COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
U. S. DEPARTMENT OF AGRICULTURE AND THE UNIVERSITY OF CALIF.
COOPERATING

JUL 26 A.M.

PROJECT NUMBER: State 3543 County 166

PREPORT PREPARED BY S. W. Thurber

DATE: July 19, 1957

Are project and progress reports to continue?
Yes X No

PROGRESS REPORT

Stanislaus COUNTY

NAME OF PROJECT: Fertilization of Non-irrigated Pasture Land

I. PROCEDURE USED: Exploratory fertilizer trials were placed in the west side hill area on the Dr. Lawrence ranch to determine what type results could be expected in that area. Large strips were fertilized using a 10 foot "Easy-Flow" spreader and applying several strips of 20-20-0 at various rates (250 lbs. per acre, 400 lbs. per acre, 500 lbs.per acre, 700 lbs. per acre). Several strips of 13-39-0 at 250 lbs. per acre. One strip of treble superphosphate at 400 lbs. per acre and several strips of ammonium nitrate of 250 lbs. per acre. This plot was observed several times during the growing season. A tour was held at the site on April 23, 1957, and several strips were clipped from each treatment; the material was weighed and dried. Weights of forage from clipped strips are attached.

A similar procedure was used in the Warnerville area on Ryer loam. Fertilizers used in this (cont'd)

II. RESULTS: On the strips that were fertilized Feb. 19, 1957 in the west side hill area on the Dr. Lawrence ranch, strips 3'6" x 100' were cut from each treatment April 23, 1957 early in the morning just before a range tour. The clippings were weighed and piled up where they were cut. Samples were brought back to the lab to get dry weight and moisture per cent. It was observed early in March that the strips of 20-20-0 gave far more earlier feed than did the other treatments. It will be noticed from the figures accompanying this report that on April 23 ammonium nitrate had caught up and passed the other treatments and the native feed had also grown very well.

The Warnerville fertilizer plots were on a 300-acre field that had a prepared (disked) seed bed. One half of this field was planted to a mixture of rose, crimson, and subterranean clovers applied by air. The other half of the field was seeded to a mixture of oats and vetch.

On November 12, 1956 strips of fertilizer were applied the entire length of the field which included the half seeded to annual clovers and the half seeded with oats and vetch. The first strip was 50 N - 80 P. The next strip was 80 P. The next three strips were aqua ammonia applied by one of the local fertilizer companies and also put in with shanks. Each strip was 8 feet wide---one strip of 15 N, one of 30 N, and another strip of 50 N. A cross-block exploratory plot was laid out using ammonium nitrate, treble superphosphate, and gypsum. The soil was one of our red soils and is phosphorus deficient. It was apparent early in the season that our results were from treatments of nitrogen and phosphorus combinations. Late in the season nitrogen was catching up but did not equal the nitrogen-phosphorus applications. This was borne out both in the exploratory plots as well as the range strips. A small strip in the 15 N plot was overlaid with 80 pounds of single superphosphate (rate per acre). This plot showed very nearly

(continued)

III. CONCLUSIONS: It is evident that even though soil element deficiency in our range lands each area of the county should have exploratory plots as well as rate trials put on the land simultaneously. This gives us a true picture of what response we will get and also minimum on economic rates of fertilization. It was also apparent that clippings should be made from all fertilizer trials at about 2-week intervals throughout the duration of the growing season. This will give a very much truer picture of the total feed produced and will graphically illustrate when the growth starts and stops from each treatment. It is realized that the true picture of range fertilization can be shown by grazing trials to show increased pounds of beef per acre on fertilized range as well as cost per pound of beef produced. Efforts will be made to set up trials of this type in the future in this county.

SIGNATURE: S. W. Thurber Farm Advisor

RESULTS, cont'd.
the same results as the plot containing 50 N plus 80 P per acre.

Attached are the results of weighing 3'6" x 100' strips from each treatment just prior to a range tour on April 24, 1957. Samples were brought back to the office, weighed wet, dried in the oven, and reweighed to get the dry matter weight per acre.

Tarweed Fertilization: Two strips of 16-20 10' x 100' were placed in a heavy tarweed area in the northeast part of the county. Observations made to dates on these strips show that despite late rains the grasses used sufficient moisture to hold the tarweed within the plots to about 5 per cent of the tarweed that was outside the plot.

PROCEDURE USED, cont'd.
were aqua ammonia, single superphosphate, and ammonium sulfate. A tour was held in this area also and strips were weighed and mowed. Weights of clipped forage are attached. Small block exploratory fertilizer plots were placed in the Ingram Canyon west side area about 3,000 feet elevation as well as the Bob Cree ranch in the Waterford area, east side 200' elevation.

Copies sent to: N. D. Hudson, A. G. Volz, H. T. Strong, and L. J. Berry

WARNERVILLE PLOTS (East side)

Strips 3 feet, 6 inches wide and 100 feet long were clipped from each treatment on April 24, 1957. The forage from these strips were weighed and piled up in the strip so that those attending the range tour could see them. Random samples from each strip were also taken and brought to the lab. Each sample was weighed, dried in the oven, and reweighed. From these weight figures the yield of dry matter per acre was determined. Below are the results.

Treatments & Rates Per Acre	Wt. of Forage From 3'6" x 100' Strip	Green Weight Per Acre	Dry Weight Per Acre	Moisture % of Green Wt. Material
50 N & 80 P Ammonium sulfate & single superphosphate	126 lbs.	15,681 lbs.	4,704 lbs.	71%
80 P	29 lbs.	3,609 lbs.	1,002 lbs.	71%
15 N Aqua ammonia	28 lbs.	3,484 lbs.	1,200 lbs.	69%
30 N Aqua ammonia	55 lbs.	6,845 lbs.	2,280 lbs.	70%
50 N Aqua ammonia	70 lbs.	8,712 lbs.	3,291 lbs.	66%
15 N & 80 P Ammonium sulfate & single superphosphate	96 lbs.	11,947 lbs.	3,583 lbs.	73%
Check plot	14 lbs.	1,742 lbs.	464 lbs.	76%

The exploratory plot using ammonium nitrate, treble superphosphate, and gypsum showed no response from gypsum. Best response were obtained from N and P. The responses were identical to those shown in the larger plot.

MARSHEYVILLE PLOTS (Sand side)

Strips 3 feet, 6 inches wide and 100 feet long were clipped from each treatment on April 24, 1937. The forage from these strips were weighed and piled up in the strip so that those attending the range tour could see them. Random samples from each strip were also taken and brought to the lab. Each sample was weighed, dried in the oven, and reweighed. From these weight figures the yield of dry matter per acre was determined. Below are the results.

Treatments & Rates Per Acre	Wt. of Forage From 3'6" x 100' Strip	Green Weight Per Acre	Dry Weight Per Acre	Moisture % of Green Wt. Material
50 N & 80 P Ammonium sulfate & single superphosphate	126 lbs.	15,661 lbs.	4,704 lbs.	71%
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15 N Aqua ammonia	28 lbs.	3,484 lbs.	1,200 lbs.	69%
30 N Aqua ammonia	55 lbs.	6,845 lbs.	2,280 lbs.	70%
50 N Aqua ammonia	70 lbs.	8,712 lbs.	3,291 lbs.	66%
15 N & 80 P Ammonium sulfate & single superphosphate	96 lbs.	11,947 lbs.	3,589 lbs.	73%
Check plot	14 lbs.	1,742 lbs.	464 lbs.	76%

The exploratory plot using ammonium nitrate, treble superphosphate, and gypsum showed no response from gypsum. Best response were obtained from N and P. The responses were identical to those shown in the larger plot.

DR. LAWRENCE RANCH (West side hills)

Strips 3 feet, 6 inches wide by 100 feet long were cut from each treatment on April 23, 1957. The forage from the strips was weighed and piled up in each respective strip for the tour which came later in the day. Random samples of the forage from the strips were brought to the lab. These were weighed, dried in the oven, and reweighed. From these weight figures the yield per acre of dry matter was determined. Below are the results.

Materials Used	Rate per Acre	Wt. of Forage on 3'6" x 100 ' strip	Projected Green Wt. per Acre	Projected Dry Wt. per Acre	% Moisture of Green Material
20-20-0	250 lbs.	4 lbs.	498 lbs.	149 lbs.	73%
20-20-0	400 lbs.	9 lbs.	1,120 lbs.	360 lbs.	71%
20-20-0	500 lbs.	15 lbs.	1,867 lbs.	622 lbs.	70%
20-20-0	700 lbs.	12 lbs.	1,493 lbs.	398 lbs.	76%
Treble super-phosphate	400 lbs.	20 lbs.	2,489 lbs.	719 lbs.	74%
13-39-0	250 lbs.	19 lbs.	2,364 lbs.	814 lbs.	69%
Ammonium nitrate	250 lbs.	52 lbs.	6,472 lbs.	1,869 lbs.	74%
Check*		18 lbs.	2,240 lbs.	796 lbs.	68%

* This check was on a southern exposure adjacent to the ammonium nitrate. Unfortunately no check clippings were made from plots adjacent to the other/which were on the north slope.
plots

DR. LAWRENCE RANCH (Weak side hills)

Strips 3 feet, 6 inches wide by 100 feet long were cut from each treatment on April 23, 1937. The forage from the strips was weighed and piled up in each respective strip for the tour which came later in the day. Random samples of the forage from the strips were brought to the lab. These were weighed, dried in the oven, and reweighed. From these weight figures the yield per acre of dry matter was determined. Below are the results.

Materials Used	Rate per Acre	Wt. of Forage on 3'6" x 100 ' strip	Projected Green Wt. per Acre	Projected Dry Wt. per Acre	% Moisture of Green Material
20-20-0	250 lbs.	4 lbs.	498 lbs.	149 lbs.	73%
20-20-0	400 lbs.	9 lbs.	1,120 lbs.	360 lbs.	71%
20-20-0	500 lbs.	15 lbs.	1,867 lbs.	622 lbs.	70%
20-20-0	700 lbs.	12 lbs.	1,493 lbs.	398 lbs.	76%
Treble superphosphate	400 lbs.	20 lbs.	2,489 lbs.	719 lbs.	74%
13-39-0	250 lbs.	19 lbs.	2,364 lbs.	814 lbs.	69%
Ammonium nitrate	250 lbs.	52 lbs.	6,472 lbs.	1,859 lbs.	74%
Check*		16 lbs.	2,240 lbs.	756 lbs.	66%

* This check was on a southern exposure adjacent to the ammonium nitrate. Unfortunately no check clippings were made from plots adjacent to the other which were on the north slope.

plots