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Effect of mixed crops on arecanut yield*

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Several crops were found suitable to be grown as intercrops in areca gardens without affecting the yield of arecanut (Muralidharan, 1980; Nair, 1982; Shama Bhat, 1988; Khader *et al.* 1993). These studies were conducted with only one mixed crop. Later on, the benefits of High Density Multi-Species Cropping System (HDMSCS) were realized and studies were started during 1983 (Bavappa *et al.*, 1986). The objective of the present study was to evaluate the impact of growing more than one mixed crop in an arecanut garden on the yield of arecanut.

The study was conducted at Central Plantation Crops Research Institute, Regional Station, Vittal on a laterite (Oxisol) soil. Two crops *viz.*, cocoa and clove were planted during 1983 in an existing 17 year old South Kanara local areca garden. There were four treatments including control with six replications. The treatments are (i) Control (ii) Growing cocoa on one side of the areca rows (iii) Growing clove on one side of the areca rows (iv) Growing cocoa on one side and clove on other side of the areca rows. The palm wise pooled data collected during 1982-83 and 1983-84 has been used as pre-treatment yield.

The plantation was irrigated during summer months following hose irrigation method. The normal recommended package of practices were followed. The pooled palm-wise yield data collected during the period 1992-93 and 1993-94 were considered as the post treatment yield. The mean yield of arecanut in each of the treatments is given in Table 1.

Analysis of Covariance (ANCOVA) technique with pre-treatment as covariate has been used for analysing the data. Treatment effect can be included in the ANCOVA model by incorporating dummy variables (Draper and Smith, 1981). Effect of treatments can be compared by testing the equality of intercepts. The different treatments were compared by testing the differences of regression co-efficients (Table 2. and Fig. 1). It can be observed that there is no significant difference among the treatments including control . This indicates that growing of cocoa and clove as mixed crops individually or in combination did not show any adverse effect on arecanut yield. Slightly higher yield was noticed in the treatments involving cocoa and clove as mixed crops individually or in combination.

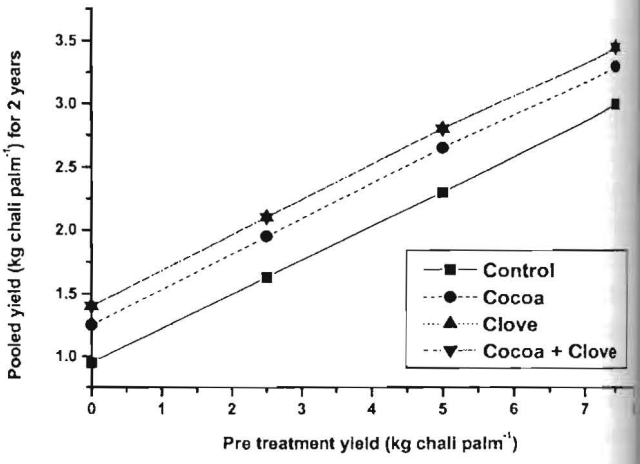

Fig. 1. Effect of mixed crops on arecanut yield

Thus, it can be concluded that growing cocoa and clove as mixed crops either individually or in combination will not reduce the arecanut yield.

Table 1. Yield of arecanut (kg chali palm⁻¹) as influenced by different mixed crop combinations

Treatments	Pre-treatment yield*	Post-treatment yield*	SE
Control	1.6	1.4	0.23
Cocoa	1.9	1.8	0.14
Clove	1.8	1.9	0.13
Cocoa + Clove	1.9	1.9	0.14

*Mean of two years

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Table 2. Testing regression co-efficients of different treatment combinations

Treatments	Difference of co-efficients	SD	't' value	Signifi-cance
Control vs. Cocoa	1.128	1.003	1.179	NS
Control vs. Clove	1.844	1.032	1.788	NS
Control vs. Cocoa + Clove	1.823	1.033	1.765	NS
Cocoa vs Clove	0.626	0.728	0.860	NS
Cocoa vs. Cocoa + Clove	0.605	0.728	0.860	NS
Clove vs. Cocoa + Clove	0.021	0.728	0.029	NS

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