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Influence of a Modified Pot-in-pot Production Strategy on Root Temperature and Growth of *Rhododendron* × 'Mrs. G.G. Gerbing' in Full Sun

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In Texas, container plants in nurseries can experience excessive container temperatures, particularly during the hot summer months. Root damage can be severe and plant quality can lower. A raised bed, double-row pot-in-pot production research plot (200 ft × 6 ft) was established at the north end of the SFA Mast Arboretum with sockets in a triangular design with plants 24 inches apart in rows 8 inches apart (3.45 square ft per socket pot). This design was basically a modification of the Jay Fraleigh Nursery GRO-ECO (U.S. Patent No. 6,865,845) strategy in a full sun site. This study monitored the influence of black or white weed barrier, or whether a “mid-irrigation line” was used or not on growth of *Rhododendron* ‘Mrs. G.G. Gerbing’ plants. The mid-irrigation line (emitters 12 inches apart) was oriented between the two rows of socket pots and intended to apply light, frequent irrigations in such a way that they cool the soil and nearby socket pots. A randomized block design was used with six blocks containing the four treatments. A total of 196 azalea containers used in this portion of the study, which began 7 Apr. 2006 and was terminated 7 Oct. 2006. All plants were irrigated with a single emitter. Records of the time and volume of irrigation were kept throughout the study. The rate and timing of fertilization (Osmocote[®] 18–6–12) were adjusted throughout the trial based on conductivity readings. The growth and root temperature data from the pot-in-pot research plot were compared to data collected from a full sun aboveground container area and a 50% shade house area. Temperature readings were taken at the edge, center, and bottom of the containers in the three areas during the hottest time of the summer. Plant height and dry weight were measured at the termination of the experiment. A repeated measures ANOVA was performed on the temperature data. A randomized block ANOVA test was performed on the dry weight and height of the plants. When statistically analyzed, there were no significant differences in container temperatures or growth between the four treatments. The pot-in-pot azaleas were superior when compared to plants grown in a nearby full sun aboveground area and the 50% shade house by the horticulture facility. While not analyzed because of location differences, the pot-in-pot azaleas were more uniform, of good color, and had a strong root system.