

CONCLUSION

Based on recommended levels of mineral elements in the diet, manganese, potassium, calcium, magnesium, zinc, and cobalt are all within the optimum range for cattle grazing our irrigated pastures.

Phosphorus is generally adequate early in the season but may become deficient later in the season especially in grasses. Copper often appears to be borderline deficient in mature alfalfa and in clover but probably not low enough to cause serious deficiency symptoms in itself. Most of the time however, the grasses are deficient in copper. Fawn fescue especially appears too low to meet the animals requirement.

At times during the growing season, molybdenum may be near the toxic level in alfalfa especially in early May. Since it is high and copper low, molybdenum toxicity may result from an unbalanced ratio. Clovers appear especially high and well into the toxic range for molybdenum. The grasses are not high in molybdenum but because of their low copper composition deficiency symptoms can be expected in animals grazing any of the grasses in pure stand or clover-grass mixtures.

Alfalfa in pure stands should meet the animal requirements for copper but because of approaching a 1:2 ratio of copper to molybdenum a copper deficiency could appear. Alfalfa-grass mixtures are quite likely to be deficient in copper especially late in the season.

Supplementing with copper sulfate in the salt mix should alleviate the symptoms and increase animal production from the pastures.

PROFIT FROM A SHORT BREEDING SEASON

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The estrus or heat cycle of the cow is about 21 days. Theoretically, if the cow is in an adequate plane of nutrition, free of disease and other stress factors, she should conceive with one exposure to the bull. Why then, should the breeding season be extended for long periods of time? This paper will explore some of the advantages of a short breeding season and nutritional and management manipulations necessary to reach the goal of a shortened breeding season.

Advantages of the shorter breeding season are increased weaning weights, more uniform calves that bring higher prices, ability to identify cows of low production, and the opportunities for achieving greater efficiency from feed resources through more intensive management. Weaning weights of calves born at different dates from this experiment station and other records are presented in Table 1.

Table 1. Weaning weights of calves born at various dates

Average birth date	Average weaning weight	
	September 1	November 1
	(lb.)	(lb.)
February 21	390	405
March 7	390	405
March 21	375	390
April 4	355	370
April 18	335	350
May 2	310	325
May 16	280	295
May 30	255	270
June 13	225	240
June 27	195	210

Average daily gain that can be expected of spring born calves on the high desert country is projected in Figure 1. These are based on data from the Squaw Butte herd. Where high elevation forest range with higher forage quality is available, gains could be expected to be higher, but the general trend with relation to birth date would be similar.

Calves that are randomly born during March through June (120 days) would have an average weaning weight of 300 pounds with a range from 200 to 400 pounds whereas calves born during March and April (60 days) would have an average weaning weight of 365 pounds with a range from 325 to 400 pounds. The time of calving should be adjusted so the calves will be available to make maximum use of the forage when it is at peak quality as shown in Figure 2. Bunching the calves through a shortened breeding season will be even more effective in increasing weaning weights of calves where the period of high quality forage is longer such as we find on the higher forest ranges.

More uniform calves, as a result of a short breeding season, provide a more attractive package for the buyer and more money to the producer. A look at market records shows that calves uniformly grouped according to size, weight, and grade will bring about \$10 per head more than these same animals sold in a mixture. Larger pen lots made possible by a shortened breeding season will usually increase the price. Market records indicate that small pen lots will bring about \$2 per 100 pounds more than single animals and larger pen lots about \$2 per 100 pounds more than smaller pen lots. This represents a \$4 per hundred weight increase in price through uniform grouping of calves.

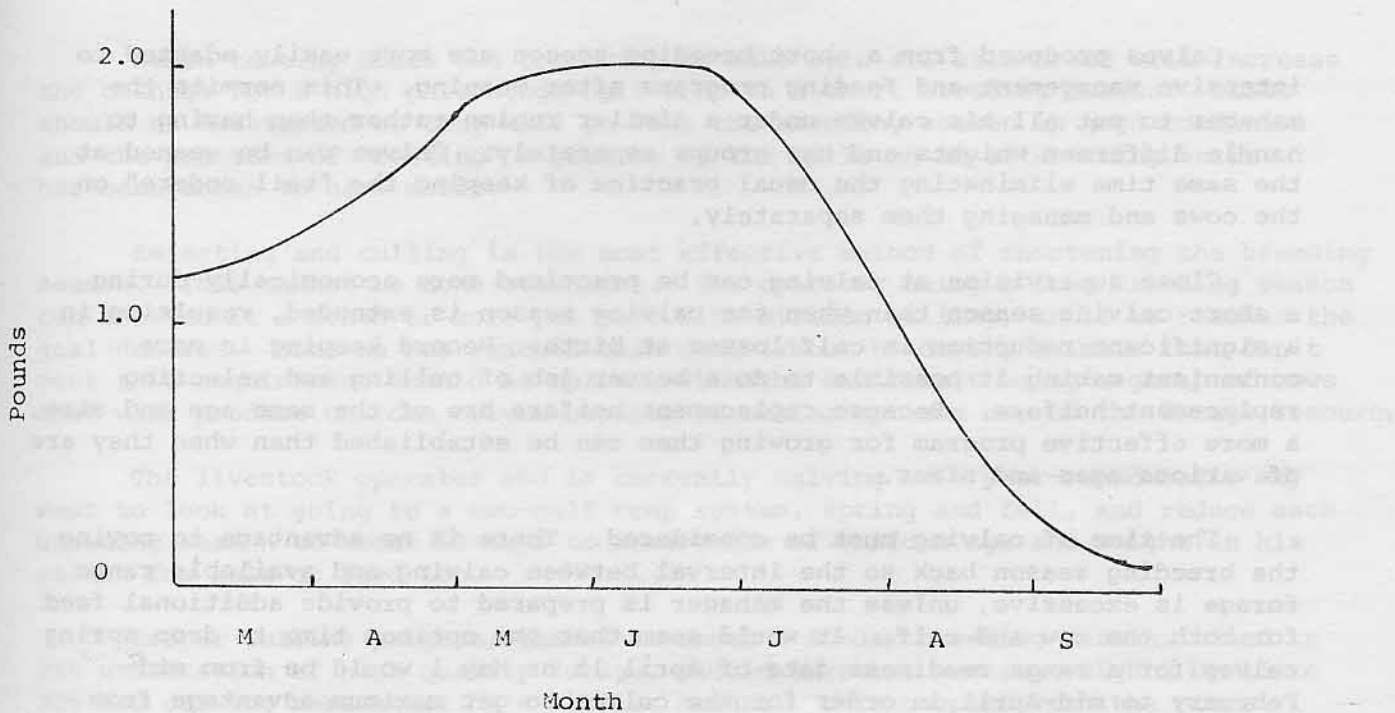


Figure 1. Average daily gain of spring-born calves on the high desert ranges of eastern Oregon.

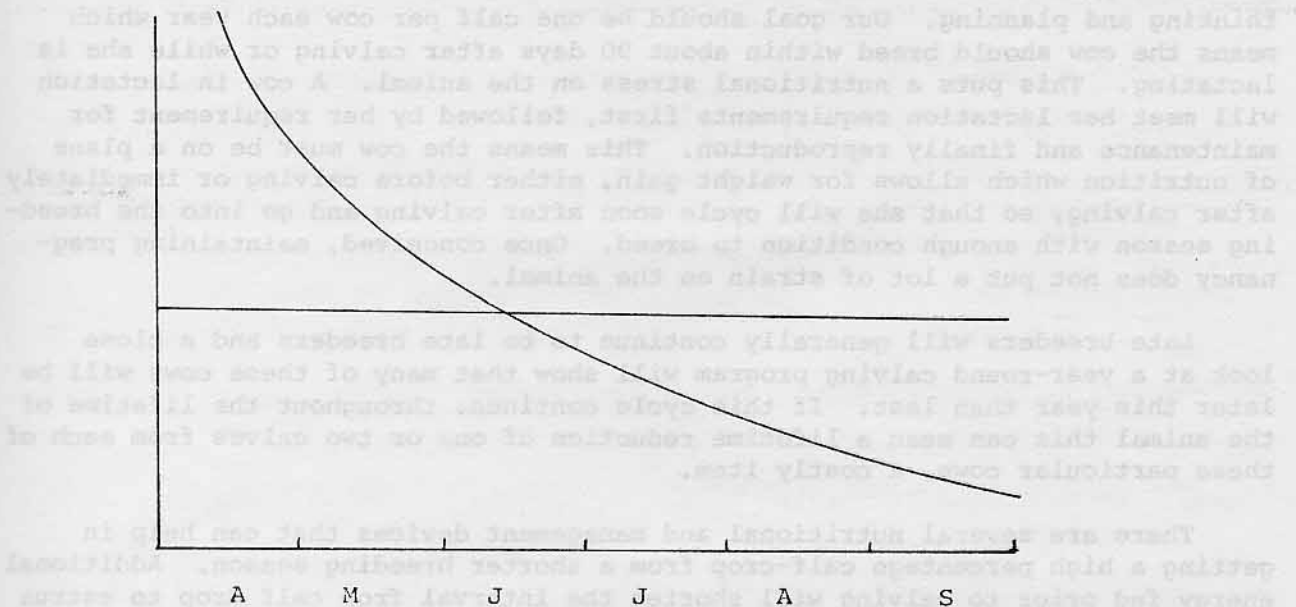


Figure 2. Curved line represents decline in forage quality during the grazing season. Straight line represents level of nutrient quality necessary to provide for 2 pounds daily gain on suckling calf.

Calves produced from a short breeding season are more easily adapted to intensive management and feeding programs after weaning. This permits the manager to put all his calves under a similar regime rather than having to handle different weights and age groups separately. Calves can be weaned at the same time eliminating the usual practice of keeping the "tail enders" on the cows and managing them separately.

Close supervision at calving can be practiced more economically during a short calving season than when the calving season is extended, resulting in a significant reduction in calf losses at birth. Record keeping is more convenient making it possible to do a better job of culling and selecting replacement heifers. Because replacement heifers are of the same age and size, a more effective program for growing them can be established than when they are of various ages and sizes.

The time of calving must be considered. There is no advantage to moving the breeding season back so the interval between calving and available range forage is excessive, unless the manager is prepared to provide additional feed for both the cow and calf. It would seem that the optimum time to drop spring calves for a range readiness date of April 15 or May 1 would be from mid-February to mid-April in order for the calves to get maximum advantage from the forage.

Achieving a short breeding season, especially for the operator that practices year-round calving, will require some manipulation and positive thinking and planning. Our goal should be one calf per cow each year which means the cow should breed within about 90 days after calving or while she is lactating. This puts a nutritional stress on the animal. A cow in lactation will meet her lactation requirements first, followed by her requirement for maintenance and finally reproduction. This means the cow must be on a plane of nutrition which allows for weight gain, either before calving or immediately after calving, so that she will cycle soon after calving and go into the breeding season with enough condition to breed. Once conceived, maintaining pregnancy does not put a lot of strain on the animal.

Late breeders will generally continue to be late breeders and a close look at a year-round calving program will show that many of these cows will be later this year than last. If this cycle continues throughout the lifetime of the animal this can mean a lifetime reduction of one or two calves from each of these particular cows, a costly item.

There are several nutritional and management devices that can help in getting a high percentage calf-crop from a shorter breeding season. Additional energy fed prior to calving will shorten the interval from calf drop to estrus and put the animal in better condition to breed.

Breeding in small open pastures with gentle terrain will step up breeding rate. Using improved range areas (sprayed and/or seeded) for breeding pastures can pay for the improvement. Fertilization of a particular seeded pasture to provide additional feed to complete the breeding in one pasture could be considered.

Semen testing bulls and observing to make sure all will breed will increase the chances for a high percentage calf crop in a short breeding season. Bulls should be maintained so they will go into the breeding season in good condition and the practice of "resting" a portion of the bulls on an alternating basis has been shown to have merit.

Selecting and culling is the most effective method of shortening the breeding season. This cannot be done overnight. The operator using a long breeding season can shorten it a month or more per year with minimum culling, until he reaches the goal desired. Once he has reached this goal (about 60 days), animals that don't meet this requirement should be culled, with the end result being a group of cows that will produce uniform calves capable of making optimum use of the forage resource.

The livestock operator who is currently calving on a year-round basis may want to look at going to a two-calf crop system, spring and fall, and reduce each breeding season to about 60 days to assure him of uniform age and weight in his calves for sale or feed lot.

Proper culling program, geared to about a 60-day breeding season, timed to fit utilization of high quality forage, should increase weaning weights by 15 to 20% and calving percentage by a similar amount. This coupled with the other associated benefits discussed makes it imperative that we take a long hard look at our present programs.