Polysulphate Trial

Alfalfa
(Medicago sativa) on a silt loam

Polysulphate fertilizer is a soluble, easily-absorbed, cost-effective answer to crop nutrition, containing four key plant nutrients: sulfur, potassium, magnesium, and calcium.

S	19.2% S
K	14% K_2O
Mg	3.6% Mg
Ca	12.2% Ca

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When

Planting Date:
April 10, 2021
Harvest Date: June 1, July 8, August 19, September 20, 2022

Where

Whitewater, Wisconsin USA (Agri-Tech Consulting LLC)

Crop

Alfalfa
(Medicago sativa)

Soil type

Matherton silt loam

Measurements

Yield and forage quality

Mined in the UK, ICL is the first – and only – producer in the world to mine polyhalite, marketed as Polysulphate.

Polysulphate

Twitter.com/FertilizerpluS
YouTube.com/c/Polysulphate-fertilizer
Facebook.com/Polysulphate

www.polysulphate.com

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For more information visit
www.icl-growingsolutions.com

Objective

Demonstrate the benefit of granular Polysulphate as an annual top-dress application, applied after first cutting, in combination with MOP to target potassium and sulfur removal requirements for 6 ton/acre/yr alfalfa production in the upper Midwest.

Treatments

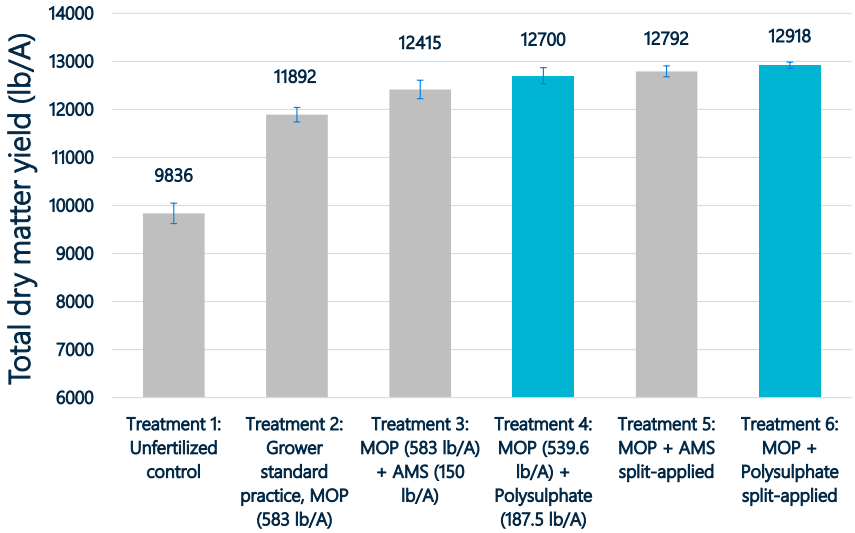
An unfertilized control (treatment 1) received no supplemental K or S. Three treatments; 2) a grower standard practice (GSP) receiving MOP at 583 lbs/A, 3) MOP (583 lbs/A) + AMS (150 lbs/A), and 4) MOP (540 lbs/A) + Polysulphate (187.5 lbs/A); were designed to supply the K and S removed by a 6 ton/acre/yr alfalfa crop. These treatments were top-dressed between 1st and 2nd cutting on June 10th, 2022. An additional two treatments received the same fertilizer sources and total amounts as treatments 3 and 4 but were split-applied on June 10 and August 26 (after 3rd cutting) according to local practices for intensively managed alfalfa production. All treatments were replicated four times in an RCBD.

Results

Supplying only K increased total cumulative yield by approximately 1 ton/A. On average, providing S resulted in an additional 0.4 ton/A cumulative yield gain.

Treatment differences were most pronounced at the 4th cutting. Comparing one-time fertilizer applications (treatments 2, 3, and 4), the MOP + Polysulphate treatment had the highest 4th cutting yield and cumulative yield demonstrating the value of a sustained release source of S for alfalfa production. Split-applications of K and S (treatments 5 and 6) resulted in the greatest 4th cutting yields.

Sulfur fertility promoted increases in quality parameters like crude protein, relative feed quality, and milk per ton of hay (data not shown).



Bars represent treatment means ± the standard error of the mean (n=4).

Conclusion

- Providing adequate soil fertility is crucial for maintaining alfalfa productivity and quality. Polysulphate in combination with MOP is an excellent source of K and S for season-long release of nutrients to replace those removed with each cutting.

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