

Scheduling Lisianthus (*Eustoma grandiflorum*) Production

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A great deal of confusion exists concerning scheduling lisianthus for year-round production in Florida. Research from various parts of the United States indicated that length of time from sowing to flowering was six months (1, 2, 3). Reports from several producers in Florida indicated that production time was extremely variable ranging from 4-8 months. Some producers noted that plants often remained vegetative at certain times of the year and developed a rosette growth habit. The purpose of this research was to determine the natural flowering cycle for lisianthus when produced under southwest Florida conditions.

Materials and methods

Seeds of cultivar Blue Poppy were sown on the 15th of each month for one year. Germination and the first month of seedling growth was in a controlled environment room with temperatures ranging from 72-76°F and light intensity of 125-150 foot candles. After one month, seedlings were transplanted into 1.5 x 1.5 inch cell transplant flats and grown for an additional 4-5 weeks in a glass greenhouse. These plants were then transplanted into 4.5 inch square pots and grown to flowering in the same greenhouse. The greenhouse was cooled with a fan-and-pad system and exterior paint was applied to further reduce temperatures. Light intensity ranged from 3000-5000 foot candles. High daily temperatures generally ranged from 80°F winter to 95°F summer, and night temperatures ranged from 60°F winter (supplemental heat provided) to 75°F summer.

Media used for germination and seedling stage, transplant stage and for final production in 4.5 inch pots was a volume mix of 4 parts Canadian peat: 2 horticultural grade vermiculite: 1 builder sand: 1 perlite amended on a cubic yard basis with 5 lbs dolomite, 9 lbs hydrated lime, 4.5 lbs calcitic lime and 1.5 lbs Micromax minor element mixture. Media pH was 6.5-6.8. Seedlings were fertilized once per week and transplants fertilized with 100 ml of a 550 ppm N-500 ppm P₂O₂-750 ppm K₂O solution once or twice per week depending on plant size. Data was recorded from 10 plants per sowing date and included number of days from sowing to first opened flower, number of flower buds at flowering, and height of plant from pot rim to the tallest flower.

Results and discussion

A quick glance at the data in Table 1 reveals the reasons for the confusion that exists with scheduling lisianthus. The number of days from sowing to flowering ranged from 103 to 300 days. Seeds sown in October, November, December, January, and February produced plants which flowered in May. For June and July sowing dates, half the plants flowered from 106-133 days while the rest developed a rosette growth habit and did not flower until May, 270-300 days from sowing. For the August sowing, the flowering time was extremely variable ranging from 180 to 270 days with a few plants flowering each month from February through May.

In general, the longer the time from sowing to flowering the greater the number of flowers and plant height. The differences in growth habit were so great that one would not think plants produced from seeds sown in different months were the same cultivar. Those plants which developed a rosette growth habit (June or July sowings) would have been suitable for a six inch pot by the time they flowered. Of course, the length of time to flower these plants would make this impractical to consider. The highest quality plants (considering vegetative and flowering characteristics for a 4.5 inch pot) were those from January-March sowings. Plants from these sowing dates had the least range in length of time to flower, adequate flower number for a 4.5 inch pot and would need very little growth retardant for a property pot-to-shoot ratio.

In summary, the success and acceptance of lisianthus as a new crop for Florida's flower industry has been hindered by the lack of information available for this crop. Although the popularity of and demand for lisianthus have been great, production problems with scheduling and variability in plant quality have lessened its appeal with commercial producers. The data presented in this paper illustrate the dramatic effects of sowing dates on production time and plant growth characteristics. Photoperiod and temperature during production probably played a role in erratic flowering patterns. Current research to gain information to improve scheduling and plant quality for year-round production is focusing on response of seedlings to photoperiod manipulation and temperature. Until this research is complete, the data in Table 1 may be used as a guideline for scheduling lisianthus.

Literature cited

Halevy, A.H. and A.M. Kofranek. 1984. Evaluation of lisianthus as a new flower crop. HortScience 19(6):845-847.

Roh, M. and R. Lawson. 1984. The lure of Lisianthus. Greenhouse Manager 2(11):103-104, 108, 110, 112-114, 116-121.

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Table 1. Influence of sowing date on vegetative and flowering characteristics of lisianthus (*Eustoma grandiflorum*) produced in 4.5 inch pots.

Months seeds sown	Month most plants flowered	Days from sowing to flowering (mean) (range)		Flower buds per plant (number)	Plant height (inches)
January	May	126	119-133	37	14
February	May	117	111-121	50	17
March	June	103	100-106	27	13
April	July	102	95-116	25	15
May	September	113	103-120	25	12
June	September or May*	106	96-124	15	15
July	December or May*	133	129-154	30	12
August	Feb.-May*	300	286-328	50	24
September	April	218	169-258	35-108	20-28
October	May	223	207-232	80	22
November	May	201	193-212	90	24
December	May	183	174-199	90	22
	May	168	159-183	28	11

*For June and July sowings, half the plants developed a rosette growth habit and did not flower until the following year. For the August sowing, plants flowers sporadically from February through May without a majority of the plants flowering in any month. The greater the time to flower, the greater the number of flowers and plant height.