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Organic Production of Tomato through Biopesticides, Biofertilizers, and Macrobials of TRA, NBRRDC, Nagrakata, CAU-CPGSAS, Meghalaya, and NBAIR Bangalore, respectively

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Farmer name: Mrs. Chandra Kumari Rai

Village-Mabong, **Tehsil**-Soreng, **District**-West Sikkim, **State** Sikkim

Introduction

Chandra Kumari Rai (48years) is from the village Mabong, West Sikkim, Sikkim. **Under DBT funded project,** she was trained throgugh various in situ and ex siu training, demonstration and awareness programs conducted at Village Mabong, West Sikkim and at KVKs. She is one of the active farmers of Mabong where she grown tomato adopting organic practices recommended by TRA, NBRRDC, Nagrakata, CAU-CPGSAS, Central Agricultural University (Imphal), Umiam, Meghalaya, and ICAR-NBAIR. Bangalore. In addition to tomato, she also cultivates potato, turmeric, maize, cabbage, cauliflower, pulses, and flowers. She sells her farm produce like tomato, potato, and flowers in local market, Jorethang, West Sikkimand other state market. However, the major problem which hinder tomato production is ant, wilt and blight diseases, sucking pests and caterpillars.

Training

Since 2022, under DBT project, a team of scientist of TRA, NBRRDC, Nagrakata, CAU-CPGSAS, CAU, (Imphal), Umiam, Meghalaya, and ICAR-NBAIR, Bangalore, imparted several trainings, method demonstration, skill development programme on organic integrated pest management practices, mass production of biopesticides and macrobials and use of biopesticides such as seed treatment and soil application for organic cultivation. Critical inputs like seeds, biopesticides, sticky traps, vermicompost, biofertilizers, macrobials etc. were supplied to her under demonstration programme under the DBT project. After receiving training programs, she adopted the recommended organic integrated pest mangmenet methods for cultivation of tomato and from time to time she implemented all the methods recommended by TRA, NBRRDC, Nagrakata, CAU-CPGSAS, CAU (Imphal), Umiam,

Meghalaya, and ICAR-NBAIR, Bangalore in her tomato fields which brought potential results both in terms of yield enhancement uoto 38-41% and disease and pest reduction by 75-85%. By adopting the organic based package of practices, she could be able to increased her income by utilizing the acquired knowledge and skills. She is an example of a successful woman farmer who has shown that agriculture can be transformed with the right investments and the right knowledge.

Achievement

By implementing organic cultivation practices the incidence of plant diseases such as late blight, early blight, and wilt and whitefly incidence reduced drastically. There was also improvement in seed germination up to 15-20% than conventional practice adopted by her. There was also increase in 40% (approx.) of her produce, as yield of tomato after adoption of organic practice was increased from 2066.6 kg/ha to 2920.00 kg/ha. Laboratory analysis of soil sample showed increased in population of beneficial microorganism in the plot with organic package. Through the adoption of organic practices, not only she secured her food security, but also increased her income by selling tomato, with an extra earning of Rs. 30,000-Rs. 35,000 per season per ha area.

Importance for farmers

She inspired other farmers of the village to start organic cultivation in their fields. She became the source of inspiration for other farmers involved in farming. She is always ready to provide them the help and guidance needed.

Economic analysis

Component	Before adoption of Organic practice of project	After adoption of Organic practice of project
No. of Sprays	6-8 spray of homemade biopesticides per crop season	• Seed treatment followed by two spray of *Trichoderma* (TRPATH01) biocide at 15 days intervals • Yellow/blue sticky traps @ 4-5 traps/acre • Pheromone trap @ 4 trap/acre • Installation of tricho-cards and field release of lacewing.
Farmer's profit margins	Less	High
Production level	Less	Increased by 40% (approx.)
Average net return	2066.6 kg/ha	2920.00 kg/ha
Pest damage level	Wilt, blight, and white fly	Nil
Cost Benefit Ratio	1:1.3	1:4.5

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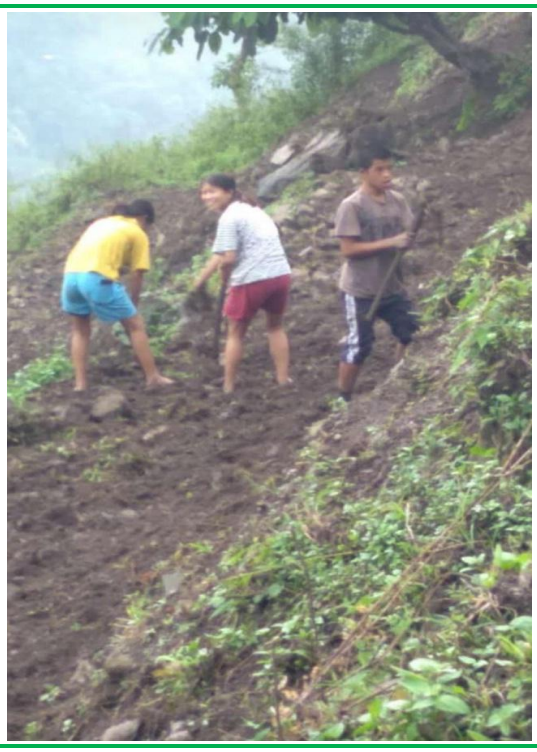	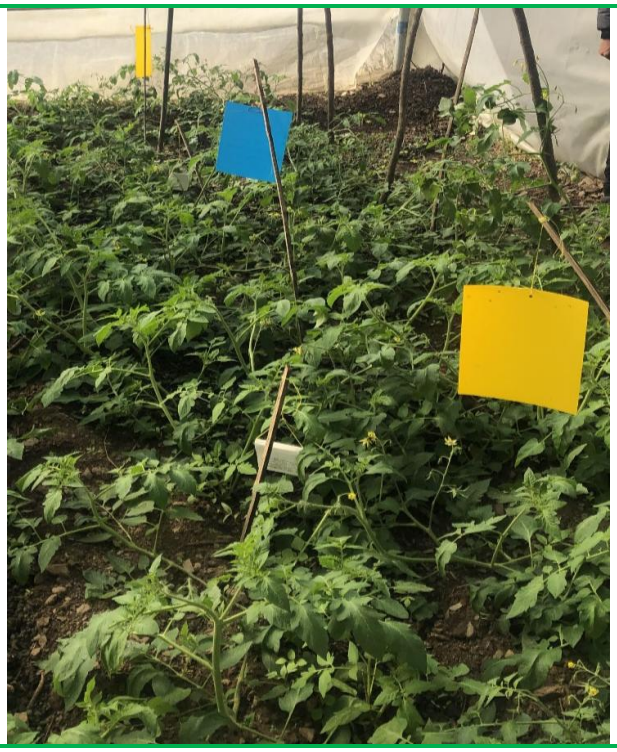
Family member of Mrs Rai drenching soil with Trichoderma + vermicompost before sowing of tomato.	Tomato field of Mrs. Chandra Kumar Rai having blue and yellow sticky traps, and tricho-cards
	
Tomato fruits in project demonstration plot and harvested tomato by Mrs. Chandra Kumari Rai	Image is showing tomato grown around the house of Mrs. Rai