

Plant Growth Regulator Application on Cow Grass - In-Situ Trials

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Background

Preliminary trial conducted by the Centre for Urban Greenery and Ecology (CUGE) at HortPark has shown that the application of Plant Growth Regulator (PGR) on cow grass (*Axonopus compressus*), seashore paspalum (*Paspalum vaginatum*) and manila grass (*Zoysia matrella*) reduced the shoot height and the clipping yield of all the turf grasses tested. The results had clearly shown that PGR helped to reduce the mowing frequency of cow grass. Although the preliminary trial was very promising; we want to know whether similar results can be replicated in the field. Therefore, we conducted in-situ trials using streetscape turf sites.

Methodology



Fig. 1 Selected sites - Tuas South Avenue 1 - Central divider (**left**) & road side (**right**)



Fig. 2 Selected sites - Admiralty Road East - Central divider (**left**) & road side (**right**)



Fig. 3 Selected sites - Loyang Avenue - Central divider (**left**) & road side (**right**)

CUGE, in collaboration with Streetscape Division, conducted this 6-month study. Trinexapacetyl was applied on three different sites with *Axonopus compressus*. The three sites identified for this study were the road side turf and centre dividers of Tuas South Avenue 1 (Fig. 1), Admiralty Road East (Fig.2) and Loyang Avenue (Fig.3). Experimental plots (three control and three treatment plots) were then marked out on these sites. All the grasses on these plots were mowed but PGR, at a concentration of 1.5l/ha, was sprayed on the mowed grasses for the treatment plots only. The grasses were left uncut for a period of 10 weeks until the treatment plot grasses reached 9-10 cm height. This process of grass mowing, spraying of PGR (on treatment plots only), and leaving it uncut for 10 weeks was repeated over three cycles in total. The parameters that were measured were turf quality shoot height, turf density, DGCI (Dark green colour index) and chlorophyll content.

Findings

- PGR application on turf proved to be promising on all three streetscape sites
- 40-50% shoot growth restriction was observed
- Treated plots had acceptable turf quality and turf density as same as the untreated plots
- Dark green colour index (DGCI) was higher in treated plots. This proves that the treated plots have greener (darker) leaves.
- The result of this study is consistent with the previous preliminary trial conducted at Hort Park.



Fig. 4 PGR application at Tuas site - Road side (left) & central divider (right)



Fig. 5 Post PGR application effect on cowgrass (shoot height reduction) at Tuas site - control (left) & PGR (right)

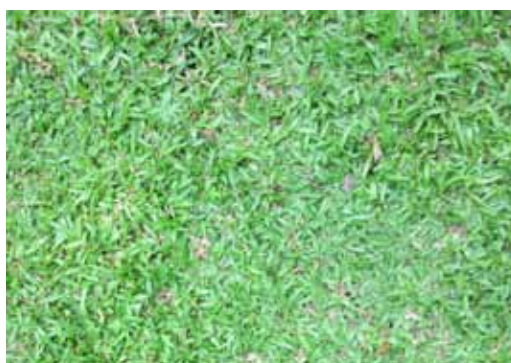


Fig. 6 Post PGR application effect on cowgrass (turf quality) at Admiralty site - control (left) & PGR (right) with darker green leaves

Table 1.1 Results - Post PGP Application:

Parameters	Road side		Central divider	
	Control	PGR	Control	PGR
Tuas South Avenue 1				
Turf quality (0-9)	6.7	7	1.33	1.67
Shoot height (cm)	15.5	8*	16.4	7.7*
Admiralty Road East				
Turf quality (0-9)	7.11	7	7.33	6.78
Shoot height (cm)	11.37	6.10*	12.23	7.00*
Turf density (%)	99.07	97.33	99.56	97.78
DGCI	0.45	0.50	0.39	0.41
Chlorophyll content	36.17	36.79	34.86	38.29
Loyang Avenue				
Turf quality (0-9)	1.67	2.67	1.33	1.00
Shoot height (cm)	9.23	4.77	8.27	3.70

** - Statistically significant

The readings were taken 60 days after mowing and PGR application.

Application:

This study, together with the preliminary trial conducted at Hort Park, demonstrates the effectiveness of PGR application both in controlled and real world environments in reducing clipping yield of turfgrasses. In this study, turfgrass mowing frequency was reduced from 26 to 8 mowings or grass cutting per year on major roads. This results in a manpower savings of approximately 50-60 %, and the use of mechanization during spraying may result in further savings. Therefore, the key benefits of adopting such a regime are that it reduces maintenance costs and enhances landscape productivity. The saved manpower can then be channeled to carry out other landscaping tasks. In conclusion, PGR (Trinexapac-ethyl) application at the rate of 1.5 l/ha is recommended for application on turf that is moderate to high in both density and uniformity (i.e. lesser weeds) to obtain the desired effects of reduced mowing frequency.

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