Regulating Late Season Container Growth with Plant Growth Regulators

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Nature of Work: Early planted nursery crops may reach a satisfactory size for market before the end of the production season. Extra growth may require increased spacing or make the plants unsalable due to crowding. Crowding of overgrown plants can also cause poor air circulation which can lead to possible disease or insect problems. A heavy pruning is usually required to rejuvenate these overgrown plants. Use of a plant growth regulator to slow growth would help to avoid oversized plants, prevent plants growing together, losing quality and provide a healthier environment. Plant growth regulators can help improve plant color and improve cold hardiness by preventing late season growth.

Work in North Carolina has demonstrated that PGR sprays in mid summer can significantly reduce vegetative growth with no phytotoxicity. Burner at Auburn found Atrimmec provided an effective means of controlling shoot length on Goldflame honeysuckle. Bonzi has been used in the commercial landscape for both turf and juniper suppression.

Bonzi and B-nine were applied to fully grown 3 gallon Gerard Hot Shot Azaleas and Nikko Blue Hydrangea. The azalea were in full sun while the hydrangeas were under 50% shade. The PGR rates were taken from the manufactures recommended rates. The azalea treatments were Treat1) B-nine 2500 ppm, Treat 2) B-nine 1500 ppm, two applications, Treat 3) Bonzi 150 ppm, Treat 4) Bonzi 100 ppm, two applications, Treat 5) B-nine 2500 ppm and Bonzi 100 ppm, and Treat 6) Control - no PGR. The second application when specified was applied 7 days after the initial treatment. The hydrangea treatments were Treat 1) B-nine 10,000 ppm, Treat 2) B-nine 7,500 ppm, two applications, Treat 3) Bonzi 150 ppm, Treat 4) Bonzi 100 ppm, two applications, Treat 5) B-nine 2,500 ppm and Bonzi 10 ppm, and Treat 6) Control - no PGR. Treatments were applied beginning on August 15, 2003 and second applications were made on August 22, 2003. Twenty single plant replicates were used for each treatment.

Results and Discussion: Treatment effects were measured on October 1, 2003 and October 21, 2003. The heights in inches above the pot were recorded and treatment effects determined by ANOVA with means separated with Student-Newman-Keuls Test. There was little change in the size of the plants from one date to the next date. The results are of the Hydrangea treatments are shown in Figure 1 and the Azalea treatment results are shown in Figure 2.

The Hydrangea treatments were not significantly different form treatment 6) Control. Treatment 2) B-nine 7500 ppm, two applications and treatment 5)B-nine 2500 ppm and Bonzi 10 ppm were shorter than treatment 3) Bonzi 150 ppm and 4) Bonzi 100 ppm, two applications. The variation in average growth was less than four inches. This small change from a growers perspective, would not provide adequate control.

The Azalea treatments 1) B-nine 2500 ppm, 2)B-nine1500 ppm, two applications, 4)Bonzi 100 ppm, two applications, and 5)B-nine 2500 ppm and Bonzi 100 ppm were significantly shorter than treatment 6) Control. Treatment 3) Bonzi 150 ppm was not significantly shorter than the control. Although there were significant differences in the average heights, the difference between the shortest and tallest treatments was less than two inches. This small difference would not provide the amount of control desired by growers. Little late season growth occurred on any of the plants and no tall shoots developed.

These rates and treatments may provide greater benefits if applied earlier in the season.

Significance to the Industry: Plant growth regulators used on containerized woody ornamentals could save money and labor that is being spent on pruning overgrown plants, could slow late season growth and reduce cold injury losses. This trial was ineffective because limited growth occurred on all plants after treatment, including an untreated control. Benefits may occur if applied earlier in the production season.

Figure 1. Effects of B-Nine and Bonzi Treatments on Hydrangea

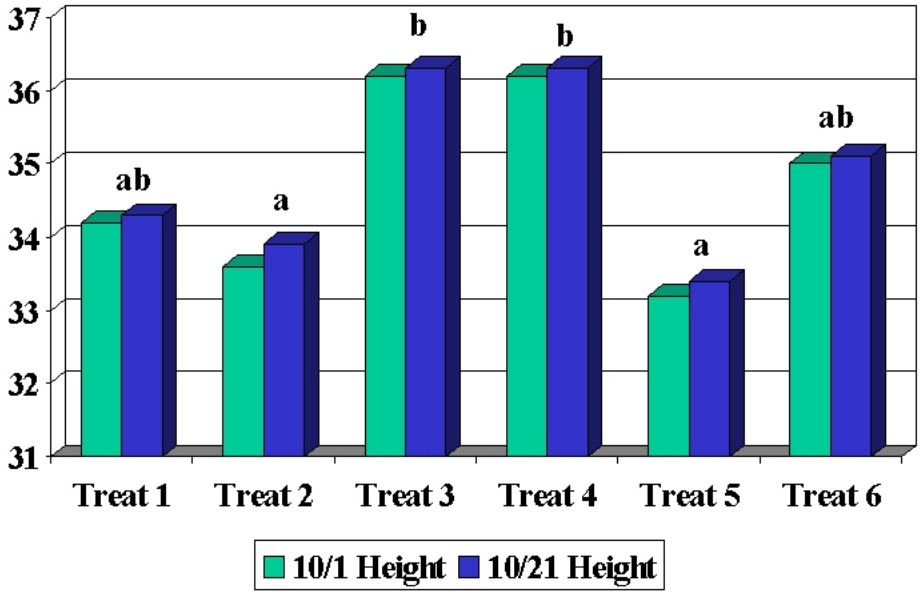

Figure 2. Effects of B-Nine and Bonzi Treatments on Azalea