

# FORCING PERENNIALS

— Crop By Crop —

**Species:** *Hibiscus moscheutos* 'Disco Belle Mixed'

**Common name:** Swamp Rose Mallow

Figure 1.

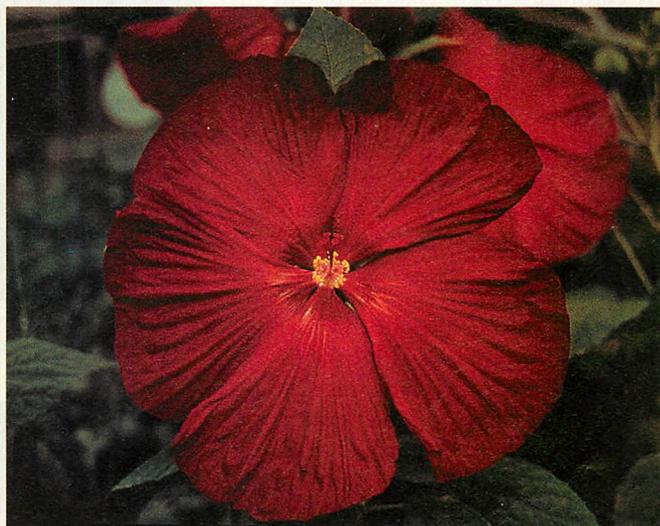


Figure 1. The flower of *Hibiscus* 'Disco Belle Mixed' attracts the most attention. This five-petalled corolla can be white (left), pink, red, rose-colored (right), or bi-colored and typically has a crimson center or eye.

**Editor's note: Michigan State University and GREENHOUSE GROWER bring you our second series on forcing perennials. This group of articles will be bound into another GGPlus booklet: Firing Up Perennials II. Part one of this series features *Hibiscus moscheutos* 'Disco Belle Mixed,' also known as Swamp Rose Mallow.**

by **SHI-YING WANG, ROYAL D. HEINS, WILL CARLSON, and ARTHUR CAMERON**

**H**IBISCUS *moscheutos* is one of the northern-most members of the largely tropical and subtropical family Malvaceae. It is a marshland native of the eastern U.S. The robust, exotic appearance of the variety make it a plant of merit.

The large, flat or shallow to sharply cupped flowers are up to 12 inches (30 centimeters) across, and borne solitarily in the axils of leaves. The five-petalled corolla can be white, pink, red, rose-colored, or bi-colored and typically has a crimson center or eye (Figure 1).

Plant height ranges from 20 to 60 inches (50-150 centimeters). It is hardy from USDA zones 4 to 9. In the Great Lakes area, flowering begins approximately the first week of August and continues until frost or flower initiation ceases due to shortening days of fall.

Many cultivars currently on the market are horticultural hybrids between *H. moscheutos* and other hibiscus species, but are often listed as cultivars of *H. moscheutos*. The most common cultivars are 'Disco Belle

## PRODUCTION

### FORCING PERENNIALS

Mixed,' Lady Baltimore,' and 'Lord Baltimore.'

There are other cultivars available, such as 'Anne Arundel,' 'Blue River II,' 'Crimson Wonder,' 'Fleming Hybrids,' 'George Riegel,' 'Giant Maroon,' 'Lester Riegel,' 'Southern Belle,' 'Strawberry Swirl,' and 'Sweet Caroline.' All suggested production information in this article is based on observed responses of *H. moscheutos* 'Disco Belle Mixed' (Figure 2).

#### 1. Propagation

*H. moscheutos* can be propagated by cuttings, division, and seed. One of the merits of 'Disco Belle Mixed' is that it is easily propagated from seed. Plugs are typically produced at 70°-75°F (21°-24°C). Common plug sizes include 338-cell trays transplanted into 55-cell trays or 128-cell trays transplanted into the finished pots.

#### 2. Plant Size

Juvenility is not a major consideration for flowering. Seedlings with as few as 4-5 leaves can be forced to flower. In order to promote branching, plants should be pinched at 4-6 leaves. A finished plant can grow as tall as 30 inches (75 centimeters). The plant is best suited for 6-inch or 1-gallon pots. Three plants can be forced in one pot (Figure 3); these pots are more attractive when flower colors of those three plants are different.

#### 3. Cold Treatment

Plants go dormant in early fall under natural growing conditions. Although mature bare-root crowns can be stored at low temperatures, a young seedling (4-9 leaves) is difficult to hold at 5°C. Exposure to low temperature causes death of the leaves and stems. Plants may also die from extended cold storage if water stressed or overwatered (Figure 4). Because of these problems, cold storage of hibiscus plug seedlings is not recommended. Instead, plants should be seeded, germinated, and then transplanted to the finished contain-

Figure 2.



Figure 2. Using a production schedule, *Hibiscus* 'Disco Belle Mixed' was successfully forced into flower on a specific date at Michigan State University.

Figure 3.



Figure 3. *Hibiscus* 'Disco Belle Mixed' is very versatile. Three plants per pot make it more attractive. However, plants can become chlorotic and even suffer leaf drop when grown at cooler temperatures and overwatered (plant on right). Photo courtesy of Catherine Whitman.

ers at warm temperatures.

#### 4. Photoperiod

'Disco Belle Mixed' is an obligate long-day plant. Under photoperiods of 10 hours or less, plants remain vegetative. All plants can be rapidly induced to flower when the photoperiod exceeds 14 hours. Flowering is fastest when photoperiod is 16 hours and above (Figure 5). Therefore, plants should be forced under a 16-hour or longer photoperiod, or under natural days plus a 4-hour night interruption (2200 to 0200 HR).

#### 5. Media, Fertilization, And Irrigation

*H. moscheutos* is also called the swamp rose mallow because it loves wet areas and requires a sufficient supply of water. Consistent soil moisture is important and plants should not be allowed to dry out. However, they need not be planted in a swampy area. Plants grow best in moist soil with a high organic content, but they tolerate a wide range of moisture conditions. Plants may develop leaf chlorosis, especially when growing under cooler temperatures.

Figure 5.

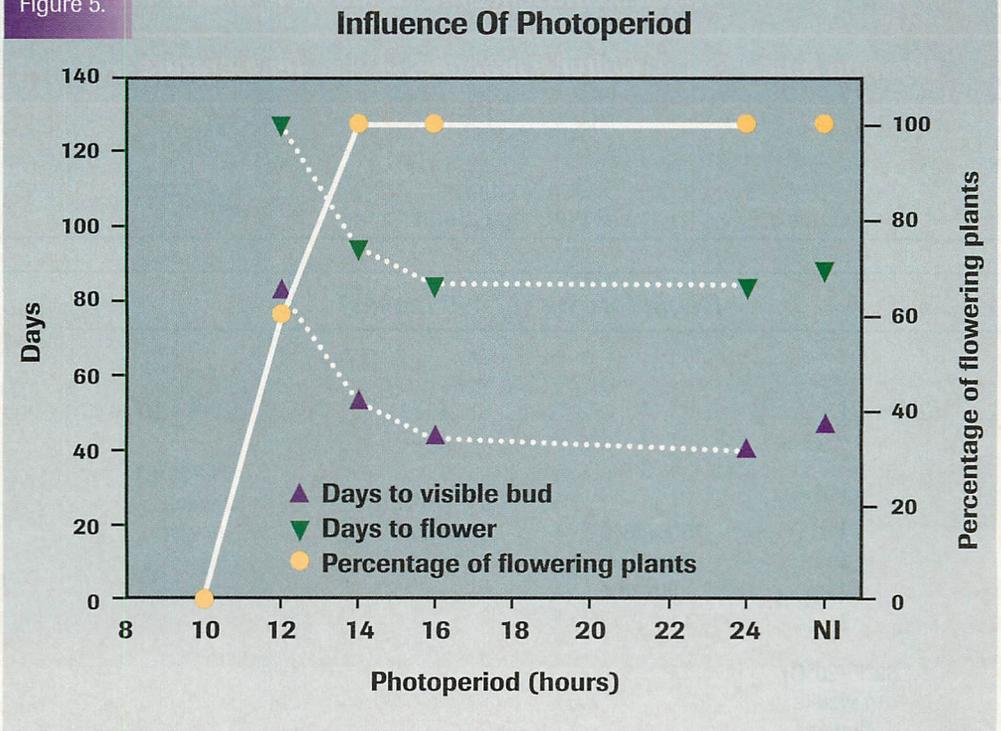


Figure 5. Influence of photoperiod on percentage of flowering plants, days to visible bud, and days to flower in *Hibiscus* 'Disco Belle Mixed'. NI stands for night interruption. Data was adapted from Erik S. Runkle.

#### 6. Lighting And Spacing

Plants grow best in full sun, but they also tolerate partial shade. Heavy shade will result in tall plants with few flowers. Plants can be grown in groups of 3-5 in full sun for best effect.

#### 7. Plant Height Control

Both chlormequat (Cycocel, 1000

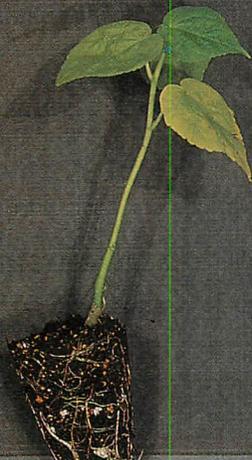
ppm) and uniconazole (Sumagic, 15 ppm) are effective chemicals for height control. Multiple applications are probably necessary.

#### 8. Temperatures And Crop Scheduling

Under long-day conditions, average daily temperature is the primary fac-

Figure 4.

0 Weeks of Storage



6 Weeks of Storage



Figure 4. Cold storage of hibiscus plug seedlings is not recommended. Plant on right was stored at 5°C for 6 weeks.

Table 1.

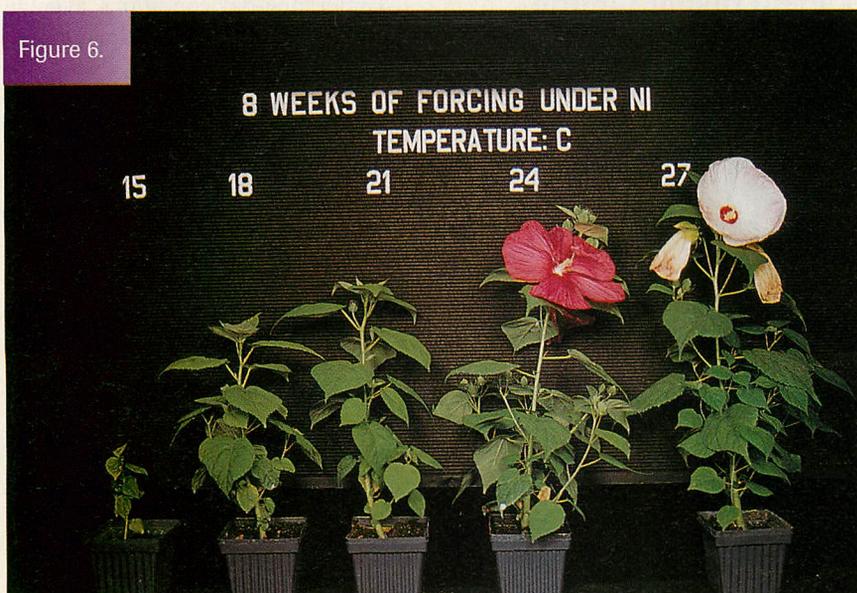
***Hibiscus moscheutos* 'Disco Belle Mixed' Production Schedule**

| <b>Growing time</b>  | <b>Cultural practice</b>                          | <b>Temperature</b>                         | <b>Photoperiod</b>   |
|--|---|--|--|
| 5-7 weeks  | Sow seeds<br><br>Germination<br>OR purchase plugs | 70°-75°F<br>(21°-24°C)                     | Natural light  |
| <b>Begin forcing (at 4-9 leaves)</b>   |   |  | <b>16 hours of light or<br/>4-hour night<br/>interruption</b>  |
| ↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>68°F (20°C)<br>14 weeks<br>flower<br>(not recommended) | ↓<br>↓<br>↓<br>75°F (23°C)<br>9 weeks<br>flower   | ↓<br>↓<br>79°F (26°C)<br>8 weeks<br>flower |  |
|  |   |  | <b>Visible bud to flower</b><br>68°F (20°C) – 52 days<br>75°F (23°C) – 38 days<br>79°F (26°C) – 32 days<br>84°F (29°C) – 28 days |

tor influencing flower development. Increasing temperature decreases time to flower (Figure 6). Plants often become chlorotic when grown at or below 68°F (20°C). If this problem occurs, plants can be transferred to a warm temperature environment to

overcome this chlorosis. Warm temperatures (75°F and above) are recommended for forcing 'Disco Belle Mixed.' Time to opening of the first flower after the onset of long days averages 8-9 weeks at 75°F (24°C), and 7 weeks at 81°F (27°C).

Figure 6.



**Figure 6.** *Hibiscus* 'Disco Belle Mixed' thrives in warm temperatures. These plants were forced under a 4-hour night interruption (NI). Plants at treatments of 75°F and 81°F (24°C and 27°C) have flowered.

### Formula For Success: 'Disco Belle Mixed'

- 1.** Do not hold plugs at low temperatures (>50°F).
- 2.** Force plants at warm temperatures (>75°F).
- 3.** Provide long photoperiods (>16-hour or 4-hour night break).
- 4.** Apply growth retardant to keep plants short.

### 9. Disease And Insect Pests

Whiteflies can be a problem in the greenhouse and Japanese beetles can be devastating in the garden.

### 10. Postharvest Concerns

Each blossom lasts only 1 day. Wilting petals may be handpicked or allowed to fall naturally. The plant's aesthetic appearance benefits from prompt removal of spent flowers. **GG**

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