

Physiological disorders of Bulbous for cut flowers

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Commercial bulbous flowers, such as amaryllis, lilies and *Amaryllis*, are susceptible to various physiological disorders that impact their growth, quality and flowering. These disorders can be caused by environmental factors, cultural practices and genetic predisposition. Understanding the causes, symptoms, and management strategies for these disorders is essential for promoting healthy plant growth and high-quality blooms.

In lilies, abscission is a complex physiological process, involving the shedding of plant parts like flowers, leaves, or buds. It's triggered by environmental stress like temperature fluctuations and drought, hormonal imbalance, pests or diseases and nutrient deficiencies. The abscission layer hinders water and nutrient flow to the affected part and leads to shedding of plant parts and premature aging. To manage it, application of ethylene inhibitors, providing optimal growing conditions, monitoring pests and diseases and ensuring adequate nutrient supply is required. Bud blasting is another physiological disorder in lilies which

is characterized by aborted or deformed flowers and buds that fail to open or develop properly. This disorder occurs due to temperature fluctuations, light intensity, water stress, nutrient deficiencies and ethylene production. To manage it, growers should monitor pests and diseases regularly and ensure optimal growing conditions, especially temperature, light, water and nutrients.

In gladiolus, another very commonly grown bulbous flower crop, leaf scorching, geotropic bending, stunted growth and spike cracking are the major villains towards qualitative and quantitative production. In leaf scorching, leaves become discoloured, wilted or droopy. To manage leaf scorch, growers should provide adequate water, maintain consistent moisture levels, protect plants from extreme temperatures and maintain optimal nutrient levels through balanced fertilization. Spike cracking in Gladiolus refers to the splitting or cracking of flower spikes, often due to rapid growth or water stress. This can cause visible cracks or splits in the flower spike, leading to

distortion or deformation of flowers. To manage spike cracking, growers should maintain consistent moisture levels, provide balanced fertilization, and support flower spikes to prevent damage. In geotropic bending, the spikes when kept horizontally, get bend thus fetching no market price. It can be avoided through transportation of spikes in vertical direction. In case of stunted growth, plant growth and development are poor with reduced plant height, distorted growth, or smaller and deformed leaves and flowers. To manage it, adequate light levels, optimal nutrient levels and to control infestations should be considered.

In *Amaryllis*, root rot is a serious issue that is caused by over-watering or planting bruised bulbs. This can lead to fungal or bacterial infections that damage the bulb and roots, resulting in soft, mushy bulbs and stunted growth. To manage root rot, it's essential to discard affected bulbs and replace the potting soil to prevent the spread of disease. Moreover, the plants should have good drainage system. Leaf scorch is another disorder with reddish-brown spots or blotches on plant parts which gets

exaggerated with *Stagonospora curtisii* fungus. Providing good air circulation around the plant, avoiding overhead watering and removing infected leaves or stems promptly can help prevent it. Bud abortion is another disorder in *Amaryllis* in which bulb fails to produce a marketable flower. It can be managed via ensuring optimal storage conditions and proper handling practices to avoid bulb damage including bulbs storage in a cool and dry place along with avoiding extreme temperatures or humidity levels.

Physiological disorders in bulbous flowers can significantly impact plant health and flower production. Understanding the causes, symptoms and management strategies for these disorders is essential for promoting healthy plant growth and high-quality blooms. By following and implementing adequate management strategies, growers can produce high-quality flowers with economic losses. By following the best practices and staying up-to-date with the latest research and management strategies, growers can take the efficient step towards export market.