EASTER, APRIL 9, 2023

FOLLOW THE SCHEDULE FOR YOUR PRECOOLING METHOD

CTF	Interrupted Cool	Case Cool	
Oct. 13-21	Oct. 13-21		CTF/Interrupted Bulbs arrive
	Continue/start case cooling upon arrival	Oct. 28	**Begin case cooling** 6 weeks for case cooling and 2-3 weeks for interrupted cooling.
			Pot bulbs; fungicide and insecticide dip for mites, and root disease. Root for 7-14 days @ 63°-67°F (17°-20°C) soil temperature
Nov. 6	Begin 3-4 weeks pot cooling (TOTAL 6 wks. cool)		**CTF Cooling:** Begin precooling at 42°-44°F (5°-7°C). Make sure all pots/cases are **uniformly moist so the bulbs perceive the cold and become vernalized**. Have **good air circulation** in cooler to **eliminate warm spots.** Check regularly for adequate moisture, good air circulation, and **pin movement**. Be prepared to lower the temperature to 38°F (3.5°C) if pin length becomes excessive. If pot cooling, pots can be finished in a greenhouse and on a bench at 45°F (7°C) to allow for some sprouts.
		Dec. 5-9	**Case Cooled Bulbs arrive**. Pot lilies; fungicide/insecticide dip for mites
Dec. 18	Dec. 18	Dec. 9	**Begin greenhouse forcing**. Run 60°F (16°C) soil temperature; **fungicide** and feed with a program of at least 400-150-400 PPM NPK in a soilless mix. Case Coolers remember you have a few extra days here to make up some rooting time.
Dec. 25	Dec. 25	Dec. 24	Many plants should be emerged. Warm to 65°-68°F (18°-20°C) if you feel emergence is slow.
Jan. 1	Jan. 1	Dec. 29	**Crop should be 100% emerged**. Maintain 62°F (17°C) soil temperature until reproductive only if you have the ability to heat up sufficiently later.
Jan. 18	Jan. 18	Jan. 9	**Fungicide** drench; maintain high feed level through January for bud initiation. Beware of early insect infestations, particularly fungus gnats.
Jan. 15 – 29	Jan. 15-29	Jan. 15-29	**Flower initiation** is occurring. If desired, temperature dip to 50°-57°F (10°-14°C) to increase flower count. (Plant dissection is required to be accurate) **HIGHLY RECCOMENDED** this year if crop is on schedule.
Feb. 1-21	Feb. 1-21	Jan. 30-Feb. 19	Counting leaves is **critical**. Dissect a few plants to determine if they are reproductive and their total leaf numbers. Space if necessary and adjust temperatures to desired leaf unfolding rate. Correlate leaf counts to graphical tracking information and charts.
Feb. 15	Feb. 15	Feb. 15	**Fungicide** drench; monitor temperature and leaf unfolding rate. Feed 250-0-250 PPM using calcium and potassium nitrates or a similar mix incorporating nitrates only.
Feb. 19	Feb. 19	Feb. 19	**First buds** beginning to show. Watch for aphids, high temperatures, and dry pots.
Feb. 26	Feb. 26	Feb. 26	**Visible bud date** (50% visible). To avoid lower leaf yellowing, you should be prepared to spray soon with Fascination. This is a lower foliage spray only, as spraying the top can increase the plant height considerably. Lower leaf yellowing problems are dramatically reduced by this procedure.
Mar. 5	Mar. 5	Mar. 5	Move to heat those pots without visible bud. Remember plant height doubles from visible bud to flower.
Mar. 10	Mar. 10	Mar. 10	Absolute last day for visible bud. **If not visible today, lily will not make Easter.**
Mar. 15	Mar. 15	Mar. 15	Final fungicide drench. Maintain feed up to shipping.
Apr. 9	Apr. 9	Apr. 9	Easter Sunday

Courtesy of **Hastings Bulb Growers**

MESSICK COMPANY LLC
142 N. CENTRAL AVENUE
CAMPBELL, CA 95008
(408) 871-9816
FAX (408) 871-9839

HASTINGS, INC.

Growers of Easter Lily Bulbs

September 1, 2022

Dear Grower:

In 2023 Easter is on April 9th. This year's schedule ships CTF with the possibility of 112+ days in the greenhouse and case cooled with 121+ days. Hopefully by shipping and digging later our crop will be more mature, creating uniformity and better response in the greenhouse. With the amount of days in this schedule, growers should be able to fully take advantage of a reproductive dip in temperature.

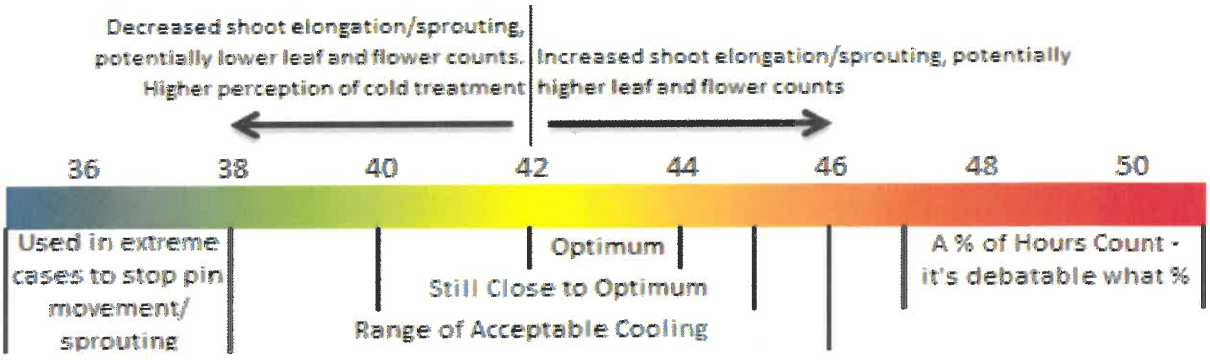
- **CTF:** Following this schedule, CTF bulbs will arrive Oct. 13th-21th and cool Nov. 6th – Dec. 18st. This gives 112 greenhouse days and a full 14 days of rooting, possibly more depending on when they arrive. If bulbs arrive sooner, you can either hold them around 60°F (16°C) case temperature, add a few days of rooting, add a few days for growing, or a combination of the previous. Be cautious of adding to 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 arriving Oct.13th-21st. 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. The start date for cooling/rooting of interrupted bulbs should be Oct. 23rd to allow for 6 weeks of cooling and 2 weeks of rooting. 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.

- **CASE COOL:** This schedule will give you 121 greenhouse days. The bulbs that we cool here at our facility will start on Oct. 28th and begin to arrive Dec.5th-9th. Once they arrive pot them and begin forcing on December 9th. 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!

MESSICK COMPANY LLC
142 N. CENTRAL AVENUE
CAMPBELL, CA 95008
(408) 871-9816
FAX (408) 871-9839

Sincerely,

Ezekiel I Harms
Hastings Bulb Growers, Inc.