

The Ecology of the Predatory Mite, *Neoseiulus Longispinosus* (Evans) and Its Use for Biological Control of Spider Mites in Thailand

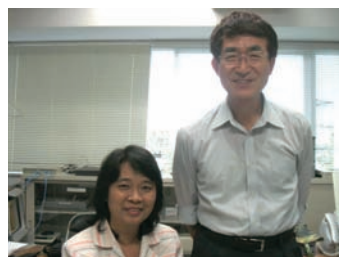
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Neoseiulus longispinosus (Evans) has been recognized as the most predominant predatory mite in Thailand. I studied the biological aspects of *N. longispinosus* to examine its potential as a promising biological control agent in my country, and conducted biological control of spider mites in strawberry fields by releasing mass-reared *N. longispinosus*. The results elucidated that *N. longispinosus* was distributed over the entire area of Thailand under various climatic conditions throughout the year. The predator was found on a wide variety of habitat plants ranging from perennial plants to annual crops. *N. longispinosus* was mostly established on the lower surface of plant leaves infested with spider mites that produced heavy webbings. *N. longispinosus* had a short developmental time and a high oviposition rate. Prey consumption capacity of *N. longispinosus* was as high as that of other effective predatory mites. *N. longispinosus* was efficiently mass-reared with *Tetranychus truncatus* Ehara on cowpea or mung bean in greenhouses. For harvesting the largest number of *N. longispinosus*, the initial predator: prey ratio appropriate for mass-rearing was 1:20 to 40, and the best harvesting time was 2 weeks after inoculating the bean plants with the predators.



N. longispinosus successfully suppressed the two-spotted spider mite, *T. urticae* Koch populations in strawberry fields in northern Thailand by releasing 2 to 5 active stages of the predator per plant. During heavy infestations with *T. urticae*, 7 augmentative releases of predators at approximately 2-week intervals provided effective control of spider mites at least as well as acaricide applications. The use of predatory mites must be accomplished, together with the application of some pesticides to control primary insect pests. Among 29 commonly used pesticides in Thailand, fenbutatin oxide, buprofezin, fenobucarb, imidacloprid, dinotefuran, validamycin, carbendazim and sulfur were relatively harmless to *N. longispinosus* and could be safely sprayed on predator-released crops such as strawberry. These results indicate that *N. longispinosus* is a reliable biological control agent against *T. urticae* on strawberries in Thailand and will effectively suppress spider mites on other crops by its augmentative release.