Palm Evaluation Study at the Mountain Research and Education Center, Blairsville, GA

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Most people associate palms with Florida and tropical islands and can not imagine them growing in Blairsville, Georgia, hardiness zone 6b. It's unlikely we ever will be able to grow Miami's Coconut Palms or Orlando's Queen Palms in Georgia, but there are a number of species known to survive sub-freezing temperatures with little or no damage, thereby making them possible candidates for landscapes throughout Georgia as well as states to the north. Several of these palms are the basis for this study, which is being done in cooperation with the Southeastern Palm Society.

Four replicates of eight palm species or cultivars were planted at the Mountain Research and Education Center on June 17, 2005. The purpose of the study is to evaluate the cold hardiness and adaptability of these palms to hardiness zone 6b. Growth measurements and winter injury will be documented over a 5-year period.

Palms are reportedly most sensitive to cold injury while they are getting established, and they show increased cold hardiness as they mature. Therefore, winter protection will be provided during the first winter after planting. This will be accomplished by placing a hog-wire hoop over each plant and adding dry pine straw to a depth to cover the center spear (the most cold sensitive part of a palm). A few of the uppermost leaves will be left uncovered so that some photosynthesis can occur. The top and sides of the wire hoop will be covered with 3-mil clear plastic to shield the plants from cold winter winds. The plastic covering will be opened on warm days to provide ventilation and to prevent heat stress.

According to members of the SE Palm Society, cold hardiness is genetically transferred to the progeny of palms grown in cold regions. Several members of the Palm Society have reported that palms grown from seed collected from palms known to be cold hardy are at least as cold hardy as their parents. Several of the palms being evaluated in this study were grown from seed collected from known cold-hardy species and are named for the location where the parent plants are growing.

Description of Palm Species in the Blairsville Study:

Needle Palm, *Rhapidophyllum hystrix*. Needle Palm is native to Georgia and can be found growing wild along the banks of the Ogeechee River in southeast Georgia. It prefers moist, swampy sites and partial shade. It is thought to be the world's most cold-hardy palm and is known to survive temperatures as low as -15°F. Reliably hardy as far north as Washington DC, it adds a tropical look to temperate landscapes. Needle Palm is a clumping palm (does not form a trunk. It is a slow grower, eventually reaching 10 to 15 feet tall and wide. Needle-like spines, 6 to 8 inches long, form at the base of the leaves as the plant ages. In landscapes, a moist site

with afternoon shade is preferred, although this palm will adapt to full-sun when provided sufficient moisture.

Bulgarian Windmill Palm, *Trachycarpus fortunei*. The Bulgarian Windmill Palm in this study was grown by a North Carolina nurseryman from seed collected from Windmill Palms in Bulgaria. In Bulgaria, these palms are called Polar Palms, due to their adaptability to the Bulgarian winters. In Plovdiv, Bulgaria, where the Mother palms are growing, the climate is similar to that of zone 7a. However, unlike the Southeast, the Mediterraneam climate is much drier year-round. The palms that served as a source for these seeds have experienced winter temperatures to -5^{o}F with no damage. Windmill Palms are indigenous to central and eastern China. They are a trunk-forming palm, growing 30 to 40 feet tall at maturity. The windmill palm may be the most cold hardy of all the trunk-forming palms.

Taylor Form Windmill Palm, *Trachycarpus fortunei*. Taylor Form Windmill Palms in this study were grown from seed collected from a *Trachycarpus* planted around the late 70's in one of the parks in Raleigh, NC, which is an offspring of an old palm that grew at Taylor's Nursery in north Raleigh. The parent tree was noted to survive temperatures well below zero degrees Fahrenheit.

Dwarf Palmetto, *Sabal minor* 'McCurtain County'. Dwarf Palmetto, like needle palm, is native to Georgia and the southeastern U.S. The McCurtain County Dwarf Palmetto was grown from seed collected from a plant in McCurtain County, Oklahoma, and is one of the most inland forms of this species. Parent plants have survived sub-zero temperatures.

Sonoran Palm, *Sabal uresana*. This palm is native to northwestern Mexico in the state of Sonora, where it is found growing from the foothills of the Sierra Madres to elevations of 4500 feet. Palm enthusiasts call it one of the world's most beautiful palms with its distinctive gray to blue-green foliage. In its native habitat, the tree reaches 60 feet in height, although 35 feet is more common under cultivation. This palm is known to be hardy in Zone 8, but has shown excellent cold tolerance in zone 7. Zone 6 will be a real test for this species.

Louisiana Dwarf Palmetto, *Sabal minor* var. 'Louisiana' This is a coastal variety of dwarf palmetto. It is also called the Blue Dwarf Sabal Palmetto. It is native to coastal Louisiana and eastern Texas. It forms large, blue-green leaves and eventually forms a trunk to 10 feet. Although it is a coastal palm, it has shown adaptability to inland sites and hardiness to zone 7 (perhaps 6).

Birmingham Sabal Palm, *Sabal* sp. 'Birmingham' Birmingham Sabal Palm comes from offspring of a single cultivated specimen in Birmingham, Alabama. It is thought to be a type of *Sabal palmetto*, but certain traits, such as deeply divided leaves, indicate it may be a hybrid between *Sabal minor* and another species. It is known to be hardy to 0^{o}F and is reported to have survived sub-zero temperatures in Oklahoma. It may prove to be one of the most cold-hardy trunk-forming palms.

Brazoria Sabal Palm, *Sabal* x 'texensis' Also called the Brazoria Palmetto, this palm is native to Barzoria County, Texas. It is thought to be a hybrid between *Sabal minor* and *Sabal*

mexicana. If this is the case, hardiness should be good to excellent, since *S. mexicana* has been reported to take temperatures to 10°F without injury, while *S. minor* is known to be tolerant of temperatures below zero. It is a trunk-forming palm, growing to 20 feet after several years.