

Physiological Studies on Arecanut Palm - A Review

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The arecanut palm (*Areca catechu* Linn.) is grown for betel nut which is used as masticatory. India produces ca 1.5 million t of arecanut annually grown over 1.83 million ha. Improvement of yield through proper agronomical practices, plant protection measures and selection have been done in the past two decades. The work on physiology of arecanut, though meagre, is reviewed in this paper, with suggestions for future line of work.

Morphological and Biochemical Characters

The correlation studies on various morphological characteristics and yield components have been carried out. It has been shown that yield is positively correlated with number of nuts set (Yadava et al., 1977).

The total chlorophyll content varied among the species of *Areca* studied. *A. triandra* had highest level of chlorophyll. The levels of organic acids also were significantly different among the species (Yadava and Mathai, 1972). The content of carbohydrates in relation to dry matter production was studied (Yadava et al., 1972). There was diurnal variation in the carbohydrate levels.

Button shedding

Poor fruit set and button shedding is a serious problem limiting yield in areca palm. Application of GA₃ (100 ppm), 2,4-D (50 ppm) and B-995 (200 ppm)

could improve the fruit set (Yadava et al., 1974). Spraying with growth regulators caused more fruit set and kernel yield than the control and this increase was from 5.2 to 129.6 per cent (Yadava et al., 1974).

Nutrients and Carbohydrates in Yellow Leaf Disease Affected Palms

The content of major nutrients like nitrogen, phosphorus, potassium and magnesium was less, but micronutrients like Fe and Al were higher in diseased palms (Yadava et al., 1969, 1973). The symptoms of the disease could not be reproduced in pot culture experiments (Yadava et al., 1972). Seasonal changes in carbohydrate fractions in leaves showed that the contents were higher in diseased as compared to healthy palms (Yadava et al., 1977).

Weed control

An effective control of weeds in arecanut gardens was obtained with a combination of 0.5% 2,4-D, 2,4,5-T or paraquat with 1% Dowpan. Pentachlorophenol would control only the dicotyledonous weeds (Yadava et al., 1971).

Suggestions for future research

The major lines of research work in arecanut are suggested below :

- i) Photosynthetic characteristics of arecanut and its intercrops
- ii) Dry matter partitioning and developing regression equation for non-destructive determinations or related growth rates
- iii) Physiology of fruit development and immature nut fall.

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