

A COMPARISON OF TRUCKING AND TRAILING BEEF COWS  
AND CALVES TO AND FROM SUMMER RANGE<sup>1</sup>FARRIS HUBBERT, JR.<sup>2</sup>*Squaw Butte-Harney Range and Livestock Experiment Station*<sup>3</sup>

**M**ETHODS of moving beef cattle herds to and from seasonal range has received little controlled study in the Western range area. Trucking cattle between seasonal ranges has increased to some extent, and in general the conclusion has been that where trucking is possible it is a better method of moving beef herds than trailing. Ares (1942) refers to 15 percent shrinkage of cattle trailed 75 to 100 miles as compared to 5 percent shrinkage of animals trucked over the same route. Stoddard and Smith (1943) have cited the need for more information on the subject.

This study was designed to compare the influence of trucking and trailing beef cows and their calves to and from summer range on (1) response on summer range (2) shrinkage and weight fluctuations immediately following fall trailing (3) total gain from the time of leaving winter headquarters until the calves are weaned, and (4) response with and without a salt-cottonseed meal mix while on summer range.

### Procedure

The study was initiated with a comparison of trucking and trailing 40 miles on the return to the valley from summer range during 1951. Forty cows with calves ranging in age from 6 to 7 months were assigned to the study from the herd of commercial Herefords maintained by the Squaw Butte-Harney Station. Twenty cows and their calves were selected at random to be trucked, the other twenty being trailed with the rest of the herd. Ten of the cows and calves assigned to each group had a salt-cottonseed meal mix available from approximately July 1 until the herd was removed from the range. The salt concentration of the mix was adjusted to a level that resulted in an intake of approxi-

<sup>1</sup> Approved for publication as technical paper 837 by the Director of Oregon Agricultural Experiment Station.

<sup>2</sup> Present address, Route 2, Kearney, Nebraska.

<sup>3</sup> Burns, Oregon. Jointly operated and financed by the Bureau of Land Management, U. S. Department of the Interior, and Oregon Agricultural Experiment Station, Oregon State College, Corvallis, Oregon.

mately 1 pound of cottonseed meal per day per cow during 1951. An intake of 2 pounds of cottonseed meal per day was allowed during 1952 and 1953.

Animals assigned to the study during 1952 and 1953 were selected in the same manner as was followed during 1951. Identical animals were not used during the 3-year period. Assignment to treatments during 1952 and 1953 was made prior to starting on the spring trail; the calves ranged in age from 1 to 5 weeks.

### *Spring Trail Conditions*

The animals were trailed 40 miles from near Burns to the summer range during a 3-day period. At the end of each day's trail temporary corrals were set up where the calves were with their mothers overnight. The trailed cows' calves were hauled from one corral to the next during the spring trail. Water was available at frequent intervals. The cows were allowed to graze to some extent on new forage during the day.

The cows and calves to be trucked were hauled on the day the remainder of the herd started on the trail. This gave the hauled cows an advantage of 2 days of grazing on summer range.

### *Fall Trail Conditions*

The animals were managed in the same manner during the fall on the return to winter headquarters with the exception that the trailed cows' calves were not hauled. Practically no forage was available on the fall trail. The herd had to travel approximately 14 miles between water holes on the second day of the trail during 1951 and 1952. The herd was bedded in a temporary corral without water at the end of a 10-mile drive on the second day during 1953 and was watered after a 4-mile drive the following morning. Maximum temperatures were close to 90° F. while trailing in 1951 and 1952 and below 80° F. in 1953.

### *Experimental Area*

The summer grazing period was spent on sagebrush-bunchgrass range at the Squaw Butte unit of the station, located approximately 40 miles west of Burns where the elevation ranges from 4,600 to 5,000 feet. The animals grazed in fenced, 2,200-acre ranges composed primarily of big sagebrush (*Artemisia tridentata*) and bunchgrasses. Maximum summer temperatures seldom exceeded 90° F.

The fall grazing period was spent on the meadows of the station

located near Burns at an elevation of approximately 4,000 feet. The meadows are of the wet-land type with over 80 percent of the forage consisting of rush (*Juncus spp.*) and sedge (*Carex spp.*). Forage available during grazing was primarily mature stubble and scattered hay left in the haying operation.

### *Weighing Procedure*

All weights were taken after the animals had been without feed and water overnight (approximately 12 hours). Calves remained with the cows during this shrinking period.

Initial spring weights were taken the day before starting on the trail. All animals were given an approximate 10-day fill on grass before the next weights were taken on summer range. Weights of all animals were then taken at approximate monthly intervals during the rest of the summer. The final summer range weights were taken the day prior to starting on the fall trail.

After arriving on the meadows all animals were allowed approximately 24 hours of rest and fill before being taken off feed and water and being weighed the following morning. Such a procedure resulted in the trucked animals being weighed 3 days and the trailed cows 5 days after the final range weights were taken to compare response during the trailing period. Both groups were then weighed at weekly intervals (first interval only 5 days for trailed group) for a 3-week period. The final weight was taken at weaning time.

Average daily gains for the periods involved were used in the analysis of variance of all data.

## Results and Discussion

### *Spring Trail and Summer Range*

Trucking resulted in significantly greater cow gains between the time the animals left winter headquarters and the time they were weighed on summer range (tables 1 and 2). The influence of trucking was also reflected in calf response during that period. Differences in both cow and calf response between years are believed to be related to differences in amount of forage available on summer range during the fill period.

Throughout the grazing season considerably more range forage was available in 1953 than in 1952. This difference was reflected in both cow and calf gains in all comparisons made between years while on summer range.

Trucking on the spring move was not found to influence significantly gains of cows after being weighed on summer range. Where differences in summer gains of calves were found, the advantages were in favor of the animals whose mothers were trucked (tables 1 and 2).

The low nutrient intake during the summer of 1952, resulting from less abundant range forage, is believed to have prevented the expression of the expected difference in growth potential between sex (table 1) reported by Knapp and Black (1941) and Koger and Knox (1945). The lack of a significant influence of sex on weaning weights of calves on low carrying capacity sagebrush range has previously been reported by Hubbert and Sawyer (1951). It follows that when the calf gains were high, as found in 1953, a significant difference in growth should be apparent between steers and heifers. Steers were found to gain significantly more than heifers during 1953 (table 1).

#### *Fall Trail and Meadow Grazing*

The gaining status and condition of the animals when coming off summer range had a great influence on response to the method used in moving to the valley. When the cows were losing weight and the calves were gaining at a reduced rate in 1952 trucking had practically no advantage in terms of weights at weaning. However, when the animals came off the range while still gaining, trucking had a significant influence on both cow and calf weights at weaning.

Data collected following the fall trail of 1951 and 1953 were used to study fluctuations in gains during the 3-week period immediately following removal from summer range. Results obtained during 1952 were not used in this comparison because the trailed herd was accidentally held without water for 12 hours after arriving on the meadow. It was believed that the long period without water would prevent a true measure of weight fluctuations immediately following the trail. The summer grazing season of 1951 was quite similar to that of 1952.

Fluctuations in gains during the 3-week period following fall trail are shown in figures 1 and 2. The trailed cows lost significantly more weight after reaching the meadow than the hauled cows only during 1953. In general, weight trends of calves followed those of the cows. The abnormal gains recorded during the first week on the meadow probably reflect fill in terms of excessive consumption of forage and water. The need for caution in the use of weights of beef cattle following periods of stress is emphasized by the abrupt fluctuations.

Trucking did not result in a significant advantage in cow or calf

TABLE 1. ANALYSIS OF VARIANCE OF AVERAGE DAILY GAINS OF COWS AND CALVES

Period	Source of Variation	1952			1953		
		Cow		Calf	Cow		Calf
		d.f.	Mean Square	d.f.	Mean Square	d.f.	Mean Square
Spring trail	Trucking	1	50.58**	1	0.47	1	29.53*
	Sex			1	0.01	1	0.69
	Supplementing	1	0.48	1	0.33	1	13.64
First month on range	Error	37	3.54	36	0.27	33	6.62
	Trucking	1	3.31	1	0.03	1	0.35
	Sex			1	0.00	1	0.28*
June to off range	Supplementing	1	0.00	1	0.01	1	1.08
	Error	36	1.21	35	0.12	33	0.58
	Trucking	1	0.03	1	0.00	1	0.00
Off range to weaning	Sex			1	0.05	1	0.17*
	Supplementing	1	1.90**	1	0.33	1	0.31
	Error	36	0.15	34	0.06	33	0.05
Off range to weaning	Trucking	1	0.45	1	0.09	1	2.43
	Sex			1	0.07	1	0.52**
	Supplementing	1	0.45	1	0.39*	1	0.01
	Error	36	0.52	32	0.09	33	0.31

\* Significant at 5% level.

\*\* Significant at 1% level.

weights at weaning in 1952. However, in 1953 trucked calves had a significant advantage in average daily gain of 0.14 pounds or an advantage in weaning weight of 27 pounds. The trucked cows also had a significant average advantage in daily gain of 0.08 pound or 16 pounds in total gain during the same period.

Whether trucking the breeding herd is economically sound would depend on many factors which would vary between ranches. The com-

TABLE 2. SUMMARY OF AVERAGE DAILY GAINS OF COWS AND CALVES  
(Lb. per Day)

Period	1952			1953		
	Dates	Trucked	Trailed	Dates	Trucked	Trailed
Cows						
Spring trail	4/29-5/13	1.00	-1.25	4/28-5/8	2.69	1.27
First month on range	5/13-6/3	2.51	3.10	5/8-6/12	0.89	0.67
June to off range	6/3-9/16	0.48	0.53	6/12-9/28	0.96	1.06
Off range to weaning	9/16-11/14	-0.12	-0.10	9/28-11/10	0.60	0.08
Calves						
Spring trail	4/29-5/13	1.05	0.84	4/28-5/8	1.97	1.82
First month on range	5/13-6/3	1.64	1.59	5/8-6/12	1.67	1.61
June to off range	6/3-9/16	1.15	1.15	6/12-9/28	1.85	1.70
Off range to weaning	9/16-11/14	0.43	0.53	9/28-11/10	1.22	0.98

mercial trucking rate for hauling the cattle in this study was \$0.23 per 100 pounds of body weight for the 40 miles. This would result in a total trucking cost of approximately \$5.30 for the two trips per cow and calf.

The salt-cottonseed meal mix provided during this study resulted in a significant advantage of 27 pounds in average weaning weights of calves for 1952 and 1953. No significant interactions between the supplementing and hauling treatments were found.

### Summary

A study of the effects of trucking and trailing beef cows and their calves to and from a summer sagebrush range in eastern Oregon was conducted. The trail distance between winter headquarters and summer range was 40 miles.

Trucking resulted in no significant advantages in cow or calf weights at weaning following a summer when grazing conditions were poor.

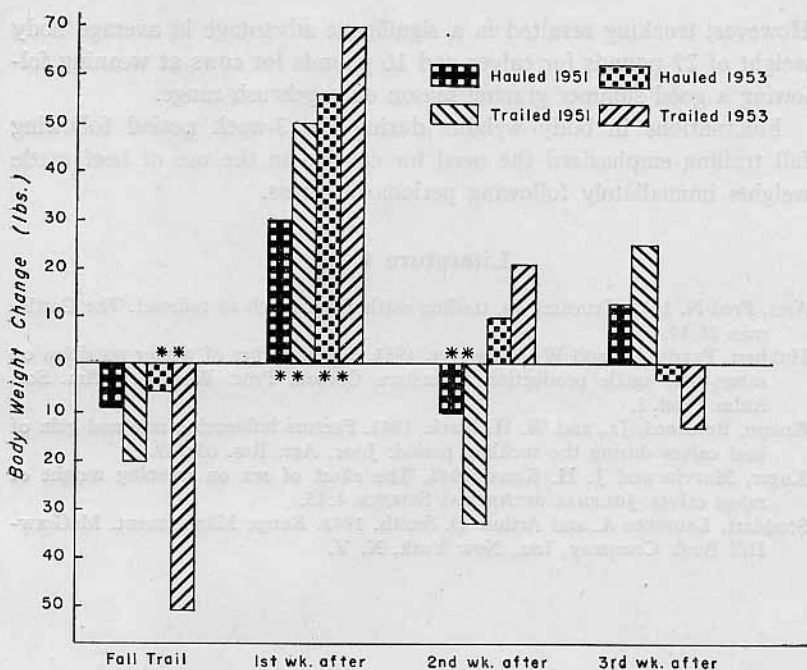


Figure 1. Summary of Cow Weight Changes After Fall Trail

\*\* Significant at 1% level

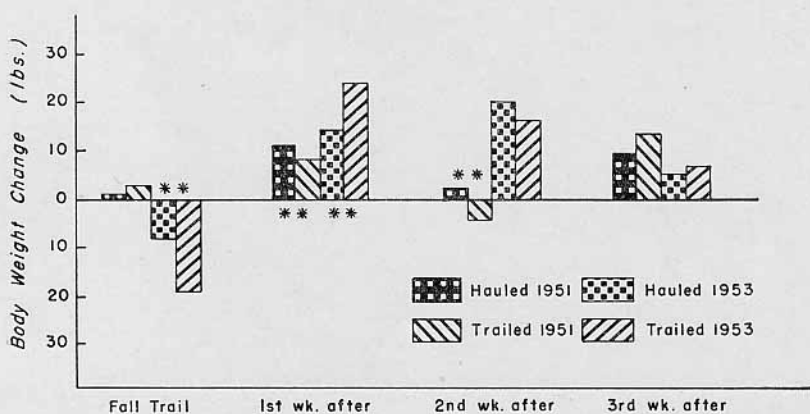


Figure 2. Summary of Calf Weight Changes After Fall Trail

\*\* Significant at 1% level

However, trucking resulted in a significant advantage in average body weight of 27 pounds for calves and 16 pounds for cows at weaning following a good summer grazing season on sagebrush range.

Fluctuations in body weights during the 3-week period following fall trailing emphasized the need for caution in the use of beef cattle weights immediately following periods of stress.

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