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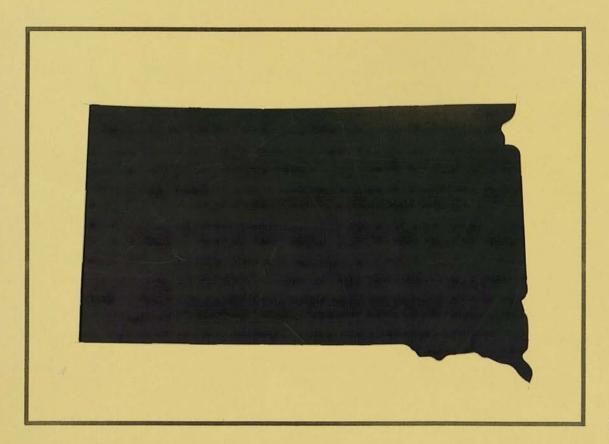
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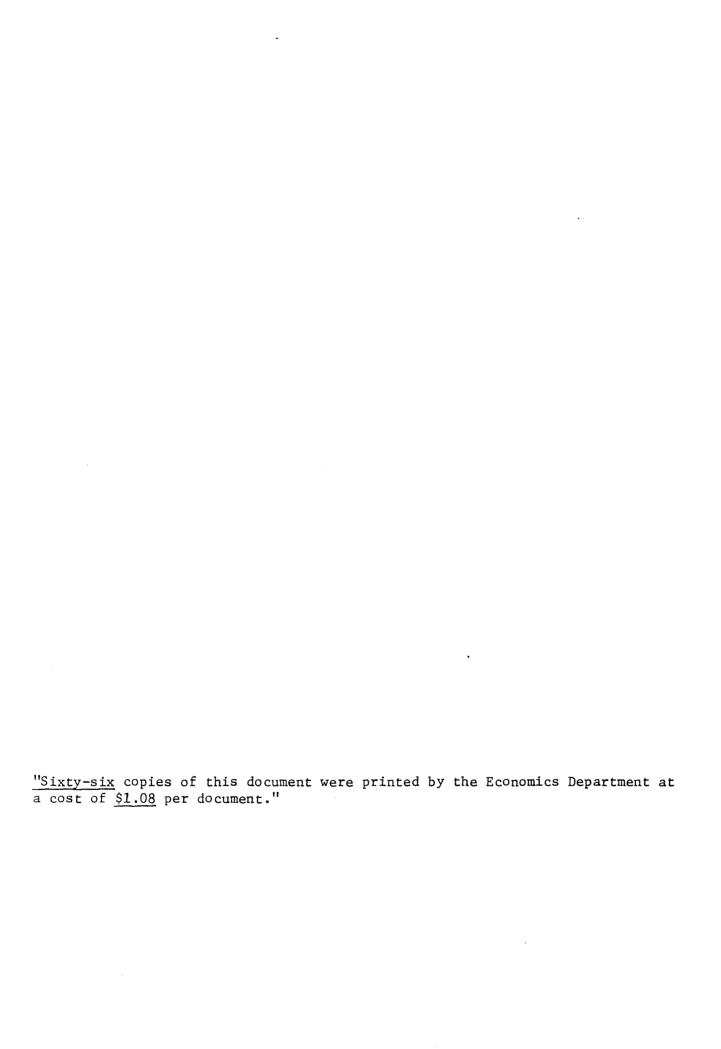
DETERMINING A "FAIR" BEEF COW LEASE AGREEMENT WHEN RISK IS CONSIDERED

by

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FORWARD

This publication is intended to illustrate a method of determining a fair lease agreement. The budget and coefficients were representative of a particular resource base in 1989. Individual producers may have very different costs and production coefficients for their cow herds. As author, I do not wish to imply that lease agreements should be based on the same proportion of receipts as depicted in this example budget.

There also is an <u>example</u> of a written lease agreement in an appendix at the end of the manuscript. This is only an example to illustrate the type of issues the two parties to a lease agreement may wish to consider. Specific lease agreements may be entirely different then the example lease agreement.

DETERMINING A "FAIR" BEEF COW LEASE AGREEMENT WHEN RISK IS CONSIDERED

There is considerable risk involved in the ranching business. Risk, in general, involves three distinct categories: 1) production risk, 2) market risk, and 3) ownership (financial) risk. Traditionally the beef livestock producer has borne all of these risks as a part of doing business. More recently, contractual arrangements have been developed and entered into by livestock producers in an effort to distribute a portion of the total risk among other parties.

Leasing of cropland, pasture and rangeland, and machinery either on a cash or share basis is common in American agriculture. Cash leasing of stock cows or sharing in calf crop production is a concept for which there is little historical precedence. The question of what is a "fair" lease or share arrangement of a livestock lease remains essentially unanswered. Concerns about the terms of a lease that reflect market price variations, production uncertainties, and variable range and weather conditions all add to the uncertainty of entering into a livestock lease.

However, if one assumes that beef cow producers are generally risk averse, then leasing of production livestock (stock cows and/or bulls) is one strategy that can be employed to reduce risk. In addition to reducing risk, livestock lease arrangements also reduce the amount of capital that a beef cow producer has invested in the total farm or ranch operation. This may enable the producer to invest capital in other profitable enterprises, or may reduce the amount of borrowed capital needed and strengthen a firms overall financial position.

The objectives of this article are to examine some different lease arrangements and evaluate the amount of risk that each party to the lease is bearing. The specific objectives are:

1) to present and evaluate three different stock cow lease arrangements,

- 2) to establish a criteria for evaluating the "fairness" of a lease, and
- 3) to evaluate the degree of risk sharing with the lease and comment on how this effects the "fairness" of the lease arrangement.

There has been some previous research done in the area of livestock leases. Bennett did research on livestock-share rental arrangements in the North Central region of the U.S. He considered the case of a landowner and a tenant entering into an agreement similar to a crop-share tenant arrangement. By constructing a livestock budget, total ownership and operating costs were identified and the share paid by the landowner and the tenant were identified. Bennett proposed that for a livestock-share arrangement to be "fair", the two parties should share the revenue in the same proportion each had invested in the ownership and operating expenses. No explicit consideration was given to which party would incur more risk.

Work has also been recently completed in Nebraska on livestock share arrangements (Robb, et. al.). They established criteria for determining a "fair" share based on the shared proportions of the economic inputs. Their work was more general than that done by Bennett. The two parties involved in the agreements were the cow owner (lessor) and the beef livestock producer (lessee). A spreadsheet template was developed to identify and quantify the share of the economic inputs supplied by both parties, and returns were shared on a proportional basis. Again, no explicit mention was made as to the proportion of risk shared by the two parties.

TYPES OF STOCK COW LEASES

Leasing agreements can take on many different time horizons and it would not be practical to attempt to identify and critique all possible lease arrangements. In general most stock cow leases are on an annual basis; however, there are some leases that are for a longer term of three to five years. Each of these two types of leases have their advantages and

disadvantages but annual leases will be the focus of this article. Annual leases are popular because they are more flexible, generally simpler to negotiate, and have fewer issues that need consideration (e.g., who is responsible for cow replacement in the case of a long-term lease). The flexibility of annual leases allows a producer (lessee) to be able to evaluate feed supplies, market prices, and other relevant information on an annual basis before deciding on entering into a lease arrangement. The owner of the cattle also has the flexibility to change the terms of the lease annually to adjust for changing market conditions. Appendix A contains an example of an annual lease agreement.

There are also some disadvantages to annual leases. Perhaps the greatest is the uncertainty about the future. A producer may have some cows leased this year and would like to lease them again for the next year but may not be able to, or may have to pay a higher price to continue to lease them.

There are several different types of annual leases and three will be discussed. They are: 1) cash lease, 2) fixed number of calves lease, and 3) percent of calf crop lease.

Cash Lease

The annual cash lease is the simplest lease arrangement. The lessee agrees to pay the owner a fixed dollar amount per cow for one year. At the end of the lease, the cows are returned to the owner and the lessee keeps all the calves.

This type of lease agreement shifts the ownership (financial) risk of owning the stock cows away from the cow-calf producer and to the owner of the cattle. The producer still bears all of the production and marketing risks. Many cash leases require cash payment at the start of the lease period; thus, the producer will have to consider interest expense and will still be subject to some financial risk.

Fixed Number of Calves Lease

This lease type is quite similar to a cash lease; the difference is that payment is made in the form of a certain number of calves rather then cash. The lease agreement would have to establish the mix of steers and heifers, (i.e., 50-50, 55-45, etc.). For example the lease payment might be 13 steer calves and 17 heifers calves for every 100 cows leased.

With this form of lease the ownership risks are again transferred from the cow-calf producer to the owner of the cows. The producer still bears most of the production risk, but the marketing risk is now shared by both the owner and the livestock producer. Both will benefit from higher calf prices and both will be adversely affected by lower calf prices.

This form of lease has some very attractive incentives. For the owner of the cattle, there is the possibility of sharing in the profits of a high calf market. The owner could also retain ownership of his calves and use the heifers for replacements. The cow-calf rancher also has some profit incentives under this form of lease. If he can wean a higher calf crop it will mean more calves for him. With the payment in calves lease, the producer may not need financial assistance from his lender since there is no initial lease payment at the start of the lease.

Percent of Calf Crop Lease

This type of lease agreement is based on a flexible payment. The lease rate is an established percentage of the calf crop weaned. For example a lease rate of 33% of the calf crop (lessor share) would not be 33 calve out of 100 cows, unless there was a 100% calf crop weaned. For a 91% calf crop the lessor would receive 30 calves; as with the fixed number of calves lease, the mix of steer and heifer calves needs to be specified. On the surface this lease agreement appears very similar to the fixed number of calves lease.

However, the risk sharing and the implications for profit incentives are considerably different.

With this form of lease the owner of the cows (lessor) bears the ownership risk and shares in both the marketing and production risk. From the producer's (lessee) point of view almost all of the risk involved in the enterprise have been shifted to or shared with the owner of the cows. If a producer was very adverse to taking risk, this would probably be the preferred agreement.

Under this agreement, the livestock producer may not be as inclined to do his best job of managing because the increase production must be shared with the owner of the cows. Also the owner of the cows may want a higher lease rate to protect himself against poor production by the producer.

While only three principal livestock lease agreements have been discussed, most stock cow lease agreements are designed after one of these basic types, or a combination of them. The issue of determining a "fair" lease rate, and how risk effects that "fair" rate, will now be addressed.

DETERMINING A "FAIR" LEASE AGREEMENT

There are two main items that need to be considered to address the issue of the "fairness" of a lease agreement. The first is the expected costs and returns from the cow-calf enterprise, and which party of the lease is responsible for the various costs. The second issue, and one not always considered, is which party to the lease is subject to the most risk.

Cow-Calf Enterprise Budget

A livestock producer entering into a lease agreement should develop an enterprise budget to determine his costs of production and expected returns. The cow owner also needs to know the ownership costs involved in maintaining the cow herd in the desired condition. Enterprise budgeting is the foundation for the development of a "fair" lease agreement.

A spreadsheet template was developed to assist a livestock producer and a cow owner to determine the costs and returns associated with the cow-calf enterprise. Several assumptions are critical in determining the levels of profit from this enterprise. These assumptions need to be entered at the initial stage of the template. Table 1 is representative of this portion of the spreadsheet template, and contains the assumptions used for the remainder of this analysis.

For this example, a zero heifer replacement assumption was used. This does not imply that the herd is not being maintained. It simply means that the lessor (cow owner) is responsible for the replacements, and should include the cost of replacements as part of the ownership costs. The analysis also assumes that the bulls are provided by the cow owner.

TABLE 1. ASSUMPTIONS REQUIRED FOR THE ANALYSIS.

Enter number of cows to a Enter the rep. hfr rate a Enter number of cows per Enter percent calf crop Enter percent death loss	as a %. [bull. [born. [Cows [Calves [Bulls [100] 0.0%] 25] 92.0%] 2.0%] 2.0%]		
Enter the % of cows to come to be culled and sold.	aive	12.0%]		
Enter sale weights (lbs)	and prices	(\$/cwt) for	livestock	
Steer calves [Heifer calves [Cull cows [Cull bulls [lbs. 450] 425] 1000] 1500]	[95. [87. [48.	cwt .50] .00] .00]	Value/head 430.00 370.00 480.00 810.00
Enter the purchase price		cows [700 ulls [1500	.00] .00]	
Enter interest rate for Enter interest rate for		•	.00%] .00%]	

The spreadsheet template generates several additional tables which assist the lessee and the lessor in planning grazing requirements, winter feed requirements, and the costs of maintaining the desired number of cows and bulls. These tables are not included in this article due to space limitations.

Table 2 is the enterprise costs and returns budget generated by the spreadsheet template. The livestock producer's costs are primarily those variable cash costs directly associated with the cow-calf enterprise. If the price for grazing and feed resources are entered at or near their market value, then most of the lessee's variable and fixed costs associated with growing these feeds are accounted for. The general overhead costs would include such items as utilities, insurance, real estate tax, and depreciation. Interest costs are calculated based on the operating expenses occurring evenly over the year. In the case of a cash lease being paid at the beginning of the year, no explicit interest costs were charged.

The ownership costs are those costs borne by the lessor (owner) of the cattle. Interest is charged on the investment in cows and bulls at the rate entered in Table 1. The cow replacement cost (CRC) is arrived at by equation (1):

The bull replacement cost is arrived at in the same manner. This analysis also assumes that the owner will pay for the cost of vaccinating the cows.

The shares of the total costs to the lessee and the lessor are then calculated. In the example, it is 60% (lessee) and 40% (owner) respectively. If risk is ignored, then an equitable lease would split returns based on the same percentages as the costs are shared. The bottom of Table 2 identifies what the equitable lease payment should be, if risk is not considered.

TABLE 2. COW-CALF ENTERPRISE COSTS AND RETURNS BUDGET.

Returns	No.	Weight	Price	Value	Total	Per Cow
Heifer Calves Steer Calves	45 45	425 450	\$87.00 95.50	\$370.00 430.00	\$16,650 19,350	\$166.50 193.50
88 8Total Returns \$360.00	3				\$36,000	ı
Rancher Costs	Unit	#	\$/unit			
Grazing Grain Purchased Hay Purchased Salt & Min Vet Expense Supplies Hired Labor Mktg Charges General Overhe Interest on op	TON TON	881 0 175 2	\$ 6.00 0.00 60.00 180.00	-	\$ 5,286 0 10,500 360 300 400 200 650 700 1,012	\$ 52.86 0.00 105.00 3.60 3.00 4.00 2.00 6.50 7.00 10.12
Total Rancher	Costs				\$19,408	\$194.08
Ownership Cost	;s					
Interest on Co Interest on Bu Cow Replacement Bull Replacement Vaccination co	ılls nt Cost ent Cost			-	\$7,000 540 4,040 714 600	\$70.00 5.40 40.40 7.14 6.00
Total cow owne	er's costs				\$12,894	\$128.94
Total Costs					\$32,302	323.02
	Share of Costs Share of Costs	60% 40%				
Net Returns					\$3,698	36.98
	Lease Agreement	Le	ease Pymt	to Cow Own	er	
	Cash Fixed # of Calves Percent of Calf c		\$14,	370 36 40%		

Risk Analysis

Each type of lease agreement has some implicit assumptions about who will bear the different types of risk: production, marketing, and ownership (financial). Both the lessee and the lessor would probably have different attitudes towards risk and would also have different abilities to bear risk, based on their financial positions. The following risk analysis would provide a framework for negotiations to begin. The analysis establishes a potential range of outcomes from the three leases. Both parties could subjectively evaluate their attitude towards risk and returns and work out an agreement that both consider to be fair and equitable.

It is difficult to account for and quantify all of the risk faced by the lessee and the lessor. This article addresses several major risk factors that influence expected net returns.

Two important production risk factors in a cow-calf enterprise are the percentage calf crop weaned and the weight of calves sold. Table 3 presents the effect these variables have on the returns to the producer and the cow owner under the three different lease agreements.

As shown by the variation in net returns to the lessee in Table 3, the production risk is born by the producer in the cash lease agreement. Net returns vary from a loss of \$1,119 to a profit of \$5,667. The lessor receives \$1,476 under this agreement regardless of the weight or weaning percentage.

With a fixed number of calves lease agreement, calf weight variation is shared. The cow owner's returns are affected by the weight of the calves but are not effected by the weaning percent. The producers range of profits are narrowed with this lease from a loss of \$392 to a profit of \$4,968.

With a percent of calf crop lease the production risk is shared in the same proportion as the costs. This is evident by a coefficient of variation that is equal for both the producer and the cow owner under this agreement.

TABLE 3. THE EFFECT OF PRODUCTION RISK ON THE NET RETURNS TO THE PRODUCER AND TO THE COW OWNER UNDER THE THREE DIFFERENT LEASE AGREEMENTS.

\ \	PRODUCER (LESSEE) Weaning percent				COW OWNER (LESSOR) Weaning percent			
Calf Weight \	86%	90%	94%	86%	90%	94%		
CASH LEASE								
5% lower	(\$1,119)	\$400	\$1,920	\$1,476	\$1,476	\$1,476		
Average	\$600	\$2,199	\$3,798	\$1,476	\$1,476	\$1,476		
5% higher	\$2,319	\$3,998	\$5,677	\$1,476	\$1,476	\$1,476		
FIXED # CALVES	,		,	, , ,				
5% lower	(\$392)	\$1,128	\$2,647	\$749	\$749	\$749		
Average	`\$609´	\$2,208	\$3,807	\$1,467	\$1,467	\$1,467		
5% higher	\$1,610	\$3,289	\$4,968	\$2,185	\$2,185	\$2,185		
% OF CALF ČROP		•	•	•		•		
5% lower	\$215	\$1,128	\$2,040	\$143	\$749	\$1,355		
Average	\$1,248	\$2,208	\$3,169	\$829	\$1,467	\$2,105		
5% higher	\$2,280	\$3,289	\$4,298	\$1,515	\$2,185	\$2,855		
		PRODUCER (LESSEE)			NER (LESS	OR)		
	Expected	Std.		Expected	Std.			
TYPE OF LEASE	Value	Dev.	C.V.	Value	Dev.	C.V.		
Cash	\$2,199	\$1,966	89.38%	\$1,476	\$0	0.00%		
Fixed # calves	\$2,208	\$1,577	71.40%	\$1,467	\$ 586	39.96%		
% Calf crop	\$2,208	\$1,377	53.49%	\$1,467	\$785	53.49%		

The price received for steer and heifer calves is the primary marketing risk involved in the cow-calf enterprise. Table 4 illustrates the effect of changing calf prices on the returns received by the lessee and the lessor. With a cash lease, the cow owner is not affected by changes in calf prices, however, the returns to the producer vary greatly under this arrangement. With both a fixed # of calves lease and a percentage calf crop lease this marketing risk is shared in the same proportion as are the costs. Both the producer and cow owner can benefit from price increases and both suffer from price decreases.

The last category of risk was ownership risk. This involves the risk of maintaining the cow herd and the financial obligations associated with owning the cows. The price or value of the cows, the price received for cull cows,

TABLE 4. THE EFFECT OF MARKETING RISK ON THE NET RETURNS TO THE PRODUCER AND TO THE COW OWNER UNDER THE THREE DIFFERENT LEASE AGREEMENTS.

Steers Heifers		•	es d <u>High</u>) \$100.00	COV Low \$85.00 \$75.00		es <u>d High</u> \$100.00
Cash	(\$2,222) \$2,199	\$4,067	\$1,476	\$1,467	\$1,476
Fixed # calves	(\$448)	\$2,208	\$3,330	(\$298)		\$2,213
% Calf crop	(\$448)	\$2,208	\$3,330	(\$298)		\$2,213
TYPE OF LEASE	Expected Value	Std. Dev.	C.V.	Expected Value	Std. Dev.	C.V.
Cash	\$1,697	\$2,637	195.61%	\$1,476	\$0	0.00%
Fixed # calves		\$1,584	93.37%	\$1,127	\$1,053	93.37%
% Calf crop		\$1,584	93.37%	\$1,127	\$1,053	93.37%

and interest rates are the primary factors that affect ownership costs.

Rather than look at each of these variables separately, the general level of ownership costs were increased and decreased by 5% (Table 5.) The owner of the cows bears all of the ownership risk under all three lease agreements analyzed. If the lease were structured so that the producer provided his own bulls and/or there was a replacement heifer agreement within the lease, then the producer would also share in some of the ownership risks.

SUMMARY AND CONCLUSION

In today's agricultural framework, more producers are looking for alternative business arrangements to spread risk and increase their survivability and profitability. Leasing of stock cows is one such alternative. Leases can take many forms and three specific lease arrangements were analyzed in some detail.

All of the lease agreements transferred the ownership risk from the cowcalf producer (lessee) to the cow owner (lessor). Under a cash lease, the producer bears all of the production and marketing risks. With a fixed number

TABLE 5. THE EFFECT OF OWNERSHIP RISK ON THE NET RETURNS TO THE PRODUCER AND TO THE COW OWNER UNDER THE THREE DIFFERENT LEASE AGREEMENTS.

	PRODUCER (LESSEE) Ownership Costs			COW OWNER (LESSOR) Ownership Costs		
TYPE OF LEASE		Expected			Expected	
Cash Fixed # calves % Calf crop	\$2,222 \$2,222 \$2,222	\$2,222 \$2,222 \$2,222			\$1,476 \$1,476 \$1,476	
	E. V. Std. D C.V.		0	E. V. Std. D C.V.	\$1,47 ev. \$52 35.6	6

of calves lease agreement, the cow owner shares in some of the production risk (the weight of the calves) and shares the marketing risk. With a lease based on a percentage of the calf crop, the lessee transfers the most risk to the cow owner.

Due to the amount of risk sharing and the profit incentives that were previously outlined the fixed number of calves lease is probably the most equitable, if no adjustment in the lease rate occurs when risk is considered. For a cash lease to be equitable, the cow owner probably should receive a slightly lower payment because most of the risk is still being borne by the producer. However, with the amount of risk transferred to the cow owner in a percentage calf crop lease, the cow owner should probably receive a slightly higher percentage of calves for this lease to be equitable.

Ultimately, the lease rate will be negotiated by the producer and the cow owner. The degree of deviation from sharing returns based on the level of shared costs may be a result of their different attitudes about risk. Each of their own expectations about the future (i.e. market price, weather, etc.) will also influence the final agreed upon lease rate. This article has quantified the effects of some specific risk factors to enable lessees and lessors to consider risk in their negotiations.

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- Bennett, M. 1979. "Livestock-Share Rental Arrangements for Your Farm."

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- Robb, James G., Daryl E. Eliss, and Steven T. Nighswonger. 1988. "Share Arrangements for Cow-Calf or Cow-Yearlings Operations: COWSHARE a Spreadsheet Program." University of Nebraska, Lincoln, Panhandle Research and Extension Center, Scottsbluff, NE.

Appendix A

Example Lease Agreement

EXAMPLE STOCK COW LEASE AGREEMENT

Stock cow lease agreement between <u>Cow Owner</u>, here after referred to as <u>Lessee Last Name</u>, and <u>Lessee</u>, here after referred to as <u>Lessee Last Name</u>. This lease agreement shall be subject to the following terms and conditions.

- 1. The term of this lease will be from February 1, 1989 to January 31, 1990.
- 2. Cow Owner will stock this lease with 100 cows, all branded with "V-V" on the left rib. The cows will all be Angus or Angus cross and will all be vaccinated and determined to be with calf (pregnancy checked, not visual inspection).
- 3. Cow Owner will also stock the lease with 4 bulls of serviceable age. These bulls will have been tested for fertility. The expense of the test will be paid for by Cow Owner.
- 4. During the term of this lease Lessee Name will furnish all feed, salt, water, and care for the above named cows and bulls.
- 5. Payment to Cow Owner for this lease shall be 36 calves, half of each sex, and of average age and quality. The 36 calves shall be offspring of the cows owned by Cow Owner. It is expressly understood that the 36 calves is a specific number, and not a percentage.
- 6. All of the calves born to the cows will be branded with the "V V" brand. Lessee Name will receive a bill of sale at weaning for all 1989 calves branded in this manner which are in excess of the 36 calf payment to Cow Owner.
- 7. At branding time these calves are all to be vaccinated with an 8-way vaccine that includes Hemophilus, and with a 4-way vaccine of BRSV, BVD, IBR, and PI3. This vaccination shall be at Lessee Name's expense.
- 8. Lessee Name shall make every effort to assemble all of Cow Owner's cows and bulls at weaning time. These cows and bulls will then be counted and any shortage due to death or loss of cows or bulls shall be shared equally by Cow Owner and Lessee Name.
- 9. At weaning time these cows will then be vaccinated at Cow Owner's expense.
- 10. At weaning time Lessee Name will have the option of renewing the lease agreement for another year. However, it is understood that some terms of the lease agreement may be changed by either party, provided both parties agree to the change. It is further understood that after this time period neither party to the lease is under any obligation to continue the lease beyond the one year term.
- 11. In the event that the lease is not renewed at weaning time, Lessee Name is responsible for caring for and feeding the cows and the bulls until the lease expires, January 31, 1990. It is further understood that after weaning Cow Owner shall immediately remove from the ranch his 36 calves. Cow Owner shall pay all removal cost associated with these animals.

- 12. It is understood by all parties that Lessee Name have no equity in the Cow Owner cows or bulls at any time during this lease or during any extensions that may occur. At the conclusion of the lease Lessee Name will have no equity in the cows or bulls.
- 13. All physical liability connected with the cows, bulls, and calves during the duration of the lease is assumed by Lessee Name.
- 14. This constitutes the entire lease agreement. Any additions or modifications shall be in writing and signed by all parties and attached to the original document.

Cow Owner	
Lessee Name	

