

Pests of Chrysanthemum and Their Control Strategies

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Chrysanthemum (Chrysanthemum morifolium), popularly known as “Queen of the East,” is one of the most important ornamental crops cultivated worldwide for its beautiful flowers and economic value in the floriculture industry. These flowers are widely used in landscaping, garland making, decoration, and as cut flowers in the international market. In India too, chrysanthemum occupies a significant place in floriculture due to its diverse colors, long vase life, and high demand during festivals and ceremonies. However, like many other ornamental crops, chrysanthemum is highly vulnerable to various insect pests and mites. These pests not only reduce the vigor of the plants by feeding on their sap, tissues, and flowers, but also cause indirect losses by transmitting viral diseases or facilitating secondary infections. The presence of pests affects both the quantity and quality of flowers, ultimately reducing their market value. Therefore, identifying major pests and adopting

effective control measures is essential for sustainable chrysanthemum cultivation.

Major Pests of Chrysanthemum and Their Damage

A. Aphids (*Macrosiphoniella sanborni*, *Myzus persicae*)

Aphids are small, soft-bodied insects that usually colonize on the tender shoots, buds, and young leaves. They suck plant sap, leading to curling, yellowing, and distorted growth. Heavy infestation



results in stunted plants and poor flower development. The excretion of honeydew encourages the growth of sooty mold fungi, which interferes with photosynthesis.

B. Thrips (*Thrips tabaci*, *Frankliniella occidentalis*)

Thrips are tiny, slender insects that scrape the epidermal cells of leaves, petals, and tender shoots and then suck the oozing sap. Damaged leaves and flowers show silvery white streaks, curling, and browning at the margins. Flower buds often fail to open properly, leading to malformed blooms.

C. Leaf Miners (*Liriomyza trifolii*)

The adult flies lay eggs inside leaf tissues, and upon hatching, the maggots tunnel within the leaf mesophyll, creating serpentine mines. This reduces the photosynthetic area and weakens the plant. In severe infestations, leaves become blotched and dry prematurely.

D. Caterpillars (*Helicoverpa armigera*, *Spodoptera litura*)

Caterpillars feed voraciously on foliage, tender shoots, and flower buds. They chew irregular holes in leaves and bore into flower heads, thereby spoiling their appearance and quality.

E. Whiteflies (*Bemisia tabaci*)

Whiteflies congregate on the undersides of leaves and suck plant sap. Infested leaves show yellowing, curling, and early drying. Like aphids, whiteflies also excrete honeydew, which attracts sooty mold. More dangerously, they transmit viral diseases such as

F. Spider Mites (*Tetranychus urticae*)

Spider mites are minute pests that colonize on the undersides of leaves and feed by piercing and sucking plant cell sap. Infested leaves develop yellowish speckles, bronzing, and ultimately dry off. Severe infestation results in webbing across leaves and buds.

Control Strategies

Management of chrysanthemum pests should not rely solely on chemical control, as this leads to pesticide resistance, residue problems, and harm to beneficial organisms. Instead, Integrated Pest Management (IPM) is the most sustainable strategy.

A. Cultural Practices

- Maintain field sanitation by removing weeds, alternate hosts, and infested plant parts.
- Ensure proper spacing and ventilation in polyhouses or fields to reduce humidity, which favors many pests.
- Timely pruning and removal of old leaves discourage pest colonization.

B. Mechanical and Physical Control

- Hand-picking and destruction of caterpillars and infested leaves.
- Installation of yellow sticky traps for whiteflies and aphids, and blue sticky traps for thrips.
- Use of pheromone traps for monitoring and mass trapping of caterpillar pests.

C. Biological Control

- Release of predators like ladybird beetles (*Coccinella septempunctata*) against aphids.
- Use of parasitoids like *Encarsia formosa* against whiteflies and *Diglyphus isaea* against leaf miners.
- Predatory mites (*Phytoseiulus persimilis*) for controlling spider mites.
- Microbial insecticides like *Bacillus thuringiensis* (Bt) for caterpillars.

D. Botanical Control

- Application of neem seed kernel extract (NSKE 5%) or neem oil (2%) against sucking pests.
- Sprays of other plant-based formulations like pongamia or garlic extracts.

E. Chemical Control

- Aphids & Whiteflies: Imidacloprid, thiamethoxam.
- Thrips: Spinosad, fipronil.
- Leaf miners: Abamectin.

- Caterpillars: Emamectin benzoate, indoxacarb.
- Mites: Fenazaquin, abamectin.
- Chemicals should be used judiciously, in rotation, and only when pest populations exceed the economic threshold level (ETL).

Integrated Pest Management (IPM) Framework for Chrysanthemum

1. Regular Monitoring: Weekly inspection for pest symptoms.
2. Threshold-based Intervention: Apply chemicals only when pest population crosses ETL.
3. Combination of Methods: Integrate cultural, biological, botanical, and chemical control measures.
4. Resistance Management: Rotate insecticides with different modes of action.
5. Eco-friendly Approach: Prioritize biological and botanical options to reduce chemical load.

References

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Conclusion

Pests of chrysanthemum pose serious challenges to commercial flower production, as they damage foliage, buds, and flowers, thereby reducing both yield and market quality. Among them, aphids, thrips, leaf miners, caterpillars, whiteflies, and mites are the most common and destructive. Effective pest control cannot rely on a single method. Instead, an integrated approach that combines cultural practices, natural enemies, botanicals, and judicious use of safe insecticides ensures sustainable production. By adopting IPM strategies, farmers can achieve higher productivity, reduce chemical residues, and preserve environmental health while ensuring that the beauty and market value of chrysanthemum flowers remain uncompromised.