



Potassium Source Comparison in Alfalfa (21-301)

Experiment Info:

Planted:	8/25/2020
Harvest:	06/29/2021
Yield Goal:	2 ton/A
Target Fert.:	0-76-156
Variety:	P55VR08
Population:	
Row Width:	7.5"
Prev. Crop:	Wheat
Plot Size:	10 X 44
Replications:	3

Soil Test Values (ppm):

pH:	7
CEC:	7.3
%OM:	1.6
Bray P1:	15
Bicarb P:	12
K:	67
S:	11
%K:	2.4
%Mg:	16.7
%Ca:	80.1
%H:	
Zn:	1.1
Mn:	7
B:	.5

Objective:

To show that the potassium in Sure-K is more effective than another K source in terms of alfalfa yield and tissue absorption. Potassium acetate is a K source that is thought to be more effective than Sure-K for uptake and yield effects. An experiment was conducted in alfalfa to test equal rates of applied K₂O from LoKomotive (Nutrien) and Sure-K. The potassium in LoKomotive is potassium acetate and the product has an analysis of 2-0-25. Equal rates of K₂O were accurately applied to eight inch alfalfa after the 1st and 2nd cutting with a backpack sprayer with a deliver volume of 15 GPA at 41 psi with flat fan nozzles. On the second cutting crop, foliage samples were collected from a single replication at pre-application and at 4 and 24 hours after application. Samples were rinsed with water after collection, towel dried to remove moisture and sent to a lab for analysis. Plots were harvested for yield at 10% blossom by mowing a 43" swath with a cycle-bar mower. Alfalfa was collected, weighed and dried for yield determination. Yield and tissue test K are shown.

Dry Matter Weights (lbs/A) of 2nd and 3rd Cutting (Avg of 3 Reps)

	lb K ₂ O/A	2nd	3rd	Total	vs Check
1 Sure-K	2.24	1796	1368*	3164*	+ 324
2 LoKomotive	2.24	1772	1149	2921	+ 81
3 Check	0	1732	1108	2840	
	LSD(0.1):	NSD	222	139	

Potassium Uptake Over Time by Alfalfa- 2nd Cutting. (Non-replicated)

	lb K ₂ O/A	0 hr	4 hr	24 hr
1 Sure-K	2.24	3.33	3	3.56
2 LoKomotive	2.24	3.48	3.17	3.08
3 No Foliar	0	3.33	3.48	3.54

* - All of these levels are designated as High

Conclusions:

- There was no yield response to applied potassium at the second cutting. But for the third cutting, the Sure-K application yielded significantly higher than the check although the LoKomotive did not. For the total yield of both cuttings, the Sure-K produced significantly more alfalfa than both the check and the LoKomotive. This shows that the Sure-K is more effective.
- Tissue testing has always been a challenge. There was higher K in the check samples than in some of the treated samples. Plus, the treated samples did not increase tissue K after application. However, 2.24 lb of K₂O spread over an entire acre is very little per plant.