FALL CALF PRODUCTION

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Range livestock operators in eastern Oregon and much of the western rangeland country can be classified as either cow-calf operators, or cow-calf-yearling operators. The major reason for each type of operation is the size of the calf that can be weaned. Range forage of eastern Oregon and similar dryland range areas begins to mature in early summer, resulting in a steady decline in nutritive value. As a result of this decline in forage quality, milk production of range cows and weight gains of their calves are greatly reduced in late summer and fall. Calf weaning weights are often below 350 pounds, which in most cases is not a "break even" point financially for the operator. Therefore, these calves are carried over the winter and returned to the range the next summer to balance the cost of the operation.

Calving percentages, weaning percentages, and weaning weights can be increased by improved management, selection, and breeding practices. However, little can be done to improve the quality of forage available to the calf and its mother to permit this calf to gain at its potential. Calves born in the spring will go on range usually weighing under 100 pounds and are able to make little direct use of high quality forage during the early season. When the calf is old enough to effectively use this forage, the forage quality and milk production has been reduced to a point where the calf derives little benefit from it.

A fall-calving program should provide an older, larger calf to go on the forage, so the forage at peak value, can be utilized directly by this calf. Several years ago the Squaw Butte Station initiated a fall-calving program by holding back a group of cows from the regular spring-calving herd and breeding them to calve in October and November of that year. Additional mature cows and replacement heifers were added to this fall-calving herd so that by the fall of 1968 half of the herd had been converted to fall-calving. The herds are comparable in age and productive ability. These herds will be maintained with as near a genetic uniformity as possible and will be used for comparisons, to evaluate nutritional management, and economic factors. Research data on both herds, concerning the nutritional and management requirements and other factors that may enter into the evaluation of these herds, will be recorded.

EXPERIMENTAL PROCEDURE

Breeding of the spring calving herd, takes place in June and July on the sagebrush-bunchgrass range at the Squaw Butte Station. These breeding pastures are about 2000 acres in size with water hauled to one watering place at a time. The fall-calving herd is bred during January and February on the meadowlands of the Station where the cattle are fed during the winter. Both herds are bred with the same bulls and are multiple sired. First calf heifers in both herds are bred to calve about two weeks before the mature cows. This permits the opportunity to give special attention to these animals. Replacement for the fall herd are picked from the spring herd and vise versa to help assure genetic uniformity between the herds and it allows

heifers more time for growth before breeding. Cows from each of the herds are pregnancy tested about 90 days after the breeding season ends and open cows are either switched to the other herd for a second chance or culled, depending on the history of the animal.

Salt and a salt-bonemeal supplement are available to both herds at all times. The spring calving herd receives one pound of cottonseed meal or equivalent per head daily from about February 15 to April 15 each spring. The fall calving cows are supplemented from parturition to the time of turnout on spring range. Supplemental levels are variable since part of the study is to determine the proper levels of nitrogen and energy supplementation that will give optimum return to the livestock operator. The goals are to determine the minimum level of feed necessary to maintain long term production without adversely effecting either weaning weight of the calf or reproductive performance of the cow. Creep-feeding of the calves enters into the study and calves have been fed various levels of creep-feed from shortly after birth until either going out on range or in some cases, until weaning.

Both the spring- and fall-calving herds are grazed on native or crested wheatgrass pastures from turnout in April until September 15 and November 1 for the fall- and spring-calving herds, respectively. Fall-born calves are weaned in late July and spring-born calves are weaned in early September.

RESULTS AND DISCUSSION

Performance data of the spring and fall born calves are shown in Table 1. The average weaning weight of the fall-born calves was 502 pounds as compared to 330 pounds for the spring-born calves. The fall-born calves were weaned at 273 days of age while the spring-born calves were weaned at 166 days of age. It should be noted that carrying the spring-born calves for an additional period before weaning would not have appreciably increased their weaning weight, since little gain is made by these calves beyond the first of September, under the existing forage conditions.

Table 1. Performance data of spring- and fall-born calves averaged over 5 years

Item	Spring calves	Fall calves
Number of calves	619	494
Date of birth	March 30	October 26
Weight when put on range, lb.	92	301
Average daily gain from birth to time on range, lb.	1.10	1.32
Average daily gain on range, lb.	1.63	1.98
Average daily gain from birth to weaning, lb.	1.49	1.56
Weaning age, days	166	273
Weaning weight, lb.	328	506

Conception rates were good in both herds with averages of 90 and 91 percent for the spring- and fall-calving cows, respectively. However, as was pointed out earlier, on the Squaw Butte Station spring-calving cows are bred on relatively small range pastures, this combined with good stockwater conditions means animals are concentrated and higher conception rates are to be expected. Most range livestock are bred in larger pastures with rougher terrain and poorer water distribution and even with extending the breeding season to 90 or 120 days we can not expect to get the conception rate attained under the Station conditions.

The percent of calves weaned, during the five year period, was 82 and 85 respectively for the spring- and fall-born calves. These figures represent the percent of calves weaned from the total cows that were exposed to breeding. Cows that were culled on pregnancy test, age, cancer eye, or other reasons, before weaning were considered as not weaning a calf.

Fall calves were creep-fed with about 90 percent of them on feed after a week of exposure to the creep. Observations would show that all calves in the study were eating from the creeps after about two weeks. The creep-feed consisted, basically, of 40 percent barley, 40 percent alfalfa, and 20 percent cottonseed meal. This was varied during the years as to the amounts fed since part of the study was to determine the proper level of creep feeding. However, for the results of this paper all creep feeding is averaged.

Clinical cases of calfhood diseases, such as scours and pneumonia, were minimal in the fall-born calves requiring less than one percent treatment, whereas, upward of ten percent required treatment in the spring-born calves. This same ratio occurred at weaning time with the spring-born calves requiring considerably more treatment at weaning than the fall-born. There was no evidence that any of the cows had weaned their calves prior to weaning time.

Economics averaged over the five years of the study favored the fall-calving herd. Feed costs for wintering the lactating fall-calving cows ranged from $10 to $18 per animal over that for the spring-calving cows. This range in cost is due to the various treatments these animals were subjected to. Creep-feed for the fall calves ranged from $3.75 to $5.50 per calf, with this range in cost reflecting the various levels of creep-feeding. Combining the additional cost of wintering the cow and creep-feeding the calf makes a total cost for the cow-calf pair ranging from $13.75 to $23.50 for an average of $18.12 more for the fall calf than for the spring calf.

The average increase in weaning weight of the fall calf over the spring calf for the five years data was 178 pounds. Using the average five-year price of $29.60 per hundredweight for spring-born steer and heifer calves weighing 300-400 pounds at weaning time, the 328 pound spring-born calf was worth $97.08 per head. The average five-year price of fall-born calves weighing 475-550 pounds at weaning in late July was $28.75 per hundredweight making the 506 pound fall-born calf worth $144.48 per head when weaned. This gives a return of $47.40 more per head for the fall-born calf than for the spring-born calf.

Subtracting the additional cost of wintering the fall cow-calf pair over that of wintering the pregnant cow to calve in the spring leaves a net

return of $28.78 per head more for the fall-born calf than for the spring-born calf. It should be pointed out that differences in death loss as reflected by percent of calves weaned as well as additional costs of medicinal supplies and veterinary services were not considered. These costs were greater in the spring-born herd and therefore would make the profit picture better with regard to the fall-calving herd.

Another way to look at the eonomics is to consider the feed, labor, possible death loss, etc. involved in bringing the 328 pound spring-born weaner calves up to the 506 pound weaning weight of the fall calves. Using an average cost figure of 24¢ per pound of gain it would cost $42.72 to provide 178 pound gain that would bring the spring-born calf weight up to the weight of the fall-born calf. This results in a net increase in feed cost of $22.68 for the spring-born calf over that of the fall-born calf at comparable weights.

CONCLUSIONS

Fall calving offers an opportunity for some ranchers to increase their net return per cow-unit over that of spring calving. This is especially so when weaning weights of spring-born calves are light due to type of forage and other necessary management that is limited as a result of summer feed. Fall-born calves going on range in the spring at 200 pounds more weight than spring-born calves are able to better utilize the forage during the time when it is of peak quality and thereby give a better return to the livestock producer.

It should be pointed out that in order for a person to switch from spring to fall calving he should be prepared to feed somewhat better in the wintertime and have adequate feed supply available at a reasonable cost. The opportunities provided for more intensive management to increase total production and efficiency are considerably greater with fall calving than with spring calving. Fall calving offers an opportunity for breeding in smaller pastures, better use of bulls and even the possibility of using artificial insemination since cattle are gathered and bred on small pastures. It also offers an opportunity for more intensive feeding of this calf through creep-feeding and thereby permitting the calf to gain more nearly at its production potential than calves born in spring with mothers ranging on poor range feed.

For the average rancher fall-calving should increase the rate of conception and the number of calves weaned per unit of cows. This can be brought about because usually the average rancher breeding on large range areas is not able to manage his cattle or confine them so that bull distribution is not a problem. Calfhood disease problems were generally lower with the fall-calving herd than in the spring-calving herd, resulting in a lower cost for medicinal and veterinary charges as well as the possibility of weaning a larger percent of the calves born.