EFFECT OF PLANTING DATES ON GROWTH AND FLOWERING OF HIPPEASTRUM
(Hippeastrum hybridum)

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ABSTRACT


Response of Hippeastrum growth and flowering against different planting dates were studied to find out optimum growing period in the garden of Horticulture Department at Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur. Different planting dates, viz. July, August, September, October and November were used in the experiment. It was observed that August planting was mostly suitable for profuse growth and flowering. First leaf emergence, number of leaves, plant height, number of bulblets, length of floral scape, flowers per scape, diameter of flower and percent of flowering, all this selected growth and flower characters except flower scape emergence and days to flower bud appearance showed best results with August planting which was closely followed by the result found with July planting. Late planting that means November planting did not come out with satisfactory results.

Keywords: Growth, flowering stage, planting dates

INTRODUCTION

Hippeastrum (Hippeastrum hybridum) is an ornamental bulbous flowering plant belongs to the family Amaryllidaceae, it has large and showy flowers with many bright colors and commonly known as Royal Dutch Amaryllis (Jana, 1995). They are native to Central and South America, and are easily grown in the tropical and subtropical regions (Okubo, 1993). Hippeastrum’s are often erroneously described as Amaryllis (Amaryllis belladona) although these two plants have distinct difference between them. Propagation can be accomplished by using seed, offset bulblets and twin scaling (Siddique et al., 2006, Vijverberg, 1981). They are suitable for planting in the bed, pot, rookery, shrubbery and greenhouse garden and also in landscaping. It is usually a spring planting bulb and can be grown under wide environmental conditions ranging from tropical to subtropical or temperate climate (Okubo, 1993; Jana, 1995). This plant so far do not tested truly in the climatic condition of Bangladesh, i.e., different factors affecting growth and flowering behavior need to be determine more precisely for successful cultivation of Hippeastrum in Bangladesh

MATERIALS AND METHOD

The bulbs of Hippeastrum plant cv. Apple Blossom were collected from Kyushu University, Japan. The bulbs were grown in the garden of Horticulture Department at Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur, Bangladesh. The mixture of the garden soil and cowdung was used at the 2:1 ratio for growing the bulbs of Hippeastrum. The climate of the experimental site was tropical in nature characterized by heavy rainfall during the months from June to September and scanty rainfall during the period of October to March. There were five planting dates, namely, 02’ July, 02’August, 02’September, 02’October and 02’November, to observe the growth and flowering performance of Hippeastrum. The data were analyzed by analysis of variance using MSTAT-C statistical package.

RESULTS AND DISCUSSION

Days to first leaf emergence: Time required for first leaf emergence varied widely (13.67 to 28.00 days). The earliest (13.67 days) first leaf emergence found at August planting which statistically similar to July planting (Table 1). The maximum time required in case of November planting. It appeared that August and July planting was mostly suitable for earliest leaf emergence and more would required in the late months.

Number of leaves per plant: Maximum leaf number (11.67) was found in August planting followed by July planting (9.33). Number of leaf per plant reduced considerably against the other three planting dates but they were statistically similar. August planting responded well may be due to prevailing favorable temperatures and rainfall. Hertogh et al. (2000) documented leaf number (15.4-18.6) in case of Apple Blossom while Bose et al. (1981) reported maximum number leaves in long day treated plant.

Plant Height: Plant height varied widely (27.67-41.00 cm) against different planting dates. The maximum (41.00 cm) plant height measured in August planting while the second highest observed in July planting. A decreasing trend was observed in case of plant height from September planting and the lowest measured at November planting.
Bose et al. (1979) measured plant height 47.6 cm in case of Hippeastrum. This fluctuation in result is probably due to difference in treatment combination and bulb storing environment.

**Number of bulblets per plant:** Number of bulblets per plant differed significantly due to planting dates (Table 1). The maximum of bulblets (3.66) was found in plant of August planting. The lower number of bulblets (1.0) per plant was obtained from plant of November planting, which was statistically similar to September and October planting. This was possibly due to August planting plant received comparatively favorable environment for higher vegetative growth. The temperature and photoperiod prevailed during this time was perhaps favorable for the maximum vegetative growth of the plants and lead to formation of higher photosynthetic products which resulted in higher number of bulblets of plants. Increased day length promoted the number of daughter bulb (Bose et al., 1981).

**Days to flower scape emergence:** Time required for flower scape emergence varied much against different planting dates. July planting required significantly more time compared to other planting dates. July planting required significantly more time compared to other planting dates. July planting took the longest period (239.00 days) for flower scape emergence and that of shortest period (175.0 days) for November planting. The temperature prevailed during early planting dates is not favorable for induce flowering. For this reason, early planting required time for receiving favorable cool temperature, which may induce flowering scape emergence.

**Table 1. Effects of planting dates on growth characters of Hippeastrum**

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Days to first leaf emergence</th>
<th>Number of leaf/plant</th>
<th>Plant height (cm)</th>
<th>Number of daughter bulb/plant</th>
<th>Days to flower scape emergence</th>
</tr>
</thead>
<tbody>
<tr>
<td>02’ July</td>
<td>15.00d</td>
<td>9.33b</td>
<td>38.67b</td>
<td>02.33b</td>
<td>239.00a</td>
</tr>
<tr>
<td>02’ August</td>
<td>13.67d</td>
<td>11.67a</td>
<td>41.00a</td>
<td>03.66a</td>
<td>204.00c</td>
</tr>
<tr>
<td>02’september</td>
<td>19.00c</td>
<td>07.66c</td>
<td>34.33c</td>
<td>1.66bc</td>
<td>231.30b</td>
</tr>
<tr>
<td>02’October</td>
<td>23.00b</td>
<td>06.67c</td>
<td>32.00d</td>
<td>1.33c</td>
<td>194.00d</td>
</tr>
<tr>
<td>02’November</td>
<td>28.00a</td>
<td>06.66c</td>
<td>27.67e</td>
<td>1.00c</td>
<td>175.00e</td>
</tr>
</tbody>
</table>

Means bearing uncommon letter(s) in a column varied significantly at 5% level.

**Length of flower scape:** The longest flower scape (40.67 cm) was found at August planting, which was statistically higher from other planting dates. The shortest scape (24.00cm) was obtained from November planting, which was statistically similar which that of October planting. From this result, it might be concluded that in Bangladesh condition longest flower scape could be obtained from August planting. Hertogh et al. (2000) documented 43.60 cm tall flower scape in case of Apple Blossom in USA while Bose et al. (1981) measured flower scape length between 47 and 58 cm in India.

**Days to flower bud appearance:** Time required for flower bud emergence was influenced noticeably by the planting dates. The earliest (204.33 days) was recorded at November planting while slowest required for flower bud emergence (262.00 days) at July planting which statistically differed with that of other planting. Bose et al. (1981) observed flower bud appearance with in 307 days in the long days.

**Number of flower per scape:** The number of flower per scape differed significantly by planting dates. The maximum number of flower per scape (4.66) was found in August planting followed by July planting. The minimum number (1.66) of flower per scape was obtained from November planting which was statistically similar to that of September and October planting. Bose et al. (1981) documented number of flower per plant 4.6-5.0 in the long days. This discrepancy might be due to alteration of Photoperiod and temperature.

**Diameter of flower:** Planting dates greatly influenced the diameter of flower. The highest (12.67 cm) diameter of flower was gained from August planting where the lowest lowest found at November planting which was statistically similar to that of October planting. Hertogh et al. (2000) measured flower diameter 19.3 cm in case of Apple Blossom in America. On the other hand Bose et al. (1981) documented flower diameter 15.2-16.6 cm.

**Percent of flower:** Planting dates had great influence on percent of flowering (Table 2). The highest (98.33) percentage of flowering was observed at August planting which differed significantly with all other planting dates. The lowest (55.49%) percentage was found in case of November planting. So it is concluded that August planting was mostly suitable for obtaining profuse flowering.
Table 2. Effect of planting dates on flowering characters of Hippeastrum

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Length of flower scape (cm)</th>
<th>Days to flower bud appearance</th>
<th>Number of flower per scape</th>
<th>Diameter of flower (cm)</th>
<th>Percent of flowering</th>
</tr>
</thead>
<tbody>
<tr>
<td>02’ July</td>
<td>33.6b</td>
<td>262.00a</td>
<td>3.33b</td>
<td>11.00b</td>
<td>91.66b</td>
</tr>
<tr>
<td>02’ August</td>
<td>40.67a</td>
<td>223.00c</td>
<td>4.66a</td>
<td>12.67a</td>
<td>98.33a</td>
</tr>
<tr>
<td>02’ September</td>
<td>30.00b</td>
<td>255.63b</td>
<td>2.66c</td>
<td>9.66bc</td>
<td>82.09c</td>
</tr>
<tr>
<td>02’ October</td>
<td>25.00c</td>
<td>221.67d</td>
<td>2.00c</td>
<td>8.33c</td>
<td>65.66d</td>
</tr>
<tr>
<td>02’ November</td>
<td>24.00c</td>
<td>204.33e</td>
<td>1.66c</td>
<td>8.33c</td>
<td>55.49e</td>
</tr>
</tbody>
</table>

Means bearing uncommon letter(s) in a column varied significantly at 5% level.

REFERENCE


