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# BREEDING BUSINESS

NEWSLETTER NOVEMBER 2018



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# Phalaenopsis

## A different view on light

On sunny days in early November the percentage of natural light can still be reasonable, but it lessens every day. Many of us have an obvious tendency to create the greatest possible amount of light (moles) per day by switching on the assimilation lighting in the middle of the night. However, a study conducted by Plant Lighting, GrowWatch measurements and logical thinking shows that this makes no sense.

### Switch on or off?

What has become clear is that Phalaenopsis does not make optimal use of light during the first hour in which it is exposed to it. This means that setting the lighting to half its capacity is sufficient. Good use is, however, made of light during the next 9-10 hours. Apparently, the light efficiency to produce assimilates decreases rapidly in the following hours. Therefore, if you switch on the lights at 1 AM in the morning, the plants' capacity to absorb this light will quickly decrease after 12 noon, which is precisely when you have the most natural light. So, at the very moment that you get more natural light - for free - the plant will not be able to make optimum use of it. It is therefore smarter to switch the lights on later (cuts costs). The plant will produce more assimilates, leading to better growth. Day lengths of more than 16 hours are probably not useful. It is better to start at 5 AM

and let more natural light in during the daytime. After 4 PM, the light will start to dim and some of the lamps can be switched off if there is sufficient capacity. Lamps can then be switched off at 6 PM. This is, therefore, after a 15-hour day.

“Better start at  
5 AM and allow  
more natural light”

If the lighting capacity is lower and the sky is overcast, we recommend sticking to a 16-hour day. It is a fact that the days become increasingly shorter until Christmas - and a problem. The days will become longer from the first week in January onwards. Depending on the weather (easterly wind, clear skies, frost) the intensity of daytime light can in-

crease. This means getting lighting peaks that are too high during the cooling phase, resulting in damage caused by light primarily between 12 noon and 2 PM. Therefore, be well aware of changes in the weather.

### Well prepared for winter time

Additionally, winter can come earlier this year, but the problem described above will not appear before the shortest day of the year. Nitrogen levels can be reduced slightly at this point to make the plants more hardy. This can be done by replacing a few kilos of compound fertilizer with calcium nitrate, or reducing the urea percentage by 30 to 50%. The EC can also be reduced by 10 to 20%, if necessary. This is a particularly good idea in the period from 1 December to mid-January. Users of compound fertilizers can also switch from 20-20-20 to 7-11-27, for example. If, for example, Tank B is filled



On the northern hemisphere we are currently in the transition from autumn to winter. This means that the percentage of artificial light is starting to exceed that of natural light.

with 60kg 20-20-20, you can replace 15 or 30 kg with 7-11-27. Depending on the weather conditions outside, you can return to the normal formula in mid-January or towards the end of the month. The amount of daylight will start to increase then. Water the plants with clean water once after every 4-5 irrigation rounds in which you have added artificial fertilizer, depending on how dry the soil is. This will 'freshen up' the roots. This dryness is determined primarily by the amount of rain and the intensity of the easterly wind.

### Increase pipe heating

Plant temperature is crucial for healthy growth. The temperature of the leaves and plant says more than the ambient temperature. Drops in

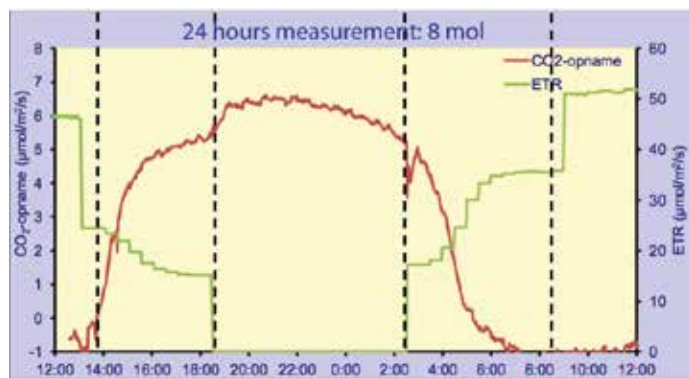
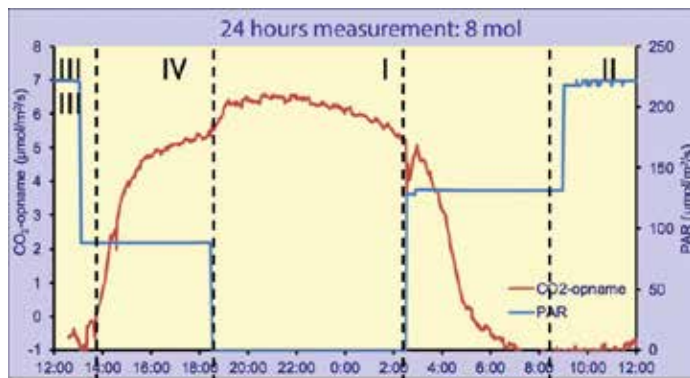
temperature are particularly unfavourable. This can occur when the assimilation lamps are switched off, i.e. at the end of the afternoon. The solution to this is to increase the temperature in the pipe heating system and gradually close the screens before switching off the lamps. Hail or snow can also cause leaf temperatures to plummet. This is more difficult to remedy. On days with regular snowfall, it may be better to close the screens more and switch on the lighting to better absorb severe temperature fluctuations.

### Research into Lyprauta

Lyprauta continues to be highly problematic. At present, numerous discussions are held on various fronts, and a great deal of research is be-

ing conducted into the best way or better ways to keep this pest under control, taking the legal and workable preconditions into consideration. Starting dry in the first two months, in combination with setting out predatory mites (250-300 /m<sup>2</sup>), appears to be the most effective solution at present, despite the fact that this has a negative impact on the speed of growth. This is, however, more difficult to achieve on wet/compact substrates.

“Starting dry appears to be the most effective solution”



I: Night-time intake of CO<sub>2</sub>, stomata open  
 II: Transition to daytime, stomata open  
 III: Malate breakdown, stomata shut  
 IV: Transition to night-time, stomata open

In CAM Phase III there is a greater need for light (approx. 5 moles)  
 In CAM Phase II and IV the light can be dimmed

What is the impact of the past long hot summer on the production of Cymbidium. A review of various assortments.



# Cymbidium

## from early to late assortment

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The extremely light and warm summer in Europe has had a big impact on production during the 2018-2019 season. Normally speaking, a summer with plenty of light leads to higher production, but it also leads to production postponement, particularly before 1 November and Christmas.

### Early varieties

Growers who produce ultra-early varieties (i.e. August-September) generally have methods (misting systems) to control temperatures and humidity. This production round has been completed in the meantime, and the plants will need to be moved to a cool environment for next year's induction. The varieties that have flowered in October will also need cooling. However, it is not clear right now if part of the production has been delayed at several nurseries and will therefore be ready in November. These growers will want to keep the spikes that are to be harvested in good condition, and will need to maintain higher temperatures to do so. As a result, they will not be able to initiate the dormant (cooling) phase until later. This phase should last approximately 100 days. The 24-hour average temperature should lie between 12.5 and 13°C: 13-14°C during the daytime and 11-12°C at night. This can be several degrees lower for a short period (e.g. 2 weeks) in extremely cold weather. A 24-hour average temperature of 7°C is possible, but there are varieties for which this is too low. Sensitive varieties will do better with a 24-hour minimum temperature of 10°C. If too little cooling is accumulated, this will result in lower and later production, with plants flowering over a longer period. A too short cooling period has an adverse effect on production and spike length.

Plants have to be spaced wider apart and cleaned at the start of the dormant period. This must be done at least one month before the temperature is increased. Ensure a sufficiently active climate, no matter how low the temperature is. The plants must be able to evaporate and absorb water. You can tell if your plants are active by the amount of water they take up. If the winter is mild, with outdoor temperatures of 12°C and higher, make sure that the plants are activated a little by ventilating sufficiently and maintaining a minimum pipe temperature until 1 or 2 AM in the morning.

**“Too little cooling will lead to lower yields and later harvest”**

Water the plants with clean water up to a maximum of 0.25 EC in the cold period. If you add artificial fertilizer, continue to inspect the drain on EC, pH and the amount of liquid being drained off! The 24-hour average temperature should be raised to 20°C at the end of January, at the earliest. You can also postpone this by one or two weeks to cut heating costs or to accommodate your heating schedule or the desired flowering period, etc. If you decide to start this later on, it is crucial to ensure that the desired overall temperature is

achieved. If these low temperatures cause a delay in growth, this can be remedied by applying a daytime average that is slightly higher than 20°C (e.g. 20.5-21°C). Spread this over a longer period of time, preferably three months. Try not to maintain higher temperatures in a shorter time. This can lead to a loss of nodes that should have developed into spikes. These spike buds will wither, spurring the plant to develop new shoots. Starting early, in January, can be detrimental to some varieties because the energy consumption of the plant (sugars) is higher than the synthesis on darker (and shorter) days with a higher 24-hour average daytime temperature. This can cause the buds to wither. As a result, shoots will appear rather than spikes later on in the season. In mid-February there is sufficient light and this problem will disappear.

“Avoid pushing for higher temperatures in a short time span”

To achieve a good plant temperature it is important to use anti-condensate (AC) film from January until mid-March, unless you have double glazing. This also saves a lot of energy. It is important that the windows are opened in a carefully controlled manner on sunny days and temperatures may rise too high, as may happen in March. Close the windows in due time in the afternoon to ‘trap’ the thermal energy and, in doing so, save energy.

#### Christmas varieties

Keep an eye on the uptake of water. There are cultivars that flower around Christmas and absorb a lot of water during their spike elongation stage at the end of October-November. If you are a ‘dry’ grower and the weather is sunny, you will need to add another drip irrigation round to prevent bud blast. However, if the weather remains mild and humid, and you are a ‘wet’ grower, it is better to skip a watering round to preserve the roots of some varieties. Measure the amount of ir-

rigation and drain water each week, and check the drain EC for individual varieties. This will prevent many problems, because you will see how much water is being absorbed by which variety in due time. Additionally, an increase in the EC drain will tell you that your plants are absorbing fewer nutrients, or none at all. If this is the case, reduce the EC! This is better for the roots. Make sure that your water temperature does not fall beneath 12°C.



certainly with a flowering period of up to and including Women’s Day (first week of March).

“Easter is late in 2019. Decide now on acceleration or delaying flowering”

Read the article on the early varieties for the 2019-2020 flowering season. Make sure that the section intended for Valentine’s Day is in position. By increasing the spacing between the plants, they will be acclimatised before daytime temperatures increase at the relative humidity (RH) becomes too low. If this happens, the flower spike buds may be at risk of withering. Water uptake will be 50% less than normal during the first 14 days after moving the Cymbidium plants. As from early April, a 24-hour average temperature of 20°C can be set. Generally speaking, this will happen naturally, but if the weather is cold and inclement for a longer period it is a good idea to compensate this with climate control.

#### Mid-range varieties

We anticipate that the mid-range varieties will flower well. The mid-range must accumulate its cold for flowering in spring of 2020 during the spike elongation phase from now on. Normally speaking, this is sufficient,

Because Easter is late in 2019 (on 21 April), you will have to make the following decisions now: Accelerate flowering in time for Women’s Day; or Delay flowering until Easter (but this is also close to Mother’s Day, which is on 12 May on the European continent). If you want your plants to flower in time for Women’s Day, you will need to give them more warmth and keep them warmer throughout the winter than if you wish to delay flowering until Easter. Don’t hesitate to get in touch with us if you would like to share your thoughts on this.

#### Late varieties

The late varieties are currently being exposed to 24-hour average temperatures of 20°C-21°C. This must be maintained until Christmas for varieties that will be flowering in June-July. Nurseries that can achieve a good climate for flowering in June should also be able to achieve good-quality spikes with summer temperatures. This can be done in taller greenhouses.



“Research continues to be a crucial part of our work. It will contribute to the success of our customers.”

es with misting systems and/or exterior screens. Without these, the risks will be too great.

“Reduction in temperature should be done in small steps.”

A warm spring will lead to accelerated flowering, smaller flowers and paler colours. The transition to a colder temperature must be achieved step-by-step over a period of 10 to 14 days. Cold can be very cold then (8-10°C), but this also depends on the outdoor weather conditions and the humidity. If it is freezing, 10°C is fine. Evaporation is more than sufficient under those circumstances. If it is too warm for the time of year, you will need to switch off the pipe heating system to the minimum temperature each day for 60 to 90 minutes, in addition to ventilating profusely, to activate the plants. In the late section, the crop can still take up lots of nutrients until at least mid-January. It may happen that when you ap-

ply an EC of 0.7 you will discover a return of 0.4 EC in the drain. If the drain EC increases, cut the EC by half immediately! Keep checking the EC and drain pH for each variety every week, making sure that the plants evaporate an average of approximately 2-3 litres/m<sup>2</sup>/week. This is almost as much as a whole day in summer, on average!

#### **Pest control**

Continue to scout for spider mites. The late section is heated for longer, and the climate can become quite dry, particularly if there is an easterly or north-easterly wind. Ideal for spider mites! If you scout regularly you will be able to intervene in time. After all, if the damage is visible when tying up, it is very difficult to fight these pests. Spider mites can be kept in check quite efficiently in Cymbidium with biological pest control.

#### **Humidity**

Too low in spring & summer, too high in autumn & winter. These are the big differences in humidity during the season. An active relative humidity regime

must be maintained from the late July to mid-August. Be sure to ventilate and heat in time. Keep the ventilation lines on or beneath the heating lines. When the weather outside becomes really cold, greenhouses are heated more and climate problems will disappear. The relative humidity in the greenhouse can drop too quickly in freezing weather and/or when there is a north-easterly wind during the month of January until the beginning of February. This is when you will need to start “saving moisture” by ventilating more infrequently and closing your screens more often to retain as much moisture as you can in the greenhouse.



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