

POWDERY MILDEW DISEASE MANAGEMENT IN *HEVEA BRASILIENSIS* USING NON-SULPHUR FUNGICIDES

Thomson T. Edathil, V. Krishnankutty, Sabu P. Idicula and K. Jayarathnam

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Experiments were conducted to identify more efficient non-sulphur fungicides, in place of sulphur fungicides, for effective management of powdery mildew disease of mature as well as young *Hevea* rubber plants. In mature areas application of tridemorph 1.5 per cent dust was found superior to sulphur dust. Spray application of carbendazim 0.05 per cent was found to give better control than the conventional wettable sulphur. As repeated use of any systemic fungicide may lead to development of resistance to the fungicide by the pathogen, alternate use of systemic and non-systemic fungicides is suggested.

Key words - Powdery mildew disease, Disease intensity, Fungicides, Dust formulation, Disease persistence.

Thomson T. Edathil (for correspondence), V. Krishnankutty, Sabu P. Idicula and K. Jayarathnam, Rubber Research Institute of India, Kottayam-686 009, India.

INTRODUCTION

Inorganic sulphur fungicide, either as dust or wettable powder has been in use as a conventional method for the control of powdery mildew disease of rubber caused by *Oidium heveae* Steinn., in India and other rubber growing countries of the eastern hemisphere. Chemical defoliation of mature leaves, prior to natural wintering for evading the disease, was tried in Malaysia (Rao and Azaldin, 1973). This practice, however, was later discontinued due to certain practical difficulties like short duration of time for application of defoliant and nonavailability of sufficient helicopters in time (Tan and John, 1985). Low volume ground spraying of systemic fungicides in oil was recommended as an alternative to sulphur dusting in Malaysia (Lim, 1976). Fogging oil-based non-sulphur fungicide, tridemorph-in-oil, has recently gained importance for

controlling powdery mildew disease in Malaysia and Brazil (Lim, 1982). Recently, in India, thermal fogging of tridemorph-in-oil was found superior to sulphur dusting (Thomson *et al*, 1984). However, frequent breakdowns and fire hazard of fogging machines prevented their widespread use. Treatments with inorganic sulphur fungicides have some limitations as these act by vaporization. Bright sunlight is required for the proper action of these fungicides. Intermittent showers and cloudy days during refoliation period make sulphur dusting ineffective (Krishnankutty and Thomson, 1987). During the past few years, many instances of complete drying of young rubber plants of 2-3 years' growth have been reported. This was due to repeated defoliation caused by powdery mildew disease during January-April and the effect of sunscorch on denuded shoots. This phenomenon was more pronounced in high