

Kashi Gobhi-25: An early cauliflower variety for North Indian plain

Cauliflower is an important vegetable of India belonging to Cole crop and family Brassicaceae. Kashi Gobhi-25 is an early maturing and high yielding OP variety of tropical cauliflower developed by ICAR-IIVR, Varanasi, UP, and is released and notified for Uttar Pradesh in 2018 & 2019, respectively. The variety comes to curding in the last week of October to first fortnight of November at daytime temperature range of 22-27°C. The potential yield of the variety is 23-25 t/ha with average marketable curd weight of 500-600 g. The variety is in breeder seed chain, and commercialised through licensing with private and public sectors. Due to its early maturing, medium curd size and compactness, the variety has gained popularity among the farmers.

CAULIFLOWER (*Brassica oleracea* var. *botrytis* L.), popularly called ‘Phool Gobhi’ is a Cole crop vegetable, and most sensitive to temperature during curd development. India is the second largest producer of cauliflower after China with production of 9437 (‘000 t) and productivity of 19.7 t/ha during 2021-22 (NHB, 2nd Adv. estimate) and major cauliflower producing states are West Bengal, Madhya Pradesh, Bihar, Gujarat, Haryana and Uttar Pradesh. India is endowed with wide range of weather conditions throughout its geographical regions. Even in North Indian plains, the temperature differs drastically from Bihar to Punjab that affects the curd development and productivity, if sowing and transplanting is not aligned properly. Selection of proper varieties suitable for a given environment is the most critical assignment for the cauliflower growers. Hence, based upon the temperature requirement for curd development, the varieties of cauliflower have been broadly classified into early (20-27 °C, Kunwari & Katki), mid (16-20 °C, Agahani), mid-late (12-16 °C, Poosi) and late (10-16 °C, Maghi) maturity groups. In early maturing group, due to higher ambient temperature, curd formation is uneven with less compact, puffy buds, yellowish-white in colour and smaller in size. However, due to increasing demand and realization of higher price by the farmers, cultivars for early group maturing during mid-September to mid-November (Kunwari & Katki maturity) are in demand.

Kashi Gobhi-25

This is an early maturing, open pollinated (OP) variety developed by mass selection at ICAR-IIVR, Varanasi. The variety was released for cultivation in Uttar Pradesh in October 2018 by Uttar Pradesh State Variety Release Committee (UP SVRC), and notified in 2019 [Gazette notification: SO 692(E) dated 05.02.2019]. Being a tropical type, the variety does not require vernalization



Field view of Kashi Gobhi-25



Curd of Kashi Gobhi-25



Kashi Gobhi-25 in farmer's field

to initiate bolting, flowering and seed development. The curds are developed during last week of October to first fortnight of November in Varanasi conditions at 22-27°C and suitable for raising nursery during 4th week of July to 2nd week of August followed by transplanting of 25-30 days old seedlings. It can be transplanted 15-20 days earlier in Delhi, Haryana and Punjab due to prevalence of required temperature. The curd of this variety is ready to harvest in 65-70 days after transplanting. The frame size is medium with 55-58 cm, and average curd size varies from 9.5-11.0 cm in length and 12.5-14.5 cm in breadth. The marketable curds weigh about 500-600 g, hemispherical in shape, whitish in colour and medium-compact. The variety is adapted to warm weather and curds are free from riceyness, leafiness and fuzziness. The potential yield of the variety is 22-25 t/ha.

Kashi Gobhi-25 has also been performing very well in the farmer's field of Robertsganj, Sonbhadra, UP during last week of October, having average marketable curd weight of 550-700 g, about 15 days earlier than the commercial hybrid and earned net return of ₹ 75,000 per acre.

Cultivation practices

Kashi Gobhi-25 is grown in soil with good fertility and good moisture regime, especially loam. The soil having pH range of 6.0-7.0 with higher organic matter content and good drainage is suitable. Nursery raising of the crop is recommended from last week of July to second week of August. Soil solarisation for 20-40 days during May-June, and need based drench of the nursery bed with mancozeb+metalaxyl 72% WP @ 0.2% or mancozeb 75% WP @ 1.0% and or Al-Fosetyl 80% WP @ 0.1% is recommended to avoid the incidence of damping-off. The recommended seed rate is 350-450 g/ha. Transplanting of 25-30 days old seedlings to be taken up in last week of August to second week of September with spacing



Kashi Gobhi-25 in bolting stage at Seed Production Block of ICAR-IIVR, Varanasi

of 50 cm between rows and 45-50 cm between plants. Recommended NPK requirement is 120:60:50 kg/ha along with borax @ 15 kg/ha as basal application or 0.2-0.5% as foliar spray and ammonium molybdate @ 2 kg/ha as basal or 0.02-0.03% as foliar spray. Transplanting on ridges is recommended for proper drainage of rainwater.

Plant protection

Tobacco caterpillar (*Spodoptera litura*) is the major pest attacking cauliflower. Spraying NPV @ 250 LE/ha in evening, need based alternate spray of insecticides like indoxacarb 14.5 SC @ 250 ml/ha or chlorantraniliprole 18.5 SC @ 50 ml/ha or cyantraniliprole 10 OD @ 600 ml/ha or spinosad 2.5 SC @ 15-18 ml/ha is recommended to control the pest.

Alternaria leaf spot is a major disease in the crop. To check the disease, adopting crop rotation with a minimum two year rotation with non-crucifer crops is recommended. To control the disease, foliar spray with diafenconazole 25% WP @ 0.05% or mancozeb 75% WP @ 0.2%, mancozeb+metalaxyl 72% WP @ 0.1% or COC 50% WP (0.20%) at 10-15 days interval as need based is recommended.

Harvesting and yield

The curds are harvestable at 65-85 days after transplanting with first harvesting starting at about 65 days and continued up to 85 days at regular interval. The potential marketable curd yield is 22-25 t/ha.

Commercialization and seed production

The variety is released in 2018, and being promoted and commercialized by Public and Private sector institutions. Seeds of Kashi Gobhi-25 are continuously multiplied and sold by ICAR-IIVR, Varanasi from 2019 onwards; being promoted by public sector organization like NHRDF, Patna which is producing 60-150 kg TL seeds annually from 2019; commercialised through licensing with private sector in 2020 (WML Biotechnology Pvt. Ltd., Keonjhar, Odisha), and also in breeder seed chain from 2020 onwards.

For further interaction, please write to:

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