

Impact of the date of transplanting on population dynamics of the rice sheath mite, *Steneotarsonemus spinki* Smiley (Acari: Tarsonemidae), on the rice cultivar IET-4786 in the Gangetic Plains of West Bengal, India*

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Abstract

West Bengal is one of the main rice producing Indian states, where about 14 million t are produced in 6.2 million ha. In recent years, the rice sheath mite, *Steneotarsonemus spinki* Smiley, has been one of the most destructive mite pests of this crop in the Bengal Basin, especially in the wet season. It colonizes the leaf sheath, causing chaffy and sterile grains and brownish patches on the affected plant parts. An experiment was conducted to study the impact of five different dates of transplanting (at seven day intervals) of rice cultivar IET-4786 on mite density and crop yield. The study was conducted from July to November 2007 in Kalyani, West Bengal. Rice sheath mite population increased gradually, reaching the maximum level on September 25 on plants of the first three planting dates, and on October 5, on plants of the last two planting dates. The result revealed that peak incidence of mite occurred at the ripening stage of the first three planting dates, but significantly higher number of mite population and damage symptoms in all plants were observed in the last two planting dates, at the panicle emerging to flowering stage. Poor yield was obtained from plants of the last planting date, which could be due to the sheath mite attack.

Key words: *Steneotarsonemus spinki*, population dynamics, rice, transplanting date, yield.

Introduction

Rice is the most important crop providing food security to Asian countries, where more than 90% of the global rice production is done and consumed (Srinivasa *et al.*, 2004). India is the largest rice growing country, with the production of 91.5 million t in 43.7 million ha. West Bengal is one of the main rice producing Indian states, where about 14 million t are produced in 6.2 million ha (Anonymous, 2007). In recent years, the rice sheath mite, *Steneotarsonemus spinki* Smiley, has been one of the most destructive mite pests of this crop in the Bengal Basin, especially in the wet season. It colonizes leaf sheath, causing chaffy and sterile grains and characteristic brownish patches on the affected plant parts. It is distributed in most major rice producing countries of the world, as summarized by Hummel *et al.* (2009), where similar damage have been reported. In India, *S. spinki* infestation has been reported from Orissa (Rao & Das, 1977; Rao & Prakash, 1992) and from East and West Godavari districts of Andhra Pradesh (Rao *et al.*, 2000; Anonymous, 2001). The extent of crop loss has been reported as 30–90% in China (Xu *et al.*, 2001) and 30–70% in Cuba (Ramos & Rodriguez, 2000).

Material and Methods

The population dynamics of *S. spinki* was studied on the susceptible rice cultivar IET-4786, in the District Seed Farm of Bidhan Chandra Krishi Viswavidyalaya, in Kalyani, West Bengal (22°58'52" N; 88°26'30" E, 10 m above sea level). The experiment was laid out in a randomized complete block design, with four replications for each of the five dates of transplanting (D1–D5, see Table 1). Each