

Project Title: Effects of Sulfur Fertilizer Sources on Alfalfa Yield and Quality – 2013

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Objective: To evaluate the effects of sulfur fertilizer sources on alfalfa yield and quality.

Results:

Four sulfur based fertilizer formulations were compared to evaluate the impact on alfalfa yield and quality. The experimental design was a randomized complete block with four replications. Sulfur treatments were applied at a rate of 60 lb/A on April 3 when the crop averaged 2 inches in height. Crop year (starting September 1, 2012) precipitation received prior to first harvest was 16.41 inches and prior to second harvest was 17.21 inches. The second cutting received an additional 3.2 inches of irrigation water.

Significant yield differences were observed at first harvest, with higher hay yields being observed for the check compared to Vitasul. There were no differences in yield during the second harvest, and there were no differences in quality among the treatments at either harvest. In short, sulfur did not appear to improve alfalfa yield or quality.

Table 1. Material and Methods - Alfalfa sulfur - 2013

Seeding Date:	6/1/11	Fertilizer:	0-50-200-60
Julian Date:	152	Herbicide:	2011
Seeding Rate:	14 lb/A		Raptor 5 OZ/A
Previous Crop:	Barley		
Tillage:	Conventional	1st Harvest Date:	6/27/13
Irrigation:	None	Julian Date:	178
Soil Type:	Kalispell vfs1	2nd Harvest Date:	8/6/13
Soil Test:	105-14-148-40	Julian Date:	218

Table 2. Effects of sulfur fertilizer sources on alfalfa yield and quality – 2013

Treatment	HT in	Harvest 1					Harvest 2				
		YLD ton/A	CP -----%	SP -----%	Sulfur	RFV	YLD ton/A	CP -----%	SP -----%	Sulfur	RFV
1 Vitasul	41	2.6	17.9	48.0	0.7	115.0	1.1	20.3	44.8	0.3	163.0
2 Tiger	41	3.3	17.3	49.5	0.5	116.3	1.2	21.2	44.3	0.3	163.8
3 Gypsum	38	2.8	18.0	47.8	0.5	117.8	1.3	22.2	45.5	0.3	168.8
4 Potassium sulfate	39	3.1	18.5	49.0	0.3	116.3	1.4	21.7	45.3	0.3	171.8
5 S check	37	3.2	18.8	50.8	0.6	123.0	1.4	22.2	47.0	0.3	165.3
Mean	39	3	18	49	1	118	1	22	45	0	167
CV	8	10	8	5	30	7	29	6	8	8	7
LSD	4.77	0.44	2.19	3.87	0.24	13.15	0.56	2.11	5.64	0.04	16.73
Pr>F	0.2051	0.0304	0.6348	0.4782	0.0784	0.7074	0.7786	0.3124	0.8572	0.5258	0.765

HT: height, YLD: yield, CP: crude protein, SP: soluble protein, RFV: relative feed value