IMPACT

Success Stories :

IPM Village Approach: Gaining Grounds

- Madhukar S. Mali*

The farming community of Ambap, an adopted village by D.Y. Patil Education Society's Krishi Vigyan Kendra, Kolhapur is now well practising integrated pest management practices for all agricultural and horticultural crops. Before the adoption of village by KVK there was poor picture regarding plant protection awareness. Some farmers were not following plant protection measures whereas few were using hazardous chemical pesticides indiscriminately. This situation was resulted into ecological disturbance, heavy incidence of pests and diseases and ultimately huge economic losses of the farmers. Resurgence and outbreak of pests and diseases was serious menace to agricultural production. Excessive use of pesticides to control the epidemics of pests and diseases given residual toxicity in the consumables.

Another obstruction was lack of proper knowledge of farmers, unavailability of expert technical personnel and on farm advisory services. Considering the situation, the surveys were taken and needs were assessed to improve the plant protection situation. The farmers were really in need of plant protection guidance.

Integrated pest management (IPM) technology was initiated in the adopted village Ambap by the KVK with due consideration to ecological factors. Extension activities including need based training programmes, problem orientated demonstrations, on farm testing to refine the existing technologies for better suitability and adaptability by the cultivators, group discussions to learn the farmer's problems, field days for publicity of technologies, diagnostic visits to solve the problems, farmer's rallies to encourage the farmers to understand the technologies of IPM practices in the adopted village. The resultant output is quite note worthy and with encouraging feedback.

(I) Top ten Front Line Demonstrations on IPM conducted in the adopted village:

1. Cultivation of rust resistant varieties of wheat NIAW-34 and NIAW-301
2. Biological control of soil borne diseases of cabbage through drenching of *Trichoderma*,
   a. parasitic fungus culture.
3. Microbial control of *Helicoverpa armigera* Hubner in tomato by HNPV, a nuclear polyhedrosis virus culture.
4. Eco-friendly management of tomato fruit borer by botanical pesticide, neemark.
5. Control of Fusarium wilts disease of tomato by *Trichoderma*,
   a. parasitic fungus culture.
6. Biological control of damping off disease in cabbage by soil application of *Trichoderma*, parasitic fungus culture.
7. Reduction in mortality of chilli seedlings due to *Pythium* root rot through *Trichoderma*, parasitic fungus culture.
8. Eco-friendly control of tomato fruit borer by pheromone trap
9. Microbial control of diamond back moth in cabbage by *Bacillus thurigiensis* a parasitic bacterial culture.
10. Control of powdery mildew of mango by chemical fungicide, hexaconazole.

(II) On Farm Testing with special emphasis on IPM practices for refinement of technology in IPM village:

1 Low yield in chilli due to leaf curl

2 Yield loss in tomato due to fruit borer

(III) Training programmes: Several need based, problem oriented and technology oriented training programmes were conducted in the village with special reference to IPM technology.

(IV) Other extension activities:

1 Diagnostic visits
2 Scientist visits to farmer's fields
3 Farmer's visit to KVK farm
4 Impact assessment visits
5 Group discussions
6 Radio talk
7 Publications of bulletins
8 Articles in newspapers
9 Farmer's rally
10 Television programmes

Seedling roots dipping before transplanting (a) & drenching the crop (b) by Trichoderma is being practiced by the farmes

Good quality seedlings through IPM (a), field release of Trichograma (b) and farmer trained by KVK explaining his IPM experiences (c).

FLD on rust resistant variety of wheat NIAW-34 (a), *Chrysoperla carnea* predator on white wooly sugarcane aphid (b) and chemical trap for mango fruit fly (c).

Participation of farmer in IPM village approach and their feedback:

(Top ten farmers / beneficiaries)

S.No.	Name of the farmer	Farmer's specialty/ position	Crops grown	Feedback/opinion
1	Dr. B.K. Patil	Farmer's leader & practicing farmer	Sugarcane, rabi jowar, soyabean, groundnut	The IPM concept has long healthy perspective with ecological touch. Pest management becomes easier and low cost. I my self and my friend farmers are well versed with IPM practices through the various activities of KVK.
2	Mr. S.B. Patil	Rural youth	Turmeric, chilli, wheat, soyabean, sugarcane	*Trichoderma* for rhizome rot in turmeric, *Trichograma* for shoot borer in sugarcane and IPM practices for leaf curl in chilli helped me for successful control of pest and diseases and also to maintain good fertility of soil. IPM technology of KVK benefited me.
3	Mrs. P.B. Dongare	Practicing farmer female	Chilli, carrot, rabi jowar, groundnut	My chilli crop is best protected from leaf curl, fruit rot by refined IPM practices of KVK with effective combination of varietal selection, biological and chemical pesticides. The keeping quality of dried chilli fruits is good with rich aroma to curry.
4	Mr. D.P. Mane	Rural youth	Wheat, chilli, onion, sugarcane	Rust resistant variety of wheat NIAW-34 saved my crop with no extra cost.
5	Mr. V.B. Patil	Rural youth	Wheat, bean vegetables, sugarcane, soyabean	I first understood the selection of variety plays vital role in disease prevention by practicing NIAW-301, a rust resistant variety of wheat.
6	Mr. G.S. Teli	Practicing farmer	Vegetable grower	Pheromone trap, Trichoderma, HNPV, Trichograma, Bacillus and other concepts of IPM in vegetables are practiced and adopted by me through Krishi Vigyan Kendra. IPM tools saved my vegetables with good quality and lustre.
7	Mr. R.M. Mane	Rural youth	Tomato grower	I found HNPV as best agent for the environment friendly management of *Helicoverpa* control without toxic residues and long lasting effect. It also protected natural enemies of the pest.
8	Mr. S.A. Patil	Rural youth	Okra, banana, sugarcane	The fruit borer in okra and banana wilt is effectively controlled through biological means. *Trichoderma* given good results for banana.

9	Mr. V.P. Mane	Rural youth	Marigold, other flowers, sugarcane	I sprayed chemicals for *Helicoverpa* control, but check of the pest is difficult. However, HNPV controlled the pest.
10	Mr. S.S. Patil	Practicing farmer	Sugarcane, turmeric	Control of shoot borer in sugarcane is made possible by tagging stripes of *Trichograma* an egg ectoparasite with protective soil application of phorate granules by keeping safer period in between.

Special campaign on IPM practices for vegetable crop nurseries:

Farmers in the village are practicing vegetable cultivation. Raising good quality seedlings was the problem for them. Due to lack of knowledge and unavailability of technical personnel they are unable to combat the pest and diseases in nursery. Obviously, they were purchasing the seedlings from weekly markets at tehsil, which are pest and disease infected, and not of sure variety with good quality.

The demonstrations areconducted by the KVK on farmers fields by raising cabbage, chilli and other vegetable seedlings with proper care, timely plant protection measures along with due participation of farmers of the village in field days, visits etc.. The seedlings are of good quality, pest and disease free and best suited for local fields and environment. This practice was highly impressed the cultivators and many farmers are motivated for the self raising of vegetable seedlings.

Now in the village farmers, rural youth and farmwomen started raising seedlings on their own farm on group basis are personally. The result is good quality crop due to less incidence pest and diseases, higher yields and good quality product with attractive prices in the market. Mr. G.S. Teli, vegetable grower, Mr. B.K. Dongre, OFT chilli farmer and many other farmers and rural youth from the village, both have appreciated the efforts taken by KVK.

The farmers in the village now practising IPM practices and they have incorporated IPM technologies in their farming practices. No doubt, in coming years IPM village concept of KVK will play a key role in integrated farming.

Impact of KVK activities

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs. /Unit)	After (Rs. /Unit)
Spraying of 1% 13:00:45 at 50% flowering in wheat	98	87	58000/ha	65000/ha
Use of biofertilizers in sugarcane	108	75	210000/ha	240000/ha
Use of briquettes in paddy	80	35	70000/ha	85000/ha
Control of Spodoptera in Soybean	197	86	40000/ha	50000/ha
Control of white grub in sugarcane	216	43	180000/ha	250000/ha
Control of black aphids in wheat	170	63	42000/ha	60000/ha
Control of Helicoverpa in Bengal gram	90	80	55000/ha	70000/ha
Broiler production for self employment	27	60	6000	10700
Integrated management to control mastitis in cross bred cows	30	40	11900	13400
Rearing of Giriraja poultry breed	29	52	1800	2500
Importance of deworming in goat & sheep	32	48	3100	3900

Cases of large scale adoption

i) Increase in availability of major nutrient in sugarcane through set treatment of biofertilizer :

Purchase of chemical fertilizer is economically costly and also it is not available as per farmer requirement and time so discrease the cost of chemical fertilizer by discreasing 25% recommended dose by using set treatment of biofertilizer for this several extension activities like training programme and FLD have been conducted for farmers. The farmers have give response and adopted this technology which resulted to discrease cost on chemical fertilizer and found very well response in vegetative growth of plant. (Yield is awaited)

ii) Control of white grub in sugarcane : Leucopholis lepidophora and Holotrichia serrata are two economically important species of white grub damaging sugarcane very seriously which is threat to sugarcane cultivation and ultimately sugar industry in the district. Several extension activities with special reference to front line demonstration are conducted and technologies were demonstrated to farmer especially of biologicals. The farmers have responded to KVK and they have adopted and implemented technologies which resulted into check of the pest. Horizontal spread of this technology is quite noteworthy.

Details of impact analysis of KVK activities

i) Set treatment of biofertilizer in sugarcane (FLD) :-

The farmers are responded very well to this technology because less cost on chemical fertilizer.

ii) Control of Spodoptera in sugarcane (FLD) :- The FLDs are well accepted by the cultivatiors as they are result oriented. The farmers have taken in their cultivation practices the measures demonstrate by KVK.

iii) Control of rhizome fly in turmeric (OFT) :- The farmers have very well responded to the OFTs as they are solution oriented. Most of the farmers are adopting this technologies regularly.

Case studies on impact of KVK activities

Case - 1

1	Name and address of farmers	Shri. Patil Raghunath Mahipati Village: Padali, Taluka: Hatkanangale, Dist: Kolhapur
2	Enterprises being practised	❖ Sugarcane cultivation ❖ Production of sugarcane seedling in plastic trays ❖ Paddy and groundnut production ❖ Turmeric cultivation ❖ Cattle rearing and milk production
3	Latest technologies which have been adopted through KVK	❖ New varities of sugarcane and turmeric ❖ Production of sugarcane seedlings in plastic trays ❖ Seed treatment in turmeric before planting ❖ Tissuculture seedlings of sugarcane ❖ Drenching to sugarcane seedling in plastic trays for control of soil born diseases ❖ Control of rhizome fly and rhizome rot in turmeric ❖ Improved cultivation practices for paddy and groundnut crop.
4	Comments on KVK activities	KVK is friend of farmer. The technical knowledge received from KVK is more convincing than any other institution.

Case - 2

1	Name and address of farmers	Shri. Jinendra Devendra Desai Village: kini, Taluka: Hatkanangale, Dist: Kolhapur
2	Enterprises being practised	❖ Sugarcane based intercropping system ❖ Soyabean crop production ❖ Backyard vegetable production ❖ Groundnut crop production ❖ Cattle rearing
3	Latest technologies which have been adopted through KVK	❖ Paired row method of sugarcane planting ❖ Intercropping of staple crops in sugarcane ❖ Production of sugarcane seedlings in polybags ❖ Two eye bud planting in sugarcane ❖ High yielding varieties of soybean ❖ High yielding varieties of sugarcane ❖ Use of chaff cutter for fodder cutting
4	Comments on KVK activities	KVK activities and work is most essential for overall development at agriculture