

“Accounting” for Adjustable Stocking Rates on Public Lands

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Adjustable stocking rates for public grazing lands have been urged by many. However, no solution has been offered to date that is biologically sound and, simultaneously, socio-economically acceptable. I propose such a solution.

The Problem

Rainfall (and forage production) on the arid/semiarid ranges of the West is characterized by uncertainty, which translates into economic instability, which is at the heart of the problem. During drought periods when forage is in short supply, livestock tend to glut the market. Although many factors are involved in price cycles, any market glut will tend to depress prices. Naturally, operators are reluctant to sell on such markets. Thus, they are motivated economically to abuse the range when it is least able to stand it.

One often advocated solution is to maintain a base cow herd (60–70%) and sell or keep offspring as forage conditions dictate. Objections are usually on two counts. First, if forage conditions are favorable for holding-over offspring, market conditions may not be and *vice versa*. (This objection is heard from private as well as public land holders.) Second, current policy does not allow this flexibility on Federal land except on annual ranges.

Presently, stocking rates can be reduced by taking non-use. However, the only way stocking rates can be raised above the fixed allotment is with an increase in the allotment. This very seldom occurs.

Many ranchers know that reducing livestock numbers during drought years will result in more efficient gains because overgrazed conditions increase maintenance requirements. Many also know that such reductions are likely to increase future grazing capacity. However, by taking nonuse, the rancher loses AUM's of grazing in the short-run, and, under current policy, has no guarantee of being able to “re-capture” this loss any time in the future. Although the impact of this is variable (depending on the rancher's relationship with his agency), it generally is disincentive to take nonuse in the interest of good long-run range management.

What is needed is a system that will reconcile all of these biological/socio-economic conflicts.

The Solution

I propose a simple system of accounting for AUM's of grazing. It would involve establishing an account just like

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Editor's Note: The accounting procedure mentioned in this article is intriguing and has merit. The author is currently testing the “hypothesis” by going back through all the old production data from the Santa Rita Experimental Range near Tucson in conjunction with historical cattle prices. He promises a follow-up article when he has gathered all the information and data.

Entry#	Description	Additions	Reductions	Balance
1	Annual Adjustment	2,400		2,400
2	Annual Adjustment	2,400		4,800
3	Took in Pasture Cattle		5,000	[200]
4	Annual Adjustment	2,400		2,200

Fig. 1. The District would keep one such account for each allotment under its jurisdiction.

any other bookkeeping account—the difference being that it would hold AUM's of grazing rather than money amounts (see Fig. 1). The following example will be instructive.

Foggy Bottom District—BLM Rancher Roe's AUM Account

The system would operate on a fiscal year basis with the year beginning around Nov. 1 (or to coincide with shipping time). Rancher Roe's allotment is based on a 500 AU average annual carrying capacity or 6,000 AUM's (500AU × 12 mos). He will originally stock at 60% of this capacity, which is 300 cows or 3,600 AUM's, leaving 2,400 AUM's (6,000 - 3,600) that the BLM “owes” him (Fig. 1, entry #1).

Toward the end of the first year as weaning and shipping time approaches, the allotment would be evaluated and AUM's of grazing remaining would be estimated. Note that grazed class photo guides offer a fast, accurate and unbiased way to do this (Schmutz 1978). Assume that, in Roe's case, this has been an extremely dry year and there is only enough grass left to carry his 300 cows through the winter. Consequently, he will only keep enough replacement heifers and sell the remaining calf crop. He is still stocking at 60% capacity and consequently has another 2,400 AUM's coming from the BLM upon going into year two (Fig. 1, entry #2).

Approaching the end of year two, Roe has accumulated a balance of 4,800 AUM's in his account. Assume that the summer of year 2 was unusually wet and the year-end evaluation reveals that he has some 5,000 AUM's of “extra” feed. The BLM now tells Roe that he can “re-capture” some of the AUM's he lost during the previous two dry years. However, Roe's long experience with the cattle market tells him that this wouldn't be a good time to carry over his steers and heifers. His options are not yet used up. His experience also tells him that in time of low cattle prices, pasturage fees generally rise. Therefore, he sells his calf crop and takes in 5,000 AUM's worth of pasture cattle (Fig. 1, entry #3).

Going into year three he has another 2,400 AUM's coming from maintaining his 60% baseherd (Fig. 1, entry 4), etc. The process is perpetual and the AUM account runs with allotment ownership—subsequent owners pick up where previous owners leave off.

Such a record would clearly reveal trend in the range condition. The account could be examined periodically (every 10 years, and/or the end of each wet-dry cycle) and used to justify adjustments to average annual carrying capacity. In Roe's case for example, assume that this long-term evaluation of his account reveals that the BLM has consistently owed him 1,200 AUM's. Obviously, Roe's good management has increased the ranch's ability to carry a base herd of 300 cows by 100 cows (1,200 AUM's \div 12 mos). Therefore, his average annual carrying capacity can now be increased to 667 cows (from 500). He would continue to stock at 60% or would carry a base herd of 400 cows and would receive an annual adjustment credit of 3,204 AUM's computed as follows: (667 AU/yr Avg. Carry. Cap. minus 400 AU/yr 60% stocking rate) times 12 mos/yr equals 3,204 AUM's coming from the BLM each year.

Flexible stocking rates, in more cases than not, will result in improved range condition and upward adjustments. However, any opposite trend would, of course, result in a commensurate reduction.

Costs and Benefits

From the agency point of view the primary cost would be

the increased work load. The primary benefit would that such record would be a sound basis for management decisions and the resolution of conflict.

The major costs to the rancher would be only short-term. He would lose AUM's of grazing in the short term but with some guarantee of recovering them in the future. Furthermore, in dry years he might be required to sell his calf crop on a depressed market. A short-term benefit would be more efficient gain by relieving overgrazed conditions in dry years that result in increased maintenance requirements. His major benefit would be the increased grazing capacity that would surely come about over the long-run. He would also benefit from the fact that such action would have a stabilizing effect on markets and make them more predictable.

From the point of view of society, the added agency work load would represent a cost. However, more products at more stable prices would certainly be benefits. Perhaps most important would be the conservation and preservation of the public's lands to meet future needs.

Literature Cited

Schmutz, Ervin M., 1978. Estimating range use with grazed-class photo guides. Coop. Ext. Serv., Agr. Exp. Sta., Univ. of Arizona Bull. A73. 14 p.

Analyzing Ranch Income Statements—A Modified Approach

John P. Workman

The ranch income statement

"This stuff is really interesting. It's just too bad it doesn't tell us what we want to know." The above quotation is typical of the responses I have received over the years from range management students being introduced to ranch income statements. I have to agree with my students. Table 1 displays a standard ranch income statement. While the cost and return data contained are extremely interesting, they fail to provide the information that is really needed. The standard income statement offers no explanation of *how* today's ranchers manage to stay in business while receiving extremely low net returns (or even losses) on large investments in land and improvements. Nor does the standard income statement furnish an explanation as to *why* anyone would want to invest in ranch property when faced with such a bleak cost-price outlook. Whether student, rancher, public land manager, teacher, researcher, banker, realtor, or potential investor, analyzing and understanding the financial aspects of a ranching operation requires the answers to two simple but important questions. First, will the ranch produce sufficient *net income* for the ranch family to *live on* after all

operating expenses (including loan service) have been paid? Second, how much net ranch income (including real estate appreciation) is available to compensate investment of *owned* capital (equity)? Neither of these crucial questions is answered by the standard ranch income statement of Table 1. For this reason I am proposing a modified approach for analyzing ranch income statements.

The standard income statement

Before examining the proposed "modified" approach, let's first review the "standard" budgeting procedures of Table 1. This 12-month ranch income statement reports revenues and expenditures for a hypothetical 300 cow ranch. Total *annual cash returns*, \$70,000, consists of all receipts from livestock or crop products sold. Subtracting *annual cash costs*, \$31,000, (all cash operating expenses except loan interest and principal payments) yields *net cash ranch income*, \$39,000. It is this amount of cash that is available to purchase new machinery and improvements, provide for family living expenses, and to pay principal and interest on any outstanding loans against land, improvements, livestock, and machinery.

Next *depreciation costs* are subtracted to form *net ranch income*. Depreciation is the gradual but inevitable "wearing out" of all improvements and equipment, no matter how well

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Note from the Author: Although hypothetical, the cost, return, and investment figures are pretty close to what was really happening in 1980.