Reaction of coconut cultivars (Cocos nucifera) to root (wilt) and leaf rot diseases

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Use of resistant varieties of control plant diseases has been described as the most "painless" method that does not levy much on the farmers pocket. The need for evolution of a resistant or tolerant line of crop to particular disease assumes importance when the actual cause and control of that specific disease is not known. Root (wilt) of coconut, the occurrence of which is found widespread in the Central and Southern Kerala (India) is not known to be amenable to contro lby any artificial means. Therefore with the object of studying the disease tolerance of certain coconut varieties, the present investigations were taken up at the Regional Agricultural Research Station, Kerala Agricultural University, Kumarakom.

The studies were initiated during the year 1972 with eight varieties of coconut. The trial which was laid out in a completely Randomised Design contained the following test varieties. The abbreviations of the varieties and number of replications of each test palms are given in parentheses. (i) Strait Settlement Green (SSG) (9), (ii) Malayan Dwarf (MD) (9), (iii) Java (3), (iv) Cochin China (CC) (4), (v) Andaman Giant (AG) (10), (vi) Andaman Ordinary (AO) (9), (vii) DXT (NCD) (16) and (viii) West Cost Tall (WCT) (16) (Check variety). Each plot contained single palms which were grown under normal managment and uniform conditions prevailing in the back water region of Kerala. The root (wilt) disease intensity was computed using the method evolved by George and Radha[1]. The incidence of leaf rot was measured by recording the number of leaves affected by leaf rot.

The results presented in table 1 indicated that the intensity of root (wilt) was significantly lower in the variety AO followed by SSG and CC. However the severity of root (wilt) noticed in SSG, CC, DXT (NCD) and AG were on par. Coconut cultivars Java and WCT were observed to be highly susceptible to root (wilt) with a higher disease index. Rawther and Pillay[4] obtained the same results wherein the highest root (wilt) index was recorded in WCT palms. Mathai[2] reported indications of tolerance of Laccadive Dwarf against root (wilt) under the conditions prevailing in the back water region of Kerala.

The results of statistical analysis of the number of leaves affected by leaf rot disease showed that the disease was significantly lower in CC. Further the intensity observed between CC, AO, DXT (NCD), AG, SSG and MD are on par. As in the case of root (wilt) disease the incidence of leaf rot was highest in the varieties Java and WCT.

TABLE 1 : Reaction of coconut varieties to root (wilt) and leaf rot diseases

Varieties	Mean root (wilt) disease index	Mean number of leaves affected by leaf rot
1. SSG	23.96	2.44
2. MD	31.98	2.78
3. Java	51.11	3.00
4. CC	24.17	1.07
5. AG	29.11	2.41
6. AO	15.29	1.54
7. DXT (NCD)	26.84	2.04
8. WCT	42.97	3.21
CD (5%)	7.33	1.42

Significant correlation between root (wilt) and leaf rot was observed on analysis of the data. An increase in severity of leaf rot was observed with incremental intensity index of root (wilt) disease. Mathai[3] reported the existence of real influence of root (wilt) on leaf rot disease. The widespread occurrence of leaf rot disease in the root (wilt) affected tract and its limited occurrence in healthy areas confirm the relation obtained in the present study.

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