

Bidhan Chilli-4: New dual purpose chilli variety

Bidhan Chilli-4, a semi-prostrate, green fruited with pointed fruit blossom end variety, having high field resistance to pepper leaf curl virus (PepLCV), fruit rot, chilli thrips and yellow mite, has been developed through selection from indigenous collections obtained from Cooch behar district of West Bengal by Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal. This variety has been released by the State Variety Release Committee, West Bengal and notified by the Central Variety Release Committee for State release during 2019. The variety is early maturing, can be fitted well in multiple cropping system, can be used as dual purpose (green and dry), and is high yielding. This variety can perform well in eastern parts of India apart from West Bengal.

THE variety Bidhan Chilli-4 has been developed through selection from indigenous collection obtained from Cooch Behar district of West Bengal. It is a semi-prostrate, early maturing variety, and grows up to 90 cm height, having green fruit colour and bright red when ripe with pointed fruit blossom end. Fruiting pattern is solitary having average fruit length, fruit diameter and fruit weight 6.23 cm, 1.20 cm and 1.63 g, respectively. Fruit contains ascorbic acid: 131.32 mg/100 g; Capsaicin: 0.12%; Oleoresin: 31.00%; ASTA colour value: 200. It can be used as dual purpose (green and dry chilli) and has got field resistance against pepper leaf curl virus (PepLCV) and fruit rot diseases. This variety is also found to be field resistant against chilli thrips and yellow mite. The variety is recommended for early-autumn season (July/August- February/March) under irrigated condition. First harvest can be done within 65 days from the date of transplanting and the periodic harvesting can be continued up to 120 days. The average yield of this variety is 104.44 q/ha.

Cultivation

This variety grows under all kinds of soil but well drained sandy loam soil rich in organic matter is ideal for their cultivation. The land should be prepared in advance with repeated ploughings (at least 4-5 ploughing) to a fine tilth. Remove all stubbles, weeds,

etc. and level the land. Add well rotten organic manure preferably farm yard manure or compost @ 10-15 t/ha during final land preparation. The crop is generally transplanted from August to 1st week of September in the main field as irrigated crop. Five hundred grams (500 g) seeds are sufficient to sow in the nursery bed to produce sufficient seedlings for one hectare area. Before sowing the seeds are to be treated with captan or thiram @ 3.0 g per kg of seeds. Seed beds are to be covered with 40-60 mesh nylon net to avoid attack of whitefly. Four weeks old seedlings are to be transplanted at 50 cm spacing in both ways.

Fertilizer doses with time of application

Chilli is long duration crop and is heavy feeder of macro-nutrients. The optimum fertilizer dose is 120:60:60 kg N: P₂O₅:K₂O/ha. 1/3rd of N, full dose of P₂O₅ and K₂O are to be applied as basal and 1/3rd of N is to be applied one month after transplanting. Rest of the N is to be top dressed at 50-55 DAT. The variety is ready for first harvest within 65 DAT. Two foliar sprays of 0.5% ZnSO₄ and borax with a single spray of 0.15% CuSO₄ increase yield and quality of fruits.

Aftercare

Practice shallow inter-cultivation after few days of each irrigation to remove



Fruit of Bidhan Chilli-4



Plant canopy of Bidhan Chilli-4

the weeds and conserve soil moisture. Around 3-4 hoeing and weeding are normally needed to check the weeds. A pre-planting treatment of pendimethalin @1.0 kg a.i./ha is followed by one hand weeding at 30 days after transplanting is effective. Light irrigation is needed immediately after transplanting. Critical stages of irrigation are tenth leaf to flower, fruiting and after periodical harvests. Irrigation at 25-30 days interval is required during winter months. Chilli is highly sensitive to waterlogging hence, overwatering should be avoided. Foliar application of 50 ppm NAA at full bloom stage effectively controls fruit drop.

Plant protection measures

Chilli is attacked by different diseases and insects pests. Although the variety Bidhan Chilli-4 is field resistant against PepLCV and fruit rot diseases and also field resistant against thrips and yellow mite (Table 1), some control measures are to be taken for getting higher yield and quality product. Spray the seedlings over nylon net cover with chlorothalonil (0.2%) + carbendazim (0.1%) to check damping off in the nursery bed. Repeat such chemicals if root rot occurs immediately after transplanting in the main field. Spray the crop with hexaconazole 0.1% followed by 0.3% copper oxychloride after removal of the infected twigs at 10 days interval to control anthracnose. Follow integrated management practices, *viz.* cover the nursery bed with 40-60 mesh fine nylon net, and spray the seedlings with imidacloprid (3.5 ml / 10 l) to control insect vector. Sowing of two rows of maize as border crop at least 25-30 days before transplanting, and laying of silver mulch (agrimulch) (10-25 micron thickness) before transplanting the seedlings in the main field, and alternate spraying with imidacloprid (3.5 ml/10 l), acetamiprid (1.5 g/l) and thiomethoxam (1.0 g/5 l) at 10 days interval up to first fruit development to effectively control whitefly and consequently pepper leaf curl virus disease. Spray the crop with fipronil (2.0 ml/l) or thiomethoxam (1.0 g/5 l) or profenophos (1.0 ml/l) at fortnightly interval to control thrips. Spray the crop with acaricides like dicofol @ 2.5 ml/l; propergite @1.5 ml/l or diafenthiuron @ 0.5 g/l during early budding stage of the crop at 15 days interval to control yellow mite.



Integrated management of whitefly and leaf curl virus in chilli

Table 1. Reactions against diseases and insect-pests at different agro-climatic conditions of West Bengal

Variety	Leaf curl disease severity (%)	Fruit rot incidence (%)	Thrips infestation (Number/twig)	Yellow mite infestation (Number/six opened leaves)
Bidhan Chilli-4	5.87 (R)	9.24 (R)	0.63 (R) (8.50)	4.67 (R)

R, Resistant; Variety is categorized as per standard rating scales.
* PLI (%)/plant in parenthesis.

Harvesting

Harvesting of green chilli may be started from 60 to 65 days after transplantation. Fruits are to be picked at an interval of 1-2 weeks and harvesting continues up to 3 months. Harvesting is done when the fruit reaches marketable size for green chilli and at red ripe stage for dry chilli. Based on State and National trials over three years, the average green fruit yield of Bidhan Chilli-4 is 104.44 q/ha and dry yield is 22.35 q/ha (Table 2).

Table 2. Mean green fruit yield (q/ha) of BCCH Sel-4 (Bidhan Chilli-4) over State and National trials

Mean green fruit yield (q/ha) of State trials at four agro-climatic conditions (2010-11 to 2012-13)	Green fruit yield of National trials (q/ha)			Mean green fruit yield of National trials (q/ha)	Average green fruit yield (q/ha)
	IET (2010-11)	AVT-I (2011-12)	AVT-II (2012-13)		
112.00 (22.35)*	104.76	91.22	92.46	96.89	104.44

*Average dry yield (q/ha).

For further interaction, please write to:

Arup Chattopadhyay, AICRP on Vegetable Crops, Directorate of Research, Bidhan Chandra Krishi Viswavidyalaya, Kalyani 741 235, Nadia, West Bengal. Corresponding author e-mail: chattopadhyay.arup@gmail.com