

The 2010 Easter lily schedule  
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The Easter season in 2009 was a bright spot in an otherwise difficult economic year. With the weak national economy, many growers were concerned going in to the new year but it turned out to be a really solid Easter season with strong sales. It's hard to predict what 2010 will be like but Easter, as the first colorful harbinger of spring, always seems to rekindle the spirits of the gardening public. So hopefully 2010 will be another strong Easter season.

In 2010 Easter falls on a mid-date crop schedule. Mid-date schedules, Easter dates that fall between April 3 and April 15, are best from a grower perspective because they don't require any special management tactics to either slow or speed crop development. Plus in northern climates, having the crop out of the house at the end of March allows plenty of time to fill up for the spring production.

One trend we saw the last couple of years was a push by growers to conserve energy and cut production costs. Last year I reported that some growers added an extra layer of plastic film, suspended above the truss, to provide some extra insulation and that many growers double cropped with overhead baskets (Figure 1). With energy prices on the rise again, I anticipate some of the same pressures in 2010. These tactics are okay but growers should know that they do pay a price in terms of crop quality. As overhead shading increases, you will be more reliant on PGR's to control stretching and leaf yellowing associated with reduce light (Figures 2-4).

#### *Critical dates in the 2010 schedule*

For Easter 2010, start case-cooling bulbs by October 25 (23 weeks before Easter). If bulbs arrive later than this and you don't have the full 6-weeks of bulb cooling completed by December 6 (17 weeks before Easter), start the greenhouse forcing anyway and just substitute one week of insurance lighting for each week of cooling still needed. For pot-cooled bulbs start 6-weeks of bulb-cooling by November 15 (20 weeks before Easter) and start greenhouse forcing by 14-week before Easter. Ideally pot-cooled bulbs should be potted by October 25 and held at 60-62°F for 3-weeks prior to the November 15 cooling date in order to stimulate root development. If you don't have time for the full 3-weeks rooting period, just give them as much time as you do have while staying on course with the November 15 start date for cooling.

Regardless of bulb cooling method, lilies should reach the visible bud stage at about February 21<sup>st</sup> or 6-weeks before Easter. Lilies at this stage will reach full bloom in time for shipping 1-week before Easter.

Lilies are a challenging crop even in seasons when the schedule permits adequate time for proper forcing. Bulb response can be notoriously variable from year-to-year and even from batch-to-batch due to variations in summer field conditions during bulb production and handling after the bulbs are dug. For success in 2010, keep a close eye on development from the start. Follow the 2010 schedule to track development and the cultural recommendations to maintain proper plant health and vigor during greenhouse forcing. As always if you do spot a problem, react and make adjustments early to avoid more difficult adjustments later.

Good luck for a successful 2010 season.



Figure 1: An extra layer of plastic film (left) reduced heat loss but also reduced light levels in the lily production house. Double cropping with baskets has a similar effect (right).



Figure 2: Reduced light levels increase reliance on PGRs to control stretching and leaf yellowing. Workers preparing lilies for shipping by stripping lower leaves that yellowed prematurely (right).



Figure 3: (Left) The first PGRs for height control should be applied when lilies reach a height of about 3-inches, typically at about 12 to 11-weeks before Easter. Repeat treatment can be applied as needed. (Center) Reliance on PGRs to overcome poor cultural practices usually spells trouble. Fascination can be effective in reducing lower leaf yellowing but in overcrowded conditions stretching is also a problem. Non-uniform spray applications of Fascination resulted in uneven greening on the lower leaves. (Right) Too much PGR from a bulb-soak treatment resulted in excessively compact Asiatic lilies.

**The University of Connecticut  
2010 EASTER LILY SCHEDULE**

Weeks Prior to Easter	Date	Forcing Method	
		Case-Cooled	Pot-Cooled (CTF)
25	Oct. 11	<i>Bulbs dug, shipped &amp; in hand by mid-Oct. Programming starts immediately. Treat bulbs for mites before cooling begins.</i>	
24-23	Oct. 18 –Oct. 25	<b>Start bulb programming as soon as bulbs arrive but no later than 23 weeks before Easter.</b>	
		<i>Cool at 40-45F for 6 weeks</i>	<i>Pot and allow roots to grow at 60-62F for 3 weeks</i>
20	Nov. 15	---	<i>Cool at 40-45F for 6 weeks</i>
17	Dec. 6	<b>Pot no later than 17 weeks before Easter</b>	
		Force in greenhouse at 60-62F in pot.	
14	Dec. 27	<i>Roots visible by wk 15 &amp; shoots emerge by wk 14.</i>	Force in greenhouse at 60-62F in pot (no later than 14 weeks before Easter).
		<i>Early plantings emerging before wk 14 &amp; buds beginning to set. Start fertilizing &amp; keep moist</i>	
13	Jan. 3	1-2" tall. Keep lilies moist & use fungicide drench as needed.	
12	Jan. 10	2-3" tall. Bud initiation coincides with stem root development.	
		Run 60-62F day/ night until bud set is complete.	
11	Jan. 17	3-4" tall. Apply growth regulator when 3-5" tall.	
		Bud initiation nearly complete, maintain temperature below 65F until done.	
10	Jan. 24	Check for bud set. Begin leaf counting & graphical tracking. Keep greenhouse cool if ahead of schedule.	
9	Jan. 31	5-6" tall. Adjust temperatures as needed. Space lilies to avoid yellow leaves & stretching. Apply Fascination to lower leaves (7 to 10 days before visible bud) if leaf yellowing is evident.	
8	Feb. 7	Check for aphids & root problems. Apply insecticide drench sometime during weeks 10, 9, or 8.	
		Soil test & if leaf scorch is evident, use calcium nitrate for balance of schedule.	
7	Feb. 14	7-8" tall. Lilies are about half final height. 42 days to sale. Buds can be felt.	
		If buds are visible on early planting run 60F until finish.	
6	Feb. 21	35 days to sale. Buds should be visible no later than 30 days prior to sale. Grade for uniformity as buds become visible.	
5	Feb. 28	Buds 1/2-1" long. Re-apply Fascination if necessary.	
4	Mar. 7	Buds 1-1 1/2", some bending down.	
3	Mar. 14	Buds 1 1/2-2" long. If aphids present, use a total release smoke or aerosol.	
2	Mar. 21	Buds 2-4" long., some turning whitish. Stop fertilizing just before sale & apply clear water once.	
		Cool lilies at 35-45F to hold. Prior to cold storage, Fascination can be applied to entire plant.	
1	Mar. 28	Ready to sell. Shade lilies once removed from storage. If needed, use EthylBloc prior to shipping.	
0	Apr. 4	<b>Easter 2010</b>	

## NOTES & COMMENTS ON THE 2010 EASTER LILY SCHEDULE

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**Easter 2010 outlook:** Easter falls on a mid-date in 2010 (April 4). This is on the early end of the mid-date calendar but will allow enough time for proper programming and forcing. Average heights and times for forcing are presented in this schedule. Adjust schedule according to plant growth, bud development, starting time, and past experience. If you have problems contact your Extension Educator.

**Pot-cooled bulbs** are normally potted & held for three weeks at 63F before the six weeks of bulb cooling (at 40-45F) begins (see the 2010 Easter Lily schedule for details). The bulbs then require 14 weeks of greenhouse forcing. This entire process requires 23 weeks from initial potting to Easter. This is the same process is used for both naturally cooled or CTF bulbs.

**Case-cooled bulbs** require six weeks of cooling followed by 17 weeks of greenhouse forcing to flower in time for Easter. Be sure that commercially case-cooled bulb arrive & are planted by Dec 6, 2009. If you cool your own bulbs, start the Oct. 25 (23 wks before Easter). Insurance lighting should not be needed this year but can be used if you can't complete the full 6-weeks of bulb cooling.

**Insurance lighting:** Provide insurance lighting if you know or suspect that bulbs have not received the entire six weeks of cooling by the time greenhouse forcing in scheduled to begin. Insurance lighting refers to night break lighting used to produce a long day photoperiod. When insurance lighting is used immediately following shoot emergence it will produce the same effect as bulb cooling or vernalization. Therefore, insurance lighting can be used to substitute for inadequate bulb cooling. Provide one day of insurance lighting for each day of lost cooling. Incandescent, fluorescent, or HID lighting in excess of 10 f.c. from 10 pm to 2 am daily will provide the necessary night break.

**Fertigation:** Start fertilizing with soluble formulation when lilies emerge and continue to within 7 days of sale. Combine calcium nitrate (3 parts) with potassium nitrate (2 parts) to make a 15-0-18 soluble fertilizer, or use a commercial 15-0-15 formulation. If phosphorus was not added to the medium, 20-10-20 can be used on an alternating basis with a 15-0-15. Fertilizer rates should range from 200-400 ppm. Do not allow medium EC to exceed 3-3.5 mmho/cm based on a Saturated Media Extract. Stop fertilizing just before sale. Provide one clear watering before lilies are shipped - this will reduce salt levels in the potting medium and maximize lily-keeping quality. Do not withhold water or fertilizer to slow development. Do not over water (i.e. water too frequently) or root rot problems may occur.

**Decrease Leaf Yellowing & Delay Flower Senescence:** To prevent early-season (7 to 10 days before visible bud) & mid-season (7 to 10 days after visible bud) leaf yellowing, spray Fascination at 10/10 ppm. (Note: Fascination contains two active ingredients and recommendations include the concentration of each). Apply only to lower leaves & cover thoroughly. To prevent late-season leaf yellowing and post-harvest flower senescence, spray 100/100 ppm to thorough cover all foliage & buds. Apply when buds are 3 to 3 1/2" long & NOT MORE than 14 days before shipping or cooling. Protects leaves from yellowing for up to 14 days. **Note:** Side effects include increased stem stretch. Avoid direct contact of spray to immature leaves during early- & mid-season applications.

**Disease and pest control:** Before planting, clean bulbs of debris removing any damaged scales, especially scales that show evidence of infection. Once potted, root rots associated with *Rhizoctonia*, *Fusarium*, and *Pythium* are a concern. Drench immediately with Banrot or Insignia, broad-spectrum fungicides, or you can treat to control these diseases separately by selecting from the fungicides specifically registered for *Rhizoctonia*, *Fusarium* and *Pythium* control on lily. Materials registered for *Rhizoctonia* and/or *Fusarium* include 26GT, 26/36, Contrast (*Rhizoctonia*), Sextant, and Terraclor WP (*Rhizoctonia*). Materials registered for controlling *Pythium* include Alude, Banol, Subdue Maxx, and Truban. Check with manufacturers regarding compatibility when tank mixing fungicides for *Pythium* with *Rhizoctonia/Fusarium* controlling materials. Fungicides may need to be re-applied later in the crop, check labels for guidance.

Aphids, fungus gnats and bulb mites are a major concern. Use only smokes or aerosols once in bud. Many chemicals are listed for aphid control, including, Safari, Celeron, Flagship, Tristar, Marathon, DuraGuard, Distance, Enstar II, Preclude TR, Tame, Ultrafine Oil, Insecticidal Soap, Talstar and Endeavor. Fungus gnats can be controlled with many of these same chemicals as well as Citation, Adept, insect parasitic nematodes (Nemasys, NemaShield, Scanmask) and Gnatrol. Bulb mites, *Rhizoglyphus robini*, represent one of the more troublesome insect pests on lilies. Duraguard is labeled as a drench for soil borne organisms that may include bulb mites. Bulb mites are more likely to attack physically damaged bulbs – so be sure to control fungus gnats and handle bulbs gently.

*Note: Registration of pesticides varies by state so consult and follow labels for registered uses. To avoid any potential phytotoxicity or residue problems, spot test first before widespread use. No discrimination is intended for any products not listed.*

**Controlling Lily Height:** Use A-Rest, Chlormequat E-Pro, Concise, Cycocel, Topflor or Sumagic as needed when shoots are 3-5" tall. Split applications provide the best results. You can apply any of the PGRs at 1/4 to 1/2 normal rate, as needed, to control height. Reduce the concentrations of Sumagic used when combined with DIF. Use DIF, or cool morning DIP, to control lily height. Equal day/night temperatures, high night/low day temperatures or cool morning temperatures will keep lilies short.

**Lily storage:** Lilies can be stored for up to 10 days in the dark at 35-45F when buds turn white but before they open. Spray for Botrytis control prior to moving lilies to cold storage. Materials registered for botrytis control on lilies include 26GT, 26/36, Daconil, Exotherm Termil, Sextant, and Protect DF. Follow label directions. Water Easter lilies thoroughly before starting cold storage. After removing from the cooler, place lilies in a shady location to avoid excessive wilting.

**Graphical Tracking of Lily Height:** Monitor lily height regularly during forcing. If height exceeds the target size, run negative DIF to slow stem elongation. If height is less than the target size, run positive DIF to increase stem elongation.

*If you have problems contact your Extension Educators.*

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*All agrichemical/pesticides listed are registered for suggested uses in accordance with federal and Connecticut state laws and regulations as of the date of printing. If the information does not agree with current labeling, follow the label instructions. The label is the law. Contact the Connecticut Department of Environmental Protection for current regulations. Where trade names are used for identification, no product endorsement is implied nor is discrimination intended.*

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