



IMPACT OF CLIMATE CHANGE ON MITE PESTS: EVIDENCE AND PREDICTIONS

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New environmental conditions generated by global change will affect ecosystems in many ways. We know that the new environmental conditions created under climate change can exacerbate invasions of agricultural pests as well as impact native species. For example, climate change can facilitate the range expansion of tropical species some of which will adapt to more temperate regions of the globe, and there is increasing evidence that this is a widespread phenomenon. We also know that crops and cultivars will need to be adapted to higher temperatures and episodes of drought predicted under climate change scenarios, but also that many arthropods will be favored. This is the case of spider mites, for example, for which predictions say that their impact will increase. Also important to stress is that not only pests will be affected by global change but also their predators. The lack of natural competitors in a new ecosystem permits the new colonizer to be successful in a new environment. These different issues are here addressed and illustrated by: 1) examples of agricultural mites that have been unintentionally moved in to new regions, and for which modeling and genetic approaches are applied to understand colonization pathways and to predict establishment; and 2) experimental data exploring how plant-feeding mites respond to new climatic conditions and result in increased pest performance. To fully evaluate the impact that new climatic conditions already have and will have in cropping systems is obviously a complex task; using a multi approach scheme appears to be informative to advance adapted strategies for a climate-smart agriculture.

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