



greenhouse  
GROWER  
.COM



TOP 100 GROWERS

THE MAGAZINE

GGTV

FRESH AIR FORUM

SUBSCRIBE

ADVERTISE

ABOUT US

NEWS FEED

Home

News

Viewpoints

Variety Central

Profit Center

Production

Trends

Our Location

SEARCH

Issue Archives

[Home](#) > [Magazine](#) > [January 2010](#)

2010

2009

2008

2007

2006

## Producing Potted Lilies

The Longwood Gardens grower lists the details you need to know to create the ideal growing environment for potted lilies.

By **Juergen Steining**  
January 2010

[Send](#) [Share](#) [Print](#) Text Size: [A](#) [A](#) [A](#)

In the last issue of Greenhouse Grower, I wrote about Longwood Gardens' lily program and included tips for summer production of Asiatic potted lilies. I covered basics on lily bulb and cultivar selection and choosing the right potting mix. In this article, I will further detail lily production, the growing environment, water and fertility programs, height control, pest and disease control, shipping and post-harvest treatment.



[View exclusive online-only images for this story here.](#)

### Planting Bulbs

Plant bulbs deep in pots. I fill pots with about 1 to 2 inches of media depending on the size of the container. Place bulbs into the pot with the roots facing down and fill to about one-half inch below the rim of the pot.

Unlike other bulb crops, lilies need to get as deep into a standard pot as possible. Bulb pans and azalea pots will not work. Lilies need to be potted in standard containers because the area of the stem remaining under the soil level develops stem roots. This root system is very important for supporting the large plants.

Pots that are processed during the late spring, summer and early fall are placed into a cooler for rooting. We keep the cooler at 48°F. The pots stay in the cooler for about two weeks or until the lily shoots are visible. In a temperature range of 48°F to 55°F, the root system develops well. A strong root system is critical for summer production. Plants that have a well-developed root system hold up in higher growing temperatures.

### Growing Environment

Temperature is perhaps the most important factor controlling lily growth and development. I like to think of the bench time of the crop in four segments:

1. Start at low temperatures and pots can be spaced pot to pot to save space. If you have time and like to have a high-quality crop, start at 48°F. If time is an issue, try 55°F. This stage lasts about two to three weeks. During this stage bulbs will form a shoot. The bulbs and the shoots will grow root systems.
2. Once I see leaves unfolding, I raise temperatures to about 60°F average temperature. The greenhouse setting is 55°F at night and 65°F during the day. This stage varies for different cultivars.

In general Asiatic hybrids require less time than most Oriental hybrids. Today, this is even more complicated with interspecific crosses such as OT hybrids (Orientals and Trumpets), LA hybrids (Longiflorum and Asiatics) and even OA hybrids (Orientals and Asiatics). Stage 2 is perhaps the most important stage in lily production. Keeping the temperatures down gives plants time to further develop their root system and will provide for a strong and sturdy stem.

3. During the bud stage, I raise the temperature to 58°F at night and 68°F during the

Acrylite DEGLAS  
ACRYLIC SHEET



Effinity<sup>93</sup>

**YOUR EXTENDED FORECAST:  
93% EFFICIENCY WITH  
100% CHANCE OF SAVINGS.**

Introducing the Effinity<sup>93</sup> from Modine, the most efficient unit heater in North America.

[Click here to knock down energy bills!](#)

MODINE

day for the Asiatics. I grow Oriental lilies a bit warmer at temperatures between 62°F and 72°F.

Once you see buds in Asiatic hybrids, things are going to develop fast. In general, about two to three weeks pass between the first visible buds to the first open flowers.

Oriental lilies, on the other hand, take much longer at this stage. It never fails to amaze me how long it takes from visible flower bud to open flower for these plants.

4. About one week before I expect open flowers, I drop temperatures again to 55°F at night and 65°F during the day. In my experience, this helps the pigmentation of the flowers. Finishing the crop in lower temperatures in my experience provides more vivid colors. Over the years, I have noticed crops that have been finished following this outline last a lot longer on display.

In addition, plants look great. Once in a while, when timing is an issue and crops are pushed to make a display date, quality and longevity of the plants is reduced.

#### Light & Plant Spacing

Light and spacing are commonly pushed to limits to get extra plants onto a bench. Pot lilies require medium light levels in the summer and high light levels in the winter. We shade crops growing later in the season and provide supplemental light to crops during low-light winter months.

Growing lily 'Tiny Dino' last summer, I chose a location outside that was protected and somewhat shaded by large trees – unconventional, perhaps, but I needed the cool and shade for the plants. The plants, however, received morning and late afternoon sun. Admittedly, the climate and temperatures for Summer 2009 were unusual.

Although we had several hot spells during the time we grew plants, night temperatures were dropping frequently into the 50s. In my experience, some temperature spikes during the growing cycle can be balanced with lower night temperatures without plants losing quality. Nonetheless, extreme spikes with temperatures over 90°F will generally cause bud blast, stunting and necrosis of petals and foliage.

#### Water Management and Fertility

We are using drip irrigation for our lily production. So during the cool and low-light winter months, we frequently have to spot water. I have seen operations, especially in Europe, using ebb-and-flow systems successfully. In my experience, overhead watering of the crop is out of the question. I don't think watering booms should be used, so I would like to hear otherwise if someone has had good experiences.

I apply liquid fertilizer every watering. On weekends, we flush the pot with clear water to prevent salt buildup. Peters Excel 15-5-15 and Peters 20-10-20 both have been used successfully in our production.

In general, we use the Excel complete formula during winter production and switch to the 20-10-20 product in the summer months. Fertigation with a 300 ppm solution seems to be sufficient. On occasion, I had to supplement with calcium nitrate 15.5-0-0-19 at 250 ppm during high-stress situations that may lead to leaf scorch and weak stems. Calcium-nitrate supplements are also suggested for growing cultivars susceptible to leaf-scorch.

Water management needs to be adjusted for the crop depending on weather conditions and the season. When growing lilies at low temperatures, watering is adjusted to keep media slightly moist. During sunny days, watering is critical. Keeping plants dry could result in damaging the root system. Maintaining moisture is particularly important when growing lilies in the summer.

#### Other Factors To Control

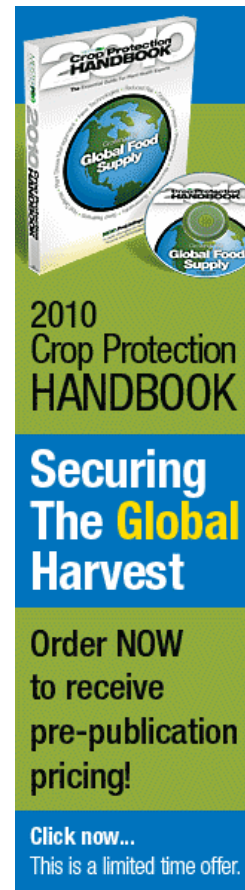
Height control and pest and disease control will be a non-issue when following good production protocol. These days, there is a comprehensive assortment of cultivars to choose from, many of which have good disease resistance.

For pot production, genetic dwarfs are preferred. Some of the Pixie series are still good products, but the new Tiny series are all excellent Asiatic pot lilies. For both product lines, DIF and DIP as well as water management when applicable are sufficient to maintain acceptable plant height.

Several Oriental hybrids like 'Mona Lisa,' 'After Eight,' and the Sunny series are also suitable for pot production without the need for plant growth regulators (PGRs). Adventurous and advanced growers may choose to grow intermediate lilies such as 'Alessia,' 'Argentina,' 'Lake Michigan,' 'Presidente,' 'Tarragona' and others. All of them can be grown as cut flowers or container crops.

To adjust height for these cultivars, Sumagic has worked best for us. PGRs are used depending on the time of the year or light condition. Generally, a bulb dip with a concentration of 2.5 ppm provides the best PGR results. When stem elongation is excessive, sprays with 5 ppm Sumagic have worked well.

Producing potted lilies is less complicated in regard to pest management than you might expect. For most crops, no special spraying schedule is needed. Sometimes a spray for aphids and thrips is needed. I have not seen root rot since we began using RootShield in our potting mixes. Botrytis rot can be a problem only when watering overhead or during extended periods of high humidity, especially when shipping plants that may have lots of open flowers.



2010  
Crop Protection  
**HANDBOOK**

**Securing  
The Global  
Harvest**

Order NOW  
to receive  
pre-publication  
pricing!

Click now...  
This is a limited time offer.



**NGMA**  
NATIONAL GREENHOUSE MANUFACTURERS ASSOCIATION  
MEETING THE CHALLENGES OF  
TODAY'S MULTICULTURAL  
INDUSTRY

**National  
Greenhouse  
Manufacturers  
Association**

What can  
NGMA  
do for  
you?

*Click here  
to find out!*

Flower buds seem to be a bit more resistant to gray mold infestation, but a fungicide application for botrytis may help crops maintain quality during shipping.

#### Post Harvest & Shipping

The best developmental stage for harvesting a crop is puffy bud stage. Pot lilies are best shipped when sleeved or in boxes and should be held in coolers at 40°F. At this temperature, flower quality is preserved until shipping occurs. Holding for shipping is for the short term only.

A spray with Fascination seems to extend the vase life of the flowers. Treated plants also tolerate cold storage better. Oriental hybrid lilies seem to especially benefit from this application. I have had good results with Fascination when crops came on early.

To view a slideshow of potted lilies, [click here](#).

---

#### About the author:

Juergen Steininger is a grower at Longwood Gardens in Kennett Square, Pa. He can be reached at [juergensteininger@yahoo.com](mailto:juergensteininger@yahoo.com).

#### Related Articles:

[Steamy Tropicals And Foliage](#)  
[Quantifying The Quality](#)  
[Variety Central: Bright And Shiny Bulbs](#)  
[Producing Asiatic Lilies](#)  
[Potential With Potted Lilies](#)

#### Leave a comment: (All fields are required)

Email:  (Will not be displayed)

Name:  Anonymous

Comment:

