



Emerging scenario of important mite pests in north India*

JANARDAN SINGH¹ & MAHADEVAN RAGHURAMAN

Department of Entomology and Agricultural Zoology, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi - 221 005, India

¹Corresponding author: E-mail: janardan_parashar@rediffmail.com

* In: Moraes, G.J. de & Proctor, H. (eds) Acarology XIII: Proceedings of the International Congress. Zoosymposia, 6, 1–304.

Abstract

The results generated by the Multi Locational Project on Agricultural Acarology, All India Coordinated Project on Agricultural Acarology, Network Project on Agricultural Acarology and the Network Project on Insect Biosystematics since 1983 are described, highlighting the most important mite pests of north India. The following species are considered major pests in that region: Tetranychidae - *Eutetranychus orientalis* (Klein), *Oligonychus coffeae* (Nietner), *Tetranychus ludeni* Zacher, *Tetranychus neocaledonicus* André and *Tetranychus urticae* Koch; Eriophyidae - *Aceria litchii* (Keifer) and *Aceria mangiferae* (Sayed); Tarsonemidae - *Polyphagotarsonemus latus* (Banks). Other 16 species in those families as well as in the Tenuipalpidae are also considered important as plant pests in this area of India. Among the tetranychids, *T. ludeni* was identified as an alarming problem in 1987. Many outbreaks of this pest were recorded from 1988 to 1990 on cowpea [*Vigna unguiculata* (L.) Walp], an important summer vegetable of eastern Uttar Pradesh. Okra (*Abelmoschus esculentus* Moench) and eggplant (*Solanum melongena* L.), particularly when grown in the summer, have serious problems with *T. urticae* and *Tetranychus macfarlanei* Baker & Pritchard. *Panonychus ulmi* (Koch) has emerged as a serious problem on the expanding cultivation of apple in Himachal Pradesh, whereas *Petrobia latens* (Muller) populations are increasing in dryland cultivation of Rajasthan, attaining serious pest status mainly on wheat and coriander. Among the tarsonemids, a serious increase in *P. latus* on chilli has coincided with the growing cultivation of this crop, whereas increasing population levels of *Steneotarsonemus spinki* Smiley have caused severe damage to rice since its recent discovery in northern India. Serious problems have also been caused to tomato by the eriophyid *Aceria lycopersici* (Wolf) and to ber (*Ziziphus mauritiana* Lam.) by the tenuipalpid *Larvacarus transitans* (Ewing), an emerging serious pest of in Rajasthan area. The reason attributed to the increasing mite infestations is the widespread and continuous use of synthetic pyrethroid pesticides, which negatively affect the predatory mite fauna. The paper focuses on problems of mite outbreak and suggests future thrust for use of predatory mites as bio-agents for integrated mite control.

Key words: Eriophyidae, pest management, Tarsonemidae, Tenuipalpidae, Tetranychidae.

Introduction

Before the 1980s, farmers of eastern Uttar Pradesh were not aware of infestations by plant-feeding mites. Infestations of cowpea [*Vigna unguiculata* (L.) Walp], which is an important vegetable crop in India, by *Tetranychus ludeni* Zacher was first observed by farmers of eastern Uttar Pradesh in the early 1980's, after Singh (1976) first reported about that emerging pest problem. However, information about mites was available in the peninsular part of the country (ChannaBasavanna, 1981; Prasad, 1982). Nassar & Ghai (1981), realizing the importance of phytophagous mites, described the taxonomic status of tetranychoid mites infesting vegetable and fruit crops in the Delhi area. The abundance of *T. ludeni* started to increase around the same time in other parts of north India, attracting the attention of the Indian Council of Agricultural Research (ICAR).

Since then, not much has been published concerning the progression of problems caused by mites, although it is a fact that farmers have been using progressively larger amounts of insecticide mixtures of monocrotophos, endosulfan, and synthetic pyrethroids for the control of different insect species, provoking outbreaks of tetranychid mites. In order to monitor mite problems in India, ICAR launched in 1983 a Multi Locational Research Project in the field of Agricultural Acarology, involving the participation of eight centers located in different parts of the country. The contribution of Gupta (1985) was of major importance to understand the mites of agricultural interest in the country. Problems caused by