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UNIVERSITY OF WISCONSIN-MADISON

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UW – Madison Weed Science Renz Lab

2018 Kudos on Corn

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Objective:

Determine the impact of "over the top" applications of Kudos on corn silage yield and grain production.

Summary:

Averaged across hybrids, application timings and rates, Kudos reduced corn height, dry matter yields of silage and grain, and ears per plant, but modestly increased stem circumference compared to untreated controls (Table 1). Reductions in height and yield were most pronounced at the late timing and at the high rate of Kudos application. In general, the main effect of hybrid and interactions between hybrid and the rate and timing of Kudos application were not significant or had no meaningful effects on corn responses. Based on the results from this study and from a preliminary study carried out with one hybrid in 2017, Kudos application at 13 or 26 ounces per acre is not expected to provide agronomic benefits in terms of silage or grain yield to farmers.

Compared to the control, Kudos did not, however, reduce yields of grain (5.53 vs. 5.68 ton acre^{-1}) or silage (11.53 vs. 11.14 ton acre^{-1}) if applied at the lower rate of 13 ounces acre^{-1} at the early timing, which is normally when Kudos is applied via drop nozzle to treat alfalfa interseeded into corn. This suggests that low rates of Kudos could possibly be broadcast sprayed at this timing to treat interseeded alfalfa without adversely affecting yields of corn silage. Data from 2017 and 2018 also give an indication that low rates of early-applied Kudos may slightly increase the proportion of grain in silage and this in turn could improve its feeding value for livestock. These aspects should be investigated further in 2019 because broadcast

sprays of Kudos would be much more workable to apply on farms and improvements in feeding value could offset any reductions in corn silage yield caused by Kudos application.

Research Plot Information:

Plot Dimensions: 10 by 25 feet

Design: Randomized Complete Block, 4 blocks

Soil Type: 71% Plano silt loam, 2 – 6 percent slopes, Saybrook silt loam, 2 – 6 percent slopes

Notes:

- Application 1 corn height (June 12th, 2018): 1.4 feet
- Application 2 corn height (June 22nd, 2018): 2.6 feet

Treatments:

Treatment Number	Corn Variety	Treatment	Rate	Timing
1	Agrigold 6346	Kudos Crop Oil Concentrate (COC) Ammonium Sulfate (AMS) Citric Acid	13 ounces per acre (oz/A)	Early
2	Agrigold 6346	Kudos COC AMS Citric Acid	26 oz/A	Early
3	Agrigold 6346	Kudos COC AMS Citric Acid	13 oz/A	Late
4	Agrigold 6346	Kudos COC AMS Citric Acid	26 oz/A	Late

5	Dairyland 3105RA	Kudos COC AMS Citric Acid	13 oz/A	Early
6	Dairyland 3105RA	Kudos COC AMS Citric Acid	26 oz/A	Early
7	Dairyland 3105RA	Kudos COC AMS Citric Acid	13 oz/A	Late
8	Dairyland 3105RA	Kudos COC AMS Citric Acid	26 oz/A	Late

Application:

Date: June 12th 2018, June 22nd 2018

Equipment: Backpack sprayer (20 GPA); 10ft boom

Nozzles: Eight (8) Flat Tip XR TeeJet 11002 VS; 15in nozzle spacing

Regulator PSI: 38

Boom PSI: 26

Weather Data:

Weather Station	KWIARLIN2
Temperature	78°F / 71°F
Wind Speed and Direction	7 mph SE / 1mph NE
Relative Humidity	92% / 89%
Previous Rain Event Within 48 Hours	06.10.18 – 0.66 inches / 06.21.18 – 0.29 inches
When ≥ 0.25 inches of precipitation occurred after treatment	06.15.18 – 1.1 inches / 06.26.18 – 0.46 inches

Results:

Table 1. Effect of Kudos treatments on dry matter yield of silage and grain from two hybrids.

Treatments	Corn Height	Stem Circumference	Silage Yield	Grain Yield	Ear
	feet	centimeters	ton acre^{-1}	ton acre^{-1}	plant^{-1}
Control	8.63	8.06	11.53	5.53	1.040
Kudos timing					
Early	7.83	8.46	10.83	5.52	1.021
Late	6.76	8.29	10.03	4.84	1.016
Kudos rate					
13 oz acre^{-1}	7.55	8.29	10.77	5.35	1.013
26 oz acre^{-1}	7.04	8.46	10.08	5.02	1.025
ANOVA *P*-values					
Control vs.	0.001	0.03			
Kudos			0.002	0.005	0.013
Timing	0.001	NS	0.007	0.0001	NS
Rate	NS	NS	0.014	0.003	NS

NS = not significant at $P = 0.05$.