Liatris A New Emerging Cut Flower Crop

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Abstract

For successful commercial cultivation, proper corm management is essential. This includes a crucial cold treatment, typically 8-10 weeks at 2.5°C, to break dormancy and stimulate prolific blooming. While adaptable to various well-drained soils, Liatris truly flourishes in full sun and requires consistent moisture throughout its growing season. Growers should be mindful of potential challenges like root rot in overly wet conditions and susceptibility to certain fungal diseases. These issues can often be effectively managed through ensuring good air circulation and implementing appropriate cultural practices. Immediately after cutting, place the stems in clean, acidified water containing a floral preservative. Maintaining optimal cooling and storage temperatures, between 32-35°F (0-1.7°C) with high humidity, is critical for maximizing vase life and preserving the quality of the blooms. The bold, vertical lines of Liatris make it a highly sought-after component in contemporary floral designs and arrangements, significantly boosting its market potential within the cut flower industry.

Introduction

Liatris, commonly known as Blazing Star or Gayfeather, is becoming an exciting new choice for cut flowers. Native to the prairies of North America, this herbaceous perennial is appreciated for its unusual, tall, spiky flower clusters that add a unique vertical element to floral arrangements. Liatris showcases dense spikes that look like bottle brushes, covered in numerous small, fluffy florets. While the amethyst-purple variety is the most sought-after, there are also pink and white cultivars available, offering flexibility for floral designers. Unlike most spike flowers that bloom from the bottom up, Liatris florets open from the top down, creating an enchanting visual display. Liatris is relatively easy to care for. It grows from a corm similar to a bulb and is known for its toughness, drought tolerance once established, and natural resistance to many pests and diseases. It thrives in full sunlight and well-drained soil.

Special Characters Of Liatris

Distinctive Blooming Sequence: A notable characteristic is that Liatris flowers open from the top of the spike downwards, contrasting with most spike flowers such as gladiolus or snapdragons, which bloom from the bottom upwards. This creates an engaging visual display as the flowers reveal themselves, allowing for prolonged enjoyment since the upper section can be trimmed as it fades while the lower buds still bloom.

Source: [Photography: **Makin, Julie**]

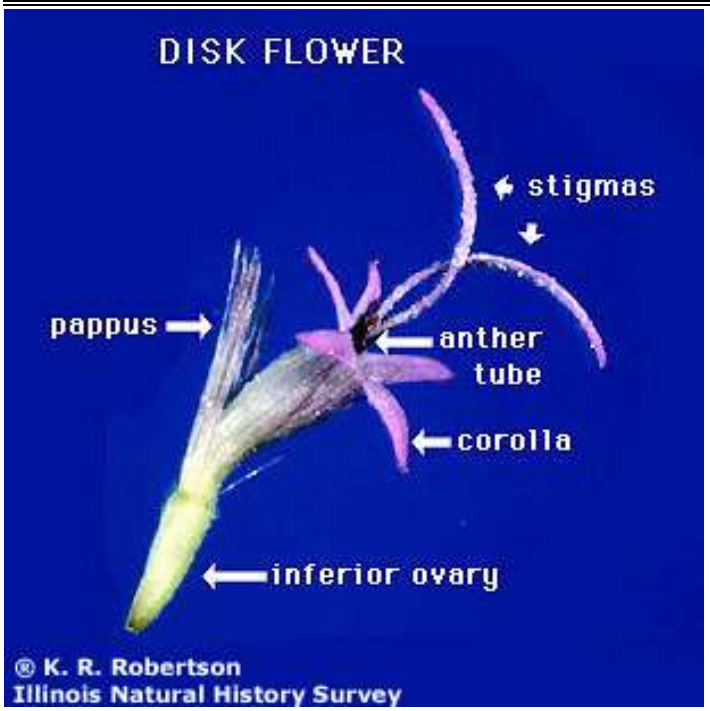
Prominent Vertical Form and Texture: Liatris consists of tall, upright, and unbranched spikes that provide a strong vertical element to floral arrangements. Its dense, fluffy, "bottlebrush" or "feathery" texture is particularly unique, adding visual interest that enhances more traditional rounded or flat flower designs.

Extended Vase Life: Liatris has an impressive vase life, typically lasting between 7 to 14 days when properly harvested and prepared. This durability offers a significant benefit for both florists and consumers.

Hardy and Low Maintenance: Being a native species of North American prairies, Liatris is exceptionally robust. Once established, it can endure drought, usually stays free from pests and diseases, and flourishes in full sun and well-drained soil, making it a dependable crop for growers.

Flexible for Design: With its sturdy form and vibrant colours (mainly purple along with pink and white variations), it serves as a versatile cut flower. It is ideal as a "line flower" in modern arrangements, adding height and drama while complementing various summer and fall blooms.

Excellent for Drying: Liatris can be easily dried, preserving its colour and shape, which enhances its utility for permanent arrangements and crafts.



Major Chemicals Present in Liatris

1. Sesquiterpenes and Sesquiterpene Lactones

These compounds are typical of the Asteraceae family and are plentiful in Liatris.

2. Coumarins

Coumarin is particularly found in species like *Liatris odoratissima*(Deer's Tongue), contributing to its unique vanilla-like scent. This compound has historical importance due to its use as a fragrance and as a traditional moth repellent.

3. Flavonoids

These compounds are powerful antioxidants and pigments responsible for the vivid colors of Liatris flowers. They are commonly found in the plant kingdom and are researched for their possible health advantages. Specific flavonoids such as hispidulin have been discovered in Liatris.

4. Diterpenes

Certain Liatris species contain distinctive linear polyoxygenated diterpenes, such as ligantrol and ligantrol monoacetate (from Liatris elegans), as well as ent-pimaranes.

5. Phenolic Acids

This group includes aromatic compounds known for their antioxidant properties. Compounds present in Liatris include protocatechuic acid, vanillic acid, and ferulic acid

6. Sterols

Plant sterols like stigmasterol and its glucoside have been extracted from the corms of Liatris. These compounds have cholesterol-like structures and are frequently linked with various biological functions.

7. Triterpenes

Different triterpenes, such as obtusifoliyl acetate, have also been identified in Liatris.

8. Benzofurans

Among the benzofurans found in Liatris are euparin and 6-hydroxy-3-methoxytremetone.

9. Inulin

This is an important storage carbohydrate (a type of fructan) located in the corms (underground stems) of Liatris, especially in *Liatris spicata*. It acts as dietary fiber.

Role of Pollination in Liatris

- Pollination is vital to the Liatris reproductive process, ensuring the species continues to thrive. Here's a breakdown of its significance
- **Dependence on Animal Pollinators (Entomophily):** The design of Liatris flowers is tailored to attract insects, mainly bees and butterflies. Unlike some plants that can self-pollinate or depend on wind or water for reproduction, Liatris largely depends on these animal pollinators for successful breeding.
- **Advantages of Cross-Pollination for Genetic Variation:** Liatris greatly benefits from cross-pollination, which occurs when pollen is shared between different Liatris individuals. This process is crucial for:
- **Genetic Variation:** Cross-pollination results in new genetic combinations, producing offspring with a wider range of traits. This increased variation boosts the species' ability to adapt to shifting environmental conditions, diseases, and other threats, thus securing its future.
- **Enhanced Vigor and Seed Yield:** Offspring from cross-pollination generally exhibit greater vitality and produce more and higher-quality seeds than those resulting from self-pollination.
- **Attracting Pollinators:** Liatris uses multiple methods to attract its animal pollinators:
- **Nectar Production:** The flowers generate nectar, a sweet liquid that provides energy for bees, butterflies, and other insects.
- **Pollen as a Nutritional Source:** Pollen is a high-protein food for many pollinators, particularly bees.

- **Bright Colors**:The vivid purple (and occasionally pink or white) flowers are easily visible to insects, especially those attracted to these colors.
- **Flower Structure**: The dense, spiky flower heads consist of numerous individual florets, offering many landing and feeding opportunities for pollinators. The flowers bloom sequentially, starting from the top, ensuring a continual supply of fresh, open florets over time.

Harvesting Stage of Liatris

If harvested at the right time (usually when about one-third to half of the florets have opened), Liatris can last in a vase for 6-14 days, providing lasting beauty for consumers.

Conclusion

Liatris is poised to become a significant player in the global cut flower market. Its unique blooming pattern from the top down, eye-catching vertical form, and durability in vases offer significant advantages for both florists and consumers. Although successful cultivation demands meticulous attention to corm management, optimal site selection, and disease control, these challenges can be addressed using well-established horticultural techniques. The growing recognition of its aesthetic appeal in contemporary floral designs, combined with an increasing preference for native and sustainable flower options, suggests a bright future for Liatris in the market. Continued research on cultivar improvement, disease resistance, and enhanced production techniques will solidify its reputation as a valuable and popular choice in today's cut flower industry.

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