



LOW RATE PGR APPLICATIONS ON KENTUCKY BLUEGRASS

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Plant growth regulators (PGR's) are rapidly gaining importance in both the ornamental and food crop industries. However, their use in turfgrass management remains limited, particularly with respect to home lawn care. Although growth suppressing PGR applications can save time and money through reduced mowing requirements, several problems frequently occur in treated sites, including turf discoloration, thinning, and increased susceptibility to certain diseases.

This study investigates the potential for avoiding the disadvantages of PGR use by making repeated applications of lower-than-normal rates on Kentucky bluegrass cv. Fylking. Applying less chemical per unit area at one time may reduce apparent injury symptoms, while repeated applications should keep plant growth in check. PGR treatments include Embark, Cutless, Limit, and PP-333; each sprayed on biweekly and monthly time intervals. In addition to single chemical applications, four treatments consist of two PGR combinations at various rates: Embark + PP-333 and Limit + PP-333. Since each of these compounds exhibits a different effect on the plant system, combining them may lead to more complete growth suppression even at very low rates.

To evaluate mowing requirements, turf height of individual plots is measured on a regular basis until it reaches 3 inches high, at which point it is cut to 2 inches. The mowing frequencies given in Table 1 show that biweekly applications reduce the number of cuttings more than monthly applications. The greatest level of growth suppression for the biweekly treatments reduced the number of mowings by about 75% and occurred with Embark at 1/16 lb ai/A, Cutless at 0.5 lb ai/A, and PP-333 at both 0.25 and 0.5 lb ai/A. Monthly applications of PP-333 at 0.5 lb ai/A alone or in combination with Embark also resulted in approximately 75% fewer mowings.

Turf quality data, shown in Table 2, indicates that most of the treated plots were similar to the check plots. Biweekly applications of Embark, however, produced significant thinning and browning. PP-333 applied monthly at 0.5 lb ai/A resulted in a thick, dark green stand with quality ratings higher than the check.

TABLE 1. Effect of repeated low-rate PGR applications on mowing frequency.

<u>PGR treatments</u>		<u>No. mowings/month+</u>
Biweekly applications		
1.	Embark 1/16 lb. ai/A	0.7
2.	Embark 1/32	2.7
3.	Limit 1.0	2.7
4.	Limit 0.5	3.0
5.	EL-500 0.5	1.0
6.	EL-500 0.25	2.0
7.	PP-333 0.5	1.0
8.	PP-333 0.25	1.3
Monthly applications		
9.	Embark 1/16 lb. ai/A	2.0
10.	Embark 1/32	2.3
11.	Limit 1.0	4.0
12.	Limit 0.5	4.0
13.	EL-500 0.5	2.7
14.	EL-500 0.25	2.7
15.	PP-333 0.5	1.0
16.	PP-333 0.25	2.7
17.	Embark + PP-333 1/16 + 0.5	0.7
18.	Embark + PP-333 1/32 + 0.25	1.3
19.	Limit + PP-333 1.0 + 0.5	2.0
20.	Limit + PP-333 0.5 + 0.25	3.3
21.	Check	<u>4.0</u>

LSD_{.05} = 1.1

+Individual plots were mowed to 2 inches when turf height reached 3 inches.

TABLE 2. Effect of repeated low-rate PGR applications on turf quality+.

PGR treatments	Quality ratings++				
	7/23	8/6	8/13	8/22	
Biweekly applications					
1. Embark 1/16 lb ai/A	7.7	5.7	4.7	3.0	
2. Embark 1/32	9.0	5.3	5.7	5.0	
3. Limit 1.0	8.3	5.7	5.3	6.3	
4. Limit 0.5	9.0	5.3	6.3	5.7	
5. EL-500 0.5	8.3	7.7	7.3	6.0	
6. EL-500 0.25	9.0	6.3	6.3	7.0	
7. PP-333 0.5	9.0	8.7	8.3	7.3	
8. PP-333 0.25	8.7	7.7	7.7	7.0	
Monthly applications					
9. Embark 1/16 lb ai/A	8.3	6.0	6.3	6.3	
10. Embark 1/32	9.0	6.0	6.0	6.0	
11. Limit 1.0	9.0	5.3	5.7	6.3	
12. Limit 0.5	9.0	4.3	6.0	5.7	
13. EL-500 0.5	8.3	6.0	6.0	6.7	
14. EL-500 0.25	9.0	5.7	6.3	6.0	
15. PP-333 0.5	9.0	8.0	7.0	8.0	
16. PP-333 0.25	9.0	7.0	7.3	6.3	
17. Embark + PP-333 1/16 + 0.5	8.0	5.7	5.7	6.3	
18. Embark + PP-333 1.32 + 0.25	9.0	7.0	5.7	6.3	
19. Limit + PP-333 1.0 + 0.5	9.0	7.7	6.3	7.0	
20. Limit + PP-333 0.5 + 0.25	8.7	5.0	6.0	6.7	
21. Check	8.7	5.7	6.7	5.7	
	LSD .05 =	0.7	1.5	1.0	1.8

+ First application: 7/15/86

++ Quality ratings based on a scale of 0-9; 0 = poor, 9 = excellent.