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NEWSLETTER APRIL 2019



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Mid-flowering and late-flowering products enjoyed good levels of production and quality.



Cymbidium

Crop info

It was another mild winter in the northern hemisphere. The autumn up to November was characterised by more hours of sun than average, while December and January had fewer hours than normal. The extra light in the autumn was excellent for stimulating shoot growth and producing growth points, in contrast to the autumn of the previous year, where the lack of sun was clear to see later on during cultivation and production.

Mid-flowering and late-flowering products enjoyed good levels of production and quality, which is partly due to plenty of hours of sun in the summer and autumn. However, it was difficult to create enough cooling for the budding of very early-flowering and early-flowering products. The consequences of this will become clear next autumn.

This will require a lot of attention in the coming weeks. On the northern hemisphere we often get sunny weather with a dry eastern wind during the months of April and May. The relative humidity (RH) may become too low both outside and inside the greenhouse. One solution is an fog installation which allows plants to continue to grow and stops buds drying out. When shoots appear where there should have been branches in the course of the summer, the plant has started to loose buds. This is the result of a very low relative air humidity or insufficient watering. Excessive plant temperature also stimulates shoot growth.

Water quality

Last year, growers were clearly confronted with the fact that a good water supply is essential to keep plants healthy. Some were able to survive the long, dry summer without problems thanks to sufficient basin capacity or an osmosis installation. Others had to make too many compromis-

es by using tap water (except those with access to high-quality water). This has excessive levels of salt and bicarbonate, which raise the pH too much. Underground water storage is a good solution in these circumstances, but if too much water is extracted from the subsurface in the long-term, its quality will also decrease. The quality of that water should therefore be checked regularly.

“A good water supply is essential”

If you have insufficient capacity, don't wait until the basin is completely empty before you start using tap water, but start replenishing the basin earlier. Then have analyses carried out regularly, so that fertilisation can be adjusted and the pH controlled better. Make sure that the water basin stays on a rather full level. This slows the rise in water temperature. If the temperature of the drip water rises above 20°C, oxygen levels decrease, resulting in a lack of oxygen as from 24/25°C. This causes roots starvation of oxygen, and fusarium starts to develop, resulting in the crops becoming unfit for use.

Farms and nurseries that recycle must monitor salt levels. In our opin-

ion, these should remain below 0.5 mmol/l. Any increase beyond this level must be limited as much as possible, and values of around 1 or more prevented. If this fails, talk to the consultant about adjusting nutrition. Higher EC levels (mainly the result of a lack of good-quality water with low EC) in combination with a hot summer like last year, delays blooming. Then flowering planned for October only occurs in November, and Christmas flowering only occurs in January. This is obviously not the goal.

Ultra early

For early-flowering products that bloom in August to September, it is essential that the 24-hour average temperature does not exceed 21°C. The best approach is to maintain the temperature between 19.5 and 20.5°C. Temperatures above 21°C prevent branch elongation especially when the flower branch bud is smaller than 2 to 3 cm. It also affects the plant quality. Whitewash has to be applied at the end of May, especially if good weather is forecast. An outside screen, fog installation or both offer extra guarantees that the greenhouse climate (temperature and RH) will stay within limits.

An efficient mist installation can lower daily temperatures well until around mid-July. In general, night temperatures are low enough until early July, after which they usually rise.

The mist installation can only lower the temperature in the daytime. Avoid excessive fluctuations between daytime and night temperatures, as such fluctuation can result in red flowers and black anther caps up to 2 months before flowering. Pollen is formed about 9 weeks before flowering. If the plant temperature exceeds 25°C and the RH falls below 65% at this time, problems can arise with the development of this pollen. This manifests itself as red lips and black anther caps during flowering.

Very early

Plants that bloom in October (before 1 November) require more or less the same treatment as ultra-early crops. It's important that temperatures are kept within 24-hour average of 20°C. Heating is required if there is a period of cold, dark rainy weather in June, July or August. Keeping the heating off doesn't save money, it actually wastes it. Flowering is delayed, so flowers only appear after November 1st. Prices are normally lower in November than in October, and this difference is more than the amount saved by reducing gas heating. Whitewash will have to be applied to this section around midsummer's day, depending on the weather conditions at the time.

Early to Christmas

December flowering is largely dependent on the temperatures achieved

after July. An unusually cold month of August requires extra heating to stay on schedule. Keep a close eye on 24-hour and weekly averages, so that flowering is not delayed.

“Temperatures are kept within 24-hour average of 20°C”

Extreme heat in the months of June and July may delay flowering. As a precaution, you might want to increase breeding temperatures as from August. This will prevent flowering after Christmas.

Mid-flowering products (Valentine's Day - International Women's Day)

Provide light, and avoid applying whitewash too early. If it is too dark and too cold in August to September, keep the crop active by heating it. It might sound strange to have to do this during this period, but it's very important. Heating improves both quality and the reliability of the production schedule.

Late-flowering plants

If the whitewash has worn off too much, it may be necessary to whitewash the greenhouse again for the crops that flower in May and June. A fog installation ensures that the temperature remains low enough during the day, resulting in a plant with much better quality. Measuring the drainage and/or weight of the plant makes it easier to check whether the evaporation is greater than the watering.

With very late flowering, only remove the whitewash from the greenhouse at the beginning of July if the weather is not too sunny. It may be better to wait a while, so that the difference is not so extreme. Try to remove it before mid-July. Apply the same strategy here in August to September as for mid-flowering products. Turn on the heating if it's the only way to achieve the desired temperatures! IR (infrared) leaf temperature meters





and PAR meters in the greenhouse show the effect of whitewashing and screens on the indoor climate.

Snails

Small grove snails eat roots. Larger slugs cause problems later in the season. Small grove snails appear in March as temperatures in greenhouses rise. We've noticed this, because it's the time when we prune shoots, literally with our faces in the plant in the area where the roots come out of the plant and enter the pot. If it's hot and humid for a while, snails multiply. The best way to control them is to act preventively, meaning clean paths and removing weeds where snails can hide. Sprinkle slug pellets in April to May, and again in

August to September. If snails are a persistent problem, sprinkle pellets every 3 weeks according to the dosage instructions.

“Clean paths and removing weeds where snails can hide”

Spider mites

Spider mites can appear quite suddenly in spring when it's hot and dry. Especially when mites have been present in the crop in the previous

year. Check the crop regularly. Biological control works well in the following two conditions:

1. Humid climate in which predatory mites thrive better and the spider mite somewhat less. We've noticed that this works better in greenhouses with mist installations.
2. Detailed and regular checks so that prompt action can be taken by releasing predatory mites or use chemical measures locally.



Phalaenopsis

Too little light is better than too much

In the spring, the hours of daylight and sunlight increase, as do the number of days with low humidity. The greatest dangers arise when a period of dark, rainy weather is followed by a sunny one. Such changes in the weather pose the biggest risks for cultivation, as crops are often unable to deal with these much brighter and drier conditions.

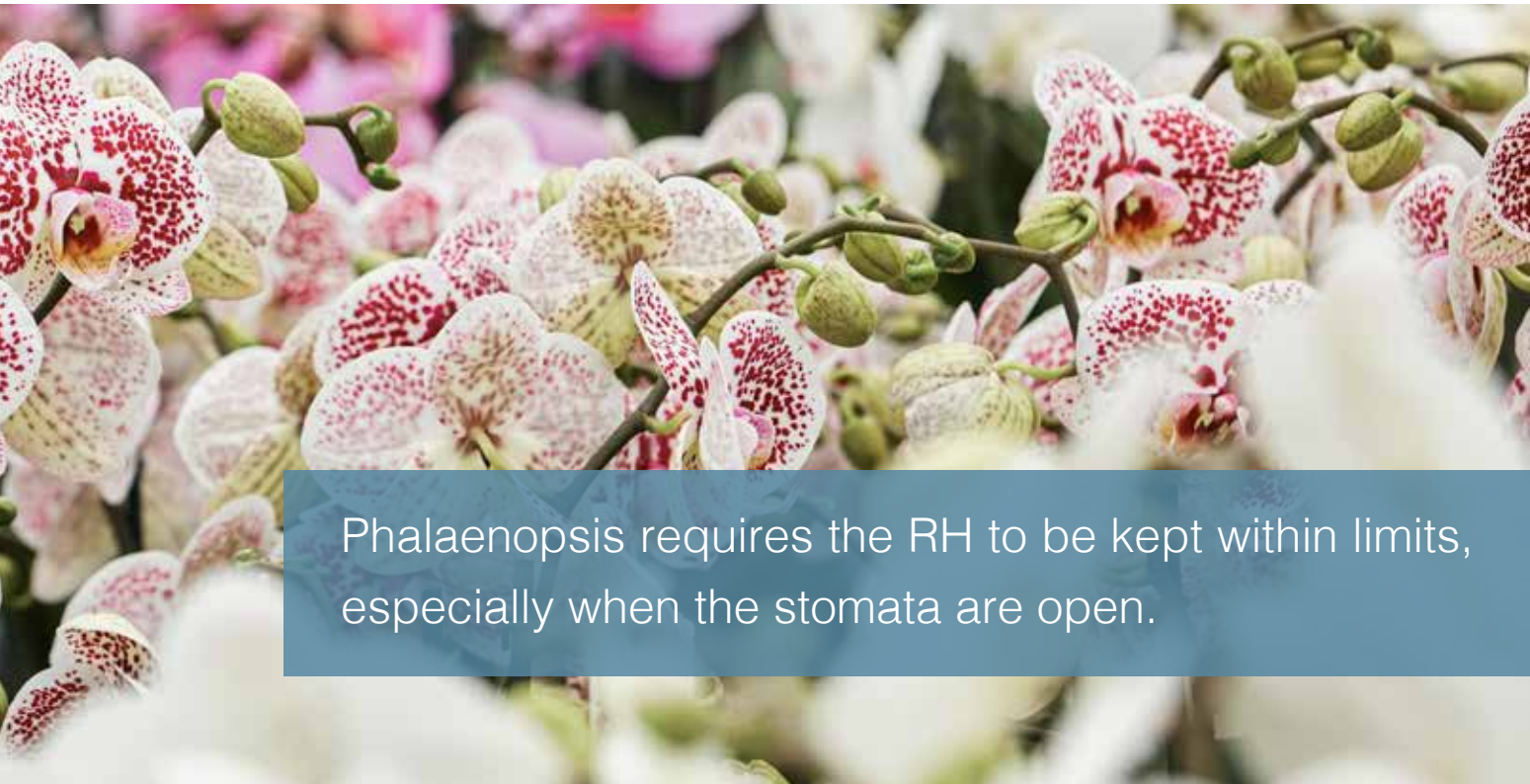
Leaves can become discoloured (often reddish) and dull, form edges, and even sunken spots can become burnt. Differences in the daily light integral (DLI) of 2 moles per day are too big. If the weather does turn very sunny after a darker period, make sure the greenhouse is kept slightly darker after noon. In this respect, too little light is better than too much.

Some cultivars should not be moved to a darker environment before noon, especially after such a change. We've observed this in young plants, but it also applies to flowering plants. We call it transportation damage. Be aware that the exact opposite, namely a number of dark days after a sunny period, can also occur. Problems can arise due to insufficient decomposition of the malate produced during the sunny period. This will affect

the leaves. You can prevent this by installing screens in good time, and using enough whitewash. This reduces the leaf temperature, and improves the VPD; leaves lose less moisture. Since a couple of years ago, we've noticed that whitewash is being used earlier during breeding (week 6 to 10).

Phalaenopsis requires the RH to be kept within limits, especially when the stomata are open. Higher RH encourages the stomata to open further than normal. In normal circumstances they are narrow and if the RH is too low they close completely. Stomata open after approximately 9 hours of natural light or lamps. When the stomata are closed, the RH is less critical, but obviously it must be kept above 50 to 60%. Normally not all stomata will close, so when the RH

is extremely low, leaves can still lose moisture. We've observed buds drying out on plants with young branches. If the mist installation is not on at such times, the RH becomes too low. This is especially true in northwest Europe from late March to late June, and in sunnier regions this can happen 1 or 2 months earlier. If a pad and fan system is used, always wet the pad. Sometimes, people think that the outside air is still cold, and the pad doesn't have to be wetted. However, cold, dry spring air contains very little moisture, so the RH is low. If this air is introduced into the greenhouse and heats up, the RH in the greenhouse becomes much too low. It's like putting the crop under a hairdryer; moisture is extracted from the plant. In the spring, prevent the RH in the greenhouse from falling below 60%. The crop is used



Phalaenopsis requires the RH to be kept within limits, especially when the stomata are open.

to winter conditions with less light and more humidity, and is therefore more sensitive to large fluctuations.

Insects

further escalating. One problem we have to deal with is Trips setosus, which leave V-like crooked marks on leaves. However, there are also various other types of trips, and if these are not identified in time, they can cause more damage than necessary. The answer is to scout and intervene rigorously, and not let things get out of hand.

Potworm is another problem. Lots of work is going into finding good, practical solutions, but as always this takes time. For the time being, moderate watering at the outset of cultivation (better too dry than too wet) in combination with a clean surface has been shown to help a lot. Information has already been shared via the Orchid crop cooperative with suggestions and advice in this regard. Make sure there is enough good-

quality water in stock for irrigation and misting. In the past year, various growers did have to compromise. Tap water was used for misting, which causes limescale deposits on the crop, and higher concentrations of salt in the drain water. Prevent water shortages in good time by keeping the basin topped up with tap water, which may be of lower quality. That ensures that the quality of basin water only deteriorates gradually, and even when it contains 50% tap water it is much better than using 100% tap water which would be necessary if the basin became empty. The gradual dilution with tap water gives the plants time to adapt. Another advantage of keeping the basin topped up is that its contents do not heat up so quickly.

Decontamination of irrigation and drain water is becoming increasingly important. Check decontamination equipment regularly. Consult with your installer about how often you should do this, and what you do yourself to make sure this equipment is reliable and lasts a long time. Also, regularly check Cl values to make sure they are within your limits. It is recommended to regularly check the germ counts (cfu) throughout the irrigation system, and in the water from the nozzles. And make sure you don't forget the fertiliser trays!

“As the temperatures outside rises, so does the number of insects”



Adrie Smits

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Phalaenopsis, Cymbidium
Miltonia, Odontoglossum