EVALUATION OF MODERN *HEVEA BRASILIENSIS* CLONES AGAINST POWDERY MILDEW AND ABNORMAL LEAF FALL DISEASES

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Received: 03 July 2015 Accepted: 04 January 2016

Joseph, A., Mydin, K. K. and Jacob, C.K. (2016). Evaluation of modern *Hevea brasiliensis* clones against powdery mildew and abnormal leaf fall diseases. *Rubber Science*, **29**(1): 43-50.

Abnormal leaf fall (ALF) disease caused by *Phytophthora* spp. and powdery mildew disease caused by *Oidium heveae* are the most economically important diseases of rubber (*Hevea brasiliensis*) in India. Severe incidence of these diseases adversely affects the growth and yield of the plants. Since the incidence and intensity of the disease vary among clones, an attempt was made to evaluate the response of modern *Hevea* clones against ALF and powdery mildew diseases. Twenty clones of *H. brasiliensis* including the newly recommended RRII 400 series clones were evaluated against powdery mildew disease in comparison with the popular clone RRII 105 in two large-scale trials (Trial I & II) at Central Experiment Station, Chethackal in Central Kerala. Trial 1 included twelve clones and Trial II ten clones, replicated six and three times respectively, with sixteen trees per plot. Observations on powdery mildew disease was carried out for three consecutive years at the peak time of disease season. Disease assessment was carried out on a 0-5 scale according to the intensity of infection on the leaves and mean intensity per plot was calculated. Wintering pattern and leaf stage at the time of assessment for each clone was also carried out. Similarly five promising 400 series clones *viz*. RRII 414, RRII 430, RRII 417, RRII 422 and RRII 429 were evaluated for ALF disease severity in comparison with RRII 105 in the 1982 small-scale trial at Rubber Research Institute of India for three consecutive years. Leaf retention after the disease season was assessed as per standard procedures. The results indicated that, in general all the clones were susceptible to powdery mildew disease with more than 50 per cent disease intensity. Significant variation in disease intensity was observed between clones and across years. Mean disease intensity was found to be significantly low for the clones RRII 55 and RRII 422 though RRII 55 was on par with RRII 105 and RRII 407. Variations in disease intensity were correlated to variations in the time of wintering of clones and prevailing climatic conditions in different years. Evaluations of clones for ALF disease revealed no significant variation in leaf retention among the five clones and were on par with RRII 105, a clone relatively tolerant to ALF disease. The lowest leaf retention was recorded in RRII 422.

Keywords: Abnormal leaf fall (ALF) disease, Disease assessment, Disease intensity, Disease resistance, Leaf retention, Powdery mildew disease

INTRODUCTION

Abnormal leaf fall (ALF) disease caused by *Phytophthora* spp. and powdery mildew disease caused by *Oidium heveae* are the most important diseases of rubber in India. Severe incidence of these diseases adversely affects the growth and yield of the plants. An yield loss of 38 to 56 per cent due to ALF was

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