operators or any operator who must operate with many borrowed assets, is the fact that banks need a long-term lease to lower the risk on a long-term loan, and a written lease is a legal document binding both parties to the agreement. Oral leases have little or no advantage, economic or legal, over written leases (assuming they are not more expensive). In simple situations, oral leases may be essentially as good. Mutual understanding and trust are essential.

It is logical to assume that bottomland, with its higher yielding potential, relative to upland, would produce a higher rent than upland. It is realized that many farms are combinations of upland and bottomland; nevertheless, an attempt was made to determine if a difference in leasing arrangements could be found, and to see if the leases took on a different form because of this difference.

According to this study, 70 percent of rented tracts in Kansas were upland, with 18 percent bottomland. There is a considerable amount of variation among the Farm Management Associations as to the

total acres of different types of land under lease. Association 5, in the northwest, shows 100 percent upland, while Associations 1 and 4 (north central and northeast, respectively), showing 56 and 59 percent upland, respectively. (Table 6A in Appendix).

According to the findings of this study, the average size for a rented tract was 349 acres. This study showed 390 acres to be the average size of cash rented tracts; 212 acres for crop-share rented tracts; and 445 acres for crop-share-cash rented tracts (Table 7A in Appendix). Even though there are almost three times as many share leases as either cash, or crop-share-cash leases, cash and crop-share-cash rented tracts are the largest rented tracts.

The average acres of cropland per dryland tract according to this study was 184 acres. The average acres of pasture per tract was 155 acres. The average acres of cropland per tract under cash lease was 122 acres (Table 7A in Appendix); crop-share lease, 172 acres; and crop-share-cash lease, 257 acres.

For pasture, the average size of tracts under cash lease was 254 acres; share lease, 30 acres; and for crop-share-cash lease, 181 acres. There was a substantial amount of variation among Associations as to the type of lease controlling pasture. In Association 1 (north central Kansas) 67 percent of rented pasture was controlled under a crop-share-cash lease, with over 80 percent of rented pasture in Association 4 (northeast) being controlled by this type of lease.

Cash Leases

As was stated earlier in this study, a cash payment was involved in about 43 percent of the leasing arrangements surveyed, 20 percent

under straight cash leases, and 23 percent under crop-share-cash leases. And because grain prices fluctuate widely--especially in recent years, there is a continual need for updated cash rental figures. According to this study, the average rent per acre on bottom cropland was fifteen dollars per acre in 1975. Upland was about a dollar lower at fourteen dollars an acre.

The cash rent figures, by Association, clearly illustrate the varying productivity of the land in Kansas (Table 2). Association 3 in southwest Kansas had an average rent per acre for bottomland cropland at \$10.50 an acre, while the average rent per acre in northeastern Kansas (Association 4) was \$31.00. The variation for upland cropland was even more dramatic, with \$9.50 an acre in the southwest and \$35.00 per acre in the northeast.

Cash rent for pasture was calculated according to whether the pasture was native or temporary grass. The state average for native pasture in 1975, according to this sample, was \$5.10 per acre, while rent for temporary grass was \$7.47 per acre. The variation in the cash rent figure by Association for pasture coincided with the cropland cash rent variation. Association 3 averaged \$2.93 per acre for native and \$3.05 per acre for temporary, while Association 4 averaged \$8.05 per acre for native, and \$11.25 per acre for temporary (Table 3).

In this study, only one case out of a total of fifty-five straight cash leases was found where the landlord provided or shared in the maintenance of buildings on the cash rented land. Only five cases were found where buildings and fence supplies were provided or shared by the landlord. Three cases were found of the landlord sharing or providing the cost of fence maintenance. Four cases were found where the landlord shared or provided well repairs.

TABLE IV-2

DISTRIBUTION OF CASH RENTED CROPLAND AND RENT PER ACRE BY TYPE OF LAND
OF A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT ASSOCIATIONS
IN KANSAS IN 1975

Type of Land	Association						Total
	1	2	3	4	5	6	
	AVERAGE ACRES CROPLAND						
Bottomland	1127	56	536	206	N.R.	0	1925
Upland	41	1816	1460	112	299	652	4380
Combination	200	0	0	0	N.R.	0	200
	RENT PER ACRE (\$)						
Bottomland	14.30	20.00	10.50	31.00			15.20
Upland	14.00	14.50	9.50	35.00	12.40	18.30	13.80
Combination	22.20						22.20

TABLE IV-3

DISTRIBUTION OF CASH RENTED PASTURE AND RENT PER ACRE BY TYPE OF PASTURE
OF A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT ASSOCIATIONS
IN KANSAS IN 1975

Type of Pasture	Association						Total
	1	2	3	4	5	6	
	<u>AVERAGE ACRES</u>						
Native	4239	3967	2995	3910	3030	2548	20689
Temporary	210		740	455		1346	2751
	<u>RENT PER ACRE (\$)</u>						
Native	4.85	5.30	2.93	8.05	4.76	4.75	5.10
Temporary	5.14		3.05	11.25		10.45	7.47

Provisions in leases such as the ones above, whereby the landlord and tenant furnish, at no cost to the other party, resources indirectly associated with the production process, cause concern with respect to economic efficiency. Many times the furnishing of such resources as the tenant's house by the landlord is to be offset by the tenant doing such things as building and fence maintenance. The efficiency of these types of arrangements is difficult to determine.

Of the 274 useable responses on dryland for the state for 1975, the landlord furnished buildings at no cost to the tenant in 23 cases.¹ Heady is specific on this point. He urges that payments, separate and apart from share rent or per acre cash rent, be made to the landlord for buildings and other similar items.² Without a cash payment, there is usually little or no incentive for the landlord to adequately maintain the buildings, or provide for improvements.

Many times the tenant will do something to offset the providing of the building resource by the landlord. Payments in terms of off-setting arrangements should be in line with the contributions made to the income or welfare of both parties. In terms of fairness, off-setting arrangements are usually only roughly approximated.

Building repairs were furnished by the landlord in only three cases. Building supplies in only five cases. Fence repairs were furnished by the landlord in only two cases, while supplies for fence repairs were furnished in eighteen cases. Water was furnished by the

¹In the short questionnaire used in this study, only 29 responses showed buildings existing on rented farms. The question of whether buildings existed on rented farms was only indirectly asked.

²Heady, 1952, p. 601-602.

landlord in eight cases, conservation work in eight cases, and some other item in three cases.

The tenant paid real estate taxes on six of these leased farms, building repairs in nine cases, fence repairs in twenty-five cases, conservation in only one case, upkeep of terraces in just two cases, well repair in two cases, and some other item in just one case.

Sharing of Inputs and Outputs

According to this study, 78 percent of all leases involved sharing (share and crop-share-cash leases). Because sharing is involved in a high percentage of leases and because the share leases are more complex than cash leases, this is an important part of the study.

Do the economic principles applicable to leasing tell us what inputs should be shared by the landlord and tenant in the production of agricultural products? Although this question was dealt with in general in the section on leasing principles, we need to know specifically how certain inputs should be handled with respect to the principles of leasing.

According to Heady, the arrangements for sharing costs and production for each particular crop must be the same.¹ He goes on to say, "if the share of the crop is to be divided on a 50-50 basis, costs (or at the minimum, the direct variable costs) also must be shared on a 50-50 basis."² But what "direct variable costs" are involved in a lease?

¹Ibid., p. 601.

²Ibid.

Fertilizer, fertilizer application, herbicide, herbicide application, insecticide, insecticide application, seed, harvest, drying, and fuel, are essentially "direct variable costs." Part of the machinery costs involved in these operations may not be "direct variable costs." Part of the machinery costs may be fixed cost and therefore the tenant's responsibility. If for example, herbicide replaces cultivation (customarily a responsibility of the tenant) without the effect of increasing yields, its' cost should be paid by the tenant. To the extent that a change in technology lowers the cost of the contribution of one party to a lease, the cost of the new technology should be borne by the party benefitted. If however, this input also increases yields, then both parties to the lease should justifiably pay a share of the cost.

Therefore, does the lease cause inefficiency if the direct variable costs are not shared in the same proportion as the product? This question is almost impossible to answer in all cases. However, the test of leasing systems is this: "they should not cause further deviations from the conditions which define economic efficiency."¹ To the extent that production is maximized on tenant operated farms to the same degree as owner-operated farms, the lease cannot be said to lead to inefficiency.

Therefore, a lease could result in efficient production with a "direct variable cost" not being shared. For example, if it is customary for a "direct variable cost" not to be shared in a certain area, and the tenant accept the custom as being fair and consequently apply the variable input to the same degree that a owner-operator

¹Ibid., p. 591.

would, then the lease does not cause inefficient production. It is clear that forces other than economics aid in determining farm efficiency. Such forces as ignorance and custom can be powerful enough influences to lead to efficiency in leasing where economic principles fail.

The effect of custom on leasing is immense. The impact and speed of changes in technology have challenged custom and forced change in only the most vulnerable places. While custom provides some stability in fields such as leasing, and is to this extent a positive factor, it can retard progress and to the degree that it is found to do so it should be challenged.

Association 1

Wheat

In north central Kansas (Association 1) the common sharing of the wheat crop was one-third--two-thirds, with one-third of the crop going to the landlord. (Table 8A in Appendix.) In 73 percent of leases in Association 1 sharing was done in this manner, with 27 percent being shared two-fifths--three fifths (two-fifths of the crop to the landlord).

The cost of fertilizer was shared by the landlord in 96 percent of the share-leases on wheat in Association 1. The cost of applying fertilizer was shared by the landlord in only 11 percent of these leases. Those statistics are supported by the 1968 survey of Osborne and Cloud counties (both in Association 1), where 69 percent of the leases of these two counties were one-third--two-thirds, and fertilizer was shared in 95 percent of the cases.¹

¹ Alan J. Harris, Leo Figurski, Wilfred H. Pine, and Wilton B. Thomas, Kansas Farm Leasing Arrangements, Preliminary Summary of 1968

Herbicide was used on wheat in Association 1 in only 7 percent of the share-leases in this study. The costs of herbicide and insecticide that was used under share-lease was shared by the landlord in over half of the cases in which it was used. The costs of applying herbicide was shared by the landlord in 33 percent of the leases, while application of insecticide was shared in 50 percent of share-leases. Insecticide was used in only 5 percent of the share-leases on wheat in Association 1. There is clearly a violation of the economic principles here. While herbicides, insecticides, and their corresponding applications are "direct variable inputs," they are also yield increasing inputs. When the cost of these inputs is not shared, the tenant will have economic incentive to apply these inputs only up to the point where his marginal costs are equal to the marginal returns to him ($MC=MR$), and this is not where the full owner's $MC=MR$.

No case was found in this study of Association 1 of the seed expense being shared by the landlord. Although seed is relatively inexpensive, it is a "direct variable input," and according to leasing theory should be shared. Another expense the landlord did not share was harvesting. That expense was also studied in the 1951,¹ 1968, and 1970² surveys. According to the 1951 study, harvesting was seldom

Survey; Department of Economics, Kansas Agricultural Experiment Station, Kansas Cooperative Extension Service, January 1969. This survey will be referred to throughout this chapter as simply "the 1968 survey."

¹Wilfred H. Pine, Farm Leasing Arrangements in Kansas, Agricultural Experiment Station, Bulletin 374. Kansas State University, Manhattan, Kansas. April 1955. This survey will be referred to throughout this chapter as simply "the 51 survey."

²Alan J. Harris, Leo Figurski, Wilfred H. Pine, and Wilton B. Thomas, Kansas Farm Leasing Arrangements, Summary of 1970 Survey, Department of Economics, Kansas Agricultural Experiment Station, Kansas Cooperative Extension Service, November 1972. This survey will be referred to throughout this chapter as simply "the 1970 survey."

shared. In 1968, however, wheat harvest was shared by 24 percent of landlords having share-leases. The 1970 study of only Cloud county in Association 1, showed 39 percent of landlords sharing in this expense. With the additional information of these studies, it can be summarized that while sharing of the harvest expense is not uncommon in and around Cloud county (the highest yielding county in the Association), it is seldom shared in the Association taken as a whole.

This survey showed no drying of wheat in Association 1. The 1968 survey of the two counties in Association 1 showed that drying was shared with the landlord in 46 percent of the cases in which it was used. The 1970 survey of Cloud county also showed a high percent of sharing of this cost, with landlords sharing in the expense in 67 percent of the cases. There is a time difference in these different surveys and the universe of each of the studies is somewhat different. The 1968 and 1970 studies were based on samples of all farmers in selected counties, while this 1975 study is of FMA farmers. Therefore we do not know whether the difference's in these survey's is due to changes over the time period, or whether it is due to the different universes. The Cloud county area is not comparable with Association 1. Cloud county contains some of the highest yielding land in Association 1, and it is common for landlords to share in more of the costs in higher yielding areas.

No cases were found where the landlord shared in the costs of hauling and fuel in Association 1 on wheat. Fuel is a "direct variable cost."

Corn

Only 8 percent of the share-leases (crop-share, and crop-share-cash leases), sampled in Association 1 had corn grown on share-rented ground (Table 4A in Appendix). Of those that did, in 25 percent of the cases the landlord received one-third of the crop, in 50 percent of the cases the landlord received two-fifths, and in 25 percent of the cases, the landlord received one-half of the crop. In the 1968 study, 44 percent of the landlords were shown to have received two-fifths of the crop, with 33 percent of the landlords receiving one-half of the crop.

As for the sharing of inputs, 75 percent of the landlords shared in the fertilizer expense, while only 25 percent helped pay for its application. The cost of herbicide and its application, and insecticide and its application, were shared in the same proportions as for fertilizer and its application. The 1951 survey showed a much smaller percentage sharing of fertilizer, but the practice was relatively new in 1951. The 1968 and 1970 surveys showed a higher percentage of landlords sharing in fertilizer and herbicide than this study.

The costs of seed corn and harvesting were seldom shared, and no sharings of drying, hauling or fuel were found in this study.

Grain Sorghum

Grain sorghum was grown on 71 percent of the share rented farms sampled in Association 1 (Tables 4A and 8A in Appendix). The most common share to the landlord was one-third, with 62 percent receiving this share. Thirty-five percent received two-fifths share, and 3 percent, one-half share. This variation in shares is partially attributed to the wide variation in productivity of the land in Association 1.

Fertilizer was used on grain sorghum in almost all cases on share rented land in Association 1 (Table 8A in Appendix). And when fertilizer was applied in the production of grain sorghum in this Association, it was usually shared. Fertilizer application was shared in only a small percentage of the leases. While herbicide was used in four out of five cases on grain sorghum, the cost of this input was shared by the landlord in only about half of the cases in which it was used. The cost of applying herbicide was rarely shared. Insecticide, also used in about half of share rented leases on grain sorghum, was shared in 78 percent of the leases in which it was used. Insecticide application was shared in the same percentage of cases as the material.

The costs of seed, harvest, hauling, and fuel were seldom shared in Association 1, according to the results of this sample on grain sorghum. Drying was done in only 16 percent of the leases which had grain sorghum grown on share rented land in Association 1, and its costs was seldom shared. In the 1968 survey, 65 percent of the cases were shown to have the landlord sharing in the cost of drying grain sorghum.

Soybeans

Only 6 percent of those having crop-share leases in Association 1 had soybeans grown on share-rented land (Table 4A in Appendix). Of the few that did, 34 percent gave the landlord one-third of the crop. Thirty-three percent gave two-fifths of the crop to the landlord and the rest gave the landlord one-half of the crop. In the 1951 survey, there were few cases of soybeans grown on share rented land except for the eastern one-third of the state. Soybeans were not reported on in the 1968 and 1970 surveys.

The cost of fertilizer was shared by the landlord and tenant in all of the cases in which it was used on soybeans in Association 1 (fertilizer was used in one out of three share leases where soybeans were grown). All of the landlords who had fertilizer applied on their share rented soybeans, paid two-fifths of the cost of this input in Association 1. Landlords seldom shared in fertilizer application. In 66 percent of the leases herbicide and insecticide material applied to soybeans was shared between landlord and tenant. Application of herbicide was seldom shared.

Seed and harvest expenses were shared in 33 percent of the cases. No cases were found where landlords paid any part of the cost of drying, hauling, fuel, or any other input.

Alfalfa

Only 11 percent of the share leases in Association 1 had alfalfa grown on share-rented land. Of these leases 67 percent had one-third--two-thirds sharing, the rest having two-fifths--three-fifths sharing of the crop. Of the small sample received on alfalfa, fertilizer was the only input in which the landlord paid any part of the expense. In 25 percent of the leases using fertilizer on alfalfa, the landlord paid one-third of the cost of fertilizer.

Association 2

Wheat

Association 2 contains 11 counties in the south central part of Kansas. Ninety percent of the share leases in this survey of Association 2 had the landlord receiving one-third of the wheat crop. Five

percent of the landlords received two-fifths of the crop, and the remaining five percent received one-half of the wheat crop.

In economic area 3a of the 1951 study (seven counties in Association 2 in south central Kansas), 89 percent of the landlords received one-third of the crop--almost identical to the findings of this study. Sedgwick was the only county out of Association 2 which was sampled in the 1968 study, and no counties out of Association 2 were sampled in the 1970 study. Sedgwick county had a higher percentage of two-fifths sharing, making it an inadequate sample to use as a gauge for changes that might have taken place over the five years between the two studies.

Almost all of the landlords in Association 2 shared in the cost of fertilizer on wheat. (Table 9A in Appendix.) Herbicide and insecticide were used on about one out of three share-rented tracts on wheat in Association 2. When herbicide was used, less than half the landlords shared in the cost of this input, and where insecticide was used, only one-third of the landlords shared in this expense. Less than one-third of landlords shared in the expense of applying fertilizer, herbicide, and insecticide on wheat in Association 2.

Rarely did landlords share in seed and harvesting expenses, while no cases were found of landlord sharing in hauling or fuel expense in the production of wheat in this Association. Drying was done to wheat in only 15 percent of the share leases surveyed, with this cost seldom being shared.

According to the 1951 study, 98 percent of landlords shared in the fertilizer expense in area 3a, while 44 percent shared in the costs

of herbicide. If improvement in leases is measured by the amount of "direct variable costs" landlords share in, it would be reasonable to say that little or no improvement has taken place since the 1951 study in this area with respect to wheat.

Corn

Only 7 percent of the share-leased farms in Association 2 grew any corn in 1975, according to this study (Table 4A in Appendix). Of these, 67 percent shared the crop one-third--two-thirds, the rest sharing one-half--one-half. Only one-third of the landlords in Association 2 helped pay for the cost of fertilizer in the production of corn. This sample showed almost no sharing by the landlords of fertilizer application, herbicide, herbicide application, insecticide, insecticide application, seed or fuel costs. The only other inputs shared on corn were harvesting and hauling, which were shared in one-third of the cases, and drying, which was shared on one-half of the cases where it was used on corn (drying was done in two out of three cases).

The 1951 study of seven counties in Association 2 showed the landlords receiving one-third of the corn in 74 percent of the cases, again approximating this survey.

Grain Sorghum

About half of the share-leases in Association 2 had grain sorghum grown on the share rented farm in 1975 (Table 4A and 9A in Appendix). Grain sorghum was not tested in the 1951 study. Of those that had grain sorghum grown on the share rented farm 95 percent had the landlord receiving one-third of the crop, the other 5 percent having two-fifths share of the grain sorghum going to the landlord.

In most of these share-leases in Association 2 the landlords shared in the cost of fertilizer (Table 9A in Appendix). While herbicide was commonly used on grain sorghum in Association 2, it was shared in only 29 percent of these cases. Insecticides were used on about one out of four of the share-rented farms growing grain sorghum and were seldom shared. The costs of applying fertilizers, herbicides, and insecticides to the grain sorghum tracts were shared in less than one-fourth of the cases in which these inputs were applied in Association 2.

No cases were found where seed, harvesting, or fuel costs were shared, but in 31 percent of the leases the landlord did share in the cost of hauling. Drying of grain sorghum was necessary in about half of these share leases, and the landlord paid a share of this cost in most of the leases.

Alfalfa

Only 9 percent of share-leased farms in Association 2 grew alfalfa in 1975 according to the sample (Table 4A in Appendix). All who did had the landlord getting one-third of this crop. In most of these cases, the landlord shared the cost of fertilizer. Herbicides were seldom used on alfalfa, and never shared. Insecticides were used in all cases sampled, but were shared in only a small portion of these leases, the same being true for the application of insecticide. Seed was shared in about one-third of the cases in which it was used. Drying was done in one-half of the cases sampled, the tenant paying all of that cost in most cases. Harvesting, hauling, and fuel costs were paid solely by the tenant, according to the results of this study.

Association 3

Wheat

Farm Management Association 3 contains 23 counties in southwestern Kansas. According to this survey, 96 percent of the share-rented farms which grew wheat in this area gave one-third of the crop to the landlord. The remaining 4 percent gave one-half of the crop to the landlord. These findings coincide with the findings of the three previous studies, the 1975 study showing 93 percent of share leases being one-third--two-thirds, the 1968 study with 97 percent one-third--two thirds, and the 1970 study with 96 percent of share leases being one-third--two-thirds. The minimal difference between these studies was to be expected.

The landlord shared in the fertilizer expense in 64 percent of the share leases on wheat in this southwestern Association in 1975. The 1951 study showed only 40 percent of the landlords sharing in the cost of this input. Fertilizing in that part of the state was not so common as in eastern Kansas in 1951. Just over half of the landlords shared in this expense according to the 1968 study, and the findings of the 1970 study were quite close to the findings of this study.

Herbicides and insecticides were used on one-third of these share rented farms, with the landlord paying part of the cost in only one-half of these cases (Table 10A in Appendix). The costs of applying fertilizer, herbicide, and insecticide, was shared in only about one-third of the share leases under which they were applied. Seed, harvest, and hauling expenses were rarely shared. No cases were found of fuel costs being shared, and only two cases of drying being done; but both cases did show a sharing of this expense.

Grain Sorghum

Grain sorghum is the second most important crop to this southwest Association in Kansas, with about one-fourth as many farmers growing grain sorghum on share-rented land as grew wheat (Table 4A in Appendix). All of those who grew grain sorghum in Association 3 on share-rented land, according to this study, shared in the output one-third--two-thirds. The 1968 survey showed 90 percent of share leases on grain sorghum being one-third--two-thirds in this area.

Fertilizer used on tracts growing grain sorghum was shared in 86 percent of these leases. While its application was shared in just over half of the leases in which it was used. Herbicides and insecticides were used on about half of the share-rented tracts, with the cost of this material being shared in two out of three of these share leases. The costs of applying herbicides and insecticides were not shared between the landlord and tenant in most of the cases in which they were used in this Association. No other inputs were shared in the production of grain sorghum, according to the results of this study.

Association 4

Wheat

Association 4 consists of sixteen counties in the northwestern part of Kansas. According to the findings of this study, in over half of the crop share leases on which wheat was grown in Association 4, the landlord received one-half of the wheat crop. (Table 11A in Appendix). The next most common sharing was one-third--two-thirds, with a few two-fifths--three-fifths sharings. The findings of the 1951 study closely approximated those of this study with just over half

of share leases being one-half--one-half sharing. The 1968 study was concerned with Brown and Jefferson counties only in this Association, and these two counties had a higher percentage of landlords receiving one-half share than studies of the northeastern area as a whole. These two are in the easternmost half of Association 4 and are somewhat noncomparable to the Association as a whole. Brown was the only county out of Association 4 studies in the 1970 survey. It had 89 percent of landlords receiving one-half share on wheat.

Under crop-share leases in Association 4 for wheat, landlords commonly shared in the cost of fertilizer, while few shared in the cost of application. (It is more common in the northeastern part of the state, for fertilizer to be applied as a starter with the planting of wheat, and then nitrogen applied again in the spring.) Although herbicide was applied to wheat in relatively few cases, it was common for landlords to share in this expense in Association 4 in 1975. Insecticide also was used in relatively few cases on wheat, with its cost being shared in half of the cases in which it was used. It was common in Association 4, for the tenant to pay the full cost of applying herbicides and insecticides. Seed was shared in over half of the share-leases sampled, harvest in 28 percent, and the cost of fuel only rarely being shared. Only one case of drying wheat was reported in Association 4, and no provision for sharing was shown. Hauling costs also were never shared. The 1951 study showed 95 percent of landlords sharing in fertilizer expense in this area, while 40 percent paid part of the cost of herbicides.

Corn

According to the findings of this study, corn was grown on about half of the share-rented farms in Association 4 (Tables 4A and 11A in Appendix). A much higher percentage of landlords in Association 4 received one-half of the corn, than received one-half of the wheat. Of those landlords with share-leases on corn in Association 4, 79 percent received one-half of the crop. Of those landlords receiving some other share of the corn crop, 13 percent received one-third, and 8 percent received two-fifths of the crop.

The 1951 study showed only 62 percent of landlords in the northeast area receiving one-half of the corn, with 28 percent receiving two-fifths of the crop. But this study also showed that one-half share in the northeast was more common for corn than for wheat. The results of the 1968 study showed 79 percent of landlords receiving one-half of the corn crop. The 1970 study of only Brown county in the northeast, showed 98 percent of landlords receiving one-half of the corn crop under share-leases in that county.

It was more common for landlords to share in "direct variable costs" in the more productive areas of the state, such as the northeast, than in the western parts of the state. Most of the share-leases on corn in Association 4 had the landlord sharing in the cost of fertilizer and herbicide (Table 11A in Appendix). Only one out of four landlords shared in the application of fertilizer, with only a few landlords sharing in the costs of applying herbicides. Landlords commonly shared in the costs of insecticides, while the cost of herbicide application was seldom shared. Fertilizer, herbicide, and insecticide were used on most of the share-lease tracts growing corn.

Drying of corn was necessary in over half of these leases, with that cost being commonly shared. The majority of those landlords shared in the cost of feed corn, with less than half of those landlords sharing in the costs of harvesting, and hauling. No cases were sampled where the costs of fuel expended in the production of corn, were shared by the landlord.

Grain Sorghum

Grain sorghum was grown on as many share-leased farms as was wheat in Association 4, and it was shared much the same as wheat. In over half of the leases grain sorghum was shared one-half--one-half (Table 12A in Appendix). In twenty-two percent of the share leases covering grain sorghum, two-fifths share of the crop was the landlord's share. In the remainder of the share-leases, one-third of the grain sorghum was the landlord's share. The 1968 study of share leases in Brown and Jefferson counties showed 76 percent of landlords receiving one-half of the crop, but Brown county pulled the percentage figure up, showing 98 percent of landlords getting one-half share in 1968, and 99 percent receiving one-half share in the 1970 study.

In Association 4, it was common for landlords to share in the costs of fertilizer, herbicide, and insecticide on grain sorghum. These inputs were used in almost all cases on grain sorghum. The costs of applying fertilizer, herbicide, and insecticide, were shared in only about one out of five of the share-leases under which they were used. Grain sorghum seed was shared in over half of these share-leases with harvest, drying and hauling expenses shared in about one out of three of these share-leases. The cost of fuel was rarely shared. The sharing of inputs on grain sorghum in the 1968 study

differs significantly from this study on two points. According to the 1968 study, harvesting was shared in 84 percent of share-leases, drying in 81 percent of leases.

Soybeans

Of the share-rented farms sampled in Association 4, 51 percent grew soybeans in 1975. Of these, 56 percent were one-half--one-half leases, 20 percent were two-fifths--three-fifths, the remaining being one-third--two-third leases. While 61 percent of the share-leases in the northeast had the landlord getting only one-third of the soybean crop according to the 1951 study, the 1968 and 1970 study results were quite close to the results of this study.

Fertilizer was applied to only 28 percent of the soybean tracts. When applied, the cost was commonly shared. The cost of applying fertilizer was shared in about one-half of the leases under which it was used. Herbicides were used on most of the share rented soybean tracts, (Table 12A in Appendix), this cost commonly being shared. Insecticides were seldom used in the production of soybeans in this Association, but when used, the cost of insecticides were commonly shared. The cost of applying herbicides and insecticides was seldom shared. The costs of soybean seed, harvesting, drying, and hauling, were shared in about one-third of these share-leases. Fuel costs were only rarely shared.

Alfalfa

Of the share-rented tracts sampled in Association 4, only 14 percent had alfalfa (Table 4A in Appendix). Of those that did, two-fifths and one-half share to the landlord were equally common, with each having 43 percent of the share leases. The remaining leases

had the landlord receiving one-third of the crop. Alfalfa was not tested in the other leasing studies done in Kansas. Fertilizer was used on alfalfa in most of these cases, and was shared on most of these tracts. Herbicides were seldom used in Association 4 on alfalfa, and when used, they were seldom shared. Insecticides were used in most cases, and this cost was shared in half of the cases which used insecticides. Seed was applied in most cases, and this cost was shared in half of the cases which applied seed. While drying was done in about one out of three cases on alfalfa, its cost was seldom shared. Harvesting, and hauling were never shared, according to the sample of Association 4. While fuel was more commonly shared in the production of alfalfa than on any other crop in Association 4, it was shared in only 14 percent of the share-leases producing alfalfa.

Association 5

Wheat

Association 5 consists of 17 counties in the northwestern part of Kansas. The sample of this Association is the smallest of all the Kansas Farm Management Associations sampled in this study. The only dryland crop for which statistical results can be reported is wheat.

The predominant sharing of wheat in this Association was one-third--two-thirds (Table 13A in Appendix). Although fertilizer was used in less than half of the share-leases on wheat in this Association, sharing of this input was quite common. Herbicide was also seldom used, although it was commonly shared in the cases in which it was used. Only one case was reported of insecticide being used, and no sharing of either the material or its application was reported. No cases were found of any other inputs being shared in this area in the production of wheat.

According to the 1951 study of the southwest, 93 percent of leases had one-third of the wheat as the landlord's share. Fertilizer was shared in 73 percent of leases, while herbicide was shared in 42 percent of the leases.

Association 6

Wheat

Association 6 consists of twenty counties in southwestern Kansas. Sharing in this Association was found to be much like sharing in western Kansas.

Eighty-six percent of the landlords of share-rented farms in this Association received one-third of the wheat crop, with the remaining 14 percent receiving two-fifths of the wheat.

According to the 1951 study, southeastern Kansas followed the pattern of the western areas. The 1968 study sampled only Bourbon and Cherokee counties in this area. Eighty-three percent of the share leases of these two counties were one-third--two-thirds leases. The 1970 study sampled only Bourbon county in this area, which showed 92 percent of landlords receiving one-third of the crop.

According to this 1975 study, fertilizer was used in all cases on wheat, and shared in all cases. Fertilizer application was shared in about one-third of these cases (Table 14A in Appendix). Herbicide was used on about one out of four of the share-rented tracts, and shared in over half of these cases. Insecticide was used on wheat on very few of the sample farms in 1975. No sharings of seed, hauling, or fuel, were found in this Association with respect to wheat production. Only one case of drying wheat was reported in Association 6, and its cost was shared.

The 1951 study also showed a high percentage sharing of fertilizer in southeastern Kansas. Herbicides were shared in only 28 percent of the cases in 1951. The 1968 and 1970 studies likewise, showed fertilizer being shared in all cases on wheat, while herbicide sharing did not differ substantially from this 1975 study.

Corn

Corn was grown on only 16 percent of the share-rented farms sampled in Association 6 (Table 4A in Appendix). The sample of leases concerned with corn production in this Association is quite small to be conclusive. This sample shows that in 60 percent of cases corn was shared one-third--two-thirds. Forty percent of landlords received two-fifths of the corn crop. Fertilizer was shared in most of the leases in which it was used, fertilizer application being shared in about half of these cases. Herbicides were shared in about one-third of the cases in which they were used.

The 1951 study shows two-fifths-three-fifths sharing predominant in southeastern Kansas, with 51 percent of landlords receiving the two-fifths share. Forty-three percent of landlords received one-third of the crop. The 1968 study of two counties in this Association shows 75 percent of landlords receiving one-third of the corn in this area.

Grain Sorghum

Grain sorghum was grown on the majority of share rented farms surveyed in Association 6. The landlord received one-third of the grain sorghum in 85 percent of cases, the remaining 15 percent of landlords receiving two-fifths of the crop. The 1968 study also showed

the landlord receiving one-third share in 85 percent of share-leases on grain sorghum in this area.

Fertilizer was shared in most of these share-leases (Table 14A in Appendix). Its application being shared in relatively few cases. Herbicide was used on grain sorghum in 65 percent of these leases. It also was shared in about half of the leases in which it was used with the cost of herbicide application usually paid in full by the tenant. Insecticide was applied in only one out of four of the share-leases under which grain sorghum was grown, and the cost of this material and application were usually paid by the tenant. According to this study, seed, hauling, and fuel were never shared in the share-lease concerned with grain sorghum in this Association. Drying was done on only one out of five grain sorghum share-leases, with this cost commonly not shared. Harvesting expenses were seldom shared.

The 1968 study shows fertilizer used on grain sorghum being shared in most cases, with herbicides being shared in 31 percent of leases.

Soybeans

Of the share-rented farms sampled in Association 6, 47 percent grew soybeans in 1975. Of these, 93 percent had landlords receiving one-third of the soybeans, 7 percent receiving two-fifths of the soybeans. Fertilizer was applied on only about one-third of these tracts and was shared on most of the tracts on which it was used (Table 15A in Appendix). Herbicide was used on two-thirds of soybean tracts in Association 6, and it too was shared on most of these tracts. Insecticides were seldom used in the southeast on soybeans, but were commonly shared when used. Few sharings of the applications of any of these inputs were reported.

Although drying was done in most cases on soybeans, no sharing of this expense was reported. Seldom was seed, harvest, hauling, or fuel shared on soybeans in the southeast.

The 1951 study also shows that in 93 percent of share leases on soybeans, the landlord received one-third of the crop. The 1968 study of two counties in the southeast, shows 91 percent of landlords receiving one-third of the crop.

Some of the results of a 1970 study of leasing in Thomas, Lane, and Edwards counties,¹ need to be mentioned here. Two conclusions of Harris' were that: "(1) 1970 crop-share leases need more attention to conditions encouraging efficient resource use and (2) significant 1951-1970 success adjustments demonstrated progress was made toward encouraging efficient resource use among lease participants." According to Harris, agreements involving variable inputs apparently needed more attention when establishing shares,--"lease participants have not achieved 90 percent successes when applying variable resources." Some of the characteristics which Harris attributes to influencing share arrangements between crops and variable inputs are: county location, acres rented, number of landlords rented from, and business of landlord.

According to Harris, "significant successful adjustments were positive and generally involved wheat and farm fertilizer material, fertilizer application, and materials."

¹Alan J. Harris, A Dissertation 1973, Kansas State University, Manhattan, Kansas. Department of Economics. Economic Incentives in Dryland Crop-Share Leases, Western Kansas, 1951 and 1970.

Equal Proportional Sharing of Input and Output

As stated in Chapter II on leasing principles, there are certain production economics rules established for share-leases. According to Heady, "These rules provide the framework for evaluating the empirical or factual findings of lease studies."¹ He goes on to say that these rules provide a framework within which farming efficiency can be as great under a share-lease as under a cash lease or under ownership operation.

One of these rules or incentives was that, "the arrangements for sharing costs and production for each particular crop must be the same."² This rule was tested on the share-rented Farm Management Association farms in this survey. An attempt was made to determine how close sharing in the state followed this rule, and also to determine if the practice of this rule was done in some areas of Kansas more than in other areas.

Association 1

In Association 1 for wheat, almost all of the share-leases sampled had equal proportional sharing of the cost of fertilizer and the wheat crop. (Table 16A in Appendix.) Fertilizer application was shared in the same proportion as the crop in few of these leases. Although this is a violation of the economic principle mentioned above, it may not be severe, as in many cases fertilizer application occurs simultaneously to planting of wheat, and is therefore usually a minor expense.

¹Earl O. Heady, Marginal Productivity of Resources and Imputation of Shares for Cash and Share Rented Farms. Agricultural Experiment Station Research Bulletin 433, Ames, Iowa, October 1955, p. 601.

²Virgil L. Hurlburt, Farm Rental Practices and Problems in the Midwest, Iowa Agricultural Experimental Station Research Bulletin 416, Ames, 1954, p. 86.

Herbicide and insecticide were applied to only about 5 percent of the share leased wheat tracts in Association 1. No cases were found in Association 1 of seed wheat being shared in equal proportion to the crop. Even though this is a "direct variable cost," its relatively low cost minimizes to some degree this violation of the rule. Harvesting, hauling, and fuel also showed no cases of equal proportional sharing. Although harvesting and hauling are generally considered to be responsibilities of the tenant, fuel is a "direct variable cost," and an important and expensive input. This lack of sharing of fuel costs in equal proportion gives the share tenant incentive to minimize fuel expense to a greater extent than would the owner operator, as the share tenant pays the full cost of fuel and yet receives only a fraction of the returns it produces.

An attempt was also made to determine if the production of one crop in an area might be more efficient than for some other crop in the same area, according to the equal proportional sharing rule. This might be the case for example, if custom had a greater affect on one crop than on another. Consequently, two crops were tested with respect to this incentive condition in several Associations.

The second crop tested in Association 1 was grain sorghum. The results show that 89 percent of tenants and landlords shared fertilizer on grain sorghum in the same proportion as they shared the crop. Few shared in this application in equal proportion, an application usually done with the planting and therefore a minor expense. (Table 16A in Appendix). Almost half of tenants and landlords shared equal proportionally in the costs of herbicides and insecticides, while few shared in the application of these inputs in this manner.

On grain sorghum in Association 1, no equal proportional sharings were found of seed, harvesting, hauling, or fuel. Only one equal proportional sharing of drying was found.

Association 2

In Association 2 in south central Kansas, the majority of landlords and tenants shared the fertilizer in the same proportion as they shared the wheat. (Table 17A in Appendix.) Only about one out of four shared the application in this manner. Almost half of the share-leases provided for the herbicide to be shared in like proportion to the crop. One-third of landlords and tenants shared the insecticide and insecticide application in this manner. In this Association on wheat, only one sharing was found of each of seed, harvest, and drying in equal proportion with the wheat. No cases were found where harvesting or fuel were shared in the same proportion as the wheat.

Association 3

In the southwestern part of the state (Association 3) this incentive condition was tested for just the wheat crop. Fertilizer, herbicide and insecticide were found to be shared in the same proportion as the wheat in over half of share-leases in this part of the state. (Table 18A in Appendix.) The costs of applying these inputs was shared in equal proportion to the crop in only about one-third of the share-leases using these inputs. Equal proportional sharing of seed, harvest, hauling, and fuel, with the wheat crop was rare in Association 3. And the cost of drying was always shared in equal proportion to the wheat crop according to this study.

Association 4

Two crops, wheat and corn, were tested in Association 4 with respect to this equal proportional sharing rule. The majority of the share-leases tested in Association 4 provided for the landlord and tenant to share fertilizer in the same proportion as they share the wheat. (Table 19A in Appendix.) When used, herbicides were shared in equal proportion to the crop in two out of three leases tested, insecticides in only one out of two leases tested. The application of fertilizers, herbicides, and insecticides were equal proportionally shared with the wheat crop in less than 20 percent of leases tested in Association 4. Seed was shared in an equal proportional manner in almost half of the share-leases tested in Association 4 on wheat, a much higher percentage of equal proportional sharing than in other areas for this input. The expense of drying was shared in equal proportion to the wheat in more than one out of four of the share-leases tested, with fuel only rarely shared in equal proportion to the wheat.

Corn, another important crop to the northeast Association, had fertilizer, herbicide, and insecticide shared the same as the crop in over 90 percent of the share-leases that contained corn. (Table 19A in Appendix.) Fertilizer application was equal proportionally shared in one-fourth of these share-leases. The application of herbicide and insecticide was equal proportionally shared in only about one out of nine of these share-leases. The cost of seed and drying with respect to corn, was equal proportionally shared in more than two out of three of the share-leases tested in this Association. Harvesting and hauling expenses were equal proportionally shared in more than one out of three

of these share-leases, and fuel was never shared in the same proportion as the corn in this Association.

Association 5

Of the small sample of share-rented farms in Association 5 (northwestern Kansas), fertilizer material was found to be shared in like proportion to the wheat in all cases in 1975. Herbicide material was equal proportionally shared in only one out of four of the cases, with no cases of a equal proportional sharing of the application of fertilizer, herbicide, or insecticide. (Table 20A in Appendix.) There were also no cases of the landlord and tenant sharing insecticide, seed, harvesting, drying, hauling, or fuel in the same proportion as the wheat was shared.

Association 6

Sharing in Association 6 in the southeastern part of Kansas was also tested with respect to this incentive condition. Sharing in this Association was very much like sharing in western Kansas, and therefore compliance with this sharing rule might be expected to follow somewhat the same format.

Fertilizer material was shared in the same proportion as the wheat crop in Association 6 in over 90 percent of share-leases, with its application being shared correctly in one out of four of the share-leases tested. (Table 21A in Appendix). Herbicide was equal proportionally shared in over half of the cases which used this input in this Association, while insecticide was shared in this manner in only one out of three cases. The costs of herbicide and insecticide application was shared in the same proportion as the wheat in about one out

of three of the share-leases tested. No cases were found where seed, hauling, or fuel were equal proportionally shared in this Association. Harvesting was rarely shared in this manner, while drying was shared in this manner in all cases in which drying was done.

Equal Proportional Sharing Between Crops

The second incentive condition for encouraging optimal efficiency in leasing was that the shares of all products must be the same.¹ (Cash leases automatically fulfill this condition.) This condition was tested on the 216 dryland share-leases in this study.

The results of this study show that this condition was met on 95.9 percent of dryland share-rented farms in Kansas. (Table 22A in Appendix.) Consequently, the large majority of farms fulfilled this condition for encouraging optimal efficiency on share-rented farms.

The north central Association (Association 1), and the north-eastern Association (Association 4), were the most outstanding violators of this incentive condition, with 5.7 and 9.6 percent respectively, of share-rented farms in these Associations not complying with this condition. One explanation for the greater number of violations in these Associations is that a larger number of different crops is commonly grown on farms in this area of the state.

Problems and Comments

Space was provided in the questionnaire for the operators surveyed to express, in detail if they wished, any problem which pertained to their lease, or any comment about their lease which could be helpful

¹Virgil L. Burlburt, Farm Rental Practices and Problems in the Midwest, Iowa Agricultural Experimental Station Research Bulletin 416, Ames, 1954, p. 86.

in evaluating the performance of their lease. In this survey, very few problems or comments were found that are unique to dryland leases, or to irrigated land leases.

Surveying only the tenants gives somewhat of a one-sided view of the problems that currently exist in leasing arrangements. Landlords might have an equal number of substantiated arguments of how they are not obtaining their rightful share under the various types of leases. This survey is limited in this respect.

Cash Leases

Many different problems are experienced in cash leases than in share-leases. Many tenants complained about the amount of risk inherent in cash leases. The increased risk due to cash leases is especially important for those operators with a substantial amount of debt, such as new entrants into farming, and those attempting to expand their current operations.

Some of the tenants operating cash rented farms expressed satisfaction with the performance of their cash leases. Cash leases often are better deals for better than average operators. Cash leases offer the good operator every incentive to perform to the best of his abilities, since every increase in productivity and yield, over the fixed cash rent, goes to the tenant.

Some tenants praised the greater flexibility in crop planning offered to them by the cash lease. This is very important to some operators. Being able to plant, plow,...etc., what and when the operator wants to without the oversight of a landlord, is more often possible under a cash lease.

Some of the tenants surveyed, complained that it is difficult to obtain a five year or more cash lease today. Several other tenants stated that they were currently operating under a five year cash lease but the landlord wanted out of the contract. This has been a long-standing complaint of cash leases. The problem is the inability of cash leases to adjust to price changes (especially grain prices). This problem has intensified in recent years, as fluctuations in grain prices have intensified. The flexible cash lease (reviewed in Chapter II) is offered as an alternative. The flexible cash lease offers the good operator greater incentive which the cash lease is noted for plus the fact that it remedies these price fluctuations.

Share Leases

By far the most common complaint concerning share leases is that the landlord is not sharing in some input which the tenant feels he should share in. These complaints appear to be well founded. As the findings of this study show, many "direct variable costs" which in principle should be shared, are in fact not shared.

Another common complaint, unique to share leases, is that many times the landlord will "urge" the tenant to work the landlord's land first (especially in the case of a part-owner). Under a share-lease, the return to the landlord is based solely on the crop produced. Consequently, the landlord will be very interested in getting work on his land done at the most opportune time.

A tenant renting from several landlords in an area, may be getting pressure from many sides. He will probably move in the direction of the landlord who is most influential.

The part-owner faces a different set of incentives than the full-tenant. Whereas the full-tenant has little economic incentive to prefer one landlord over another (given equivalent land and shares), the part-owner has economic incentive to work the land he owns first. (Refer to the section on "The Part-Owner and Allocation of Resources" in Chapter II.) The part-owner receives only a share of the output of the rented land, but the whole of the output on his owned land.

In this respect, the cash lease is a better deal for the part-owner, in that it does not result in this conflict. Any increase in output on cash rented land goes to the tenant.

Although many share tenants dislike the landlord's role in attempting to increase production on the share rented farm, a few tenants have expressed the opinion that a share-lease puts two people together with a mutual interest, and that "two heads are better than one." A few of the share tenants said that their landlords were helpful in managing and planning for the future of the farm. Good communication and understanding appears almost essential for a successful share-lease.

All Leases

There were several complaints which came from tenants operating under both cash and share-leases. One of these complaints was concerned with the landlord not making necessary repairs to the house and buildings, contrary to the terms of the lease. (Also concerning replacement or improvements of home of buildings ruined by fire, storm, ...etc.)

The results of this study and others indicate that houses and buildings in use on cash and share-rented farms are still fairly

common in Kansas. But contrary to the principles of economic theory, very few cases were reported where a specific cash payment was being made for these houses and buildings. This is not offered as an excuse for those who are currently under an obligation, but it is intended to suggest that the cause of these problems is that the landlord has no economic incentive to make improvements or upkeep. A cash payment could alleviate this problem.

One of the most common complaints about both cash and share leases was the performance of the oral lease. Many tenants are worried about their future or the future of their families if something would happen to themselves or their landlords. Oral leases often lead to unnecessary conflicts about specific parts of the lease that may have been unclearly stated when the lease was made, or parts that were implied.

Leases with provisions whereby the tenant can remove any improvement that he makes, appear to work well in regard to improvements which can be moved. But numerous complaints were received about acquiring and paying for necessary improvements which could not be readily moved, such as buildings, fences, ponds,...etc. Leases obviously need provisions whereby the tenant can recover the cost of such improvements.

One of the best ways for a tenant to recover the cost of such improvements on the rented farm is to have a lease of sufficiently long duration so that the improvements have a chance to give the tenant a "fair" return. (The tenant should receive the marginal value productivity of the resources he contributes.) Although this may be the best means of dealing with this problem, it is often not possible, and therefore some provision for dealing with the cost of improvements needs to be in the lease.

CHAPTER V

AN ANALYSIS OF IRRIGATED LAND LEASING ARRANGEMENTS IN KANSAS

Introduction

Leasing arrangements for irrigated land are to a great degree quite similar to the arrangements for dryland. In Kansas most of the crops grown on irrigated land were the same type of crops that were grown on the land before irrigation equipment was installed. Therefore, with the exception of some changes in the type of crop grown, the output is quite the same. But the inputs used on irrigated land cause leases to be somewhat more complicated. Generally, crops grown on irrigated land has many more inputs involved in its production.

This study of leases on irrigated land follows much the same format as the study of leases on dryland in the preceding section. The most important information in this study of irrigated land is the material covering the handling of costs of irrigation related equipment and power to run these systems. Association 6, in southeast Kansas, is not in this study because of an insufficient amount of information to justify including it.

Those tenants in the Kansas Farm Management Associations who lease some irrigated land rent from an average of 2.6 landlords. Considerable variation exists among the Associations in Kansas with respect to the number of landlords. Association 5 in the northwest, an Association with a relatively large amount of irrigation, averages

about two landlords per tenant, while Association 4 in the northeast, with a minimal amount of irrigation, averages four landlords per tenant.

No crop-share-cash lease was reported on irrigated land in the state. All of the leases sampled of land under irrigation were either cash or crop-share leases. Only 12 percent of the leases involved with irrigation were cash leases. On the other hand, 88 percent were share-leases compared with 56 percent being share-leases on dryland. (Table 1.)

Of the leases concerned with irrigated land of which detailed information was obtained, 40 percent of the landlords and tenants were related, compared with only 29 percent of landlords and tenants on dryland. Only 14 percent of leases involved with irrigated land were between a father and a son.

In 14 percent of the leases on irrigated farms, the tenant was living on the rented farm, while in only 88 percent of the leases on dryland was the tenant living on the rented farm.

Twenty-six percent of the leases on irrigated land were written in 1975, compared with only 18 percent for dryland. (Table 2.) Perhaps more irrigation leases are written because of these leases being more complex. The average number of years the tenants have been renting these irrigated tracts was twelve years. (Table 2.)

The average size of the irrigated tracts in this sample is 240 acres (Table 2). Size varied from an 85 acre average in Association 2 to a 443 acre average in Association 3. (Table 2.) The average amount of acres in these tracts that were actually irrigated was 150 acres. This also varied, with the average of 85 acres irrigated per tract in Association 2, to 249 acres per tract under irrigation in Association 3.

TABLE V-1
NUMBER AND PERCENTAGE DISTRIBUTION OF IRRIGATED LAND LEASES OF A
SAMPLE OF MEMBERS OF THE FARM MANAGEMENT ASSOCIATIONS
IN KANSAS IN 1975

Lease	Associations						Total
	1	2	3	4	5	6	
	<u>NUMBER</u>						
Cash	3	2	6	0	0		11
Crop-Share	10	5	39	8	17		79
Crop-Share-Cash							
Other							
TOTAL	13	7	45	8	17		90
	<u>PERCENT</u>						
Cash	23	29	13				
Crop-Share	77	71	87	100.0	100.0		
Crop-Share-Cash							
Other							
TOTAL	100.0	100.0	100.0	100.0	100.0		

TABLE V-2
 SELECTED CHARACTERISTICS OF IRRIGATED LAND LEASES OF A SAMPLE
 OF MEMBERS OF THE FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975

	1	2	Association				Total
			3	4	5	6	
Leases Written							
Number	2	1	5	0	1		9
Percent	50	33	29		11		26
Average Acres Per Tract	213	85	443	160	298		240
Average Acres Irrigated	69	85	249	95	227		150
Average Years Rented	11	9	11	20	10		12

The average size of the cash rented irrigated tract was 240 acres. (Table 3.) The average size of the cash rented tract varied from 150 acres in Association 1, to 473 acres in Association 3. The average amount paid for irrigated land in the state was 35 dollars per acre, compared with 17 dollars per acre for non-irrigated land. (Table 3.)

The large majority (88 percent) of leases on irrigated land in Kansas were crop-share leases. Below is an evaluation of the sharing of the output and also the sharing of the inputs other than the inputs involved specifically with the irrigation system. The inputs specifically involved with the irrigation system will be dealt with later in this chapter.

Enough information was obtained to evaluate the economic principles involved in sharing for only three of the six Farm Management Associations in Kansas. The three Associations of which an adequate amount of information was received are the three most important Associations with respect to irrigation in Kansas. The Associations of which we were able to obtain detailed information on various crops are Associations 3, 4, and 5. Association 3 is the southwestern part of the state where the majority of Kansas' irrigation takes place. Association 5 the next most important with respect to irrigation is in the northwest. Association 4 is the northeast Association.

Sharing of Inputs and Outputs

Association 3

Wheat

In Association 3 67 percent of the share-leases on irrigated wheat had the landlord receiving one-third of the crop. Twenty-two

TABLE V-3

ACREAGES AND RENT PAID FOR IRRIGATED LAND WITH CASH LEASES OF A SAMPLE
OF MEMBERS OF THE FARM MANAGEMENT ASSOCIATIONS IN KANSAS
IN 1975

	Association						Total
	1	2	3	4	5	6	
Total Acres Cash Rented	150	0	2,367	0	0		2,517
Average Acres Cash Rented	150	0	473	0	0		420
Total Amount Paid	\$ 6,500	0	\$ 52,825	0	0		\$59,325
Average Amount Paid	1,625	0	3,107	0	0		1,695
Cash Rent Per Acre	48.30	0	22.30	0	0		35.00

percent of these share-leases had the landlord receiving one-fourth of this crop, while 11 percent had the landlord receiving one-half of this crop.

The majority of landlords shared in the cost of fertilizer on irrigated wheat in Association 3 with only one out of three landlords sharing in the application. (Table 23A in Appendix.) Herbicides and insecticides were used on about half of these share-rented tracts. Herbicide and insecticide was shared in about half the cases in which it was used, although few cases were found of herbicide or insecticide application on wheat being shared. No sharings were found on irrigated wheat in Association 3 for the cost of seed, harvest, hauling, or fuel. Drying was done in just over half of the share leases under which wheat was grown, its cost being shared in only 20 percent of the cases in which it was done.

Corn

A substantial amount of corn was also grown under irrigation in Association 3. Of the share leases in this Association which had corn, 57 percent had the landlord receiving one-third of the crop in 1975. Twenty-nine percent had the landlord receiving one-fourth of the crop, with the remaining 14 percent giving the landlord one-half of this crop. Fertilizer was shared in almost all of the cases in which it was used in irrigated corn production in Association 3. Fertilizer application was also shared in the majority of these leases. (Table 23A in Appendix.) While herbicides and insecticides were used in most cases on corn, these expenses were shared in only two out of three of these share-leases. Herbicide and insecticide application was shared in about half of these leases, respectively. No cases

were found of the landlord and tenant sharing the seed, harvest, hauling, or fuel expense in the production of corn on irrigated land in this Association.

Grain Sorghum

Grain sorghum was also tested in Association 3 on irrigated land. The majority of landlords who received a share rent (Table 24A in Appendix) received one-third of the grain sorghum crop. The remaining landlords received one-half of this crop. Just over half of these landlords shared in the cost of fertilizer used in the production of this crop, while only one out of four landlords shared in the cost of herbicide when it was used. No cases were found in this Association of landlords sharing in the cost of these applications on the grain sorghum crop. When insecticide was used, its cost was shared in only one out of four share-leases, the same being true for its application. No sharings were reported for the seed, harvest, drying, hauling, or fuel expense. Drying of grain sorghum was done in about half of the leases.

Association 4

Wheat

In Association 4 in northeastern Kansas where irrigation is not so common, only one return was received of a share-lease having wheat grown on irrigated land. The wheat in this lease was shared one-half--one-half. The landlord shared in the cost of fertilizer, fertilizer application, seed, and hauling--paying one-half of the cost of all of these inputs.

Corn

Only two leases were found where corn was grown on irrigated share-rented land in this northeast Association. Both of these leases showed one-half--one-half sharings of corn, while there was only one sharing of fertilizer, fertilizer application, herbicide, seed, and hauling in these two leases. No other inputs were shared on either lease.

These sharings for Association 4 were mentioned only to suggest how sharings on irrigated land might be in that area of the state. Very little confidence should be placed in these results as being representative for the whole of Association 4.

Association 5

Wheat

Association 5 in the northwestern part of the state ranks second in Kansas for the amount of irrigation taking place. A small sample of share-leases was obtained from this Association with respect to irrigated land.

In the five share-leases sampled covering irrigated wheat in Association 5, the landlord received one-third of the crop in all leases. The expense of fertilizer was shared in only half of the cases in which it was applied, with no reported sharing of this application being reported. (Table 25A in Appendix.) Only one lease out of the five reported use of herbicide and insecticide. The cost of these inputs were shared, as was the expense of applying the insecticide. No drying was reported from this area of Kansas on wheat.

Corn

While wheat was commonly shared one-third--two-thirds in north-west Kansas irrigated corn was shared in this manner in only four of the seven share-leases on corn. The remaining three leases on irrigated corn showed the landlord receiving one-fourth share of this crop. In only two of these leases on corn did the landlord share in the cost of fertilizer while fertilizer application was never reported shared. The cost of herbicide and insecticide was shared by landlords and tenants in only one out of the seven share-leases sampled. Insecticide application was also shared in only one of these share-leases. Seed, harvest, hauling, and fuel were seldom shared. (Table 25A in Appendix.) Drying, done in six cases, was shared in five of these share-leases.

Sharing of Irrigation-Related Equipment

Terrain is of extreme importance for irrigation. The size and amount of hills, and the type of soil determine to a large degree the type of irrigation system which is possible to use. In this study 68 percent of irrigated tracts were nearly level, 29 percent were described as rolling, and the remainder were best identified as sandy. The sandy tracts were all reported from southwest Kansas in Association 3. This Association had the majority of the irrigation that exists in Kansas, as already mentioned, and 71 percent of the tracts under irrigation in this Association reported nearly level land.

According to the results of this study 74 percent of the irrigation systems in the Kansas Farm Management Associations use gated pipe. (Table 4.) Twenty percent was by pivot systems, and only 6 percent was irrigated by ditch irrigation.

TABLE V-4

DISTRIBUTION OF IRRIGATED LAND LEASES ACCORDING TO TYPE OF IRRIGATION
SYSTEM OF A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT
ASSOCIATIONS IN KANSAS IN 1975

Type of Irrigation System	Association						Total
	1	2	3	4	5	6	
	<u>NUMBER</u>						
Pivot	1	1	4	0	1		7
Gated Pipe	2	2	12	2	8		26
Ditch	1	0	1	0	0		2
TOTAL	4	3	17	2	9		35
	<u>PERCENT</u>						
Pivot	25	33	23		11		20
Gated Pipe	50	67	71	100	89		74
Ditch	25		6				6
TOTAL	100	100	100	100	100	100	100

Two out of every three of the irrigated farms surveyed, had irrigation systems powered by natural gas. Also of interest is the fact that out of the five Farm Management Associations evaluated with respect to irrigation, only three Associations had any irrigation systems powered by natural gas. These three Associations are the three in the southwestern half of the state closest to the natural gas deposits in Kansas.

Twenty percent of the irrigation systems in Kansas were powered by electricity in 1975. Three percent were powered by LP gas, and 11 percent were powered by something other than the three types of power units evaluated.

Water for irrigation in Kansas is obtained from rivers, ponds, reservoirs, lakes, and wells. Wells are one of the most common sources of water for irrigation in the state, and one of the most expensive. Fifty percent of the farms with irrigation in Kansas had one well. Twenty-one percent had two wells, and three percent had three wells. Twenty-six percent of irrigated farms operated without well supplied water.

Pipe is another of the major expenses of an irrigation system. Especially expensive is the underground pipe associated with most permanent systems. According to this survey over half of the irrigation systems in the state have underground pipe. Eighty-nine percent of the systems in Association 5 in northwestern Kansas had underground pipe.

On the irrigated farms operated under cash lease, the landlord provided or shared in the expense of the well in only 11 percent. Landlords also provided or shared the pump expense in 11 percent of these leases. In only 9 percent of these leases did the landlord

contribute to paying the expense of the pipe. In about the same percent of cash leases the landlord provided or shared in some irrigation-related expense other than those mentioned above. Sharing or providing for the cost of the irrigation-related inputs by the landlord was most common in Association 1 and 3 (north central and southwest Kansas).

On the irrigated farms operated by share-lease, it was not common for the landlord to share in most of the expenses of irrigation even though some of the major expenses were shared.

Of those landlords with share-leases on irrigated tracts; 4 percent shared one-fourth of the cost of pipe, 4 percent one-third the cost of pipe, and 4 percent one-half the cost of pipe. Of those with underground pipe, only 5 percent have the landlord sharing one-third of this input.

The only other input involved specifically with the irrigation system and shared by the landlord was fuel. One-third of the fuel costs were paid by 6 percent of the landlords and 3 percent of the landlords paid one-half of the fuel costs. It was a surprise to see so few sharings of these irrigation inputs and no sharings in the provision of well, pump, power plant, overhead equipment, pump repairs, power plant repairs, ditching, and leveling.

Equal Proportional Sharing Between Crops

Irrigated

According to Hurlburt,¹ one of the most important conditions for encouraging optimal efficiency in leasing is that the shares of all products be the same. This condition was tested on the 29 irrigated land share-leases in this study.

¹Virgil L. Hurlburt, Farm Rental Practices and Problems in the Midwest, Iowa Agricultural Experimental Station Research Bulletin 416, Ames 1954, p. 86.

The results of this study show that this condition was not met on 20.7 percent of share-rented irrigated farms in Kansas (Table 26A in Appendix). The percentage of noncompliance with this condition on irrigated land in Kansas is over five times greater than the percentage of noncompliance on dryland in Kansas. A greater degree of noncompliance on irrigated farms might be expected as irrigated farms many times do not have the total acreage of the farm in irrigation. The productivity of irrigated land is usually substantially greater than the productivity of dryland on the same farm and if the landlord and tenant did not share in the costs of the irrigation equipment in the same proportion as the output was shared prior to the installation of the equipment then the sharing of output is justifiably different.

Problems and Comments (Irrigation)

Many of the problems and comments received about leases on irrigated land in Kansas involved some of the same problems tenants had with leases on dryland. Those problems and comments that were evaluated in "Problems and Comments" on dryland will not be repeated here. None of the leases on irrigated land were anything but straight cash or crop-share leases. Therefore irrigation did not result in an overall change in the character of the lease, only an addition to the lease.

Some of the tenants surveyed with respect to leases on irrigated land said that their share of the output was based on the total amount of money it took to install the irrigation equipment. In other words the irrigation equipment was added to the contribution of the landlord or tenant according to who paid for the equipment. The landlord and tenant then shared in the output as each contributed to the costs of production.

One of the tenants with a cash lease said that he installed the irrigation system with the landlord paying nothing and he, therefore, continues to rent the land at the dryland rate until the landlord pays his share of the costs.

Several tenants with share-leases, irrigated leased land with wells from their own land. Here too, if the landlord paid none of the costs of irrigation, he commonly received only the dryland rate.

CHAPTER VI

SUMMARY

This study attempts to aid Kansas farm landowners and operators to develop and use satisfactory leases. Requests for help have been received directly from them and also through extension personnel. This study relies mainly on a cross-sectional analysis of Kansas Farm Management Association operators, broadly separating leases into three types for purposes of analysis; (1) cash, (2) crop-share, and (3) crop-share-cash.

Perhaps the most useful information provided by this study with respect to cash leases in Kansas are the per acre cash rental figures for each of the six Associations. Technological changes, grain prices, forage prices, and land prices are some of the major forces which determine cash rent for land. Many of these forces fluctuate greatly which creates the possibility of transforming the equitable sharing arrangements within the cash lease. These forces give the participants to leases motivation to change the per acre cash rent as often as unpredictable fluctuations take place. The wide fluctuations in grain prices in recent years has today made it extremely difficult for tenants to obtain cash leases of long duration. The "flexible cash lease" is suggested as a possible alternative. More work is needed in this area though, especially in determining what the minimum provision in most leases is as this was not done in this study.

Tenant and landlord interests in crop-share leases originate from feelings of unfair or inequitable product and variable resource sharing. The heaviest emphasis of this study is on crop-share leases, as crop-share leases present the greatest challenge to the principles of production economics. The fact that over two out of three of the leases on agricultural land in Kansas are currently operated under crop-share leases (68 percent according to the results of this study), magnifies their importance.

Equitable sharing arrangements enable resource owners to receive the product increment earned by the resources they contribute to the firm. An equitable lease simultaneously encourages efficient resource use and maximum firm profits. The perfect crop-share lease requires that participants utilize equal rather than differential proportional shares between crop(s) and/or variable expenses to encourage equitable leases. It assumes resources solely the responsibility of the tenant or landlord were shared in the same proportion as the crops and variable inputs.

This study empirically evaluated crop-share leases based on the necessary conditions for equal proportional sharing between "direct variable inputs" and the output, established by the perfect crop-share lease. Findings of this study show that equiproportional sharing between inputs and output was followed for relatively few inputs. Using 90 percent of share-leases following this equiproportional rule in an area as the criterion for "success,"¹ fertilizer material is the only input that approximated success in 1975.

¹ Alan J. Harris, A Dissertation 1973, Kansas State University, Manhattan, Kansas, Department of Economics, Economic Incentives in Dryland Crop Share Leases, Western Kansas, 1951 and 1970, p. 210. "Literature reviewed inferred a 90 percent success rate was plausible rather than 100 percent successes."

Fertilizer material was shared "successfully" in all Associations except 3 and 4 according to this study. In Association 3 only 64 percent of the share-leases studied complied with this incentive condition, while 89 percent of share-leases in Association 4 complied.

No other input even approximated this "90 percent success" criterion. Herbicide material was the next closest to this "success" criterion, with about 65 percent of the share-leases in this study complying. Eighty-six percent of the share-leases studied in Association 4 complied with this equal proportional sharing rule with respect to herbicides and crops, while only 43 percent of the share-leases in Association 2 complied.

Insecticide was the only other input that was shared with much regard for this equal proportional sharing rule. Just over 40 percent of these share-leases used in this test met this condition with respect to insecticide.

Different outputs grown on the same share-rented farm, were shared in equal proportion in 96 percent of the share leases tested in this study. If we again use 90 percent as the "success" criterion, the share-leases in this sample fared quite well. No Association was below this "success" criterion. The Association which contained the most violations of this incentive condition was Association 4. But even in that area where more different crops are commonly grown on farms, 90 percent of share-leases complied with this incentive condition.

Compliance with these incentive conditions of equal proportional sharing of inputs with output, and outputs grown on the same farm are in some respects more important to irrigated farms in Kansas than

to dryland farms. For, according to this study, 88 percent of irrigated farms in Kansas are share-leases, while only 68 percent of dryland farms are share-leases. And as stated in Chapter V, cash-rented farms automatically fulfill these incentive conditons.

Testing of the rule for equiproportional sharing of inputs with output was not done for irrigated land leases because of two reasons. First, there is no known reason why irrigated land leases should differ significantly from dryland leases with respect to compliance with this rule. And secondly, the comparatively small samples that were obtained of irrigated land leases prohibited appropriate evaluation of this rule. But the rule for equal proportional sharing of crops grown on the same farm was tested on irrigated land leases. This was necessary because of the hypothesis that if irrigated and dryland crops both existed on the same share-leased farm in 1975 there would have been a tendency to share these differently.

Different outputs, grown on the same share-rented irrigated farms in 1975 were shared equal proportionally in only 79 percent of the share-leases sampled in this study. This compares with a 96 percent compliance with this rule on dryland. If the 90 percent criterion for "success" is applied here, compliance with this equal proportional sharing rule is far from success for the state as a whole. No individual Association met the 90 percent success criterion either.

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APPENDIX

ILLEGIBLE

**THE FOLLOWING
DOCUMENT (S) IS
ILLEGIBLE DUE
TO THE
PRINTING ON
THE ORIGINAL
BEING CUT OFF**

ILLEGIBLE

Kansas Agricultural Experiment Station
and Cooperative Extension Service

Farm No. _____

DRYLAND

Fin. Mgt. Assn. No. _____

1975 Farm Leasing Study

County _____

1. Number landlords you rent from _____; number paid cash only _____; crop share only _____; crop share cash _____; livestock share _____; other _____

ANSWER FOLLOWING FOR ONE LANDLORD---THE ONE WHOSE LAST NAME IS FIRST ALPHABETICALLY.

- 2.(a) Your relation (kinship) to the landlord _____ (b) Do you live on this land (yes, no) _____
3. Total acres in this rented tract _____; acres cropland _____; acres of pasture _____
- 4.(a) Number of years you have rented this land _____ (b) lease oral or written _____
5. Type of land (bottomland, upland, etc.) _____
- 6.(a) Is cash rent paid for any of this land and/or buildings (yes, no)? _____. If yes, what land: (1) acres of cropland _____, amount paid _____; (2) acres of pasture _____, kind (native or temporary) _____, amount paid _____; and (3) amount paid for buildings _____
- (b) Inputs other than real estate provided or shared by landlord for the cash rented land!

Kinds _____ amounts _____

7. If this land is share rented:

	Acres	Share to L.L.		Acres	Share to L.L.
Wheat	_____	_____	Soybeans	_____	_____
Corn	_____	_____	Alfalfa	_____	_____
Grain Sorg.	_____	_____	Other()	_____	_____

8. Inputs or costs shared by landlord. Check input if applied to land. Show share paid by landlord (1/3, 2/5, 1/2, etc.). Write in the crops.

Expense or input	Crop()		Crop()		Crop()		Crop()	
	Used (✓)	L.L.Sh	Used (✓)	L.L.Sh	Used (✓)	L.L.Sh	Used (✓)	L.L.Sh
Fert. Mater.	_____	_____	_____	_____	_____	_____	_____	_____
Fert. appl.	_____	_____	_____	_____	_____	_____	_____	_____
Herb. Mater.	_____	_____	_____	_____	_____	_____	_____	_____
Herb. appl.	_____	_____	_____	_____	_____	_____	_____	_____
Insect mater.	_____	_____	_____	_____	_____	_____	_____	_____
Insect appl.	_____	_____	_____	_____	_____	_____	_____	_____
Seed	_____	_____	_____	_____	_____	_____	_____	_____
Harvest	_____	_____	_____	_____	_____	_____	_____	_____
Drying	_____	_____	_____	_____	_____	_____	_____	_____
Hauling	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

9. Other items shared or furnished by landlord (building, fencing, water, etc.) _____

or paid by tenant such as taxes, upkeep of property, etc. _____

10. If livestock are shared explain ownership, sharing of costs, and sharing of returns _____

11. Problems in lease _____

12. Comments _____

IRRIGATED LAND

Farm No. _____

Fm Mgt. Assn. No. _____ 1975 Farm Leasing Study County _____

1. Number landlords you rent from _____; number paid cash only _____; crop share only _____; crop share cash _____; livestock share _____; other _____

ANSWER FOLLOWING FOR ONE LANDLORD---THE ONE WHOSE LAST NAME IS FIRST ALPHABETICALLY.

2. (a) Your relation (kinship) to the landlord _____ (b) Do you live on this land (yes, no) _____

3. Total acres in this rented tract _____; acres irrigated _____.

4. (a) Number of years you have rented this land _____ (b) lease oral or written _____.

5. Type of land (nearly level, rolling, sandy, etc.) _____.

6. (a) Type of irrig. system (✓): Pivot _____; gated pipe _____; ditch _____; other _____

(b) Kind of power unit (electric, natural gas, L.P., etc.) _____

(c) Number of wells on this land _____; Is there underground pipe _____.

7. (a) Is cash paid for any of this land (yes, no)? _____; If yes, acres cash rented _____; total amount paid _____ (b) Inputs provided or shared by landlord for this cash rented land _____

(c) Is cash paid for any other resources (bldg., etc.) provided by this landlord (yes, no) _____; If yes, specify _____

8. If this land is share rented:

	<u>Acres</u>	<u>Share to L.L.</u>		<u>Acres</u>	<u>Share to L.L.</u>
Wheat	_____	_____	Beets	_____	_____
Corn	_____	_____	Alfalfa	_____	_____
Grain Sorg.	_____	_____	Other()	_____	_____

9. For this irrigated land, landlord furnishes (all, 1/3, 1/2, etc): well _____; pump _____; power plant _____; pipe _____; overhead equip. _____; pump repairs _____; power plant repairs _____; other irrig. equip. repairs _____; fuel _____; ditching _____; leveling _____; underground pipe _____; other (specify) _____

10. Other inputs or costs shared by landlord. Check input if applied to land. Show share for landlord (1/3, 2/5, 1/2, etc). Write in the crops.

<u>Expense or input</u>	<u>Crop()</u>		<u>Crop()</u>		<u>Crop()</u>		<u>Crop()</u>	
	<u>Used</u>	<u>L.L.Sh</u>	<u>Used</u>	<u>L.L.Sh</u>	<u>Used</u>	<u>L.L.Sh</u>	<u>Used</u>	<u>L.L.Sh</u>
	<u>(✓)</u>		<u>(✓)</u>		<u>(✓)</u>		<u>(✓)</u>	
Fert. mater.	_____	_____	_____	_____	_____	_____	_____	_____
Fert. appl.	_____	_____	_____	_____	_____	_____	_____	_____
Herb mater.	_____	_____	_____	_____	_____	_____	_____	_____
Herb appl.	_____	_____	_____	_____	_____	_____	_____	_____
Insect mater.	_____	_____	_____	_____	_____	_____	_____	_____
Insect appl.	_____	_____	_____	_____	_____	_____	_____	_____
Seed	_____	_____	_____	_____	_____	_____	_____	_____
Harvest	_____	_____	_____	_____	_____	_____	_____	_____
Drying	_____	_____	_____	_____	_____	_____	_____	_____
Hauling	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

11. Other Items shared or furnished by landlord (bldg., water, labor etc.) _____

or paid by tenant such as taxes, upkeep of property, etc. _____

12. Problems in lease _____

13. Comments _____

TABLE 3A

BUSINESS ORGANIZATION OF A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT
ASSOCIATIONS IN KANSAS IN 1974

Business Organization	Association						Total
	1	2	3	4	5	6	
	<u>NUMBER</u>						
Corporation	0	0	1	3	1	3	8
Partnership: owner	2	2	0	6	3	3	16
Partnership: part-owner	12	9	3	10	5	14	53
Partnership: tenant	1	7	3	0	0	1	12
Single: owner	9	8	9	36	4	14	80
Single: part-owner	65	69	70	45	73	79	401
Single: tenant	5	6	11	10	6	8	46
TOTAL	94	101	97	110	92	122	616
	<u>PERCENT</u>						
Corporation	0.0	0.0	1.0	2.7	1.1	2.5	1.3
Partnership: owner	2.1	2.0	0.0	5.5	3.3	2.5	2.6
Partnership: part-owner	12.8	8.9	3.1	9.1	5.4	11.5	8.6
Partnership: tenant	1.1	6.9	3.1	0.0	0.0	0.8	1.9
Single: owner	9.6	7.9	9.3	32.7	4.3	11.5	13.0
Single: part-owner	69.1	68.4	72.2	40.9	79.4	64.6	65.1
Single: tenant	5.3	5.9	11.3	9.1	6.5	6.6	7.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 4A

NUMBER AND PERCENTAGE DISTRIBUTION OF DRYLAND LEASES OF A SAMPLE OF MEMBERS
OF FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975

Lease	Association						Total
	1	2	3	4	5	6	
	<u>NUMBER</u>						
Cash	8	11	7	10	2	17	55
Crop-Share	29	34	21	35	8	26	153
Crop-Share-Cash	23	9	6	14	4	6	62
Other	<u>0</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>4</u>
TOTAL	60	55	34	62	14	49	274
	<u>PERCENT</u>						100
Cash	13	20	21	16	14	35	20
Crop-Share	48	62	61	56	57	53	56
Crop-Share-Cash	39	16	18	23	29	12	23
Other	<u>0</u>	<u>2</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>1</u>
TOTAL	100	100	100	100	100	100	100

TABLE 7A

ACRES OF CROPLAND AND PASTURE UNDER VARIOUS TYPES OF LEASE OF A SAMPLE OF
MEMBERS OF THE FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975

Lease	Association						Total
	1	2	3	4	5	6	
	<u>AVERAGE ACRES PER TRACT</u>						
Cash	236	529	665	325	280	308	390
Crop-Share	157	254	260	220	357	115	212
Crop-Share-Cash	439	242	567	276	1452	373	445
	<u>AVERAGE ACRES CROPLAND PER TRACT</u>						
Cash	162	170	284	50	189	40	122
Crop-Share	144	229	241	143	245	88	172
Crop-Share-Cash	268	175	367	139	730	184	257
	<u>AVERAGE ACRES PASTURE PER TRACT</u>						
Cash	74	306	380	271	68	264	254
Crop-Share	10	20	5	57	108	20	20
Crop-Share-Cash	170	66	198	114	723	175	181

TABLE 8A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 1, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>WHEAT</u>							
Percent of crop to landlord	45			73	27		
Percent paid by landlord							
Fertilizer	45	4		69	27		
Fertilizer application	45	89		11			
Herbicide	3	33		67			
Herbicide application	3	67		33			
Insecticide	2	50		50			
Insecticide application	2	50		50			
Seed	45	100					
Harvesting	45	100					
Drying	0						
Hauling	45	100					
Fuel	45	100					
Other	2			50			50
<u>GRAIN SORGHUM</u>							
Percent of crop to landlord	37			62	35	3	
Percent paid by landlord							
Fertilizer	35	12		51	37		
Fertilizer application	35	89		11			
Herbicide	30	47		37	16		
Herbicide application	30	87		13			
Insecticide	22	50		36	14		
Insecticide application	22	77		23			
Seed	37	100					
Harvesting	37	100					
Drying	6	83		17			
Hauling	7	100					
Fuel	37	100					
Other	2			50			50

TABLE 9A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 2, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>WHEAT</u>							
Percent of crop to landlord	41			90	5	5	
Percent paid by landlord							
Fertilizer	41	7		85	5	3	
Fertilizer application	41	73		24		3	
Herbicide	14	57		43			
Herbicide application	14	71		29			
Insecticide	12	67		33			
Insecticide application	12	67		33			
Seed	41	98				2	
Harvesting	41	98				2	
Drying	6	83		17			
Hauling	41	100					
Fuel	41	100					
Other	3	67				33	
<u>GRAIN SORGHUM</u>							
Percent of crop to landlord	20			95	5		
Percent paid by landlord							
Fertilizer	20	10		85	5		
Fertilizer application	20	75		25			
Herbicide	14	71		29			
Herbicide application	14	79		21			
Insecticide	5	80		20			
Insecticide application	5	80		20			
Seed	20	100					
Harvesting	20	100					
Drying	8	25		63	12		
Hauling	36	69				31	
Fuel	20	100					
Other	1			100			

TABLE 10A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
 COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
 FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
 (Association 3, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>WHEAT</u>							
Percent of crop to landlord	22			96		4	
Percent paid by landlord							
Fertilizer	22	36		64			
Fertilizer application	22	64		36			
Herbicide	8	50		50			
Herbicide application	8	63		37			
Insecticide	7	43		57			
Insecticide application	7	71		29			
Seed	22	91		5			4
Harvesting	22	91		5		4	
Drying	2			100			
Hauling	22	95		5			
Fuel	22	100					
Other	0						

TABLE 11A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 4, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>WHEAT</u>							
Percent of crop to landlord	36			25	19	56	
Percent paid by landlord							
Fertilizer	36	11		14	17	58	
Fertilizer application	36	81		3	8	8	
Herbicide	6	33			17	50	
Herbicide application	6	83			17		
Insecticide	6	50				50	
Insecticide application	6	83				17	
Seed	36	42			3	44	11
Harvesting	36	72				28	
Drying	1	100					
Hauling	9	100					
Fuel	36	97				3	
Other	1					100	
<u>CORN</u>							
Percent of crop to landlord	24			13	8	79	
Percent paid by landlord							
Fertilizer	24	9		4	8	79	
Fertilizer application	24	75				25	
Herbicide	23	9			9	82	
Herbicide application	23	91			5	4	
Insecticide	24	13		4	8	75	
Insecticide application	24	88			4	8	
Seed	24	25				71	4
Harvesting	24	58				42	
Drying	15	33			7	60	
Hauling	24	63				37	
Fuel	24	100					
Other	1					100	

TABLE 12A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 4, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>GRAIN SORGHUM</u>							
Percent of crop to landlord	36			20	22	58	
Percent paid by landlord							
Fertilizer	36	3		19	17	61	
Fertilizer application	36	75		6	6	13	
Herbicide	34	17		9	25	59	
Herbicide application	34	83		6	3	9	
Insecticide	31	19		7	10	64	
Insecticide application	31	84		3		13	
Seed	36	47				50	3
Harvesting	36	67				33	
Drying	17	71		6		23	
Hauling	36	69				31	
Fuel	36	97				3	
Other	1	100					
<u>SOYBEANS</u>							
Percent of crop to landlord	25			24	20	56	
Percent paid by landlord							
Fertilizer	7	29			14	57	
Fertilizer application	7	57			14	29	
Herbicide	22	23		9	18	50	
Herbicide application	22	82		5	9	4	
Insecticide	3	33				67	
Insecticide application	3	100					
Seed	25	60				40	
Harvesting	25	68				32	
Drying	3	67				33	
Hauling	25	80				20	
Fuel	25	96				4	
Other	2	50				50	

TABLE 13A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
 COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
 FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
 (Association 5, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
	<u>WHEAT</u>						
Percent of crop to landlord	9					100	
Percent paid by landlord							
Fertilizer	4					100	
Fertilizer application	4	100					
Herbicide	1					100	
Herbicide application	1	100					
Insecticide	1	100					
Insecticide application	1	100					
Seed	9	100					
Harvesting	9	100					
Drying	1	100					
Hauling	9	100					
Fuel	9	100					
Other	0						

TABLE 14A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 6, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>WHEAT</u>							
Percent of crop to landlord	22			86	14		
Percent paid by landlord							
Fertilizer	22			77	14	9	
Fertilizer application	22	68		27		5	
Herbicide	5	40		40	20		
Herbicide application	5	60		40			
Insecticide	3	67		33			
Insecticide application	3	67		33			
Seed	22	100					
Harvesting	22	95		5			
Drying	1			100			
Hauling	22	100					
Fuel	22	100					
Other	0						
<u>GRAIN SORGHUM</u>							
Percent of crop to landlord	20			85	15		
Percent paid by landlord							
Fertilizer	20	10		70	15	5	
Fertilizer application	20	75		15	5	5	
Herbicide	13	54		23	15	8	
Herbicide application	13	85		15			
Insecticide	5	80		20			
Insecticide application	5	80		20			
Seed	20	100					
Harvesting	20	95		5			
Drying	4	75		25			
Hauling	20	100					
Fuel	20	100					
Other	1	100					

TABLE 15A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 6, Dryland)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>SOYBEANS</u>							
Percent of crop to landlord	15			93		7	
Percent paid by landlord							
Fertilizer	5	40		40			20
Fertilizer application	5	100					
Herbicide	10	40		50			10
Herbicide application	10	80		20			
Insecticide	1						100
Insecticide application	1	100					
Seed	15	100					
Harvesting	15	93		7			
Drying	15	100					
Hauling	15	100					
Fuel	15	100					
Other	0						

TABLE 16A

EQUAL PROPORTIONAL SHARING OF INPUTS AND OUTPUTS OF WHEAT AND GRAIN
 SORGHUM CROPS FOR A SAMPLE OF MEMBERS OF THE FARM
 MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
 (Association 1, Dryland)

	Number Reporting Sharing	1/4	1/3	2/5	1/2	Not Shared Same
<u>WHEAT</u>						
Fertilizer Material	45		31	12		2
Fertilizer Application	45		5			40
Herbicide Material	3		2			1
Herbicide Application	3		1			2
Insect Material	2		1			1
Insect Application	2		1			1
Seed	45					45
Harvest	45					45
Drying	0					
Hauling	45					45
Fuel	45					45
Other	2					1
<u>GRAIN SORGHUM</u>						
Fertilizer Material	35		18	13		4
Fertilizer Application	35		4			31
Herbicide Material	30		11	5		14
Herbicide Application	30		4			26
Insect Material	22		8	3		11
Insect Application	22		5			17
Seed	37					37
Harvest	37					37
Drying	6		1			5
Hauling	37					37
Fuel	37					37
Other	2		1			1

TABLE 17A

EQUAL PROPORTIONAL SHARING OF INPUTS AND OUTPUTS OF THE WHEAT
CROP FOR A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT
ASSOCIATIONS IN KANSAS IN 1975
(Association 2, Dryland)

	Number Reporting Sharing	1/4	1/3	2/5	1/2	Not Shared Same
Fertilizer Material	41		34	2	1	4
Fertilizer Application	41		9		1	31
Herbicide Material	14		6			8
Herbicide Application	14		4			10
Insect Material	12		4			8
Insect Application	12		4			8
Seed	41				1	40
Harvest	41				1	40
Drying	6		1			5
Hauling	41					41
Fuel	41					41
Other	3				1	2

TABLE 18A

EQUAL PROPORTIONAL SHARING OF INPUTS AND OUTPUTS OF THE WHEAT
CROP FOR A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT
ASSOCIATIONS IN KANSAS IN 1975
(Association 3, Dryland)

	Number Reporting Sharing	1/4	1/3	2/5	1/2	Not Shared Same
Fertilizer Material	22		14			8
Fertilizer Application	22		8			14
Herbicide Material	8		4			4
Herbicide Application	8		3			5
Insect Material	7		4			3
Insect Application	7		2			5
Seed	22		1			21
Harvest	22		1			20
Drying	2		2		1	
Hauling	22		1			21
Fuel	22					22
Other	0					

TABLE 19A

EQUAL PROPORTIONAL SHARING OF INPUTS AND OUTPUTS OF WHEAT AND CORN CROPS
FOR A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT
ASSOCIATIONS IN KANSAS IN 1975
(Association 4, Dryland)

	Number Reporting Sharing	1/4	1/3	2/5	1/2	Not Shared Same
<u>WHEAT</u>						
Fertilizer Material	36		5	6	20	5
Fertilizer Application	36		1	3	3	29
Herbicide Material	6			1	3	2
Herbicide Application	6			1		5
Insect Material	6				3	3
Insect Application	6				1	5
Seed	36			1	16	19
Harvest	36				10	26
Drying	8				3	5
Hauling	36				8	28
Fuel	36				1	35
Other	1				1	
<u>CORN</u>						
Fertilizer Material	24		1	2	19	2
Fertilizer Application	24				6	18
Herbicide Material	23			2	19	2
Herbicide Application	23			1	1	21
Insect Material	24		1	2	18	3
Insect Application	24			1	2	21
Seed	24				17	7
Harvest	24				10	14
Drying	15				9	5
Hauling	24				9	15
Fuel	24					24
Other	1				1	

TABLE 20A

EQUAL PROPORTIONAL SHARING OF INPUTS AND OUTPUTS OF THE WHEAT
CROP FOR A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT
ASSOCIATIONS IN KANSAS IN 1975
(Association 5, Dryland)

	Number Reporting Sharing	1/4	1/3	2/5	1/2	Not Shared Same
Fertilizer Material	4		4			
Fertilizer Application	4					4
Herbicide Material	1		1			
Herbicide Application	1					1
Insect Material	1					1
Insect Application	1					1
Seed	9					9
Harvest	9					9
Drying	1					1
Hauling	9					9
Fuel	9					9
Other						

TABLE 21A

EQUAL PROPORTIONAL SHARING OF INPUTS AND OUTPUTS OF THE WHEAT
CROP FOR A SAMPLE OF MEMBERS OF THE FARM MANAGEMENT
ASSOCIATIONS IN KANSAS IN 1975
(Association 6, Dryland)

	Number Reporting Sharing	1/4	1/3	2/5	1/2	Not Shared Same
Fertilizer Material	22		17	3		2
Fertilizer Application	22		6			16
Herbicide Material	5		2	1		2
Herbicide Application	5		2			3
Insect Material	3		1			2
Insect Application	3		1			2
Seed	22					22
Harvest	22		1			21
Drying	1		1			
Hauling	22					22
Fuel	22					22
Other	0					

TABLE 23A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 3, Irrigated)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>WHEAT</u>							
Percent of crop to landlord	9		22	67		11	
Percent paid by landlord							
Fertilizer	9	22	11	56		11	
Fertilizer application	9	67	11	11		11	
Herbicide	4	50		50			
Herbicide application	4	100					
Insecticide	4	50		50			
Insecticide application	4	75		25			
Seed	9	100					
Harvesting	9	100					
Drying	5	80	20				
Hauling	9	100					
Fuel	9	100					
Other	1	100					
<u>CORN</u>							
Percent of crop to landlord	7		29	57		14	
Percent paid by landlord							
Fertilizer	7		29	57		14	
Fertilizer application	7	29	29	28		14	
Herbicide	6	33	17	33		17	
Herbicide application	6	66	17	17			
Insecticide	6	33	17	33		17	
Insecticide application	6	50	17	33			
Seed	7	100					
Harvesting	7	100					
Drying	6	49	17	17		17	
Hauling	7	100					
Fuel	7	100					
Other	0						

TABLE 24A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
 COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
 FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
 (Association 3, Irrigated)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>GRAIN SORGHUM</u>							
Percent of crop to landlord	5			80		20	
Percent paid by landlord							
Fertilizer	5	40		60			
Fertilizer application	5	100					
Herbicide	4	75		25			
Herbicide application	4	100					
Insecticide	4	75		25			
Insecticide application	4	75		25			
Seed	5	100					
Harvesting	5	100					
Drying	3	100					
Hauling	5	100					
Fuel	5	100					
Other	2	100					

TABLE 25A

DISTRIBUTION OF LEASES ACCORDING TO SHARE RECEIVED OF CROP AND
COST PAID BY LANDLORD FOR A SAMPLE OF MEMBERS OF THE
FARM MANAGEMENT ASSOCIATIONS IN KANSAS IN 1975
(Association 5, Irrigated)

Crop and Cost	Number Reporting	Percent of Those Reporting					
		Zero	1/4	1/3	2/5	1/2	Other
<u>WHEAT</u>							
Percent of crop to landlord	5					100	
Percent paid by landlord							
Fertilizer	4	50				50	
Fertilizer application	4	100					
Herbicide	1					100	
Herbicide application	1	100					
Insecticide	1					100	
Insecticide application	1					100	
Seed	5	100					
Harvesting	5	100					
Drying	0						
Hauling	5	100					
Fuel	5	100					
Other	0						
<u>CORN</u>							
Percent of crop to landlord	7		43	57			
Percent paid by landlord							
Fertilizer	7	71		29			
Fertilizer application	7	100					
Herbicide	7	86		14			
Herbicide application	7	100					
Insecticide	7	86		14			
Insecticide application	7	86		14			
Seed	7	100					
Harvesting	7	100					
Drying	6	17	50	33			
Hauling	7	100					
Fuel	7	100					
Other	0						

TABLE 26A

EQUAL PROPORTIONAL SHARING OF ALL CROPS GROWN ON IRRIGATED SHARE-RENTED
FARMS FOR VARIOUS SHARES

Share	Association						Totals
	1	2	3	4	5	6	
Shares Unalike	1	0	1		4		6
All 1/4		1	2		2		5
All 1/3	1	2	8		3		14
All 2/5							
All 1/2	<u>1</u>	—	<u>1</u>	<u>2</u>	—		<u>4</u>
TOTALS	3	3	12	1	9		29

ECONOMICS OF AGRICULTURAL
LEASING IN KANSAS

by

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AN ABSTRACT OF A MASTER'S THESIS

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Tenancy is a significant feature of American agriculture. In Kansas in 1969, full owners farmed 40 percent of all farms, part-owners 41 percent, and tenants 19 percent. Fifty-two percent of the land in Kansas in 1969 was operated under leasing arrangements.

This study is an attempt to aid Kansas farm landowners and operators to develop and use satisfactory leasing arrangements. Because of the quantity of resources so controlled, the farm lease can affect the efficiency with which agricultural products are produced. Recognizing this fact and knowing that rental payments have been determined by a maze of forces which in addition to competition include custom and elements of bilateral monopoly are major reasons why this study is thought valuable.

This study included a survey of members of the six Farm Management Associations (FMA) in Kansas covering the entire state. Knowledge of practices of the better-than-average farmer should be especially helpful to other farmers in the region. Previous work has shown that the average FMA farmer in Kansas is above the average Kansas farmer. Choosing the FMA as the universe also provided a list of farmers in Kansas that could be studied.

The primary source of data came from a survey of members who rented land. Additional information came from farm records of Association members for 1974 and 1975.

The cross-sectional analysis of Kansas FMA operators, broadly separated leases into three types: (1) cash, (2) crop-share, and

(3) crop-share-cash. The heaviest emphasis of this study is on crop-share leases, as crop-share leases present the greatest challenge to the principles of production economics, and over two out of three of all leases are crop-share leases.

The perfect crop-share lease requires that participants utilize equal rather than differential proportional shares between crop(s) and/or variable expenses to encourage equitable leases, and the most productive use of resources. It assumes that crops and variable inputs are shared in the same proportion as the relative values of the resources provided separately by the landlord and tenant.

Findings of this study show that different outputs grown on the same share-rented dryland farm were shared in equal proportion in 96 percent of the share-leases tested (90 percent of share-leases complying with these equiproportional sharing rules was used as the criterion of success). Seventy-nine percent of the share-leases on irrigated land met this condition. Although share-leases on irrigated land more often failed to meet this condition, more kinds of crops are grown on these farms, increasing the opportunity for this to occur. Irrigation has expanded greatly in recent years, with today's leasing arrangements being heavily influenced by leasing practices which preceded irrigation. As a consequence, modifications are needed to better suit irrigation.

Equiproportional sharing between inputs and output rarely met the "success" criterion. Fertilizer material was the only input that approximated success in 1975. A greater proportion of the "direct variable inputs" were shared in the northeastern part of the state, where the landlord commonly receives a larger proportion of the output.

More work is needed with "direct variable inputs," especially with respect to chemicals other than fertilizer. Eventually the handling of the other essentially "direct variable inputs," now entrenched in custom, could be revised. The results of this study suggest the aspects of leasing that might be worked on in future research and extension programs.