USING GROWTH REGULATORS AS PART OF A LAWN CARE PROGRAM

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Turf managers are always looking for an edge to improve the quality of their turf. Plant growth regulators have been tried on home lawns in the past with mixed success. Turf discoloration and loss of quality were often too big a price to pay for a reduction in mowing frequency.

While PGRs may still be a luxury item for many turf management companies, a relatively new PGR, trinexapac-ethyl (Primo), has potential to reduce clippings while improving turf quality. Can this PGR be cost effective in a lawn maintenance setting? I don't know the answer to that question, but we do know the strengths and weaknesses of this relatively new product.

In 1996 and 1997, we initiated a set of experiments to determine the fit of Primo in the lawn care market. Most trials using Primo on golf turf have an application interval of 4 weeks or less. Our objective was to determine if a 6 week application schedule, the normal schedule for a lawn maintenance company, would provide good turf quality. The concern with a six week application interval is the so called "rebound" effect. Most PGRs that inhibit turfgrass growth usually result in a growth surge or rebound after the PGR wears off. The growth surge may reduce much of the gain in clipping reduction from the PGR.

Our trial compared applications made every 4 weeks versus every 6 weeks to a Kentucky bluegrass turf. We also examined the effect of nitrogen fertility by having each PGR treatment receive two different rates of nitrogen fertility, either 3 lbs N/M/yr or 6 lbs N/M/yr. Each application interval received 3 rates of Primo plus a control. The 4 week interval received Primo rates of 0.45, 0.60, and 0.75 oz/M. The 6 week interval received rates of 0.60, 0.75, and 0.90 oz/M. Clippings were collected weekly beginning with the first PGR application and were continued throughout the growing season.

The results obtained in this study were quite interesting. The Primo-treated turf showed greater overall turf quality throughout most of the study. After an initial slight drop in quality following the first application, turf quality was consistently around 15% higher than the control plots throughout the summer (Figure 1). Treated turf had better color and density and because of the growth regulation, looked more uniform than the control turf.

Clipping reduction was evident from all treatments (Figures 2 & 3). All treatments provided good clipping reduction during the spring growth flush. The Primo treatments applied on four week spacing provided better growth reduction and reduced the rebound effect. However, the six week application interval still provided acceptable growth reduction particularly at the 3 lb N/M/yr nitrogen regime. The 6 lb N/M/yr nitrogen program increased clipping yields and increased the rebound effect, particularly in the late summer (see Figure 2).

Where might this program fit? Companies that provide complete lawn maintenance including mowing and fertilization might consider this program as a way to reduce labor costs particularly in the spring when turf growth is very rapid. Further, very high quality lawns may benefit from the gains in turf quality observed when using PGRs.

While the current generation of PGRs may not be widely used on home lawn and commercial turf, Primo is getting close to being a useful tool for turf maintenance companies.

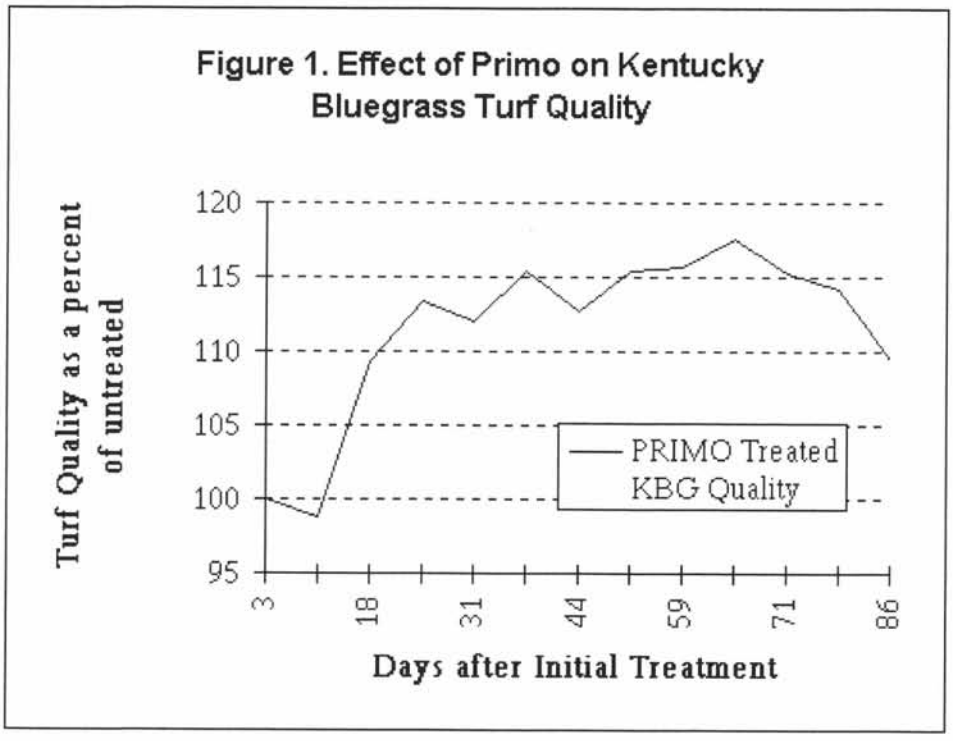
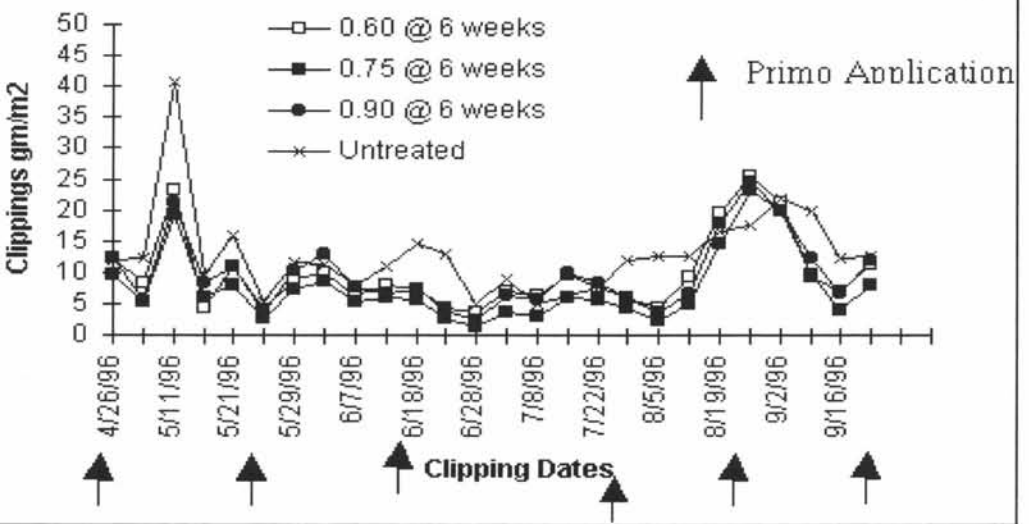
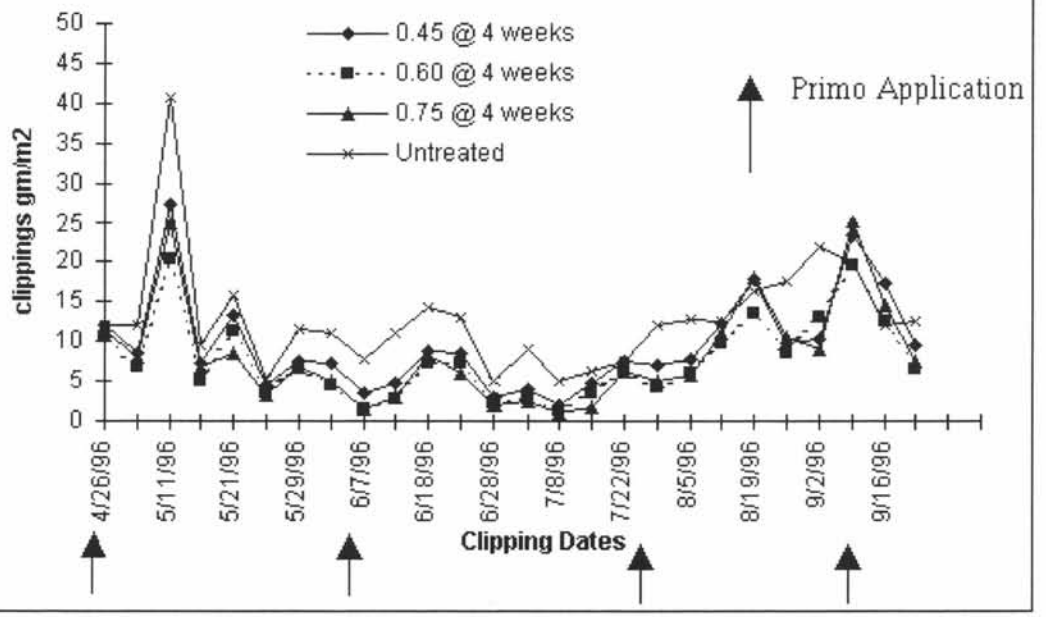


Figure 1. Effect of Primo on Kentucky Bluegrass Turf Quality
Turf Quality as a percent of untreated
120
115
110
105
100
95
3
18
31
44
59
71
86
PRIMO Treated KBG Quality
Days after Initial Treatment

Figure 2. Clipping Production with Primo Applications Every 6 Weeks and 3 lbs N/M/Yr



Clipping Production with Monthly Primo Applications at 3 lbs N/M/Yr



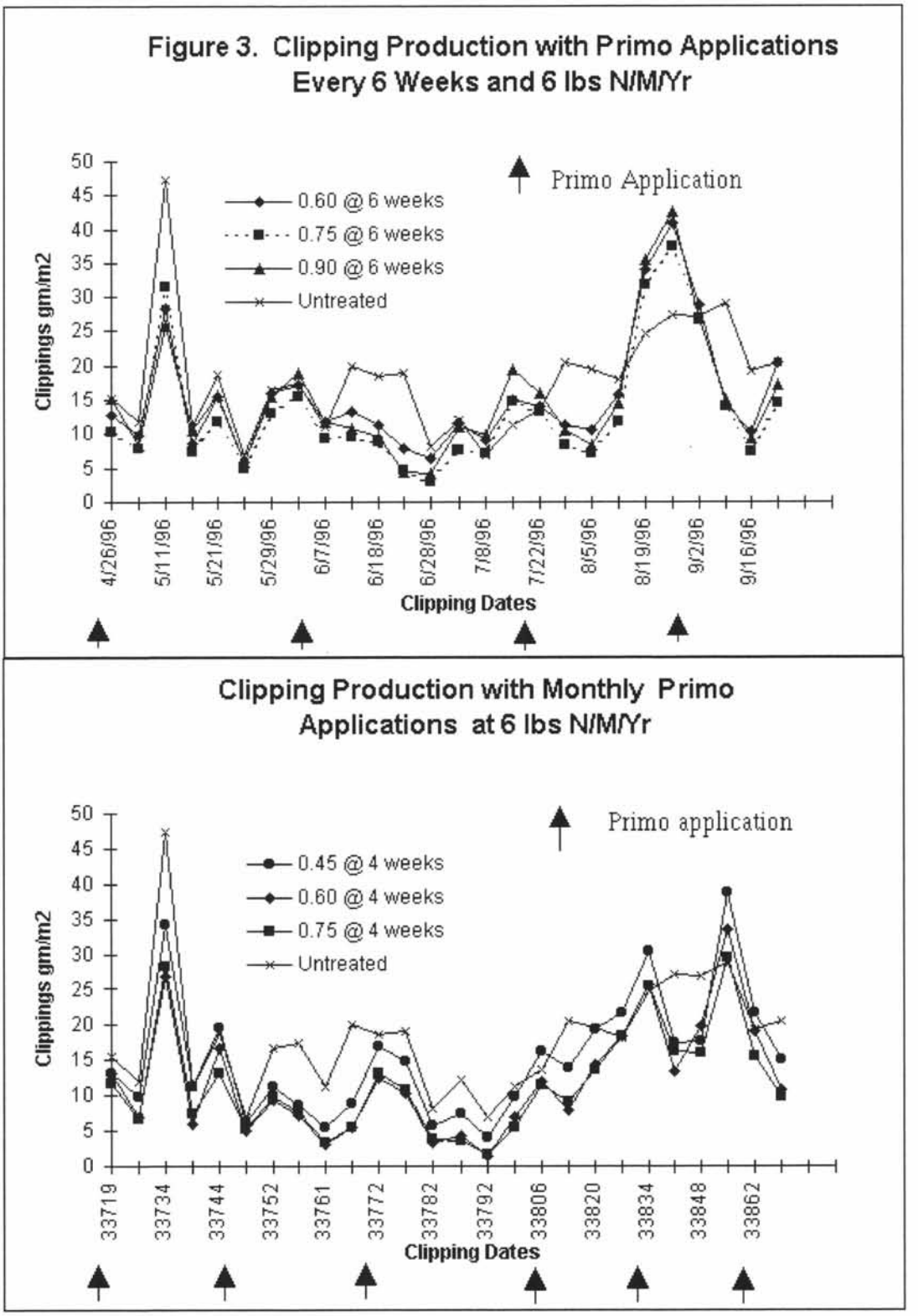


Figure 3. Clipping Production with Primo Applications Every 6 Weeks and 6 lbs N/M/Yr
Primo Application
0.60 @ 6 weeks
0.75 @ 6 weeks
0.90 @ 6 weeks
Untreated
Clippings gm/m2
50
45
40
35
30
25
20
15
10
5
0
4/26/96
5/11/96
5/21/96
5/29/96
6/7/96
6/18/96
6/28/96
7/8/96
7/22/96
8/5/96
8/19/96
9/2/96
9/16/96
Clipping Dates
Clipping Production with Monthly Primo Applications at 6 lbs N/M/Yr
Primo application
0.45 @ 4 weeks
0.60 @ 4 weeks
0.75 @ 4 weeks
Untreated
Clippings gm/m2
33719
33734
33744
33752
33761
33772
33782
33792
33806
33820
33834
33848
33862
Clipping Dates