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Successful Cultivation of Organic Onion using Eco-Friendly Insect Traps in Manipur

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Abstract

Sinakeithei is a tribal village in Ukhrul district of Manipur and is infamous for the cultivation of poppy and ganja. In spite of many schemes sponsored by the State and Central Govt. to rehabilitate the poppy and ganja farmers, it is hard task to convince and wean all the farmers from this highly remunerative although illegal cultivation. The introduction and use of improved and eco-friendly technology for the cultivation of improved variety of onion variety, Bhima Super considerably increased the farmer's income. A woman farmer, R. Tamreichon, who is practicing organic farming, could gain a net profit of around Rs. 70,000.00 by adopting the improved technology for the management of insect pests and diseases.

Background Information

While the North-Eastern states are moving towards a mission to become a fully organic region supported by various schemes of the Central and State Government, the harsh reality is the existence of poppy and ganja cultivation in the hilly regions of Manipur. However, some people in these regions are becoming more concerned about the quality of life and many are in the search for alternatives to give up poppy and ganja cultivation.

A remote tribal village called Sinakeithei, a part of Ukhrul district is a well-known for the cultivation of poppy and ganja. Although State and Central Government has various schemes to rehabilitate the traditional practice of poppy and ganja cultivation, no technology can replace these high value crops cultivation. Although the crops are not grown for their own consumption, the main income and expenditure of most of the families were met from these cultivation practices. The story begins in September 2017 with the tribal women farmers contacting ICAR, Manipur Centre on giving technical guidance for onion cultivation in their village. These women farmers were trained by the scientists and staff of ICAR, Manipur Centre on the entire package of practices on onion cultivation, right from field preparation, nursery raising of onion seedlings to transplanting, organic disease and pest management *etc*. They were also supported through TSP sponsored yellow and blue sticky traps to management insect pests in their organic fields and various technical supports like training program in their village and field visits. Since it was the first crop of onion being tried in the village, high expectations were not kept.

Majority of the farmers were not aware and untrained in the advances in improved technology for crop cultivation. They do not practice any adoption of improved technologies rather than their Indigenous Traditional Knowledge for organic cultivation of their crops.

Intervention of ICAR-RC for NEH Region, Manipur Centre, Imphal

Mrs. R. Tamreichon, aged 60 years of Sinakeithei Village, Ukhrul districts, Manipur is a very hardworking housewife having 7 children. Her retired High School Teacher husband and family cultivate rice and other seasonal vegetables. They have around 1.5 ha land in different locations within the village. Fish rearing is also practiced in some areas. Before intervention by ICAR RC, Manipur Centre, she was cultivating local rice variety and local variety of vegetables. However, she is one of the dynamic pioneering farmers and has the enthusiasm to adopt new technology in agriculture and allied activities. In 2019, she cultivated onion variety Bhima Super, which was supplied by ICAR, Manipur Centre. The crop was cultivated under organic practice without using any chemical fertilizers and pesticides. The problems of thrips (*Thrips tabaci*) and onion maggot (*Delia antiqua*) caused heavy damage on onion crop. The farmer was also not interested to use any of the chemical insecticides to manage the insect pests. In 2020, the same onion variety was again cultivated by using yellow and blue sticky traps in the same farm during *Kharif* season.

Impact on Productivity

During *Kharif* 2019, she cultivated onion variety Bhima Super for around 0.68 ha area. Because of the fertile nature of her field soil, she did not use any of the fertilizers. The field has no history of any chemical pesticides because the crops whatever she grows mainly vegetables are not applied with any chemical pesticides. She harvested 26 quintals of onion bulbs with a duration of 90-100 days. During *Kharif* 2020, she again cultivated same onion variety on the same land by using Yellow and Blue sticky traps @ 10 /acre (Figure 1). The yellow and blue sticky traps were installed by using a bamboo support in between the crops at a height of 1 ft from the crop canopy. The traps were installed just after transplanting the onion to main field. The traps were replaced by covering the flying insects and dirts more than half of both the surface of the traps. Both the yellow and blue sticky traps were installed till harvest. During this time, she harvested 40 quintals of onion bulbs.

Results

The use of improved and eco-friendly technology considerably increased the farmer's income. There was a difference of more than 14 quintals of onion bulb with a duration of 90-100 days. One onion bulb weighs more than 250 grams from some plants. Out of 40 quintals of onion, she sold 30 quintals @ Rs. 30.00 /kg at the market by keeping 10 quintals aside for her family consumption (Figure 2). From 1.7 acre land, after all expenses in crop cultivation (land preparation, labour cost and others) are removed, she could gain a net profit of around Rs. 70,000.00 if she could sell all the harvested products. She sold the onion blub at the nominal prices. If she could sell in metropolitan cities, she might have got more profit because of agricultural products without using any chemical inputs.

Farmers like Mrs. R. Tamreichon who is interested on organic cultivation and improved technology, able to get a good profit from small land holdings. She also showed to her local farmers that agriculture is profitable by adopting the improved technology.

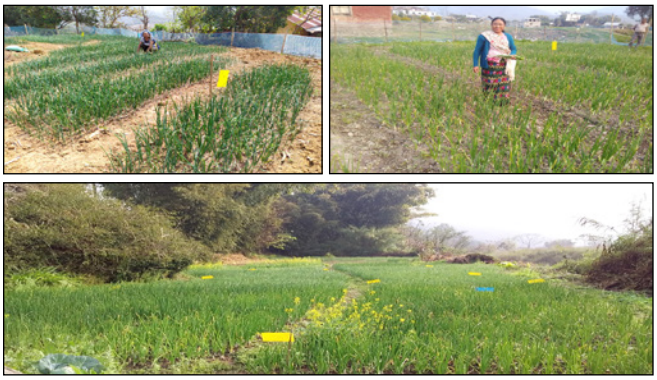

Figure 1: Use of yellow and blue sticky traps in onion field

Figure 2: Harvested onion bulbs

Table 1: Economics of onion cultivation using yellow and blue sticky traps

Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C
71,428.00	1,71,428.00	1,00,000.00	2.4:1

Outcomes

The use of improved technology for modern agriculture, more importantly the organic cultivation (which has been practiced traditionally in some hilly regions of Manipur), reached to the remote tribal area to increase their income and livelihood.

Conclusion

Organic onion cultivation is hugely successful in Sinakeithei village and many women farmers have taken to organic onion and garlic cultivation. With the prices of onion and garlic commanding good remuneration during off season, these crops can be considered to be good replacement for poppy and ganja cultivation in the hill regions of Manipur. The women farmers of Sinakeithei is a good inspiration to those poppy and ganja cultivators who want to leave behind the trouble crops and come to mainstream farming.