Integrated Pest Management of Strawberry at Noaotla – III Village of Siaha district, Mizoram

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Introduction

The present study describes the successful implementation of IPM technologies for the management of different insect pests in strawberry crop at Noaotla – III village of Siaha District. Noaotla – III village is about 18Km from Siaha town and the average day time temperature lies between 22^0C – 25^0C whereas the average night temperature lies between 7^0C – 13^0C. KVK Office, Siaha has started a demonstration on cultivation of strawberry from the year 2010 in the month of October at Siaha district by giving out 600 nos. of tissue culture plantlets of strawberry (which was procured from Department of biotechnology, Mizoram University, Aizawl, Mizoram) to Mr. N. Lalsiama. Soon after, seeing the success of strawberry cultivation and its impact, almost all the farmers of Noaotla – III village farmers who are having suitable land and water source have also started cultivating strawberry by getting planting materials from Mr. N. Lalsiama. At present, strawberries from Noaotla – III village have been marketed throughout Mizoram.

In the month of July, 2017, KVK Siaha received a report on the mass destruction of strawberry crop at Noaohtlah III (KM 10) village from the farmers. Therefore, a group of KVK scientists (Scientist Horticulture and Scientist Agriculture Extension), led by Subject Matter Specialist (Plant Protection) made a programme for identifying the causal factor for this mass destruction and it was found that the major pest responsible for this abrupt destruction was root weevil. Other pests like white grubs and symptoms of leaf spots were also found to be a minor cause.

Materials and Methods of Demonstration:

The Senior Scientist and Head of KVK, along with concerned Scientists then conducted Method Demonstration on soil treatment, seedling treatment and foliar application at Farmers' Fields starting from end of July to beginning of August.2017. In most cases, 90% of the strawberry crop were already infested and damaged by root weevils. The average pest incidence of white grub was 15nos. white grubs per 10plants and 7nos. of root weevil per 10 plants. The average infestation percent of white grub was 68% and average infestation percent of root weevil was 64%.

Whatever was left of the planting materials were collected and treated with Copper Oxychloride as seedling treatment @ 500g/200 liters of water per acre and soil treatment was done by Carbofuran 3G or Phorate 10 G @ 1.5kg a.i/ha. Later on, seedling treatment was again done by Mancozeb 75% WP @ 200-250g/100 liters of water. These treated planting materials were cultivated on a small scale for mother block in a new plot of land.

Since cultivation in the same plot of land results in high pest infestation, the main strawberry fields were deeply ploughed for soil solarisation process and left fallowed for one year (2017-2018). Crops like cabbage, green peas and onion were cultivated in these strawberry fields as crop rotation in the year 2019 – 2020. Mass cultivation of strawberry in the old fields started from June, 2021 onwards and is showing good results. Meanwhile, cultivation of strawberry still continues in new plot of land where pest infestation through soil is not heavy with proper IPM modules being conducted under the guidance of KVK Scientists to carry on the market supply.

Technologies Demonstrated and Results:

Technology demonstrated	Demonstration Yield	Yield of Local Check	% of increase in yield	Gross cost (Rs./ha)	Gross return (Rs./ha)	Net return (Rs./ha)	BC ratio
1. Soil treatment using Carbofuran 3G or Phorate 10 G @ 1.5kg a.i/ha) 2. Treatment of planting materials with Copper Oxychloride as seedling treatment @ 500g/200 litres of water. 3. Plant treatment by Mancozeb 75% WP @ 200-250g/100 litres of water.	60	51	17.64%	2,20,000	6,00,000	3,80,000	2.72
Farmer's Practice (No IPM)				2,10,000	5,10,000	3,00,000	2.42

Interventions through Information Communication Technology (ICT):

More than 50% of the farmers cultivating strawberry in Noaotla-III village now have access to smart phone. Thus, reports on the performance of their crops could be directly updated to KVK through WhatsApp Group. Mobile Advisory Services have also reached the farmers in this village which is very useful for them in being able to take proper pest and disease management practices in appropriate time by getting direct advice from concerned Scientists from different fields.

During 2020 – 2021, activities like diagnostic field visits, pest and disease monitoring, farmers training, method demonstrations, farmers field school, field day, exposure tours, etc. could not be frequently conducted due to the crisis of Covid19 pandemic. It was mostly through ICT that all monitoring and advisory was carried out with high success during this dreadful period. Moreover, ICT has greatly made it easier to conduct SWOT Analysis and baseline survey on different topics regarding plant protection measures in this era of ICT.

Results and Discussion

The newly planted strawberry crops which were recultivated in the old strawberry fields are found to be healthy till date and farmers are really happy with the outcome. However, since plant protection is a continuous process, plant protection measures are still continued at regular intervals. Farmers are happy to adopt the technologies demonstrated to them and the successful intervention by KVK was even covered by print media and television all over Mizoram.

Reference:

1. **AESA Based IPM Package Strawberry. National Institute of Plant Health Management (NIPHM).**
2. **S. Sisi. Cultivation of Strawberry and its Management. Farmer's Hand Book. Agriculture Technology Management Agency, Siaha District: Siaha. 2014.**
3. **M.K. Pandey, Uma Shankar and R.M. Sharma. Sustainable Strawberry Production in Sub-Tropical Plains. Ecologically Based Integrated Pest Management (pp.787-820), 2012.**
4. **http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0017/306314/Commom-insect-pests-of-strawberry.pdf**
5. **http://extension.psu.edu/plants/gardening/fphg/strawberries/diseases/leaf-spots**

Action Photographs:

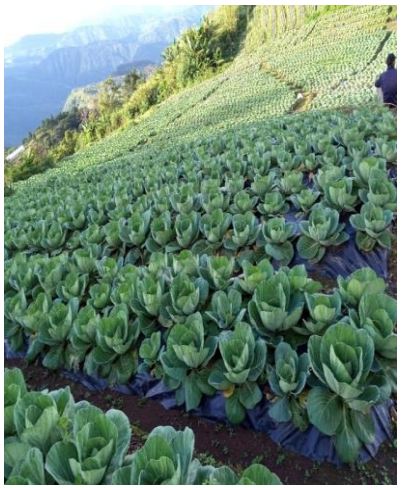
1. **Study and Diagnosis on Pest and Disease:**

2. Method Demonstration on Soil Treatment & Mulching:



3. Method Demonstration on Seedling and Plant Treatments:

4. Crop rotation with Cabbage, onion and Green Peas:



5. **Strawberry Fields in 2021:**





Greetings from NCIPM
Dear sir/ madam
KVK Siaha is organising one day National Webinar on "**Empowerment of Farmers of NEH and TSP region through Information and Communications Technology**" on 30th Nov, 2021 at 10:15 AM onwards under the project " Impact of Access and usage of information & communication technology in IPM at North-East Region of India".
You are requested to prepare a review paper on the above topic and submit it by 25th nov, 2021, as an E-book will be published on this occasion. You are also requested to send the title of the paper today by 4:00 PM.

Regards

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