

GILL RANGE FERTILIZATION TRIAL

Conducted By

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Cooperating with Valley Nitrogen - 1966-1967

HISTORY

Range fertilization to increase forage production is a practice that should become more widespread as land costs increase and fertilizer prices decrease. However, every ranch has different conditions, and a range fertilization program must be tailored to fit. It is obvious that maximum economic gain will occur only when the type of fertilizer is used that will give the most increase in forage production at the least applied cost. Response to fertilizer may also vary from one area of the ranch to the next.

The following trial was conducted to obtain information on these two problems.

PROCEDURE

On November 29, 1966, four plots were selected on the L. Gill Ranch located in Frazier Valley for various fertilizer treatments. These plots were designated S-1, S-2, N-1, and N-2 according to their proximity to the headquarters with S-1 being south and closest and N-1 being north and closest to the headquarters. These plots were 32' x 32' and enclosed with wood panels. Fertilizer treatments included 16-20, urea, ammonia sulfate, and a check with each treatment applied on an 8' x 32' strip. Each treatment was put on at the rate of 65# of nitrogen per acre.

On February 21, 1967, one-half of each plot (8' x 16') was mowed, weighed and samples taken which were subsequently dried. From these results, dry forage produced per acre was calculated. On May 9, 1967, the plots were again harvested with regrowth as well as total growth being measured in the same manner. Rain had occurred previous to fertilizer application in November and additional rain came at close intervals up through April. An excellent growing season or feed year occurred.

RESULTS:

The following charts show the treatments used and the clipping results:

LARRY GILL RANCH RANGE FERTILIZATION TRIAL

1966-67

Treatment: 11/29/66

Fertilizer	Amount/Acre Applied	Lbs. n/Acre	Cost/Ton	Application Cost	Cost/Acre
AmSO ₄	300#	65	42.00	.75	\$ 8.55
16-20	400	65	70.00	.75	17.00
Urea	150	65	94.50	.75	8.21

Plot	Treat-ment	Clipped 2/21/67		Regrowth Clipped 5/9/67				Single Clipping 5/9/67		
		Yield/Acre	Lbs. Increase	Yield/Acre	Lbs. Increase	Total Yield	Cost/Ton Increase	Yield/Acre	Lbs. Increase	Cost/Ton Increase
S-1	Check	1034	---	6500	---	7534	---	6687	---	---
S-1	AmSO ₄	2061	1027	4236	-2264	6297	Minus	5245	-1442	Minus
S-1	16-20	2452	1418	6027	- 473	8479	\$35.98	8154	1467	\$23.18
S-1	Urea	1516	478	4409	-2091	5921	Minus	4727	-1960	Minus
S-2	Check	493	---	3036	---	3529	---	3827	---	---
S-2	AmSO ₄	612	119	4691	1655	5303	\$ 9.64	5727	1900	\$ 9.00
S-2	16-20	1218	725	5773	2737	6991	\$ 9.82	8227	4400	\$ 5.18
S-2	Urea	476	- 17	5382	2346	5858	\$ 7.05	6973	3146	\$ 7.66
N-1	Check	928	---	5991	---	6919	---	7163	---	---
N-1	AmSO ₄	1918	990	4818	-1173	6736	Minus	5909	Minus	---
N-1	16-20	1837	909	5182	- 809	7019	\$340.00	5482	Minus	---
N-1	Urea	1286	358	3918	-2073	5204	Minus	4564	Minus	---
N-2	Check	809	---	3900	---	4709	---	4973	---	---
N-2	AmSO ₄	2010	1201	3818	- 82	5828	\$15.28	7082	2109	\$ 8.11
N-2	16-20	2265	1456	4500	600	6765	\$16.54	5727	754	\$45.00
N-2	Urea	1534	725	5318	1418	6852	\$ 7.66	6400	1427	\$11.51

CONCLUSIONS

Consistent responses to nitrogen fertilizer were obtained in the S-2 and N-2 plots. In addition, an excellent phosphorus response was recorded in the N-2 plot. It would appear that if a range fertilization program was undertaken on the Gill Ranch, urea would be the fertilizer of choice on the N-2 field. Also, additional exploratory work should be undertaken on the S-2 field with phosphorus, perhaps in conjunction with a revegetation plot.

mch
8/16/67
25 c

AREA HARVESTED - 8 x 16 = 128 square feet = .00294 acre

DATE - 2-21-67

TREATMENT	NET GREEN	NET DRY	% DRY	NET TOTAL GREEN	NET TOTAL DRY	GREEN ACRE	DRY ACRE	COST ACRE
S-1 - Check	211.1	31.7	15.7	19.5	3.04	6633	1034	
S-1 - AmSO ₄	293.3	44.3	15.1	40.12	6.06	13,646	2061	\$ 8.12
S-1 - 16-20	272.8	41.2	15.1	47.75	7.21	16,241	2452	\$15.94
S-1 - Urea	233.0	34.1	14.1	31.63	4.46	10,758	1512	\$ 7.28
S-2 - Check	385.6	68.0	17.6	8.25	1.45	2806	493	
S-2 - AmSO ₄	339.0	66.2	19.5	9.25	1.80	3146	612	\$ 8.12
S-2 - 16-20	382.2	47.2	12.3	29.12	3.58	9905	1218	\$15.94
S-2 - Urea	290.8	47.2	16.2	8.62	1.40	2932	476	\$ 7.28
N-1 - Check	197.5	31.3	15.8	17.31	2.73	5888	928	
N-1 - AmSO ₄	295.8	41.7	14.1	40.5	5.64	13,775	1918	\$ 8.12
N-1 - 16-20	210.5	28.5	13.5	40.0	5.40	13,605	1837	\$15.94
N-1 - Urea	170.3	23.3	13.7	27.6	3.78	9388	1286	\$ 7.28
N-2 - Check	144.2	23.5	16.3	14.6	2.38	4966	809	
N-2 - AmSO ₄	217.8	33.8	15.5	38.1	5.91	12,959	2010	\$ 8.12
N-2 - 16-20	237.8	35.8	15.0	44.4	6.66	15,102	2265	\$15.94
N-2 - Urea	275.3	37.8	13.7	32.9	4.51	11,190	1534	\$ 7.28