Section IV.
Biological and Cultural control

PHYTOSEIID PREDATORY MITES RELEASED TO CONTROL THE TWOSPOTTED SPIDER MITE ON AZUKI BEAN. I. ECOLOGICAL CONSIDERATIONS ON *Neoseiulus fallacis* and *Iphiseius degenerans* IN THE AZUKI PLANT SYSTEM

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In the summer of 1992, five phytoseiid mite predators were released in azuki fields near Prosser in Washinton State, to evaluate survivorship and establishment.

Only two of the released species, *Iphiseius degenerans* and *Mesoseiulus longipes*, were recovered in small numbers. An endemic species, *Neoseiulus fallacis*, was surprisingly found common to all the plots. Once a TSSM population was established in the azuki plots, *N. fallacis* apparently immigrated to the infestation in a density dependent response to the increasing prey population.

N. fallacis and *I. degenerans* were released during the 1993 experimental season. Unlike the 1992 season, summer was cooler and less favorable to TSSM population development. However, even under TSSM low densities, *N. fallacis* was detected in the experimental plots.

N. fallacis has been mostly associated with high humidity grown crops and in more humid geographical areas. It requires a high moisture for its development. Apparently it has adapted to agricultural conditions found around Prosser, especially inhabiting bush-like plants similar to azuki. The microenvironment in the canopy of these plant-types provide more humidity due to their proximity to the ground and irrigation water.

I. degenerans, considered a generalist predatory mite, did not exhibit a numerical response to the TSSM in these experiments; it did survive for several weeks after their release but no offspring was detected. It was mostly found walking on the top leaves of the azuki plant.

In conclusion, it is considered *N. fallacis* possesses the potential to control TSSM infestations on azuki; it is a native predator adapted to the agronomy of azuki cultivation and cohabits with TSSM on azuki. *I. degenerans* might be a better predator associated with thrips or spider mites that do not produce a dense webbing as *T. urticae* does. Trees or vines seem to be better habitats for this predatory mite.