Economics of Selected Alternative Calving Dates

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Highlight

Shifting calving dates from present early spring to fall or late spring dates offers an opportunity to increase income to range-based cattle operations in north central or northeastern Washington. Lower death losses and better marketing opportunities more than offset higher winter feed costs. Fall calves also make more efficient use of abundant spring ranges in this region, and dry cows make more uniform use of mountain summer ranges.

Ranchers have limited opportunities to adjust or innovate practices which will increase their income. An important part of this restriction can be accounted for by the fact that many of the costs of operation are "fixed", and not subject to change by adjusting numbers of brood cows. Expenses related to depreciation of buildings, equipment, and bulls, as well as cash items such as insurance, mortgage, interest, and property taxes do not vary with level of stocking on a given ranch so are known as fixed costs. Thus, if a ranch is not operating at or near capacity, the cost per unit of beef produced will likely be higher than necessary.

Recent studies in Washington have shown that 50 to 80% of the costs in range based cow-calf operations fall in the category of fixed costs (Mueller, 1966). This situation has stimulated some ranchers to seek alternative practices, in addition to full stocking, to increase the margin of profit. One such possibility is to shift calving from the traditional early spring date (February-March) to fall (September-October) or late spring (April-May).

It is not possible to determine the economic feasibility of such changes by comparing incomes to actual ranch operations under the different systems because there are too few ranches practicing the proposed changes. It is feasible, however, to construct a hypothetical "model" ranch operation and compare "budgets" for this model when the changes have been incorporated. It is the purpose of this paper to report our analysis of the economic opportunities of these different calving seasons.

Procedure

An "average" 170 brood cow ranch was synthesized, based on data obtained in a survey of actual operations in the region (Mueller, 1966). Six budgets were calculated for the model, showing income for three early spring calving operations at differing calving percentages, two fall calving operations and one late spring calving operation. The two variations in fall calving considered were (1) a 96% calf crop, and (2) a 10% increase in brood cow numbers, to adjust for increased grazing capacity using this system.

In this paper, interest on the investment has been omitted from calculation of total expenses because ranchers are generally willing to forego this income in return for other difficult-to-evaluate income items such as land appreciation, income tax advantages, and the value of ranching as a "way of life" (Martin and Jefferies, 1965). Hired labor has been included in operating expenses. Operator and family labor was assigned a wage of $1.50/hour.

Results and Discussion

Table 1 presents synthesized budgets for a model ranch operating at full capacity (170 head) on a program of early spring calving. In Budget 1, annual net income above cash costs, depreciation, and the charge for labor is $1,435.00 with a total cost/lb sold of 20.68¢. This favorable return is due primarily to the relatively high weaned calf crop of 92%.

Budgets 2 and 3 depict the same operation, but with 80 and 70% weaned calf crops. These smaller calf crops are projected on the basis of experience with higher mortality in early spring due to bad weather, calf scours, and other causes. Scours is particularly contagious at this season because the herd is usually confined to a congested feed yard under wet, cold, and unsanitary conditions.

Initially, the prices projected for cattle were the same in all budgets. However, it was noted that livestock prices are often at a seasonal low in the fall when spring calves are usually marketed. An investigation of seasonal price fluctuations for the past 10 years at the Spokane and Portland markets revealed that April-May calf prices (when fall calves are sold) were frequently 5¢/lb higher than September-November prices. Thus, in calculating the relative economic advantage, fall-farmed calves were conservatively given a 2¢/lb price advantage.

Budget 4 shows the relevant figures for the ranch operation when changed to fall calving. Cash costs increased due mainly to increased winter feed purchased. No excess capacity in terms of spring and fall grazing was required. Some costs decreased slightly, such as hired labor at calving time and veterinary supplies. Overall, the increased feed costs were more than offset by the decreases noted above, plus additional income generated by the increase in pounds sold. A total calculated cost/lb sold of 20.60¢ shows a slight advantage over early
Table 1. Summaries of budgets—170 cow unit with changes in calving dates.

<table>
<thead>
<tr>
<th>Item</th>
<th>Budget 1 Data</th>
<th>TCLb$</th>
<th>Budget 2 Data</th>
<th>TCLb$</th>
<th>Budget 3 Data</th>
<th>TCLb$</th>
<th>Budget 4 Data</th>
<th>TCLb$</th>
<th>Budget 5 Data</th>
<th>TCLb$</th>
<th>Budget 6 Data</th>
<th>TCLb$</th>
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<tr>
<td>Calving Season</td>
<td>ESC</td>
<td>ESC</td>
<td>ESC</td>
<td>ESC</td>
<td>FC</td>
<td>FC + 104</td>
<td>LSC</td>
<td>ESC</td>
<td>ESC</td>
<td>ESC</td>
<td>FC</td>
<td>FC + 104</td>
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<td>Calf crop %</td>
<td>92</td>
<td>80</td>
<td>92</td>
<td>70</td>
<td>92</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>94</td>
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<td>Lb. beef sold</td>
<td>80,650</td>
<td>72,610</td>
<td>64,900</td>
<td>86,300</td>
<td>96,650</td>
<td>84,950</td>
<td>104,300</td>
<td>22,945</td>
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<td>Lb. beef sold/cow</td>
<td>474</td>
<td>427</td>
<td>382</td>
<td>508</td>
<td>517</td>
<td>500</td>
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<td>Total Revenue</td>
<td>18,112</td>
<td>16,169</td>
<td>14,298</td>
<td>20,569</td>
<td>22,945</td>
<td>20,332</td>
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<td>Operating Expenses</td>
<td>9,581</td>
<td>11.88</td>
<td>9,581</td>
<td>13.20</td>
<td>9,581</td>
<td>14.76</td>
<td>10,686</td>
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<td>11,985</td>
<td>12.40</td>
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<td>Income net/cash costs</td>
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<td>9,883</td>
<td>10,960</td>
<td>9,340</td>
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<td>Depreciation</td>
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<td>16.77</td>
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<td>18.76</td>
<td>2,596</td>
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<td>7,287</td>
<td>8,114</td>
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<td>Labor, operator &amp; family</td>
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<td>4,500</td>
<td>22.97</td>
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<td>Total Cost/cow</td>
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<td>-508</td>
<td>-2,379</td>
<td>2,787</td>
<td>3,614</td>
<td>2,244</td>
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<tr>
<td>Total Cost/cow no labor</td>
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</table>

1TCLb$ = Total cost/lb beef sold (¢)

2ESC = Early spring calving
3FC = Fall calving
4FC + 10 = Fall calving, 10% increase in brood cows to 187
5LSC = Late spring calving

spring calving. The 96% weaned calf crop in Budget 4 reflects fewer calving difficulties encountered in fall calving.

In Washington and some other western states many ranchers have an excess of spring and fall grazing. The publicly-owned summer range is often the resource limiting the size of the cow herd. With fall calving, some ranchers are now producing calves weighing 400 lbs or more for sale by late May. This is usually just before turnout on the publicly-owned range. By selling the calves in late May and breeding in late fall, the load on summer range is reduced by two factors: (1) no calves are grazed, and (2) bulls, approximately five percent of the herd, won't have to be turned out with the cows until breeding time in late fall after the cows have been removed from the public range. This reduction in summer grazing load, through fall calving, might appeal to both rancher and public administrator. If the summer range is in poor condition, the reduced grazing pressure would help improve range condition.

If, however, a given rancher's public range allotment is in good condition, he might increase his cow herd to utilize the excess grazing capacity made available by removal of calves and bulls. It is estimated that fall calving could enable ranchers to increase cow herds by at least 10%. This is particularly true in Washington where excess spring forage is available on low altitude annual grass ranges and fall forage is available as aftermath in grain and hay fields. An additional advantage in utilizing the grazing capacity would be realized because dry cows are more easily distributed over rough ranges, making more efficient use of the entire forage crop. The grazing capacity of a unit is the capacity of the key grazing areas plus whatever forage can be taken from remote and secondary areas. Lactating cows tend to be poor travelers, returning to find their calves and to drink water to keep milk production up. An increase of five to 10% in grazing capacity could be realized on this factor alone.

A group of Forest Service administrators confirmed this estimate in conversation with the authors. The results of a 10% increase in the cow herd on the model ranch is given in Budget 5. Annual net income has increased approximately $800 and total cost/lb of beef sold declined to 20¢.

Fall calving might also allow increased use of artificial insemination in beef herds. Since breeding is between November 15 and January 15, the cattle are close to the ranch buildings better enabling the operator to detect heat periods. Artificial insemination allows a reduction in bull numbers to only a few for cleanup purposes. When considering artificial insemination, each rancher has to evaluate closely all costs associated with keeping bulls, in addition to determining if the timing is feasible.

In many areas fall calving is not feasible because of the poor quality of fall grazing. However,
some ranchers in these areas are calving later in spring. This practice enables them to obtain a higher weaned-calf crop than earlier calving and to have salable calves for the higher calf prices in February and March. Budget 6 summarizes costs and income for late spring calving on the sample model ranch. The net income of $2,244.00 in Budget 6 compares favorably with Budgets 1 and 4 and greatly exceeds Budgets 2 and 3.

Conclusions

Under the conditions imposed in the model ranch of this study, fall calving offers an economic advantage to early spring calving. The advantages of fall calving include: (1) lower death losses leading to higher percentage weaned calves, (2) higher prices for spring marketed calves, (3) closer correlation between season of green feed and the calves' ability to utilize forage, (4) the possibility of increasing brood cow numbers on public summer ranges, and (5) the opportunity to use artificial insemination procedures. Late spring calving, followed by winter marketing, offers a second alternative which may be more profitable than early spring calving.

Marketing flexibility is highly dependent upon available grazing. In any given year the outlook for heavier-weight calves for summer or fall sale may be more favorable than for lighter weight calves in spring (Miller, 1963). The rancher who fall calves has additional flexibility because he can hold his calves for the possibility of more favorable prices, thus adding the option of a cow-yraring operation.

A natural way to shift to fall calving would be to breed replacement heifers and some cows to calve in the fall. In five successive years following such a practice the entire herd could be shifted. In this way the rancher can test the advantages and disadvantages of fall calving without committing the entire herd. In essence, he may practice split calving for about five years, which may in the end turn out to be a better method of operation for him than either spring or fall calving.

All the public land policy implications imposed by fall calving have not yet been determined. However, public land administrators should welcome the opportunity to decrease the grazing pressure on ranges which have traditionally been overstocked.

LITERATURE CITED


Effects of Herbage Removal on Seedling Development in Cane Bluesfern

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Highlight

A single harvesting of as much as 60% of current herbage at any stage of seedling development did not significantly depress root and herbage production of cane bluesfern plants grown in a greenhouse. Ninety percent removal was detrimental to subsequent root and herbage growth.

The major objective of range management is to obtain maximum sustained animal produc-

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tion consistent with perpetuation of the natural resources. It is important, then, to know the degree to which plants can be grazed without permanent injury. Little is known in this regard concerning seedling grasses. Criteria are needed for judging the grazing readiness of grass seedlings, especially those which can be related to stages of plant development that can be identified in the field. The research reported here sought to identify and relate such stages to the effects of herbage removal on subsequent root and shoot development.

Review of Literature

A number of related studies have been conducted to determine the effects of removing shoots from grass plants on the subsequent growth of roots. Most of these studies showed that cropping (clipping or grazing) will reduce subsequent plant growth, especially root growth, if the cropping is either frequent or excessive. The initial response to grazing or clipping is the interruption of root elongation (Parker and Sampson, 1931; Crider, 1955). Continued defoliation reduces the number and depth of penetration of grass roots (Jacques, 1937; Albertson et al., 1953; Ruby and Young, 1953; Cook et al., 1958). The amount of reduction is directly related to the intensity and frequency of defoliation (Graber, 1931; Thaine and Heinrichs, 1951; Albertson et al., 1953; Thaine, 1954).

According to Crider (1955), a single clipping that removed most of the foliage caused roots