

EVALUATION OF PALISADE ON KENTUCKY BLUEGRASS, 2000

M.D. Butler

Research evaluating Palisade on ryegrass in the Willamette Valley from 1997-1999 indicates reduced lodging and increased yields with application of the growth regulator. Although lodging is not often a problem in Kentucky bluegrass grown in central Oregon, a cost-effective method of increasing yields would generate interest in the industry for Palisade. First year research using Palisade on Kentucky bluegrass during 1999 provided promising increases in yield.

Plots 10 ft x 25 ft were replicated four times in a randomized complete block design in a commercial 'Geronimo' Kentucky bluegrass field near Madras, Oregon. The first treatment of Palisade was applied at 200, 400, and 600 g a.i./ha to plots on April 26 at Feekes 7 when one to two nodes were detectable. A second set of plots was treated at the three rates on May 10 at Feekes 10.1 when the head was just becoming visible. The late treatments were applied May 22 at Feekes 10.4, when heads extended just above the flag leaf. Treatments were applied with a CO₂-pressurized, hand-held boom sprayer at 40 psi and 20 gal/a water using TeeJet 8002 nozzles. Plots were evaluated for plant height on May 26, June 12 and June 29. No lodging had occurred by May 12, but lodging was evaluated on June 12 and June 29.

Prior to harvest, a Jari mower was used to cut 3-foot alleyways across the front and back of each row of plots. A 3 x 22 foot

portion of each plot was harvested with a research-sized swather June 29. Samples were placed in large bags and hung in an equipment shed to dry, and then transported to Corvallis for combining with a Hege 180 and was subsequently cleaned at the Hyslop Farm. Thousand seed counts were conducted using the seed-conditioning lab at the National Forage Seed Production Research Center, and germination testing was done at the Central Oregon Agricultural Research Center.

Yields were increased 36 percent by Palisade applied at 400 g a.i./ha from detection of the first and second node (Feekes 7) to when the head just becomes visible (Feekes 10.1) compared to untreated plots. Palisade at 600 g a.i. did not increase yields over the 400 g a.i./ha rate for any of the three application timings. On the early application date (Feekes 7) the 400 g a.i./ha rate significantly increased yields over the 200 g a.i./ha rates, as well as the untreated plots.

Increasing the rate of Palisade application increasingly reduced plant height and lodging. The late application when the heads extended just above the flag leaf (Feekes 10.4) produced the greatest reduction in plant height and lodging. Plants out-grew earlier Palisade applications when the first and second nodes were detectable (Feekes 7) and the head were just visible (Feekes 10.1).

There were no significant differences between treatments for weight per 1,000 seeds. There were differences in percent germination, but all Palisade treatments had equal or greater percent germination than the untreated plots.

Table 1. Effect of Palisade growth regulator on plant height and lodging of Kentucky bluegrass, Madras, OR, 2000.

Treatment	Application date	Plant height			Lodging	
		May 26	June 12	June 29	June 12	June 29
(g a.i./ha)		------(inches)-----			----- (%) -----	
200	4/26	20.3 abc	27.8 bc	28.8 abc	33 b	48 ab
400	4/26	17.3 d	26.5 d	28.3 abc	0 c	5 cd
600	4/16	14.8 e	25.0 e	27.0 cd	0 c	0 d
200	5/10	21.5 ab	28.5 ab	29.0 ab	8 bc	30 bc
400	5/10	18.5 cd	27.3 cd	28.3 abc	5 c	18 cd
600	5/10	16.8 d	26.3 d	27.5 bc	1 c	0 d
200	5/22	21.5 ab	26.8 cd	28.3 abc	3 c	6 cd
400	5/22	20.5 ab	24.5 e	25.5 de	0 c	0 d
600	5/22	20.0 bc	22.8 f	23.8 e	1 c	0 d
Untreated	----	22.0 a	29.3 a	29.8 a	63 a	65 a

Mean separation with LSD $P \leq 0.05$.

Table 2. Effect of Palisade growth regulator on yield, thousand seed weight and percent germination of Kentucky bluegrass, Madras, OR, 2000.

Treatment	Application date	Seed yield	Percent of check	Above ground biomass	1,000 seed weight	Germination
(g a.i./ha)		(lb/ac)	(%)	(ton/a)	(g)	(%)
200	4/26	2,140 ab	108 ab	3.8 ab	0.438	93.5 c
400	4/26	2,708 c	136 c	4.1 ab	0.432	90.3 bc
600	4/16	2,617 bc	132 ab	3.7 b	0.430	90.0 bc
200	5/10	2,214 abc	111 abc	4.2 ab	0.440	87.7 bc
400	5/10	2,713 c	136 c	4.7 a	0.431	87.5 bc
600	5/10	2,221 abc	112 abc	4.5 ab	0.437	85.7 bc
200	5/22	2,482 abc	125 abc	4.6 a	0.426	85.4 bc
400	5/22	2,377 abc	120 abc	4.0 ab	0.430	82.2 ab
600	5/22	2,362 abc	119 abc	4.1 ab	0.436	81.0 ab
Untreated	----	1,989 a	100 a	4.1 ab	0.431	76.2 a
					n.s.	

Mean separation with LSD $P \leq 0.05$.