

Horticulture Column

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Q. Are there palms you would recommend growing for the fragrance of their flowers? Stavros Bulgarides, San Juan, Puerto Rico.

A. Many palms have floral scents that attract pollinators. Some are sweet, although inflorescences which entice beetles and flies as pollinators often have a musty odor. The scent attractants come from chemicals secreted by the flower. The chemicals volatilize in warm temperatures, and in fact, some palm inflorescences actually heat up when the flowers are ready for pollination thereby volatilizing the attractant over a wider area. Fragrance potency varies during the day with changes in flower temperature and

pervading breezes. Catch a flowering *Arenga pinnata* under the right conditions, and you may experience a truly heady aroma. Whether sweet-scented palms are entirely appealing to humans is a matter of debate; some people find *Arenga pinnata* and other palms to be unpleasant at their strongest.

Hyophorbe species are widely cultivated ornamentals often noted for their delicate perfume. They need to be accessible up close, near an entryway for example, for maximum enjoyment. For a more pervasive yet fresh scent there is *Arenga engleri* (Fig.1). One specimen at Fairchild Tropical Garden often gets attention from visitors



1. The flowers of *Arenga engleri* are showy and fragrant.

in the mornings, when its scent attractant hangs in the still air. Lacking a palm aromatics vocabulary, I make comparisons to well known scents to describe these attractants. For example, the floral scents of *Arenga engleri* and a number of other palms call to mind lemon oil. Quite different scents are encountered in *Copernicia*; a survey of school children at Fairchild Tropical Garden provided the handy comparison of *Copernicia x burretiana* to vanilla. Other *Copernicia* of moderate height may also prove interesting for fragrance.

Consider *Areca triandra* for a scent that seems to be universally appealing. This is an ornamental for cultivation in the tropics and moist situations in the subtropics. This palm has a pervasive lemon and honey fragrance and a hidden specimen in your garden will surprise people from afar.

Q. I grow palms on my property where the native soil is alkaline limestone. I would like to try growing certain tropical species, palms of acidic pH ranges, by amending or replacing the soil in one area. Can you offer any suggestions? Jackie Ege, Miami, Florida.

A. Soil amendments in the form of organic matter, such as mulch, compost, or peat, tend to cause modest changes in soil pH which are lost over time as the material breaks down. In your alkaline situation, acidifying agents, such as sulfur, provide temporary changes. At Fairchild Tropical Garden, we are experimenting with a more permanent solution for our growing needs. In 2000, Fairchild Tropical Garden created three acidic soil areas with average dimensions of 6.1 × 12.2 m (20 × 40 ft). These three areas were excavated to an average

depth of 0.9 m (3 ft). The native alkaline limestone was replaced with a different acidic medium in each area: Florida red clay, coarse silica sand, or a mix consisting of 50% coarse silica sand, 35% peat moss, 15% composted pine bark. Twenty-one palm species were planted in the acidic soil areas, along with other tropical rainforest plants. A 100% controlled release fertilizer is used, and palms are given monthly foliar applications of a balanced complete micronutrient mix. Eighteen months after planting these palms overall are healthy.

Soil samples showed that 12 months after the areas were filled the silica sand and mix were both neutralized, and the soil pH values were over 7 in all soil depths. Soil pH rise in the red clay was confined to the surface and bottom layers. While our irrigation water pH is nearly neutral from acid injection, the local groundwater and runoff contains calcium carbonate which should continue to increase soil pH in all three media. The clay is expected to show the slowest increase due to its higher buffering capacity.

Do we recommend replacing native soil with areas of acidic soil? Achieving permanent acidic soil pH in most media is not possible where irrigation, groundwater, and runoff contain calcium carbonate. An acidifying agent, such as finely ground sulfur or aluminum sulphate, might be experimented with in such an area however. While these agents have very temporary effects on soil pH in the alkaline limestone, they may prove more effective here where the media are already saturated with calcium carbonate. To use these safely and effectively, however, one should apply them at rates suggested from a soil analysis.