

# **BEEF CATTLE SHARE ARRANGEMENTS**

## **Advantages of Sharing Arrangements**

Arrangements usually involve a landowner (operator) and someone owning livestock (owner). Share arrangements cover a range of possibilities. The livestock owner may lease the total ranch (buildings, hay land, and equipment) from the landowner, or the livestock owner may provide just the cattle and compensate the landowner (operator) for all services provided in running the cattle. Between these two extremes lie many other arrangements.

An equitable cattle-share arrangement can be advantageous to landowners as it might: 1) enhance the use of past capital investments (buildings, facilities), 2) motivate a common interest in the total business on a year-long basis 3) add diversification and flexibility to the operation, and 4) provide an opportunity for a beginning livestock owner to gain experience in livestock production.

## **Factors to Consider in Developing Share Arrangements**

Cattle share arrangements are more complicated than most range leases. Share arrangements should be mutually advantageous and fair to both parties. Agreement on decision making, record keeping, and what happens during drought, fire and other emergencies is needed. For most successful cattle share leases, the distribution of earnings will reflect the respective cost contributions of both parties to the lease. Both the landowner and livestock owner normally assign costs to the resources they contribute to the lease. As in any negotiation, the final valuation of these contributions may be influenced by the bargaining process where final lease shares are specified.

Fixed and variable costs incurred by both the landowner and tenant should be considered. Fixed costs are incurred due to owning property. They include depreciation, interest, repairs, taxes and insurance, and are incurred regardless of management strategies. Variable or operating costs are incurred daily. They include feed, labor, veterinary service, repairs, trucking, marketing and miscellaneous costs. In most sharing arrangements, the owner/operator is responsible for the fixed costs. Variable Costs may be allocated many different ways.

Both parties also have to consider a variety of management issues. In the case of a cowherd leasing arrangement, who provides replacements? Who provides management practices? When are calves sold? What are the feeding practices? Who provides the bulls?

## **Sample Sharing Arrangement**

An equitable arrangement should be developed jointly by the operator and livestock owner. They must decide upon the resources to be contributed by each party, the costs attached to the resources contributed, and the percentage of costs contributed by each party. A procedure used to estimate costs associated with a cattle-share arrangement is demonstrated in Table 1. The form is usually filled out jointly by the operator and livestock owner. At other times each party fills out the form in its entirety. This means that each party assigns costs to the resources offered by the other party as well as assigning costs to their own resource contributions. When this happens, the calculated shares become the basis for negotiation.

In the example, the lease represents a beef cattle operation with 300 mother cows, where all calves are sold at weaning. All breeding stock is purchased. Future production and income can be divided by determining and considering each party's contribution to the expense items. All costs shown are calculated on a per cow basis. After each cost is calculated it is entered either in the Owner (livestock) or Operator (land owner) column depending on who bears the cost. Total contributions are shown on Line 21. Percentage of total costs contributed by both the livestock owner and operator (landowner) are then used to calculate the percentage contribution of each party (Line 22). Future income can be divided or shared in these same percentages.

Table 1. Estimate of Contributions for a Beef Cattle Share Arrangement.\*

Item	Contribution Dollars/Cow		Contribution % of Total Cost	
	Owner (Livestock)	Operator (Land)	Owner (Livestock)	Operator (Land)
<b>Cows and Bulls</b>				
1. Interest on cows	45.00	-----	8.42%	0.00%
2. Depreciation on cows**	45.00	-----	8.42%	0.00%
3. Taxes on livestock	11.43	-----	2.14%	0.00%
4. Death loss**	13.50	-----	2.52%	0.00%
5. Interest on bulls	5.00	-----	0.93%	0.00%
6. Depreciation on bulls	20.00	-----	3.74%	0.00%
7. Veterinary	20.00	-----	3.74%	0.00%
8. Trucking	8.00	-----	1.49%	0.00%
9. Marketing	15.00	-----	2.80%	0.00%
<b>Machinery and Buildings</b>				
10. Machinery (opptnty & deprec)	-----	33.75	0.00%	6.31%
11. Buildings (opptnty & deprec)	-----	16.66	0.00%	3.12%
12. Taxes	-----	7.27	0.00%	1.36%
13. Repairs (Bldgs, machinery)	-----	15.66	0.00%	2.93%
<b>Feed</b>				
14. Pasture	-----	112.00	0.00%	20.94%
15. Hay	-----	105.00	0.00%	19.63%
16. Supplements	-----	26.00	0.00%	4.86%
17. Minerals	-----	5.00	0.00%	0.94%
<b>Other</b>				
18. Labor	-----	25.50	0.00%	4.77%
19. Insurance	-----	5.00	0.00%	94%
20. Miscellaneous	-----	-----	-----	-----
21. Total Contributions	182.93	351.84		
22. Percent of Contributions			34.20%	65.80%

\* Estimate based on a cow valued at \$900.00. sale of all calves and the purchase of breeding stock.

\*\* Depreciation and death loss are not considered as a contribution when replacements are raised in the operation.

**Interest on cows.** An opportunity cost based on the market value of each cow was calculated using a real interest rate of 5%. The real rate of interest (reflecting the long-term real rate of return on agricultural investments) is calculated by subtracting the annual expected rate of inflation (over the period of the lease) from the expected nominal interest rate.

In the example, the owner (livestock) contributed \$45 (5% interest on a \$900 cow) (Line 1).

**Depreciation on cows.** Annual depreciation is determined by calculating the difference between the average value of a cow when it is placed in the herd and its estimated value when it is culled from the herd. In the example, the \$900 cow remains in the herd for eight years and is sold (as a 10-year old) for \$540. Therefore, the cow has a total depreciation of \$360 ( $\$900 - \$540$ ) and an annual depreciation of \$45 ( $\$360 \div 8$  years). Depreciation in the example was recorded as a livestock owner's cost (Line 2). Although depreciation of cows is a legitimate cost contribution when replacement heifers are purchased, such a cost should not be included when replacement heifers are raised in the operation. The cost of raising replacements would have been included in the operating costs.

**Taxes on livestock.** Property tax is the greatest tax burden for ranchers and should be considered. The average property tax liability per \$1000 of cattle is \$11.44. Therefore, the taxable value of a \$900 cow is \$10.29 ( $\$900 \text{ cow} \div \$1000 \text{ taxable value} = 90\%$ ;  $90\% \times \$11.44 = \$10.29$ ). The taxable value on a \$2500 bull is \$28.60 ( $\$2500 \text{ bull} \div \$1000 \text{ taxable value} = 2.5$ ;  $2.5 \times \$11.44 \text{ tax liability per } \$1000 = \$28.60$ ). However, since the bull is assumed to service 25 cows, the "bull tax" percow is \$1.14 ( $\$28.60 \div 25 = \$1.14$ ). Therefore, the total tax per cow is \$11.43 ( $\$10.29 + \$1.14 = \$11.43$ ). In the example, livestock taxes were a cost contributed to the owner of livestock (Line 3).

**Death Loss.** Death loss should be calculated multiplying the percentage death loss by the average value of the animal. In the example, a death loss of 1.5% resulted in a per cow loss of \$13.50 ( $\$900 \times 0.015 = \$13.50$ ). Death loss was a contribution of the livestock owner (Line 4).

**Interest on Bulls.** The opportunity cost on

bulls is calculated as previously shown for cows. However, the opportunity cost on investment per bull must be divided by the number of cows the bull breeds. In the example, the interest on a \$2500 bull that breeds 25 cows is \$5.00 ( $\$2500 \times 0.05 = \$125$ ;  $\$125 \div 25 \text{ cows} = \$5.00$ ). This cost is contributed by the owner of the livestock (Line 5).

**Depreciation on bulls.** Depreciation on bulls is calculated as previously shown for cows. However, the depreciation cost on investment per bull must be divided by the number of cows the bull breeds. In the example, the bull purchased at \$2500 is used for three years and has a salvage or cull value of \$1000. While total depreciation on the bull is \$1500 ( $\$2500 - \$1000 = \$1500$ ), annual depreciation allowance on a per cow basis is \$20.00 ( $\$1500 \div 3 \text{ years} = \$500$ ;  $\$500 \div 25 \text{ cows} = \$20.00$ ). This was recorded as a livestock owner's cost (Line 6).

**Veterinary Service, Trucking & Marketing.** Because these costs have a direct effect on profitability, it is recommended that both parties mutually evaluate and decide on the level of expenditure in each item. In the example, the livestock owner's (per cow) contributions of \$20.00 for veterinary medicine and services, \$8.00 for trucking, and \$15.00 for marketing (brand inspection, commission, checkoff, yardage, etc.) are recorded on lines 7—9.

**Opportunity cost and depreciation on buildings and machinery.** Opportunity cost and depreciation on buildings and machinery used in an operation are contributions of the party who owns them. An opportunity cost, or the real rate of return an owner could earn on the average value of his investment in buildings and machinery over the life of the lease should be used. Opportunity cost allowances should be divided by the number of cows on the ranch, not just by the cows in the share agreement.

In the example, opportunity costs were calculated using the average value of machinery used in the share operation. Per cow opportunity cost on \$150,000 machinery investment was \$11.25 [ $\$150,000 \text{ (list price)} - \$15,000 \text{ (salvage value)} \div 2 = \$67,500 \times 0.05 \text{ (real rate of interest)} \div 300 \text{ cows} = \$11.25$ ]. Per cow depreciation allowance on machinery was \$22.50 [ $\$150,000 \text{ (list price)} - \$15,000 \text{ (salvage value)} \div 20 \text{ (years of useful life)} \div 300 \text{ cows} = \$22.50$ ]. Thus, total

opportunity and depreciation cost of machinery is \$33.75. This was recorded as an operator (land owner) contribution (Line 10).

Most buildings are depreciated over 40 years—at an annual depreciation rate of 2.5%. In the example, the land owner paid \$100,000 for the buildings when he purchased them 20 years ago. Because the buildings are currently worth \$50,000 ( $\$100,000 \times [20\text{-year age} \div 40\text{-year life}]$ ) the per cow opportunity cost allowance is \$8.33 ( $\$50,000 \times 0.05 \div 300 \text{ cows} = \$8.33$ ). Per cow allowance for depreciation is also \$8.33 in this example [ $\$100,000$  (initial cost)  $\times 2.5\%$  (annual depreciation)  $\div 300$  cows = \$8.33]. Thus, total depreciation and cost allowances on buildings is \$16.66. This is reported as a landowner contribution (Line 11).

**Taxes on buildings and machinery.** Taxes on buildings and machinery is the cost of taxes incurred while the property is used for livestock production. The average personal property tax liabilities per \$1,000 of machinery and buildings in Montana are \$25.63 and \$9.08, respectively. Per cow allowance for building taxes is \$1.51 [ $\$50,000$  (current value)  $\div 1000 \times \$9.08 \div 300$  cows = \$1.51]. Personal property tax on machinery was \$5.76 [ $\$150,000$  (initial cost) -  $\$15,000$  (salvage value)  $\div 2 = \$67,500$ ;  $\$67,500 \div 1000 = 67.5$ ;  $67.5 \times \$25.63$  (tax liability per \$1000) = \$1,730.03;  $\$1,730.03 \div 300$  cows = \$5.76]. Therefore, total personal property tax on buildings and machinery is \$7.27 per cow ( $\$1.51 + \$5.76 = \$7.27$ ). This is reported as a landowner contribution (Line 12).

**Repairs.** Repairs on buildings, equipment, fences, wells, etc. represent the maintenance cost incurred by the livestock operation. The approach, used by Montana's agricultural loan officers, of charging 4% of current value of buildings, and 4% of the average value of machinery was used in the example. The annual repair bill on a per cow basis for machinery and buildings is \$15.66 [ $\$67,500$  (average value of machinery) +  $\$50,000$  (current value of buildings) = \$117,500;  $\$117,500 \times 0.04 = \$4,700$ ;  $\$4,700 \div 300$  cows = \$15.66]. This is reported as a landowner contribution (Line 13).

**Pasture.** Pasture should be valued at its opportunity cost in the rental market. In other words—at the amount for which it could be rented to someone else. In the example, the

landowner's pastures contributed the total forage for 8 months. At \$14.00 per AUM, the forage was valued at \$112 ( $\$14 \times 8 \text{ months} = \$112$ ) (Line 14).

**Hay, supplements, and minerals.** All inputs or costs incurred during the year should be valued at their purchase price delivered to the ranch. In the example, the cost per cow was: hay = \$105 (1.5 ton at \$70/ton); supplements = \$26.00; and minerals = \$5.00. These costs were recorded as landowner contributions (Lines 15, 16 and 17).

**Labor.** The operator (landowner's) labor should be valued at the opportunity cost for his labor, that is, the wage/salary he would receive if employed in his best alternative in the community. Only the portion of time that is spent on the leased cattle should be included. Work contributed by the operator's family and by the owner of the cattle would be evaluated similarly. In the example, the operator's labor contribution was valued at \$25.50 (Line 18).

**Insurance.** The insurance on the livestock, machinery, buildings, etc. is the actual cost paid by one or both parties. In the example, the landowner's insurance for the total operation equaled \$5.00 per cow (Line 19). The insurance cost should only include the portion of the operation used by the cattle in the lease agreement.

**Total Contributions.** Each party's contributions toward the cow's production costs (\$534.77) are totaled on line 21. They represent a 34.20% and 65.80% contribution from livestock owner and land operator, respectively. These percentages should be used as a guide for dividing future income and production. If future returns exceed the total production price both parties of the lease should receive a profit on their contributions of land, labor, and capital. However, if the future returns are less than the production price, one or both of the parties will not receive a profit. In the short run, the two parties may decide to forego a reasonable return on opportunity costs, depreciation, etc. and continue the lease agreement as long as actual expenses are covered. However, in the long run, future returns should exceed all production costs.

This method of determining a cow share agreement is called the cost contributions approach. While it attempts to reflect the actual contributions of each party, the current market for share arrangements in the area should be

considered (if known). If this method shows a 34%—66% split in contributions and the current market for share agreements in the area is 40%—60%, then the individual parties should evaluate the factors influencing the different estimates and possibly negotiate a new rate before entering into an agreement.

Leasing agreements should be monitored to assure that the arrangement continues to be equitable. Fluctuating cattle and input prices, and changing labor conditions can cause a shift in the cost of contributions of one or both parties. To reflect current cost contributions, one or both parties may desire to renegotiate the lease.

### **The Written Agreement**

A cattle-share arrangement, given the usual complexity in laws, is best recorded in writing. The lease should describe the management practices and strategies used during the lease. It also must include the names of the parties, an accurate description to the property, beginning and ending dates of the arrangement, what each party is to furnish, limitations on land use, extent of participation in government programs, the rights and responsibilities of each party, and the respective signatures of both parties.

A sample beef cattle share arrangement is included in the appendix. Although it should not be used verbatim, its ideas and format are recommended for use in developing suitable arrangements. Accountants should be consulted in regard to tax issues.