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Post Harvesting Handling of Cut Flowers

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Abstract: *A fresh flower is still a living specimen even though it has been cut from the plant. Its maximum potential vase life, although acceptable in the marketplace, is short. There are many impinging forces that can interact to reduce fresh-flower vase life. As an industry, we need to be more successful in preserving the potential life of fresh flowers. However, there are well-known solutions for this. Proper harvesting and care of flowers after harvest are important to maximize the vase life and ensure a high quality product. Maximizing the vase life of cut flowers is dependent on pre-harvest procedures too. Long before harvest, plant cultivar selection should be considered for postharvest longevity to provide the best possible cultivars for cutting. Postharvest factors like method of harvest, time of harvest, maturity stage, ethylene management, vase life enhancement, packaging ,storage and transportation has to be taken into account with almost all care. More technology adaptation efforts are required to be undertaken by technology generating laboratories through a field-level program of adaptive research and community based production systems. This can happen with better linkages with laboratories, financial institutions, and governmental bodies as a way of continuously improving the competitiveness of the local system. Besides, the developed and promoted technology should come as low cost devices, practical and effective for use at farmer level. Apart from the adaptation the training for flower harvesting, handling, packing and transportation should be given to the growers to avoid the losses during handling of cut flowers..*

Keywords: fresh flower

I. INTRODUCTION

Post-harvest handling of cut flowers is a critical process that begins immediately after harvesting and continues until the flowers reach the consumer. It encompasses all the steps taken to maintain the quality and extend the vase life of cut flowers. Proper post-harvest handling is essential to ensure that flowers retain their freshness, color, and form, maximizing their aesthetic appeal and market value. This process involves several key stages, including initial handling at the time of harvest, transport, storage, and pre-treatments, all aimed at minimizing deterioration and prolonging the display life of the flowers

Factors affecting postharvest life of flowers.

The post-harvest life of a flower, that is, its vase life after it's been cut, is influenced by a complex interplay of factors. These can be broadly categorized into pre-harvest factors (conditions during the flower's growth) and post-harvest factors (conditions after the flower is cut). Here's a breakdown Systems for harvesting and marketing cut flowers vary according to individual crops, growers, production areas, and marketing systems.

Pre-Harvest Factors:

- **Genetics:** Different flower varieties have inherently different vase lives. Some are bred for longevity, while others naturally fade quickly.
- **Growing Conditions:** Adequate light intensity and duration during growth are crucial for carbohydrate production, High temperatures can accelerate development, Water stress during growth, Infections during growth can weaken flowers postharvest life.

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Post-Harvest Factors:

- **Harvesting Stage:** Harvesting at the optimal stage of maturity is critical. Flowers harvested too early may not open properly, while those harvested too late may fade quickly.
- **Handling Practices:** Mechanical Damage, Water Relations, Temperature
- **Storage and Transport:** Cool temperatures are essential for slowing down metabolic processes,High humidity, Exposure to ethylene, a plant hormone, can accelerate senescence (aging).Exposure to ethylene, a plant hormone, can accelerate senescence (aging). Some flowers are very sensitive to ethylene.

II. METHODOLOGY

Post-harvest handling include:

Materials (List separately):

- Cut [Flower Name]
- Buckets/Containers
- Post-harvest solutions (specify concentrations)
- Sharp scissors/floral knife
- Thermometer, Humidity meter
- Scale
- Camera
- Optional: Cold storage

II. REVIEW OF LITERATURE

Sr.no.	Step	Procedure	Details/Considerations
1.	Flower Selection	Choose flowers	Uniform size, maturity, free from visible damage/disease. Specific criteria for [Flower Name].
2.	Treatment Groups	Divide flowers	At least 3 groups (e.g., control - deionized water, commercial preservative, sugar solution, other treatment). Clearly label each group.
3.	Preparation	Remove leaves	Submerged leaves should be removed to prevent bacterial growth.
4.		Recut stems	45-degree angle under running water, removes air embolism and improves water uptake.
		Place in solutions	Use clean containers, fill with appropriate treatment solutions, and ensure stem contact.
5.	Storage	Environment	Cool, well-ventilated room (18-22°C/64-72°F recommended, adjust for [Flower Name]), 50-70% relative humidity. Avoid direct sunlight and drafts.
6.	Monitoring	Daily observation & recording	
		Vase Life	Number of days flowers remain fresh/marketable. Define "fresh" clearly.
		Flower Opening/Color	Document changes in bud opening, petal color, and overall appearance. Use standardized scales if possible.
		Stem Turgidity	Assess stem stiffness and ability to support the flower.
		Water Uptake	Measure water level decrease in containers (if possible) to assess uptake.

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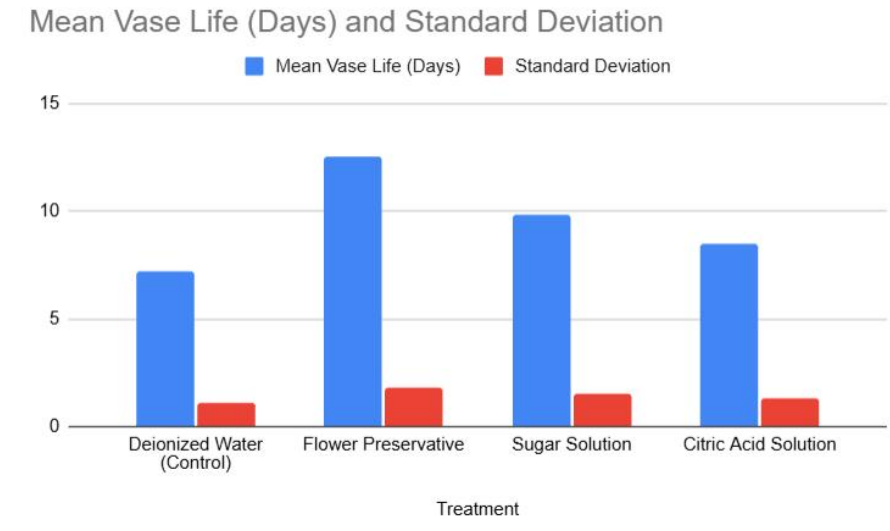
		Senescence Signs	Record wilting, browning, petal drop, disease, or other signs of aging.
		Photography	Take photos at regular intervals (e.g., daily) for visual documentation.
7.	Data Analysis	Compare treatments	Analyze recorded data (vase life, quality parameters) to determine treatment effects.
		Statistical Analysis	Use appropriate statistical methods (e.g., ANOVA, t-tests) to compare treatment performance.
8.	. Reporting	Summarize findings	Report on the effectiveness of different post-harvest treatments on [Flower Name]'s vase life and quality. Include tables, graphs, and photos.

Hydration: Maintaining water balance is paramount. Studies highlight the importance of recutting stems, using hydrating solutions, and minimizing transpiration. Vascular blockages, often microbial, are a major cause of wilting.
Nutrition: Cut flowers benefit from supplemental carbohydrates. Research demonstrates that sugar solutions (e.g., sucrose) can extend vase life by providing energy. However, optimal concentrations are crucial to avoid negative effects like bacterial growth.

IV. RESULT AND DISCUSSION

Treatment	Mean Vase Life (Days)	Standard Deviation
Deionized Water (Control)	7.2	1.1
Flower Preservative	12.5	1.8
Sugar Solution	9.8	1.5
Citric Acid Solution	8.5	1.3



Post-harvest handling is crucial for maintaining cut flower quality and extending vase life. It involves several key steps:

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1. **Harvesting:** Flowers should be harvested at the optimal stage of maturity, typically in the cool morning or evening to minimize stress.
2. **Grading and Bunching:** Flowers are sorted based on quality, size, and other criteria, then bunched together for sale or display.
3. **Pulsing:** This involves placing flowers in a solution containing sugars and other chemicals to provide nutrients and prolong vase life.
4. **Cooling:** Rapid cooling helps reduce respiration and slows down the aging process.
5. **Storage:** Flowers should be stored in a cool, humid environment to maintain freshness.
6. **Transportation:** Proper packaging and temperature control are essential during transportation to prevent damage and maintain quality.

V. CONCLUSION

Effective post-harvest handling is paramount to maximizing the vase life and aesthetic appeal of cut flowers.From the initial harvest at the optimal maturity stage, through careful grading, bunching, and pulsing, to controlled cooling, storage, and transport, each step plays a crucial role in preserving quality. [2] Attention to detail in sanitation, water quality, and ethylene management further contributes to minimizing losses and ensuring customer satisfaction. Research focusing on optimizing these post-harvest procedures, particularly for specific flower varieties, is essential for advancing the floriculture industry and providing consumers with long-lasting, beautiful blooms. Ultimately, successful post-harvest handling translates to increased marketability, reduced waste, and enhanced enjoyment of cut flowers

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