
EFFECT OF GROWING GREEN MANURE LEGUMES IN THE BASINS OF ROOT (WILT) AFFECTED COCONUT PALMS

George V. Thomas, Mathew George* and M.V. Shantaram**

Central Plantation Crops Research Institute,
Kasaragod 671 124, Kerala, India

The root (wilt) disease of coconut, caused by mycoplasma-like organisms has affected nearly 340 million palms in Kerala (Anonymous, 1985). In the absence of definite control measures and the debilitating nature of the disease, concept of living with the disease by developing suitable management practices to maintain the productivity of diseased palms is emerging. This communication reports the feasibility of *in situ* cultivation and incorporation of green manure legumes in the coconut basins (1.8 m radius around the bole) and its effect on root (wilt) disease and yield of palms.

A field experiment was conducted with three green manure legumes and a control without green manure in a farmer's garden in a laterite soil at Vallikkunnam (Alleppey district, Kerala) in a heavily root (wilt) affected tract for a period of five years. *Calopogonium mucunoides* Desv., *Pueraria phaseoloides* (Roxb.) Benth. and *Mimosa invisa* Mert. were the legumes tested. Twenty-five to 30 years old 'West Coast Tall' coconut palms in the early and middle stages of root (wilt) disease were selected for the study and each treatment was replicated eight times. Seeds of the legumes were sown (25 g/basin) in 1.8 m radius basins with the onset of monsoon in June and shoot portion at 120 days growth was harvested and incorporated in respective basins. The palms also received the recommended fertiliser treatments at the rate of 500 g N, 320 g P₂O₅, 1200 g K₂O and 500 g MgO. Yield data and foliar disease symptoms namely, flaccidity, yellowing and necrosis, of the palms were recorded for a period of five years. Root (wilt) disease index was computed on the basis of a formula developed by George and Radha (1973). Yield and disease index data

*Central Tuber Crops Research Institute, Trivandrum

**Department of Soil Science and Agricultural Chemistry, APAU, Hyderabad

were analysed statistically by co-variance analysis using pre-treatment values as ancillary variables.

The mean biomass yield of *C. mucunoides*, *M. invisa* and *P. phaseoloides* were 24.93, 27.88 and 24.61 kg/basin, respectively. Cultivation of legumes in the basin and incorporation *in situ* did not cause any significant change in the root (wilt) disease index of the treated palms over a period of five years (Table 53.1).

Table 53.1: Effect of basin management with green manure legumes on root (wilt) disease and yield of coconut palms

Treatment	Root (wilt) disease index		Nut yield/palm/year	
	pre-treatment	post-treatment*	pre-treatment	post-treatment*
<i>M. invisa</i>	18.00	17.91	32.32	54.46
<i>P. phaseoloides</i>	12.38	16.58	39.51	63.84
<i>C. mucunoides</i>	21.12	20.91	42.96	52.21
Control	19.38	24.18	26.50	38.93
LSD (P = 0.05)		NS		17.12

* Values are averages of fourth and fifth years.

Palms under the treatment of *C. mucunoides* and *M. invisa* showed marginal improvement whereas palms under *P. phaseoloides* showed slight deterioration. The increase in disease index observed in *P. phaseoloides* treatment was less than the increase recorded in control palms. On the other hand, the nut yield of the palms increased significantly due to cultivation and incorporation of green manure legumes in basins. There was also improvement in the yield of control palms which could be attributed to the addition of inorganic fertilisers. But the palms under the treatment of green manures showed a much higher increase in yield than the control palms. The increase in yield could be due to the increase in microbial activity, nutrient supply and addition of organic manure in the green manure treatments. The present study suggested that yield of disease affected palms could be improved by *in situ* cultivation and incorporation of green manures and inorganic nutrients without further deterioration in the root (wilt) disease condition.

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