

## Arka Pratham: An early blooming *Gladiolus* cultivar

**Gladiolus, the queen of bulbous flowers, is commercially grown worldwide for its spike with array of colourful florets. There is an increasing demand for new cultivars which is early to bloom and has novel attractive floret colour, improved spike qualities like more number of spikes per plant, and good corm/cormel multiplication ability. As a result of several years of research during 2019, scientists at ICAR-IIHR, Bengaluru have developed novel gladiolus cultivar 'Arka Pratham' through hybridization followed by selection for commercial cultivation. This cultivar was tested under All India Coordinated Research Project on Floriculture and recommended for agro-climatic zones 4, 5, 6 and 7. It is suitable for cut flower, bouquet preparation, floral arrangement and garden display.**

**G**LADIOLUS (*Gladiolus hybridus* Hort.) is one of the most important bulbous flowering crops commercially grown for cut flowers, garden display and floral arrangements. It belongs to the family Iridaceae. There is increasing demand for early to bloom hybrids having attractive novel colour, more number of well arranged florets on spike, more number of florets remain open at a time, more number of spikes per corm and high corm and cormel multiplication ability. As an outcome of hybridization, selection and continuous evaluation at ICAR-Indian Institute of Horticultural Research, Bengaluru, Karnataka has identified for release a new novel gladiolus cultivar 'Arka Pratham'. This cultivar is early flowering, bears attractive violet coloured florets and is suitable for cut flower purpose. This cultivar was tested under All India Coordinated Research Project on Floriculture and is recommended for commercial cultivation for Ludhiana, Hyderabad, Udaipur and Pune regions. The brief description of cultivar 'Arka Pratham' is given hereunder.

### Arka Pratham

This novel gladiolus hybrid was derived from the cross Junior Prom × Arka Poonum. As per the Royal Horticultural Society colour chart, its florets colour is Purple Violet (82.A) having Purple (77.A) margin, Green White (157.C) line on lower lip. Florets are open-faced, medium textured with wavy margin and have good placement on spike. It is early flowering (61.54 days) hybrid. The plants are tall (131.00 cm) having long spike (107.66 cm) with good rachis length (51.87 cm) which bears 14.88 florets per spike. About 5 to 6 florets that remain open at a time which makes it excellent for cut flower, bouquet preparation, floral arrangement and for garden display. On an average, it produces 1.85 spikes per corm, 1.82 number of corms and 52.56 cormels per corm. It has vase life of 8 days (Table 1).

### CULTIVATION

Gladiolus can be grown in wide range of climate from tropical to temperate. It prefers open sunny locations. The ideal day temperature should range between 20 to 25°C.

### Soil

Well-drained sandy loam soil rich in organic matter and nutrients with pH of 5.5 to 6.5 is ideal. Soil with poor drainage should be avoided.

### Planting techniques

In and around Bengaluru, planting during the June, October and November

**Table 1.** Salient characteristics of gladiolus cultivar Arka Pratham

Character	Arka Pratham
Days to flowering	61.54
Plant height (cm)	131.00
Spike length (cm)	107.66
Rachis length (cm)	51.87
Floret diameter (cm)	9.62
Florets per spike (Nos.)	14.88
Florets remain open at a time (Nos.)	5.59
Total spikes per corm (Nos.)	1.85
Corm per corm (Nos.)	1.82
Cormel per corm (Nos.)	52.56
Weight of corm (g)	55.22
Vase life (days)	8.00
Floret type	Open-faced
Floret texture	Medium
Floret structure	Wavy
Floret placement	Good
Floret colour	Purple Violet (82.A) having Purple (77.A) margin. Green White (157.C) line on lower lip

months is the best considering the quality of the spike. Planting can be done during August to November in plains of northern India and March-April in hilly regions.

Gladiolus is generally planted in ridges and furrows system of planting with varying distance of 30 cm × 20 cm, 30 cm × 15

cm and 30 cm × 10 cm between rows and plants within the rows depending on size of the corms and the variety. For getting good quality of flowers, healthy corms of above 3 cm diameter should be selected and treated with Carbendizim (2 g/Litre) and Captan (2 g/Litre) for 20 minutes. The corms to be planted in staggered manner at intervals of 10-15 days to get flower spikes for longer period and to avoid market glut.

#### Irrigation

The soil should have sufficient moisture at the time of planting so that no irrigation is required till sprouting. After the corms have sprouted, field may be irrigated once or twice a week and should be adjusted in accordance with the prevailing weather conditions. Drip irrigation can be followed. After harvest of flower spikes, irrigation frequency should be reduced.

#### Nutrient management

Apply 10 tonnes FYM per hectare if soil organic carbon levels are 0.5% to 0.75%. If soil organic carbon is below 0.5%, apply higher quantity of FYM or organic manures. The dose of manure and fertilizer depends upon the soil health and nutrients content. In gladiolus, the major nutrient requirement is 250 kg N, 50 kg P<sub>2</sub>O<sub>5</sub> and 200 kg K<sub>2</sub>O per ha based on nutrient removal pattern of different cultivars raised from corms as planting material. Half dose of phosphorus and potash are applied at the time of land preparation as basal dose. Remaining half dose of phosphorus and potash is top-dressed at 3-leaf stage of the crop along with half dose of nitrogen fertilizer. Remaining half dose of nitrogen is applied at 6-leaf stage to get quality flowering. At the time of top dressing, earthing-up to be done. The residual leaf biomass and other waste biomass can be ploughed back.

#### Intercultural operations

The field should be kept free from weeds. The earthing up should be done at the time of fertilizer application or 3 to 4-leaf stage. It provides support to plant and prevent exposure of corms. Second earthing-up is to be done one month after first earthing up or at 6-leaf stage.



Field view of Arka Pratham

#### Harvesting of spikes and storage of corms

For local market, spikes are harvested when the first floret is open, whereas, for distant markets when the lowermost 2 to 3 florets are showing colour, by leaving atleast 4-leaves intact on the plants for proper development of corm and cormels. The corms are lifted 6 to 8 weeks after flowering. The lifted corms should be cleaned and shade dried for 5 to 6 days. The stalk and old dried corm should be removed. Then, corms should be treated with Carbendazim (2 g/l) and Captan (2 g/l), dried under shade and cold stored at 4 to 6°C.

#### Disease and Insect-pest management

The gladiolus is attacked by fungal, viral and bacterial pathogens as well as insects and mites. *Fusarium* wilt caused by *Fusarium oxysporum* f.sp. *gladioli* is a severe problem. The fungus is carried in corm/cormel and in soil. Yellowing of older leaves, and wilting of plants is observed. Use of healthy corms, clean cultivation, treatment of corms and cormels with Carbendazim (2 g/l) and Captan (2 g/l) for 20 minutes before planting and after harvesting is absolutely important to manage this disease. Destroying infected corms, using resistant/tolerant varieties, crop rotation are also recommended. Among insect-pests attack, thrips generally feed on leaves, spikes and florets. Silver and brown streaks may be noticed on leaves affected by thrips. As the insects pupate in soil, drenching with Chloropyrifos (0.1%) and spraying of Dimethoate 30 EC @ 2 ml/L or Imidacloprid 17.8 SL @ 0.5 ml/L when initial symptoms are noticed at two weeks interval is effective in controlling thrips.

#### Yield

The spike and corm yield in gladiolus vary depending on the cultivar, corm size, planting density and management practices. On an average, 'Arka Pratham' produces on an average 1.6 lakh spikes and 1.7 lakhs corms per hectare.

For further information, please write to:

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