PB 1816-B

Farmland Cash Leases

This publication provides management information and guidelines for landlords and tenants to follow when negotiating rental agreements for farmland in Tennessee. It is designed to help landlords and tenants structure a rental arrangement suited to their individual circumstances.

The material in this publication was originally included in "PB 1597: Cropland Leasing Considerations," written by Rebecca G. Bowling, Delton C. Gerloff, Jimmy C. Castellaw, Samuel C. Danehower and Richard C. Lacy, with additional contributions by Paul Denton. The information has been revised and updated by Christopher D. Clark, associate professor, Department of Agricultural and Resource Economics.

Cash leases have been popular in Tennessee for many years. The primary attraction of this type of lease for landowners is the minimal responsibility that must be assumed. Cash leases also provide tenants maximum operating freedom. There are two different types of cash leases — fixed and flexible. With a fixed cash lease, the amount of rent due under the lease is specified in the lease agreement. With a flexible cash lease, the amount of rent due depends on a condition or conditions that have not been determined when the lease agreement is entered into. Typically, flexible cash leases tie the amount of rent to the yield of the crop or livestock being grown on the rented land and/or the price of the crop or livestock at some future point in time. Some of the advantages and disadvantages of choosing a cash lease are listed below. These points should be considered when deciding whether to enter into a cash lease or a crop- or livestock-share lease.

Advantages of Cash Leases

A. To the Landowner:

1. Requires less supervision and management.
2. No need to worry about the accurate division of expenses incurred and crops or livestock produced.
3. No time and effort required for the marketing of crops or livestock.
4. The potential for friction with tenant is lower.
5. A fixed cash lease reduces landowner's production and price risk and provides definite and steady income. A flexible cash lease can increase a landowner's risk, but also allow them to benefit from high yields and/or prices.
6. For older landowners, cash rent may be received without reducing Social Security benefits. Landowners should consult a qualified tax professional to determine the proper tax treatment of rental income.

B. To the Tenant:

1. More management freedom in operating the farm.
2. No need to worry about the accurate division of expenses incurred and crops or livestock produced.
3. The potential for friction with landowner is lower.
4. More incentive to strive for higher yields because the output (i.e., crop or livestock) is not shared with the landowner.
5. If cash rent is fixed, the tenant will benefit from unusually high yields and/or prices.

Disadvantages of Cash Leases

A. To the Landowner:

1. The increased management freedom may allow tenants to exploit or "mine" the land during a short-term lease or in the later years of a long-term lease.
2. The landowner will usually receive a smaller return, since he or she assumes less production and price risk.
3. Once a fixed cash rental rate is established, it may be difficult to negotiate changes in the rent to reflect changes in prices and production costs without also changing tenants.
4. With fixed cash rental rates, there is no opportunity to share in windfall profits during years when yields or prices are high.
5. Cash leases offer little opportunity to build an earnings base for Social Security purposes because of the difficulty in establishing "material participation."

B. To the Tenant:

1. With a fixed cash lease, the risk is greater because the tenant assumes all of the production and price risk.
2. The tenant is required to supply a greater proportion of the operating capital.
3. Fixed cash leases do not allow for automatic changes in rent to reflect changes in prices, yields and/or production costs. Flexible cash leases, however, can provide for such automatic changes.

Establishing a Fixed Cash Rental Rate

If the decision is made to enter into a cash rental arrangement, the next step is to figure out how much the rent is going to be. Fixed cash rents are likely to be influenced by a number of factors, including: (1) prevailing cash rental rates in the area; (2) the ability of the tenant to pay; (3) the landowner's economic cost of leasing the land; and (4) the landowner's adjusted net share rent.

Prevailing Cash Rental Rates

Typically, tenants are unwilling to pay rent that they believe is above the market or prevailing cash rental rate for the area because they view the market rate as what they could pay if they rented from a different landowner. Similarly, landowners may be unwilling to agree to accept a rent that is below the market rate because a below-market rate suggests that there are other prospective tenants who are willing to pay a higher rate. Thus, the market or prevailing cash rental rate for the area, adjusted to account for relevant differences in the land in question and other land being rented in the area (e.g., fertility, location, size, etc.), provides a likely candidate for a cash rental rate. However, the landowner and tenant may not be able to (1) obtain enough information to establish a market rental rate on which they can both agree, or (2) if they do have such information, agree on how to adjust the market rate for differences in the location or productivity of the land in question from other farmland in the area.

Table 1. Worksheet for Estimating a Tenant's Ability to Pay Fixed Cash Rent for Farmland

I. Gross Value of Crops Produced					
A	**B**	**C**	**D**	**E**	**F**
					Gross
		Expected	**Production**	**Expected**	**Revenue**
Crop	**Acres**	**Yield**	**(B x C)**	**Price**	**(D x E)**
Soybeans	150	40	6,000	$11.00	$66,000.00
Corn	60	120	7,200	$5.50	$39,600.00
Gov't Paymt	210			$10.00	$2,100.00
				Total	$107,700.00
II. Cost:					
		A	**B**	**C**	**D**
				Cost	**Total Cost**
		Crop	**Acres**	**($/acre)**	**(B x C)**
1. Variable					
		Soybeans	150	$265.00	$39,750.00
		Corn	60	$332.00	$19,920.00
			Total Variable Costs		$59,670.00
2. Fixed					
		Soybeans	150	$44.00	$6,600.00
		Corn	60	$44.00	$2,640.00
			Total Fixed Costs		$9,240.00
3. Labor					
		Soybeans	150	$6.00	$900.00
		Corn	60	$6.10	$366.00
			Total Labor Costs		$1,266.00
4. Management Allowance					
		a. Gross	$107,700		
		b. Percent	6.00%		$6,462.00
5. Total Specified Costs (lines 1 through 4)					$76,638.00
III. Maximum Cash Rent That Can Be Paid (line 4a less line 5)					$31,062.00
IV. Maximum Cash Rental Rate Per Acre (III. Divided by #Acres)					$147.91

Ability of Tenant to Pay

Before bidding for land, tenants should carefully estimate how much money will be available to pay for land use after deducting appropriate out-of-pocket costs, fixed costs on machinery, and a return to management (if desired) from expected gross revenues. This exercise is equivalent to developing an enterprise budget for the operation(s) to be conducted on the rented land. Some tenants may include only variable costs in estimating the maximum amount that can be paid for land. However, to be able to replace farm machinery over time, depreciation must also be recovered. Table 1 provides an example of a worksheet that a tenant can use to estimate how much he or she can afford to pay as cash rent for farmland. The rental rate shown is the maximum that the tenant in this example could pay and still cover all specified costs. The tenant should rent land at something less than this maximum to generate a profit. A blank copy of the worksheet shown in Table 1 can be found at the end of this publication. In addition, an interactive version can be found in the Farmland Legacy Leasing Toolbox online at http://www.farmlandlegacy.org.

Valuing the labor and management provided by the tenant is not always easy. The amount of labor required should reflect the time used for producing and marketing crops or livestock and performing general maintenance. Labor should be valued at about what the tenant could earn for farm work in the area. Determining the amount of the management charge is rather arbitrary. However, management is required for making production and marketing decisions and should be rewarded. A management charge in the range of 5 to 8 percent of gross receipts (excluding government payments) would not be unusual. Estimating yields, prices and input costs also can be difficult. Using long-term yields and prices may be one option. Revenue from any government subsidies also should be included in the analysis.

Table 2. Calculating Landowner's Cost in Estimating a Fixed Cash Rent

1. Acres		210
2. Value/Acre		$2,500
3. Interest Rate		5.00%
4. Interest on Investment	(line 1 x line 2 x line 3)	$26,250
5. Repairs		
6. Real Estate Tax Rate ($/acre)		$18
7. Real Estate Taxes	(line 1 x line 6)	$3,780
8. Depreciation on Improvements		
a. Buildings		
b. Fences		
	Total (line 8a + 8b)	
9. Total Costs	(line 4 + line 5 + line 7 + line 8)	$30,030
10. Per Acre Costs	(line 9 ÷ line 1)	$143

Landowner's Economic Cost of Leasing the Land

A third factor likely to influence the cash rent charged is the landowner's economic cost of leasing the land, which is the sum of all out-of-pocket expenses associated with land ownership (such as real estate taxes and insurance), depreciation for any improvements located on the property, and a return on the value of landowner's investment in the land. An example of the calculations necessary to determine the landowner's economic cost is provided in Table 2. The major considerations are land valuation and the selection of an appropriate interest rate to apply to the land value. The per acre land price should reflect a realistic fair market value for the farmland. This value should be based on its use for agricultural purposes (i.e., crop or livestock production) and should not include any value based on the potential of the land for development for some other use. Given the volatility of interest rates, it may not always be possible to use current market rates, as these rates can lead to a cash rental rate well above both market rental rates and the tenant's ability to pay. Studies of current cropland earnings, excluding land appreciation, suggest that a rate in the 4 to 6 percent range would generally be appropriate.

Landowner's Adjusted Net-share Rent

Another factor that can influence cash rental rates is the amount of rent the landowner would receive under a crop-share arrangement after paying the landowner's share of costs and adjusting for the landowner's reduced risk in a fixed cash-share lease. Fixed cash rents are normally expected to be lower than share rents, since fixed rents shift the landowner's yield and price risks to the tenant. The difference between a net-share (after cost) rent to the landowner and cash rent represents the tenant's compensation for bearing this additional risk.

To estimate net-share rent, a landowner can use the procedures outlined in the publication, Crop-Share Leases (available online at http://www.farmlandlegacy.org), with expected prices and yields and his or her share of current production costs, if applicable.

Once the net-share rent has been estimated, the two parties must decide the amount that it should be adjusted

Table 3. Landowner's Adjusted Share Rent

1. Rental Rate	$125.00
2. Adjustment Percent	15%
3. Adjustment (line 1 x line 2)	$18.75
4. Adjusted Share Rent (line 1 – line 3)	$101.25

Table 4. Comparison of Cash Rental Rates Using Different Approaches[1]

1. Prevailing cash rental rate		$110.00
2. Tenant's ability to pay (maximum)	Table 1	$147.91
3. Landowner's economic cost	Table 2	$143.00
4. Landowner's adjusted share rent	Table 3	$101.25

[1] Prevailing cash rental rates vary by crop and location. The $110 cash rental rate is for this example only.

to compensate for the shift of risk from the landowner to the tenant. It is not uncommon for the net-share rent to be reduced by as much as 10 to 20 percent to account for the change in risk among the parties. For example, if the landowner's estimated netshare return is $105 per acre, discounting the share rent by 15 percent results in a cash rent equivalent of $89.40 per acre (see Table 3).

A comparison of cash rental rates using the four approaches is shown in Table 4. The bargaining position of the two parties is important in establishing the specific cash rental rate. The bargaining process should provide an opportunity for each party to understand the other's position. The most effective bargaining occurs when each party knows the value of his or
her own contributions, the value of the other party's contributions, and local leasing arrangements. Blank worksheets are provided in the back of this publication for each of the tables. In addition, interactive versions can be found in the Farmland Legacy Leasing Toolbox online at http://www.farmlandlegacy.org.

Flexible Cash Rent

Since crop or output prices, yields and production costs can vary considerably from one year to the next, tenants and landowners are often hesitant to become locked into a fixed cash rental rate, especially for more than one year. Landowners often resist long-term cash rental agreements because inflation can reduce the purchasing power of the rent they receive and because they believe it is unfair for the tenant to reap all of the benefits of increases in crop or livestock prices. Tenants tend to resist multiple-year fixed cash rent leases out of concern for the difficulties that would be caused by a drop in crop or livestock yields or prices and/or an increase in production costs. On the other hand, the parties may prefer a cash lease to a more involved crop-share arrangement. Flexible cash leases provide a means by which landowners and tenants can share some of the price and/or production risk while preserving much of the simplicity of a cash leasing arrangement.

Flexible cash leases have certain advantages and disadvantages relative to fixed cash leases. A careful consideration of these advantages and disadvantages, as described below, may help landowners and tenants determine whether a flexible cash lease is appropriate for their particular circumstances.

Advantages of Flexible Cash Leases Relative to Fixed Cash Leases

A. To the Landowner:

1. Enable the landowner to share in increased income resulting from higher yields, higher prices and/or lower input prices, depending upon the structure of the formula for calculating the flexible rent.
2. By sharing the production and price risk with the tenant, the flexible cash lease may make the process of entering into multiple-year leasing arrangements easier, which can reduce economic costs associated with renegotiating lease terms on an annual basis.
3. May help avoid situations in which landowners feel they have to find a new tenant if they want to increase the rent.

B. To the Tenant:

1. Reduced production and/or price risk means that rent may decrease in years in which yield(s) decrease, output price(s) decrease or input price(s) increase.
2. By sharing production and price risk with landowners, the flexible cash lease may make the process of entering into multiple-year leasing arrangements easier, which can reduce economic costs associated with renegotiating lease terms on an annual basis.

Disadvantages of Flexible Cash Leases Relative to Fixed Cash Leases

A. To the Landowner:

1. Increased price and production risk, since the rent received may decline in years when yield(s) or output price(s) decrease or input price(s) increase.
2. Formula for adjusting rent based on yields and/or prices is more complex and may be more difficult to develop than a fixed cash rental amount.
3. Poor management by the tenant can lead to reduced yields and lower income to the landowner (if yields are included in the formula for calculating rent).

B. To the Tenant:

1. Will result in higher cash rent and lower income when yield(s) increase, output price(s) increase and/or input price(s) decrease.
2. When individual farm yields are included in the formula for calculating rent, the tenant's incentive to maximize yields may be reduced by having to share the rewards of superior management with the landowner.
3. The formula for adjusting rent based on yields and/or prices is more complex and may be more difficult to develop than a fixed cash rental amount.

There are several ways to adjust cash rent. The three that appear to be the most common — adjusting for changes in output prices only, both output prices and yields, and output prices, yields and input costs — are discussed below.

Adjusting Cash Rent for Changes in Output Price Only

There are two common ways to adjust cash rent based on changes in output price. The first is to agree on a base rent and base output price and then adjust the base rent for the relative difference in the actual and base output price, as follows:

$$\textit{cash rent} = \textit{base rent} \times \frac{\textit{actual output price}}{\textit{base price}}$$

Base rent can be determined by estimating the average rent for land in the area of the same general productivity, much as one might do in trying to set a fixed cash rent amount. The base output price can be determined by estimating average market prices over the past two or three years. For example, if the base rent was $110 per acre, the base price was $11.00 per bushel, and the actual output price turned out to be $12.15, the cash rent would be $121.50 per acre, or:

$$\textit{cash rent} = \textit{base rent} \times \frac{\textit{actual output price}}{\textit{base price}}$$

$$= \$110 \text{ per acre} \times \frac{\$12.15 \text{ per bushel}}{\$11.00 \text{ per bushel}} = \$121.50 \text{ per acre}$$

If actual output prices had fallen below the base level, the cash rent would have been adjusted downward. However, it is not unusual for leases to provide that rent can only be adjusted upward.

For a flexible cash lease, the lease agreement should clearly specify how the output price to be used to calculate rent is to be determined. This specification should reference a specific time period and location. The time specification may be during the primary harvest period (e.g., Oct. 10 through Nov. 20 for soybeans) or the season's average price that is released by the U.S. Department of Agriculture. The location on which prices are determined can be a specific elevator or an average price for the state or nation. Using average prices received by the tenant as a basis for adjusting cash rent is probably not wise, because the landowner would be penalized for poor marketing by the tenant. Similarly, if the tenant is a superior marketer, he or she should not be forced to share the reward for these skills with the landowner.

Table 5. Example of Adjustable Cash Rental Schedule Based on Price Ranges

Actual Output Price ($/bushel)	Cash Rent ($/acre)
$ 9.50 – $ 9.74	$ 97.50
$ 9.75 – $ 9.99	$100.00
$10.00 – $10.24	$102.50
$10.25 – $10.49	$105.00
$10.50 – $10.74	$107.50
$10.75 – $11.25	$110.00 (base)
$11.26 – $11.50	$112.50
$11.51 – $11.75	$115.00
$11.76 – $12.00	$117.50
$12.01 – $12.25	$120.00
$12.26 – $12.50	$122.50

A second way to adjust cash rent based on changes in output price is to agree on a base rent and a schedule of stated adjustments in the rent for a range of actual output prices. For example, an agreement might specify that the rent is equal to the base rent as long as the actual output price does not deviate by more than $0.25 from the base price, but that the rent increases or decreases by $2.50 per acre for each $0.25 deviation above or below the base price. Using a base rent of $110 per acre and a base price of $11 per bushel, a cash rent schedule like that shown in Table 5 could be calculated and included in the lease to illustrate how rent is to be calculated.

For a 40 bushel yield, the landowner in this situation would share about 25 percent of any price increase or decrease from the base level, with the remaining price risk borne by the tenant. Adjustments in this schedule can be made easily. For example, if the parties decide that more of the price risk should be borne by the landowner, cash rent would adjust to a greater degree from the stated base price level. If it seems appropriate for the landowner to assume about one-third of the price risk, then the cash rent would adjust by $3.33 per acre for each $0.25 change in price from the base price range (assuming a 40 bushel yield).

Adjusting Cash Rent for Changes in Both Yield and Output Price

Cash rent also can be adjusted for changes in both yield and output price. In this case, the landowner and tenant have to agree on both a price and a base yield for each crop being planted. Estimates of three- to five-year average yield for the rented land under average management and environmental conditions provide a good starting point. Adjusting the rent for deviations from the base yield will require a measure of "actual" yield, which could be actual yields from the farm in question or a county, state or national average yield. Preliminary state average yields are available from the USDA crop reports released in November and December. Using county average yields for calculating cash rent will require waiting several months after harvest for the official data to be released. One advantage of using county or state average yields is that the yield can be verified easily by both parties. Another advantage is that the tenant will not have to share the benefits of above average management with the landowner and, similarly, the landowner will not be penalized by a tenant's below average management. A disadvantage is that the yields on a particular farm could deviate from county or state averages due to either adverse or beneficial weather conditions. If the rent adjustment is to be based on actual farm yields, the lease agreement should specify how and when the production estimates are to be made, including descriptions of who is responsible for making the estimates and what, if any, yield adjustments are to be made for excess moisture and foreign material. Regardless of the method chosen, a clear and detailed description of how rent is to be adjusted based on yield and how that yield is to be determined is critical in creating a lease agreement that can protect the interests of both parties and avoid unnecessary confusion and conflict.

Adjusting cash rent for yield can be done in much the same way as for price — by multiplying the base rent by a ratio of the actual yield over the base yield. Thus, adjusting price for both price and yield changes could be done using the following formula:

$$\text{cash rent} = \text{base rent} \times \frac{\text{actual output price}}{\text{base price}} \times \frac{\text{actual yield}}{\text{base yield}}$$

For example, assume that the base cash rent is $110, the base price is $11 per bushel, and the base yield is 40 bushels. If drought results in a yield reduction to 30 bushels per acre and an actual price of $12.15 per bushel, the rent would be $91.13 per acre, or:

$$\text{cash rent} = \text{base rent} \times \frac{\text{actual output price}}{\text{base price}} \times \frac{\text{actual yield}}{\text{base yield}}$$

$$= \$110 \text{ per acre} \times \frac{\$12.15 \text{ per bushel}}{\$11.00 \text{ per bushel}} \times \frac{30 \text{ bushels}}{30 \text{ bushels}} = \$91.13 \text{ per acre}$$

Adjusting Cash Rent for Changes in Yield, Output Price and Input Cost

Rent also can be adjusted based on differences between an agreed upon base level of input costs and actual input costs. Just as for yield and output price, incorporating input costs in the rent calculation means that the landowner and tenant will have to agree on both base input costs and a method for determining values for the actual input costs. Base input costs can come from a careful evaluation of farm records or by adjusting (if necessary) published budgets, such as those provided by UT Extension, which can be found online at http://economics.ag.utk.edu/budgets.html.

While the costs for any inputs could be included in the rent calculation, the ones that tenants are most likely to want included are those that are most likely to influence the profitability of the tenant's operation (i.e., those that make up the largest share of the tenant's total costs and those that are most likely to change significantly during the term of the lease). If the costs for multiple inputs are included in the calculation, the costs should be stated in terms of dollars per acre rather than price so that the costs for the different inputs will be stated in equivalent terms.

It should be noted that leases providing for rent adjustments based on deviations between base input costs and costs actually incurred by the tenant also should require the tenant to keep sound, verifiable production and financial records and provide a means for the landowner to audit and verify those records.

Including input costs in the rent adjustment formula simply adds one more item to the formula. However, given that rent should decrease when actual production costs exceed base production costs and increase when actual production costs fall below base production costs (unlike price and yield where rent should increase when price and yield increase and decrease when price and yield decrease), the ratio for input costs is reversed with base costs on top and actual costs on bottom:

$$\text{cash rent} = \text{base rent} \times \frac{\text{actual output price}}{\text{base price}} \times \frac{\text{actual yield}}{\text{base yield}} \times \frac{\text{base imput costs}}{\text{actual imput costs}}$$

For example, assume that the base cash rent is $110, the base price is $11 per bushel, the base yield is 40 bushels, and the base production costs are $236 per acre. If the actual yield is 30 bushels per acre, the actual price is $12.15 per bushel, and the actual production costs are $256.50 per acre, the rent would be $83.85 per acre, or:

$$\text{cash rent} = \text{base rent} \times \frac{\text{actual output price}}{\text{base price}} \times \frac{\text{actual yield}}{\text{base yield}} \times \frac{\text{base input costs}}{\text{actual input costs}}$$

$$\text{cash rent} = \$110 \text{ per acre} \times \frac{\$12.15 \text{ per bushel}}{\$11.00 \text{ per bushel}} \times \frac{30 \text{ bushels}}{40 \text{ bushels}} \times \frac{\$236 \text{ per acre}}{\$256.50 \text{ per acre}}$$

Worksheet 1. Estimating a Tenant's Ability to Pay Fixed Cash Rent for Farmland

I. Gross Value of Crops Produced					
A	**B**	**C**	**D**	**E**	**F**
					Gross
		Expected	**Production**	**Expected**	**Revenue**
Crop	**Acres**	**Yield**	**(B x C)**	**Price**	**(D x E)**
				$	$
				$	$
				$	$
				Total	$
II. Cost:					
		A	**B**	**C**	**D**
				Cost	**Total Cost**
		Crop	**Acres**	**($/acre)**	**(B x C)**
1. Variable					
				$	$
				$	$
			Total Variable Costs		$
2. Fixed					
				$	$
				$	$
			Total Fixed Costs		$
3. Labor					
				$	$
				$	$
			Total Labor Costs		$
4. Management Allowance					
		a. Gross			$
		b. Percent			%

Worksheet 2. Calculating Landowner's Cost in Estimating a Fixed Cash Rent

1. Acres		
2. Value/Acre		$
3. Interest Rate		%
4. Interest on Investment	(line 1 x line 2 x line 3)	$
5. Repairs		
6. Real Estate Tax Rate ($/acre)		$
7. Real Estate Taxes	(line 1 x line 6)	$
8. Depreciation on Improvements		
a. Buildings		
b. Fences		
	Total (line 8a + 8b)	
9. Total Costs	(line 4 + line 5 + line 7 + line 8)	$
10. Per Acre Costs	(line 9 ÷ line 1)	$

Worksheet 3. Landowner's Adjusted Share Rent

1. Rental Rate	$	
2. Adjustment Percent		%
3. Adjustment (line 1 x line 2)	$	
4. Adjusted Share Rent (line 1 – line 3)	$	

Worksheet 4. Comparison of Cash Rental Rates Using Different Approaches

1. Prevailing cash rental rate		$
2. Tenant's ability to pay (maximum)	Worksheet 1	$
3. Landowner's economic cost	Worksheet 2	$
4. Landowner's adjusted share rent	Worksheet 3	$

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