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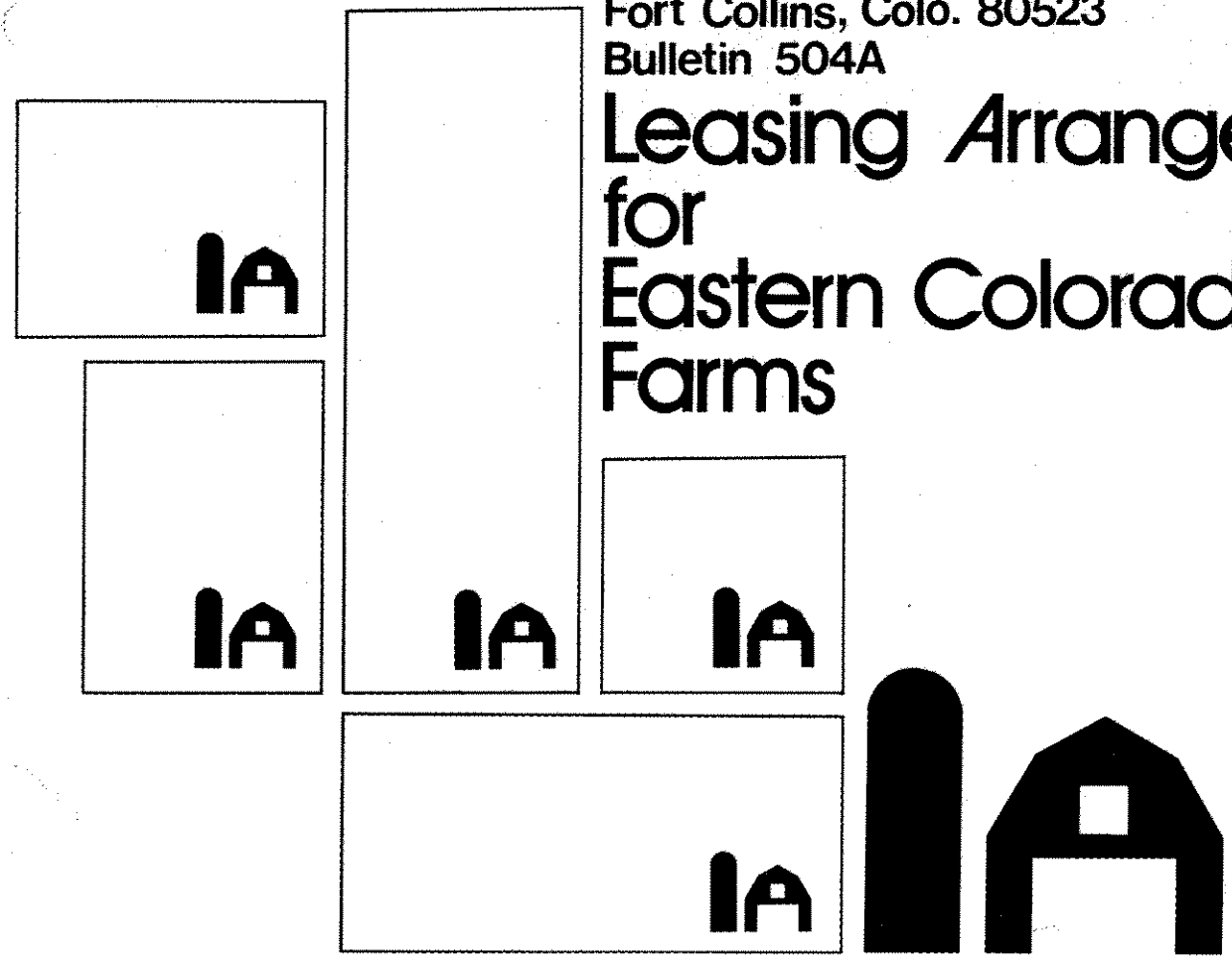
Leasing Arrangements for Eastern Colorado Farms



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Leasing Arrangements for Eastern Colorado Farms

by

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Leasing arrangements between land owners and renters are often based on long-standing traditions. The terms of the lease generally move toward a system which is acceptable to both the landlord and the tenant. In recent years, however, we have experienced large and rapid changes in the prices of items used in farm production. In addition, a completely new technology such as ground-water irrigation may require modification of traditional lease agreements. Both input price changes and changes in technology may affect the relative contributions of the landlord and tenant differently. That is, those items of production which a landlord traditionally furnishes may change at a different rate than the costs of the production inputs furnished by the tenant.

Given the changes which have occurred, and in the anticipation of further changes in the future, an examination of the principles of a good lease or a "fair" lease is needed. This report describes the process by which the soundness of a lease can be evaluated.

A Good Lease

The concepts for establishing a good lease are simple and straight forward. Basically, each party to the lease agreement should share in

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the output (returns) in the same proportion as they share in the inputs (costs) of production.

For example, when using an output increasing input such as fertilizer, if the landlord and tenant share in the fertilizer costs in the same proportion as they share in the yield, the lease would be an equitable one so far as fertilizer is concerned.

An example will serve to illustrate a good lease. The following data shows the bushels per acre of corn associated with varied amounts of nitrogen per acre. The level of application of all other inputs (seed, water, other nutrients, etc.) remains constant. If nitrogen

Nitrogen Per Acre (lbs)	Corn Yield (bu/ac)	Added Costs ($)	Added Returns ($)
0	45	-	-
60	75	12	67.50
120	100	12	56.25
180	112	12	27.00
240	119	12	15.75

costs 20 cents per pound, each 60-pound increment costs an additional $12.00. The fourth column indicates the addition to returns associated with each increment of nitrogen; corn is priced at $2.25 per bushel.

Suppose, for example, that the tenant is expected to pay for all fertilizer applied. Further, the tenant receives a 2/3 share of the crop and the landlord the remaining 1/3 share. The landlord would clearly favor having 240 pounds of nitrogen applied since this would give him maximum returns. But, upon considering the amount of fertilizer to apply, the tenant would receive a $27 X 2/3 = $18.00 increment in returns

from applying 180 rather than 120 pounds of nitrogen. Since the additional 60 pounds of nitrogen would cost him only $12, he would favor applying at least 180 pounds. The tenant would not favor extending nitrogen applications to 240 pounds, however. The added tenant return of $10.55 (2/3 X $15.75) is not sufficient to cover the added tenant cost of $12.00. But, the good lease cannot be decided on the basis of one input; rather, it must consider the total contributions of both the landlord and the tenant. To do this, we need to have information about the production costs for the various crop enterprises grown on leased land. These production costs must be identified by source as between landlord furnished and tenant furnished. The value of the contribution of each party to total production costs forms the basis for dividing the yield or returns between the two parties of the lease.

Types of Leases

In Colorado, two types of leases predominate: the cash lease and the crop-share lease. Many variations can occur within these two basic types.

Cash lease. The terms of this lease are that the tenant pays a fixed and agreed upon amount on an annual basis to the landlord in exchange for the right to crop the land. The tenant receives all of the proceeds of the crop. In the same way, the tenant bears all of the risk of crop failure. If the crop fails or yields are low, the landlord's payment remains fixed. It does not vary (directly) with the returns from the crop. At the same time, the tenant receives all the benefits

of a good yield. In the above example, suppose the tenant pays a cash rent of $70 per acre. Since he receives all of the returns from a variable input such as fertilizer, he may favor applying as much as 240 pounds of nitrogen per acre. The landlord would not care how much fertilizer is applied since his return is $70 per acre, regardless of the tenants fertilizer decision. Thus, if the tenant makes the right decisions about the level of input use and performs the operations in a timely and efficient manner, he is the sole beneficiary of his good management.

The tenant bears all of the risk; the landlord's returns are known and set in advance. The cash lease is more common in areas like the Corn Belt where year-to-year variations in crop yields are not as large as is found in the Great Plains. It is a good lease in that it does not lead to conflict between landlord and tenant as to the level of input use. When returns are relatively constant between years, the risk-bearing affects on the tenant are not severe.

Share lease. Under this situation, the tenant and the landlord share in the division of returns or yield. The shares going to each party are usually in proportion to their relative contributions of the inputs. Sometimes, as with dryland wheat production, the landlord furnishes the land in exchange for a 1/3 crop share. The tenant provides all of the cash inputs in addition to providing the labor and equipment for field operations. In other cases, the tenant and the landlord share the direct cash input costs, usually in proportion with their product

shares.

Earlier we saw how the distribution of returns in a different proportion than the distribution of yield related costs can lead to disagreements on the level of use of inputs between landlord and tenant. Under a good share lease, the costs are divided between the two parties in the same proportion as returns. If the tenant receives 2/3 of the crop and pays only 2/3 of the fertilizer costs, moving from 180 to 240 pounds of nitrogen would add $10.50 to his return against (2/3 X $12 =) $8 of added cost. And for the landlord who shares 1/3 of the costs and receives 1/3 of the return, he would have an added return of $5.25 and added costs of $4. Consequently, on the basis of expected costs and returns, both parties would find fertilizing at the 240 pound rate profitable. Each of these cases will further be illustrated with subsequent examples.

Value of Input Contributions

Before landlords and tenants can determine the appropriate shares for a fair lease it is necessary to evaluate the contribution of each party to the farming operation. The value of inputs which each party contributes are not always easy to discover. Items which are purchased annually pose little difficulty. But, most items of machinery and equipment are not completely used up in the year in which they are purchased. Their cost must be spread over several years. Land offers the potential for returns for a number of years. Thus, the cost of land must be assigned in a manner that is reflective of its true contribution to the production process.

Values are easily determined for cash inputs which are purchased annually. Market prices for these inputs reflect their value. Thus, for items such as seed, fertilizers, pesticides, petroleum fuels, hired labor and real estate taxes, assigning the appropriate price or value is accomplished by direct observation of the market.

Other inputs are not always purchased each year or if purchased, they are not fully consumed in the year of purchase. Machinery and equipment falls in this category. Specific items of machinery or equipment vary as to their useful or expected life. Accordingly, these assorted items are assigned different depreciation rates. Conveniently, annual depreciation serves as a useful measure of the "value" of the machinery and equipment used or consumed each year. Thus, someone with sizable recent acquisitions of machinery is going to have a basis for higher costs than someone who has older equipment and which is partially "depreciated out". Of course, the acres over which the machinery and equipment is spread is also an important factor. By taking the annual depreciation per acre of the enterprise in question, a realistic basis for assigning the value of the contribution of these types of operating inputs is found. This concept is applied in the illustrations below.

Operator labor and management is another contribution which must be valued. Most operators, whether tenants or owners, do not pay themselves directly. If they do, that payment can serve as the value of their

contribution. Since many do not receive direct pay, but take as their return what is "left over" after all other expenses are met, another valuation procedure is needed. The procedure often used is to apply the concept of "opportunity cost" as devised by economists.

Opportunity cost of operator labor is what it would cost that operator to hire someone to do the task the operator is doing. If the task is a routine labor contribution, such as could be done by hired labor, the hired labor wage rate would serve as the appropriate value for that operator-contributed labor. Specialized labor or labor requiring a skill which most hired laborers would not possess should be priced higher than the normal wage rate for hired laborers. For example, the operator of a grain combine may be paid at a higher rate than a tractor driver. Such differences should be taken into account.

Managerial labor is more difficult to price. One would expect that time spent in management would be priced higher than hired labor. Consequently, the wage rate for hired labor cannot be directly applied. Often, managerial contributions are valued or priced at some multiple of the hired labor wage rate. For example, if the going rate for hired labor is $4.00 per hour, management may be priced at 2 or 2 1/2 times that rate making the managerial labor price be $8.00 or $10.00 per hour.

Alternatively, managerial labor may be valued as (a) a percentage of gross returns, (b) as a rate per unit of the expected yield, or (c) as a percentage of all non-land costs. For example, if a yield of 120 bushels of corn is expected and the expected price is $2.25 per bushel,

a gross of $270 anticipated. The tenant may claim 7 percent of expected gross as the value of his management input, or $270 X 7 = $18.90 per acre. Or, taking $0.15 times the expected yield of 120, a management charge of $18.00 per acre would be applied. Finally, if all non-land costs totaled, say, $180 per acre a rate of 10 percent might be applied to arrive at a management charge of $18.00 per acre again.

Which of these methods chosen is somewhat arbitrary but each has some basis in logic. We have chosen to use 7 percent of expected gross returns as the value of the management inputs. This method recognizes that more managerial attention is required for higher valued crops and also recognizes that an important part of management is when to market the crop since the managerial return varies in relation to both price and yield.

The most difficult input valuation problem is that of land. It is especially troublesome because land costs represent such a high proportion of total costs in agriculture. Land doesn't depreciate like machinery and equipment; rather it appreciates in value over time. Nor is land used or depreciated out after a period of years. If properly managed, land can give off its use into perpetuity. What then is the appropriate value to assign to the land contribution in agricultural production? This issue has been much debated in recent years due to the explosive increases in land prices. It is not the intent of this report to present all of the options and arguments presented in this regard. Rather, only alternative procedures for estimating the contribution of land will be presented. We apply only one of these procedures in the illustrations

below. Brief comments will be made as to why the valuation procedures applied to other inputs will not work in the case of land.

The purchase price is used as the value of annually purchased inputs. Some land is exchanged in the market each year and its price is generally known, within limits. If land was purchased within the last five years, it would have a very high price. If, however, land were purchased, say, thirty years ago, its price or value would seem far too low.

Some would suggest that the "opportunity cost" concept should be applied to land. That is, it should be valued at its current market value. With such a procedure, land purchased at $70 per acre thirty years ago would be valued at its current market price. There are two errors with this procedure. First, it would represent a breach of accounting principles. In all other industries, assets are valued at their acquisition price, not their current market values. Return on investment is calculated against the amount of investment, not the present value of the asset. If assets which appreciate in value and which were acquired years ago are valued at current market prices, they would yield a very low return indeed.

The second problem relates to the nature of land as an input to production. There are two sources of value to land: one is due to its earning potential in agricultural use, and the other is its appreciation or ownership value over time. Often this second source of value is called the speculation value since speculators thrive on this return alone. Since land increases in value whether it is used in production

or not, it would not be correct to count the increase in land prices due to speculative factors as having a claim on agricultural returns. But, how can we separate the speculative value from land and the value it has as a resource in agricultural production?

One method of estimating the agricultural production value of land is to consider it as the return to land after all other expenses have been taken into account. This residual is taken as the value of the contribution of land to crop production in any one year. This return is then capitalized to arrive at the agricultural production value of land. A couple of examples will illustrate:

	Dry Wheat Land	Irrigated Corn Land
Average gross value or production/Acre	26 X $3.25 = $84.50	120 X $2.25 = $270.00
Cash expense	23.40	135.08
Machinery ownership costs	14.68	68.14
Management charge	2.96	18.90
Return above non-land costs	$43.46	$ 47.88

The return above all costs except land is $43.46 per acre for dryland wheat but since it requires two acres (one acre over two years) to produce that return, the $43.46 must be divided by two to reflect the per acre value of $21.73. The return above all non-land costs of irrigated corn land is $47.88. To capitalize returns per acre per year into the value of land, an interest rate comparable to the Federal Land Bank's

long-term mortgage interest rate on land is used. Currently, the rate runs close to 8.5 percent. Applying the capitalization formula:

$$V = \frac{R}{r} = \frac{\text{Net return per year}}{\text{interest rate}}$$

the value of dryland in wheat is;

$$V = \frac{\$21.73}{.085} = \$255.65 \text{ per acre, and}$$

irrigated corn land is valued at

$$V = \frac{\$47.88}{.085} = \$575.06 \text{ per acre.}$$

Current land prices are, of course, much higher than these amounts. Good dryland for wheat has reported sales in excess of $500 per acre and irrigated land has sold for $1500 per acre. The calculations above assign an agricultural value based on the return to land in agriculture. Speculative returns are not a part of the calculation. The difference between current prices and its calculated agricultural value (what could be paid for the land if it were to pay for itself) may be due to a number of factors. Among these other factors are the speculative returns which land owners receive--the appreciated value of land through time.

Valuing land by taking the return above non-land costs and capitalizing the return is usually based on normal or expected values. The return per acre is dependent upon weather conditions and management decision. The cash expenses and machinery ownership cost are also dependent upon management decisions. Thus, the return above non-land costs will fluctuate directly with weather and management capability. Consequently, expected costs and returns over time are used. Further, since

most land purchases are for farm enlargement, established farmers with adequate machinery investments may consider all returns above direct cash costs as returns to land. Likely, this valuing process contributes greatly to the discrepancy between agricultural return values and actual land prices.

A third method of valuing land is available. This method establishes the value of a farm for farming purposes and is an option available under the Internal Revenue Code for valuing farms to establish the value of farm estates (Sec. 2032 Ae7). The value of the farm is determined by dividing the difference between the average cash rent less the average of state and local real estate taxes for comparable land by the average effective interest rate for all new Federal Land Bank loans.

The average is computed from the five (5) most recent years. An example will help illustrate:

	Dry Wheat Land	Irrigated Corn Land
5 year cash rent average	$ 20.00	$ 75.00
Minus 5 year real estate tax average	1.17	5.38
Divided by 5 year Federal Land Bank interest rate average	8.5%	8.5%
= average value of farm for farming purposes	$221.53	$819.06

Once the value of the land is determined, the cost of the land is the interest paid on the land. For example, dry wheat land costing $221.53 per acre is financed for, say, twenty-five years at 8.5 percent

would have a total interest of $319.47. Thus, the average yearly interest is $12.78. For irrigated corn land valued at $819.06 per acre, financed for twenty-five years at 8.5 percent, the average yearly interest would be $47.27. For an investment to be economically profitable, the return on the investment must be equal to or greater than the cost of the investment. Therefore, the minimum land charge for dry wheat land would be $12.78 per acre and $47.27 per acre for irrigated corn land.

Several illustrations follow which demonstrate the importance of placing values on the contributions of the various items used in production. The purchase price is used for annually purchased inputs such as seed and fertilizer. Machinery and equipment values are based upon averaged annual depreciation and typical acreage of use factors. Some labor is priced at hired farm labor wage rates and operator labor and management values are based on opportunity cost concepts. Land is valued according to the last option discussed. Since this land valuation procedure meets the requirements of the Internal Revenue Code, this procedure was selected for the illustrations.

Some Illustrations

First, consider the case of dryland wheat production. Under the typical crop-share lease, the landlord receives a 1/3 crop share and the tenant the balance of the wheat output. Table 1 presents the estimate of per acre production costs and divides those costs between tenant and landlord; the tenant provides all inputs except those directly associated with land.

Another case, Table 2, is that of irrigated corn production under a deep-well center pivot irrigation system. In this hypothetical splitting of costs, the non-land and management costs are evenly split between the landlord and the tenant. As with wheat, the tenant furnishes the management input and the landlord provides the land.

The above two cases illustrate hypothetical crop share leases. However, the dryland wheat example (Table 1), is a commonly used lease in eastern Colorado. Tables 3, 4, 5, and 6 show actual crop share lease cost responsibilities for corn under a center pivot irrigation system. Table 3 illustrates a 50-50 lease, Table 4 a 60-40 lease, Table 5 a 2/3-1/3 lease and Table 6 a 3/4-1/4 lease.

Sharing Returns

A good lease allows the contributing parties to share returns in the same proportions as costs are shared. For example, if the tenant contributes 60 percent of the costs of production, he should receive 60 percent of the gross returns and the landlord receive the remaining 40 percent.

In the case of purchased inputs which have a direct effect on yield, it is especially important that the principle of sharing returns in the same proportion as costs be followed. Fertilizer and chemical inputs and irrigation fuel are inputs of this type. If returns are distributed in a different manner than costs, the two parties may disagree over the level of input application. It was illustrated earlier that if the tenant were to furnish all of the fertilizer, the landlord, who receives

Table 1. Per acre production costs incurred by tenant and landlord for wheat on fallow, eastern Colorado.

Cost Item	Tenant Contribution	Landlord Contribution	Total Cost
Seed	$ 2.94	$	$ 2.94
Fertilizer	1.30		1.30
Chemicals	.92		.92
Fuels, Lubricants, Repairs	10.80		10.80
Labor	6.46		6.46
Interest on Operating Capital	.98		.98
Machinery, Equipment, Ownership	14.68		14.68
Management[a/]	2.96		2.96
Land Charges[b/]		25.56	25.56
Real Estate Taxes		1.17	1.17
Totals	$41.04	$26.73	$ 67.77
Landlord and tenant respective percentage of total cost	60.56%	39.44%	100.00%

[a/] Assumes 7% of gross receipts from a normal wheat yield of 26 bushels (13 bushels/year) per acre at $3.25/bushel.

[b/] Assumes land valued at $221.53/acre and an annual interest cost of $12.78/acre; two acres are required for each acre of wheat under the wheat-fallow system.

Table 2.[a/] Hypothetical 50-50 split of per acre production costs incurred by tenant and landlord for irrigated corn under center pivots, eastern Colorado.

Cost Item	Tenant Contribution	Landlord Contribution	Total Cost
Seed	$ 6.33	$ 6.33	$ 12.66
Fertilizer	22.90	22.90	45.80
Chemicals	7.66	7.66	15.32
Fuel, Lubricants, Repairs			
Field Operations[b/]	10.59	10.59	21.18
Irrigation[c/]	15.08	15.08	30.16
Labor	4.14	4.14	8.28
Interest on Operating Capital[d/]	4.00	4.00	8.00
Ownership Costs			
Machinery & Equipment	10.58	10.58	21.16
Irrigation	23.49	23.49	46.98
Management[e/]	18.90		18.90
Land Charges[f/]		47.27	47.27
Real Estate Taxes	2.69	2.69	5.38
Totals	$126.36	$154.73	$281.09
Landlord and tenant respective percentage of total cost	44.95%	55.05%	100.00%

[a/] Data from Ag Producers' Analysis Service, Yuma, Colorado.

[b/] Includes harvesting.

[c/] Irrigation cost for 1978 ÷ 1.06.

[d/] 9% for 8 months.

[e/] See corresponding footnote, Table 1; yield 120 bu./acre at $2.25.

[f/] See Table 1; land valued at $819.06/acre and an interest cost of $47.27.

Table 3. Per acre corn production costs incurred by tenant and landlord under actual 50-50 crop share lease under center pivots, northeastern Colorado.[a/]

Cost Item	Tenant Contribution	Landlord Contribution	Total Cost
Seed	$ 6.33	$ 6.33	$ 12.66
Fertilizer	22.90	22.90	45.80
Chemicals	7.66	7.66	15.32
Fuel, Lubricants, Repairs			
Field Operation[b/]	21.18		21.18
Irrigation[c/]	15.08	15.08	30.16
Labor	8.28		8.28
Interest on Operating Capital[d/]	4.89	3.12	8.01
Ownership Costs			
Machinery & Equipment	21.16		21.16
Irrigation		46.98	46.98
Management[e/]	18.90		18.90
Land Charges[f/]		47.27	47.27
Real Estate Taxes		5.38	5.38
Totals	$126.38	$154.72	$281.10
Landlord and tenant respective percentages of total cost	44.96%	55.04%	100.00%

[a/] Data from Ag Producers' Analysis Service, Yuma, Colorado.

[b/] Includes harvesting.

[c/] Irrigation cost for 1978 ÷ 1.06.

[d/] 9% for 8 months.

[e/] See corresponding footnote, Table 1; yield 120 bu./acre at $2.25.

[f/] See Table 1; land valued at $819.06/acre and an interest cost of $47.27.

Table 4. Per acre corn production costs incurred by tenant and landlord under actual 60-40 crop share lease under center pivots, northeastern Colorado.[a/]

Cost Item	Tenant Contribution	Landlord Contribution	Total Cost
Seed	$ 7.60	$ 5.06	$ 12.66
Fertilizer	27.48	18.32	45.80
Chemicals	9.19	6.13	15.32
Fuel, Lubricant, Repairs			
Field Operation[b/]	21.18		21.18
Irrigation[c/]	18.10	12.06	30.16
Labor	8.28		8.28
Interest on Operating Capital[d/]	5.51	2.49	8.00
Ownership Costs			
Machinery & Equipment	21.16		21.16
Irrigation		46.98	46.98
Management[e/]	18.90		18.90
Land Charges[f/]		47.27	47.27
Real Estate Taxes		5.38	5.38
Totals	$137.40	$143.69	$281.09
Landlord and tenant respective percentages of total cost	48.88%	51.12%	100.00%

[a/] Data from Ag Producers' Analysis Service, Yuma, Colorado.

[b/] Includes harvesting.

[c/] Irrigation cost for 1978 ÷ 1.06.

[d/] 9% for 8 months.

[e/] See corresponding footnote, Table 1; yield 120 bu./acre at $2.25.

[f/] See Table 1; land valued at $819.06/acre and an interest cost of $47.27.

Table 5. Per acre corn production costs incurred by tenant and landlord under actual 2/3-1/3 crop share lease under center pivots, northeastern Colorado.[a/]

Cost Item	Tenant Contribution	Landlord Contribution	Total Cost
Seed	$ 12.66	$	$ 12.66
Fertilizer	45.80		45.80
Chemicals	15.32		15.32
Fuel, Lubricants, Repairs			
Field Operation[b/]	21.18		21.18
Irrigation[c/]	15.08	15.08	30.16
Labor	8.28		8.28
Interest on Operating Capital[d/]	7.10	.90	8.00
Ownership Costs			
Machinery & Equipment	21.16		21.16
Irrigation		46.98	46.98
Management[e/]	18.90		18.90
Land Charges[f/]		47.27	47.27
Real Estate Taxes		5.38	5.38
Totals	$165.48	$115.61	$281.09
Landlord and tenant respective percentages of total cost	58.87%	41.13%	100.00%

[a/] Data from Ag Producers' Analysis Service, Yuma, Colorado.

[b/] Includes harvesting.

[c/] Irrigation cost for 1978 ÷ 1.06.

[d/] 9% for 8 months.

[e/] See corresponding footnote, Table 1; yield 120 bu./acre at $2.25.

[f/] See Table 1; land valued at $819.06/acre and an interest cost of $47.27.

Table 6. Per acre corn production costs incurred by tenant and landlord under actual 3/4-1/4 crop share lease under center pivots, northeastern Colorado.[a/]

Cost Item	Tenant Contribution	Landlord Contribution	Total Cost
Seed	$ 12.66	$	$ 12.66
Fertilizer	45.80		45.80
Chemicals	15.32		15.32
Fuel, Lubricant, Repairs			
Field Operation[b/]	21.18		21.18
Irrigation[c/]	30.16		30.16
Labor	8.28		8.28
Interest on Operating Capital[d/]	8.00		8.00
Ownership Costs			
Machinery & Equipment	21.16		21.16
Irrigation		46.98	46.98
Management[e/]	18.90		18.90
Land Charges[f/]		47.27	47.27
Real Estate Taxes		5.38	5.38
Totals	$181.46	$ 99.63	$281.09
Landlord and tenant respective percentages of total cost	64.56%	35.44%	100.00%

[a/] Data from Ag Producers' Analysis Service, Yuma, Colorado.

[b/] Includes harvesting.

[c/] Irrigation cost for 1978 ÷ 1.06.

[d/] 9% for 8 months.

[e/] See corresponding footnote, Table 1; yield 120 bu./acre at $2.25.

[f/] See Table 1; land valued at $819.06/acre and an interest cost of $47.27.

who receives some share of gross returns, would be anxious for the tenant to apply fertilizer at levels which maximize per acre yields. On the other hand, the tenant would not likely wish to apply that much fertilizer since it would move him to uneconomic levels of fertilizer use and further, he would be bearing all of the risk of losses from the use of the input.

In the two cases shown, conventional sharing of returns clearly follows the distribution of costs between the tenant and landlord. In eastern Colorado, the usual rental situation for dry wheat land is for the tenant to receive from 3/5 to 2/3 of the crop and the landlord gets 1/3 to 2/5 of the crop. From Table 1, we see that the tenant bears about 61 percent of the costs and the landlord contributes 39 percent. Thus, the 2/3-1/3 or 3/5-2/5 crop share divides the crop about as fairly as can be obtained.

If the value of the land contribution is taken as the residual from all non-land costs (page 6), the landlords contribution would be $21.73 per acre rather than $25.56 as appears in Table 1. Under this land valuation procedure the landlord contribution would be $22.90 or 36 percent of total costs. Again, the conventional share rent arrangements for wheat-fallow appear to be quite equitable.

The conventional rental arrangement for irrigated corn production is a 50-50 division of gross returns, as shown in Table 3. The $126.38 cost contribution by the tenant makes up 45 percent of the costs and the landlord's contribution is 55 percent. The distribution of costs and

returns is also very close to the prescriptions of the equitable lease. The method of actually splitting costs under the 50-50 division, presented in Table 3, has almost exactly the same costs for the tenant and landlord as does the theoretical crop share lease.

If, as before, we used the residual of gross returns above non-land costs as the measure of the value of the land input (page 6), the amount would be $47.88 rather than $47.27 appearing in Table 3. Such would not affect the percentage shares between the two parties to a lease.

In addition to the harvested grain, irrigated corn leaves excellent feed for pasturing by livestock. Normally, the use of this pasture rests with the landlord unless other provisions are made. If the grazing rights are leased to someone else, the lease rates run between $1,300 and $1,500 per quarter-section. Thus, this represents another $10.00 to $12.00 per acre return for the landlord. Considering these grazing returns, the 50-50 division of expenses and gross returns looks to be a very fair division at this time.

The 60-40, 2/3-1/3 and 3/4-1/4 actual corn crop share leases all result in the landlord paying significantly more than his share of returns, and likewise, the tenant paying less. Even if the $10.00 to $12.00 pasture return is added to the landlords return, the sharing arrangement departs considerably from the norm. The 60-40 crop share lease, although sharing in fertilizer, seed, chemicals and irrigation costs in the same proportion as to returns--the landlord is paying 51 percent of the costs and is receiving only 40 percent of the returns. The landlord paying

$31.25 too much and the tenant $31.25 too little.

Notice how the costs of individual items of production appear only in the tenant column under the 2/3-1/3 and 3/4-1/4 corn crop share leases. Such is typical of these types of leases. The 2/3-1/3 and 3/4-1/4 corn crop share leases, in addition to misallocation of costs, do not have the returns being allocated in the same proportion as the input costs that directly affect the yield.

Summary and Conclusions

Operating expenses have been changing rapidly and the costs of some inputs do not increase as rapidly as others. Under these circumstances, it is important to re-evaluate lease arrangements periodically. If tenants and landlords have access to per acre production cost estimates for their operation, the evaluation of the distribution of costs can proceed. Both parties should strive to achieve the same distribution of returns as determined by their contribution to production costs.

Cost items will vary from year to year. Rent shares tend to remain relatively fixed. It is not recommended that a new rent share be estimated each year, but an examination of the rental arrangement every three to five years is desirable.

The cost of production estimates used in the illustrations here are based on averages from the Agricultural Producers Analysis Service. In developing the examples, several assumptions were necessary. Readers may have reason to substitute other cost estimates from those used here.

They may have costs of production that differ from these norms or have need to use other means for placing a value on the contribution of certain items of production. It is expected that these illustrations are useful for demonstrating the kinds of analyses which landlords and tenants should consider in developing their lease.

It should also be recognized that factors other than the relative contributions to production costs may affect rental arrangements. Rent shares tend to become accepted as custom or tradition; hence, they are not easily changed. Also, local supply and demand conditions for rented land may affect the rental arrangement. For instance, if there is a large number of potential tenants and only a limited amount of land available for rent, the rental terms may decidedly favor the landlord. Even in such circumstances, however, care should be taken to avoid rental arrangements which lead to disagreement over the level of application of key inputs. Sharing returns in different proportions than costs results in inefficiency and production costs which are higher than those of other producers.