

Partial Budgeting for a Range Man¹

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Highlight

The information for making economic evaluations of range practices often is available but is seldom used. Partial budgeting is a brief method for analyzing the potential economic returns of alternative range practices. This procedure is suitable for field use by ranchers or range technicians.

Technical range men who work with ranchers on private land should ask themselves "Will the improvement techniques that I suggest be good investments for the rancher?" The rancher often depends upon his technical advisor to help him make such decisions. The technician should be able to assist the rancher in making decisions which are economically sound.

Returns from range improvement practices can come in several forms: (a) additional productive capacity of the range which can be converted into marketable products, (b) reduced operating costs for the rancher, (c) improved conservation of the natural resource. The rancher can usually recover

some or all of the returns in (a) and (b). However, he may not be able to directly receive economic gain from (c).

Improvements and management practices are sometimes recommended which do not offer adequate returns to compensate the rancher for his investment. Additional fencing or water developments will not increase grazing capacity if a range is already fully stocked. More uniform grazing will occur, thus saving soil. However, this benefit may have little economic significance to the rancher in the short run. Unless gains are increased sufficiently to cover all of the increased costs, the improvements are a poor bargain.

When increases in livestock production or reduced ranch costs are used to justify a range improvement, they should be carefully identified and evaluated. Difficulty in ascertaining costs is no justification for ignoring them. Nor is difficulty in determining economic benefits an excuse for making exaggerated claims for them.

An economic evaluation of any range improvement practice can be made with a partial budget (Fig. 1). Two types of data are needed: (1) good estimates of the physical responses of livestock and range to the improvement practice and (2) good estimates of the costs involved in applying the practice.

With these data the budgeting procedure is accomplished by totaling costs and returns. Increased returns and reduced costs are added together, since both have a positive effect on income. Likewise, reduced returns and increased costs are

¹ Received May 31, 1969; accepted for publication August 9, 1969.

RANGE IMPROVEMENT EVALUATION

Ranch unit Jones Herefords Owner A.L. Jones

Ranch location Seven miles southwest of Bear Creek, Montana on the Slippery Creek cut off. Area to be improved is the summer unit (5100 acres).

Present range situation Range is mainly in fair condition. Major range site is silty. Precipitation = 12 - 13". Blue grama is main grass species with western wheatgrass and needle-and-thread. Present stocking = 2040 AUM's.

Proposed improvements Need two division fences to permit deferred rotation grazing (approximately four miles of fence). Two additional reservoirs are needed to water cattle in north ends of pastures 1 and 3.

Anticipated increase in production Stocking rate will not increase. Calf weaning weights should increase by 5-10# minimum as a result of better livestock distribution.

Estimated cost of improvements

<u>Four miles barbed wire fence</u>	<u>\$ 2480</u>
<u>(four wire; posts rod apart)</u>	
<u>Two reservoirs</u>	<u>400</u>
<u>Less A.C.P. payment*</u>	<u>- 1440</u>
	<u>\$ 1440</u>

* Assuming 50% cost sharing under the A.C.P. program.

Range Improvement Evaluation (cont'd)

Improvement budget (annual basis)

Increased returns	Increased costs
<u>148 steer calves @ 5# = 740#</u>	<u>Amortized fence cost^a \$117.05</u>
<u>increased gain</u>	<u>Fence repair \$ 40.00</u>
<u>740# @ 30¢ = \$222.00</u>	
<u>92 heifer calves @ 5# = 460#</u>	<u>Amortized reservoir cost^b \$28.48</u>
<u>increased gain</u>	<u>Four days riding time^c \$64.00</u>
<u>460# @ 27¢ = \$124.20</u>	
Reduced costs	Reduced returns
<u>Two man days riding^d \$32.00</u>	<u>None</u>
<u>Total \$378.20</u>	<u>Total \$249.53</u>
	<u>Difference \$128.67</u>

Comments The change in income of \$128.67 represents a return arising from better distribution of livestock. Additional increases in income will be forthcoming if range condition improves.

- ^{a/} Fence cost to rancher = \$1240 amortized at 7% for twenty years = \$117.05.
- ^{b/} Reservoir cost to rancher = \$200 amortized at 7% for ten years = \$ 28.48.
- ^{c/} Increased time spent moving cattle between pastures.
- ^{d/} Reduced time necessary to gather cattle in fall.

FIG. 1. A range improvement budget.

added together because they both have a negative effect. Only costs and returns that change as a result of the new practice are considered.

A partial budget always assumes a specified time period—usually one year. Investments which have a life of more than one year must be prorated or amortized over the life of the improvement or the length of the planning period for the rancher. Interest rates for amortization will vary, depending on current loan rates, the preference of the rancher, etc.

A hypothetical example of partial budgeting to evaluate additional fencing and water developments will be used to demonstrate the procedure.

An evaluation of a range unit showed the area to be in fair condition, but there was a definite downward trend. The present stocking rate was 2040 AUM's of grazing on 5120 acres of range.

A deferred-rotation grazing system was proposed to maintain or possibly improve the range condition while leaving the stocking rate at 2040 AUM's. It would require the building of four miles of

fence to initiate this system. Two small reservoirs would have to be built to get use in the rougher portions of the pastures.

Based on previous experience of the technician and the rancher, it was anticipated that calf weights could be increased by a minimum of five pounds per calf. Any increase above this amount would, of course, also be to the rancher's benefit.

The estimated cost of fencing was \$620 per mile. The two reservoirs could be built for \$400. In this example, it was assumed that Federal cost sharing through the A.C.P. program would amount to 50 percent of the total cost. The total cost to the rancher was \$1440.

Increased returns attributable to improved livestock distribution amounted to \$346.20. Reduced costs were \$32.00.

Increased costs included the amortized values for fences and reservoirs, repair costs and additional riding. The increased annual costs due to the physical improvements and management changes were estimated to be \$249.53.

In the example given, there would be an annual net return of \$128.67 to the rancher for initiating and managing the fencing and water developments. In addition to this return, his capital investment will be earning seven percent interest. The capital invested in the reservoir will be recovered in ten years and the capital invested in the fencing will be recovered in 20 years. The annual net return (\$128.67) and the seven percent return on investment are over and above the long range benefits which may accrue as a result of stabilizing or improving the range condition.

Compensation for practices that have long term

effects of importance to all of society is provided by payments through the A.C.P. or Great Plains program. In many instances these payments greatly influence the feasibility of range improvements.

More refined techniques are available for evaluating a flow of income through time. However, the partial budget serves well as a "first approximation."

Successful ranchers are becoming increasingly aware of alternate opportunities for increasing ranch income. The range man should be able to talk "dollars and sense" to the rancher.