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Hybridization—Butia × Syagrus

BY DR. MERRILL WILCOX AS TOLD TO DON TOLLEFSON

I first noticed this unusual hybrid about four years ago when I went to visit Pauleen Sullivan in Ventura, California. It looked a little like a Queen palm, but it was quite different. It was more plumose and the fronds were more recurving. Pauleen informed me that the palm in question was a cross between *Butia capitata* and *Syagrus romanzoffiana* (Queen palm). The next winter I was truly amazed at how this palm grew steadily and rapidly through the winter. By the end of the winter it had begun forming a trunk and its fronds were even more plumose than before. I commented on the palm to Pauleen who responded that it was decidedly a "fast grower."

That same year at the 1992 I.P.S. Biennial in Florida, I spotted a similar hybrid on the grounds of the Fairchild Tropical Garden. It was gorgeous, and sure enough, the name placard revealed that it was a *Butia* × *Syagrus*. Back in Ventura, another year went by and of all Pauleen's many palms, the hybrid was by far her fastest grower, and it was also very striking and very lovely. Each year, Pauleen's hybrid added about two feet of trunk and it currently has about six feet of trunk with an imposing array of fronds.

Then in June of this year (1996) I visited Bob and Marita Bobick in Orlando, Florida and once again I was exposed to a *Butia* × *Syagrus* hybrid. It appeared similar to Pauleen's hybrid and I asked its origin. Bob Bobick informed me that he had obtained it from Dr. Merrill Wilcox, a professor at the University of Florida in Gainesville, and that to his knowledge, Dr. Wilcox was the only person who could intentionally hybridize these two palms successfully.

Back in California, Pauleen informed me that she also had obtained her hybrid from Dr. Wilcox. Recalling that I had sat beside Dr. Wilcox during a rather adventurous jeep ride to the top of Mt. Avila at the 1994 I.P.S. Biennial in Venezuela, I thought I would give him a call and see if he might share some of his hybridizing experience with the International Palm Society. Dr. Wilcox was obliging, so what follows is our conversation.

D.T.: How did you become interested in palms?

M.W.: It occurred after I began teaching at the University of Florida. I was 33 years old at the time. I was from the northern part of the United States, so Gainesville was my first exposure to palms. After a while I began to notice a distinction between palms. Some were pinnate, and some were palmate. I then began to concentrate on this distinction, and shortly thereafter I commented to my roommate about this difference. He not only was aware of it, but he told me also of a hybrid between two of the pinnate palms which occurred infrequently, and resulted in a very rare and beautiful palm.

D.T.: Did this excite your interest?

M.W.: It certainly did, particularly when I discovered that the two parents required for this hybrid were both growing at my apartment complex.

D.T.: How did you become involved in the hybridization process?

M.W.: It was sort of an indirect occurrence. I had a minor in botany, but I had never had a taxonomy course. I was curious enough, though, that I examined the inflorescence of a *Butia*. Upon observing the *Butia* flower, I discovered that the inflorescence looked like a corn tassel with a female flower added. As a young man, I had pollinated corn at Beltsville, Maryland, so I went to the library to obtain literature on palm pollination. The material that I found was about coconut and African oil palms, but figuring they were similar to *Butia* and *Syagrus*, I studied the process.

Editors' Note: The hybrid described in this article was formally named by P. Vorster in *Taxon* 39: 662–663 (1990). Interestingly the name he chose, ×*Butyagrus nabonnandii* (Prochowsky) Vorster, nicely commemorates Nabonnand who first made the cross. Larry Noblick has drawn our attention to the fact that in 1940 [*Rodriguezia* 4(13): 277] Max Burret mentioned the hybrid as occurring in the Rio de Janeiro Botanical Garden. Larry also informs us that the hybrid may occur spontaneously in Uruguay.

D.T.: Can you share your pollination experience with us?

M.W.: Certainly, although it's all in the research material about coconuts and African oil palms. I merely extended the effort to hybridization between *Butia* and queen palms. I start by collecting a queen palm inflorescence. I then put the inflorescence in a paper bag and placed it in an oven at 40° centigrade (approximately 104° F.) for about 20 hours.

D.T.: What does the oven process do?

M.W.: The heat causes the pollen to drop off freely into the bag.

D.T.: Won't the bag catch fire?

M.W.: Not at 40°. I should mention that I use a laboratory oven, but I have on occasion used a standard kitchen oven.

D.T.: Why a paper bag?

M.W.: Because plastic bags create humidity, which kills pollen. After 20 hours, you remove and pound on the bag to loosen the pollen. I like to drop the pollen onto tin foil. Next I use a rolling pin to crush the inflorescence and the male flower to obtain the maximum amount of pollen. I remove the male flowers, and then I sift the pollen through a standard strainer of approximately 40 mesh. This provides pure pollen. Then I store the pollen in a refrigerator, and save it until the female *Butia* flowers are receptive. When the female flowers are ready, I remove the male *Butia* flowers by hand or with a brush, and cover the remaining female flowers on the inflorescence with a plastic bag for 24 hours before the female flowers become receptive. The humidity build up from placing a plastic bag over the *Butia* inflorescence kills any *Butia* pollen that may have remained or perhaps prevents insects from pollinating the *Butia* or both. Then I remove the plastic bag and spread the *Syagrus* pollen on the *Butia* inflorescence with a 10 milliliter hypodermic syringe.

D.T.: A hypodermic syringe?

M.W.: Don't be intimidated by the hypodermic syringe. I use it as a small duster. You could probably just as easily use a salt or pepper shaker. Any seeds that develop should be the offspring of a male *Syagrus* and a female *Butia.* I wait until the seeds are ripe, pick them, and then germinate them. The result should be a *Butia* × *Syagrus* seedling.

D.T.: What happens if you reverse the parents—say a female *Syagrus* and a male *Butia?*

M.W.: I have rarely performed the hybridization process that way because the queen palms are so tall that much of the procedure would have to be performed on a tall ladder, and since it is already quite labor intensive the way I do it, I simply haven't been able to find the time to complete the cross in reverse. Although I have produced reversed seedlings, they have not survived. However, I have seen unintentional hybrids with a female *Syagrus* and a male *Butia* cross and they do tend to look different. They seem to be taller and lacier. In terms of cold hardiness and growth rate, I have not had the opportunity to make any distinctions.

D.T.: What have been your observations as to cold hardiness with the hybrids that you have developed?

M.W.: It's been my observation that the hybrids are usually more cold hardy than the parent queens, but less cold hardy than the parent *Butia.* As between the two parents, the hybrid appears closer to the queen than the *Butia* in cold sensitivity.

D.T.: What about crosses between the *Jubaea chilensis* and *Butia capitata*?

M.W.: I've performed several of those as well. For one thing, the *Jubaea* will not grow for us here in Florida, but the cross will. I have several of the *Jubaea* × *Butia* hybrids growing on my property.

D.T.: Is it because of the cold that the *Jubaea* will not grow in Florida?

M.W.: No, the *Jubaea* is definitely more cold hardy than the *Butia.* Maybe it's because of our humidity or high temperatures. *Jubaea* demands an atmosphere more arid than that of Gainesville.

D.T.: What's the physical distinction between the *Jubaea* × *Butia* and the *Jubaea*?

M.W.: The two are similar. The cross appears as though it may some day be as large as a regular *Jubaea,* so in that respect it's more like the *Jubaea* parent than the *Butia* parent. There's a *Jubaea* × *Butia* at Fairchild Tropical Garden. You can't miss it. It's much more glaucous than the regular *Jubaea.*

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D.T.: Can the *Jubaea* × *Butia* produce viable seed?

M.W.: My oldest *Jubaea* × *Butia* is only about 20 years old, but I believe it will produce viable seed. All natural *Jubaea* × *Butia* that I've checked produce viable seed.

D.T.: What about the *Butia* × *Syagrus*?

M.W.: I don't think so. That's why the expression "mule" has been derived for this cross.

D.T.: Could you cross, say, a coconut with a *Jubaeopsis caffra*?

M.W.: I don't think so. Coconuts have only 16 chromosomes, while *Jubaeopsis caffra* have over 100. Therefore, it wouldn't seem that those two could be capable of hybridization, except with difficulty.

D.T.: I'm sure that's what most of us sort of figured. Thank you for providing us with this fascinating information. The *Butia* × queen hybrids are beginning to show tremendous potential in new frontiers because of their cold hardiness and we are all hoping that you'll continue to keep up the work in the area of hybridization.

M.W.: I probably will continue since I sprayed water during a bad freeze on my queen palm and it managed to survive this past winter, which was so cold it resulted in the demise of almost all of the other queens in Gainesville. Otherwise it would have been difficult, if not impossible to find queen pollen locally.

D.T.: How can palm enthusiasts obtain the relevant literature in the event that they want to attempt to duplicate your hybridization process?

M.W.: I would be happy to send articles to anyone interested in the process, so anyone who is interested can simply obtain my address from the IPS Roster and contact me.

D.T.: Any final advice?

M.W.: Just one thing. I have heard of these hybrids referred to as mules. I recall as a youngster my many unpleasant encounters with that cantankerous animal and I hate to see such a beautiful palm associated with it in any way. Although I realize it's none of my business what people call it, I would like to encourage the association of the *Butia* × *Syagrus* cross with the name Nabonnand after Paul Nabonnand, the botanist who first successfully hybridized these plants over 100 years before I did. Knowing first hand the degree of difficulty required, I have a great deal of respect and admiration for him.

PALMS AND PEOPLE

During the annual meeting of the Society for Economic Botany (SEB), which will be held at the University of Aarhus, Denmark, 13–17 July 1998, a special session will feature the theme "Palms and People."

The meeting is open to others than members of the SEB. Further information can be found on the SEB website:

http://www.nybg.org/bsci/seb/SEB.html

Registration for the meeting can be sent to:

John Rashford, SEB Treasurer
Dept. of Sociology and Anthropology
College of Charleston, Charleston, SC 29424 USA
email Rashfordj@cofc.edu

Fees are: nonmembers of SEB 105 USD, banquet 45 USD, accommodation 35 USD/night.

Abstract: before May 5, 1998, by email to Henrik.Balslev@Biology.aau.dk or by regular mail to Henrik Balslev, SEB-conference, Dept. of Systematic Botany, University of Aarhus, Nordlandsvej 68, 8240-Riiskov, Denmark.