Range and Pasture Forage: What's it Worth?

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A.E. Research Series No. 92-3

April 10, 1992

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In an effort to provide policy makers with additional information relative to University of Idaho (U of I) research on private grazing lease rates, the following report was prepared. The information contained in this publication summarizes several approaches to deriving the net economic value of rangeland forage in Idaho. This information is then used to derive several base (1964-68 period) values for possible use in the existing Idaho State Land Grazing Fee Formula. Specifically, this information supplements an earlier report (Rimbey, etal. 1991) on the private grazing lease arrangements.

Private Grazing Lease Rates

Private grazing lease rates, as reported by USDA/NASS, vary with demand and supply conditions. Livestock numbers vary cyclically with demand and market prices. These variations in livestock numbers thus impact the demand for forage. Alternative forage prices and availability (public land grazing, hay and others) also influence grazing lease rates. Weather, such as the drought conditions of the late 1980's and early 1990's, also have an impact on the demand for and supply of rangeland forage.

The Idaho private grazing lease rates for 1990, as reported by USDA/NASS, were \$8.42 per AUM, \$10.73 per cow/calf pair and \$8.40 per head per month. These values have traditionally been derived through the June Enumerative Survey (JES) conducted by USDA/IASS and published in the December issue of Agricultural Prices. This year, the collection of grazing fee information was switched to the July Survey of livestock producers. The average calculated cattle lease rate in 1990 from the U of I study of actual market transactions was \$6.84 per AUM (see Table 1).

Why the Difference?

The difference between IASS AUM rates and the results of this study amount to about \$1.60 per AUM. Why should there be this magnitude of difference in private lease rates with both samples drawn and administered by IASS? First, some background on the surveys may provide some basis for discussion.

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The grazing lease rate information is gathered through the following three questions in the IASS survey:

"Grazing Fees

13. Which of the following is the most commonly used method of charging for grazing on privately owned, non-irrigated grazing land in your area: Per Head Per Month, Per Animal Unit Month (AUM), or Per Cow With Nursing Calf Per Month?

What is the average charge for this method in your area?....................Dollars & Cents

14. During 1991, will this operation pay a fee to graze cattle on privately owned, non-irrigated land?"
(Source: page 2, Section 2-Cattle and Calves, 1991 July Livestock Survey, USDA/IASS).

Several observations should be made in relation to the IASS survey. First, respondents do not have to be in private grazing lease market to provide answers to these questions. They provide opinions on the "most commonly used method of charging for grazing on privately owned, non-irrigated grazing land" in their area and the "average charge for this method in your area." Given this apparent lack of market transaction data, there may be a tendency to over- or understate actual grazing lease rates.

Second, the IASS survey has been undertaken in the JES, which is primarily a crops-related survey. Recently, these questions have been shifted to July, which moves back into a survey period with a livestock orientation. It will be interesting to observe the published rates over the next few years to see if changing the lease questions to a livestock survey period will impact lease rates.

Third, responses to this section of the survey are limited by respondents' familiarity with "private grazing leases on non-irrigated private land." Over the past few years, total responses to these two questions have numbered less than 80 statewide.

Finally, the U of I survey conducted in January of 1991 may contain livestock producer bias. The survey and its importance to federal and state grazing fee issues were publicized in livestock trade magazines to attempt to generate interest in participation in the survey. This publicity may have caused producers to understate lease rates in an attempt to influence public lease policy. By including landowner and lessee sections in the January questionnaire, it was hoped that landowner and lessee responses could be checked on specific leases to determine if a reporting bias existed. Unfortunately, due to a limited response rate by landowners, this was not possible. Overall, it appeared that 39 percent of the sample were either landowners or lessees of private grazing forage.

The January survey was also designed to provide a very detailed look at private grazing lease arrangements. The questionnaire was 7 pages long and required approximately 30 minutes to administer. It was also administered following a lengthy livestock survey. Thus, potential cooperators may have been concerned about the time commitment for the second questionnaire and declined participation. The return rate on the questionnaire indicates that 39 percent of the livestock operators in Idaho are lessees and/or lessors of private grazing forage.

Forage Values

Given the limitations of lease rates from both surveys, it is possible to derive base forage values for use in determining grazing fees. However, it is extremely important to recognize the limitations of both rates derived through the two separate private grazing lease surveys.

The approach undertaken in this analysis will be to use the AUM lease rates from the two surveys as the basis for the analysis. Several adjustments (landlord services, etc.) are made in the reported AUM rates to derive a 1990 net forage value. Net forage value for 1990 will then be deflated back to the 1964-68 base period to derive base forage values to consider for use in the State Land Grazing Fee calculations.

Table 1 compares the published lease rates derived through the two surveys. These rates form the basis for the calculation of base forage values later in this paper.

Table 1. Idaho Cattle Grazing Lease Rates on Private, Non-irrigated land. ($/AUM), 1990.

Survey	Date	Lease Rate
USDA/IASS	June	$8.42
U of I	January	$6.84

Lease Rate Adjustments

Several authors have detailed the importance of services provided with private grazing leases (Nielsen, 1991; Obermiller and Lambert, 1984; PLC, etal. 1991; Torell, etal. 1989; Torell and Bledsoe, 1990; Torell and Bain, 1991). Most have concluded that services provided by the landowner have an impact on private grazing lease rates, and their values may form the basis for comparing public and private land forage. However, very little information is available on the magnitude of the contribution of services to lease rates.

The U of I study discovered strong ties between two of the "landlord services" and lease rates. The two services that had a statistically significant impact on Idaho private grazing lease rates were maintenance of improvements and liability insurance.

In other words, if the lessee assumed responsibility for maintaining improvements and paying liability insurance, grazing lease rates were significantly lower than leases which provided those services. Further, maintenance of improvements, if undertaken by the lessee, resulted in leases being $1.09 per AUM less than the average. Liability insurance payment by the lessee resulted in leases being $1.61 per AUM less than the average lease rate.

Another factor detailed in the U of I study was the incidence of after-the-fact payment of grazing leases. Over half of the private grazing leases (54.7 percent of both landowner and lessee leases studied) were not paid until after the grazing season. Considering average lease payments of $6.84 per AUM, a grazing period of 185 days (average lessee reported grazing period) and operating interest of 10 percent, a minimum reduction of $0.33 per AUM would be necessary to make the lease rates (before and after grazing payments) comparable. Considering these factors, Total Adjustments would be $3.03 per AUM (Table 2).

In an appraisal of western public lands grazing, Tittman and Brownell (1984), found that if payments were made prior to grazing, the rental rates were generally less than those paid at the end of grazing. In fact, average differences between pre- and post- payment of fees for the six pricing areas were $1.39 per head/pair month for mature cattle and $1.15 per head month for yearling cattle. In other words, lease rates paid at the end of the grazing period were $1.39 per head/pair month higher than those paid before grazing. For the Idaho pricing areas (Areas 3 and 4 of Tittman and Brownell), payment differences were $1.52 per head/pair month for mature cattle in Area 3 and $1.18 per head/pair month for Area 4 (average difference of $1.35 per head/pair month). Pricing Area 3 included only Lemhi and Custer counties of Idaho. Differences for yearling cattle were $1.18 and $1.08 per head month for areas 3 and 4, respectively. West-wide sheep rates were $0.21 per head/pair month more expensive if paid after grazing. Using the Tittman and Brownell value of $1.35 per AUM results in Total Adjustments of $4.05 per AUM (Table 3).

Table 2. Calculation of base forage value from average lease rates and service values. Idaho, 1990.

Item	IASS	U of I
Avg. Lease Rate	$8.42	$6.84
Maintenance	1.09	1.09
Liability Ins.	1.61	1.61
Prepayment	0.33	0.33
Total Adjustment	3.03	3.03
Net Forage Value	5.39	3.81
(Lease Rate minus Adjustments, 1990 dollars)		
Base Forage Value (FVI)	2.13	1.51
(deflated back to 1964-68 base period)		

The 1990 net forage value can be deflated back to the same base period used in the federal grazing fee formula to derive a base forage value in 1964-68 dollars. This was done by using the 1990 Forage Value Index (FVI) as reported by USDA/NASS of 253. Results of this approach are summarized in Table 2. Net forage values in 1990 dollars amount to $5.39 per AUM for the IASS lease rate and $3.81 for the U of I lease rate. Base forage value (1964-68 base period) calculated using the FVI deflator is $2.13 per AUM for the IASS lease rate and $1.51 for the U of I lease rate.

Table 3. Calculation of base forage value from average lease rates and service values, using Tittman and Brownell values for prepayment. Idaho, 1990.

Item	IASS	U of I
Avg. Lease Rate	$8.42	$6.84
Maintenance	1.09	1.09
Liability Ins.	1.61	1.61
Prepayment	1.35	1.35
Total Adjustment	4.05	4.05
Net Forage Value	4.37	2.79
(Lease Rate minus Adjustments, 1990 dollars)		
Base Forage Value (FVI)	1.73	1.10
(1964-68 base period $)		

Table 3 presents calculations to derive 1990 net forage value and base forage value, using the Idaho values reported in Tittman and Brownell for prepayment of leases. Using this adjustment factor ($1.35 per AUM) results in larger Total Adjustments, lower net forage values and base forage values than those reported in Table 2.

Conclusions

Based upon the returns from the private grazing lease survey and this analysis, it would appear that 1990 Idaho net forage value was somewhere between $2.79 and $5.39 per AUM. In other words, adjustments made for landlord services and prepayment of fees, reduce reported lease rates to a range between $2.79 to $5.39 per AUM, depending upon assumptions mentioned earlier. Deflating these values back to 1964-68 dollars results in a range of base values between $1.10 to $2.13 per AUM.

A word of caution is necessary at this point. This analysis should not be construed to mean that federal grazing lease rates for cattle in Idaho should have been $3.81 per AUM in 1990. This analysis indicates that the actual market value of Idaho rangeland forage was about $3.81 per AUM in 1990. Research from New Mexico (Torell and Fowler, 1991) indicates that New Mexico ranchers are paying fair market value when interest on the investment in grazing permits is included in the cost structure. However, the land management agencies "are not collecting the full value of public land grazing".

Results from the New Mexico report indicate that increasing fees to levels approaching full market value "would significantly erode" the value of grazing leases. The New Mexico estimates of net forage value are that it lies between $3.20 and $4.50 per AUM for the period of 1989-91. Testimony provided by a Lemhi County, Idaho rancher (Smith, 1991) indicates that Lemhi County ranchers would be financially better off to abandon federal grazing permits when fees reached $3.80 per AUM. This latter estimate was based on detailed financial analysis of over 25 ranches in Lemhi County, Idaho since 1987.

References

Nielsen, Darwin B. 1991. Facts about grazing fees. Utah State Univ. Coop. Ext. Serv.

Obermiller, Frederick W. and David K. Lambert. 1984. Costs incurred by permittees in grazing livestock on public lands in various western states. Oregon State Univ. Ext. Serv. EM 8283.

Public Lands Council, American Farm Bureau Federation, Association of National Grasslands, American Sheep Industry Association and National Cattlemen's Association. 1991. Public lands grazing fees: A white paper.

Rimbey, Neil R., Rose Krebill-Prather and John E. Carlson. 1991. Preliminary report on Idaho private grazing lease arrangements. Presented to the Idaho Department of Lands. September 25, 1991.

Smith, R.J. 1991. Testimony before the House Agriculture Committee, Subcommittee on Livestock, Dairy and Poultry. August 20, 1991. Twin Falls, ID.

Tittman, Paul B. and Clifton E. Brownell. 1984. Appraisal report estimating fair market rental value of public rangelands in the western United States administered by USDA-Forest Service and USDI-Bureau of Land Management: Volumes 1 and 2. PB84-242205. Washington, D.C.

Torell, L. Allen, Soumen Ghosh and John M. Fowler. 1989. Economic considerations for setting grazing fees on New Mexico State Trust Lands. New Mexico State Univ. Ag. Exp. Sta. Special Rep. 81.

Torell, L. Allen and F.N. Bledsoe. 1990. 1989 New Mexico private grazing lease arrangements and costs. New Mexico State Univ. Ag. Exp. Sta. Res. Rep. 651.

Torell, L. Allen and J.W. Bain. 1991. 1990 private grazing lease arrangements and costs. New Mexico State Univ. RITF Range Resource Rep. Vol. 14, No. 1.

Torell, L. Allen and John M. Fowler. 1991. Past grazing fee policy and the current fee dilemma. Paper presented at the 1991 Meeting of WRCC-55. Colorado Springs, CO.