

# Three New Cultivars of *Ornithogalum*: 'Chesapeake Blaze', 'Chesapeake Sunset', and 'Chesapeake Sunshine'

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*Ornithogalum* (Liliaceae) is a genus of bulbous plants that are native to the Mediterranean and South Africa (Bailey, 1935). Species of *Ornithogalum* have been cultivated for centuries and are mentioned in the Bible (Leighton, 1944). Nearly all *Ornithogalum* grown commercially are heterozygous seed lines of species. Four species are commonly grown (Bailey, 1935); *Ornithogalum umbellatum* L. and *O. nutans* L. are grown in gardens as spring flowering bulbs, whereas *O. arabicum* L. and *O. thyrsoides* Jacq. are not hardy and generally are grown as cut flowers.

Our goal was to create potted-plant selections through interspecific hybridization. Three species were used: *O. dubium* Houtt., *O. multifolium* Bak., and *O. thyrsoides*. *Ornithogalum thyrsoides* produces a tall, 20 to 90 cm long, raceme with 10 to 70 flowers on an erect peduncle. The 3- to 5-cm-diameter perianth is cream/white with a dark green/brown center (Leighton, 1944; Müller-Doblies and Müller-Doblies, 1996; Obermeyer, 1978). Intraspecific hybridization of distinct ecotypes of *O. thyrsoides* has led to the creation of superior cut-flower seed strains (Roos and Pienaar, 1966). *Ornithogalum thyrsoides* was important in our breeding program because it has a strong straight stem and a dense inflorescence of large flowers.

*Ornithogalum multifolium* has a diminutive and compact growth habit, and produces a short, 3 to 15 cm long, raceme of 5 to 25 flowers on an erect peduncle. The 1- to 2-cm-diameter perianth is cup-shaped and is yellow to light orange. The leaves of this species are short (5 to 10 cm long) and terete (Leighton, 1944; Müller-Doblies and Müller-Doblies, 1996; Obermeyer, 1978).

*Ornithogalum dubium* produces a 10- to 25-cm-long raceme of 5 to 25, intense orange flowers on a curved peduncle. The 2- to 3-cm-diameter perianth is yellow to dark orange with a dark green/brown center (Leighton, 1944; Müller-Doblies and Müller-Doblies, 1996; Obermeyer, 1978). *Ornithogalum dubium* produces fewer flowers and a shorter inflorescence than does *O. thyrsoides*. Recently, breeders in Israel and Australia have been developing inbred lines of *O. dubium* suitable for potted-plant production with more flowers on erect peduncles (Anonymous, 1996). *Ornithogalum dubium* was important because of its flower color.

Pedigree information is given in Fig. 1. Even though all three species are in the subgenus *Aspasia* Salisbury, crosses between them did not yield in viable mature seed (Griesbach et al., 1993; van Niekerk and Pienaar, 1968). Therefore, ovule culture techniques were developed to obtain hybrid seedlings (Griesbach et al., 1993). The group name "Chesapeake" was selected to represent hybrids from this breeding program (Fig. 2).

## Origin

All of the species used are deposited in the collection at the Arboretum of the Univ. of California at Irvine (UCI). *Ornithogalum dubium* was selected as the recurrent parent because of its flower color and semi-dwarf stature. Colors (RHS values) were designated

according to the Royal Horticultural Society (RHS) Colour Chart (1986).

Flower production and plant stature in *O. dubium* were improved through hybridization with *O. multifolium*. The *O. dubium* selected as a parent was obtained from the florist trade and no collection data were available. This clone (UCI 0519) has large (3 cm in diameter), dark orange flowers (RHS Colour Chart 24A), but an unusually low flower count (5 to 10). The *O. multifolium* selected as a parent was obtained from the Plettenberg Bay area of South Africa. This clone (UCI 4745) has small (2 cm in diameter), bright yellow flowers (RHS 7A) and a high flower count (20 to 25). All seedlings in the F<sub>1</sub> population were intermediate in flower number, size, and plant stature. One descendant ('Chesapeake Sunshine') was selected for further breeding because of its continuous flowering habit (Fig. 2A). Typically, *Ornithogalum* flowers in the spring, producing two to three inflorescences before the leaves die. Plants are then dormant during the summer. 'Chesapeake Sunshine' is evergreen, producing inflorescences throughout the year, and does not normally become dormant.

'Chesapeake Sunshine' produces long, narrow and twisted leaves because of its *O. multifolium* parentage. To improve its growth habit, 'Chesapeake Sunshine' was hybridized to a tetraploid form of *O. dubium* (UCI 5672) that was obtained from the florist trade (no collection data). This clone (UCI 5672) has short (6 cm), wide (3 cm) leaves and dark orange flowers (RHS 24A). The seedlings in this backcross population varied in flower color and growth habit. One seedling ('Chesapeake Sunset') was selected for further breeding because of its intense orange flower color (RHS 25A) and compact plant stature (Fig. 2B).

*Ornithogalum thyrsoides* was used to improve the inflorescence of *O. dubium*. Unlike *O. dubium*, *O. thyrsoides* produces an erect peduncle. The hybrid was previously made at Kew Botanic Gardens in England and named 'Kewensis' (Bailey, 1935). *Ornithogalum dubium* UCI 0519, previously described, was hybridized to *O. thyrsoides* UCI 4230, a clone collected from the Clanwilliam area of South Africa that produces a 70-cm-tall raceme of large (5 cm in diameter) flowers. Seedlings in the F<sub>1</sub> population were very uniform, producing a 25- to 30-cm-tall raceme of light orange (RHS 14D) flowers, 4 cm in diameter.

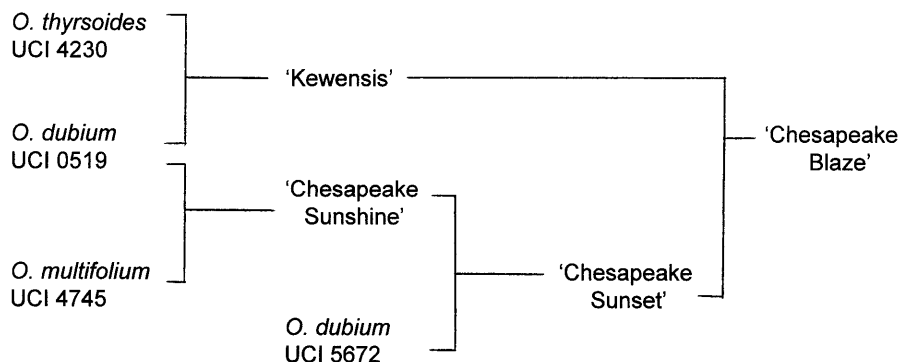


Fig. 1. Pedigree of cultivars in the Chesapeake group of *Ornithogalum*.

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Fig. 2. New *Ornithogalum* cultivars for potted-plant production—(top to bottom) (A) 'Chesapeake Sunshine', (B) 'Chesapeake Sunset', and (C) 'Chesapeake Blaze'.

*Ornithogalum* 'Kewensis', unlike the  $F_1$  hybrid between *O. dubium* and *O. multifolium*, was partially fertile. A selection of 'Kewensis' was crossed to the introgressed *O. dubium*  $\times$  *O. multifolium* hybrid 'Chesapeake Sunset'. The progeny expressed a wide range of floral characteristics, and a single plant was selected ('Chesapeake Blaze') because of its strong, straight peduncle, intense orange flower color (RHS 24A), and large (5 cm in diameter) flowers (Fig. 2C).

#### Description

'Chesapeake Sunshine' is a 150- to 200-mm-tall, deciduous herb. The bulb is ovoid and 25 mm in diameter with a thick brown tunic. The four to eight leaves are evergreen, glabrous, linear, acute, slightly canaliculate, 150 to 200 mm long, and 20 mm wide. The inflorescence is a subcorymbose raceme, laxly arranged with 25 to 30 flowers, lengthening with age up to 250 mm long. The peduncle is gently curved and the pedicels are semi-erect and 25 mm long. The flower is slightly cyathiform, 30 mm in diameter, and bright yellow (RHS 13A) with a green/brown base (RHS 152A) that fades with age. The perianth segments are pyriform and 15 mm wide. The stamen filaments are fleshy with broad wings. The pistil has a very short style and a trisulcate stigma with three papillate ridges. The ovary is oblong and dark green (RHS 147A).

'Chesapeake Sunset' is a 70- to 100-mm-tall, deciduous herb. The bulb is ovoid and 30 mm in diameter with a thick brown tunic. The four to six leaves are glabrous, linear, acute, flat, 80 mm long, and 30 mm wide. The inflorescence is a corymbose raceme with 20 to 25 flowers and is 70 to 100 mm long. The peduncle is straight and the pedicels are erect and 30 mm long. The flower is flat, 30 mm in diameter, and dark orange (RHS 25A) with a green/brown base (RHS 152A) that fades with age. The perianth segments are obovate and 20 mm wide. The stamen filaments are fleshy with broad wings. The pistil has a nondiscernible style and a trisulcate stigma with three papillate ridges. The ovary is oblong and dark green (RHS 147A).

'Chesapeake Blaze' is a 180- to 200-mm-tall deciduous herb. The bulb is ovoid and 35 mm in diameter with thick brown tunic. The four to six leaves are glabrous, linear, acute, slightly canaliculate, 200 mm long, and 35 mm wide. The inflorescence is a corymbose raceme with 35 to 40 flowers and is 180 to 200 mm long. The peduncle is straight and thick and the pedicels are erect and 30 mm long. The flower is flat, 50 mm in diameter, and orange (RHS 24A) with a green/brown base (RHS 152A) that fades with age. The perianth segments are obovate and 25 mm wide. The stamen filaments are fleshy with broad wings. The pistil has a very short style and a trisulcate stigma with three papillate ridges. The ovary is oblong and dark green (RHS 147A).

## Culture

Most of the cultural information available on *Ornithogalum* is specific for *O. arabicum* (Bailey, 1935). Limited information is available on forcing requirements of *O. thyrsoides*, *O. dubium* or their hybrids. Preliminary cultural recommendations are available for *O. dubium* (De Hertogh and Gallitano, 1996). A critical part of forcing is the conditions under which "dormant" bulbs are stored.

The Chesapeake series of cultivars are vegetatively propagated. There are several methods available for the in vitro propagation of *Ornithogalum* (Griesbach et al., 1993; Hussey, 1976). When *Ornithogalum* is produced from in vitro plantlets, dormancy and bulblet storage are not a problem, since actively growing plants are used for forcing.

## Availability

These three selections were registered (no. 16728) with the International Registration Authority (Royal General Bulb Growers' Association, Hillegom, the Netherlands). These cultivars are being patented and will be available commercially in Fall 1998 from Bay City Flower Co., P.O. Box 186, Half Moon Bay, CA 94019.

### Literature Cited

- Anonymous. 1996. Growers' notebook: *Ornithogalum*. Greenhouse Mgt. and Production 16(2):8.
- Bailey, L.H. 1935. The standard encyclopedia of horticulture. Macmillan, New York.
- De Hertogh, A.A. and L. Gallitano. 1996. Basic forcing requirements for Israeli-grown *Ornithogalum dubium*. 7th Intl. Symp. on Flower Bulbs. Herzliya, Israel. Acta Hort. Program Abstr. 81.
- Griesbach, R.J., F. Meyer, and H. Koopowitz. 1993. Creation of new flower colors in *Ornithogalum* via interspecific hybridization. J. Amer. Soc. Hort. Sci. 118:409-414.
- Hussey, G. 1976. Plantlet regeneration from callus and parent tissue in *Ornithogalum thyrsoides*. J. Expt. Bot. 27:375-382.
- Leighton, F.M. 1944. A revision of the South African species of *Ornithogalum*. J.S. Afr. Bot. 10:83-110, 111-122.
- Müller-Doblies, U. and D. Müller-Doblies. 1996. Revisionula incompleta *Ornithogalorum* Austro-Africanorum. Feddes Rep. 107:361-548.
- van Niekerk, H.A. and R. de Pienaar. 1968. Sitogenetiese ondersoek van 'n aantal hibriede in die genus *Ornithogalum*. Proc. 3rd Congr. S. Afr. Genet. Soc. 1966:45-51.
- Obermeyer, A. 1978. *Ornithogalum*: A revision of the southern African species. Bothalia 12:323-376.
- Roos, T.J. and R. de V. Pienaar. 1966. Cytogenetic studies in the genus *Ornithogalum* L. IV. The cytogenetics of inter- and intraspecific crosses involving *O. thyrsoides* Jacq. and *O. lacteum* Jacq. J. S. Afr. Bot. 32:325-333.
- Royal Horticultural Society. Royal Horticultural Society Colour Chart. 2nd ed. 1986. The Royal Horticultural Soc., London.