



PROMOTING SUSTAINABLE TEA PRODUCTION IN INDIA

Locations India

Dates 01/09/2014 - 24/09/2018

Summary

India is the second largest producer and exporter of tea in the world and it can be a powerful engine for development. However, tea crops here suffer from a range of pests and diseases. Pesticides are the main management solution but this results in increased production costs and potential risks to human health. So, we undertook a major scientific research study to evaluate the use of ecological pest and disease management strategies. The project aimed to establish proof of concept for the judicious use of inputs in the tea ecosystem and develop a toolkit of non-chemical pest management practices which can encourage the sustainable production of tea.

The problem

The production and trade of tea has the potential to be a powerful engine for economic growth, poverty alleviation and food security in India but often, harnessing this power can be difficult.

Tea is grown as large monoculture plantation and is host for a variety of pests and diseases which cause an annual yield loss ranging from 5-55%. In recent years, pest management has become increasingly dependent on pesticide use

with usage of up to 7.35-16.75 kg/ha. In India, little attention has been given to alternative or more ecological pest management methods. The economic risks to this in the short term creates barriers to change, and so the pesticide treadmill continues.

Consumers are now becoming more concerned about potential pesticide residues in tea and growers have concerns regarding increasing cost of pesticides and health risks.

Under our guidance however, pesticides are being gradually replaced by more ecological pest management.

What we are doing

CABI, working with Unilever, is undertaking a major study to evaluate the environmental and economic feasibility of applying ecological methods for pest management. The scientific team are doing this by fostering better understanding of these more ecological approaches to management, evaluating current practices and examining how these alternative approaches can be integrated into tea production to raise overall sustainability of tea production.

CABI scientists reviewed existing crop protection practices and limitations to current techniques to develop a road map to steer the tea industry towards the use of less pesticides. In collaboration with the Tea Research Association, through its technical wing of Tocklai Tea Research Institute, United Planters Association of Southern India, and key industry partners, both lab and field based research was undertaken. For the study, three tea gardens in different zones of Assam, and two in South India were selected as the field partners. Experimental plots were set up to validate and compare different ecological practices with 'business as usual' practices. The impact on pest and natural enemy populations, yield and the associated cost were all assessed. The results will be presented in a toolkit of best non-chemical management strategies.

Results so far

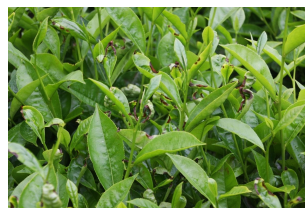
The findings from the project have revealed valuable information, and demonstrated that ecological approaches to pest management have potential to replace conventional pest management practices. In all locations, despite the absence of pesticides, pest populations were kept at manageable levels, largely comparable with 'business as usual' practices. However, the results do raise some challenges in relation to yield and costs where ecological practices have been adopted. Despite the comparable pest levels, the costs of some of the interventions, namely neem and certain biopesticides, are considerably higher, with no trade-offs from yield. The project has highlighted Integrated Pest Management (IPM) approaches as a first step, is readily achievable, reducing pest management costs and without any negative impact on yield. The project has also highlighted that the estate management and attitude play a key role in the implementation of a strategy to reduce pesticides.

This project has taken the first steps to validate the adoption of IPM and ecological practices in tea. At the same time it has highlighted the challenges to widespread adoption and scale up. Further work needs to be conducted to explore the feasibility of scale-up of some of the technologies and investigate the quality and health risks associated with their use, investigate further the use of biological control; and approaches to improve soil health.

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