Loka Kalyan Parishad

Technical Protocol: Crop Protection

Under

Prevalent insect pest: White ants, store grain pest, termite, leaf miner, web worm, aphids, different caterpillars of leaf eating, Fruit & shoot borer of Brinjal, Fruit borer of tomato, vindi, beans, Aphids of cowpea, Red ants, etc.

Prevalent diseases: Blast of rid, root rot, brown leaf spot, bacterial blight, different store grain pests, tungro virus, rodents etc.

Prevalent weeds:

Sl. No.	Name of the plant	Local name	Status	Whether used by local community in domestic purpose and commercially	Coverage (Dense/thin)
1	Cynodon dectylon	Dub grass	-	-	Dense
2	Echinocloa colona	Shyama grass	Weed	Do – grazing purpose	Dense
3	Cyparus rotundus	Mutha grass	Weed	Do – grazing purpose	Dense
4	Vativeria spp.	Khas Khas, Shwar	Wild, Bushy grass	Domestic & community use	Dense
5	Datura metal	Dhutura	Wild shrub	Do - Medicinal, ritual purpose	Thin
6	Calotropis gignata	Akanda	Wild shrub	Do – Medicinal, ritual purpose	Dense
7	Ipomea paniculata	Dhol Kolmi	Wild shrub	Do – fancing purpose	Dense

8	Lantana camera	Putush	Wild shrub	Do – fuel wood	Dense
9	Adhatoda vasica	Basak	Wild, shrub	Do – Medicine & fancing	Dense
10	Muraiya keonigii	Mitha neem, kari pata	Wild	Do – fodder	Thin
11	Amaranthus spinosus	Kanta note	Wild	Do – fodder	Dense
12	Casia sophera	Kak kasunda	Wild	-	Dense
13	Zizyphus rotundifolia	Kanta Kul	Wild	Do – fodder	Dense
14	Heliotropium Indicum	Hatisur	Wild	-	Moterate
15	Sonchus arvensis	Dudhi	Wild weed	-	Dense
16	Tinospora cordifolia	Gulancha	Wild	-	Moderate
17	Boerhaavia diffusa	Purnarnaba	Wild	Do – leafy veg.	Dense
18	Chenopodium album	Betho shak	Wild weed	Do – leafy veg.	Thin

A. Preventive method:

Seed treatment with natural practices like sunning, screening (eg. rice seed in 16% saline water) seed deep in hot water (eg. wheat seed in 54^0C warm water to eliminate loose smut disease), and all seeds treated with bio agents (TV, TH, SF etc. against fungal disease). In extreme cases chemical pesticide is used under controlled management.

1. What are the preventive methods are being taken up by the community or promoted by the PIA to control pest/ diseases and weeds?

Principle:

- Controlled use of chemical fertilizer especially
- Nitrogen enriched fertilizer through bio compost/ compost manure, green manure etc.

Crops, vegetable pests & eco-friendly control -Research residues

Name of crops with pest/disease	Name and details of the method/ practice to prevent the crops from attack of pest/ diseases and weed infestation.	When to be done	Benefit	Remarks
Brinjal	Fruit & shoot borer a) 5% NSKE or 3% Neem oil emulsion (NOE) b) Basal application of neem oilcake at 30 kg/bigha c) Intercropped with marigold, corriender, onion, garlic	a) Hand picking of affected twigs/fruits. b) Foliar spray of NSKE or NOE at 10-12 days interval	a) Effective at low infestation. Spray at regular interval equally effective as Endosulfan, Carbaryl, quinalphos	Tested, popularized
Whitefly in Brinjal etc. vegetables	a) 5% NSKE or 20% Neem cake extract (NCE) b) 10-15% Lantana Camera Leafextract(LLE)	Spray at 10-12 days interval	Controls effectively	Tested. Gaining popularity

Fruit borer of tomato, vindi, beans etc.	a) 5% NSKE or 20% Neem cake extract (NCE)	-do-	Controls effectively	Tested. Gaining popularity
Aphids of cowpea	5% NSKE or 2% Neem oil emulsion (NOE)	when infestation observed spray 2-3 times at 10-12 days interval	Controls effectively	Tested. Widely adopted
Red ants	K.oil 20 ml & 5 gm soap 1 liter of water or 3% NOE or 5% NSKE	Foliar spray at 10-12 days interval	Controls effectively, also controls aphids and leaf eating caterpillars	Tested & popular
White ants/termites	Castor cake	Basal application of 30-40 kg per acre Apply 2-3 consecutive season	Controls effectively also controls aphids and caterpillars	Tested & popular
Leaf eating caterpillars, aphids, leaf hoppers	2-3 days old cow urine mixed with 4 times of water	Foliar spray at noon, repeat 2-3 times at 10-12 days interval	Effectively controls. Checks many fungal & bacterial disease.	Tested. Gaining popularity
Root knot nematodes of Brinjal, tomato, Vindi, banana, papaya etc.	Planting marigold and use of neem or pongamia cake. Green manuaring with marigold reduce nematode population	Interplanting of marigold, use of 20-30 kg neem or pongamia (karanj) cake at planting and at 70-80 days after planting. In severe case use marigold as green manure along with interplanting.	Equally effective as Carbaryl Control effectively	Tested. Gaining popularity

Head borar of cabbage	Sowing mustard after 10 rows as follows: sow single row before 15days of planting, on the day of planting and after 15 days of planting.	Works as trap crop.	Effectively controls.	Test programme taken up Effectively avert pests Not popularly adapted
Cabbage moth (Pieris brassicae)	0.4% NSKE or 4% drup extract of Media azardirach (Persian lilac)	Spray 2-3 times at 6-7 days interval	Effectively controls.	Tested.
Dimond back moth	5% NSKE or 5% tomato plant extract (Used to repel pestes not to control or kill)	Spray 2-3 times at 6-7 days interval useful as pest repellant	NSKE Highly effective	Tested & DEMO programme taken up for 5% tomato plant extract.
Root-rot Foot rot of Tomato (P.aphanidermatum)	20% aqueous extract of Bouganvillia Betal leaf.	Seed soaking for 6 hours.	Infestation checked. Germination efficiency by 75%	Ten programme taken up
Fruit rot in chilli (Colletotrichum capsici) (Tomamto, Bringal, Termaric, Cotton, Bengal gram, Jute)	a) Leaf extract of 'bael' or 'Tulsi' 5-15% or 10% leaf extract of Bilati Babool (Prosopis juliflora) b) 10% fresh cow dung extract	Foliar spray a) 2-3 times at 7-10 days interval at flowering & fruit development stage b) 3-4 times at 6-8 days interval	a) Checks disease within 3 days b) Checks within 10 days	Not tested Tested, popularised pregnant cow

				urine more effective
Ring mosaic of Tomato, Cowpea, spotted wilt virus	a) 5% Nerium leaf extract (KARABI) 3-4 times at 6-7 days interval b) 5-10% aquas extract coconut/Jower leaf, 3-4 times at 6-7 days interval	Foliar spray Foliar spray	Complete control -d0-	Not tested, Test prog. taken up
Beans, Cowpea yellow mosaic virus, spotted wilt	5% neem oil/vitex oil or cotton oil emulsion	Foliar spray at 15,22,29 days after sowing	Lessen mosaic & increse yield.	5% neem oil tested, gaining popularity
Powdery mildew of pea, cowpea etc.	3% neem oil & 0.25% soap emulsion	Foliar spray at 15-40,50 days after sowing	Complete control	Tested

ITK - * Indigenous Traditional Knowledge , NSKE - Neem seed karel extract, NCE - Neem oil cake extract, NOE - Neem oil Emulsion
LLE - Lantena camera leaf extract.

B. What are the curative methods?

Sl. No	Crop (name of the crops in which this intervention has been done)	Name and details of the method (preparation method).	When to be done?	What are the benefits of this treatment
	Ground nut	10% neem seed kernel /2%neem oil	35 th and 55th day after sowing of seeds	• Total control of pest attack • 2% neem oil is

				equivalent to Monocrotophos
	Sugarcane, nursery seedlings, ground nut	100-140 kg of castor, neem and karanj (Pongamia Officinallis) cake/ acre of land	At the time ploughing and sowing/ transplantation	To control termite attack
	Mustard, sesame, bean etc.	4% neem seed extract, 1.5 % neem oil and 0.25 gm soap	30 days after sowing of seeds/ for protection of aphids – spray 65 days after sowing at an interval of 5-7 days	To control web worm Equivalent to Endosulphan
	Legumes	Dilution of 5% neem seed extract, .25% neem oil and 0.25% of soap		Equivalent to Endosulphan
	Rice, wheat, maize and other cereals	Seed deep in 16.5% saline water solution Seed soaking in diluted cow urine solution for 2 hrs. (1 part of 2-3 days old cow urine mixed with 4 part of fresh water)	After 1-2 sunning After screening of seeds	Screening bold seeds, healthy seeds Reduce fungal presence on grains Kill both fungal and bacterial infection
	All cereals, oil seeds, pulses seeds, vegetable seeds & seedlings	Seed dressing with Trichoderma Viridae (TV)4g/kg of seeds & seedling deep	At seed sowing as seed dressing materials	Kill both fungal and bacterial infection
	Cereals, pulses & oil seeds	Seed dressing with Pamarosa oil or with neem oil of 2 tsf/kg seed	65-75 days repell store grain insect pest, fungal	Same
	Cereals, pulses & oil seeds, vegetable seeds	Use of wood ash & charcoal during storage	After drying of seed	Reduce moisture considerably in storage (control 3-6 months)
	All cereals, oil seeds, pulses seeds, vegetable seeds & seedlings	Seed dressing with Trichoderma Viridae (TV)4g/kg of seeds & seedling deep	At seed sowing as seed dressing materials	Check sheath blight, sheath rot, brown spot, leaf blight for 45 days

C. Do you have training material to capacitate the community regarding the pest life cycle? Please give the details of modules.

Yes, we have training materials consisting of all these things mentioned above for capacitating the community.

D. Do you have training material to capacitate the community regarding the predators of harmful pest? Please give detailed training of training material.

Yes, we have.

E. Please mention the source of the input to the community in all the above mentioned practices.

F. In the above mentioned practices please mention the method and dose of application, wherever is applicable.

Ans: Already given above.

G. In the above mentioned practices what are the roles of PIA and community?

Ans: PIA performs the role of facilitator & catalyst n the process. PIA prepares technical protocol using the expertise of their experienced and qualified team of agriculture scientists. The experts of LKP have long term experience in agriculture. With their knowledge and experience, they prepare technical protocol for prevention from pest attack and also curative measures. LKP disseminates the knowledge among the community people through capacity building in the form of in- house training as well as handholding support at the field. Through this process, community get capable and take ownership of the development initiative.

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