



CROP PROTECTION

Effective Management of Mealy Bug in Cotton



Cotton, popularly known as White Gold, is an important *Kharif* crop of Punjab. It is grown in South- Western districts of the state where underground water is brackish in nature and about 85 % of the area is irrigated by canals. During the year 2007-08, a serious problem of mealy bug emerged for the first time on cotton crop and caused huge losses including recommended non-Bt and Bt genotypes, but was more severe on un-recommended Bt hybrids from Gujarat.

To overcome this problem, KVK Faridkot played a vital role. KVK educated and guided cotton growers to control mealy bug through recommendations of Punjab Agricultural University and Central Institute for Cotton Research. Recommendations includes - spraying infected row of cotton with curacron @ 1250 ml/ha or buprofenzin @ 1250 ml/ha, stacking cotton sticks from infected rows separately and use them at the earliest as fuel before end of February, not to stack cotton sticks in the field, eradication of alternate hosts like kanghi buti, peeli buti, congress grass, etc. and spraying trees and fruit plants near cotton fields harboring mealy bug population with curacron @ 1250 ml/ha or buprofenzin @ 1250 ml/ha.



Salient Features

- Sprayed recommended chemicals on mealy bug infected cotton crop
- Sprayed recommended chemicals on mealy bug harboring trees and fruit plants near cotton fields
- Stacked the cotton sticks from infected rows separately and used them as fuel before end of February
- Cotton sticks were not stacked in the field
- Eradicated the alternate hosts of cotton mealy bug

A series of activities such as training programmes, campaigns, field visits, field days and farmers group discussions were organized by KVK for cotton growers of Punjab and created awareness, knowledge and skill on management of cotton mealy bug. Thus, effort of KVK and farmers together helped in keeping mealy bug under check to an extent of 80-85 %.

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Velda become an Ideal IPM Village



Production of cotton is highly affected due to insect pests infestation in tribal village Velda of Tapi district situated 105 km away from district headquarter and KVK. It is one of the most neglected block as no extension agency visited here due to difficult terrain. Farmers were not aware of low cost insect pests management technique besides unable to afford costly pesticides due to low income. KVK Tapi selected Velda village for IPM under Sattelite Village Programme launched by NAU, Navsari to disseminate low cost Integrated Pest Management (IPM) during 2007-08. KVK conducted 100 demonstrations covering 75 ha area on IPM. Farmers were trained rigorously on IPM module involving neem based pesticides including chemicals. IPM reduced cultivation cost by 50% due to reduction of number of sprays from 10 to 5 there by increased income of farmers by 66%. Continuous follow up on IPM encouraged other farmers to adopt IPM technology during 2008-09.

Whole village become an IPM village and farmers are providing technical know-how to neighbouring villages by the end of year 2009-10. This year 10-15 tribal villages in surrounding have adopted IPM package disseminated by KVK. District authorities declared Velda village as IPM village in 2010. Higher income from cotton



Salient Features

- IPM reduced cultivation cost by 40% owing to reducing number of sprays from 10 to 5
- Enhanced income of farmers by 66%
- Minimized hazards of chemicals on environmental pollution as well as human health
- Declared Velda village as IPM village

helped farmers to send their children to schools by paying their fees comfortably which would improve the literacy in the tribal area. Pre and post assessment by means of survey revealed that IPM module is highly effective in controlling sucking and other insects as well as reduced cost of cultivation in addition to higher yields. This has contributed to the successful adoption of IPM in cotton and other crops. Further success was built confidence among farmers.

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Brinjal Farmers Benefited through Water Trap



Brinjal is grown extensively in Ahmednagar district with an area of 3000 ha. Out of which, 60% area under brinjal cultivation occupied in medium to heavy black soils under irrigated condition in Rahuri, Sangamaner, Shirampur and Rahata Talukas. Infestation of shoot and fruit borer in brinjal is very common in this region and causing 30-35 % crop loss. Further, farmers are incurring heavy expenditure because they are using chemical control measures against this pest but results are not satisfactory.

At this juncture, KVK Ahmednagar introduced water trap for control of brinjal shoot and fruit borer after testing its efficacy in 19.2 ha in farmers fields at village Chincholi. Due to water traps, spray interval in these fields increased from 5-6 to 10 to 12 days and farmers could save Rs 2500/ha/ month on pesticides. Yield increased by 18.66 % (316.25 q/ha) besides reduction in cost of plant protection by 30 % with Benefit Cost Ratio of 2.46. As availability of water traps at local level was not there, KVK arranged 6000 water traps to 296 brinjal growers covering 89 villages from 11 blocks of the district. Besides, technology has been adopted by more than 1000 farmers covering 500 ha in the district. Concept has now become regular practice among all brinjal growers of the district. It has also been observed

Salient Features

- KVK introduced eco-friendly and low cost water trap
- Due to water trap spray interval was increased and reduced the application of pesticides as well as expenditure on plant protection
- Water trap was adopted against shoot and fruit borer of brinjal in 1500 ha area
- More than 1000 farmers benefited by use of water trap in Ahmednagar district of Maharashtra

that technology is being horizontally disseminated from farmer to farmer in Ahmednagar district. State Department of Agriculture also taken up large scale programme on water traps involving more than 100 farmers from Rahuri block of the district where there is major area under brinjal crop in which KVK played an active role.



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Ginger Cultivation Revived



Productivity of ginger in Sikkim has declined for the past one decade due to rampant infestation of soft-rot, dry-rot, white grub and borer. This led to ginger cultivation uneconomical and farmers unwillingness to go for ginger cultivation. As a instance, farmers of Phongla village who totally stopped ginger cultivation due to this problem.

KVK South Sikkim re-introduced ginger cultivation in Phongla village through Farmers Club and supported them technically in May 2009. Instead of Bordeaux Mixture (lime, copper, water at the ratio of 1:1:10) which cost Rs 300 approximately, KVK advocated Fermented Plant Extract (FPE) preparation using (garlic + onion leaves + Canavis sp + wild poisonous plant) + (cow urine) + (EM solution) + (extract after washing polished rice) + (alcohol) + (water) (1:1:1:1:1:15), sufficient for 1.0 ha which cost Rs 375 for seed treatment against soft rot. FPE was applied after every fortnight by using watering can for next 2 month i.e. up to July end. Total cost of the same which came to Rs1500. This enabled controlling various diseases affecting ginger crop. Farmers Club produced 96 q of rhizome from 0.3 ha which valued Rs144000 and gained Rs 141900 excluding the labour component as it was undertaken on participatory basis. Efforts of Phongla Farmers Club was



Salient Features

- Ginger cultivation was totally stopped in Phongla village due to heavy crop loss from uncontrolled pests and diseases
- Re-introduced ginger cultivation in Phongla village by KVK through Farmers Club
- Fermented Plant Extract preparation was used for seed treatment against pests and diseases
- Achieved disease free ginger production and revived ginger cultivation in the village Phongla

recognized by NABARD and awarded 2nd best Farmers Club of Sikkim. NABARD has nominated them for National Award also. Farmers club assured to supply of 400 q of disease free ginger seed to Horticulture and Cash Crop Development Department in ensuing season.

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Trichoderma made Tribes Sustain



Wayanad is known as Land of Spices. Major Income generating crop of Wayanad is pepper. Production of pepper declined due to the incidence of foot rot disease. KVK Wayanad identified and isolated *Trichoderma* strains from Wayanad soil for effective management of foot rot disease of pepper. KVK started production of *Trichoderma* in late 90's. *Trichoderma* gained popularity and thus demand was increased. To meet the increased demand, KVK ventured in to mass production of bio-control agents.

For getting man power, 13 tribal women (youth) from Nellarachal tribal colony were selected and imparted training for mass production of bio-control agents in view of providing them self employment. In fact, due to implementation of Karapuzha irrigation project, tribals have lost their agricultural fields which were the main source of income for livelihood. Trained tribal women registered as SHG named SABARI. Then, KVK extended work contract with SABARI for mass multiplication and distribution of *Trichoderma* under revolving fund activities of KVK. Members of SHG gained 30-35 % of the total benefit as per MOU signed.

Salient Features

- Selected SHG group (SABARI) belongs to tribal hamlets who were the victims of implementation of Karapuzha irrigation project
- Trained tribal women formed as registered society SABARI and taking work contract for mass production of bio-agents
- Members of SABARI are earning at present a monthly income of Rs 5000 by engaging in mass multiplication of *Trichoderma*, which has revolutionized the income pattern of their family

As there is no government or private agency in the district other than KVK through SABARI producing bio-control agents, State Planning Board sanctioned Rs 36.39 lakh for modernizing existing bio-control lab of KVK for large scale production of *Trichoderma* and *Pseudomonas*. Now Kendra is having a well established and fully equipped lab which can produce *Trichoderma* and *Pseudomonas* @ 2 t/month.



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