

ABSTRACT

The results of studies conducted on the seasonal and varietal variations on the incidence of leaf rot in the Root (wilt) affected tracts of Kerala are presented in this paper. The results indicated that leaf rot disease intensity was higher during September-October when the north east monsoon showers are received in the area. Among nine hybrid/varieties tested T×LD followed by T×NYG recorded lowest incidence of leaf rot symptoms. Hybrid T×NYG followed by T×LD was found tolerant to root (wilt) disease. The intensity of leaf rot was comparatively low in those varieties where a lesser incidence of root (wilt) was observed and the correlation-coefficient computed were statistically significant.

SEASONAL AND VARIETAL VARIATIONS ON THE INCIDENCE OF LEAF ROT OF COCONUT IN THE ROOT (WILT) AFFECTED TRACTS

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INTRODUCTION

The leaf rot disease of coconut is found to have widespread occurrence in the root (wilt) affected belt of Kerala. The disease is infectious and fungi like *Bipolaris halodes*, *Gloeosporium* sp and *Gliocladium roseum* are found associated. The first visible symptom of the disease is a blackening and shrivelling up of the distal ends of young leaflets. On drying up these are broken off in bits by the wind and the infected leaves manifest a fan-like appearance. In severe cases the rotten portions will be completely cemented together, so that the central shoot is prevented from opening out. Leaf rot disease has been observed on trees of all ages, but it generally flourishes on palms below 25 years (Menon and Pandalai, 1958). The loss in yield

due to the disease was estimated to be 70% less than in healthy palms (Radha *et al* 1962). The disease is therefore assuming economic importance. Investigations conducted on the seasonal and varietal variations on the incidence of leaf rot disease in root (wilt) affected tract is reported in this paper.

MATERIALS AND METHODS

The study was conducted on seven year old coconut palms planted under the disease resistance trial at the Coconut Research Station, Kumarakom under the Kerala Agricultural University. The trial which was laid out in a completely randomised design contained the following 9 hybrid/varieties. The number of replications of each test palm are given in brackets.

(1) Tall × Dwarf (8), (2) Tall × Gangabondam (8), (3) Tall × Yellow Dwarf (9), (4) Tall × Nyior Gading (8), (5) Tall × Strait Settlements (10), (6) Tall × Laccadive Dwarf (10), (7) Tall × Andaman Dwarf (10), (8) Tall × Tall (8) and (9) West Coast Tall (8).

Each plot contained single palms which were grown under normal management schedule and uniform conditions prevailing in the backwater region of Kerala. Observations on leaf rot disease intensity was recorded for one year at monthly intervals starting from September 1977 using 5 infection grades viz. 0 (no infection), 1. (upto 5% leaf area infected), 2 (between 6 to 20%), 3 (21—35%), 4 (36—50%) and 5 (above 50%). The root (wilt) disease intensity was noted during February 1978 and the disease index was computed by the method evolved by George and Radha (1973).

RESULTS AND DISCUSSION

The data on the seasonal variations on the intensity of leaf rot disease are presented in Table I. Results of analysis of the data indicated that symptoms of fungal infection were highest during September, October and lowest in April, May, June. The expression of leaf rot symptoms was maximum during the north-east monsoon period under the conditions prevailing in the back-water region of Kerala. According to Radha *et al* (1961) the severity of leaf rot infection was during monsoon period and also during

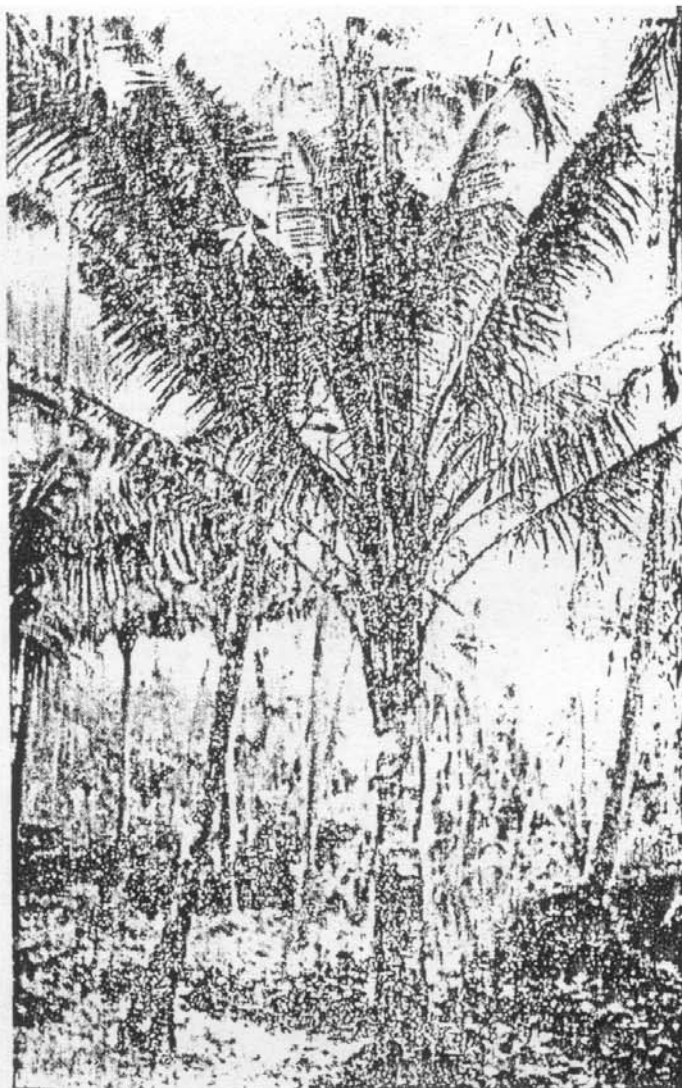
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dry season whenever the leaf surface become wet. The data obtained in the present observations are in line with that report.

The varietal variations in the incidence of leaf rot and root (wilt) disease were summarised in Table 2. Maximum leaf rot infection was recorded in T×D while the intensity was significantly lower in T×LD followed by T×NYG. Hybrids T × YD, T×T and T×AD were more susceptible to leaf rot than W.C.T., the susceptible check used in the trial. Among the hybrid/varieties tested the intensity of root (wilt) was the greatest in W.C.T. palm followed by T × T and T × D. T×NYG and T × LD recorded the lowest incidence indicating the tolerance of these hybrids to root (wilt) disease. Davis (1970) reported that Malayan dwarf is resistant to "Lethal yellowing" of Jamaica. Mathai (1978) found indication of tolerance of Laccadive dwarf against root (wilt) disease. The results obtained in the present study strengthen the views expressed by the earlier workers.

The correlation coefficients between root (wilt) disease indices and leaf rot infection scores were also worked out. Significant correlation was observed between root (wilt) and leaf rot infection indicating the existence of real influence of root (wilt) on leaf rot disease. The widespread occurrence of leaf rot disease in the root (wilt) affected belt in Kerala and its limited occurrence in healthy tracts (Radha & Lal, 1968) confirm the relation obtained in the present study.

The effect of interaction between season and varieties on the incidence of leaf rot were also tested with no significance.



A seven year old West Coast Tall palm affected by leaf rot

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TABLE 1

Seasonal variations of leaf rot disease intensity in coconut

Season	Leaf rot infection Scores (mean)	
	1	2
January		0.64
February		0.70
March		0.34
April		0.23

TABLE 1—Contd.

	1	2
May		0.20
June		0.18
July		0.38
August		0.34
September		1.14
October		1.24
November		0.70
December		0.69

C.I.D. (5% level) for comparison between Monthly means: 0.395.

TABLE 2

Varietal variations in the intensity of Leaf rot and Root (wilt) disease in coconut

Name of hybrid/variety	Mean Leaf rot infection Scores	Mean Root (wilt) disease index
1. T×D	1.04	21.08
2. T×G	0.44	14.71
3. T×YD	0.69	12.09
4. T×NYG	0.34	1.50
5. T×SS	0.53	7.22
6. T×LD	0.27	5.32
7. T×AD	0.60	11.81
8. T×T	0.65	24.03
9. WCT	0.57	25.11

A.C.D. (5% level) for comparison between varietal means of Leaf rot infection scores:—

- (1) between 8 and 8 replications 0.292
- (2) between 8 and 9 replications 0.284
- (3) between 8 and 10 replications 0.277
- (4) between 9 and 10 replications 0.268
- (5) between 10 and 10 replications 0.261

B.C.D. (5% level) for comparison between varietal means of Root (wilt) disease indices : 8.74.

Coconut palms which have come to the bearing stage will take another five to six years to reach the stage of full productivity. In the earlier years, the yields will be poor as fewer number of spadices are produced irregularly with a very small number of female flowers. These characters gradually improve with age, resulting in increased yields.

TO CONTRIBUTORS

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—Editor