

Pusa Shrestha – An early high yielding F_1 hybrid of sponge gourd for commercial cultivation

The sponge gourd (*Luffa cylindrica* L.), known as *Chikni tori* in Hindi is a very popular and important vegetable grown in India. It is an easy-to-grow crop best adapted to tropical and subtropical regions. Fruits are generally consumed immature as vegetable. Its tender fruits are cooked. Very few F_1 hybrids of sponge gourd from any public sector institute or private seed companies are available so far for spring summer season cultivation in North Indian plains. The consumer preference in North Indian plains is of attractive, uniform, green, elongated and cylindrical, straight, slightly ribbed fruits with thick skin and tender flesh. Keeping in view the above facts, high yielding, early and uniform maturity sponge gourd hybrid Pusa Shrestha with desirable horticultural traits has been released, notified and recommended for commercial cultivation during spring summer season for Delhi NCR and was subsequently notified by the Central Sub-Committee on Crop Standards, Notification and Release of Varieties of Horticultural Crops.

Pusa Shrestha (DSGH-9)

Plants of this hybrid are annual, trailing and monoecious vines with pubescent and angular stem. Leaves medium in size, green, orbicular with intermediate/ moderate lobing. Shape of leaf blade apex of terminal lobe is acute and leaf blade margin is smooth. Leaves are helically arranged on the growing vine. Fruits have desirable marketable attributes and are attractive, uniform, green, elongated cylindrical, 27 cm long, 13 cm girth, with superficial ribs, thick skin, smooth texture and white flesh. Shape of stem end and blossom end of fruit is round. Average fruit weight is 120 g. It is ready for first harvesting in 45-50 days after sowing during spring summer season. Average fruit yield is 19.65 t/ha during spring summer season which is 32.95%, 57.45% and 82.45 % superior over Chetak (F_1), Pusa Sneha and Kalyanpur Hari Chikni, respectively.

Performance of Pusa Shrestha

Pusa Shrestha, has shown impressive results in field trials conducted at IARI, New Delhi, from 2021 to 2023 during the

spring-summer season. When tested alongside popular varieties such as Chetak, Pusa Sneha, and Kalyanpur Hari Chikni, Pusa Shrestha stood out with a yield of 19.65 t/ha. This is 32.95% higher than Chetak, 57.45% higher than Pusa Sneha, and a remarkable 82.45% higher than Kalyanpur Hari Chikni, making it a promising choice for farmers looking to boost productivity.

Cultivation

Pusa Shrestha is suitable for cultivation in both spring-summer and rainy seasons in northern Indian plains. It can



Fruits of 'Pusa Shrestha'

be grown successfully on well-drained loam and sandy loam soils. Application of 20-25 tonnes of well-rotten organic manure per hectare before field preparation is beneficial. Seed rate is 2.5-3.0 kg per hectare. Seed should be treated with 2 g Captan/Thiram/kg of seed. As a summer crop, it is sown from mid February to February end and in June-end as rainy crop. A spacing of 3.5-4.0 m row-to-row and 60-75 cm hill-

Table 1. Mean performance of sponge gourd hybrid DSGH-9 during spring summer season from 2021 to 2023

Hybrid/ variety	Yield (t/ha)			Average yield (t/ha)	Percentage increase over checks (Chetak, Pusa Sneha, Kalyanpur Hari Chikni)	No. of days to first harvest
	2021	2022	2023			
DSGH-9	20.75	19.31	18.9	19.65	32.95, 57.45, 82.45	45-50
Chetak (Check, F ₁)	14.55	15.7	14.1	14.78		50-55
Pusa Sneha (Check)	11.68	12.55	13.2	12.48		50-55
Kalyanpur Hari Chikni (Check)	10.15	11.8	10.36	10.77		50-55

to-hill is kept. Fertilizer dose is 100:80:60 kg N.P.K. per hectare. Half dose of nitrogen is applied at the time field preparation and remaining 30 days after sowing and before flowering. Irrigation is given in the channels. Frequent irrigations during summer crop and light irrigations during rainy season crop depending upon the weather conditions. Earthing up is essential to cover the roots properly especially in rainy season crop. It requires 2-3 hoeing and weeding.

For controlling fruit fly, the affected fruits should be plucked and destroyed along with the maggots inside them. Spray the crop with Malathion @ 2 mL/litre of water. Use light traps in night with poison baits. Powdery mildew is controlled by spraying of Bavistin (0.1-0.2%) twice at ten days interval whereas downy mildew can be controlled by spraying of Ridomil (0.2%) or Dithane M-45 (0.2%) at 8 days interval. Fusarium wilt disease can be checked by drenching the soil and root zone of the crop by Bavistin. Mosaic virus infected plants should be eradicated from the field as soon as they are noticed. Four or five foliar sprays, either of Imidacloprid (0.03%) or Dimethoate (0.05%) or Metasystox (0.02%) at 10 days interval reduces the spread of mosaic disease.

Harvesting and yield

Fruits are ready for harvesting 45-50 days after sowing. Immature fruits should be harvested at frequent intervals. Average fruit yield is 19.65 t/ha during spring summer season. The harvested fruits should be kept in plastic crates with fillers instead of gunny bags to avoid bruises and injury.

SUMMARY

Pusa Shrestha is an early maturing F₁ hybrid of sponge gourd for spring summer season cultivation developed by IARI for North Indian plains. It can set fruit and produce seed under high temperature condition. Apart from superior quality characters, it has an average fruit yield of 19.65 t/ha during spring summer season which is 32.95%, 57.45% and 82.45% superior over Chetak (F₁), Pusa Sneha and Kalyanpur Hari Chikni, respectively.

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