

ANNUAL RYEGRASS - STOCKER TRIAL

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Increased carrying capacities of the winter ranges has been an important consideration in livestock production research. Various methods have been used-- brush clearing, fertilization, introduction of new species--to name a few.

This research project was designed to utilize winter forage produced from seeded annual ryegrass at the University of California Sierra Foothill Range Station, Marysville. Another factor that was used in this trial was the utilization of irrigation water available in the late fall and early spring. The ryegrass was irrigated up in the fall and irrigated in the spring when appreciable rainfall ceased.

Each fall the field was tilled and sown to Tetrablend 444 ryegrass at a rate of about 16 pounds per acre. 400 pounds ammonium sulfate was applied preplant.

The additional cost for land preparation, seed, fertilizer and water was \$49.14 per acre.

To compare ryegrass forage production, one group of stocker cattle grazed on the ryegrass and another group was grazed on adjacent cleared range. The second year of the trial, a third group of stockers were placed on unimproved range land, which consisted of native forage, live oak, blue oak, some digger pine, ceonothus and poison oak.

The stocking rate was established on the common rate used in this area according to the weight of the cattle. The 1974 stockers averaged 411 pounds and were placed .38 acre per head on the ryegrass and 3.53 acres per head on the cleared range. In 1975, the cattle averaged 490 pounds, and they were allocated as follows: ryegrass .5 acre per head; cleared range 2.96 acres per head and the unimproved range, 9 acres per head. Both years we tried to obtain a stocking rate of 3 acres per head on the cleared range, but the first year fields were not available to obtain the 3 acres per head desired.

Results:

In 1974, the total production of beef from the ryegrass was 396.9 pounds of beef per acre for a 111 day period. This period ran from February 8 to June 19. The cleared range stockers produced 41.8 pounds of beef per acre during the same period. Irrigation was begun on April 15 for the ryegrass. During the

non-irrigated period the ryegrass cattle gained 108 pounds per head as compared to the cleared range cattle that gained 97 pounds. Also, during the non-irrigated period the total amount of beef per acre was 284 pounds for ryegrass and 28 pounds for the range. During the irrigated period the stockers on the ryegrass gained 69 pounds apiece and the cleared range cattle gained 51 pounds. Total production per acre during this later period was 113 pounds for ryegrass and 14 pounds for the cleared range.

In 1975, the trial began January 16 and ended June 11. The results were as follows: Ryegrass 348 pounds per acre, cleared range 57 pounds per acre and the unimproved range was 15 pounds per acre. The ryegrass cattle gained 177 pounds apiece for 120 day period of which 103 pounds was gained prior to irrigation, which was 64 days. During this period there was a 203 pound gain per acre. Cleared range and unimproved range cattle gained 47.2 and 45.2 pounds respectively during the 64 non-irrigation period, with a resulting 16 pounds and 5 pounds gain per acre. During the irrigated period for the ryegrass, 74 pounds were gained per head and an additional 145 pounds per acre was added. These ryegrass cattle were taken off the field for a 28 day period prior to irrigation to rest the ryegrass. During this period they gained 43 pounds per head. During the irrigation period for the ryegrass, the cleared range stockers gained an additional 125 pounds thus increasing the per acre gain during this period to 41 pounds. The unimproved cattle during this period gained an additional 92 pounds apiece increasing the pounds per acre 10 pounds.

By introducing annual ryegrass and irrigation during the fall and late spring we have considerably increased the carrying capacity of this range land. The production comparison between the ryegrass and cleared range makes a good comparison, because the soil and terrain of the two areas are about the same. Other factors that should be studied relative to this trial would be the addition of fertilizer to the cleared range land and fall irrigation on this area for earlier feed production.

The big advantage for use of the ryegrass was the early forage production and increased carrying capacity.

We feel where a rancher has water available and some relatively workable land, that planting of ryegrass will be an excellent alternative in increasing forage production. It was also observed than an increase in carrying capacity for the cleared range and unimproved range could have been made about March 15. This would depend upon the amount and frequency of our spring rains.

1974 NON-IRRIGATED 54 DAYS

	<u># of Head</u>	<u>Acres</u>	<u>Acres/ Head</u>	<u>Total Lbs Gain</u>	<u>Lbs / Acre</u>	<u>Lbs/ Head</u>
Ryegrass	16	6.1	.38	1734	284.3	108.38
Cleared Range	16	56.5	3.53	1556	27.5	97.25

IRRIGATED PERIOD 57 DAYS

Ryegrass	*10		.61	687	112.6	68.7
Cleared Range	16		3.53	808	14.3	50.5

Total - Ryegrass 111 days 396.9 lbs/acre
 - Cleared Range 111 days 41.8 lbs/acre

*Cattle removed to go to another University trial

1975 NON-IRRIGATED 64 DAYS

	<u># of Head</u>	<u>Acres</u>	<u>Acres/ Head</u>	<u>Total Lbs Gain</u>	<u>Lbs/ Acre</u>	<u>Lbs/ Head</u>
Ryegrass	12	6.1	.5	1238.3	203	177.
Cleared Range	16	47.4	3.	758.4	16	47.2
Unimproved	23	207.	9.	1035.	5	45.2

IRRIGATED - 84 DAYS (56 DAYS RYEGRASS)

*Ryegrass	12	6.1	.5	884.5	145	74
Cleared Range	16	47.4	3.	1943.4	41	125
Unimproved	23	207.	9.	2070.	10	92

*Ryegrass cattle gained 43 pounds per haead during 28 day rest period off of ryegrass prior to irrigation

Total Production

Ryegrass 120 days 348 lbs/acre
 Cleared Range 148 days 57 lbs/acre
 Unimproved 15 lbs/acre

GRAZING PRODUCTIVITY ON SEEDED ANNUAL RYEGRASS IN THE
CALIFORNIA FOOTHILLS

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Increasing the carrying capacities of annual type ranges in the winter has been an important objective in livestock production research in California. A 3-year trial to increase forage availability used annual ryegrass that was irrigated up. It was conducted at the University of California Sierra Foothill Range Field Station, Browns Valley, Yuba County, 1974-1976.

Tetrablend 444[®] ryegrass was seeded and irrigated up in early fall each of the first two years (1974, 1975). In 1976 the field was allowed to reseed itself and germinate from rainfall. Each spring (approximately April 15), irrigation was applied and continued to mid June. The ryegrass was fertilized annually with 400 pounds of ammonium sulfate.

To compare the ryegrass forage production with the annual range, one group of yearling steers grazed the ryegrass and one group grazed adjacent cleared range. Stocking rates were approximately .5 acres per head on the ryegrass and 2.3 acres per head on the improved range. In 1975 only, an additional grazing comparison was applied: rangeland that had not been improved was stocked at the rate of 9 acres per head. This area consisted of native forage, live oak, blue oak, digger pine, ceonothus, and poison oak.

In 1974 the ryegrass produced 397 pounds of cattle gain per acre for a period of 111 days; the cleared range produced 42 pounds. In 1975 the cattle were grazed for a 120-day period. The ryegrass produced 348 pounds per acre, the cleared range 57 pounds, and the unimproved range 15 pounds.

In 1976, 297 pounds of beef were produced from the ryegrass and 83 pounds from the cleared range, in 106 days. The greater gain in 1976 (cleared range) was due to adjustment of stocking rates. In the first two years, after mid April, the cattle were unable to keep up with the forage production. Therefore, the stocking rates of 2.3 acres per head were adjusted to 1.5 acres per head in mid April 1976.

By introducing annual ryegrass and supplemental irrigation, carrying capacities of 5 to 6 times that of winter rangelands were obtained. Cattle were able to gain on the ryegrass in mid January and early February. Normally, cattle on rangeland in the Sierra foothills are not able to start gaining weight until March. This early high quality feed, therefore, provided a grazing alternative to increase livestock production from a basic range forage system.

		No. Days	No. Head	LBS. BEEF PER ACRE
RYEGRASS				
1973-74	110	16*	396.9	
74-75	120	12	348.2	
75-76	105	10	297.2	
CLEARED RANGE				
1973-74	130	16*	41.8	
74-75	148	16	56.5	
75-76	105	20	82.6	
UNIMPROVED RANGE				
1974-75	148	23	15.3	

1975-76

BEGINNING WEIGHT 560#

No. HEAD	Ac.	Hd/Ac.	GAIN/STR.	TOTAL GAIN	#BEEF PER Ac.	# Days	STARTING DATE	ENDING DATE
10	6.0	.6	178.3	1783	297.2	105	3/3	6/16

*RYEGRASS

CLEARED RANGE	20	47.4	2.37	102.0	2040	43.0	57	3/3	4/28
CLEARED RANGE	20	26.0	1.30	60.9	1218	46.7	28	4/29	5/26
CLEARED RANGE	20	30.5	1.53	- 11.1	- 222	- 7.3	20	5/27	6/16
				151.8	3056	82.6	105		

*DID NOT IRRIGATE IN THE FALL AS WAS DONE THE PREVIOUS 2 YRS.

1974-75

BEGINNING WEIGHT 490#

UNIMPROVED RANGE	CLEARED RANGE	RYEGRASS	No. LEAD	Ac.	Hd/Ac.	GAIN/STR.	TOTAL GAIN	GAIN/AC.	No. DAYS	STARTING DATE	ENDING DATE
23	16	12		6.0	2.0	177	2124	3482	120	1/16	6/11
207	47.4								148	1/16	6/11
.11	.33								148	1/16	6/11
137.6	167.5								148	1/16	6/11
3165	2680								148	1/16	6/11
15.3	56.5								148	1/16	6/11

1973-74

BEGINNING WEIGHT 400#

NO. HEAD	Ac.	Hd/Ac.	GAIN/STR.	TOTAL GAIN	#BEEF PER Ac.	DAYS #	STARTING DATE	ENDING DATE
*16	6.0	2.67	177.1	2421	396.9	110	2/8	6/18
*16	56.5	.28	147.8	2364	41.8	130	2/8	6/18

RYEGRASS

CLEARED RANGE

*6 HEAD REMOVED FROM RYEGRASS 4/3/74

5 HEAD REMOVED FROM RYEGRASS 5/22/74

7 HEAD REMOVED FROM CLEARED RANGE 5/22/74

