

UNITED STATES DEPARTMENT OF AGRICULTURE

# FOREST SERVICE

RR - CAL  
Progress Report  
Harvey Valley

PROGRESS REPORT

EFFECT OF LIVESTOCK HANDLING ON  
CATTLE WEIGHT GAINS IN A REST-  
ROTATION GRAZING SYSTEM.

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EFFECT OF LIVESTOCK HANDLING ON CATTLE WEIGHT

GAINS IN A REST-ROTATION GRAZING SYSTEM

INTRODUCTION

The rest-rotation grazing system as planned for the Harvey Valley Experimental cattle allotment calls for shifting two groups of cattle from two range units to a third unit at mid season each year. These moves were designed primarily to encourage natural reseeding by concentrating animals on a limited range area and getting seed trampled into the soil. Observations at the Burgess Spring Experimental Range and elsewhere in northeastern California showed that seeds worked into the soil by trampling or other means have a better chance of germinating and producing seedlings than seeds that lodge on the soil surface, especially on ranges that are deficient in litter and mulch. However, reproduction is being obtained at the expense of livestock weight gains when stock are moved during the grazing season. At Burgess Spring cattle that were moved from one range unit to another during the season gained 8 to 12 percent less weight than cattle kept in one unit season long.

EFFECT OF MOVING CATTLE AT BURGESS SPRING.

In each of the three years 1945, 1946 and 1947 a group of yearling Hereford heifers were shifted from a pine timber area to a grassland area and back again to the timber area during the grazing season. The first move-timber to grassland-was made on the average about one month after

the start of the 130 day grazing season (May 14 to September 24) and the second move - grassland to timber-was made about two months after that. These moves were timed so cattle were placed on areas that were producing a higher rate of weight gain in cattle than the areas from which the cattle were moved. These cattle were disturbed as little as possible in these moves. They were simply turned into the desired units from the corral after one of the regular two weeks weighings of the cattle.

A second group of cattle was grazed season long in the timber type and a third group season long in the grassland type each year for comparison. These groups too were weighed at two week intervals and handled in the same way as the cattle that were moved.

In 1948 a group of cattle was given free access to timber and grassland areas throughout the season instead of being moved deliberately. Groups were also grazed season long in timber and grassland areas as in previous years.

Each year from 1945 through 1947 cattle that were moved gained less weight during the season than cattle grazed season long in either timber or grassland types. (Table 1). In 1948 the cattle that had free access to grassland type and timber types gained about 7 percent less than cattle grazed in the grassland type and 3 percent more than those grazed in the timber type. Similar reactions to moving cattle have been anticipated in Harvey Valley.



EFFECT OF MOVING CATTLE IN HARVEY VALLEY

Almost without exception cattle that were moved from one unit to another during the grazing season in Harvey Valley in the two years of record, 1956 and 1957, gained less weight than cattle that were not moved. This response was obtained in various classes of cattle (Table 2.) The cattle varied considerably in the various classes and the total number in particular groups was small. However there is little doubt of the reaction to moving.

Table 2.--Average seasonal weight gains of Hereford cattle handled in different ways during the grazing season. Harvey Valley Experimental Range, 1956 and 1957.

Kind of Cattle	: Grazed		: Grazed		: Grazed		: Difference	
	: Season long		: in two		: in two		: (A-B) (A-C)	
	: in one range		: range		: range			
	: unit		: units		: units			
	: (A)		: (B)		: (C) <sup>1/</sup>			
Class	No. of	lbs.:	No. of	lbs.:	No. of	lbs.:		
	head		head		Head			
<u>1956</u>								
Wet cows	50	107.4	-	-	127	90.6	-	16.8
Calves	49	192.2	-		134	179.8	-	12.4
Dry cows <sup>9</sup>	43	192.7	38	195.7	40	179.8	-3.0	12.9
<u>1957</u>								
wet cows	25	93.5	-		25	74.6	-	18.9
Calves	25	176.8	-		21	170.3	-	6.5
Breeding Heifers	26	183.7	25	153.6	31	138.9	30.1	44.8

<sup>1/</sup> Treatment C differs from B in that different units were involved.

## DISCUSSION AND PLANS.

The need to hold stock handling and moving to a minimum was apparent before the Harvey Valley test was started. So in the grazing plan livestock moves during the season were limited to one. That one, it was felt, was essential for maximum rate of regeneration of the vegetation. This is one of the main points being checked in the pilot test. Further observations of the Harvey Valley test may yet reveal a way of promoting adequate vegetation regeneration without shifting cattle during the season.

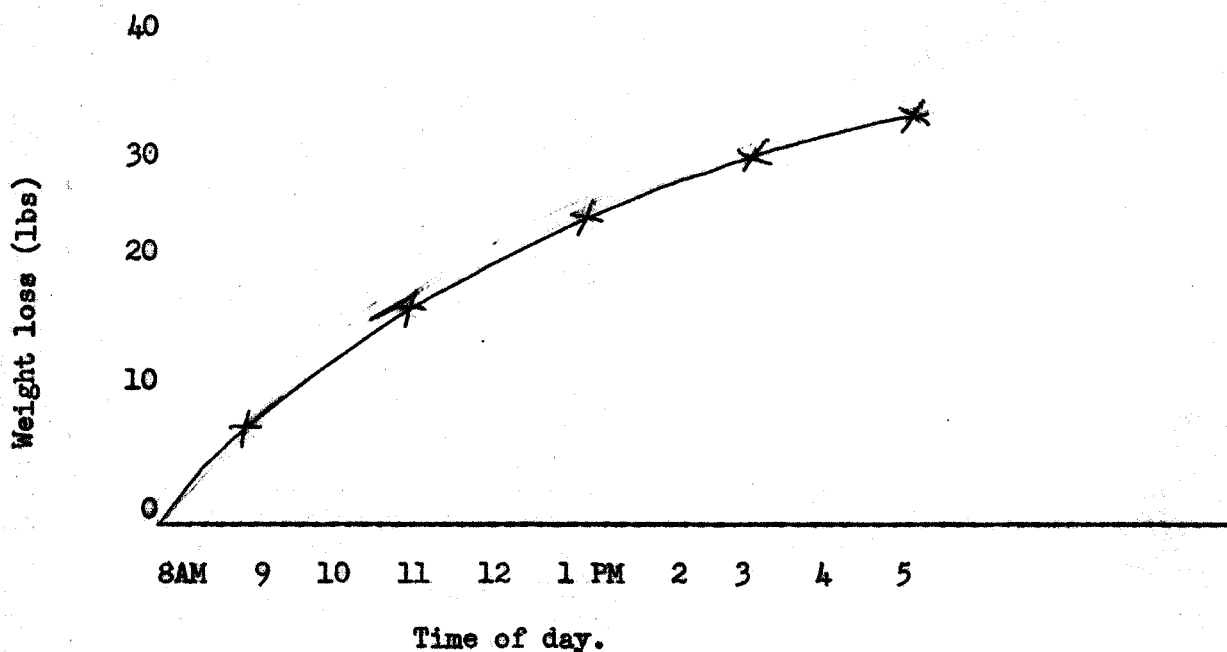
In the meantime accurate weight records will be needed to get a measure of the effect of moving cattle during the season. This means careful systematic handling of cattle from weighing to weighing (2) using enough animals in a group for reliable weight determinations and (3) making suitable adjustments for loss in animal weights due to handling in the corral at weighing time.

There are several year's cattle weight records in the file for computing the number of head needed for a reliable average in any group. Also a plan has been developed for getting data for adjusting the weight of individual animals to the proper level to take care of the effect of handling in the corral at weighing time. This plan, using one class of cattle for illustration, is as follows:

1. Select 50 head of animals from the herd at random at the beginning of the day of weighing. Weigh each animal and return the 50 head to a holding pen.
2. Immediately after the 50 head are weighed, and penned, reweigh 10 head selected from the group at random and then turn the animals loose.

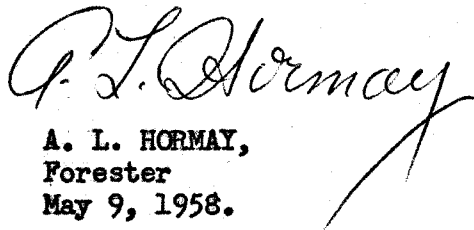
3. Reweigh 4 additional groups of 10 animals at 2 hour intervals thereafter throughout the day and turn each loose.

A curve like the following, showing the loss in weight of the average animal throughout the day can be plotted from these weight data:



By use of such a curve the weight of each animal in the herd can be adjusted to show what the animal would have weighed at a particular time of day - say 8 AM. An animal weighed at 5 P.M. for example would have lost about 35 pounds during the day, so 35 pounds would be added to its measured weight to make it comparable with the animal weight at 8 A.M.

The Station statistician could be very helpful in working out the statistical problems connected with these cattle weight measurements.



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