



Palm Evaluation at the UGA Horticulture Farm in Watkinsville, GA (Zone 7b)

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Purpose: This research project is being done in cooperation with the Southeast Palm Society. The purpose is to evaluate a number of palm species for their adaptability to hardiness zone 7b. The palms will be evaluated for at least five years. Weather data, growth measurements, and an assessment of cold-damage to the palms is being recorded.

On April 29, 2004 three replicates of the following palm species were planted in a completely randomized planting pattern at the UGA Horticulture Farm in Watkinsville.

1. *Rhapidophyllum hystrix* (Needle Palm)
2. *Sabal minor* (Dwarf Palmetto)
3. *Sabal* 'Birmingham' (Birmingham Palmetto)
4. *Sabal* x 'texensis' (Brazoria Palm)
5. *Sabal minor* var. 'Louisiana' (Louisiana Dwarf Palmetto)
6. *Sabal uresana* (Sonoran Palmetto)
7. *Trachycarpus fortunei* (3 gal.) (Windmill Palm)
8. *Trachycarpus fortunei* (7 gal.) (Windmill Palm)
9. *Trachycarpus fortunei* (15 gal.) (Windmill Palm)
10. *Trachycarpus takil* (Kumaon Palm)
11. *Sabal palmetto* (Cabbage Palm)

The palms were placed under drip irrigation and mulched with pine straw. The site is in full sun and unsheltered. Once established, the palms were fertilized uniformly mid-summer with a 16-4-8 granular which also contained Boron, Copper, Iron, Manganese, Molybdenum and Zinc. No cold protection was provided.

A weather station on site recorded five nights during the winter of 2004/05 when the temperature dropped below 20^o F (Dec. 20 – 16^o F; Dec. 21 – 18^o F; Jan. 18 – 16^o F; Jan. 19 – 17^o F and Jan. 24 – 13^o F (the coldest night of the winter). There were an additional 20 nights when the temperature was between 20^o F and 30^o F. There also was a major ice storm in January with about ½ inch of ice accumulating.

Here are some general observations on each of the palm species after the first winter:

***Rhapidophyllum hystrix*:** All plants in good condition. One plant had center bud damage, some leaf spot on a number of fronds of all three plants.

***Sabal minor*:** All plants in excellent condition.

***Sabal* ‘Birmingham’:** On two plants, 50% of the older fronds were completely brown. On the other one about 1/3 of the older fronds were brown. The center spear was not damaged on any of the plants and looked good.

***Sabal x texensis*:** All plants in very good condition and center bud unscathed.

***Sabal minor* var. ‘Louisiana’:** Plants all look rough – 50% of fronds brown, but center spear on all looks good.

***Sabal uresana*:** All plants in very good condition – no damage evident.

***Trachycarpus fortunei*:** The smaller palms (both the 3 and 7 gallon size) all had center spear loss, but the mature fronds looked good. The larger palm (15 gallon size) was unscathed - all fronds as well as the center spear were green and healthy. This supports the theory by many in SEPS that the larger palm is better able to adapt to cold. However, Gary Hollar says this palm will likely regenerate a new bud to replace the one lost, so we’re hoping for a complete recovery.

***Trachycarpus takil*:** All plants are in excellent condition – no damage at all.

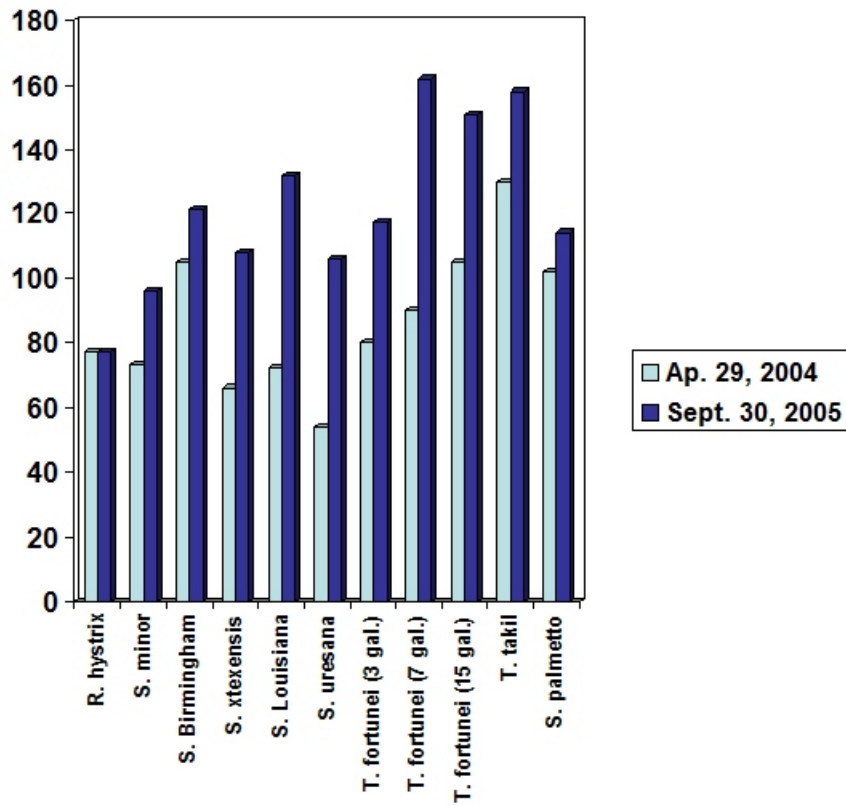
***Sabal palmetto*:** One plant looks completely dead. Other two had 1/3 and 1/2 of their fronds brown, but the center spear was healthy green.

A uniform amount of the 16-4-8 granular fertilizer with minors was applied on 8/22/04, 4/17/05 and on 7/15/05, dead fronds were removed and mulch replenished. We’re ready for the second winter.

Growth Measurements: Growth index was measured initially and 18 months after planting. This was done by measuring the height of the plant from ground level to the top of the highest frond, width at the widest point, and width at a ninety degree angle from the first width. Then, an average growth index, in centimeters, was calculated for each plant using the following formula: $(\text{height} + (\text{width} + \text{width})/2)/2$. The average growth index for each species was calculated by averaging the growth index for the three reps. Data are presented below. The *Sabal uresana* practically doubled in size, showing a 96% increase in growth from the time they were planted. Next best grower was *Sabal minor* var. ‘Louisiana’ which showed a 83% increase in growth. It was interesting how the 7 gallon *T. fortunei* grew twice as fast as the 3 gallon and 15 gallon *T. fortunei*’s. I have no explanation why this occurred.

Figure 1. Average Growth Index on Two Dates

Growth index = (Height + (width + width)/2)/2



| Name | % Change |
|------------------------------|----------|
| <i>R. hystrix</i> | 0 |
| <i>S. minor</i> | +32 |
| <i>S. 'Birmingham'</i> | +15 |
| <i>S. x texensis</i> | +64 |
| <i>S. 'Louisiana'</i> | +83 |
| <i>S. uresana</i> | +96 |
| <i>T. fortunei</i> (3 gal.) | +46 |
| <i>T. fortunei</i> (7 gal.) | +80 |
| <i>T. fortunei</i> (15 gal.) | +44 |
| <i>T. takil</i> | +22 |
| <i>S. palmetto</i> | +12 |

**% Growth Change
(4/29/04 to 9/30/05)**