

4. Insect Control

- Against fruit borer in tomato, three spraying of Deltamethrin @ 20 g a.i./ha times, starting from flowering controlled the pest economically at Ludhiana.
- Against pod borer in chillies, spraying of Cypermethrin @ 0.1 kg a.i./ha was found to be most effective in controlling the pest at Lam (Guntur).
- Against diamondback moth and leaf webber in cabbage, 3 sprays of Fenvalerate @ 50 g a.i. /ha was found to give maximum cost benefit ratio at Hessarghatta.
- Against onion thrips, 4 sprays of Malathion (0.1%) at 15 days interval were found to be economical at AADF, Karnal.

IX-Workshop

Venue : Narendra Dev University of Agriculture and Technology, Faizabad

Date : 13th to 16th January, 1987

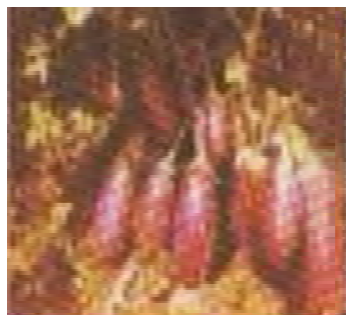
Breeding

Varietal trials: Sub-Committee for identification of varieties recommended following varieties for release.

Crops	Varieties	Source	Zones	Centres for which identified		
Brinjal Long	ARU-2C	ARU, Almora	I	Almora		
			IV	Kalyanpur		
			VI	Hisar		
			VIII	Coimbatore, Hessaraghatta		
	KAT-4 (Hybrid)	Katrain	VIII	Coimbatore		
Brinjal Round	K-202-9	Anand	VI	Anand		
Chillies						
Irrigated trial	J-218	Jabalpur	I	Srinagar		
			IV	Kalyanpur		
			V	Bhubaneshwar		
			VI	Hisar		
			VII	Ambajogai, Rahuri, Akola		
			IV	Sabour		
			V	Bhubaneshwar		
			VI	Hisar		
			VII	Coimbatore, Kovilpatti		
			V	Sabour, Kalyanpur		
	Musalawadi	Rahuri	V	Bhubaneshwar		
VII			Rahuri			
VIII			Coimbatore, Hessaraghatta			
Rainfed			X-235	Lam	I	Almora
					V	Lam
			Musalawadi	Rahuri	V	Lam
French Bean			Arka Komal	IIHR	I	Almora, Katrain, Solan
					VII	Rahuri
					VIII	Hessaraghatta
					IV	Pantnagar
	UPF-191	Pantnagar	VII	Rahuri		

Crops	Varieties	Source	Zones	Centres for which identified
Onion				
Rabi season	Arka Kalyan	IIHR	IV	Sabour, Ludhiana
			VI	Jaungadh
			VII	Ambajogai, Rahuri
			VIII	Hessaraghatta, Coimbatore
	Line-102	IARI, New Delhi	I	Almora
			IV	IARI, Karnal
			VI	Junagadh
Kharif season	Arka Niketan	IIHR	VII	Nasik
	Agri. Found Red	AADF, Delhi	IV	Karnal
Peas				
Early	PM-2	Pantnagar	I	Almora
			IV	Pantnagar
Mid season	VL-3	VPKAS, Almora	I	Solan, Katrain, Almora
			IV	Kalyanpur, Pantnagar
			VI	Hisar, Durgapura
	LINCOLN	Katrain	I	Solan, Almora, Katrain
			IV	Kalyanpur
			VI	Hisar
Pumpkin	CM-14	Vellanikkara	IV	IARI, New Delhi
			V	Bhubaneshwar
			VII	Coimbatore
	Pusa Vishwas	IARI, Delhi	I	Solan
			VIII	Coimbatore, Hessarghatta
			IV	IARI, Delhi
			V	Bhubaneshwar
Watermelon	Arka Chandan	IIHR	VIII	Hessaraghatta, Coimbatore
	Arka Suryamukhi	IIHR	VIII	Solan, Hessarghatta
	Arka Manik	IIHR	IV	Ambajogai
			VII	Akola
			VIII	Hessaraghatta
Tomato				
Indeterminate	Arka Vikas	IIHR	I	Solan
			II	Kalyani
			IV	Ranchi, Ludhiana, Kalyanpur, Pantnagar
			V	Bhubaneshwar
			VI	Navsari
			VII	Rahuri, Ambajogai
			VIII	Hessaraghatta
			Arka Saurabh	IIHR
	IV	Sabour		
	V	Bhubaneshwar		
	VI	Hisar, Junagadh		
	VII	Ambajogai, Rahuri		
	VIII	Hessaraghatta		
	Pant T-3	Pantnagar		
			II	Kalyani
IV			Sabour, Kalyanpur, Delhi, Pantnagar, Ranchi	
V			Bhubaneshwar	

Crops	Varieties	Source	Zones	Centres for which identified
Determinate	CO-3	Coimbatore	VI	Navsari, Hisar
			VII	Ranchi, Ambajogai
			VIII	Hessaraghatta
			I	Katrain
			IV	Pantnagar, Ranchi, Sabour, Kalyanpur
	Punjab Kesari	Ludhiana	V	Bhubaneshwar
			VI	Navsari, Junagadh
			VII	Ambajogai
			I	Katrain, Solan, Almora
			IV	Kalyanpur, Ranchi
La Bonita	NBPGR, Delhi	V	Bhubaneshwar	
		VI	Navsari	
		I	Katrain, Solan	
		IV	Kalyanpur, Pantnagar, IARI, New Delhi	
		V	Junagadh, Hisar, Navsari	
			VII	Rahuri



ARU-2C



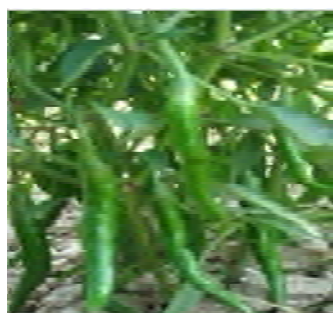
KAT-4 (Hybrid)



K-202-9 (Azad B-1)



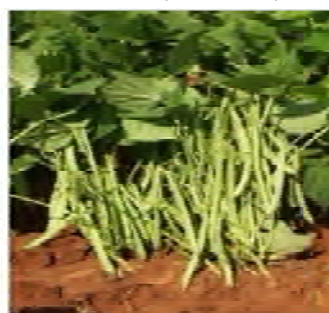
J-218 (Jawahar Mirch-218)



LCA-235 (X-235)



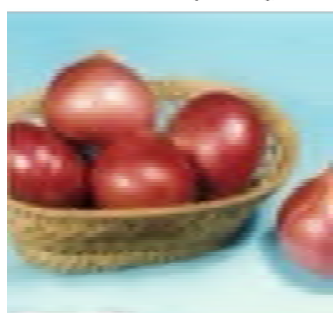
Muslawadi



Arka Komal (Sel-9)



UPF-191 (Pant Anupam)



Arka Kalyan



L-102 (Pusa Madhavi)



Arka Niketan



Agrifound Dark Red



PM-2



VL-3



Lincon



CM-14 (Ambili)



Pusa Viswas



Arka Chandan (IIIR-105-1-1)



Arka Suryamukhi



Arka Manik



Sel.-22 (Arka Vikas)



Arka Saurabh



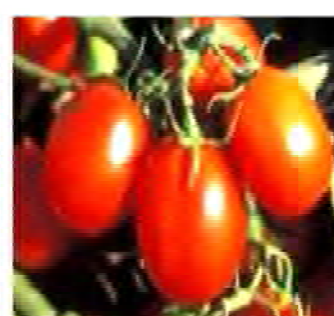
Pant T-3



CO-3



Punjab Kesari



La Bonita

2. Agronomy

Tomato

- The application of NPK @ 150:60:60 kg/ha is recommended for obtaining the most economical yield in Pusa Ruby, Pusa Early Dwarf and Arka Vikas varieties of tomato under the agro-climatic conditions of Bhubaneswar. Out of the three varieties, Arka Vikas proved to be most promising one.
- The pre-planting incorporation of Goal @ 0.25 kg a.i. and Basalin @ 1.0 kg a.i./ha are recommended for getting maximum weed control and economic yield of tomato at Bhagalpur.

Cauliflower

- The transplanting of cauliflower (main season) varieties Pusa Synthetic at a spacing of 60 x 40 cm and application of 150 kg N₂ +120 kg P₂O₅/ha are recommended for obtaining economic yield in Kalyanpur (Kanpur region).

Cabbage

- The spacing of 75 x 30 cm and the application of 180 kg N₂ +50 kg P₂O₅ +50 kg K₂O/ha are recommended for cabbage variety Pride of India under agro climatic conditions of Jabalpur. The spacing of 70 x 30 cm and application of 60 kg N₂/ha with basal dose of 50 kg P₂O₅/ha are recommended for obtaining economic yield at Kalyanpur (Kanpur) region.

Chilli

- The application of 90 kg N₂ /ha along with the basal doses of 60 kg P₂O₅ +40 kg K₂O/ha is recommended for getting economic yield of red ripe chilli variety Pant C-1 under agro-climatic condition of Faizabad.

Onion

- In order to get the economic bulb yield in onion variety N-53, an application of 75 kg N₂/ha at 15 x 10 cm spacing is recommended under agro-climatic conditions of Ambajogai. However, the application of phosphorus was not found economical.

Muskmelon

- The spacing of 350 x 60 cm and the application of N₂, P₂O₅ and K₂O @ 100:60:60 kg/ha are recommended for Durgapura Madhu variety of muskmelon under agro-climatic conditions of Durgapura.

Radish (Seed Crop)

- The planting of stecklings at 45 x 30 cm distance along with nitrogen dose of 80 kg/ha are recommended for getting economic yield of the seed crop of Pusa Rashmi radish under agro-climatic conditions of Bhagalpur. Under Jabalpur conditions, the planting distance of 60 x 30 cm with an application of 120 kg N₂/ha are recommended for seed crop of radish var. Pusa Chetki.

Onion (Seed crop)

- The planting of onion Pusa Red bulbs at 45 x 30 cm and application of 80 kg N₂/ha is recommended for Nasik area to get economic seed yields.
- Basalin @ 2 kg a.i. /ha as pre-plant incorporation followed by one hand weeding at 45 days after transplanting proved most suitable for weed control and economic returns in onion bulb crop for Bhagalpur and Ludhiana conditions, whereas in Jabalpur region, the application of Ronstar @ 1 kg a.i./ha is recommended for effective weed control and obtaining economic yield of onion bulbs. Similar results have also been obtained at Ludhiana.

Okra

- For weed control and economic returns in okra/cultivar Pusa Sawni, the application of Fluchloralin @ 1.5 kg/ha as pre-plant incorporation with one hand weeding at 45 days after sowing is recommended under Pantnagar conditions. Similar recommendations have already been made for Punjab and Haryana conditions. But at Jabalpur, the application of Lasso @ 1.5 kg a.i./ha as pre-emergence + one hand weeding at 45 days after sowing proved most effective for weed control and getting high income.

Pea

- Tribunil @ 1.87 kg /ha as pre-emergence spray is recommended for controlling weeds under agro-climatic conditions of Punjab.

3. Disease Control

The following recommendations were adopted on the basis of conclusive results for three years.

- At Ambajogai, the fruit rot, powdery mildew and thrips on chilli variety Pusa Jwala were effectively controlled by three sprays at 15 days interval of the combination of Dithane M-45 (0.25%)+Karathane (0.1%) + Metasystox (0.1%). The spray is recommended as soon as the appearance of the disease pest. In order of their effectiveness, next best combinations were Dithane M-45 (0.25%)+Karathane(0.1%)+Ekalux (0.1%) and Dithane M-45 (0.25%) +Karathane (0.1%) + Rogor (0.1%).
- The early blight of tomato variety LE-79 at Dapoli was effectively controlled by the following 3 fungicides viz. Bavistin (0.1%) or Dithane Z-78 (0.2%) or Dithane M-45 (0.2%). Three sprays of any one of the above fungicide at 15 days interval starting with the first appearance of the disease is recommended.
- Difolaton (0.1%) and Blitox (0.3%) are recommended by Ludhiana centre to control the blight of tomato variety Punjab Keshari. Three sprays of fungicide should be given at the interval of 15 days with the first appearance of disease.
- At Pantnagar, purple blotch of onion variety Pusa Red in seed crop was effectively reduced with protective spray of Dithane M-45 (0.2%) using sticker Sandovit (0.1%). The next best fungicides in order of their effectiveness are Blitox (0.3%), Foltaf (0.3%) and Dithane Z-78 (0.25%). After 55 days of transplanting (January first week) five sprays at 15 days intervals are recommended.
- Five preventive of four curative sprays at 15 days interval of Mancozeb (0.25%) are recommended to control onion bulb crop variety Pusa Red from *Stemphyllium* blight at AADF, Karnal. Six sprays of Mancozeb (0.25%) or Captafol (0.3%) or Copper Oxychoride (0.3%) at 15 days intervals are recommended for onion seed crop variety Pusa Red against *Stemphyllium* blight. Addition of sticker Triton (0.1%) to the fungicidal solution is also advocated.
- Bacterial wilt of guar var. Pusa Nav Bahar was effectively controlled by treating the seed with Paushamycin 200 ppm for two hours before sowing and sprays of Blitox-50 (0.3%) at the first sign of disease at Durgapura.
- Katrain centre has recommended the dipping of turnip roots for ½ hour in a solution of Tetracycline (200ppm) and Bavistin (1000 ppm) before transplanting and two sprays of the said combination at fortnight interval with the onset of 5-10% flowering to control the phyllody of the turnip crop (var. Pusa Swarnima).

4. Insect and Nematode Control

Based upon the 3 years data for various experiments, the following recommendations have been made.

- Application of granules of Carbofuran @ 1500 g a.i./ha at transplanting followed by 3 sprays of Cypermethrin @ 30 g a.i./ha at 10 days interval were at most economical treatment in control of jassids, aphids and fruit borer of brinjal at Rahuri.
- At Ludhiana, for control of jassids and fruit borer on edible okra crop, the best treatment was spraying of Endosulfan @ 500 g a.i./ha 15 days after germination followed by 3 sprays of Deltamethrin @ 10 g a.i./ha at 14 days interval.
- At Rahuri, the most economic treatment for jassids and borer control on edible okra was application of Endosulfan @ 500 g a.i./ha followed by 3 sprays of Fenvalerate @ 50 g a. i./ha at fortnightly interval.
- For control of jassids and fruit borer on okra seed crop at Ludhiana the economic treatment was 2 sprays of Dimethoate @ 500 g a.i./ha followed by 2 sprays of Cypermethrin @ 50 g a.i./ha at fortnightly interval.
- At Rahuri, the economic treatment for jassid and borer control on okra seed crop was application of Phorate granules @ 1500 g a.i./ha followed by 2 sprays of fenvalerate @ 50 g a.i./ha at fortnightly interval starting from 40 days after application of granules.