

Rental Agreements With Irrigation

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Irrigation is a reality on many Missouri farms. As more land is irrigated, developing new crop-share rental agreements is important.

An added investment in irrigation facilities can affect the original crop-share lease arrangement established for dryland farming. This guide is designed to help landowners and tenants:

- decide how to share or split investment costs and
- develop and evaluate crop-share rental agreements for land with irrigation facilities.

Each person's contribution to production changes as new capital is invested in the water supply (well or impoundment) and irrigation machinery and equipment. Because the water supply is a permanent investment on real estate, landowners normally make this investment. Ownership of the irrigation equipment can vary. The equipment can be owned jointly; the tenant can lease or buy the equipment; or the landowner can make the total investment. These alternatives make different rental agreements necessary for each farm, because the amount of the investment and who makes it varies from farm to farm.

Characteristics of a Good Lease

- A good lease results in both parties being paid according to the amount of assets each contributes to production.
- It includes a plan for sharing cash or variable costs, such as seed, fertilizer, pesticides, drying, etc., in the same way returns are shared.
- It includes incentives that encourage both parties to make irrigation decisions, such as when and how much to irrigate, as a team. Irrigation requires additional fertilizer, seed, labor, fuel, repairs, etc. Sharing these costs can be the incentive required to get the landowner and the tenant to make decisions together. Also, sharing repair costs reduces careless handling of equipment or continued use of worn-out equipment.

Identify and Assign Dollar Values to Contributions

The best procedure for developing a fair lease is to identify and assign dollar values to the basic (fixed) contributions associated with resources and investments used in crop production. These resources are land, labor, capital, and management.

Contributions can be both variable and fixed. *Fixed* contributions are costs associated with permanent invest-

ments and other major resources used in production, such as depreciation, interest, and taxes. *Variable* contributions are production costs that vary with production, such as fertilizer, seed, chemicals, machinery repairs, and fuel. Place a value on each contribution provided by each party.

Land is usually provided by the landowner. Assign a fair market value of the land (for agricultural purposes) as the landowner's contribution. Costs associated with land are also his contributions. These costs are real estate taxes, a reasonable rate of interest of 4-6 percent of fair market value of the land, and land maintenance costs. Repairs and depreciation associated with permanent buildings and fences are cost contributions too.

Capital is the resource associated with machinery investment, operating capital, and, in this example, irrigation machinery and equipment. The tenant usually provides the crop machinery. Irrigation equipment can be owned jointly or individually by the tenant or landowner.

The fixed (ownership) costs resulting from the machinery and equipment investment are depreciation, interest on investment, repairs, personal taxes, and insurance. These costs, except interest, should be available from farm records. The interest is usually figured at 8-10 percent (current cost of borrowed money) of the undepreciated (remaining book) value or current market value of machinery.

Labor is also a resource and should be assigned a dollar value. The parties entering the leasing agreement will have to bargain to place a value on labor. A guide for estimating the value of labor is the usual wage paid to full-time farm employees in the community. Credit for experience and thinking time is included in the management contribution.

Management may or may not be shared between parties. Placing a value on management is difficult and will result from the two parties' bargaining. A general guide for placing a value on management is 7-10 percent of gross income.

Irrigation farming requires a higher level of management and supervision than dryland farming. Therefore, placing a value on the management contribution is a way of rewarding the person who supervises the irrigation system for his knowledge and experience.

Who should receive credit for management? The two parties must make the decision. Tenants usually provide the supervision and make the daily decisions. Because of this, the tenant is often given most of the credit for management. But there are exceptions. Experienced landowners can and do make substantial management contributions to production. Inexperienced or absentee landowners may contribute nothing. Assign management credit according to the contribution made.

Table 1. Contributions to Corn Production Without Irrigation

Land Value and Production	Example 1		Example 2	
	1. Market value of land per acre without irrigation	\$700		\$1,000
2. Estimated yield per acre	80 bu.		90 bu.	
3. Estimated price per bushel	\$2.15		\$2.15	
4. Gross income per acre (line 2 x line 3)	\$172		\$193.50	
Major Resource Contributions Per Acre	Tenant	Landowner	Tenant	Landowner
5. Interest on land (5% of line 1)		\$35.00		\$50.00
6. Real estate taxes		4.00		6.00
7. Basic fertilizer (lime, etc.)		4.00		4.00
8. Land maintenance		2.00		2.00
9. Labor (not irrigation)	\$16.00		\$16.00	
10. Machinery fuel and repairs	18.00		18.00	
11. Machinery interest and depreciation	19.00		19.00	
12. Management (8% of line 4)	14.00*		15.50	
13. Fences, etc.		2.00		2.00
14. Total contributions without irrigation	\$67.00	\$47.00	\$68.50	\$64.00
15. Combined total contributions		\$114.00		\$132.50
16. % share of total contributions	58.8%	41.2%	51.7%	48.3%
17. Crop-share arrangement		60 - 40		50 - 50

*Several figures in this guide have been rounded to the nearest 50 cents.

Negotiate the Agreement

The original dryland lease is important! Because few farms in Missouri are equipped to irrigate all crop acres, the original share agreement is a base to build on. For example, if the original lease is a 50-50 crop share, sharing the irrigation 50-50 may also be advantageous; with a 67-33 crop lease, share the irrigation investment 67-33 also. The variable costs—fuel, repairs, labor, etc.—associated with applying the water should also be shared at the same rate—50-50 or 67-33. This practice keeps the total farm rental agreement simple and doesn't require change.

To negotiate a crop-share rental agreement, do three things:

- itemize each party's contribution to production without irrigation,
- list the investment in irrigation facilities and estimate each party's fixed costs (contributions to irrigation), and
- combine contributions to crop production and irrigation.

Examples

Guidelines for costs used in the following examples came from the average enterprise costs reported by farmers cooperating in the 1976 Mail-In Record Program. Also, some figures in this guide have been rounded to the nearest 50 cents.

Example 1 in Table 1 is a 60-40 arrangement. Crop production and cash costs for fertilizer, seed, and chemicals are split 60-40, with the tenant paying 60 percent and the landowner paying 40 percent.

Example 2 (Table 1) is a 50-50 crop-share agreement. The crop and cash production costs are divided equally. In these examples, the landowner does not pay the tenant additional wages for hauling the landowner's share of the crop.

Table 2 shows how contributions to the irrigation system may differ, depending on who invests in the component parts

of the system. Note that the useful life assigned to each investment affects the tenant's or landowner's contribution to production. Both parties must agree on the useful life to be assigned to component parts of the system.

The three alternative ownership patterns in Table 2 are combined with the two examples of crop-share agreements from Table 1 to illustrate procedures for developing the final crop-share agreement (See Tables 3, 4, and 5).

Example 1 in Table 3 is a typical 3/5 - 2/5 crop-share agreement. The tenant receives 60 percent of the crop and pays 60 percent of the cash costs for fertilizer, seed, chemicals, drying, etc., plus harvesting and hauling the landowner's share of the crop to market. The landowner receives 40 percent of the crop and pays 40 percent of the cash costs.

This agreement can be converted into a 50-50 crop-share agreement by the landowner paying the tenant to harvest and haul the landowner's share of the crop to market. This is illustrated by:

	T	L
Total contributions (line 4, Table 3)	\$96.95	\$65.16
Landowner pays:		
Harvesting, 130 bu./A x 1/2 x 15¢/bu.	- 9.75	+ 9.75
Hauling, 130 bu. x 1/2 x 8¢/bu.	- 5.20	+ 5.20
Total contributions, adjusted	\$82.00	\$ 80.11
Combined total contributions	\$162.11	
Percent of total contributions	50.6%	49.4%
Crop-share arrangement	50	- 50

Cash paid by the landowner to the tenant increases the landowner's contribution and reduces the tenant's. This converts the 60-40 lease to a 50-50 share agreement. Now they split the crop 50-50 and share cash production costs equally. The landowner does pay the tenant 15 cents per bushel to harvest and 8 cents per bushel to haul the landowner's share

Table 2. Contributions to the Irrigation System

*Center pivot system—232 acres irrigated
Reservoir—125 acre feet
crop continuous corn
T=tenant, L=landowner*

	Total Investment	Annual Cost Factor ¹	Alternative 1		Alternative 2		Alternative 3	
			T	L	T	L	T	L
1. Reservoir	\$15,000	.0925 ²		\$1,388		\$1,388		\$1,388
2. Pipe and trenching	14,600	.0925		1,351		1,351		1,351
3. Wire, valves, etc.	1,300	.0925		120		120		120
4. Pump and motor	8,000	.1425 ³	\$1,140			1,140		1,140
5. Center pivot	30,000	.1258 ⁴	3,774		\$3,774			3,774
6. Power unit and generator	4,000	.1425	570		570			570
7. Subtotal	\$72,900		\$5,484	\$2,859	\$4,344	\$3,999	0	\$8,343
8. Taxes and insurance (total investment x .01)			\$ 420	\$ 309	\$ 340	\$ 389	0	\$ 729
9. Total annual fixed contributions			\$5,904	\$3,168	\$4,684	\$4,388	0	\$9,072
10. Cost per acre	\$ 314		\$25.45	\$13.66	\$20.19	\$18.91	0	\$39.10

¹See UMC Guide 1691, Table 2 (8.5% interest).

²Based on 20 years life.

³Based on 10 years life.

⁴Based on 12 years life.

Table 3. Combining Crop Production and Irrigation Contributions—Alternative 1

Crop-share corn lease; landowner builds reservoir and installs pipe; tenant purchases the pump, motor, power unit, generator, and center pivot.

Contributions Per Acre	Crop Share Example 1		Crop Share Example 2	
	T	L	T	L
1. Without irrigation (Table 1, line 14)	\$67.00	\$47.00	\$68.50	\$64.00
2. From irrigation (Table 2, line 10)	25.45	13.66	25.45	13.66
3. Added management for irrigation (50 bu. added yield x \$2.15/bu. x 8%)	4.50	4.50	6.00	3.00
4. Total	\$96.95	\$65.16	\$99.95	\$80.66
5. Combined total		\$162.11		\$180.61
6. % of total	59.8%	40.2%	55.3%	44.7%
7. Crop-share arrangement		60 - 40		55 - 45

of the corn to market.

Costs of operating irrigation, such as fuel and repairs on the system or reservoir (labor can be included), are also shared 50-50 or 60-40, depending on the percentage share of total contributions. Sharing irrigation costs encourages both parties to make decisions and reduces careless handling of equipment or the continued use of worn-out equipment. Normally some horse trading occurs: The landowner might say, "I'll pay this if you'll provide the labor." The give and take is part of the development of the lease.

Example 2 (Table 3) is basically a 50-50 arrangement. This agreement operates like any 50-50 crop-share lease. To make the contributions more nearly equal, the tenant might bargain with the landowner to receive \$10 per acre for harvesting and hauling the landowner's share of the crop.

Both crop-share rental agreements in Table 4 are essentially 50-50. However, to equalize contributions in Example 1, a bargain was made: The landowner agreed to pay \$10 per acre harvesting costs to the tenant. This decision resulted from negotiation.

Example 2 (Table 4) approaches 50-50, as did the original dryland lease, because the irrigation contributions are also essentially equal.

The landowner may own the irrigation system as outlined in Alternative 3 (Table 2). This really changes total contributions to production because the landowner is contributing more than the tenant (See line 6, Table 5), and so his crop share exceeds the tenant's share. This is not a problem since there is nothing wrong with a share arrangement which gives the landowner a larger share.

Table 4. Combining Crop Production and Irrigation Contributions—Alternative 2

Crop-share corn lease; landowner builds reservoir, lays pipe, and buys pump and motor; tenant purchases the center pivot, the power unit, and generator.

Contributions Per Acre	Crop Share Example 1		Crop Share Example 2	
	T	L	T	L
1. Without irrigation (Table 1, line 14)	\$67.00	\$47.00	\$68.50	\$64.00
2. With irrigation (Table 2, line 10)	20.19	18.91	20.91	18.91
3. Added management for irrigation (50 bu. added yield x \$2.15/bu. x 8%)*	4.50	4.50	4.50	4.50
4. Landowner's harvesting costs	-10.00	+10.00	0	0
5. Total	\$81.69	\$80.41	\$93.19	\$87.41
6. Combined total	\$162.10		\$180.60	
7. % of total	50.3%	49.6%	51.6%	48.4%
8. Crop-share arrangement	50 - 50		50 - 50	

Table 5. Combining Crop Production and Irrigation Contributions—Alternative 3

Crop-share lease; landowner furnishes irrigation system.

Contributions Per Acre	Crop Share Example 1		Crop Share Example 2	
	T	L	T	L
1. Without irrigation (Table 1, line 14)	\$67.00	\$47.00	\$68.50	\$64.00
2. From irrigation (Table 2, line 10)	0	39.10	0	39.10
3. Added management for irrigation (50 bu. added yield. \$2.15/bu. x 8%)*	3.00	6.00	3.00	6.00
4. Total	\$70.00	\$92.10	\$71.50	\$109.10
5. Combined total	\$162.10		\$180.60	
6. % of total	43.2%	56.8%	39.6%	60.4%
7. Crop-share arrangement	40 - 60		40 - 60	

*The landowner owns the irrigation system. He makes negotiations for a larger share of the management contribution.

However, cash rent can be used to equalize contributions. Many tenants are *not willing* to take less than 50 percent for their crop share. Consequently, when the landowner is furnishing everything, a cash payment from the tenant to the landowner can balance the basic inputs. For example:

	Example 1		Example 2	
	T	L	T	L
Total contributions (line 4, Table 5)	\$70.00	\$92.10	\$71.50	\$109.10
Cash rent, tenant to landowner	+11.00	-11.00	+19.00	-19.00
Total contributions, adjusted	\$81.00	\$81.10	\$90.50	\$90.10

To make contributions equal, the tenant pays the landowner \$11 cash rent per acre in Example 1 and \$19 per acre in Example 2. The cash rent reduces (minus) the landowner's contribution and thus reduces the share of the crop he receives from 60 percent to 50 percent.

Summary

- The quantity and value of resources provided by each party for irrigation affect each individual's share of contributions to production.
- A procedure is outlined for evaluating and assigning dollar values to contributions (fixed costs) based on actual resources furnished. For example, a different kind of irrigation system—traveling gun—has a lower initial investment but requires more labor and operational management than the center pivot. A different set of contributions results.
- Cash payments can be used to develop 50-50 crop-share arrangements when actual contributions are not equal.
- The tenant and landowner can buy the irrigation system together. But the tenant should have a long-term lease with specific procedures for reimbursing the tenant for his undepreciated share of the investment in case the lease is terminated.
- The lease agreement can be simplified if the tenant and landowner share the added irrigation costs at the same rate the crop and production costs are shared.



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