

Growth Regulation of Wax Leaf Privet and Vitex Following Applications of Cutless* Granular

B. Todd Bunnell, Ph.D., Manager, Turf & Ornamental Research,
SePRO Corporation

Introduction

A plant growth regulator (PGR) is defined as any substance or mixture of substances intended, through physiological action, for accelerating or retarding the rate of growth or maturation. PGRs have been used for decades to selectively regulate the growth of plants across many market segments including: turfgrass, row crops, vegetation management, and in recent years, landscape ornamentals. In most situations, PGRs are applied to plants to suppress or reduce vegetative growth in order to minimize cost and labor associated with mowing, pruning or trimming.

Currently, three PGRs are labeled for use to suppress vegetative shoot growth on established landscape ornamental planting, they include: Cutless* Granular, Attrimec® and Embark®. Attrimec and Embark contain the active ingredients, dikegulac-sodium and mefluidide, respectively, and are applied via foliar spray and suppress growth by interfering with cell division. In contrast, Cutless Granular contains the active ingredient flurprimidol which interferes with the biosynthesis of gibberellic acid (GA), a plant growth hormone responsible for cell elongation and division. By disrupting GA biosynthesis, cell elongation and division are suppressed, resulting in reduced shoot growth and internode length in landscape ornamentals. Cutless Granular is applied uniformly within the dripline of landscape ornamentals. After watering, the flurprimidol will enter the soil and be absorbed by roots and translocated to the growing stems, resulting in reduced shoot growth.

Cutless Granular is a relatively new commercial product or tool for landscape ornamental

maintenance. Since its commercial release in 2005, end-users have indicated positive results when using Cutless Granular to slow shoot growth of aggressive landscape ornamentals. In this paper we quantify shoot growth regulation of two commonly used landscape ornamentals following a single application of Cutless Granular.



Photo 1. Overview of research plots at Wagon Hammock Nurseries in Lyons, GA.

Methodology and Methods

Wax Leaf Privet (*Ligustrum japonicum*) and Vitex (*Vitex agnus-castus*) were selected at Wagon Hammock Nurseries in Lyons, Georgia. Plants were established in a loamy sand in February 2005 and planted in rows 12 feet apart, and in row plant spacing was 6 feet.

Two rates of Cutless® Granular on were applied on March 28, 2006. On the same day, all plants were pruned to the same height and width using a frame template to insure equal plant size at application. Each treatment consisted of 3 replications, and each replication consisted of 3 subsamples. The treatment list was as follows:

Treatment Number	Treatment Name	Formulation	Application Rate
1	Cutless Granular	0.33G	1.0 lb ai/A (7 lbs/1000 ft ²)
2	Cutless Granular	0.33G	2.0 lb ai/A (14 lbs/1000 ft ²)
3	Untreated	N/A	N/A

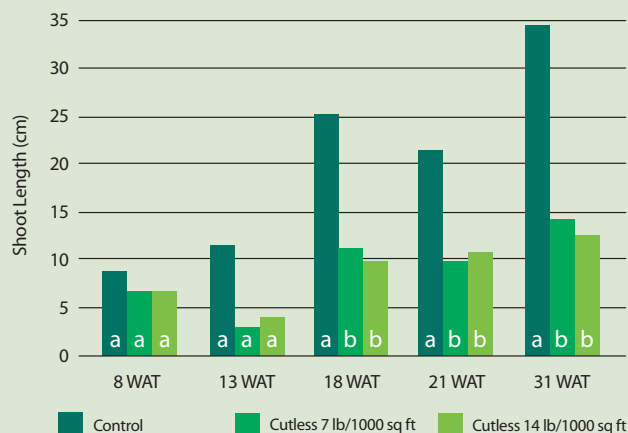
Ratings for growth inhibitions were taken 8, 13, 18, 21, and 31 weeks after treatment (WAT). Ratings for growth inhibition consisted of 5 measurements of new shoot growth randomly taken from each plant. On November 2, 2006 or at 31 WAT, plants were trimmed to original size, and fresh weights (grams) of clippings were taken. No pruning or trimming was performed prior to collection of fresh weights.

Five shoot lengths were averaged for each subsample, the 3 subsamples were then averaged, and these values were analyzed using analysis of variance and means were exposed to Fisher's least significant difference (LSD) test with a significance level of $\alpha = 0.05$.

Results

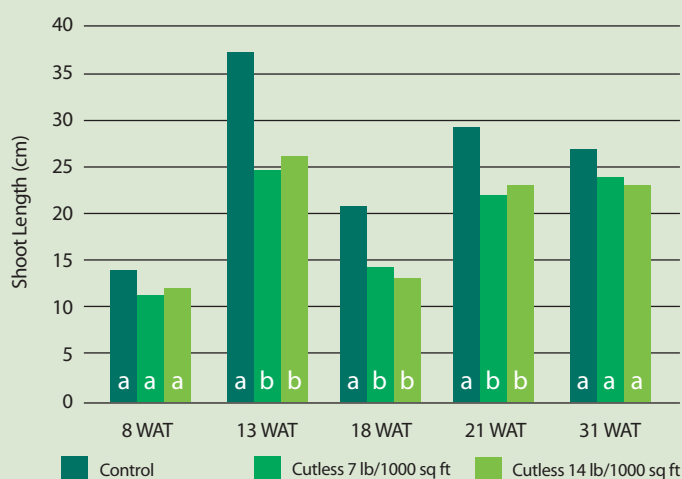
Cutless Granular significantly reduced shoot growth of both Wax Leaf Privet and Vitex. Shoot length of Wax Leaf Privet was reduced when compared to untreated plants up to 64% (Figure 1). In addition, shoot length of Vitex was reduced up to 34% following applications of Cutless Granular (Figure 2).

Figure 1. Shoot length (cm) of Wax Leaf Privet, following applications of Cutless Granular



Fresh clipping weights were significantly reduced with Cutless Granular applications to Wax Leaf Privet and Vitex at 31 weeks following application and pruning (Photo 1). Clippings were reduced up to 51 and 44% on Wax Leaf Privet and Vitex, respectively (Figures 3 and 4). Therefore, Cutless Granular applications suppressed shoot growth in

Figure 2. Shoot length (cm) of *Vitex*, following applications of Cutless Granular



treated plants up to at 31 weeks following application and any pruning. Also, in both plant species, the 7 lbs/1000 ft² rate was very effective in reducing shoot length and clipping weights.

Conclusions

These data demonstrate that Cutless[®] Granular can greatly reduce shoot length and fresh clippings of two commonly used landscape ornamental plants. Therefore, Cutless Granular applications may reduce the time and labor involved in pruning and maintenance of landscape ornamentals.

Acknowledgement

SePRO Corporation would like to thank Dr. Mark A. Czarnota, Associate Professor, University of Georgia and Wagon Hammock Nurseries, Lyons, GA for their cooperation in conducting this research.

Figure 3. Fresh clipping weights (grams) of *Wax Leaf Privet*, 31 weeks following applications of Cutless Granular

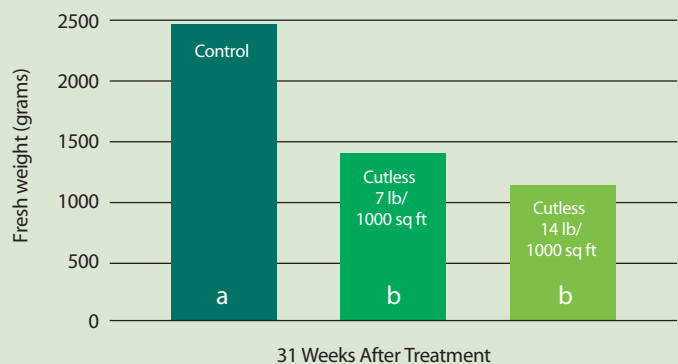
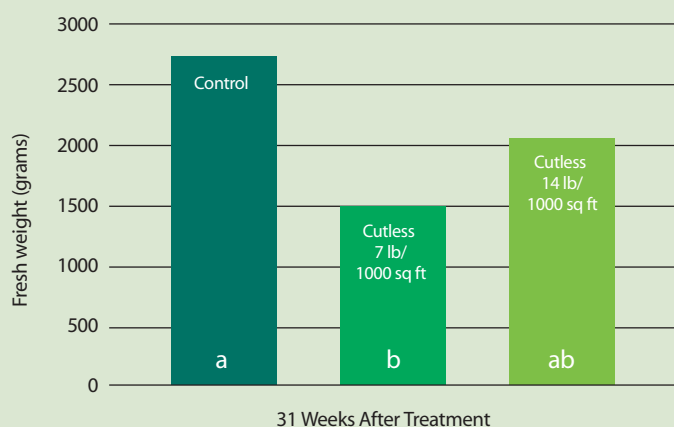


Figure 4. Fresh clipping weights (grams) of *Vitex*, 31 weeks following applications of Cutless Granular



Vitex (*Vitex agnus-castus*)



Untreated



Treated 7 lbs/1000 ft²



Treated 14 lbs/1000 ft²

Wax Leaf Privet (*Ligustrum japonicum*)



Untreated



Treated 7 lbs/1000 ft²



Treated 14 lbs/1000 ft²

Photos taken of Vitex and Wax Leaf Privet plants following Cutless Granular applications at 21 weeks after treatment (WAT).

Cutless* Granular
Landscape Growth Regulator

*Trademark of SePRO Corporation. Always read and follow label directions. ©Copyright 2008 SePRO Corporation.