



Hi-Tech Chrysanthemum Production for Commercial Floriculture

*Hitesh Purbia

RNT College of Agriculture, Kapasan, Rajasthan, India

Corresponding Author's email: hiteshpurbia2003@gmail.com

Chrysanthemum, popularly known as "Guldaudi" in India, is one of the top commercial cut flowers globally. With hi-tech cultivation, growers can achieve 80-100 stems per sq.m and ensure year-round production. This makes it highly profitable for commercial floriculture.

Infrastructure & Climate Control

- Polyhouse/Greenhouse : Maintain 18-25°C day temp and 15-18°C night temp. Relative humidity 60-70%.
- Photoperiod Control : Chrysanthemum is a short-day plant. Give 14-16 hrs light for vegetative growth and 10-12 hrs darkness to induce flowering. Use blackout cloth for off-season flowering.
- Shade Net House : 50% shade net recommended for summer months in places like Rajasthan.

Commercial Varieties

- Cut Flower - Standard : Reagan White, Reagan Yellow, Snowdon, Pusa Anmol
- Cut Flower - Spray : Pusa Centenary, Pusa Gaurav, Reagan Splendid
- Pot Mum : Pusa Aditya, Pusa Arunima, Pusa Bonsai

Planting Material & Season

- Propagation : Rooted tip cuttings or tissue culture plants. Tissue culture ensures virus-free, uniform material.
- Planting Time : Sep-Oct and Feb-Mar are ideal for plains. Hi-tech allows 3-4 crops per year.
- Spacing : 20×20 cm for cut flowers = 25 plants/sq.m. For pot mums, 15×15 cm.

Soil & Nutrition Management

- Soil : Well-drained sandy loam, pH 6.5-7.0. Bed height 15-20 cm.
- Fertigation : NPK @ 150:100:100 kg/ha through drip. Apply N in 3 splits - at planting, 30 days after, and at bud stage.
- Micronutrients : Spray Fe, Zn, Mn @ 0.5% during vegetative stage for better foliage and bloom quality.

Hi-Tech Interventions

1. Blackout System : Cover plants with black polythene 5 PM to 8 AM to induce flowering for Diwali, Valentine's Day market.
2. CO₂ Enrichment : 800-1000 ppm CO₂ increases stem length and flower diameter by 15-20%.

3. Automated Misting : For rooting of cuttings. Maintains 90% humidity and reduces mortality.
4. Drip + Mulching : Saves 40% water and controls weeds. Silver-black mulch reflects light, improving flower color.

Crop Management Practices

- Pinching : Done 3-4 weeks after planting to increase lateral branches. For spray types, 2 pinchings.
- Disbudding : Remove side buds for standard types to get one large flower. For spray types, remove central bud.
- Staking : Use nylon net of 15×15 cm mesh at 30 cm and 60 cm height to keep stems straight.

Pest & Disease Management

- Pests : Aphids, thrips, leaf miner. Spray Imidacloprid 17.8% SL @ 0.5 ml/L or Spinosad 45% SC @ 0.3 ml/L.
- Diseases : White rust, powdery mildew, root rot. Preventive spray of Chlorothalonil 2 g/L. For root rot, soil drench with Metalaxyl 2 g/L.
- IPM : Yellow sticky traps @ 25/ha for monitoring. Release of *Amblyseius cucumeris* for thrips control.

Harvesting & Yield

- Harvest Stage : Standard types when outer 2-3 rows of florets open. Spray types when 50% flowers show color.
- Timing : Early morning or late evening. Immediately put stems in clean water with 2% sucrose + 200 ppm citric acid.
- Yield : 2.0-2.5 lakh cut stems/ha/cycle. With 3 cycles, 6-7 lakh stems/ha/year possible.

Post-Harvest & Marketing

- Grading : Based on stem length, flower size, and uniformity. A-grade >75 cm stem.
- Cold Chain : Pre-cool at 4°C for 4-6 hrs. Store at 2-4°C for 10-14 days shelf life.
- Market : Delhi, Mumbai, Bangalore flower markets. Direct supply to hotels, wedding planners, export. Price: ₹8-25/stem depending on season.

Economics for 1000 sq.m Polyhouse

- Setup Cost : ₹10-12 lakh with NHM subsidy 50% available.
- Recurring Cost : ₹2-2.5 lakh per cycle.
- Gross Income : ₹4.5-6 lakh per cycle @ ₹10/stem average.
- Net Profit : ₹2-3.5 lakh per cycle. 3 cycles = ₹6-10 lakh/year.

Conclusion

Hi-tech chrysanthemum production is capital