

HASTINGS, INC.

Growers of Easter Lily Bulbs

STEPHEN M. HASTINGS, PRESIDENT

EZEKIEL I. HARMS, GENERAL MANAGER

*P.O. Box 2155
Brookings, Oregon 97415*

*Phone: (541) 469-3759
Fax: (541) 469-0881
E-mail: mail@hastingsbulb.com*

September 15, 2017

Dear Grower:

Most should have received a letter and schedule already, but this is a modified version for those of you that have not yet received bulbs. To start let me apologize for the late shipping. We did this to try and let bulbs size and mature to provide you the grower with a better product and less of a shortage. This cover letter and attached schedule is written on a later start date and can be used separately or in combination with the previous version you received. This schedule has CTF on a 105 day schedule and Case Cooled on a 112 day schedule. Interrupted should be able to remain on a 110-115 day schedule as most of the orders have begun cooling they just haven't shipped. Throughout this letter little things are changed that may be missed. The main points are to shorten rooting times to preserve greenhouse days, be cautious of temperature dipping at reproductive, and keep pushing on them whenever possible.

- **CTF:** Following this schedule, CTF'ers will cool Nov. 5th – Dec. 17th and have 105 greenhouse days and should get 5-7 days of rooting. If Bulbs arrive sooner, pot them as quickly as possible, root them and get them into the cooler. Every day sooner you get them cooling gives you an extra day in the greenhouse later. The goal of rooting is to give them some warm to initiate root growth that can be built on for 6 weeks during vernalization. On a year like this it is my opinion that if you see roots beginning to break and initiate your done rooting and ready to start cooling. I would rather see you short a few rooting days and have a decent amount of greenhouse days. Please note that **rooting temperatures at 66-70 degrees** are recommended this season, **because of the shorter rooting window of 5-7 days**, to promote more rapid rooting.
- **INTERRUPTED:** 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 is definitely one of those years. All orders that are known to be interrupted cooled and started here on our farm will be shipped with an **electronic temp recorder that will need to be returned to Hastings Bulb Growers** P.O. box 2155 Brookings Oregon 97415. This way we can download the information and send you an exact report of hours cooled. We will as always keep hand written notes but this has proven to be a more accurate way of measuring cooling hours. In fact so accurate we place these in our cases for case cooling for the first 4-5 weeks prior to shipping case cooled orders to get a more accurate read on the 1000 hour mark. All that aside, our conversations should allow you to determine the amount you wish to root. Making it your choice to continue cooling, pot and root, pot and cool, or a variation of these. However just make sure that no matter what you decide you are ready to begin forcing no later than December 12th. Most interrupted went into the cooler on Oct. 13th. If you add 5-7 days of rooting that means they will be finished cooling the 1st- 4th of December giving you almost 120 days in the greenhouse. **Don't get fooled by that number stay focused!**

- **CASE COOL:** This schedule will give you 112 greenhouse days. The bulbs that we cool out west here we still hope to start on Oct 24th but due to some upcoming weather there may be a percentage that are delayed until the 26th or 27th of October. That means they will not be cold until the 28th or 29th meaning delivery will be around the 10th of December. Pot them and begin forcing as early as possible. December 10th is 112 days until Easter so it's a little tight. Push them to get emergence but once emerged back off to allow roots to catch up. It's very unlikely that case cooled bulbs will be able to dip at reproductive. Make sure, if you are thinking of temperature dipping, you have done plenty of leaf counting to insure confidence that you have the time to do so.

Start precooling at 43-45 degrees and monitor your bulbs frequently for pin movement off the basal plate during the precooling stage. If rapid pin movement or sprouting occurs in the cooler, lower the temperature to 38 degrees, or (if possible) move them into the greenhouse to finish your pre-cooling there. All CTFers should be aware that Easter lily bulbs cool just as effectively in a greenhouse that is cold, as they do in a cooler. If your bulbs do sprout in the cooler, quickly move them to the cold greenhouse and they turn green and stay short. 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 degree nights, and not get warmer than 60 degrees in the day, you will be ok. Just be aware that if you do have many warm days, you may have to add the appropriate number of extra cool hours to counteract the warm days that you experienced. **Remember, you need a total of 1,000 hours of cold.**

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 ten degrees 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. At the other end, beware of high daytime temperatures in late March that can result in positive DIF and increase stem elongation towards the end of the crop. 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.

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 degrees F difference between nights and mornings, and/or night temps in excess of 70 degrees, 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 much carbohydrate at night that under low light, cool temperatures, and short days, the plant simply begins to starve; there just are not enough groceries to feed all the kids! 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.

We 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.
------	--

If you're not already using Fascination you really need to do so. 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 25-50 ppm (1/4-1/3 oz/g water), once after visible bud will hold through the season. Some growers concerned about stretch spray 5-10 ppm at, or just before visible bud and then spray again with 15-25 ppm prior to or during packing.

The lilies in the field look **great** and we are looking forward to a real good season. We wish you all the best of luck and as always feel free to call.

Sincerely,

Ezekiel I Harms
Hastings Bulb Growers, Inc.