

Post Harvest Handling and Care of Cut Gladiolus Spikes

In India Floriculture is now fast emerging as an industry. Cut flowers occupy a major share in floriculture industry. Gladiolus is an important bulbous ornamental plant that occupies a prime position among commercial flower crops, which has demand in both domestic and international market. It occupies eighth position in the world cut flower trade.

Post harvest losses

For a viable cut flower business it is very important to maintain high quality of the produce. The high perish ability of the gladiolus spikes renders them vulnerable to large post harvest losses. It has been estimated that approximately 20 percent of all floral crops is unsalable due to improper handling.

Technologies to overcome losses

Since post harvest losses are very high owing to the delicateness of the commodity, adoption of post harvest technology is very important for a viable cut flower business. The qualitative and quantitative post harvest losses of gladiolus can be reduced by adopting improved technologies like harvesting at proper stage, use of floral preservatives and bud opening solution, pulsing, precooling, improved storage techniques such as low temperature storage, proper packaging methods etc.

Stage of harvest

Generally flowers remain in turgid condition, if harvested at proper stage of development. In gladiolus, spikes with one basal floret opened stage is the optimum stage of harvesting for improving the diameter and opening of florets and lengthening the vase life. However, for local market harvesting can be delayed up to three basal floret opened stage. It has been observed that in warm weather, the spikes have longer vase life if they are cut at an early stage of development and opened in vase.

Use of bud opening solutions:

Bud opening is a method of harvesting flowers at immature stage earlier than that of commercial stage and than opening of the flowers with some specific chemical solutions. This type of technology is generally helpful for wholesalers, retailers and consumers. Bud opening of gladiolus improves longevity of spikes by reducing the sensitivity of the flowers to extreme temperature, low humidity etc. Harvesting at bud stage also saves space during shipment and extends the useful storage period. In case of gladiolus, bud opening solution containing sucrose 4% + $\text{Al}_2(\text{SO}_4)_3$ 200 ppm or KCl 500 ppm + $\text{Al}_2(\text{SO}_4)_3$ 200 ppm + boric acid 200 ppm is found to be the most beneficial considering the improvement in opening of florets and vase life.

Use of holding of vase solution :

The holding solutions or vase solutions can be retained with the wholesalers or retailers to keep the gladiolus spikes fresh until they are sold or consumers to use continuously in vase. A holding solution may contain carbohydrates, ethylene inhibitors, minerals salts etc. for prolonging the vase life and improving quality of flowers. AgNO_3 25 ppm can be used very effectively as holding solution for gladiolus cut flowers to increase diameter of the flower and vase life. A combination of holding solution containing 150-200 ppm 8-hydroxyquinoline sulphate and 4% sucrose is also good for improving post harvest life.

Use of pulsing solution :

Pulsing is found to be of great value in promoting flower opening, prolonging life and improving floret size of gladiolus spikes. It is generally beneficial for flowers destined for long period of storage or for long distance transportation. The growers, wholesalers and retailers may use pulsing. To improve the post harvest quality of the gladiolus spikes, it is advocated to pulse the spikes with AgNO₃ 100 ppm or silver thiosulphate 4mm for 30 minutes followed by 12 hours dip in 20% sucrose solution. Besides these, some other mineral salts like AgNO₃, CaCl₂, Ca(NO₃)₂ etc. can also be use for pulsing.

Storage :

The cold storage of cut flowers facilitates the adjustment of flower supply according to the market demand, enable the accumulating of large quantities of flowers for distant shipment and makes it possible to prolong the sale period. For proper storage, flower should be harvested at optimum stage of development, appropriately pulses and then dipped in distilled water in containers before storage. Spikes of gladiolus pulsed with AgNO₃ or silver thio sulphate can be easily stored in temperature and humidity control cabinet at 4⁰C up to 6 days without any detrimental effect on quality. However, if needed it can be stored up to 8 days at this temperature.

Packaging :

The quality of gladiolus spikes is also influenced by the packaging techniques and condition of the storage environment during transportation. In gladiolus, packaging is advocated for pulses products, taking necessary care to avoid direct contact of the product with the container. Flower spikes should be wrapped in signal layer of 50 gauge polythene sheets and packed in corrugated cardboard boxes for transportation. Generally 90-100 spikes can be packed in a box size of length 33 cm x width 18 cm x height 122 cm.

(Source : Directorate of Research (Agri), Assam Agriculture University, Jorhat-13)