

Effects of Temperature in the Preceding Year and Corm Weight on Flowering in *Ixia* ‘Venus’[©]

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Effects of temperature in the preceding year on flowering were limited and corms with 2.1 g or greater weights were better for cut flower production in *Ixia* ‘Venus’.

INTRODUCTION

Ixia belongs to subclass Monotyledonae and the family *Iridaceae* (De Hertogh and Le Nard, 1993). This genus, endemic to the Cape Province of South Africa, has about 50 species. The storage organ is an annual corm surrounded by soft, fibrous tunics. It produces three to five erect or spreading leaves, thread-like to lance-shaped. The inflorescence is a spike of several small to large star-like flowers. Their colors can be white, cream, yellow, orange, pink, blue, purple, red, or green and they usually show dark centers. The erect flowering stem, simple or branched, is generally thin but rigid and can be up to 60 cm long.

In Japan, flowering takes place from April to May, depending on the planting date. The flowering period can be strongly affected by the temperature treatment applied to the corms after harvest. The earliest flowering was obtained when corms were stored 20°C for 6 weeks or more under dry conditions and then chilled at 8°C for 8 weeks under wet condition (Norikoshi et al., 2010). It was also suggested that flower could be harvested in late December when chilled started in early August.

However, research on forcing *Ixia* is limited. Corm size is a major factor to determine capacity of bulbous plants to flower. Temperature in preceding year is also important factor on flowering in bulbous plants.

In this study, effects of temperature in the preceding year and corm weight on flowering in *Ixia* ‘Venus’ were examined.

MATERIALS AND METHODS

The trial was carried out in an experimental field of Tokyo University of Agriculture located in Atsugi.

Experiment 1. Effects of Temperature in the Preceding Year on Flowering

In the preceding year, 2009, corms were planted in plastic cases (40×60×22.5 cm) and grown in a greenhouse kept above 15°C, 5°C, or outdoors. Some corms which were grown in a greenhouse kept above 5°C, were moved to a greenhouse kept above 15°C, or outdoors soon after flowering. The corms were lifted after flowering and drying up.

On 18 Aug. 2010, these corms were chilled at 8°C for 8 weeks under wet condition. After chilling treatment, corms were potted and then grown in a greenhouse kept above 15°C. Flowering date and cut flower length and weight were recorded.

Experiment 2. Effects of Corm Weight on Flowering

On 29 Dec. 2011, corms were sorted out into the following size groups: 1.6-2.0 g, 2.1-2.5 g, 2.6-3.0 g, or 3.1-4.0 g. Forty-five corms were planted in a plastic case and grown outdoors. Flowering date and cut flower length, and weight were recorded.

RESULTS AND DISCUSSIONS

Experiment 1

Flowering date, cut flower length, and weight were almost the same in all treatments (Table 1). Flowering was not influenced by the preceding year's temperature regimes.

Experiment 2

Corms with a weight of 1.6-2.0 g produced flowers that were shorter in length and lighter in weight compared to larger corms (Table 2). Larger corms (2.1-2.5 g, 2.6-3.0 g, or 3.1-4.0 g) produced better quality cut flowers compared to smaller sized corms (1.6-2.0 g).

Based on these results, effects of temperature in the preceding year on flowering were limited and corms with 2.1 g or greater weight were better for cut flower production.

Table 1. Effects of temperature in preceding year on flowering in *Ixia* 'Venus'.

	Flowering date (m/d)	Cut flower		No. of florets	No. of leaves
		Length (cm)	Weight (g)		
5°C	12/29	44.5	1.5	7.4	3.2
15°C	1/11	46.5	1.9	8.4	3.2
Outdoors	1/2	46.4	1.5	7.5	3.1
5 to 15°C	12/28	46.4	1.7	7.8	3.2
5°C to Outdoors	12/30	48.4	1.6	7.7	3.2

The trial was carried out in 2010-2011.

Table 2. Effects of corm weight on flowering in *Ixia* 'Venus'.

	Flowering (%)	Flowering date (m/d)	Cut flower		No. of florets
			Length (cm)	Weight (g)	
1.6-2.0 g	88.9	5/23	41.7	2.4	6.2
2.1-2.5 g	100.0	5/22	43.1	2.8	7.0
2.6-3.0 g	98.9	5/23	43.2	2.6	6.9
3.1-4.0 g	100.0	5/22	44.1	2.6	6.9

The trial was carried out in 2011-2012.

Literature Cited

- De Hertogh, A. and Le Nard, M. 1993. *Ixia*. p.723-726. In: A. De Hertogh and M. Le Nard (eds.), *Physiology of Flower Bulbs*. Elsevier, Amsterdam.
- Norikoshi, R., Arai, A., Kano, T., Nakazawa, K., Koike, Y. and Imanishi, H. 2010. Effects of corm storage or chilling temperatures and durations on accelerated flowering of *Ixia*. *Hort. Res. (Japan)* 9(2):215-219.