

Lecture XI: Commercial cultivation of chrysanthemum

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SOIL AND CLIMATE

Well drained, sandy loam soil with PH of 6.5-7.0 is ideal. It is highly sensitive to waterlogged conditions. Chrysanthemum is a short day plant and for vegetative growth it requires long day conditions with bright sunlight and high temperatures ranging from 20 to 27 °C. For bud formation and flowering it requires short day and low temperatures ranging from 10 to 27°C.

VARIETIES

No pinch cultivars: Arun Singar, Rangoli, Haldighati, Suhag Singar, Bindiya, Mother Teresa and Dina.

Annual chrysanthemum varieties: Primrose Gem, Whity, Flame Shades, John Bright.

IARI, New Delhi: Pusa Aditya, Pusa Chitraksha, Pusa Sona, Pusa Anmol, Pusa Centenary, Pusa Arunodya, Pusa Kesari.

NBRI, Lucknow: Little Pink, Little Kusum, Little Orange, Himanshu, Kaul , Khoshoo.

IIHR: Indira, Neelima, Chandrakant, Chandrika, Pankaj, Rakhi

Off season blooming cultivars: Jaya, Lilith, Suneel, Vasantica (Jan-Feb); Maghi (Feb-March); Himanshu, Jwala, Jyoti (April - June); Phuhar (July-Aug); Ajay, Sharda (Sept- Oct); Makhmal, Megami, Mohini, Sharad har (Oct-Nov)

PROPAGATION

Chrysanthemum is commercially propagated by terminal cuttings or through micro propagation. Propagation through suckers is discouraged since there will be transmission of viral diseases from parent material and also there is no uniform flowering

Terminal cuttings:

The best time of raising nursery is May-June. Select terminal cuttings of 5-7 cms length from healthy stock plants. Dip the terminal cuttings in 2500 ppm Indole butyric acid or any commercial formulations of rooting hormone and planted in raised nursery beds or trays for rooting. Drench the beds or trays with Bavistin @1g/l and spray Aliette @1g/l to avoid soil borne diseases. The plants are ready for planting in 30-40days. Nursery raised in 3.2-4 cents will be sufficient for planting an acre.

PLANTING SEASON

Chrysanthemum is a short day plant and flowers during cool season. The best time for planting is June- July while late varieties can be planted upto August. However farmers plant in the month of 2nd fortnight of May so as to coincide flowering with festive season. Flowering starts from September and continues up to January.

PLANTING

Plant well rooted suckers/cuttings in ridges at a spacing of 30 x 30 cm during June-July or August and 44,000 rooted terminal cuttings are required per acre.

NUTRIENT MANAGEMENT

Chrysanthemum is a heavy feeder and requires large amount of both Nitrogen and Potassium. Nitrogen is required at early stage and the plants need P throughout the growth period. As the buds appear, the proportion of K should be increased and N should be reduced. Chrysanthemums are heavy feeders and hence they are to be adequately manured. They are applied with 25 t of FYM along with 250,120, 25 kg NPK/ha. Half of the N and the entire quantity of P and K are to be applied basal by just before planting. The other half of N is to be

applied 30 days after planting the suckers. The same dose can be repeated if a ratoon crop is raised and hoeing should be done once in a month.

Irrigation and weeding

Irrigate the crop twice at week in the first month and subsequently at weekly intervals. Irrigation depends on soil and weather conditions. Weeding and hoeings's generally done manually as and when required, normally 8-10 times. Muching can be taken up on raised bed under drip irrigation system. This not only avoids weeds but also conserves the moisture.

Pinching

Pinching is an important operation that is done to induce branching and to increase the number of flowers in stem. In chrysanthemum 3 types of pinching are performed.

Soft pinching: This is done to reduce plant size by removing tips of branches. Shoot along with 2-3 open leaves are kept in initial stages.

Hard pinching: It is done in pot plants. It removes a longer plant portion to keep the plant compact.

Roll out pinching: It is practiced only in dwarf plants.

Generally, 2 pinching are required in chrysanthemum plants first at 4 weeks after planting and second at 7 weeks after planting. In spray chrysanthemum regular pinching is done to produce maximum number of flowers per stem.

Disbudding

Disbudding is done to remove the side branches and to control flower number and size. It is usually done in large flowering and decorative type of cultivars. In standard varieties all the axillary buds are removed and only terminal bud is retained. In spray varieties apical bud is removed. While axillary buds are allowed to develop.

Dis-shooting

It is practiced to reduce number of branches for improving the size and form of the flower, eg. for taking three blooms per plant, three lateral strong shoots are allowed to grow and others are removed at early stages of growth.

Desuckering

During the vegetative growth phase, plant grows upward and new suckers continue to develop from the base of the plants. For preventing improper and vigorous growth of plant, suckers are removed from time to time. Without desuckering, the plant will loose vigour and becomes weak.

Staking

Since chrysanthemum may be as tall as 75 to 90 cm, it is necessary to support the plant. Generally, chrysanthemum is tied to bamboo stakes, metal hog wire or sturdy sticks to keep them erect. Number of stakes varies with number of branches. Only one stake is used when a grower needs single bloom per plant, whereas to get three blooms per plant, three stakes are required. On small flowered cultivars 5 to 8 stakes are used.

. HARVESTING

Standard chrysanthemums are harvested when fully open but before central disc begin to elongate. Spray cultivars are harvested when fully open but before shedding of pollens and pompons are harvested when centre of oldest flower is fully open. Harvesting is done early in morning. Harvested stems are placed in water containing acidifying solution to keep them turgid. Stem should be cut atleast 10 cm above the soil line to avoid woody plant tissues. Leaves should be removed from the lower portion of the stems. In standard type of chrysanthemum, yield of flower stems varies from 15-20/plant. The average yield of spray type chrysanthemum

ranges from 1,00,000-1,20,000/ha. The yield of loose flowers ranges from 10-15 tonnes flower/ha.

POSTHARVEST TECHNOLOGY

Grading

Chrysanthemums are graded based on the stem length, flower appearance, number of flowers, stem straightness, colour and freshness of flowers. Standard chrysanthemum is graded into Blue, Red, Green and Yellow, whereas spray types are graded into Gold, Silver and Bronze based on the quality parameters. In Dutch market, spray chrysanthemums are graded into extra grade and shorter grade. The lower leaves are stripped off up to 15-20 cm and bundled in units of 5 stems and secured with a rubber band.

Packing

Most often standard chrysanthemum are placed in sleeves and packed in display boxes measuring 91 x 43 x 15cm. They are placed in the boxes according to the grades. For bulk packing of the spray chrysanthemums, 10, 15 or 20 stems are placed in sleeves according to the grades. Six sleeves, three at each end, are generally packed in each box, measuring 80 x 50 x 23cm.

Storage

Chrysanthemum cut flowers can be wrapped in plastics and stored dry for 6 to 8 weeks at a temperature of 0.5°C. Temperature for truck shipments across the country ranged between 2°C and 4°C. The stems in the buckets (after grading) are given a cut using sharp blade and pre cooled at 1°C minimum of 2 hours before packing. Chrysanthemum can be stored for 3-6 weeks period at 0-3°C.