

*Tulare*

UNIVERSITY OF CALIFORNIA  
UNITED STATES DEPARTMENT  
OF AGRICULTURE AND COUNTY  
OF TULARE COOPERATING

CO-OPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF CALIFORNIA

October 30, 1958

UNIVERSITY OF CALIFORNIA  
AGRICULTURAL EXTENSION SERVICE

POST OFFICE BUILDING  
VISALIA, CALIFORNIA

# Beef Roundup

Range fertilization is a much discussed subject and for good reason because of the inconsistent results of the many trials run. For fertilizer to produce the best results, all deficiencies of the soil must be satisfied. Thus, if a soil is low in nitrogen and sulfur, both must be supplied or poor results will be obtained. The only practical way to determine what deficiencies exist on your own range land soil is to put out small plots of nitrogen, sulfur and phosphorous, singly and in combination. These plots should be put out in duplicate with one set being fenced so that yield differences can be observed and one set left open for grazing so that selective grazing differences can be seen.

In the fall of 1956 a large scale trial was conducted by this office in which the results of range fertilization was measured in pounds of additional beef produced per acre. The site of the trial was about eight miles southeast of Porterville on the low, open adobe foothills of Tennessee Ridge.

Cattle were weighed in and out of a 600 acre field fertilized with 240 pounds of ammonium sulfate per acre. Similar records were kept on an adjoining 800 acre field that was left unfertilized. Additional cattle were added to the fertilized field as the season progressed since additional feed was growing because of the fertilizer.

The study was carried on for two years, mainly because of the low rainfall which occurred the first season. When the figures were all in for the two-year period, range fertilization in this area proved to be about a break-even deal even though more than twice as much feed was grown due to the fertilizer.

It is believed that the unprofitable results occurred in this trial because we were unable to improve the quality and palatability of the feed in this natural bur clover, filaree country by applying fertilizer even though the quantity was increased. Another problem encountered in this trial was the procurement of additional cattle in the late winter or early spring when they were needed to graze the additional feed. The first season additional cattle were purchased several months before they were needed and kept on a subsistence ration until the increased feed supply due to the fertilizer was available to graze on. These cattle increased in price over the buying cost about \$1.00/cwt/month. The second season the additional cattle were bought as the grass became available and these proved to be no cheaper.

The conclusions of this trial indicated that unless quality, palatability and quantity of feed can be obtained, range fertilization will now show the greatest return possible.

For this reason, our efforts this past season were concentrated on plot work in the decomposed granite country supporting scattered oak trees and grass. Plots in which nitrogen, phosphorous, sulfur and combinations of the three were put out in duplicate on the Vanderhoof ranch, Elderwood; the Mehrten ranch, Exeter; and the Gill ranch, Springville. These plots were put out in November, 1957. One plot at each ranch was fenced, clipped, and the amount of forage produced was weighed. A similar plot was left unfenced and selective grazing by cattle was observed. On the Vanderhoof and Mehrten ranches the ammonium sulfate and 16-20 plots were preferred. On the Gill ranch the ammonium nitrate, ammonium sulfate, and 16-20 plots were selected. The straight phosphorous and sulfur plots were not selectively grazed at any location.

On the following page treatments, costs, and yield figures are shown. Since it is almost impossible to put a plot out on a representative and uniform piece of range land the figures shown should be considered as indications of what might be expected and not as final facts. The cost per ton of increased forage due to fertilizer should also be carefully considered since this forage will be worth more as green feed than as dry feed.

At the present time range fertilization on a large scale appears to be in question. It adds one more variable to an operation that already has the variables of market and weather to contend with. However, it does seem that most ranches have several small fields such as gathering, holding, and headquarter areas which are often overstocked.

It may be that additional feed through fertilization could be a real help in these areas. It might also be well to consider putting out a few small plots to determine which fertilizer materials will give the best response on a given ranch. This information could prove invaluable if a rancher ever wanted to embark on a more ambitious range fertilization program.

Sincerely,

*Robert F. Miller*

Robert F. Miller  
Farm Advisor

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Pounds Applied Per Acre				YIELD IN POUNDS PER ACRE									
				VANDERHOOF RANCH ELDERWOOD				GILL RANCH SPRINGVILLE			MEHRTEN RANCH EXETER		
TREATMENT	N	P	S	COST OF FERTILIZER PER ACRE*	HARVEST DATE		COST/TON OF INCREASED FORAGE	HARVEST DATE		COST/TON OF INCREASED FORAGE	HARVEST DATE		COST/TON OF INCREASED FORAGE
					2/11/58*	5/2/58		2/11/58	5/2/58*		2/11/58	5/9/58*	
Check	-	-	-	-	344	2959	-	178	1656	-	666	3517	-
182 lbs./Acre Ammonium Nitrate	60	-	-	\$8.66	734	4621	\$10.42	886	4789	\$5.47	1152	5299	\$9.72
285 lbs./Acre Ammonium Sulfate	60	-	67	\$8.31	995	5444	\$6.70	754	3985	\$7.14	1398	6104	\$6.43
375 lbs./Acre 16-20	60	75	49	\$15.97	1196	4771	\$17.62	826	3541	\$16.95	1364	3931	\$77.14
170 lbs./Acre Treble Super Phosphate	-	75	-	\$8.06	410	3361	\$40.30	178	2149	\$32.69	748	2983	No Increase
372 lbs./Acre High Test Gypsum	-	-	67	\$3.21	390	3385	\$15.07	310	1692	No Increase	700	4789	\$5.05

Ammonium Nitrate @ 95.15/ton  
 Ammonium Sulfate @ 58.30/ton  
 16-20 @ 85.18/ton  
 Treble Super Phosphate @ 94.80/ton  
 Gypsum @ 17.25/ton

\* Total forage produced for the season.



