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# Book Review

**The Coconut Palm:** Botany & Breeding, by **K. Satyabalan**, Nov. 1993. 214 pp. Illustrated, Asia and Pacific Coconut Community, Jakarta 10013, Indonesia. Price $ 50.00 (including postage).

There has not been any major attempt to bring out an upto date book on Coconut Botany and Breeding Research after the earlier Monographs of Patel (1938), Menon and Pandalai (1958), Ohler (1984) and Thampan (1981, 1993) which only had a brief treatment of the subject as they covered other disciplines too. It is therefore, timely and refreshing to see the present comprehensive work by a senior coconut breeder Mr. K. Satyabalan who had spent over three-and-a-half decades of active research in this field and has become part of the history of Coconut Breeding in India and the world. Mr. Satyabalan has to his credit some highly original contributions particularly in providing a clear understanding of the phenomenon of prepotency and its implications for the genetic upgrading of coconut populations, combining ability in relation to heterosis breeding, and genetics of Dwarf Coconuts.

In the first three chapters on Botany and varietal classification and again under 'Miscellaneous Studies', the author has attempted to supplement information and update the earlier monographic works. It would have been better if these chapters had been consolidated under one chapter titled "Basic Studies" including Botany, Taxonomy, Cytology, Physiology etc. and then deal with the Breeding and Genetics aspects subsequently. Under the Germplasm chapter, the total number of holdings or accessions in each country especially India could have been detailed, giving salient features of each.

The chapters on Tall x Dwarf and Dwarf x Tall hybrids are particularly well written. Although the author has given a detailed treatment regarding the $F_2$ heterosis of TxD, such a discussion is wanting for DxT hybrids as well. The fact that even selfed progenies of the Chowghat Orange Dwarf segregate for both seedling vigour and colour of petiole, evidently points to the need for developing inbred lines. Unlike the homogeneous nature of the Malayan Yellow Dwarf and the West African Tall which constitute the parentage of the much publicised 'MAWA' hybrid 'PB-121' of IRHO, Ivory Coast, and result in over 95% recovery of heterotic $F_1$ DxT seedlings, the Dwarf (COD) and Tall (WCT) parents in India are at a lower level of homogeneity which explains the lower percentage of recovery of heterotic DxT seedlings. This certainly calls for undertaking a systematic process of inbreeding of both our Dwarf and Tall parents, and also to identify such of the Dwarf palms which yield over 90% recovery of DxT hybrids. This is most vital if our Hybrid Seed Gardens are to be made profitable.

In many seed gardens, even semi-talls are being used as Dwarf parents since open-pollinated (O.P.) seednuts have been collected from the source of so-called Dwarfs. As JBS Haldane rightly asked, it is a question of "How tall is your Tall and how dwarf is your Dwarf coconut palm?" Unless we generate inbred lines, we may not be able to realize the full potential of heterotic expression in the coconut hybrids between Tall and Dwarf parents in either direction. Since many farmers are selling the O.P. progeny seedlings of DxT $F_1$'s, we need to examine the extent of residual heterosis in the $F_2$ progeny of DxT $F_1$'s, in terms of both seedling vigour as well as adult palm performance.

Satyabalan's own study of combining ability of different Dwarf types with Talls, has revealed the importance of low shell thickness (less than 20% of husked nut wt.) in relation to husk content of Talls (less than 50% of fruit wt.) and high copra value

(above 150 gm/nut). Such a rigorous selection of parents can enhance the recovery of DxT hybrids upto 79.1%. The need for identifying more number of prepotent Talls is also indicated by Satyabalan, since the prepotent Talls represent stable gene complexes that tend to cohere but do not recombine even under random mating.

In general, the presentation is masterly and reveals the close association of the author with some of the tricky problems of Coconut Breeding for perhaps the longest innings of any living coconut scientist. Therefore, Mr. Satyabalan deserves the gratitude and appreciation of all coconut breeders for presenting this exhaustive work resulting from his first-hand experience with this wonderful palm, spanning over three-and-a-half decades.

The photographs, particularly the colour prints are well reproduced, and for uniformity it would have added to the value of the book if all the pictures were in colour, to bring out the salient features of nut and petiole colour. The book lacks an Index, and quite a few printing errors have crept in both in the text and in references, which should be made good in the next edition of the book. It may be worthwhile considering the next edition to be of normal book size with hardbound cover. Nevertheless, the present work will be welcomed by all coconut scientists as a very useful addition to our knowledge on the breeding and botanical aspects of this valuable palm. Copies of the book may be ordered from the Executive Director, Asia and Pacific Coconut Community, P.O. Box 1343, Jakarta - 10013, Indonesia.

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