

Economics of range improvement outlined by County Agent

ECONOMICS OF RANGE IMPROVEMENT
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Many acres of rangeland in Oregon are not producing forage at levels even approaching their economic or physical potential. Two of the major problems which confront ranchers who own or lease these deteriorated rangelands are 1) Can I afford to invest in range improvements?, and 2) Are range improvements the best use I can make of my capital? Only you can decide whether you need to make range improvements and then which improvements would work best for you.

Economic efficiency in ranching is concerned with the relationship between the units of scarce resources which are put into the process of producing the resulting output of livestock products. The rancher wants to get as much output (livestock products and crops) as possible from the limited amount of inputs, (labor, land and capital), at his disposal. Efficiency is used as a measuring stick for deciding between various alternatives. Many ranches in Oregon can produce livestock more efficiently if the size of the ranch business can be increased.

If your rangeland is not producing at its highest capacity, you may want to consider range fertilization as a method to increase your rangeland productivity. Interest in this declined when the fertilizer prices went "skyhigh" with the oil shortage. The recent increase in cattle prices and the stabilization of fertilizer prices has brought renewed interest in range fertilization.

The primary objective of fertilization is increased forage production at competitive costs. Other benefits, however, are often possible. Increased forage utilization might be achieved, and possibly an increase in plant vigor and a reduction in soil erosion might be achieved. In some cases fertilization increases total crude protein and digestible nutrients of the forage. An indirect benefit of fertilization is better animal distribution and, thus, increased overall forage utilization. This may also reduce grazing pressure on non-fertilized range.

A potentially negative effect of fertilization is an undesirable change in species composition. For example, on sites containing cheat grass, fertilization can promote cheatgrass development at the expense of perennial species. This is especially true in low rainfall areas. Several other factors are the possible shortening of the growing season due to an earlier maturity of fertilized grasses, the possibility of decreasing plant vigor through fertilization in below average rainfall years, and the possible increase in grazing pressure created by certain wildlife.

The yield responses to fertilization of native, foothill range may be highly variable. Much of this variability was due to site factors and precipitation levels. On sites receiving about 12 inches or precipitation, 60 pounds of nitrogen increased air dry yield an average of 300 pounds of forage per acre. On many of the drier sites, cheatgrass made the biggest yield increase to fertilization. Fertilization of steeper slopes also induced heavier grazing on these sites. Per unit costs of obtaining additional forage from the fertilization of native foot hill range were lowest with an application of 60 pounds of nitrogen. At this application rate, urea costing \$202 per ton, and application costing \$4.50 per acre, the cost of obtaining 300 pounds additional forage from fertilization totals \$17.96 per acre for 60 pounds of nitrogen application. This makes each AUM worth \$39.53, or the forage worth \$263.51 per ton. There will be some residual benefit in subsequent years which would help defray the cost of the fertilizer. Range fertilization may be economically feasible under certain conditions like where there is additional moisture.

A rancher has several alternative ways to obtain the forage needed for additional cows. Some of them are 1) to buy more rangeland and hay land, 2) lease rangeland and-or buy hay, 3) seed some of his present rangeland and improve his meadows, and 4) spray some of his rangeland and improve his meadows.

Land prices have increased substantially over the past 10-15 years which has made land purchase a less attractive alternative. Range improvement by spraying for control of

sagebrush and meadow hay land improvement are viable alternatives which may be used in your program. Range seeding may increase the forage yield on your ranch. Remember that all of these range improvements must pay for themselves! Productivity of these acres before and after seeding should be estimated in acres per Animal Unit Month (AUM). (An AUM is the amount of dry forage required to feed a mature cow and calf for one month or about 660 pounds. Actual consumption varies from 540 to 890 pounds; some agencies use No. 750 for their work. Since the pounds of feed required for each class of livestock are different, changing to animal units per month allows you to compute the feed requirements by a standard measure. Your calculations may show that the number of acres required to produce 1 AUM may decrease from 9.0 acres to 3.0 acres with rangeland seeding. This is equivalent to increasing production from 73 pounds per acre to 220 pounds per acre. Costs associated with rangeland seeding projects go beyond those of seedbed preparation, seed costs and drilling.

The risk and uncertainty of getting a good producing seeding may also be at least partially accounted for as a cost. Initial costs include plowing, seed and drilling of about \$15.00 per acre, fencing of \$1.50 per acre, water development for \$4.00 per acre and nonuse cost of \$1.25 per acre. These initial costs total \$21.75 per acre. Annual costs of \$.30-acre include fence maintenance and water development maintenance. These figures assume a 20 year useable life of the seeding. Nonuse costs are the actual expenses involved in feeding the livestock until the seeded area reaches a useable state. For example, if it cost \$7.50 per AUM to lease forage, this figure times the number of AUM's leased is the nonuse cost. If one attempts to carry the livestock on the remaining ranch rangeland and this leads to overgrazing, nonuse costs could be very high. In addition, the costs of transporting livestock to and from the leased range should be included in nonuse costs. An information source from Utah suggests that you can return \$1.40 for each dollar spent on rangeland seeding. It is obvious that only ranges that need improvement should be considered for some of these practices. In fact, the most dilapidated range has the most room for improvement and thus is the most economically feasible for improvement.

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