

Shrub Liner Growth and Development Control with Plant Growth Regulators and Water Stress[®]

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INTRODUCTION

Producing compact, well-branched shrub liners often requires pruning several times during a plant's production cycle. This process requires significant labor and often results in severe plant stress. The goal of the experiment was to determine if plant growth regulators could be used to effectively control growth of shrub liners and also to determine to what extent water stress alone could control growth. The effect on branching was also a point of interest.

MATERIAL AND METHODS

There were three series of experiments in which four growth regulators and water withholding were tested on 12 species. For each growth regulator, three rates were tested. Species tested were *Buddleia davidii* 'Peakeep', Peacock™ butterfly bush; *Caryopteris ×clandonensis* 'Minbleu', Petit Bleu™ bluebeard; *Cornus sericea* (syn. *stolonifera*) 'Farrow' Arctic Fire™ redstemmed dogwood; *Helianthemum* 'Rhodanthe Carneum' (syn. 'Wisely Pink'); *Hydrangea macrophylla* 'Paris Rapa', Cityline® Paris; *H. macrophylla* 'Jōgasaki'; *H. paniculata* 'Bylk', Quick Fire™ paniced hydrangea; *Physocarpus opulifolius* 'Monlo', Diablo™ ninebark; *Potentilla fruticosa* 'Pink Beauty'; *Sambucus nigra* f. *porphyrophylla* 'Eva', Black Lace™ eldeberry; *Spiraea japonica* 'Little Princess', and *Weigela florida* 'Alexandra', Wine & Roses™ weigela. Plant growth regulators tested were Bonzi (30, 40, 60 ppm), Sumagic (10, 20, 40 ppm), Atrimmec (500, 1000, 1500 ppm), and Florel (500, 750, 1500 ppm). Plants were sprayed twice 2 weeks apart, except for Atrimmec experiments where plants were sprayed only once. Plant height and branching were recorded weekly. For water stress experiments, plants were dried to the point of wilting between watering.

RESULTS AND DISCUSSION

All experiments provided interesting results (Figs. 1 and 2). Some degree of height control was observed in nearly every species. Branching was not affected much in the case of Bonzi and Sumagic, but Atrimmec and Florel did significantly increase branching on some species. Future experiments must be conducted to determine most appropriate rates, appropriate timing of applications, and the end effect of the applications after transplanting. Perhaps one of the most interesting observations was the amount of height control achieved through water stress alone.

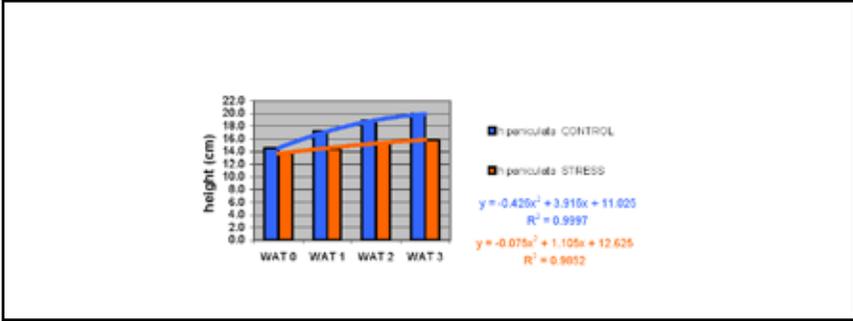


Figure 1. Water stress and *Hydrangea paniculata* height evolution.

Note: T0 = Control, B=Bonzi (ppm), A= Atrimmec (ppm).

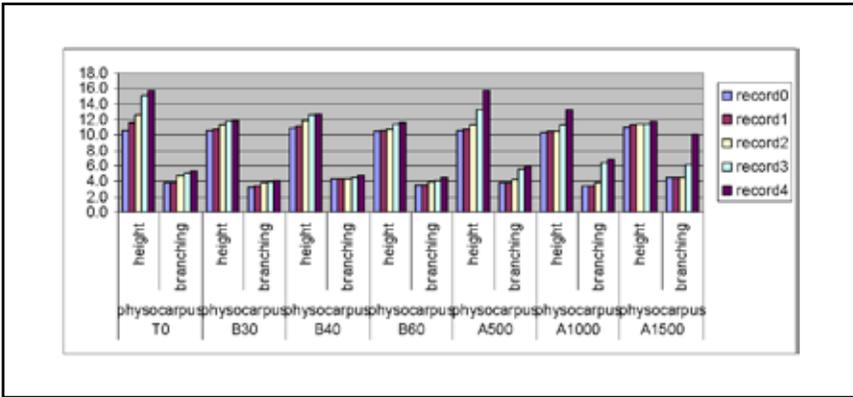


Figure 2. Effects of Bonzi and Atrimmec on the growth of *Physocarpus opulifolius* 'Monlo', Diablo™ ninebark.