

A NOTE ON THE SEQUENCE OF OCCURRENCE AND INTENSITY OF FOLIAR SYMPTOMS OF ROOT [WILT] DISEASE ON COCONUT SEEDLING PALMS

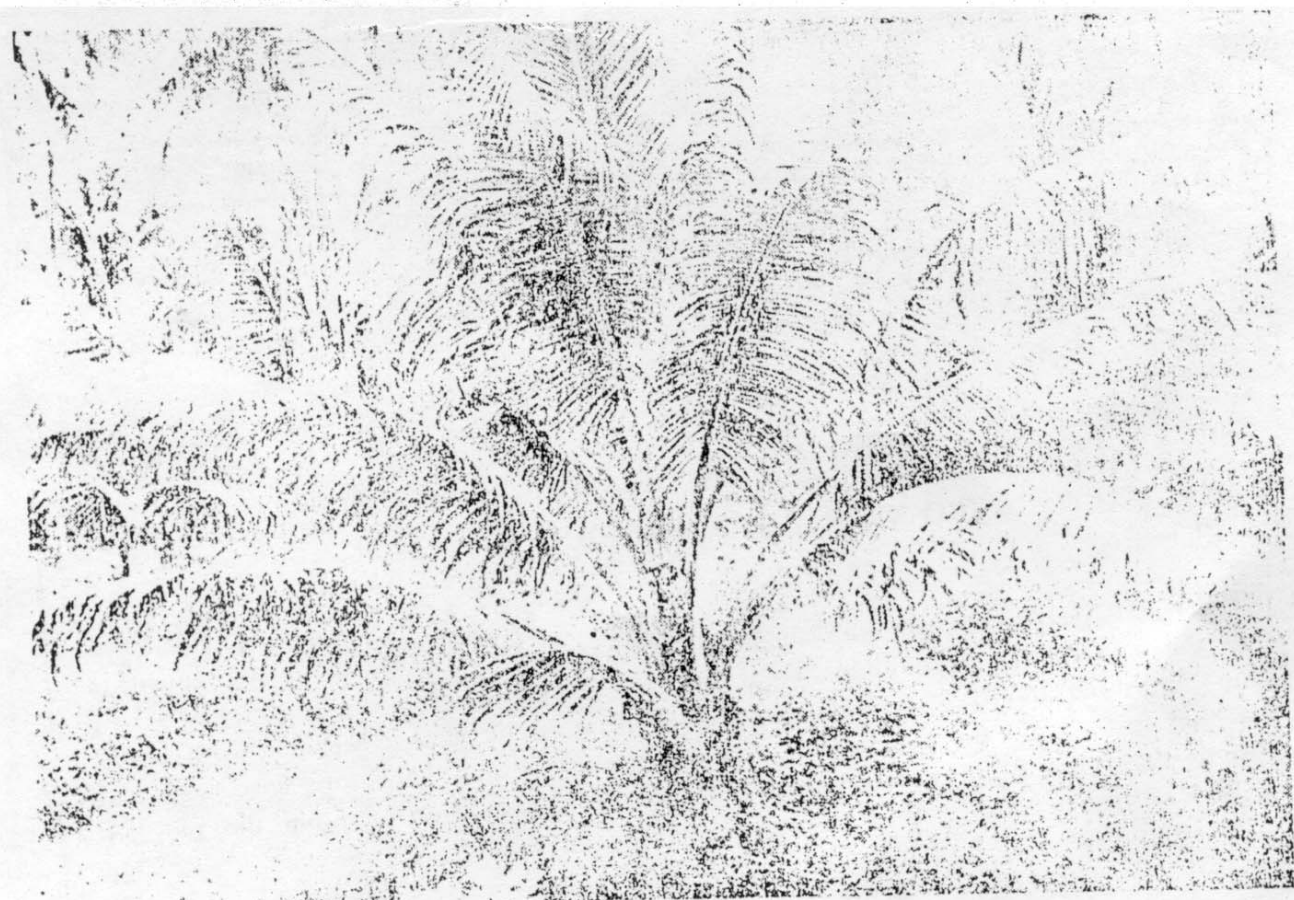
G. MATHAI¹ AND B. THOMAS²

The symptoms of root (wilt) disease of coconut are complex and variable. Radha and Lal (1972) reported that flaccidity or ribbing of leaflets was the common symptom whereas foliar yellowing and marginal necrosis are of secondary importance. Information on the periodical accent of the various symptoms of root (wilt) disease are lacking in literature. A quantitative evaluation of the foliar symptoms based on the sequence and frequency of occurrence in very young seedling palms of different cross combinations were hence taken up at the Coconut Research Station, Kumarakom, Kerala during 1975-78.

The soil where the study was conducted is reclaimed clayey type (Kuttanad). One year old seedlings of Tall × Tall, Tall × Gangabondam, Tall × Green Dwarf, Tall × Yellow Dwarf, Laccadive Ordinary × L. O. and Tall × Dwarf obtained from the Coconut Research Station, Nileshtar and planted during September 1975 were used for the observational study. The foliar conditions of the test palms was recorded

at half yearly intervals. The initial manifestations of symptoms like flaccidity, yellowing and marginal necrosis singly or in combination with each other were noted from the year of planting and continued for three years. The intensity of root (wilt) was computed by the method evolved by George and Radha (1973).

Expression of visual symptoms of root (wilt) disease was first noted during the third year of planting and the whole seedling palms remained healthy till that period. The data on the frequency of occurrence of one or other foliar symptoms either singly or in combination are presented in Table 1. Out of a total number of 228 seedling palms observed 72 per cent were diseased and the balance healthy. Among the diseased palms 31% expressed yellowing plus flaccidity, 27% yellowing alone, 12% yellowing, flaccidity and necrosis combined and 2% flaccidity alone. The simultaneous expression of yellowing and flaccidity at the highest rate indicated that flaccidity



A three year old seedling palm affected by root (wilt) disease

¹Assistant Professor (Plant Pathology)

²Assistant Professor (Entomology), Coconut Research Station, Kumarakom, Kerala-686563.

of leaves appears to be the most frequent and common of the three foliar symptoms as described by Radha and Lal (1972). The occurrence of a comparatively high per cent of foliar yellowing independent of other symptoms suggest that yellowing may be the initial visual symptoms of root (wilt) disease in Kuttanad area. It was reported by Radha and Lal (1972) that foliar yellowing was at the maximum in Kuttanad which is in conformity with the present observation. The lowest frequency of flaccidity independent of other symptoms and the highest rate of occurrence of yellowing and flaccidity combined showed that flaccidity was expressed in association with yellowing under the conditions prevailing in the area. The symptoms of marginal necrosis was not expressed independently but was always in association with flaccidity. Further the combined manifestation of yellowing, flaccidity and necrosis in a very low percentage suggested that marginal necrosis developed at the second stage of the disease as reported by Radha and Lal (1972).

The intensity of incidence of the disease was also worked out for those diseased palms and data are given in Table 2. Out of the total palms observed 70% were diseased early and 30% were at middle stage of infection. Fortunately none of the seedling palms reached the advanced stage during this period. With regard to the varietal variation in the incidence of root (wilt) it was observed that within a period of 2 years T × GB, T × T, T × YD and T × GD acquired a higher rate of infestation (70—77%) while it was the least in T × D (54%). All of the hybrids tested were incited by the disease at varying degree of intensity even within this short period. The results indicated that root (wilt) inoculum is spreading fast and assuming alarming proportions. The views made by Radha and Shanta (1976) on the spread of the disease is in line with the present observation.

REFERENCES

1. GEORGE, M. V. and RADHA, K. (1973) Computation of disease index of root (wilt) disease of coconut. *Indian J. Agric. Sci.*, 43 (4) : 366-370.
2. RADHA, K. and LAL, S.B. (1972) Diagnostic Symptoms of root (wilt) disease of coconut. *Indian J. Agric. Sci.*, 42 (5) : 410-3.

RADHA, K. and SHANTA, P. (1976) Root (wilt) disease problems and perspectives. *Indian Fmg.* 27(9) : 27-30.

TABLE 1

Frequency of occurrence of foliar symptoms of root (wilt) on coconut seedling palms

Total seedling palms observed	228
Diseased	164
Healthy	64
<i>Percentage of total diseased palms</i>	
Yellowing plus flaccidity	31
Yellowing alone	27
Yellowing flaccidity and Necrosis combined	12
Flaccidity alone	2

TABLE 2

Intensity of root (wilt) disease on hybrid seedling palm (Per cent)

Name of hybrid	Total palms	*Diseased early	Diseased middle	Diseased advanced
1. Tall × Tall	76	75	25	Nil
2. Tall × Gangabondam	77	73	27	„
3. Tall × Green Dwarf	70	64	36	„
4. Tall × Yellow Dwarf	72	69	31	„
5. Laccadive Ordinary × L.O.	65	53	47	„
6. Tall × Dwarf	54	67	33	„
Total	..	70	30	„

*Diseased early Disease Index less than 20.

Diseased middle Disease Index above 20 & below 50.

Diseased advanced Disease Index above 50.

TO OUR SUBSCRIBERS

INDIAN COCONUT JOURNAL is generally published during the second week of the month subsequent to the month to which the issue relates. Complaints regarding non-receipt of copies should be sent during the last week of the publishing month. Subscribers should intimate the change in their address two months in advance for us to make the necessary alteration in our register. For any correspondence regarding the journal the subscription number should be quoted. This is printed on the top left-hand side of subscriber's address.