Heliconias are tropical plants of princely dimensions grown for their attractive foliage and brilliant flower spikes. It is hard to tell which are more exotic, the architecturally unique, brightly coloured inflorescences of heliconia or the little jewel like humming birds that dart among them. There are about 89 species under the genus Heliconia and more than 350 varieties. They are banana like plants with rhizomes or underground stems having distribution of nutrients and water-like the true stems. They are propagated by bits of rhizomes as well as suckers or side shoots arising from the clumps and rarely from seeds. There are two main types of heliconias, erect heliconia and pendent heliconia. Erect heliconias stand straight with bracts pointing up. Pendent heliconias hang with bracts pointing down. Their blooms are really colourful bracts, which curve upwards and downwards in alternating patterns along a thick stem. The inflorescence is thus actually a cluster of bracts. (Selfert, 1975).

Heliconia are one among the most unusual flora of the tropics, strikingly elegant flower heads rise from banana like clumps with oval leaves, which are sometimes rather slender and with some varieties, extremely large. They are found naturally in the tropical forests world wide and in moderate climate. Heliconia is a born popular landscape plant and an important cut flower in tropical and subtropical areas of the world. They are native to Central and South America, the Caribbean Islands and some of the Islands of the South Pacific (Kress, 1983). Heliconia have several common names including Lobster’s Claw, parrots flower, parrot plantain and false plantain. Depending on variety, heliconia range in height from two to twenty feet, often with extensive rhizomatous growth. The flower or inflorescence of heliconia is nearly always terminal and may last from several days to months. Hence, they are desirable as cut flowers.

Heliconia occurs in shaded rain forests, isolated valleys and along open roads and river banks from sea level to 2000 m elevation in Central and South America and to 500 m in South America.

Effect of different shading conditions on growth, flowering and yield of heliconium (Heliconia sp) cv. GOLDEN TORCH

M. SUDHAKAR AND S. RAMESH KUMAR

ABSTRACT : Heliconium is a tropical cut flower gaining momentum now a days in the floriculture industry due to its attractive foliage and brilliant flower spikes. An investigation was carried out to find the effect of shading on growth, flowering and yield of Heliconia sp cv.Golden Torch in Department of Horticulture, Faculty of Agriculture, Annamalai University during the year 2007-09 with objectives of studying different shading conditions (viz., N₁ 75 per cent shade, N₂ 50 per cent shade and N₃ open condition) on growth and yield parameters. The experiment was laid in Factorial Randomized Block Design (FRBD) with above shade treatments in combination with different spacing. The individual effects of shading had significant influence on the growth and yield parameters. The maximum values of growth and yield parameters were observed under 75 per cent shade individually. The shade significantly influenced the yield parameters. The maximum values of yield parameters viz., stalk length (30.21 cm), rachis length (13.21 cm) and number of flowers per plant (4.02) were recorded in N₁ (75 per cent shade). These parameters were the least in N₃ (open condition). The maximum flower yield was obtained in N₂ (173411 flowers) followed by N₁ (154512 flowers).

KEY WORDS : Heliconia sp, Shade, Growth, Yield

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Pacific Islands. The destruction of native habitats for agricultural purposes eliminated population of heliconia that flourished in rich ecosystem (Woolliams, 1985). From south pacific islands, early collectors brought them to botanic gardens in Singapore and Kolkata.

Major heliconia producing nations include Barbados, Hawaii, Brazil and Venezuela. They are also cultivated in the Netherlands and Germany. India has an annual production of about one lakh stems which accounts for less than one per cent of the total floral production of the country. Fifty per cent of the production of heliconia comes from West Godavari district of Andhra Pradesh. This is gaining importance as a commercial flower crop in states like Karnataka, Kerala and in some parts of Tamil Nadu.

**RESEARCH METHODS**

The experiment was conducted during 2007-2009 in floriculture unit, Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamil Nadu, to study the effect of different shading conditions on growth, flowering and yield of heliconium (*Heliconia* sp.) cv. *GOLDEN TORCH*. The experimental site is geographically situated at 11° North latitude and 79°41’ east longitude at an altitude of + 5.79 m above mean sea level. The land preparation was carried out in the shade house where in the soil was thoroughly dug to a depth of 30 cm and all the weeds, stubbles, stones etc., were completely removed. The land was ploughed and harrowed two times to bring to a fine tilth. The raised beds of 10 cm height and 1m width to a length of 2m were prepared with a walking space of 1m between needs. The beds were incorporated with well decomposed farm yard manure and sand. According to schedule of treatment, Heliconia were grown in a 50 per cent shade house and 75 per cent shade house laid in low cost technology each with a size of 10 m length and 5 m width. The experiment was laid out in Factorial Randomized Block Design (FRBD) with three replications. Three different shading conditions (viz., N₁ -75 per cent shade, N₂ -50 per cent shade and N₃ open condition) on growth and yield parameters.

**RESEARCH FINDINGS AND DISCUSSION**

The maximum plant height was obtained in N₂ (75 per cent shading) with 121.27cm at 240 DAP followed by N₁ (120.20cm at 240 DAP). The least plant height was recorded in N₃ at all stage of the crop (Table 1). In three different shading conditions, the maximum number of days taken for first flowering was recorded in open condition 190.82 days, the days taken for first flowering was minimum in N₂ with 177.97 days followed by N₁ which at 180.66 days for first flowering (Table 2). Basically, heliconias in their

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<tr>
<th>Table 1 : Effect of different shading conditions on plant height (cm) of <em>Heliconia</em> sp cv. <em>GOLDEN TORCH</em></th>
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<td><strong>Treatments</strong></td>
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<td>S.E.⁺</td>
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<td>C.D. (P=0.05)</td>
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<tr>
<th>Table 2 : Effect of different shading conditions on stalk length (cm), rachis length (cm), days to first flowering of <em>Heliconia</em> sp. cv. <em>GOLDEN TORCH</em></th>
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<th>Table 3 : Effect of different shading conditions on number of flowers per plant of <em>Heliconia</em> sp cv. <em>GOLDEN TORCH</em></th>
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natural habitat perform well under partial shade compared to full sunlight. There was decrease in photosynthetic capacity due to reduction in chlorophyll contents per leaf area in full sunlight compared with those grown under intermediate or partial shade as opined by He et al. (1996). Three different shading conditions. The least number of flowers per plant were recorded at all stages in open condition 2.67 at 240 DAP. The maximum number of flower per plant was found in N1 (75 per cent shading) with 4.02 at 240 DAP followed by N2 (3.52 at 240 DAP) (Table 3). In three different shading condition, the least number of flower per hectare was recorded in open condition with 93603 flowers at 240 DAP. The maximum number of flower per hectare was obtained in N2 (75 per cent shading) with 173411 flowers at 240 DAP followed by N1 (154512 flower at 240 DAP) (Table 4). By increasing the minimum air temperature from 15°C to 21°C, the number of shoots emerging to produce the number of flowering stems per m² could be more than double in heliconia. The stem length was also increased and the quality was noticeably improved. Photoperiod had only a slight effect on growth and flowering (Geertsen, 1989).

REFERENCES


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Table 4 : Effect of different shading conditions on flower yield per ha of Heliconia sp cv. Golden Torch

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<tr>
<th>Treatments</th>
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<tr>
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<tr>
<td>N2</td>
<td>173411</td>
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