

Management of leaf blight disease of onion

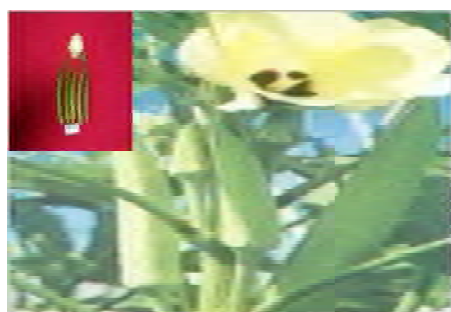
At NHRDF Karnal and Nasik, the four sprays at 15 days interval with mancozeb @ 0.3% + monocrotophos @ 0.05% was best to reduce the disease intensity (2.85%) as compared to check (19.08%). The yield was 340.43 q/ha with cost benefit ratio 1:8.09. The yield in control plot was 230.52 q/ha.

Resistant Varietal Trial

After going through the data provided by PDVR, the following recommendations were made for identification of disease resistant varieties.

Varieties Identified for Release

	Crops	Varieties	Breeding centres	Recommended zones
1.	Okra (YVMV)	HRB-9-2	Hisar	IV and VI
2.	Brinjal (Bacterial wilt)	SM 6-6 BB-44	Vellanikkara	I, VII and VIII V and VII



HRB-9-2 (Varsha Uphar)



SM-6-6 (Sweta)



BB-44 (Utkal Madhuri)

XVI -Worskshop

Venue : Tamil Nadu Agricultural University, Coimbatore

Date : 28th - 31st May, 1997

Collection, Evaluation and Conservation of Vegetable Germplasm

Crops	Source	No. of lines tested	No. table/Promising lines
Amaranth	Coimbatore	12	A-77, A-13, A-76 and A-10
Brinjal	IARI	55	B-1 and B-40
Capsicum	Solan	12	Capsicum-2
Carrot (tropical)	Hisar	58	HC-155, HC-2, HC-199 and Hisar Local (Red), HCP.160 (Purple) and HCB-22 (black)
Chillies	Coimbatore	85	CA 83, CA 80
	Jorhat	17	Jati Long, Round chilli
Cauliflower	Early	58	Kunwari.10, Kunwari.15, Hazipur.1 and Kutaki 13
	Sabour	21	91-1, 19-2 and 93-2
Mid	PDVR	54	Agahani.10, Pusi.13 and Pusi.8
	Sabour	25	81-5, 84-3, 93-1
Cucumber	Solan	35	Market Long
French bean	Pantnagar	20	RL.1, LS.1 and SL.2
	IIHR-Jorhat		IIHR.1119, HAU-7, HAU-4

Crops	Source	No. of lines tested	No. table/Promising lines
Muskmelon	Ludhiana	2	To mark
Onion			
Red	NHRDF-Nasik	141	No.472, No.453 and 608
	Rahuri	135	Udaipur 103A
White	Rahuri	45	S-1
Pointed gourd	Kalyani	17	Sandhyamani and Kajli Bambai
Pumpkin	Hyderabad	62	RNP-50, RNP.67
Peas	Faizabad	22	NDVR 250
Tomato	Solan	50	EC 329560
Bottle gourd	Faizabad	42	NDBG.202
Garlic	NHRDF Karnal	125	No.32, 25, 31 and 62

Screening for Insect-Pest Resistance

S.N.	Crops	Insect Pest	Screening Centre	Varieties/ Hybrids tested	Free/Resistance (0-5%)
1.	Brinjal	Fruit & Shoot	PDVR	70	Barahamashi (4) BB-13-1(3)
		Nematode	Jorhat	40	Calls/ Root System I BP(1) DBL (2.3) AP, AK (3.5) Jagnur Egg mosses/ Root system 17 DWE (0.3) BB-45 (1) Jagum (1) DBL (3.7)
2.	Muskmelon	Leaf miner	PDVR	47	None
3.	Cucumber	Leaf miner	PDVR	43	None
4.	French bean	Leaf miner	PDVR	96	None
5.	Okra	Jassids	Jorhat	20	KS - 404-(L.1)
		Pod borer	Jorhat	19	AROHL (L.1)

Screening for Disease Resistance

S.N.	Crops	Disease	Screening centre	Varieties/ Hybrids tested	Free/Resistance (Incidence 0-5%)
1.	Tomato	TLCV	PDVR	43 + 35	ARTH-3(0) : Phule hybrid (5) B 55-20 (5)
			Rahuri	14	None
			Hyderabad	50	38 (-), 11(+)
		TSWA	Rahuri	13+1	Pusa-120 x Suit (0) PED(0) PC(0)
			Hyderabad	50	LE-1(0)
2.	Brinjal	MLD	Hyderabad	90	60 (NIL)
		WILT	PDVR	201	37 (Free)
3.	Chilli	LCV	PDVR	201	14 (Free)
			Rahuri	34	None
4.	Onion	Leaf Blight	Rahuri	218	None

Vegetable Production

- For highest yield (65 t/ha) and C:B ratio (1:3.61), application of 180 kg N/ha along with 60 kg/ha each of P₂O₅ and K₂O at the plant spacing of 60 x 30 cm is recommended for Cabbage var. Pride of India under Kalyanpur conditions of central U.P.
- In order to get maximum yield (176q/ha) and benefit (C:B ratio 1:3.85) in watermelon var. Sugar

Baby, a nitrogen dose of 100 kg/ha at a spacing of 90x 200 cm along with fixed dose of 60 kg each of P₂O₅ and K₂O is recommended for Sabour conditions of Bihar.

3. Application of nitrogen @ 150 kg/ha along with P₂O₅ at 60 kg/ha at closet spacing of 10 x 10 cm was most effective resulting in maximum yield (729 q/ha) and C:B ratio (1:2.91) in Rabi grown onion var. Agri Found Dark Red. Hence, it is recommended for Junagadh conditions of Gujarat.
4. Yield (152.45 g/ha) and C:B ratio (1:1.92) were highest with the application of 100 kg N₂ 80kg P₂O₅ and 60 kg K₂O/ha in garlic var. Local White. Hence, It is recommended for garlic cultivation under Faizabad conditions.
5. In bitter gourd var. Priya, the maximum yield (154 q/ha) and C:B ratio (1:2.71) was obtained with the application of N₂ 60 kg, P₂O₅ 60 kg and /60 kg K₂O/ha. This dose of NPK is recommended for bitter gourd cultivation under Saurashtra region of Gujarat.
6. For maximum pod yield (129 q/ha) of French bean Cv. Contender with a cost benefit ratio of 1:2.23, application of 120 kg N and 60 kg P₂O₅/ha is recommended for Solan conditions.
7. The maximum pod yield (4.12 g/ha) and C:B ratio (1:2.33) in radish var. Pusa Reshmi was obtained with the application of N @ 120 kg/ha with a constant dose of P₂O₅ and K₂O @ 60 and 50 kg/ha respectively at the spacing of 75 x 30 cm. Hence, it is recommended for seed crop of radish under Durgapura conditions of Rajasthan.
8. Application of nitrogen as 40 kg/ha basal + 20 kg/ha through top dressing and 20 kg/ha through foliar spray was found conducive and giving the highest yield (413q/ha) and C:B ratio (1:4.96) in tomato Cv. Sel.7. Hence, it is recommended for Varanasi conditions.
9. Application of Fluchloralin @ 1.5 kg ai/ha (PPI) supplemented with one hand weeding at 30 DAP proved most effective giving highest yield (75.8 t/ha) and C:B ratio (1:2.50). Hence, it is recommended for weed control in Kharif crop of brinjal under Kalyanpur conditions of central U.P.
10. For rainy Reason crop of okra, application of herbicide Metalochlor @ 1.00 kg ai/ha (PE) proved most effective resulting in maximum yield and C:B ratio (1:2.86). Hence, it is recommended for chemical control of weeds in Kharif grown okra in Varanasi region.
11. The cropping sequence of turnip-potato-beans is recommended for mid hill conditions of Himachal Pradesh, which gave maximum annual net return of Rs. 76256/- with cost benefit ratio of 1:1.50 at Palampur.

Varietal Trial

After thorough examination of the data over the years provided by the PDVR, the following varieties were identified and recommended.

S.N.	Crops	Varieties	Source	Recommended zone
1.	Brinjal (long)	BB-13	Bhubaneshwar	VIII Coimbatore
2.	French bean	IIHR-909	IIHR	I (Solan, Katrain)
3.	Onion	PBR-5	Ludhiana	VI (Karnal, Durgapura)
4.	Peas (mid season)	NDVP-8	Faizabad	IV(Ludhiana, Sabour, Faizabad)



BB-13 (Utkal Jyoti)

French bean var.- IIHR-909

PBR-5 (Punjab Naroya)

NDVP-8

Heterosis Breeding

The committee has recommended the following f1 hybrids for release after thoroughly scrutinizing the data of 3 years provided by PDVR.

S. N.	Crops	Name of the hybrids	Sources	Recommended zones
1.	Brinjal (Round)	Pusa hybrid-9	IARI	VI
2.	Brinjal (Small Round)	Phule hybrid-2	Rahuri	VII
3.	Cabbage	Nath-501	Nath	VII
4.	Chillies	ARCH-236	Ankur	IV
		HOE-888	Sandoz	IV, VIII



Pusa Hybrid-9



Phule Hybrid-2



Cabbage Nath-501



Chilli ARCH-236



Chilli HOE-888

Resistant Varietal Trials

The following varieties were identified for release

S. No.	Crop	Variety	Breeding centre	Recommended Zone
1.	Tomato (Moderately resistant to TLCV)	H-24	PDVR Varanasi	V (Bhubaneswar)



H 24

Pest Management

Brinjal: From the outcome of the experiments on integrated control of brinjal pests, five spraying of cypermethrin @ 30 g ai/ha or ethofenprox @ 75 g ai/ha at 15 days interval starting from 30 DAT imparted most effective and economical control of leafhopper and fruit borer. Four spraying of carbaryl @ 800 g ai/ha at 15 days interval from 30 DAT was equally effective and economical for control of brinjal pests.

Use of leafhopper tolerant variety Punjab Barsati with a spraying schedule of cypermethrin @ 30 g ai/ha at 20, 35, 65 and 80 DAT gave highest yield.

Okra: Out of various insecticides and combination of insecticide schedules tried against insect pests of okra, four applications of cartap hydrochloride @ 500 g ai/ha or alternate spray of endosulfan @ 500 g ai/ha and deltamethrin @ 10 g ai/ha at 15 days interval was most economical.

For effective control of leafhopper and fruit borer on variety Arka Anamika spraying with cypermethrin (0.005%) at 20, 35, 50 and 65 days after sowing was found to be most economical treatment and was recommended.



Helicoverpa armigera on Okra

Helicoverpa armigera on Okra

Tomato: Three spraying of fenvelerate @ 50 g ai/ha and endosulfan @ 700 g ai/ha alternately at first sight of egg or larvae/5 plants was found to be best in significantly reducing fruit borer damage to the extent of 25.675 and 29.89% in variety Punjab Chhuhara and Punjab Kesari, respectively. This recommendation will be supported by economics of treatments.

First year results indicated that marigold as a trap crop with just 2 sprays of endosulfan was most effective in controlling the fruit borer on tomato. However, it was cautioned that the affected flowers needed complete picking and destruction to prevent second generation of *H. armigera*. Against leafminer on tomato and cucurbits, spraying of cyromazine (250 g/ha) at 15 days interval and Sukrina (a neem formulation) @ 15 ml/l effectively reduced leafminer infestation. Based on the last two years work under AICVIP, it was concluded that two rows of thick sowing of mustard at the time of transplanting of cabbage along with 3 sprays of NSKE (4%) at weekly interval starting at primordial stage was effective. The results are to be confirmed after one more trial.

Seed Production

1. An application of 25 kg borax/ha and 1.5 kg ammonium molybdate/ha is recommended for Solan conditions with a cost benefit ratio of 1:3.32 in cauliflower (K-1).
2. An application of 20 kg borax and 20 kg calcium carbonate/ha is recommended for Solan centre with a cost benefit ratio of 1:1.61 in capsicum (California Wonder).