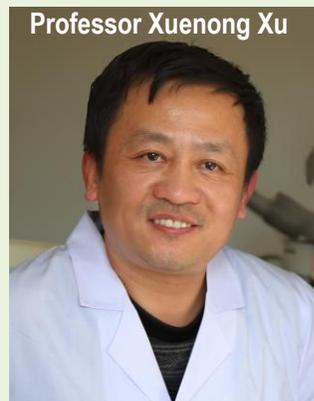


New APRS Working Group: Predatory Mites as Biological Control Agents

We are very pleased to announce that a new working group has been established. This was proposed by Professor Xuenong Xu and Dr Yulin Gao from the Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, China



Professor Xuenong Xu

Predatory mites are important natural enemies of small arthropod pests. Based on a recent review of commercial augmentative biological control Acari is the second largest group of commercial biological control agents after Hymenoptera. Some 30 predatory mite species were listed in that review, consisting of 13.1% of all arthropod natural enemies.

Traditional target pests of predatory mites are small plant feeding arthropods in cropping systems, such as spider mites, thrips, and



Dr Yulin Gao

whiteflies, etc. These pests are small in size, and have a very fast rate of population increase. They also develop resistance to chemical pesticides rapidly. Therefore, chemical control is often not efficient in controlling them. In addition, some of the host plants of these pests are fruiting vegetables that have a continuous fruiting season, which does not allow a chemical safety interval. With all these concerns, it is very necessary to find efficient alternatives to chemical controls. Predatory mites in the Phytoseiidae family contribute to some of the most successful commercial natural enemies of these small pests.



Neoseiulus californicus

Lately, more predatory mite species that attack a range of different pests, and which are suited to different environmental conditions have come to the attention of researchers and producers. Besides phytoseiids, attention is being given to biological control candidates from other families, such as Laelapidae, Ascidae, and Erythraeidae, etc. The range of their target pests is also being broadened to include leaf hoppers, nematodes, and even pests in other agricultural fields such as stock farming, etc.

For a better understanding of predatory mites and better utilization, numerous studies are being conducted worldwide, focusing on different aspects of using predatory mites as biological control agents. Fundamental studies that focus on the impact of environment and genetic variability provide detailed information about mechanisms of predatory mite biology. Some leading research is being carried out on:

- the interaction between pest, predatory mites and the leaf micro-environment;
- biochemical mechanisms for searching behavior;
- food preferences of predatory mites;
- genetic mechanisms for resistance and tolerance to extreme environments.

In relation to application and utilization, mass rearing techniques and application strategies, such as alternative prey and artificial diets that improve the procedure and reduce costs and integrated applications of predatory mites and other management methods (eg. *Beauveria bassiana*) are also being investigated.

Overall, predatory mites play an increasingly important role in modern biological control. The predatory mite WG will attract governmental, scientific and commercial organizations in the Asia and Pacific Region that focus on, or are interested in, predatory mite research. The WG will foster research and practical application, organize meetings, symposia, offer training and information, and encourage collaboration in promoting research and applications of predatory mites. Major activities also include developing standards for predatory mite products, assessing biological control efficiency, and evaluating predatory mite related integrated pest management.

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