



September 15, 2018

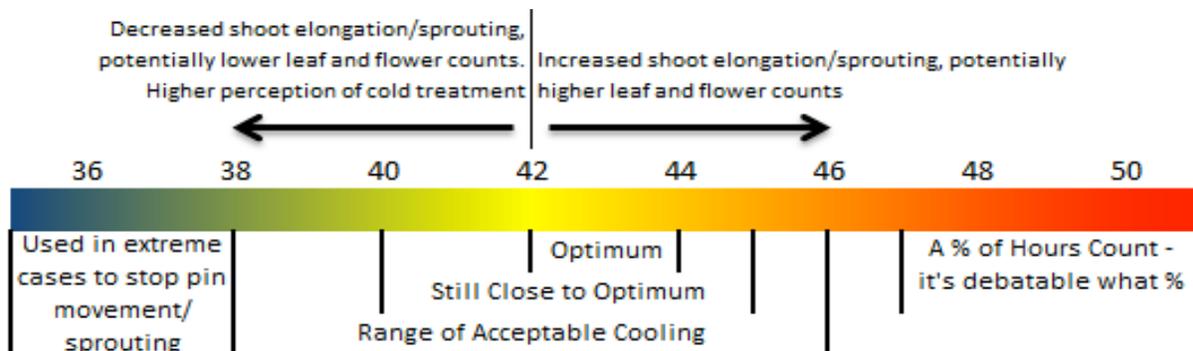
Dear Grower:

Well every Easter has its challenges and this one is no exception. With an Easter date of April 21st we are attempting to put off packing as late as possible but the threat of rain always keeps us from putting it off too much. This schedule ships CTF with the possibility of 116+ days in the greenhouse and case cooled with 124+ days. Hopefully by shipping and digging later our crop will be more mature, creating uniformity and better response in the greenhouse. With the increase in days growers should be able to fully take advantage of a reproductive dip in temperature, something that was not available last year.

- **CTF:** Following this schedule, CTF'ers will ship Oct. 20th-30th and cool Nov. 14th – Dec. 26th. This gives 116 greenhouse days and a full 14 days of rooting, possibly more depending on when they arrive. If Bulbs arrive sooner you can either hold them around 60°F (16°C) case temperature, add a few days of rooting, add a few days for growing, or a combination of the previous. Be cautious of adding too many rooting days or forcing days. Too much rooting can cause shoot growth that causes you to vernalize at colder temperatures. Too many greenhouse days can be difficult as well causing you to run too cold and not dry out your pots. This in turn can make for root issues. My preference for most growers would be to hold them for a few days in the case at 60°F (16°C), root for 14-16 days and don't increase greenhouse forcing days any more.
- **INTERRUPTED:** Bulbs will be shipped Oct. 23rd-31st. For those of you that are accustomed to this schedule it has proven to be a logistical and performance improvement for most growers. One of the greatest benefits for a larger grower is the ability for us to start the cooling here and ship them to you while continuing the cooling process. This allows for an earlier start date and a few more days in the greenhouse on those early Easters. This year those shipping benefits may not be needed. 6 weeks of cooling and 2 weeks of rooting put the start cooling date on Oct. 31st. Most bulbs should arrive on or before this date. This means **we will not be starting the cooling here unless you ask us to because of an alternate forcing schedule** that you have established. If you have us start the cooling here your order will contain an electronic temp recorder that will need to be returned to Hastings Bulb Growers at P.O. box 2155 Brookings Oregon 97415.

- **CASE COOL:** This schedule will give you 128 greenhouse days. The bulbs that we cool here at our facility will start on Nov. 2nd. Pot them and begin forcing on December 18th. These extra days will allow you to run nice and cool in the beginning allowing you to build a decent amount of roots. Between a cool start and taking full advantage of a reproductive dip most of the extra days should get used up in a positive manner.

Start precooling at 42°-44°F (5°-7°C) and monitor your bulbs frequently for pin movement off the basal plate. If rapid pin movement or sprouting occurs in the cooler lower the temperature to 38°F (3.5°C) for a few days then return to previous temperatures. If pin movement continues repeat this process as necessary. If possible move them into the greenhouse to finish your pre-cooling there. Easter lily bulbs cool just as effectively in a greenhouse that is cold, as they do in a cooler. The benefits to finishing the cooling on the bench are stems don't get stretched out like in the dark, leaves get color to avoid burning, and you are able to run on the warm side of cooling temperatures not the cold side. So if you see sprouts in the cooler or you want to get your work done early once your Poinsettias are gone and you have the ability to keep your greenhouse cool, you can finish cooling in your greenhouse. As long as you can hold 45°F (7°C) days and nights, you will be ok. There is always talk of acceptable cooling temperatures so I am going to try and put it on paper. Below is how I view cooling temperatures, maybe not completely but as best as I can explain it on paper.



Whatever method of height control you use, implement it early to get results. A significant amount of stem elongation can be reduced if temperatures are lowered the first two to three hours of the day. This response increases as day length and daylight increase. Lower temperature 10°-15°F (5°-9°C) as close to first daylight as possible. After two hours, let the temperature return to normal forcing temperature, allowing the pots to warm up slowly. Short days using blackout cloth is a very effective tool to reduce height by about 20%. Open blackout curtains one hour after sunrise and close one hour before sunset to eliminate far red at twilight. Maintain at a minimum 8 hrs. of daylight. As days lengthen increase day length to allow for as much photosynthesis as possible.

Strong DIFs and short days applied to your crop in low light conditions lead to bud abortion. Extreme DIF, that is temperatures that are in excess of 10°F (6°C) difference between nights and mornings, or night temps in excess of 75°F (24°C), can put you on the road to bud abortion! Low light is a huge factor particularly the first two weeks after reproductive stage ends. This is generally when growers also begin to DIF. You burn so many carbohydrates at night that under low light, cool temperatures, and short days, the plant simply begins to starve. At this time a little Sumagic is your best friend to control height and avoid bud abortion. Remember that DIF is most effective the two hours after sunrise. Raising your heat and adjusting day temperatures after the two hour DIF will be the most effective tool to resolve timing vs. bud abortion conflicts.

Growers will often under-feed lilies at the start of forcing. Most likely, we can expect to feed two or three times during December and January. Feed heavier the first two or three times to build up a good nutrition base for bud set towards the end of January. Feed at least 400-150-400 PPM during this period in soilless mixes by adding calcium and potassium nitrates to complete feeds. Acceptable nutrient tissue test standards as published by the University of Minnesota are:

Nitrogen (%)	2.4 - 4.0	Iron (PPM)	100 - 250
Phosphorus (%)	0.1 - 0.7	Manganese (PPM)	50 - 250
Potassium (%)	2.0 - 5.0	Zinc (PPM)	30 - 70
Calcium (%)	0.2 - 4.0	Copper (PPM)	5 - 25
Magnesium (%)	0.3 - 2.0	Boron (PPM)	20 - 50

Maintain your roots at all times. Try not to overwater your pots. Let them dry out, but not pull away from the edge of the pot. Root Shield and other biological root coatings have shown some promise for many growers particularly on light mixes. If you choose to fungicide monthly as a preventative, a typical monthly fungicide program might be:

Dec.	4 oz. Terraclor plus 8 oz. Of Truban / 100 gal.
Jan.	12 oz. Cleary's 3336 plus 1/4 oz. of Subdue Max/ 100 g.
Feb.	8 oz. Banrot / 100 gal.
Mar.	12 oz. Cleary's 3336 plus 1/4 oz. Subdue Max/ 100 gal.

Fascination is a great tool for keeping lower leaves green and improving store-ability. It works so well on lower leaf yellowing that I have had finished lilies with over 5 weeks of storage/cooling still not have yellow leaves when they were discarded a month later. Of course, 5 weeks is not recommended, but even if you don't store your lilies at all, **the quality that the consumer receives through the store and into the home is exceptionally better.** The proper time to apply is when you have enough height for differential placement. The plants have to be

tall enough to spray the lower leaves without much contact to the actively growing upper leaves; this is usually at or around visible bud. A single Fascination basal spray, of 20-30ppm (1/4-1/3 oz./g water), once at visible bud will hold through the season. Some growers concerned about stretch or where applications are automated prefer 2 sprays at 5-15 ppm. This decreases the likelihood of stretch and reduces the chance for a skip. Usually these 2 applications are made 10-14 days apart just before and during or after visible bud. An additional whole plant spray can be done at or just before packing to help with stress during shipping and at the store. This late application varies greatly from grower to grower. Rates can range from 25ppm all the way to 100ppm. For most conditions I will recommend 50-75ppm.

Keep in mind that with all these guidelines there are still exceptions to the rules but they are too complex and dependent on multiple factors to explain here. So like always feel free to call and discuss further. The lilies in the field have great tops and we are looking forward to a good season. We wish you all the best of luck!

Sincerely,

Ezekiel I Harms
Hastings Bulb Growers, Inc.

A handwritten signature in cursive script that reads "Kurt A. Messick".

Kurt Messick