

Chrysanthemum cultivation: A remunerative business for meeting the domestic demand

Chrysanthemum is a widely cultivated ornamental crop with high commercial and aesthetic value. Due to its diverse flower forms, colours, and adaptability, it serves multiple purposes as cut flowers, loose flowers, pot culture, garden decoration, and religious use. Its year-round production is feasible through photoperiod and varietal manipulation. The crop is highly remunerative, offering substantial income through rooted cuttings, potted plants, and loose flowers. Cultural practices like pinching, disbudding, staking, and pest management ensure high-quality blooms. Chrysanthemum also supports value-added products such as garlands, bouquets, and floral ornaments. Its versatility and profitability make it a promising crop for commercial growers, hobbyists, and floriculture-based enterprises in both open and protected cultivation systems.

CHRYSANTHEMUM is commonly known as ‘Guldaoudi’, “Queen of the East”, “Glory of East” or “Autumn Queen” and very popular all over the world for its beautiful flowers. It is one of the most beautiful and widely cultivated flowers that can be grown for its aesthetic value as well as for its commercial potential. Chrysanthemum is the only crop that offers a great genetic diversity of flower colour, shape, forms, size, easy to propagate, growing habit, longer flowering duration and excellent vase-life. Based on the shape of flower heads and arrangement of florets it can be used as pot plant for indoors and outdoors decoration as well as exhibition purpose; as cut flowers for flower arrangements, bouquet making and vase decoration; loose flower for making garlands, worshipping purpose and for bedding and garden decoration.

Tall cultivars are suitable for the background planting in border and the dwarf and compact can be planted in front rows. Chrysanthemum has emerged as the most domesticated plants where it is highly regarded and priced by the people all over the world. This flower is gaining popularity among the flower lovers, farmers and amateurs

as it is easy to propagate and has long flowering duration with excellent vase-life. Photoperiodically it is a short-day plant that blooms in the months of November-December. A few early varieties may start flowering in the month of October. year-round flowers can be produced through photoperiod manipulations or by growing photo and thermo-insensitive varieties to regulate the flower supply in the market.

Trade value

Chrysanthemum rooted cuttings can be sold and good profit can be made by selling rooted cuttings at 8-10/cutting. Pot mums can also be sold at the rate of 100-400/pot. Alternatively, other loose flower varieties can also be planted in field and flowers harvested at fully open stage for sale and about 1.5-2.0 lakh/acre income can be obtained.

Ornamental value

Varieties with compact flowers are mainly used for loose flower purpose for garlands making, floral decoration, worship purpose, in religious and social ceremonies and for





making ornaments like jaimala, veni, bracelets, necklace, etc. Vigorously growing varieties are used for bedding and garden decoration. Standard (Japanese) varieties of chrysanthemum with extra large bloom can be used for exhibition purpose and interior decoration. Varieties with strong and sturdy stems are used as cut flowers for bouquet making and flower arrangements in combination with other flowers and foliage plants. Dwarf, compact and pot mum varieties are used for pot culture for interior and exterior decoration. Compact varieties form a very good pot plant which can be used for decoration of windows, corners and the central table.

Soil and climate

Chrysanthemums can grow well in well drained soil and fully sunny days. Plants grown under low light intensity will become very weak, lanky and with a few flower buds. The crop is sensitive to waterlogged conditions, hence so good drainage is required. The crop can grow well in subtropical and temperate climatic conditions. Optimum temperature requirement for this crop is 20-28°C during the day and 16-20°C during night. The effect of night temperature is more pronounced than day temperature.

Varieties for different uses

Chrysanthemums can be classified into different classes on the basis of flower size and forms such as, incurved, intermediate, reflexed, quill, spider, anemone, pompon, decorative, Korean, spoon and thistle.

Standard varieties: Snow Ball, Sonar Bangla, Swan Dance for pot/exhibition purpose, Thai Chen Queen, White Star, Pink Star, Pusa Centenary, and Purnima for pot/exhibition and cut flower production.

Spray varieties: Spray varieties can be used for different growing purposes as below:

Pot varieties: Punjab Anuradha, Punjab *Gul-e-Sahir*, Mother Teresa, Himanshu, Yellow Charm, *Anmol*, Royal Purple, Punjab Gold

Loose flower varieties: Ratlam Selection, Punjab Shingar, Baggi, Shanti

Cut flower varieties: Punjab *Shyamli*, Kelvin Mandarin, Flirt, *Jaya*

- **Garden-bedding decoration:** Autumn Joy, Winter Queen, Garden Beauty

Propagation

Chrysanthemums are propagated through terminal cuttings, root suckers, seeds and tissue culture. Terminal stem cuttings (5-7 cm) from the healthy mother plants are generally prepared in the mid of June to end of July. These cuttings are planted in burnt rice husk or sand for rooting and are kept under partial shade to maintain high humidity for successful rooting. Rooting takes place within 2-3 weeks after planting. To avoid rotting of cuttings, recommended fungicides can be applied with sprinkling can. Side suckers are separated from the mother plants in the months of February-March and generally used to prepare cuttings in the next season. Micropropagation is used for large scale multiplication and year round production of disease-free plantlets. The seeds are collected from matured flowers and stored in dry places. Seeds can be sown in February-March or June-July. Seeds are not true-to-the-type as chrysanthemum is a cross-pollinated crop and normally used to develop new varieties and hybrids.

Fertilization and weeding: In general, fertilization may depend upon the soil fertility that can be adjusted





accordingly. Potash and phosphorus can be applied as basal doses at the time of final ploughing, while nitrogen is applied in two splits doses, after one and two months of transplanting of rooted cuttings. During early growth phase the crop should be kept weed-free as the crop weed competition is known to be more intense in the early stages of crop growth, i.e. vegetative stage that adversely affect plant growth and quality flower production. About 3 to 4 hand weeding to keep the crop free from weeds may be necessary during the growing season.

Growing in pots: The potting mixture consisted of garden soil, sand, leaf mould or well rotten farm yard manure (2:1:1). Single rooted cutting of no pinch no stake and spreading varieties should be planted in the pots and watering is done as per the requirement of the plants. Small doses of liquid fertilization should be applied at regular interval to feed the plants.

Pinching, disbudding and staking

Pinching is the removal of tip portion of the shoots to encourage the side branches and it should be practiced 4 and 7 weeks after transplanting. All the shoots should be pinched to promote uniform growth and flowering. Pinching is generally practiced in spray varieties. Disbudding is the removal of flower buds developing from the axillary branches and side shoots to get limited number of quality flowers with large size. Disbudding is generally practiced in standard varieties in the month of August and September.

Staking can be done in field and pots to provide support to plants with bamboo sticks or plastic nets and to avoid lodging. The net levels can be raised up to different heights in field from the ground level. The standard varieties with big-sized flowers may require single staking with stick. In spray varieties, more than 2-3 stakes are required that are given in the periphery of the pot to give support to the outer growing branches.

Pest and disease management

Aphids and thrips: These insects commonly suck the sap from the shoots, underside of the leaves, flower buds and the flowers. The infested plants remain small and flower buds fail to open. Washing of the plants with soapy water is very effective.

Leaf spot: The leaf spot is the major disease infecting chrysanthemum and symptoms appear as small circular bronze areas on the upper surface of leaves that enlarge and form bigger more irregular spots. This disease can be controlled by spraying recommended fungicides.

Stem rot: Rotting of stem may occur due to high moist warm and weather conditions. Soil Pasteurization and application of recommended fungicides may be used.

In case of severe attack of insect-pest and disease recommended pesticides/fungicides should be used.

Harvesting and yield

Standard varieties are harvested at fully open stage but before the central disc florets begin to elongate. Spray varieties are harvested when flowers are fully open but before the shedding of pollens. The yield in chrysanthemum varies from 60,000-80,000 cut flowers/acre, whereas for loose flower varieties, 20-50 q/acre flowers is ideally produced.

Maintenance of other stock plants

Healthy sucker sprouts from base of the plants after flowering in the month of February-March. The dry flowering shoots are removed and healthy suckers uprooted from the main field are replanted on raised beds at 30 cm × 30 cm spacing. These mother stock plants grow very vigorously in March for production of more number of lateral branches. The pinching of new shoots is done during April and May to get sufficient number of terminal cutting in the month of June-July. Mother stock plants are maintained under partial shady conditions and plants are fertilized and irrigation should be given depending upon the growth, soil and weather conditions.

Value-addition

The value-added products such as cut flowers, bouquets, flower arrangements, tinting of flowers, garlands, floral ornament like, *veni*, bracelets, necklace, *jaimala*, dry flowers, etc. can be prepared. Chrysanthemum is a versatile flower crop, which has diverse use, i.e. fresh and dried flowers. It is in high demand owing to its attractive nature and role in landscape use. Hence, growers need to adopt this crop for loose flower, cut flower, landscaping, besides it has huge nursery potential with growing protected cultivation units. Growers should approach certified nurseries, State nurseries, and also state agri/horti universities for booking their requirements.

For further information, please contact:

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