



Stress Evaluations Of *Hydrangea macrophylla*

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Introduction:

Hydrangea macrophylla: Big leaf hydrangea, or as it's sometimes called, florists hydrangea, or smooth hydrangea is recognized by it's opposite and coarsely serrated, fleshy leaves. Big, rounded or flat clusters of flowers usually appear in May and are either blue (acid soil) or pink (alkaline soil). Big leaf hydrangeas are hardy from zones 6 to 9. They like full sun to part shade, but in full sun the foliage will wilt during the heat of the day yet regain turgidity by evening. Two problems presented by the nursery and landscape industry include the lack of information on the effects of pruning and the subsequent flower production and the effects of herbicides on container production.

Objectives:

There are two objectives of this project:

1.) Currently discrepancies exist in the industry about proper pruning requirements among the different cultivars. Some say stems should be cut back to new buds, while others say to remove 1/3 of the older stems after flowering.

No information has been published regarding the response of cultivars to pruning and if cultivars will still bloom if pruned in late summer versus after flowering.

2.) Pre-emergent Weed Control of Bittercress is needed to reduce the labor involved in production of Big Leaf Hydrangea. A product is needed which will not cause phytotoxic effects after leaf emergence. Currently, only three pre-emergent herbicides (Pendulum 2G, Factor, and Pennant Magnum) are labeled for use on *Hydrangea macrophylla*, but they do not provide control of bittercress. This project evaluates various pre-emergent herbicides and rates on phytotoxic effects on hydrangea and effectiveness in controlling bittercress.

Materials and Methods:

The pruning study is currently being conducted at the Center for Applied Nursery Research (CANR) in Dearing, Georgia at McCorkle Nurseries. 50 three-gallon plants each of four cultivars, 'Charm Red', 'Glory Blue', 'Blue Wave' and 'Hobella' are being evaluated in respect to the effect of pruning on flowering. Ten plants per cultivar will be pruned beginning in May through September. Five plants will be pruned back to old wood and five plants will be pruned to 2-3 inches from the soil line. A nonpruned control will also be evaluated. Evaluation of flower number and size will be conducted the

following spring (May) to determine the impact of pruning on flower number and quality.

Methodology for the herbicide study involves the cultivars 'Charm Red', 'Ami Pasquier', 'Nikko Blue' and 'All Summer Beauty'. Liners were potted up into full gallons using standard amended media.

Ninety-six plants of each cultivar will be treated with 25 bittercress seeds each, 8 plants were left untreated for use as controls. Rout (oxyfluorfen + oryzalin), Snapshot (trifluralin + isoxaben), Regal O-O (oxyfluorfen + oxadiazon), OH 2 (oxyfluorfen + pendimethalin), Corral (pendimethalin), and Pendulum 2G (pendimethalin) herbicides will be applied at ½ X and 1X, and with a control. Data will be collected 3, 7, 14, 21, 28, 42, 60 and 90 days after treatment. Upon completion, a 2X and 3X rate of each herbicide will be applied and evaluated.

Conclusion:

Proper pruning techniques would improve nurserymen, landscapers, and homeowners' success with the flowering of these plants. Identification of a pre-emergent herbicide that controls bittercress and does not injure hydrangeas will reduce labor requirements, thereby reducing the cost of production. Collection and reporting of data will be completed and available in Spring 2002.