Abstract

Background: Tetranychus evansi and T. urticae spider mites are known major pests of Solanaceae. Smallholders in Africa rely heavily on pesticide treatments. However, farmers claim that pesticides are generally ineffective despite high-frequency sprays. New management solutions are thus urgently needed. This study assessed the efficacy of using acaricide-treated nets combined with predatory mite release for controlling spider mites.

Results: The results showed the acaricide-treated net alone was more effective at reducing numbers of T. urticae than T. evansi. We observed the opposite for release of the predatory mite Phytoseiulus longipes. This difference could be explained by the specific dispersion strategies of the two spider mite pests; T. evansi is gregarious, whereas T. urticae dispersed rapidly. Joint application of both techniques resulted in a synergetic effect that reduced T. evansi and T. urticae spider mite numbers close to zero. The synergetic effect could be explained by predator avoidance behaviour of the prey spider mites, resulting in higher prey trapping and killing rates on acaricide-treated nets, while P. longipes fed on spider mite eggs.

Conclusion: These techniques are profitable for smallholders as they are not expensive and avoid residues on the crop. © 2018 Society of Chemical Industry.