

INCIDENCE OF *MYLLOCERUS CURVICORNIS* (F.) IN RELATION TO NUTRITIONAL STATUS OF COCONUT PALMS

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ABSTRACT

Myllocerus curvicornis (F.) is a new pest on coconut. It was observed damaging coconut foliage. This paper presents the observation of its abundance in relation to nutritional status of Dwarf x Tall palms. Results revealed that pest intensity was significantly higher in N₂P₂K₂ plots than in N₁P₁K₁; the percentage of infestation being 54.68%, 71.21% and 68.31% for N₁P₁K₁, N₂P₂K₂ and N₃P₃K₃, respectively.

INTRODUCTION

Kurian et al. (1978) recorded *Myllocerus curvicornis* (F.) as a new pest on coconut. The weevil has been observed in the farm of the Central Plantation Crops Research Institute (CPCRI), Regional Station, Kayangulam damaging coconut foliage in various degrees of intensity. Detailed studies on its biology and control were carried out. This paper presents the observation on its abundance in relation to nutritional status of Dwarf x Tall palms.

MATERIALS AND METHODS

The observations were carried out on 324-seven year old Dwarf x Tall palms already available at the CPCRI farm under an experiment to determine the fertilizer schedule, yield and tolerance, if any, to coconut root (wilt) disease. The palms received three levels of NPK respectively at 0.5, 1, 1.5 (nitrogen); 0.3, 0.6, 0.9 (phosphorus); 1, 2, 3 (potassium); 0, 0.5, 1 (magnesium) kg/tree/year and calcium according to lime requirement over and above the amount of dung applied in the basin at 50 kg/tree/year since 1974. The experiment was under Randomised Block Design with 18 treatments, each treatment replicated thrice, with six palms in each replication. Data on the number of attacked leaves per palm were statistically analyzed correlating the fertilizer status with the pest incidence.

RESULTS AND DISCUSSION

Out of the 324 experimental palms, 296 palms were infested by *M. curvicornis*. Results revealed that the pest incidence was significantly higher in N₂P₂K₂ and N₃P₃K₃ plots than in N₁P₁K₁, the percentage of infestation being 54.68%, 71.21%, and 68.31% for N₁P₁K₁, N₂P₂K₂ and N₃P₃K₃, respectively. Against 59.74% pest infestation at MgO level, Mg₁ and Mg₂ presented 67.11% and 67.36%, respectively. The supply of calcium leads to a slight decrease in pest incidence (Table 1).

Table 1. Correlation of nutritional status of coconut palms with the incidence of *Myllocerus curvicornis* (F.)

	LEVEL OF FERTILIZER APPLICATION		
	N ₁ P ₁ K ₁	N ₂ P ₂ K ₂	N ₃ P ₃ K ₃
Percentage of pest incidence	54.68	71.21	68.31
	CD 5% - 8.8%		
MgO	59.74	Mg ₁ 67.11	Mg ₂ 67.36
CaO	65.69	Ca ₁ 63.78	

Lyubenov (1956) in his studies on the effect of fertilizers on the degree of attack by *Lema melanopa* L. observed that the infestation was favored by nitro-

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genous fertilizers, which led to tall, sappy growth and thin cell walls and was reduced by potash and phosphorus compounds leading to thickening of the leaf cuticle and a general strengthening of the plant tissues. Studies made by Rodriguez (1958) on the comparative NPK nutrition of *Panonychus ulmi* (Koch) and *Tetranychus telarius* (L.) on apple trees revealed that in apple foliage, nitrogen and phosphorus showed antagonism, particularly when nitrogen supply was increased. The amount of absorbed nitrogen was negatively correlated with the population of *T. telarius* when higher doses of phosphorus was supplied. A tendency appeared for the development of *T. telarius* to be correlated with absorbed phosphorus, positively at concentrations below 0.2% and negatively at higher doses. Observations of Fennah (1959) on the nutritional factors associated with the development of mealy bugs on cacao revealed that heavy incidence was positively correlated with the application of nitrogen and negatively correlated with that of potassium.

In the present studies, the same trend is also observed. Higher uptake of nitrogen, phosphorus, and potassium in the second and third level of NPK application is evidenced by the result of leaf analysis. The production of leaves is higher in the third and second level of application of NPK as compared to the first level. The higher uptake of nitrogen in the latter two levels of NPK application favoring infestation is significantly high in $N_2P_2K_2$ and $N_3P_3K_3$ plots than in $N_1P_1K_1$ plots. The slight decrease in the percentage of infestation in the third level of NPK application compared to the second level may be due to the fact that the higher dose of application of phosphorus and potassium which leads to the thickening of cell cuticle and strength of the palms makes the palms resistant to the weevils. Thus, after the second level of application of NPK, the higher dose of application of phosphorus and potassium

in the third level of NPK application negatively correlates with the pest incidence, even in the presence of higher doses of nitrogen. Pest incidence is found to increase with the increase in dose of magnesium leading to increase in the vegetative growth which in turn favors the pest incidence. From the above observations, it is concluded that the incidence of *M. curvicornis* is at its maximum at $N_2P_2K_2CaO-Mg_2$ level of treatment.

The observations throw light on future possibilities of utilizing controlled nutrition to plants in pest management.

LITERATURE CITED

- FENNAH, R. G. 1959. Nutritional factors associated with the development of mealy bugs on cacao. Rep. Cacao Res. Trinidad, 1957-1958 pp. 18-28 (RAE 48: 192, 1960).
- KAMALAKSHYAMMA, P. G., S. ROBERT CECIL, and A. S. MATHEW. 1977. Nutritional requirement of D x T palms in root (wilt) disease affected area. In CPCRI Annual Report for 1977.
- KURIAN, D., V. A. ABRAHAM, K. N. PONNAMMA and K.M. ABDULLA KOYA. 1978. *Myloccerus curvicornis* (F.). A new pest of coconut. J. Plant. Crops 6 (1): 44-48.
- LYUBENOV, Y. 1956. The effect of fertilizers and sowing date on the degree of attack by *Lema melanopa* L. Selsk. Mis. pp. 37-48 (RAE 46: 117-118, 1958).
- RODRIGUEZ, J. G. 1958. The comparative NPK nutrition of *Panonychus ulmi* (Koch) and *Tetranychus telarius* (L.) on apple trees. J. Econ. Ent. 51(3): 369-373 (RAE 47: 330-331).