

Hybrids in the Genus *Syagrus*

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1. *Syagrus* × *montgomeryana*
holds many, dark green,
ascending to arching leaves.
Ingwersen nursery, Lampang,
Thailand.

Several natural hybrids occur in *Syagrus*, a large, diverse and wide-ranging genus of pinnate-leaved, cocosoid palms from South America and the Caribbean, attesting to the relative ease of hybridization between some of its species. This relative ease of hybridization, along with the highly ornamental nature and cold tolerance of some of its species from southern Brazil, has attracted several collectors and growers who, through hybridization, wish to expand the landscape potential of this useful genus. Because at least one of these artificial hybrids has entered the trade and is being widely promoted, I name and describe it here as a new hybrid species while I discuss other natural and artificial hybrids in the genus.

At least five natural interspecific hybrids occur in *Syagrus* where the ranges of species overlap (Lorenzi et al. 2010) and at least two intrageneric hybrids (one artificial and the other natural but occurring spontaneously in cultivation) are documented (Hodel 2005, Lorenzi et al. 2010) for *Syagrus* and related genera, and collectors and growers, including Jack Ingwersen in Thailand and Dick Douglas and Patrick Schafer in northern California, are continuing to make more. In general the hybrids are variable and the artificial hybrids frequently tend to resemble the seed (pistillate) parent more than the pollen (staminate) parent, a situation that is less likely to occur in natural hybrids where there are multiple opportunities for the hybrid to occur with either of the parents serving as the seed or pollen provider.

A New Artificial Hybrid

Ingwersen, who is doing most of the interspecific hybridization in *Syagrus*, has focused his attention on a superb hybrid between *S. schizophylla* and *S. romanzoffiana*, which he has been distributing to the trade for several years under the registered trademark name Coconut Queen® and for which I here provide a formal hybrid species name.

Syagrus* × *montgomeryana Noblick ex Hodel
sp. hybr. nov. (*S. schizophylla* × *S. romanzoffiana*).

Palma inter *Syagrum schizophyllum* et *S. romanzoffianam* quasi intermedia et hybridatione harum specierum orta, magnitudine habitus inter parentes media, ad illud habitu maiore, trunco maiore, pinnis pluribus, petiolis et rachidibus foliorum et bracteis pedunculorum longioribus, rachillis brevioribus differt; ad hoc habitu minore, trunco minore, pinnis paucioribus, petiolis et bracteis pedunculorum longioribus, rachillis pluribus et longioribus differt. Typus: CULTIVATED. USA. California, San Diego County, Vista, nursery of John Ingwersen. *D. R. Hodel 2030* (holotypus BH, isotypus HNT). Figs. 1–7.

Solitary, moderate, tree palm, to 12 m tall (Figs. 1 & 2). Trunk 25 cm diam., ringed, internodes 5 cm. Leaves 40–60, ascending, eventually spreading, 3–4 m long, distal 60–90 cm drooping; base 40 cm long, persistent and becoming woody, deeply split opposite petiole, margins with coarse, hair-like fibers to 10 cm long (Fig. 3); petiole to 1.1 m long, 5–10 cm wide at base and there convex abaxially and

very slightly channeled adaxially, 2.5–4 cm wide at apex and there convex abaxially and ± flat adaxially, green but with whitish or grayish, scurfy, mealy, ± deciduous tomentum abaxially, margins with tan, coarse fibers to 10 cm long and finer hair-like fibers to 60 cm long in proximal 75 cm, these progressively reduced to small teeth or scurfy, wing-like fibers in distal 25 cm; rachis 2.5–3 m long, convex with tomentum abaxially as in petiole, ± flat adaxially near the base progressively becoming an angled, sharp costa distally; pinnae 100–120 per side, irregularly arranged, clustered and fanned in 1 or 2 planes in proximal one-half to two-thirds of blade, regularly arranged and in 1 plane in distal one-third to one-half of blade, proximal pinnae to 65 × 0.8 cm, proximal mid-blade pinnae largest, these to 85 × 3.2–4 cm, most distal pinnae 45 × 0.5 cm, long-lanceolate, straight, thin-leathery, dark green, tips split for 8–10 cm, midrib prominent and elevated adaxially, with 5–7 conspicuous secondary nerves on either side, these conspicuous abaxially, midrib with whitish or grayish, medifixed ramenta to 8 mm long scattered in proximal one-half to nearly the entire pinna length abaxially.

2. *Syagrus* × *montgomeryana* makes a handsome ornamental. Ingwersen nursery, Lampang, Thailand.





3 (left). Petiole margins of *Syagrus* × *montgomeryana* have coarse, hair-like fibers to 10 cm long (Hodel 2030, holotype). Ingwersen Nursery, Vista, California. 4. (right). Inflorescences of *Syagrus* × *montgomeryana* are ascending to arching in flower. Ingwersen nursery, Lampang, Thailand.

Inflorescences 4–7, interfoliar, to 2.25 m long, ascending to arching in flower, pendulous in fruit, 1-branched (Fig. 4); peduncle 90–120 cm long, 2.5 cm wide and 1.2 cm thick at apex, gradually widening toward base, densely covered with tan tomentum; peduncular bract to 2 m long, thick-leathery, golden coppery and finely striate to nearly smooth adaxially, greenish with deciduous, mealy, white to tan tomentum and prominently, densely, and deeply grooved abaxially; rachis to 75 cm long, 2.5 cm wide at base and flattened, tapering to 1 cm wide at apex; rachillae ca. 90, to 65 cm long, to 1 cm diam. at base, 0.75 mm diam. at apex, cream to yellow-green in flower, ± lax, forward pointing, conspicuously flexuous. Staminate flowers in distal one-half to two-fifths of rachillae, seated in shallow clefts 1 mm long, 1 mm wide, 1 mm deep and 2–4 mm distant, the proximal lip of cleft a prominent, collar-like bracteole 0.75 mm high; triads, consisting of a center, later-opening pistillate flower flanked on each of two sides by earlier-opening staminate flowers, in proximal one-half to three-fifths of rachillae, triads in prominent clefts 8 mm long, 6 mm wide, 2.5 mm deep and subtended by 2

imbricate, collar-like bracteoles 0.75–1 mm high; staminate flowers 8 × 13 mm, fragrant, yellow-orange (Fig. 5); calyx 2 × 3.5 mm, cupular, sepals connate and cream-colored in proximal 1 mm, distal lobes free, brown, rounded triangular, light yellow to nearly transparent, barely exceeding base of petals; petals 9 × 3 mm, long-ovate, yellowish orange, valvate, free nearly to base, acute, very faintly nerved; stamens 6, 4–5 mm long, shorter than petals, style 3 mm long, light yellow, anthers 4 mm long, dorsifixed below middle; pistillode short, 1 mm tall, columnar, barely trifid apically, yellowish; pistillate flowers 9 × 7 mm, ovoid, greenish yellow (Fig. 6); calyx 7 × 7 mm, cupular, sepals imbricate nearly to apex and there broadly rounded, acute, light green, margins thin, nearly transparent; petals 7 × 7, cup-like, imbricate nearly to apex and light green except for mucronate, erect, free, yellowish tip and clear, thin, nearly transparent margins, staminodes connate in a clear, collar-like ring 2.5 mm high; pistil 8.5 × 5 mm, ovoid, style lacking, stigma trifid, tips conspicuous, 2 mm long, free, recurved. Fruit 3.5 × 2.8 cm, irregularly oblong-ovoid, maturing yellow-orange (Fig. 7).



5 (top). Staminate flowers of *Syagrus* × *montgomeryana* are fragrant and yellow-orange (Hodel 2030, holotype). Ingwersen Nursery, Vista, California.



6 (middle). Pistillate flowers of *Syagrus* × *montgomeryana* are greenish yellow (Hodel 2030, holotype). Ingwersen Nursery, Vista, California.



7 (bottom). Fruits of *Syagrus* × *montgomeryana* are irregularly oblong-ovoid and mature yellow-orange (Hodel 2030, holotype). Ingwersen Nursery, Vista, California.

Noblick (1992) suggested the specific epithet to honor the late Robert H. Montgomery and the Montgomery Botanical Center in Florida. The original plant to which Noblick referred was in Fairchild Tropical Botanical Garden in Florida, was likely an unintentional hybrid, and perished in Hurricane Andrew (Noblick, per. comm.). Although not the first to make it, Jack Ingwersen has championed this hybrid and has been making the cross for nearly 10 years at his nursery near Lampang, Thailand, using *Syagrus schizophylla* as the seed parent and *S. romanzoffiana* as the pollen parent. He ships the seeds produced in Thailand to California, where his son John germinates and

grows them on for the trade in their nursery, Jungle Jack's Palms, in Vista, under the registered trademark name Coconut Queen®. In extolling the virtues of *Syagrus* × *montgomeryana* Coconut Queen® the Ingwersens state that the hybrid has the gracefulness and elegance of a kentia palm (*Howea forsteriana*) and the hardiness of a queen palm. Indeed, they report that visitors to their California nursery sometimes at first sight mistake it for an extraordinarily vigorous kentia palm (*Howea forsteriana*).

The Ingwersens report that the handsome *Syagrus* × *montgomeryana* Coconut Queen® has

several horticultural features that make it a superb choice and better alternative to the ubiquitous queen palm (*S. romanzoffiana*) in subtropical and Mediterranean-climate landscapes. With a much fuller canopy, it holds two to three times as many leaves (40–60 vs. 15–20) as a queen palm, and the leaves are consistently darker green, possibly indicating a lower nitrogen requirement than queen palms, which have a high nitrogen requirement and frequently have yellow leaves in the California landscape. A lower nitrogen requirement could encourage less applied fertilizers, reducing the potential for harmful nutrient leaching into streams, ponds, lakes and other bodies of water.

Because it is a hybrid, *Syagrus* × *montgomeryana* Coconut Queen® is largely sterile and has consistently less fruit set than a queen palm (ca. 90% less), significantly reducing landscape fruit litter. For this reason, it has been employed extensively in at least one theme park near San Diego, California. Although a relatively fast grower in tropical Thailand, where it has reached nearly five meters overall height with a trunk 60 cm tall after five years from seed, it is somewhat slower than a queen palm in California. This slower growth rate is another appealing horticultural feature that would likely reduce leaf and inflorescence litter entering the municipal green waste stream and result in a plant better and longer suited to diminishing urban landscape space.

Although largely undocumented, the Ingwersens note that *Syagrus* × *montgomeryana* Coconut Queen® might be more heat tolerant and might require less water than queen palms. Heat intolerance is one of the limiting factors to successful culture of queen palms in hot, inland, desert areas of California. As water becomes an even more precious, expensive and ever-diminishing resource in many urban areas, plants that require less water yet still perform optimally and provide desired landscape functions and amenities will be more highly valued.

Other Artificial Hybrids

For many years Jack Ingwersen has been making hybrids in *Syagrus* at his nursery in Thailand in an attempt to develop plants of superior horticultural and landscape merit. Other than *S. romanzoffiana*, the species he has used in his hybridization efforts originated from seeds that he or others collected in Brazil and Bolivia and grew on to mature size in Thailand. Here I list, describe and illustrate

some of his hybrids. I list these hybrids without names and place the seed parent first followed by the pollen parent.

Syagrus coronata × *S. picrophylla*.

Solitary, moderate to robust tree palm to 15 m tall (Fig. 8). Trunk 25–35 cm diam., flared or slightly enlarged at base, ringed, internodes 5 cm. Leaves 12, ascending, arching, 3.5–4 m long, distal 60–90 cm drooping; base to 60 cm long, green with deciduous, whitish, mealy tomentum, persistent and becoming woody, base bulbous and swollen to 25 cm long, abruptly tapering to 25–30 cm long and 5 cm wide “neck,” lacking medial costa abaxially but there convex, deeply split opposite petiole, margins with coarse, tan to brown, ragged fibers to 15 cm long, fibers near base much longer and encircling trunk; petiole to 1 m long, 5 cm wide at base, 3.5 cm wide at apex, green, convex abaxially and with deciduous whitish mealy tomentum, ± flat adaxially, margins in proximal 30 cm with coarse ragged fibers; rachis 2.5 m long, convex abaxially, flattened adaxially at base but becoming sharply angled at mid-blade; ca. 120 pinnae per

8. *Syagrus coronata* × *S. picrophylla* is a moderate to robust palm. Ingwersen nursery, Lampang, Thailand.





9 (left). Pinnae of *Syagrus coronata* × *S. picrophylla* are irregularly arranged in groups and fanned in several planes to give a plumose effect. Ingwersen nursery, Lampang, Thailand. 10 (right). Inflorescences of *Syagrus coronata* × *S. picrophylla* are ascending to spreading. Ingwersen nursery, Lampang, Thailand.

side, ± irregularly arranged in groups of 3–5 and fanned in several planes to give plumose effect (Fig. 9), to 80 × 3.5 cm, long-lanceolate, straight, stiff, leathery, dark green adaxially, grayish abaxially with glaucous bloom, midrib prominent and elevated adaxially, with 4–6 secondary nerves on either side, midrib abaxially covered densely with ± contiguous, tan, mealy rameta to 7 mm long in proximal one-half, these becoming scattered at mid-pinna. Inflorescences several, interfoliar to mostly infrafoliar in flower, 80–125 cm long, ascending to spreading, 1-branched (Fig. 10); peduncle ca. one-half to two-thirds of total inflorescence, most of it concealed by persistent sheath of subtending leaf, panicle one-third to one-half of total inflorescence; peduncular bract to 1.5 m long, thick-leathery, becoming woody, green with deciduous, whitish tomentum and densely, deeply, and prominently grooved abaxially; rachis 1.5–2 cm diam. at base, green, becoming flexuous, tapering to 8 mm diam. at apex; rachillae numerous, to 30 cm long, to 8 mm diam. at base, tapering to 1.5 mm diam. at apex, glabrous. Staminate flowers in distal one-half of rachilla, 13–15 × 13–15 mm; pistillate

flowers in proximal one-half of rachilla, 10 × 8 mm.

This hybrid is unusually variable, and some forms have a tendency for petioles to break, detracting somewhat from its otherwise ornamental nature. It has reached about five meters overall height with one meter of trunk after five years from seed in tropical Thailand.

***Syagrus picrophylla* × *S. romanzoffiana*.**

Solitary, large tree palm to 20 m tall (Fig. 11). Trunk 25 cm diam., abruptly flared at base, ringed, internodes 15 cm. Leaves 12–15, ascending-spreading, arching, 5.5–6 m long; base to 1 m long, green, densely covered with whitish, mealy tomentum, prominent medial costa extending on to petiole, deeply split opposite petiole, margins with coarse, ragged fibers; petiole to 1 m long, 4–5 cm wide at base, 3 cm wide at apex, green, convex abaxially and with deciduous whitish mealy tomentum, ± flat adaxially, margins with coarse, ragged fibers mostly in proximal 75 cm but sometimes for entire length, sometimes fibers in distal 25 cm degraded or reduced to ± scurfy, wing-like margins; rachis 3.5–4 m



11. *Syagrus picrophylla* × *S. romanzoffiana* can become a large palm. Ingwersen nursery, Lampang, Thailand.

long, convex abaxially, flattened adaxially at base but becoming sharply angled at mid-blade; ca. 160 pinnae per side, ± irregularly arranged in groups of 2–4(–7) and fanned in several planes to give plumose effect, to 95 × 4.5 cm, long-lanceolate, straight, distal 15–20 cm drooping, leathery, glossy dark green

adaxially, paler abaxially and moderately dotted with minute, irregularly shaped to ± round, tan scales, midrib prominent and elevated adaxially, with 5–7 conspicuous secondary nerves on either side, transverse veinlets conspicuous, midrib abaxially covered densely with ± contiguous, tan, rameta to 5



12. *Syagrus romanzoffiana* × *S. yungasensis* is a slender palm. Ingwersen nursery, Lampang, Thailand.

mm long in proximal three-fourths, these becoming scattered in distal one-fourth. Inflorescences 3 or 4, interfoliar in flower and fruit, to 2.5 m long, ascending to spreading in flower, pendulous in fruit, 1-branched; peduncle 1–1.25 m long, 2.5 × 1.5 cm at apex, green with deciduous, mealy, white tomentum; peduncular bract to 2.5 m long, thick-leathery, becoming woody, green with deciduous, whitish tomentum and densely, deeply, and finely grooved abaxially; rachis 1–1.25 m long; rachillae numerous, to 90 cm long, 1.5 cm wide at base. Staminate flowers in distal two-thirds of rachilla; pistillate flowers in proximal one-third of rachilla.

A relatively fast grower in tropical Thailand, this hybrid has reached about six meters overall height with three meters of trunk after five years from seed.

***Syagrus romanzoffiana* × *S. yungasensis*.**

Solitary, slender, tree palm to 15 m tall (Fig. 12). Trunk 20 cm diam., flared at base, ringed, internodes 20 cm. Leaves ca. 20, spreading, 3–3.25 m long, distal 90 cm pendulous; base 45–60 cm long, medial costa prominently raised, persistent and becoming woody, covered with white mealy tomentum, deeply

split opposite petiole, margins with coarse fibers to 40 cm long with the distal 25–30 cm falling away leaving 10 cm base; petiole 40 cm long, 5 cm wide at base, 2–2.5 cm wide at apex, green, slightly convex to ± flattened abaxially with whitish tomentum throughout, flat adaxially, margins with a few slender hair-like fibers to 10 cm long in proximal 10 cm; rachis 2 m long, slightly convex abaxially, prominently raised and sharp costa adaxially; 115 pinnae per side, arranged in groups of 3–4 and fanned in several planes to give plumose effect, to 65 × 1.8 cm, long-lanceolate, straight, thick-papery, green, drooping, midrib prominent adaxially, with 4 prominent secondary nerves on either side, only secondary nerves conspicuous abaxially, midrib with scattered whitish ramentae to 4 mm long. Inflorescences several, interfoliar or rarely infrafoliar, to ca. 1.25 m long, ascending to spreading in flower, drooping in fruit, 1-branched (Fig. 13); peduncle 45 cm long, typically nearly completely concealed by subtending leaf base, 2.5 × 1.5 cm at apex, densely covered with tan mealy tomentum; peduncular bract to 1.25 m long, finely striate adaxially and prominently, densely, and deeply grooved with whitish mealy tomentum

13. Inflorescences of *Syagrus romanzoffiana* × *S. yungasensis* are ascending to spreading in flower. Ingwersen nursery, Lampang, Thailand.



abaxially; rachillae numerous, 45–50 cm long, 1.5 cm wide at base and \pm flattened, tapering to 0.5 mm diam. at apex, flexuose, golden yellow in flower. Staminate flowers in distal three-fourths of rachilla, 10 \times 15 mm, white, a few staminate flowers mixed with pistillate flowers in transition zone; pistillate flowers in proximal one-eighth to one-fourth of rachilla, 10 \times 7 mm, white.

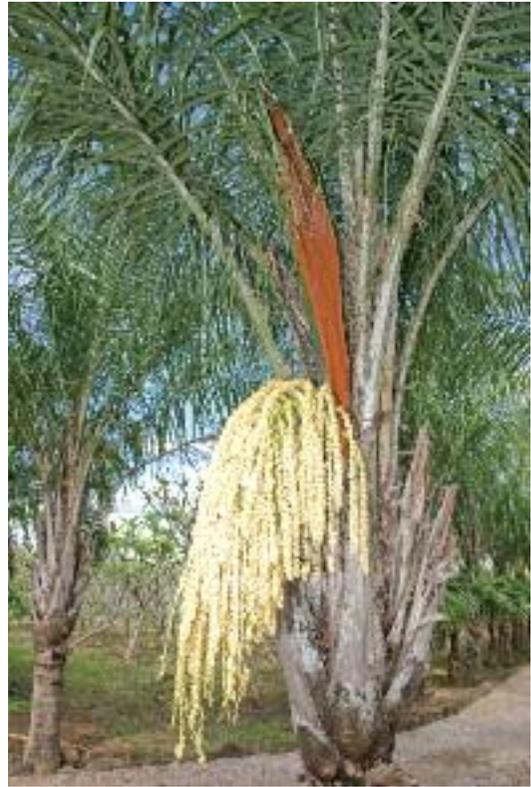
A relatively fast grower in tropical Thailand, this hybrid has reached about six meters overall height with three meters of trunk after five years from seed.

***Syagrus schizophylla* \times *S.* \times *montgomeryana*.**

Juvenile plant, no trunk. Leaves 10, ascending, \pm stiff, to 3 m long (Fig. 14); sheath 45 cm long, margins with ragged tan coarse fibers,

14. Leaves of *Syagrus schizophylla* \times *S.* \times *montgomeryana* are ascending, stiff, and with pinnae mostly in one plane. Ingwersen nursery, Lampang, Thailand.





15 (left). *Syagrus* × *camposportoana* can become a robust palm. Ingwersen nursery, Lampang, Thailand. 16 (right). Inflorescences of *Syagrus* × *camposportoana* are about two meters long. Ingwersen nursery, Lampang, Thailand.

those near base completely encircling stem, those distally becoming progressively shorter; petiole 60 cm long, 4–5 cm wide at base, 2.5 cm wide at apex, covered with deciduous, mealy, whitish tomentum but becoming ± glabrous, convex abaxially, concave adaxially proximally and ± flattened to slightly channeled distally, margins with ragged tan fibers in proximal 45 cm, these reduced to papery or scurfy wing in distal 15 cm; rachis 1.75–2 m long, green, convex abaxially, flattened adaxially but proximally becoming sharp, raised costa from mid-blade to apex; ca. 95 pinnae per side, arranged in groups of 3 or 4 proximally and in ± the same plane to ± regularly arranged distally, ascending from rachis to give V-shaped blade, ± flat in distal 30 cm, to 55 × 2.5 cm, long-lanceolate, straight, stiff, dark glossy green, midrib prominent and raised adaxially with 5 secondary nerves on either side, moderately white- or tan-punctate adaxially, secondary nerves conspicuous abaxially, midrib with brown ramenta to 4 mm long scattered along proximal 35 cm.

This complex hybrid, currently known only from a small juvenile plant, is the result of

back crossing *S.* × *montgomeryana* with one of its parents, *S. schizophylla*. It is decidedly more like *S. schizophylla* in appearance, especially to the pinnae arranged mostly in one plane.

Natural Hybrids

These natural hybrids, most with *Syagrus coronata* as one of the parents, occur in Brazil and the descriptions are mostly taken from Lorenzi et al. (2010), who also provided nice illustrations. They are more or less intermediate between the parents and frequently share characters of each. In parentheses following the species names I list each parent alphabetically because both species serve as the seed and pollen parent.

Syagrus* × *camposportoana (Bondar) Glassman, Fieldiana (Bot.) 31: 392. 1968. (*S. coronata* × *S. romanzoffiana*).

Solitary, robust tree palm, to 10 m tall (Fig. 15). Trunk 30 cm diam., flared or slightly enlarged at base, ringed, internodes 3–10 cm. Leaves 12–30, arranged in 5 distinct, vertically spiraling rows, mostly ascending, few spreading, to 6.5 m long, distal 75 cm drooping; base to 1 m long, bulbous and



17 (left). This *Syagrus* × *costae*, collected at the type locality in Brazil, is a medium-sized palm. Montgomery Botanic Center (941218), Miami, Florida. 18 (right). Fruits of *Syagrus* × *costae* are greenish brown. Montgomery Botanic Center (941218), Miami, Florida.

swollen proximally, to 30 cm long, tapering to 70 cm long “neck” with prominent medial costa, margins with coarse fibers to 15 cm long, green with dense, mealy white tomentum; petiole 1–1.7 m long, 5 cm wide at base, 3 cm wide at apex, convex abaxially, flattened adaxially, green with mealy, white tomentum, margins with ragged, coarse fibers to 15 cm long, reducing to small teeth 2 cm long at apex; rachis to 2.5–3.8 m long, convex abaxially, flattened adaxially at base but becoming sharply angled at mid-blade; ca. 130 pinnae per side, ± irregularly arranged in groups of 2–6 and fanned in several planes to give plumose effect, to 105 × 3.5 cm, long-lanceolate, straight, distal 30–35 cm drooping, leathery, green adaxially, paler abaxially, elevated midrib adaxially, with 4 or 5 secondary nerves on either side, secondary nerves conspicuous abaxially, no ramentae. Inflorescences several, interfoliar in flower, to 2 m long, ascending to pendulous, 1-branched (Fig. 16); peduncle to 1 m long, 4.5 × 3 cm at apex, densely covered with mealy, white tomentum; peduncular bract 2–3 m long, thick-leathery, becoming woody, green with deciduous, whitish tomentum and densely,

deeply, and prominently grooved abaxially; rachis 1–1.8 m long, tapering to 1–1.5 cm diam. at apex, yellow-green; rachillae numerous, 7–80 cm long, to 1.5 cm wide and flattened at base, tapering to 1–2 mm diam. at apex, glabrous, yellow-green, drooping, slightly flexuose. Staminate flowers in distal two-fifths of rachilla, 11 × 11 mm, white; pistillate flowers in proximal three-fifths of rachilla, 8 × 7 mm. Fruit 3–3.2 × 3 cm, ovoid, orange.

The description is supplemented from cultivated material in Thailand. This natural hybrid occurs in Bahia, Brazil, where the ranges of *Syagrus coronata* and *S. romanzoffiana* overlap. Its leaves arranged in five, distinct, vertically spiraling rows and trunk leaf scars are similar to those of *S. coronata*, and it has the appearance of a very robust form of this species. Leaves, peduncular bracts and fruits are larger than those of *S. coronata*, while seeds are not as deeply ruminant as those of *S. romanzoffiana*. In Thailand, Ingwersen made this hybrid using *S. coronata* as the seed parent and *S. romanzoffiana* as the pollen parent, and offspring have reached about 6 m height with 3 m of trunk after seven years from seed.



19. *Syagrus x tostana* is a slender palm. Ingwersen nursery, Lampang, Thailand.

Syagrus* × *costae Glassman, Fieldiana (Bot.) 32: 244. 1970. (*S. cearensis* × *S. coronata*).

Solitary, moderate, tree palm to 10 m tall (Fig. 17). Trunk 12–22 cm diam. Leaves 10–18, arranged in vertical lines or spiraling rows, mostly ascending to spreading, 2–3 m long; base 23 cm long; petiole 50–60 cm long, margins initially with cloth-like fibers that weather into variable, flexible or rigid, flat, individual fibers; rachis 2–2.3 m long; ca. 124 pinnae per side, ± irregularly arranged in groups of 2–4 and in 1 plane, 75–80 × 3–4 cm, linear, lightly glaucous. Inflorescences several, interfoliar, ascending to spreading, branched; peduncular bract woody, densely, deeply, and prominently grooved abaxially, expanded part 70–80 × 20 cm; rachis 66–73 cm long; rachillae 43–53, 34–53 cm long. Fruit 2.8–3.2 × 2.6–2.8 cm, oblong, greenish brown (Fig. 18).

This natural, fertile hybrid occurs in Pernambuco and possibly Alagoas, Brazil where the ranges of *Syagrus cearensis* and *S. coronata* overlap. Petiole fibers are similar in size to those of *S. coronata* but are softer and leaf arrangement is variable, either in distinct rows or not. Glassman erroneously reported this hybrid between *S. coronata* and *S. oleracea*, but Lorenzi et al. (2010) showed that it was *S. cearensis*, rather than *S. oleracea*, that was one of the parents.

Plants from cultivated origin and labeled as this hybrid are in Fairchild Tropical Botanic Garden in Miami, Florida but appear different from plants collected at the hybrid's type locality in Brazil and labeled as such at the Montgomery Botanical Center in Miami. The differences may simply be due to hybrid variability or may represent mislabeled or misidentified plants.

Syagrus* × *matafome (Bondar) A.D. Hawkes, Arq. Bot. Estado Sao Paulo, n. s., f. m. 2: 178. 1952. (*S. coronata* × *S. vagans*).

Solitary, moderate, slender, tree palm to 12 m tall. Trunk 15–25 cm diam., markedly ringed. Leaves 15–30, arranged spirally but not in distinct rows, mostly ascending; base 15 cm long; petiole 90–150 cm long, proximal margins with long, stiff fibers; rachis 0.5–2 m long; pinnae 60–90 per side, irregularly arranged in groups of 2–5 but in 1 plane, 20–50 × 2.5–4.5 cm, linear, glaucous. Inflorescences several, interfoliar, sometimes infrafoliar in fruit, ascending to spreading, branched; peduncle 60–90 cm long; peduncular bract woody, densely, deeply, and prominently

grooved abaxially, grayish, 75–120 cm long, expanded part 25–200 × 6–11 cm; rachis 43–95 cm long; rachillae 30–80, 10–55 cm long. Fruit 2.5–3 × 2.1–2.5 cm, ovoid, greenish.

This natural, fertile hybrid occurs in Bahia, Brazil where the ranges of *Syagrus coronata* and *S. vagans* overlap. It is more similar in habit to *S. coronata*, which can be distinguished by its leaves arranged in distinct rows with wide, flat, woody sheath fibers, while *S. × matafome* has leaves spirally arranged with much narrower sheath fibers.

Syagrus* × *teixeiriana Glassman, Fieldiana (Bot.) 32: 27. 1968. (*S. oleracea* × *S. romanzoffiana*).

Solitary, moderate, slender, tree palm to 6 m tall. Trunk 15 cm diam. Leaves 10–12, arranged spirally but not in distinct rows, ascending to spreading; base 30 cm long; petiole 60–90 cm long, proximal margins with few, short, stiff fibers, grayish; rachis 2.1 m long; pinnae 150 per side, irregularly arranged in groups of 3–5 and fanned in several planes, 66 × 2.5 cm, linear, stiff, glaucous. Inflorescences several, interfoliar, sometimes infrafoliar in fruit, ascending to arching, branched; peduncle 50–70 cm long; peduncular bract woody, densely, deeply, and prominently grooved abaxially, grayish, 100–120 cm long, expanded part 82 cm long; rachis 60 cm long; rachillae 38–86, 41–48 cm long. Fruit 3 × 2.1 cm, ovoid with a short beak, orange.

This natural, fertile hybrid occurs in Sao Paulo and Goias, Brazil where the ranges of *Syagrus oleracea* and *S. romanzoffiana* overlap. It has stiff pinnae like *S. oleracea* and fruit that, while intermediate in size between both parents, is ellipsoid or ovoid like that of *S. oleracea*. The orange fruit and irregular endocarp cavity are like those of *S. romanzoffiana*.

Syagrus* × *tostana (Bondar) Glassman, Rhodora 65: 261. 1963. (*S. coronata* × *S. schizophylla*).

Solitary, moderate, slender, tree palm to 8 m tall (Fig. 19). Trunk 10–15 cm diam. Leaves 8–15, arranged spirally, mostly ascending to spreading; base margins armed with long, flat, curling or spine-like fibers; petiole 100–126 cm long, armed as base, grayish (Fig. 20); rachis 2.1–2.3 m long; pinnae numerous, ± irregularly arranged in groups of 2 and fanned in several planes proximally but in 1 plane distally, 70–80 × 3.5–4 cm, linear. Inflorescences several, interfoliar, ascending to spreading, branched; peduncle 70–80 cm long; peduncular bract



20 (left). Leaf base and petiole margins of *Syagrus* × *tostana* are armed with long, flat, curling fibers. Ingwersen nursery, Lampang, Thailand. 21 (right). Inflorescences of *Syagrus* × *tostana* are mostly ascending to spreading. Ingwersen nursery, Lampang, Thailand.

20 (left). Leaf base and petiole margins of *Syagrus* × *tostana* are armed with long, flat, curling fibers. Ingwersen nursery, Lampang, Thailand. 21 (right). Inflorescences of *Syagrus* × *tostana* are mostly ascending to spreading. Ingwersen nursery, Lampang, Thailand.

woody, densely, deeply, and prominently grooved abaxially, 120–140 cm long, expanded part 82–97 × 10 cm; rachis 50 cm long; rachillae 60 or more, 40–45 cm long (Fig. 21). Fruit 3–4 × 1.5–2 cm, ovoid, reddish.

This natural, fertile hybrid occurs in Bahia, Brazil where the ranges of *Syagrus coronata* and *S. schizophylla* overlap. While the trunk is intermediate in size between both parents, the leaves are green, like those of *S. schizophylla*, instead of grayish green, like those of *S. coronata*. Fruits are larger than those of either parent. Ingwersen made this hybrid in Thailand using *S. schizophylla* as the seed parent and *S. coronata* as the pollen parent.

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