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for commercial growers

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CONTENTS

LIATRIS, A NEW CROP FOR CALIFORNIA

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Liatris spicata (L.), commonly known as blazing star or gay-feather, belongs to the Compositae family and is native to the eastern and midwestern United States. It can be propagated from seed or division of corms, but quality flowers can be produced only from 1-year-old corms. In Holland seeds are sown in spring to produce corms that will, ideally, develop to 6 to 8 centimeters (2½ to 3 inches) in circumference.

The corms are usually stored over the winter at -2° C (about 28° F) in slightly moist peat until planting time. This temperature is only used for longer term storage. Flowers that develop from these corms are variable and in many occasions are used as a source of further selections. Currently, selections of *L. spicata* known in the horticultural trade as *L. callilepis* are propagated only by division of corms. After corms are dug, new daughter corms of the proper size (6 to 8 centimeters) are used for growing cut flowers the following year; large corms (over 8 centimeters) are used only for further propagation of the selection.

Liatris is grown commercially year-round in South Africa and Israel, but mostly during the summer in Holland. The culture of this flower crop is highly specialized, based on research information worked out at the Hebrew University of Rehovot and in Holland.

In Israel culture started with Mr. Mordecai Gabbay in Qadima which is located on the plain just north of Tel Aviv. Mr. Gabbay has made many selections since first receiving plants in the early seventies and now has improved strains.

Stems of *Liatris spicata* elongate under long day conditions. Once the stem is elongated, flowering occurs more rapidly under short days than under continuing long days. Plants are lighted with 4 hours' night break from 10 p.m. to 2 a.m. to obtain elongation and quality flowers on long stems. Incandescent lamps are more effective than fluorescent lamps. The light intensity during the night break is about the same as for chrysanthemums (7 to 10 foot-candles). Supplementary illumination is necessary in the winter for *L. spicata,* but *L. callilepis* may produce adequate stem length without lights in Israel.

After flowers are harvested, the plants are left in the soil for a month before corms are harvested. During this period they enlarge; therefore, the plants should not be allowed to dry out. Because the plants are shallow-rooted, the roots tend to die if they are not irrigated regularly. Sandy soils have less water-holding capacity than clay loams, and so the latter are preferred in the culture of these plants.

After the corms are dug up, they are cleaned, graded, and stored at 2° C (36° F) for at least 5 weeks to overcome dormancy. Corms dug in the cool time of the year are less dormant and require a shorter refrigerated storage period than those dug from warm soils (summer). In summer corms are in deep dormancy. Knowing the dormancy conditions is very important since quality flowers can be grown only from corms that are properly chilled before planting.

To ensure proper sprouting upon planting, Israeli growers soak corms in a solution of 500 to 1,000 ppm gibberellic acid (GA_3) for 40 to 60 minutes directly before planting.

Correction

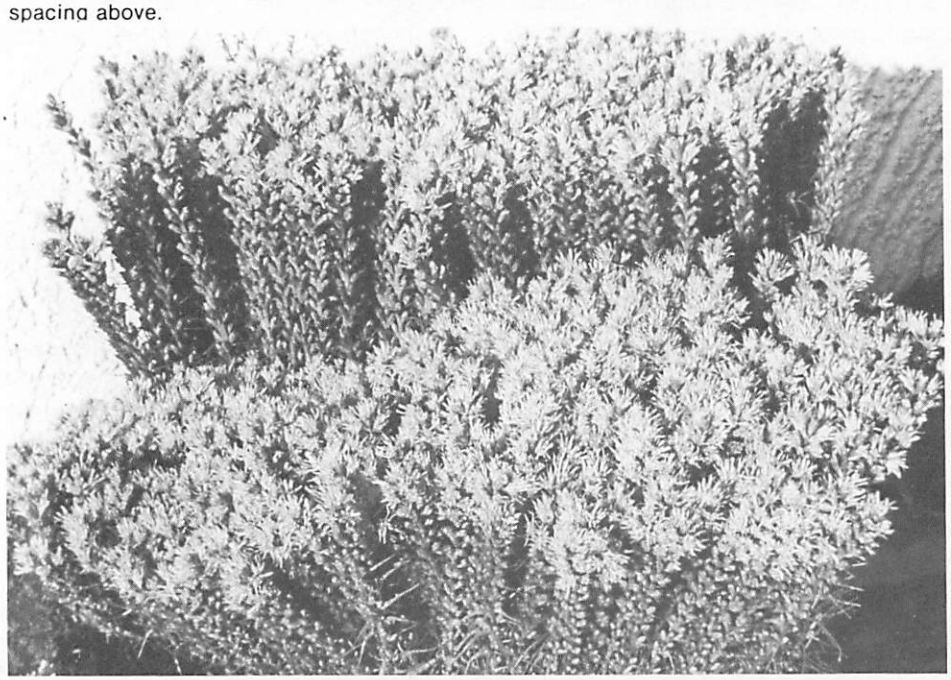
In "Methods for Preparing and Using the STS Complex—Progress Report," on page 6 of the Spring 1980 issue, the amount of silver referred to was in error. The second sentence should read as follows: "The key to its successful use is to choose a suitable combination of pretreatment time, STS concentration, and pretreatment conditions (relative humidity, temperature, flower transpiration rate) that will provide each flower with at least 5 micrograms and not more than 50 micrograms of silver in the complex form."

This GA_3 soak is used in combination with fungicides. Some growers, in addition to using the GA_3 soak, spray sprouting shoots once with 100 ppm GA_3 to ensure long stems.

Corms 6 to 8 centimeters in circumference are planted only 1 inch deep. Six to 10 are planted per square foot of bench area. Each 42-inch bench has four to six rows with a movable chrysanthemum type of support system that is placed on the ground before planting.

Liatris usually takes 70 days from planting to flowering if corms are planted between spring and autumnal equinoxes. Winter plantings are influenced greatly by temperature. Each corm can produce one to four flowering stalks.

Liatris in an Israeli greenhouse, showing plant spacing in beds and incandescent lamp spacing above.



Freshly harvested liatris flowers ready for grading. Inflorescence is cut when top 2 inches of flowers are open.

In Israel at least two crops of *L. callilepis* are grown using the same corms, which ar dug from the soil and given the necessar cold treatment before replanting.

Once the corms are sprouted, the plants should be irrigated to avoid drying out the shallow roots. Irrigation varies with stage of growth and climatic conditions. The feeding program has not been delineated accurately, but growers have been fertilizing the plants similarly to carnations or gypsophila.

If the plants become chlorotic, it is an indication the roots are poor for a variety of reasons. In many cases chlorosis can be overcome by adding 3 to 5 ppm iron chelates or by changing the watering regime.

The inflorescence, which resembles a spike, has flowers that open from the top downward (basipetally). The flower stalks are cut when the top 2 inches of flowers are in full bloom. If corms are desired the next year, the cut should be made no closer than 4 inches above the ground.

Inflorescences cut prematurely and placed in water do not continue to mature flowe in a downward direction. Properly ha vested inflorescences can keep up to 2 weeks under room conditions, if the water is changed periodically and the stem recut.

Liatris is not without problems. It is very sensitive to hot dry winds, especially during the period of rapid elongation. It may wilt without recovering, or the leaves and flower tips may be scorched beyond recovery. Rain may damage the crop during harvest; therefore, these plants are grown under plastic protection during the winter in Israel. Verticillium wilt and botrytis are diseases often encountered. Botrytis can be found on corms or in the flowers.

During 5 weeks of storage at 2° C, the corms are apt to dry out. The problem is to protect them from desiccation on one side but also from too much moisture on the other.

Many of the cultivation methods still require verification.

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