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Research Note

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COW AND CALF WEIGHT TRENDS

ON MOUNTAIN SUMMER RANGE

by

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Mountain range furnishes the bulk of summer forage for commercial cow-calf operations in northeastern Oregon. Herds maintained on valley range and pasture during winter and spring months are annually trailed to mountain ranges and remain there until calves are ready for fall markets (fig. 1).

Cows and calves make rapid weight gains during the peak of the summer growing period. But what happens to their gains from then until fall weaning measurably affects the annual ranch income. Profits can be increased by an understanding of how cattle respond to this late grazing period.

With this object in mind, a study of weight trends was begun on the Starkey Experimental Forest and Range near La Grande, Oreg., during midseason of 1961. Information on late-seasonal gains of cows and calves grazing ponderosa pine summer ranges in the Northwest was previously unknown.

THE STUDY

Ten pairs of Hereford cows and calves were chosen from the herd of a local cooperator. Selection was based on uniformity in age and conformation with no attempt to limit the cattle to particular weight classes. They were initially weighed August 17 and placed on range



Figure 1.--Cows and calves being driven to Blue Mountain summer and fall range.

comparable to that which they had been grazing since May. Successive individual weights were recorded at approximately 14-day intervals; all weighings were made after 12-hour, overnight shrinkage without feed and water. Light stocking, slightly in excess of 10 usable acres per animal-unit-month, provided ample ungrazed forage throughout the study period.

The study area, typical of much of the Blue Mountains, consisted of bunchgrass openings intermingled with forested range having a mixed overstory of ponderosa pine and Douglas-fir. The grazing unit was a little over one-half section of gently rolling mountain range averaging about 4,000 feet in elevation.

Principal open grassland forage plants were bearded blue-bunch wheatgrass (Agropyron spicatum), Idaho fescue (Festuca idahoensis), onespoke danthonia (Danthonia unispicata), Sandberg

bluegrass (Poa secunda), and a mixture of palatable forbs. Forest understory consisted mainly of elk sedge (Carex geyeri), pinegrass (Calamagrostis rubescens), several kinds of palatable forbs, and two low shrubs, common snowberry (Symphoricarpos albus) and shinyleaf spirea (Spiraea lucida).

RESULTS

By mid-August, cows had reached their peak summer weight. For the 2-week period between mid- and late August, they showed an average loss of about 2 pounds (table 1), although up until October all cows were not consistently losing weight. Calves, on the other hand, were still showing substantial gains through late August.

During October, cow weights shifted from losses of nearly 3 pounds per day to daily gains averaging over 2 pounds (fig. 2). In early October, every cow showed losses which averaged nearly 3 pounds per day until midmonth. From mid- to late October, all cows gained at an average of over 2 pounds per day. Calves reflected these same changes but with only a moderate weight shift. In early October, after a slight loss averaging one-tenth pound per day, they showed an average daily gain of three-fourths pound by month-end. Although the weight changes between the October observations were striking, they were not noticeably visible on either cows or calves.

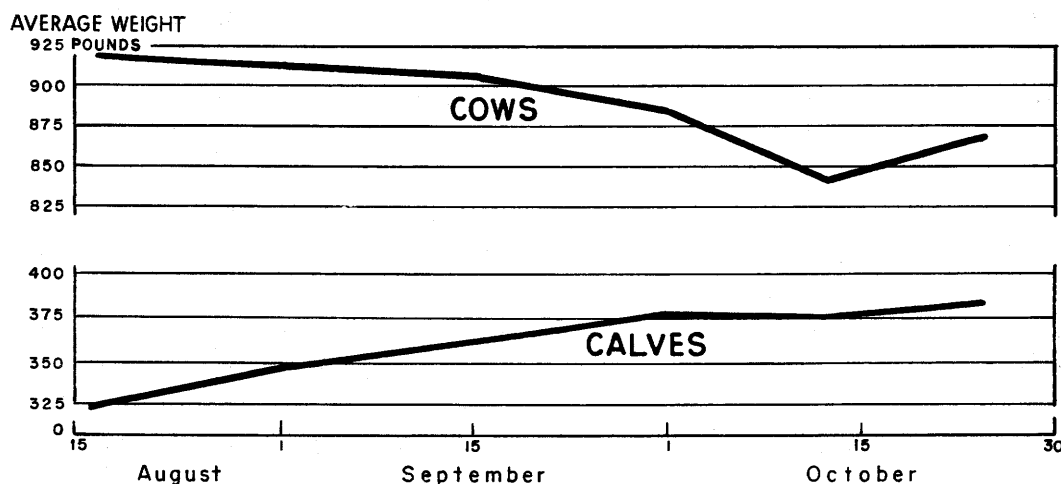


Figure 2. -- Weight trends of cows and calves grazing mountain summer range during fall months of 1961.

Table 1.--Weights and changes of individual cows and their
calves, by 2-week periods

(In pounds)

Pair number	Initial weight	Gain or loss by periods					Net change	Final weight
		1	2	3	4	5		
1:								
Cow	850	0	15	-30	-40	20	-35	815
Heifer	370	15	30	10	0	5	60	430
2:								
Cow	860	-15	0	-40	-40	45	-50	810
Steer	360	20	30	-10	-10	20	50	410
3:								
Cow	865	-10	-5	-5	-35	15	-40	825
Steer	370	25	15	5	-10	10	45	415
4:								
Cow	875	-5	-20	-5	-30	30	-30	845
Steer	245	30	10	25	5	5	75	320
5:								
Cow	885	50	-15	-50	-60	40	-35	850
Heifer	295	20	10	20	10	10	70	365
6:								
Cow	905	-10	-25	-5	-35	5	-70	835
Steer	325	10	10	15	-10	10	35	360
7:								
Cow	920	-20	-10	5	-60	20	-65	855
Heifer	290	20	10	20	-5	5	50	340
8:								
Cow	975	-5	-5	-35	-60	30	-75	900
Heifer	295	40	20	20	15	10	105	400
9:								
Cow	1,010	0	25	-60	-45	15	-65	945
Heifer	385	30	10	20	-5	0	55	440
10:								
Cow	1,030	0	-45	25	-40	15	-45	985
Steer	300	25	10	30	-10	15	70	370
Average:								
Cows	918	-2	-9	-20	-45	24	-51	867
Steers	320							375
Heifers	327	24	16	16	-2	9	62	395

DISCUSSION

Weather records maintained at range headquarters^{1/} showed that the 1961 summer precipitation was only 70 percent of the past 10-year average. However, it was not greatly different than three other years in the past five. Summer weight gain of 75 pairs of cows and calves under conservative stocking on nearby range is presented together with precipitation to compare seasonal weather-years (fig. 3).

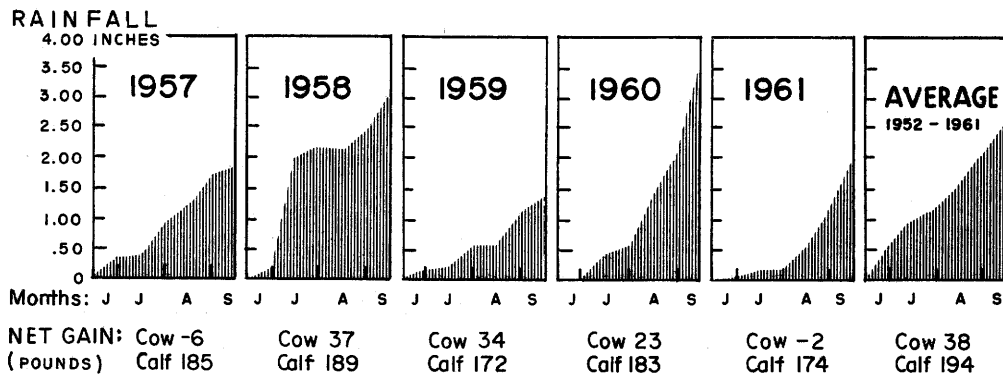


Figure 3.--Cumulative summer precipitation at semimonthly intervals, and average net weight gain of cows and calves for the summer grazing period.

Since plant growth on these mountain ranges continued into July, early June precipitation was not critical to curing or to the duration of the green-forage period. Moreover, late September rains had little, if any, effect on net summer gains by these nearby cattle because their final weights were recorded by the last of September.

In 1958, an exploratory study of summer weight trends was conducted in the same range unit grazed in 1961 and under similar experimental conditions (fig. 4). Though periods of record in the 1958 trial do not coincide exactly with those taken in 1961, 1958

^{1/} Range headquarters was approximately 1 mile from the study unit.

data does provide a general comparison of how summer precipitation in different years can influence cattle gains. Results from the 1958 trial, as well as the 1958 net summer gain from cattle grazing nearby range (fig. 3), show that weight gains during that year of high summer precipitation were exceptional.

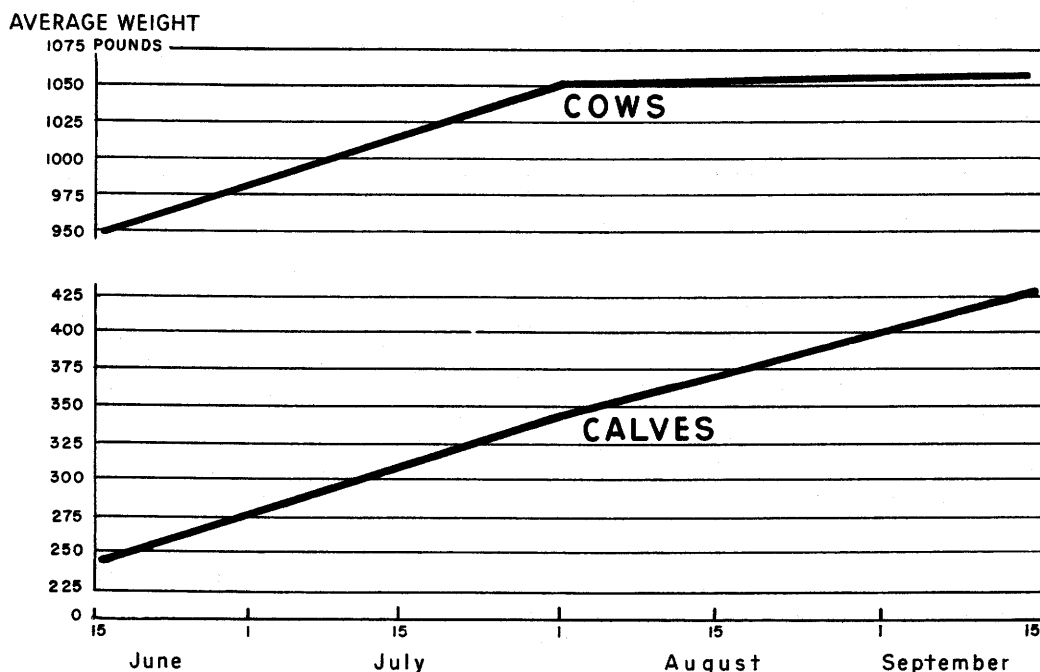


Figure 4. --Trends in weight gain of cows and calves grazing mountain summer range in 1958.

Seasonal weight trends from the two studies show a general decline in rate of gain during the forage curing period, regardless of the difference in summer precipitation between years. However, a comparison also illustrates that precipitation does influence when and how fast this rate of gain or loss takes place.

Indirectly, late-summer or fall precipitation can restore the dropoff in rate of gain brought on during midsummer forage curing. The dramatic change in cattle weight trends in October of 1961 was brought about by the fall greenup of dormant grasses. Principal open grassland forage plants responded to precipitation that occurred in early September.

Empirical study of past weather records and fall greenup suggests substantial rainfall is needed to break the midsummer dormancy of these mountain grasses. Rainfall of a short duration often evaporates before it becomes effective. Enough precipitation must fall so the moisture front can advance in dry soil to the depth of effective rooting. Consequently, the shallow-rooted plants are most often the first to respond to fall rains. Observation of grazing use in this study showed Sandberg bluegrass and onespike danthonia provided the bulk of the October forage.

APPLICATION

The rancher must find some way of retaining summer gains if he is to maximize yearend returns. If he cannot move his cattle from these summer ranges to better fall pastures during dry years, he should provide some form of range supplement until shortly after fall greenup.

When the rancher is not committed to late marketing, he should weigh the advantages of shipping his calves early against the cost of supplementing. He must consider the additional risk of a later-than-normal greenup and changes in market price if he chooses to supplement.

Most ranchers recognize that weight losses by calves on cured forage during dry years give them a "roughed" appearance, and this invariably reduces market grade and price and further cuts into the rancher's profit.

SUMMARY

During dry years, cows and calves on these mountain ranges are not able to maintain summer gains into the fall months. The amount and distribution of summer precipitation influences the time and rate at which these weights decline. Fall rains may occur and later improve forage conditions that will restore substantial weight gains. To avoid late summer and fall losses on mountain summer range during dry years, the rancher should consider marketing his cattle early, giving supplemental feed, or moving the cattle to more nutritious pastures.