

IPM in Rapeseed Mustard under Midland Irrigate Agro-Ecological Situation

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Site of Experiments

Socio-Eco group

❖ Paharia Tribe

❖ Santhal Tribe

❖ Non Tribe

Villages

Basmata

Majhaladih

Baridih

Blocks

Jarmundi

Sikaripara

Saraiyahat



Objectives

- ❖ Developed IPM modules in Midland irrigated AES, where previous crop was Paddy.
- ❖ Evolution of IPM modules with motivation & involvement of farmers from different socio-economic groups.
- ❖ To evaluate the performance of different variety of mustard in Rice-Mustard cropping pattern.
- ❖ Increase the sustainability & residue free yield of Mustard.
- ❖ Developed skill in farmers for identification of natural enemies.
- ❖ Build confidence in farmers to take decision making in IPM
- ❖ To generate collective action in farmers



Major constraints for Low yield

❖ **Abiotic** - Temperature, Rainfall & Soil Moisture

❖ **Biotic** - Weeds- **Motha** (*Cyperus rotundus*)
Bathua (*Chenopodium album*)
Piyaji (*Asphodelus tenuifolius*)
Doob (*Cynodon dactylon*)

Insects – Mustard Aphid
Mustard Sawfly
Painted bug

Disease – Leaf spot



Others

- ❖ Late sowing of Mustard as previous crop Paddy harvested in middle of November.
- ❖ Poor fertiliser management.
- ❖ Broadcast sowing.
- ❖ Not adopting IPM technologies.



Location specific IPM Modules Developed

❖ Crop stage- Pre-sowing

- ❖ Proper ploughing to kill the residue population of pests
- ❖ Remove all residue from the field
- ❖ Seed treatment with Fungicide.



Location specific IPM Modules Developed

❖ Crop stage- Sowing

- ❖ Seed rate @ 8 Kg/ha.
- ❖ Line Sowing at distance of 30X10 cm
- ❖ Application of balanced dose of fertilizers(N:P:K 50:50:40)



Location specific IPM Modules Developed

❖ Crop stage- Vegetative

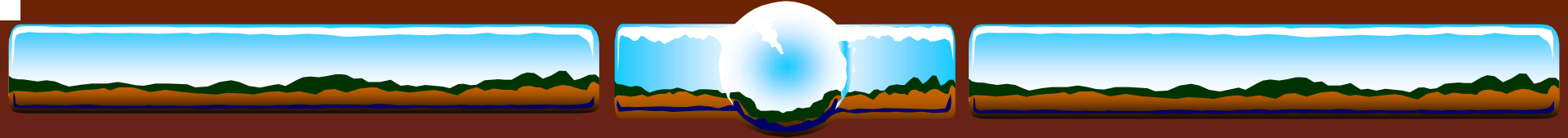
- ❖ Periodical weeding and monitoring
- ❖ Irrigate the crop in 4th week after sowing
- ❖ Manual collection and destruction of larvae of mustard saw fly during early monitoring time
- ❖ Conserve natural enemy by avoiding pesticide spray



Location specific IPM Modules Developed

❖ **Crop stage- Flowering and Pod formation**

- ❖ Manual removal of aphid infested twigs at initial level of pest attack
- ❖ Conserve predator *Coccinella* by avoiding chemical spray
- ❖ Spray pesticide when aphid population exceeds ETL
50-60 aphids/10cm terminal portion of central shoot or 0.5-1cm terminal portion of central shoot covered by aphis colonies.



Varieties studies with IPM & without IPM

❖ Brassica compestris

B9 (Yellow Sarson)

❖ Brassica Juncea

Shivani

Seed Tech 111

Varuna



Yield (Q/ha.) in different socio-economic villages

Variety	Baridih		Majhaladih		Basmata	
	IPM	FP	IPM	FP	IPM	FP
B9	7.50	5.41	7.06	5.12	5.23	3.27
Shivani	7.25	5.10	6.87	4.98	5.13	3.02
Seed Tech 111	6.87	4.98	7.45	5.27	5.67	3.58
Varuna	6.25	4.63	5.56	4.10	4.98	3.10
Average	6.96	5.03	6.73	4.86	5.25	3.14

Increase Yield (Q/ha.) and monetary gain in Rs.

Variety	Baridih			Majhaladih			Basmata		
	Yield	Monetary gain	CB	Yield	Monetary gain	CB	Yield	Monetary gain	CB
B9	2.09	3135	1:5.05	1.94	2910	1:4.69	1.96	2940	1:4.74
Shivani	2.15	3225	1:5.20	1.89	2835	1:4.57	2.11	3165	1:5.10
Seed Tech	1.89	2835	1:4.57	1.73	2595	1:4.18	2.09	3135	1:5.05
Varuna	1.62	2430	1:3.91	1.46	2190	1:3.53	1.88	2820	1:4.54

Cost of IPM – Rs. 680 Mustard @ Rs. 1500/qtl.



Results findings

- ❖ Major pests identified mustard aphid.
- ❖ Major natural enemies identified *Coccinella*.
- ❖ All four variety performance well under IPM practices.
- ❖ Yellow sarson variety B9 matured earlier than other three variety and escape the aphid infestation to greater extent under midland irrigated AES.
- ❖ Among *Brassica Juncea* species Shivani and Seed tech 111 performed better than Varuna.
- ❖ Perception of IPM technologies is more in non tribes followed by Santhal and Paharia Tribe.



Conclusion

- ❖ Under Paddy-Mustard cropping pattern in midland irrigated AES, where mustard is usually sown late as field vacate up to middle of November after Paddy harvesting. Under such cropping pattern farmer could get more yield and benefit by adopting IPM practices.
- ❖ Studies suggest if IPM is implemented with proper motivation and involvement of farmers it may lead to increase the mustard yield in midland irrigated, Paddy-Mustard cropping pattern.