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John Anderson, County Director, Mariposa County

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We are enclosing herewith the results of theTime and Source experiments which were carried out at Piney Creek last year. We are also enclosing data from the Jury plot in Tuolumne County which you helped us harvest. Les Berry and I have gone over the data from these plots in considerable detail and have had the data go through the Riverside computer and had it interpreted there through the courtesy of Tom Little.

We have tabulated on the attached sheet the fresh yield as harvested, together with the percent dry matter from each treatment and the yield of dry matter obtained by multiplying the fresh yield by percent dry matter. We have also listed the relative yields as a percent of the untreated.

The fresh weight of forage harvested showed a response to phosphorus without sulfur, but a much greater response to phosphorus if sulfur was applied. There was no effect of time of phosphorus application. There were slight but not significant effects of sulfur in the absence of phosphorus but clear cut responses to sulfur with phosphorus. There were no differences between elemental sulfur and gypsum that were consistent. At this location, phosphorus was the first limiting factor and sulfur the second.

The percent dry matter was highest on the non-fertilized plots. Phosphorus treatments, which stimulated clover, reduced the percent dry matter by increasing succulence. Sulfur or sulfate alone had no effect upon dry matter, but did reduce the percent dry matter when applied with phosphorus. It did this by further increasing the proportion of clover in the vegetation.

The dry matter produced per acre, as listed in the third column, showed only a slight benefit of phosphorus without sulfur, but a very good benefit from phosphorus if sulfur were applied. It showed no significant benefit from sulfur or gypsum in the absence of phosphorus but a good response if phosphorus had been added.

Your plot was one of the few in which we seperated out clovers from grasses. Dry weight of clover and grass are shown in the last two columns. Here we may see that phosphorus alone increased growth of clover, and did so more if sulfur was present. The grass fraction was clearly increased by early P but not by late P. I would suspect that we had more grass growth in the winter when P or PS were applied early, but not by spring. Fertilized clovers probably outcompeted the grass, since nitrogen had been leached out of the soil.

We are also listing the carry-over effects of the 1965-1966 plots below:

1965-1966 Treatment	1966-1967 Yield Dry Lb/Ac.	Rel. Yield
check	1848	100
Gypsum	2550	138
TSP	2439	132
TSP & Gyp.	2587	140
K + TSP + Gyp	2901	157
TSPS (0-40-0-20 S)	4324	234
TSPS + Mo	4028	218
LSD	996	54

You will note a very very good carry-over from TSPS and TSPS + Mo, and only slight effects from gyp TSP or combinations.

We saw no benefit from molybdenum at this location. Insofar as the overall results are concerned, the best first-year treatment was super-fortified treble phosphate applied early, but it was not significantly better than single superphosphate. We will wish to harvest these plots again next year and to determine the effects of the individual treatments. We would expect if results are the same as in the carry-over plots that we might get quite a difference in favor of the elemental sulfur with phosphorus next season.

Encs.

TIME & SOURCE OF P & S: FIRST SEASON RESULTS

County: Mariposa
Cooperator: Piney Creek
Date applied: E 11/3/66 L 1/19/67
Date harvested: 5/19/67

Material & Rate	Material & Time Applied	Yield Fresh Wt. Lbs./Ac.	Percent Dry Matter	Yield Dry Wt. Lbs./Ac.	Yield as Percent of Untreated
1. None	--	5505	38.85	2131	100
2. 187 lbs. TSP	P_E	11114	30.59	3152	148
3. TSP	P_L	9215	31.42	2868	135
4. 300 lbs. Gypsum	SO_{4E}	9076	31.85	2885	135
5. 500 lbs. SSP (0-21-0-12 SO_4S)	P_ESO_{4E}	1477	29.66	4278	201
6. Gypsum + TSP	P_LSO_{4E}	1392	27.27	3795	178
7. 50 lbs. Elemental S	S_E	8936	30.83	2750	129
8. 250 lbs. TSPS (0-40-0-20 S)	P_ES_E	13866	34.96	4849	227
9. El. S + TSP	P_LS_E	12386	31.38	3891	182
10. Gypsum	SO_{4L}	6724	32.86	2195	103
11. TSP + Gypsum	P_ESO_{4L}	14006	28.52	3938	185
12. SSP	P_LSO_{4L}	14110	30.09	4215	198
13. El. S	S_L	9947	29.77	2967	139
14. TSP + El. S	P_ES_L	14215	27.62	3922	184
15. TSPS	P_LS_L	12630	30.43	3842	180
16. TSPS + Mo	P_ES_EMo	14162	31.40	4396	206
L.S.D. (between individual treatments)		4912	6.20	1160	54
Coefficient of Variation		20.2%	9.3 %	15.7%	
Major Response		P,PS	PPS	P,PS	