Foliar Application of Sure-K on Ryegrass Seed Yield

Precision Agricultural Research. Amity, OR - 2018

Experiment Info:	
Planted:	9/06/2017
Harvest:	7/20/2018
Yield Goal:	3000
Target Fert.:	40-0-0-6
Variety:	SR4650
Population:	
Row Width:	14"
Prev. Crop:	ryegrass
Plot Size:	4.7 x 35 ft
Replications:	5

Soil Test Values (ppm):	
pH:	5.4
CEC:	22
%OM:	3.3
Bray P1:	27
Bicarb P:	
K:	80
S:	12
%K:	1
%Mg:	4
%Ca:	46
%H:	48
Zn:	3.5
Mn:	5
B:	1

Objective:

Evaluate the effects of foliar applications of Sure-K on seed production of perennial ryegrass.

Perennial ryegrass is a premier cool season grass used for pastures and turf. The Pacific Northwest grows 85% of the seed used in the US and 40% of the world's seed. The majority of the seed growth is in the Williamette Valley in Western Oregon. Perennial ryegrass is planted in the fall and grown to seed yield in the next summer. One problem in growing seed is that there is severe lodging of the grass as it produces a seed head. Fortunately there is Palisade, a growth regulator for shortening tiller elongation and enabling grass standibility. Palisade is applied at stem elongation, usually in early May in this area. Potassium has been attributed to plant stalk strength and other nutrient needs, and a non-burning foliar potassium source like Sure-K may further lead to yield enhancement. In this experiment, Sure-K was combined with Palisade application to evaluate effects on yield of seed production. The two year results are presented in the following table.

Effect of Foliar-Applied Sure-K on Perennial Ryegrass Seed Production

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	% lodging*		Seed Production (lb/A)	
Treatment	2017	2018	2017	2018
Sure-K + Palisade (3 gal + 1.5 pt/A)	3.5	2.8	2777	2292
Palisade (1.5 pt/A)	25	7.4	2696	2181
(Difference:	*-21.5%*	*-4.6*	*+81 lb*	*+111 lb)*
Untreated control:	--	92	--	1531
LSD(0.05):	*4*	*3.7*	*NS*	*198*

* - Average visual estimation of plant lodging in plots.
2017: 52 Days after treatment; 2018: 32 Days after treatment.

2017: No signif. differences. 2018: LSD(0.2): 114. CV: 8.4%

Conclusions:

- Addition of Sure-K to the Palisade application resulted in a numerical yield increase each year.
- Sure-K did reduce lodging compared to Palisade alone. This difference was more pronounced in 2017, when the yields were higher. (2018 was a drier growing season leading to lower production). But lodging is a major problem for grass seed production, and the ability of Sure-K to reduce lodging is an advantage.
- Based on these results it appears that there is a benefit to the addition of Sure-K to application of Palisade for better standability and yield.