

# The Effect of Seed Sowing Date on Growth and Inflorescence Size of *Echium simplex*<sup>©</sup>

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## INTRODUCTION

Tower of Jewels (*Echium simplex*) is rare plant native to the Canary Islands that has an enormous inflorescence that regularly reaches over 1 m in height (Fig. 1). Production of this crop for ornamental value is challenging since it is a biennial plant and takes well over a year to produce a flower spike from seed. The objective of this experiment was to determine the optimal seed sowing date to minimize production time while maintaining plant and inflorescence size.



Fig. 1. Tower of Jewels (*Echium simplex*).

## MATERIALS AND METHODS

*Echium simplex* seeds were sown on four dates (1 Dec., 2008; 1 Feb., 1 March, and 1 April, 2009) into 200-cell plug trays with three replications in Kennett Square, Pennsylvania. Transplant dates and pot sizes are shown in Table 1. Prior to transplanting into a 5-cm pot, seedlings were grown in a glass covered greenhouse and day/night temperatures were maintained at 24/21°C and the greenhouse was vented at 26°C. Once transplanted into 5-cm pots, plants were grown in a greenhouse covered with an inflated double layer of polyethylene. Day/night greenhouse temperatures were maintained at 13/7°C and the greenhouse was vented at 16°C from 12 Jan through 26 Feb., after which, night temperatures were increased to 10°C. The substrate was 80% Metro-Mix 3B (Fafard) and 20% charcoal. Plants were fertilized with 57 g of Osmocote (Scotts) 15-9-12 (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O) once they were moved into the 26-L plastic pots and fertilized with 20-10-20 (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O) at 250 ppm N once a week and irrigated with clear water with all other irrigations. Substrate pH fell below the optimal range and flowable lime was applied at a rate of 3 ml per 1 L water once per month from Aug. 2009 until plants were displayed. Plants were placed on display in the east conservatory of Longwood Gardens on 1 March

2010. Plants reached full bloom on 8 April 2010 and were measured for height and inflorescence height and caliper (at widest point). Data was analyzed using SAS software with mean separation by LSD test at P=0.05 (Version 9.1; SAS Institute).

Table 1. Transplanting dates (d/m/y) and container sizes for each sow date for *Echium simplex*.

Sow date	Container size			
	5 cm	10 cm	15 cm	26 L
1 December	31/12/08	23/1/09	24/2/09	8/4/09
1 February	17/2/09	24/3/09	13/4/09	3/6/09
1 March	17/3/09	17/4/09	1/5/09	3/6/09
1 April	17/4/09	1/5/09	3/6/09	16/6/09

## RESULTS AND DISCUSSION

There was a significant effect of sowing date on plant height and Inflorescence caliper of *E. simplex* (Table 2). Plants grown from seed sown on 1 April were significantly shorter and had reduced inflorescence caliper compared to plants grown from seed sown 1 Dec. All other treatments were intermediate and there was no effect of sowing date on inflorescence height. These data indicate sowing dates as late as 1 March are suitable for the production of high quality *E. simplex* without a reduction in plant height, inflorescence height and inflorescence caliper.

Table 2. Effect of sowing date on *Echium simplex* plant height, inflorescence height and inflorescence caliper at widest point.

Sow date	Plant height	Inflorescence height	Inflorescence caliper
1 December	260 a*	118 a	19 a
1 February	227 ab	100 a	17 a
1 March	234 ab	110 a	16 ab
1 April	208 b	92 a	14 b

\*Mean separation in columns by LSD test at  $\alpha = 0.05$ .