



Effect of Container Size, Fertilizer Rate, and Fertilizer Application Method on the Growth of Three Palm Species

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Nature of Work: When palm seedlings are transplanted from seedling flats to containers, their roots tend to grow straight down. Before they fill the container laterally, their roots often are observed growing from the bottom drainage holes of the container. Therefore, it is our theory that if palm seedlings are provided greater rooting depth, a larger root system may be obtained more quickly which may result in more rapid top growth. Furthermore, there is some disagreement among growers as to the most beneficial way for applying fertilizer. Some growers get best results from top-dressing fertilizers, while others incorporate fertilizers into the growing media.

Procedure: Seedlings of three palm species were utilized in this study: Louisiana Dwarf Palmetto, *Sabal minor* var. Louisiana; Windmill Palm, *Trachycarpus fortunei*; and Dwarf Palmetto, *Sabal minor*. Replicated plantings were made into four container sizes: standard 1 gallon (153 cu. in.); standard 3 gallon (693 cu. in.); tall tree pot (4 inches wide and 36 inches tall (173 cu. in.)); and TPOT4 Pot (7.75 inches wide and 18 inches tall (588 cu. in.)). The latter two containers were obtained from Stuewe & Sons, Inc., Corvallis, OR, www.stuewe.com. They are commonly used in the forestry industry. Additional treatments consisted of two fertilizer application methods (topdressed or incorporated) and two fertilizer rates; 8 lbs./cu.yd. or 12 lbs./cu. yd. (manufacturer's recommendations). Osmocote Plus 15-9-12 (5 - 6 mo. release at 70°F (The Scotts Company)) was utilized in this study. Base mix consisted of 6:1 bark/sand containing 4 lbs. dolomite lime/cu.yd. and 2 lbs. Talstar/cu.yd. The study was initiated on July 20, 2005.

Top growth will be measured in spring, 2006 and top and shoot dry weight will be measured in the fall of 2006. All treatments will be top-dressed with a uniform amount of Osmocote Plus 15-9-12 (8-9 mo. release) in March of 2006.

Significance to Industry: Cold-hardy palms show tremendous potential for temperate climates where they are not customarily grown. However, growers generally have been reluctant to grow cold-hardy palms because demand for palms outside coastal areas historically has been limited and production time is usually longer for palms than for most broadleaf plants. However, thanks to the educational efforts of organizations like the Southeastern Palm Society, demand for cold-hardy palms is increasing rapidly. Therefore, growers can benefit from this research if it determines ways to accelerate growth and decrease production time in the nursery.