

Pusa Vaibhav: A new round purple variety of brinjal for commercial cultivation

Pusa Vaibhav is a purple-coloured round fruited brinjal variety developed by hybridization (Pusa Purple Round × Br-112) followed by selection in the Division of Vegetable Science, ICAR-Indian Agricultural Research Institute, Pusa, New Delhi, India. The variety was identified for release in the XXXVII AICRP (Vegetable Crops) Group Meeting held at Tamil Nadu Agricultural University (TNAU), Coimbatore during June 22-25, 2019 for cultivation in plains of Punjab, Uttar Pradesh, Bihar and Jharkhand.

THE plants are tall (105-110 cm) having non-spiny erect branches with light purple pigmentation on stem, mid-rib and veins of leaves. Flowers are medium in size and purple in colour. The fruits are round (15 cm length and 7.5 cm diameter), shiny purple in colour with non-spiny green calyx and green pistil scar at the bottom. Fruits are borne in solitary with an average fruit weight of 250 g. The variety takes about 55-60 days from transplanting to first harvest. The average fruit yield is 410 q/ha with a potential yield of 580 q/ha. This variety was found to be rich in antioxidant activity (CUPRAC: 95.98 mg GAE/100 g FW and FRAP: 128.94 mg GAE/100 g FW). It is recommended for *Bharta* making due to less number of seeds.

Production technology

Pusa Vaibhav can be grown in well drained sandy to clay loam soil with a pH of 6.6 to 7.5. The ideal temperature for good crop growth and yield is 25-30°C. This particular variety is suitable for growing during *kharif* season in plains of Punjab, Uttar Pradesh, Bihar and Jharkhand. For raising seedlings for one hectare, about 300-350 g seed is sufficient. The seeds should be treated with either Captan @ 2 g/kg or *Trichoderma viride* @ 5g/kg before sowing seeds, followed by sowing in raised beds in the nursery at 1 cm deep in rows and 5 cm apart. The nursery soil should be mixed with a mixture of 1 kg *Trichoderma* and 25 kg of cow dung manure before sowing. The nursery beds are covered by dry grass immediately after sowing and

sprinkled with water. In nursery, water stagnation should be avoided by providing proper drainage facilities in order to prevent water stagnation and damping-off disease. The other method of preventing disease infestation is by drenching nursery beds with Captan at 2.5 g/litre of water and repeating after a week. Four to five days before transplanting, watering is stopped for hardening the seedlings. Fixing of pheromone traps (2 trap/100 m² area) or spraying of Spinosad @ 4 ml/10 litre of water in the nursery is effective to control fruit and shoot borer infestation.

Transplanting and fertilizer management

During the field land preparation, about 25-30 tonnes of farmyard manure along with 75 kg urea, 300-350 kg SSP and 100-120 kg MOP/ha should be mixed in soil after repeated 4-5 times of ploughing. After giving light irrigation, spray Pendimethalin 30% EC a.i (2.5-3 litre in 500 litre/ha) in the prepared beds before transplanting. Healthy seedlings of 30 days old (12-15 cm height) are uprooted and soaked in Captan solution @ 2 g/litre of water for 15 minutes and then transplanted at a spacing of 75 cm (row to row) × 75 cm (plant to plant). Irrigate the plants immediately after planting. Two top-dressing of urea at 50 kg each should be applied at one month interval after 3 to 4 weeks of transplanting. Irrigation should be given at 10-15 days interval depending upon weather condition. Frequent shallow cultivation should be done at regular interval so as



Fruiting in brinjal variety Pusa Vaibhav (DBPR-23)

Table 1. Nutritional quality parameters of Pusa Vaibhav (DBPR-23)

Variety	Phenol (mg GAE/100 g fw)	CUPRAC (mg GAE/100 g fw)	FRAP (mg GAE/100 g fw)	Anthocyanin (mg GAE/100 g)
Pusa Shyamla	80.08	69.89	78.24	62.04
Pusa Bindu	126.12	81.38	119.64	74.64
Pusa Vaibhav (DBPR-23)	107.23	95.98	128.94	45.36

Table 2. Average yield (q/ha) of Pusa Vaibhav in different locations under All India Coordinated Research Projects (Vegetable Crops)

Variety	IARI	IIVR	Faizabad	Sabour	RAU, Pusa	AVG	% increase
Pusa Vaibhav (DBPR-23)	374.75	467.99	450.46	418.04	338.77	410.00	37.33, 46.55, 15.98
Pusa Kranti (Check)	210.36	362.96	217.38	320.32	381.69	298.54	
KS-224 (Check)	207.00	385.57	225.93	310.26	270.02	279.75	
Swarnamani (Check)	304.75	392.67	416.35	332.75	320.88	353.48	



Seed production of variety Pusa Vaibhav (DBPR-23)

to keep the field free from weeds and to facilitate soil aeration and proper root development.

Plant protection

Fusarium wilt, little leaf, *Phomopsis* blight and viral disease are the main diseases in brinjal. *Phomopsis* blight or fruit rot can be controlled by pre-sowing treatment of seeds with Captan @ 3 g/kg seeds (dry dressing) and spraying affected plants with Dithane-M-45 @ 2.5 g/litre of water. Acetamiprid 20% SP @ 100 g/ha is sprayed to control the vector in little leaf disease as well as removing the affected plants in the early stages. A complex virus is known to attack the crop and the only way to manage is to uproot the infested plants and bury deep in the soil to avoid further spread or controlling the vector. The main pests observed in brinjal are fruit and shoot borer, jassids and *Epilachna* beetle. Fruit and shoot borer can be managed by setting up pheromone trap @ 12/ha or by cutting the infested shoots, half inch below the bore point and burying them deep in to the soil. The lure in the trap should be changed regularly at an interval of 15-20 days. Spinosad @ 5 ml/10 litre of water is found to be effective when sprayed just before flowering or at fortnight interval in managing fruit and shoot borer. Mite can be managed

by spraying of Propargite 57% EC @ 2 ml/litre of water.

Harvesting and yield

Fruits are harvested 55-60 days after transplanting when they become shiny purple in colour, having attained the marketable size and still immature and tender. The average marketable fruit yield is 410 q/ha. The average yield performance of Pusa Vaibhav at national level over the years in different locations under AICRP is given in Table 1, 2.

Seed production

Seed production of Pusa Vaibhav can be carried out during the *kharif* season from June to mid-December and maturity of fruits should not coincide with the rainy season. An isolation distance of 400 m and 200 m is required for brinjal being an often cross-pollinated crop for the production of foundation and certified seeds, respectively. The flowers are purple in colour and medium size. Three inspections are required to rogue out the off-types and unwanted plants, i.e. before flowering or vegetative stage, at flowering and fruit setting stage, and at fruit maturing stage. The disease infected plants should be removed from the seed production field to avoid further spread. The colour of the ripened fruits at maturity for seed extraction is brownish. The fruits are kept in shade for 4-5 days and seeds are extracted either manually by beating with a stick, seed extractor or with the help of a seed extracting machine. The seeds are washed in clean water and dried in the shade till the moisture content of the seeds reaches 8% or below followed by sun drying. The average seed yield is 150-200 kg/ha.

For further interaction, please write to:

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