

CALCULATING AN EQUITABLE CROP-SHARE ARRANGEMENT

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The rental of farmland is widely accepted, and share rentals are very common. Crop-share renting provides that the risks of farming be borne by both the tenant and the landowner. However, the sharing ratios typical of most areas are deeply rooted in tradition and may not promote the most equitable arrangements under current conditions.

Farm leases are subject to individual negotiations, so the terms of individual agreements vary considerably. The freedom to negotiate terms is basic to the competitive structure of agriculture, and can be used to maximize efficiency in allocating available land among tenants. Economic efficiency of allocating land and equitability to participants are the primary objectives of the method of lease calculation discussed below.

The Equitability Factor

Farmland rental agreements can be structured in many different ways. An "equitable" or "fair" lease is somewhat difficult to define because "equitable" is a subjective term. However, at least two conditions must be met to achieve an equitable sharing arrangement: (1) assets must receive returns equal to their economic productivity; and (2) variable inputs which directly determine yield level must be shared in the same proportion as the crop. These principles are basic to equitable share leases.

Today, crop-share rental agreements vary considerably. Over the past several years, the demand for additional farmland has caused tenants to bid up the rental price of land. Most increases have come in the form of concessions to landowners on shared inputs, not through changes in traditional sharing ratios. Such actions adversely affect lease equitability.

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For example, traditional crop-share rental ratios on the Texas High Plains are one-third on feedgrains and one-fourth on cotton. Concessions to landowners have resulted in many tenants bearing all variable costs of the crops and, in extreme cases, repairing, maintaining or installing fixed assets on the land.

If rent is to be increased, it would be better to maintain landowner participation in certain variable inputs and change the sharing ratio to increase the net return to land. The return to land under average yields and prices should be directly related to the risk accepted by the landowner. At one extreme is a cash lease in which the landowner accepts little risk; at the other extreme the landowner shares equally with the tenant in all production costs and accepts much greater risks. The cash lease price should be lower than the normal share rent, and full participation should return even more to the landowner.

In a share lease, crops and shared costs should be divided on the same basis. The sharing ratio should be negotiable, and the landowner should share in the cost of inputs which directly affect crop yield levels. The identification of such inputs is not difficult.

Fertilizer and insecticides traditionally have been specified as yield-determining inputs, and in some irrigated areas a good case for sharing irrigation operating costs can be made. In the light of increasing energy costs and the need to maintain efficient irrigation pumping plants, a sharing of irrigation variable costs or tenant ownership of the entire irrigation system is necessary. Tenant ownership of the irrigation system raises some serious problems and would be most practical only with long-term rental agreements. Thus, it seems much simpler to think in terms of landowner participation in pumping costs.

Additionally, with some crops landowners may share in some of the harvesting expenses. For exam-

ple, landowners pay for their own cotton ginning and grain drying; many pay for grain hauling; and some pay their share of harvesting if the crop is custom harvested.

There are pros and cons of sharing all harvesting costs. Harvesting expenses are not yield-determining, but they are generally a function of yield. It is quite reasonable to expect the landowner to pay charges levied at the delivery point (ginning or drying), but payment for actual harvesting is more difficult to assign.

Where custom harvest is used, costs are easily determined. But if the tenant owns the harvesting equipment and provides harvesting labor, division of costs is more difficult. It is not equitable if the landowner shares custom harvest costs but not costs incurred by a tenant who harvests his own crops. An alternative would be for the landowner's costs to be based on custom rates even though the tenant harvests his own crops.

The question of sharing harvest costs is a sticky one. In theory, because they are a function of yield, they should be shared. And the most reasonable approach would be on the basis of custom harvesting rates. However, the problems associated with negotiating these conditions may outweigh the benefits.

Calculating Sharing Ratio

This discussion has suggested landowner participation in more of the variable inputs. If the current or traditional sharing ratio is not altered, this would reduce the return to land. However, if the net return to the landowner is completely negotiable, then, based on this negotiated return and projected shared expenses, the sharing ratio can be calculated.

The negotiability of the return to land is the basis of using the crop sharing method described here. Cropland for rent is a product offered in a free market, competing against other land offered for rent. The lease price (rent) should be determined by the interaction of landowners and prospective tenants who bid for the use of this resource. The only value that rented land has to a tenant is its ability to generate income (tenant's share) above his production costs (variable costs plus rent). In a free negotiation, the tenant would not knowingly pay more for land than it would return, and the landowner would not likely accept less than the going rental rate for similar property. In this manner, a tendency toward a state of relative equilibrium is established, provided that expectations and realizations of yields and prices are consistent.

The only person who can decide how much he can afford to pay to rent a particular tract of land is the operator. For example, if corn land is currently renting for \$100 per acre and tenants continue to operate land under those conditions, who can say that the landowner should receive only \$75? The market is paying \$100, and that is the rental value of the land. If \$100 is too high, tenants will back off until the price is reduced to a level they can afford.

Negotiating in a free market situation is an effective method of pricing land rental, and if a crop share is desired, it can be calculated from this negotiation. For example, assume a landowner and tenant agreed that a reasonable yield expectation for a farm was 140 bushels of corn per acre, that the corn price would be \$2.50 per bushel, and that the negotiated return to the landowner's fixed resources should be \$100 or 40 bushels of corn. However, fertilizer (\$35), insecticide (\$10), irrigation (\$40), and drying (\$15) costs would be shared on the same basis as the crop. The question of the sharing ratio remains.

Using the following equation, the sharing ratio can be calculated:

$$\text{Sharing ratio} = \frac{\text{Negotiated rental (\$)}}{\text{Expected gross} - \text{total shared expenses}}$$

$$\begin{aligned} \text{Ratio} &= \frac{40 \text{ bu.} \times \$2.50}{(140 \text{ bu.} \times \$2.50) - \$100} \\ &= \frac{\$100}{\$350 - \$100} \\ &= \frac{\$100}{\$250} \\ &= .40 \text{ or } 40\% \end{aligned}$$

Here it is calculated that the landowner should receive 40 percent of the crop and pay 40 percent of the fertilizer, insecticide, drying and irrigation operating costs. Such an arrangement would be completely equitable based on the negotiated 40-bushel return to the landowner's resources. Remember, this is the negotiable portion of the rental price.

The above procedure allows those individuals who use it to freely bargain on lease rates and still have an equitable sharing arrangement. The values used in the example are for illustration only, and extreme care should be exercised in developing your own values and costs.

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