

STATISTICS
on
THE HARVEY VALLEY DEMONSTRATION RANGE ALLOTMENT
LASSEN COUNTY
CALIFORNIA

THE HARVEY VALLEY DEMONSTRATION RANGE ALLOTMENT

THE PROGRAM

The best range management practices known to the Forest Service in Region 5 at the present time for improving and increasing the grazing capacity of perennial bunchgrass type mountain summer ranges are being tested and demonstrated on the Harvey Valley range allotment, located about 40 miles northwest of Susanville, on the Lassen National Forest in northeastern California. These practices include rest-rotation grazing, artificial reseeding, chemical weed and brush control, erosion control and drainage improvement. The program was started in 1951 and is scheduled to run for 23 years ending in 1974. The eighth year of operation was completed in 1959.

CO OPERATORS

Lassen National Forest, Regional Office of the Forest Service, Pacific Southwest Forest and Range Experiment Station, Lassen County farm advisor, Agricultural Research Service and Lassen Forest grazing permittees--Roney Brothers.

CHARACTER OF ALLOTMENT

Gross area	34,783 acres
Present usable range	17,965 acres
Potentially usable range (timber type when cutover)	6,937 acres
Unusable area (rock, dense brush, timber)	9,881 acres

Area and Estimated Grazing Capacity of Present Usable Range

Cover Type	Area 1959		Estimated Grazing Capacity 1951		
	Acres	%	Acres per AU Month	Total AU Mos.	%
Dry grassland	661	4	4.7	141	7
Wet meadow	1,359	8	2.0	668	33
Big sagebrush	2,540	14	6.4	394	19
Black sagebrush	774	4	5.3	147	7
Silver sagebrush	694	4	3.4	206	10
Timber (cutover)	9,101	50	16.6	412	20
Timber (uncut)	<u>2,836</u>	<u>16</u>	26.2	<u>80</u>	<u>4</u>
Total	17,965	100		2,048	100

LIVESTOCK

Cows and calves mainly. Also heifers and steers.

PERMITTED NUMBER

515 animal units.

SEASON OF GRAZING

May 22 - September 18 (4 months).

PRECIPITATION AND CHARACTER OF GROWTH YEARS

<u>Season</u> ^{1/}	<u>Precipitation</u> ^{2/} (inches)	<u>Estimated Forage Production</u> (Percent of average year)	<u>Estimated Seed Production</u>
1950-51	19.30	80	Low
1951-52	24.86	130	High
1952-53	19.94	100	Average
1953-54	17.06	100	Average
1954-55	9.50	75	Low
1955-56	37.00 (approx.)	125	High
1956-57	no record (ave. year)	95	Average
1957-58	no record (wet year)	120	High
1958-59	9.63	45	Low
Average	17.36	(22 years--1935-1959 ^{3/})	

1/ September 1 to August 31.

2/ Precipitation records were taken at the Blacks Mountain Branch of the Experiment Station located some 12 miles west of Harvey Valley.

3/ 1957 and 1958 not included.

THE GRAZING SYSTEM

Rest-rotation

Range layout- -5 units of equal grazing capacity - see attached map. (The number of units needed in any particular case is determined by local conditions.) Each unit at Harvey Valley is grazed and rested during a 5-year cycle as follows:

Year	Treatment	Character of treatment	Main purpose of treatment
1st	A	Full use season-long	Maximum herbage utilization
2nd	B	Rest season-long	Recovery of plant vigor
3rd	C	Rest until mid-season Full use second half of season	Permit plants to ripen seed Trample seed into the soil and herbage utilization
4th	D	Rest season-long	Aid establishment of new reproduction
5th	E	Moderate use until mid-season Rest second half of season	Aid establishment of new reproduction Permits completion of grazing schedule

This cycle of grazing treatments is repeated over and over until the range reaches desired condition.

This grazing schedule is formulated to increase and maintain Idaho fescue specifically. Idaho fescue is the key forage species on the allotment and has more exacting growth requirements than any other forage species. Practically all forage species on the allotment are maintained under this grazing schedule therefore.

The grazing schedule for all 5 units from 1952 through 1960 is shown in the following table:

		Range Unit				
Year	1	2	5	4	3	
<u>Stocking (Animal Units)</u>						
1952	Rest B Rest	Rest ^{1/} C 400	Rest D Rest	200 E Rest	300 A 100	
1953	Rest C 400	Rest D Rest	200 E Rest	300 A 100	Rest B Rest	
1954	Rest D Rest	200 E Rest	300 A 100	Rest B Rest	Rest C 400	
1955	200 E Rest	300 A 100	Rest B Rest	Rest C 400	Rest D Rest	
1956	300 A 100	Rest B Rest	Rest C 400	Rest D Rest	200 E Rest	
1957	Rest B Rest	Rest C 400	Rest D Rest	200 E Rest	300 A 100	
1958	Rest C 400	Rest D Rest	200 E Rest	300 A 100	Rest B Rest	
1959	Rest D Rest	200 E Rest	300 A 100	Rest B Rest	Rest C 400	
1960	200 E Rest	300 A 100	Rest B Rest	Rest C 400	Rest D Rest	

Note: Treatments above the dotted line were not applied in the years indicated because management facilities, particularly fences, were not completed.

^{1/}Top figure or comment indicates stocking or treatment during first 2 months of the season, and bottom figure or comment indicates stocking or treatment during last 2 months of the season.

Stocking on the allotment is based on the yield and use of all available forage species on the allotment and not on the key species alone.

The general plan for distributing cattle among units in any year is illustrated below for 1960. Assume stocking to be 500 animals units.

Treatment Unit					
			100:AU's		
A	2	:	:	:	:
		:	200 AU's	:	:
B	5	:	Rest	:	:
		:		:	:
C	4	:	Rest	:	200 AU's
		:		:	200 AU's
D	3	:	Rest	:	:
		:		:	:
E	1	:	200 AU's	:	Rest
		:	:	:	:
			June	:	July
				:	Aug.
				:	Sept.

Note: Seed usually ripens the first week in August. Livestock are moved to different units at this plant growth stage.

CULTURAL PRACTICES

Spraying and Artificial Reseeding

Treatment	Plan	Completed by
	(acres)	1959
		(acres)
Spraying		
Spray with 2-4-D	Total 3000	1432
Reseeding		
1. Cultivate soil, drill introduced species	300	232
2. Spray site, drill introduced species	150	15
3. Spray site, harrow seed of native species	<u>250</u>	<u>100</u>
Total	700	347
Grand Total	3700	1779

RESEEDING PROJECTS (Introduced Species)

Area^{1/} : Acres : : Year of : Pounds of : Total Cost
 Number : Planted : Cover Type Before Planting : Species Planted : Planting : Seed/Acre : Per Acre

1	36	Silver sagebrush, Nevada bluegrass	Smooth brome grass	1951	10	\$12.00
2	18	Silver sagebrush, black sagebrush, Nevada bluegrass	Smooth brome grass, crested wheatgrass	1951	10	12.00
3	58	Black sagebrush, Sandberg bluegrass	Smooth brome grass	1951	10	12.00
4	18	Black sagebrush, Sandberg bluegrass	Intermediate wheatgrass	1952	6	12.00
5	21	Silver sagebrush, Nevada bluegrass	Intermediate wheatgrass, tall wheatgrass, smooth brome grass	1952	6	12.00
6	8	Silver sagebrush, biscuit root	Smooth brome grass, intermediate wheatgrass, Reeds canary grass, meadow foxtail	1957	8	12.00
7	30	Black sagebrush, Idaho fescue	Crested wheatgrass, smooth brome grass	1952	6	11.00
8	12	Silver sagebrush, bottlebrush squirreltail	Smooth brome grass	1953	8	11.00
9	31	Big sagebrush, Idaho fescue	Intermediate wheatgrass, crested wheatgrass	1953	8	12.80

TOTAL 9 232

^{1/} See map for location of areas.

SPRAYING

Species treated--big sagebrush (*Artemisia tridentata*), black sagebrush (*A. arbuscula*), and silver sagebrush (*A. cana*).

Spray Formulation

<u>Ingredients</u>	<u>Amount Per Acre</u>
2-4-D Butyl ester	2.0 pounds
Diesel oil	0.5 pounds
Emulsifier (Antarox A-400)	0.1 pounds
Water	9.0 gallons
Total	<u>10.0 gallons</u>

Best growth stage for spraying--when new twig growth is 2 or 3 inches long.

Spray Projects

1951 750 acres in units 1 and 2
Date: June 11 - 16
Plant growth stage: New twigs 2.5 inches long
Method of application: Airplane
Cost per acre:

Chemical	\$2.65
Application	.35
Total	<u>\$3.00</u>

1954 100 acres in unit 4
Date: June 22
Plant growth stage: New twigs 2.5 inches long
Method of application: Turbine sprayer
Cost per acre:

Chemical	\$2.65
Application	1.40
Total	<u>\$4.05</u>

1958 580 acres in units 1, 2, 4, and 5
Date: June 24 - July 3
Plant growth stage: New twigs 3.5 inches long
Method of application: Airplane
Cost: About \$5.50 per acre

DRAINAGE IMPROVEMENT AND EROSION CONTROL

Type of Work	Plan	Completed by 1959
Drainage improvement (units 3 and 5)	500 acres	300 acres
Gully erosion control (units 3 and 4)	1 mile	1 mile

CATTLE WEIGHTS--1954 to 1959

First records were obtained in 1954.

Year:	COWS			CALVES			HEIFERS			STEERS		
	Length:	Begin-	Ave.	Length:	Begin-	Ave.	Length:	Begin-	Ave.	Length:	Begin-	Ave.
:	of	ning	Daily	of	ning	Daily	of	ning	Daily	of	ning	Daily
:	Season:	Weight	Gain	Season:	Weight	Gain	Season:	Weight	Gain	Season:	Weight	Gain
:	(Days):	(lbs)	(lbs)	(Days):	(lbs)	(lbs)	(Days):	(lbs)	(lbs)	(Days):	(lbs)	(lbs)
1954										91	632	1.44
1955										112	536	1.74
1956	117	760	.85	117	150	1.56						
1957	114	922	.74	114	306	1.52	114	479	1.38	114	515	1.32
1958	120	991	.54	120	290	1.33	120	784	1.08	120	579	1.25
1959	119	852	.33	119	259	1.50	119	560	.89	119	738	.99
Ave.	117	881	.62	117	251	1.48	118	608	1.12	111	600	1.35

These figures are indicative only. Fully satisfactory weights have not been obtained yet because of variation in the quality and breeding of cattle used from year to year.




HARVEY VALLEY RANGE ALLOTMENT


LEGEND

-I- to -V- --Unit numbers

A to W--Road-fence intersections

(1) to (9)--Reseeded area

-  Road
-  Fence or boundary
-  Edge waste range

 = 1 mile

