Newsletter
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Floricultura®
The orchid professionals since 1933

Advancing flowering

If you want to advance the flowering of your April (mid-range) varieties to mid-March 2016, proceed as follows:

- Make sure your crop experiences sufficient "cold" conditions in the period until the end of June.
- Start raising the temperature (24-hour average temperature of 20°C) in early July.
- Ensure a 24-hour average temperature of at most 15°C from November onwards to advance the flowering.

Delaying flowering

If you want to delay the flowering of your April (mid-range) varieties to the end of April 2016, take the following measures:

- Make sure your crop experiences sufficient "cold" conditions in the period until the end of July.
- Start raising the temperature to a 24-hour average temperature of 20°C in late July.
- Ensure a 24-hour average temperature of at least 11°C from November onwards to delay the flowering.

Late range

You'll have to whitewash your greenhouse once again for the late range, especially if it's very sunny.
Misting may ensure a sufficiently low temperature in the daytime through the subsequent evaporation. This will improve the quality of your crop.
Regularly check the evaporation by measuring the amount of drainage and/or the plants' weight.
If you're growing very late varieties it's best to postpone removing your whitewash until late June/early July. Wait a little longer if the weather should be particularly sunny around that time, to avoid too sharp a transition, but do try to get it removed by mid-July at the latest. Again make sure you realise the right temperatures in August/September, if necessary by switching on your heating!

Slugs and snails

Slugs and snails cause more damage in Cymbidium than is often realised. Small snails feed off roots while larger slugs may cause damage later in the season. The problem begins in March, when slugs and snails will readily reproduce after a period of hot, humid weather. The best form of control is preventive control. Make sure your paths are clean and that there's no risk of weeds establishing. Scatter pellets in April-May and once again in August-September. In the event of severe infestation, scatter the recommended dose of pellets every 3 weeks.

Red spider mites

Red spider mites often cause recurrent problems, in particular during hot dry weather in spring, when the pests may appear in large populations quite suddenly. Regular scouting is essential. Good experiences have been gained with biological control, providing two conditions are met. First of all you must create a fairly humid climate in which predatory mites will feel happier than the red spider mites. The second requirement is thorough, regular scouting so that you will be able to take the necessary measures in time: introducing more predatory mites and/or localised chemical control.

Flower Trials®

9 - 12 juni 2015

Floricultura doet weer mee!

Wij presenteren een zo compleet mogelijk beeld van het bestaande en toekomstige sortiment van o.a Phalaenopsis, Miltonia, Dendrobium Nobile, Cymbidium en Cambria. Ons team van teeltbegeleiders staat voor u klaar.

Op woensdagmiddag 10 juni vindt er een prikkelende seminar plaats en wordt de *Klaas Schoone Memorial Award* uitgereikt. Mis het niet.

Een bezoek is een mooie gelegenheid om weer eens bij te praten en al het moois dat er geboden wordt te bekijken onder het genot van een hapje en drankje.

U bent van harte welkom bij Floricultura aan de Strengweg in Heemskerk.

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ORCHIDACEAE

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TOO MUCH in the case of Phalaenopsis

A few years ago, before the credit crisis erupted, we published an article on the phenomenon of "investing too much". Different readers responded in different ways. Some fully agreed with us, whereas others totally disagreed. That's the way things go, but it did give many of us some food for thought. The past few years we have observed various potential consequences of TOO MUCH, for example in:

- lighting
- temperature
- fertilisation

Lighting

There would appear to be a contest going on as to who can add the most light to Phalaenopsis - 8 mol, 9 mol or even more per day. As if that's the only way of ensuring good results. During last year's Flower Trials we presented the results of independent research in which Phalaenopsis had been propagated with 6 mol light per day. Those results showed that the Phalaenopsis had in no way whatsoever benefited from the higher light values, in this case 6 mol, during the cooling and final propagation phases! Lower light values, however, were found to lead to a decrease in photosynthesis. Much more effective, according to the published independent research, is to plant fewer plants per m^2. That way each individual plant will be able to make the most of the available light, which is far more efficient.

Oddly enough, hardly any growers seem to have taken this to heart, and continue their efforts to ensure as many mols of light per day as possible, going to extremes such as 20 hours of lighting per day, whereas Phalaenopsis needs nights of at least 8 hours to recover from the day. However, some growers have noted that their plants look better after a slightly longer night. Observant growers know that the best periods for the most beautiful growth in the conditions prevailing in the Netherlands are April-May and August-September. We then have day lengths of between 12 and 14 hours. Plants seem to grow less well in mid-summer, when the days are longer.

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They then even have more difficulty initiating spikes, in spite of adequate cooling. It's often forgotten that we can achieve high light values for a large part of the year, but that that's virtually impossible in winter. You'd then have to increase your lighting capacity to an economically unviable level. Day length of more than 14 hours will inhibit growth because of the use of the high level of red light that that involves.

We must bear in mind that only 3% of the total amount of natural light on an annual basis is available in the Netherlands in the three darkest winter months (= 25% of the year). If the difference compared with the rest of the season is too great in this period, plants will react. Clean glass, clean screens, clean lampshades and lamps that are replaced at the right time will together ensure maximum light in dark times. It's surprising how much more light can be realised with those simple measures. Less (intense) lighting may result in a substantial saving in costs.

An exceptional case that does demand more light is that of Phalaenopsis grown in vases. The leaves are then in a different position, and the leaves and vases will make for more shadow. This form of cultivation calls for 25-30% more light than traditional cultivation (without a vase or collar).
Bear in mind that you must allow for 70% interception of the light even in the case of plant types with (extremely) erect leaves. So a light dose of 6 mol per day would be perceived by the plant as only 4.2 mol!

Temperature

The temperatures that are currently most commonly used in propagating Phalaenopsis are higher than those in nature. We often see temperatures of 29-30°C being used, the idea being 'the hotter the better'. But is that correct?
In 1993-1994 a temperature of 25°C was recommended. And the plants indeed grew well. In trials they were found to do even better at 27°C, and so the temperature was steadily increased. We believe that a temperature of 27.5-28°C is most beneficial, and advise you to increase it by 0.5°C from week 34 until around the end of week 10, but do make sure you increase it very uniformly to prevent premature spiking. This will enable substantial savings in energy and help you lower your costs. As we started to use higher temperatures and light values we also had to invest in air humidifiers and control systems to ensure optimum growth of our plants.

Fertilisation

As far as fertilisation is concerned we'd like to refer you to the following article, "Wrong fertilisation can cause a lot of irritation". We can already tell you that many growers are using a too high EC and nitrogen values, and are being confronted with the adverse effects that this entails.

Phal. '243851'®

The new plug system

Important tips for adjustments in your cultivation programme

The chances of an adjustment in your cultivation programme having the desired effect will be highest if the rest of your programme can initially remain unchanged. If you make only one change at a time you'll be able to evaluate its result.
If you are going to propagate plug plants among plants from transplant trays you must try to do what will be best for the largest group of plants with as few adjustments as possible. You'll always have to compromise and make concessions to both groups, whether you want to or not. You may, for example, have to water one group a bit too early, or the other group's substrate may remain wet for a little longer.

We have observed that growers who favour fairly dry cultivation conditions have less difficulty growing the two groups together than growers who water their crops more. The plug substrate keeps roots moister and retains the tension in the leaves for longer. Phalaenopsis is known to absorb most water during irrigation, but the plants can also absorb adhering water and moisture evaporating from the pot via root hairs.

The higher the EC of nutrient water, the more difficult it may be for plants to absorb sufficient nutrient elements and water. Those nutrient elements and the water must also be able to make their way to the parts of the plant where they are needed. At an EC of 1.4 a plant will be less inclined to form new roots than at an EC of 0.9 because it will have no difficulty absorbing all the nutrients it needs via its existing root system. Why should you waste effort trying to run faster if you know you're going to reach the finish line anyhow?
A high EC may lead to salination and a substrate that takes longer to dry, increasing the risks of plants being killed by Fusarium and problems caused by pot worm. The main cause of Fusarium is a substrate that is too high in salts and/or too wet. So our advice is to start with an EC between 0.8 and at most 1.0, depending on the conditions, when you pot your plants, and then increase it during the season. Using clean water occasionally to irrigate your plants will reduce the risk of salination of the substrate and roots. We advise you to irrigate your plants with clean water at least once a month. That will enable plug plants to become firmly established sooner, and they will form their roots more centrally in the pot.

We have noted that growers using plugs often tend to inadvertently apply drier conditions because they water their crops in a different way, using fewer litres of water, in the first six to eight weeks after they have potted their plants.
By watering the layer containing the roots in the pot you will in principle be meeting the plants' needs more closely, encouraging the root tips to grow out of the plug and find their way in the pot. This can be compared with moist bark that is still to be found around the roots in the pot before the plant is watered often coinciding with the formation of condensation on the pot's wall. Depending on the colour of the roots, it will often be better to postpone watering your plants for at least a day. That will also reduce the risk of pot worms. In the summer months there may be a risk of the underbench heating system being switched off earlier, under the influence of the greater amount of daylight, causing the substrate to dry more slowly. The plants themselves will not transpire during the day.

After about eight weeks the moisture regime of plug plants usually more closely approaches that of plants from transplant trays. After this period we see clearly visible roots along the sides of the pot and also at the bottom of the pot. From then onwards it's easier to increase the number of litres/m^2 to between 4 and 6 and to increase the irrigation frequency. This will really boost your plants' growth after their fairly slow start in the first weeks after you potted them. And the result will be better composed, more compact plants entering the cooling phase with more leaves.

Phal. '311698'®

As the light intensity increases, the temperature in the greenhouse will usually rise, leading to greater transpiration, a higher RH and a lower VP. Because of its CAM effect, a Phalaenopsis exchanges more moisture and CO^2 via its stomata during the night than during the day. So the greater part of the moisture that is released into the atmosphere during the day comes from the pots. Past research has shown that, on average, around two thirds of the amount of moisture released from a pot is attributable to evaporation, and not to absorption and transpiration of the plant. That evaporation can be promoted via the temperature of the underbench heating system, for example by starting with a minimum tube temperature of 45°C on hot days.

Another tip for growers who have started to use the new cultivation system is to promote natural ventilation at the beginning of the day via the underbench heating system and the ventilation system. Slight ventilation will also enable the discharge of moisture, allowing the substrate to dry faster. When the level of insolation causes the temperature of the underbench heating system to drop, the greenhouse will be able to take over the evaporation. The roots of plug plants dry out less readily.

We advise you to base your RH on what we've just explained. When the light intensifies, and the need for humid air increases, it's important to start controlling conditions on the basis of VPD. We've already written about VPD in earlier editions of our newsletter. VPD, short for Vapour Pressure Deficit, is the difference between the vapour pressure in the plant and that of the greenhouse atmosphere. An increase in the amount of light will lead to an increase in the ambient humidity. Grow Watch measurements have shown that the light load and the amount of damage caused by light, increase at VPD values above 1.5. It's a good idea to ensure a higher ambient humidity when the light intensifies, to encourage the stomata to open in order to absorb CO^2 and transpire moisture. At low VPD values a crop will become inactive, and the condition of the roots may deteriorate. So then you must lower the RH.

Phal. '353526'®

Wrong fertilisation can cause a lot of irritation

Fertilising plants is an acquired skill calling for specific expertise. Over the years, an awful lot of attention has been paid to this matter in the cultivation of orchids. But there are also many misconceptions on this subject. For example, in the past (around 25-35 years ago), it was believed that the flowering of Cymbidium and Phalaenopsis was largely dependent on the use of specific fertiliser compositions. Thorough research has meanwhile shown that temperature treatments according to a specific programme are far more important with respect to planning the flowering time and the number of flowers. Something that is not yet common knowledge is how much effect a change in day length may have on the growing and flowering process. The past few years we have seen interesting results in this context in trials using Miltoniopsis, Odontoglossum and Dendrobium nobile, which showed that there's still plenty of room for improvement in controlling the plants' growth and flowering. Nutrients are indeed very important for growth, production (= flowering), quality and health, but have a much smaller influence in controlling flowering. For example, whereas it used to be believed that extra doses of potassium (7-11-27) or phosphate (10-52-10) would promote flowering, experiences and trials have shown that the effects of those extra doses are actually less spectacular than initially assumed. A fertiliser that may have particularly adverse effects is urea. This nitrogen-based fertiliser is to be found in many mixed fertilisers. Urea is a cheap nitrogen fertiliser that is commonly used in tropical regions, primarily because it works very well and very quickly at 24-hour average temperatures above 20°C. But it doesn't have the same effect at lower temperatures. It's also very effective in a watery environment, as you may very well know: scatter some cow manure granules across your lawn on a rainy summer evening and your grass will soon turn beautifully green and need regular mowing. In practice we see a lot of use being made of extra nitrogen in the form of 28-14-14 or even 30-10-10 in the case of freshly repotted Phalaenopis. The following diagram shows you what 1 g/l of 28-14-14 and 20-20-20 actually contain in terms of mmol/l:

Plant product 28-14-14		Plant product 20-20-20
EC	0.8	1.0
NH4+	2.0 mmol/l	2.8 mmol/l
K+	3.0 mmol/l	4.2 mmol/l
NH2 (Urea)	15.1 mmol/l	7.3 mmol/l
NO3-	2.9 mmol/l	4.2 mmol/l
H2PO4-	2.0 mmol/l	2.8 mmol/l

If you were to prepare 1 m^3 (= 1,000 litres), 100 x concentrated, of these mixtures using straight fertilisers you'd need the following numbers of kilos:

Plant product 28-14-14		Plant product 20-20-20
Urea	45 kg	21.9 kg
Monoammonium phosphate	23.2 kg	32.5 kg
Potassium nitrate	30 kg	42 kg

Milt. '6027'®

The extra nitrogen contained in 28-14-14 will speed things up during the initial propagation phase and may be necessary for the C/N ratio, especially in the case of plants grown in substrates containing bark. Large amounts of nitrogen (N) are needed for the decomposition of wood (C= carbon). Too little nitrogen may indicate too much competition from the bark, leading to poor initial growth and pale, yellowish plants. This problem may occur in spring in particular, when the light intensity rapidly increases.

Several things may go wrong in different ways:

- Your plants are growing well and things are going just fine, so you continue what you've been doing so far. And you end up with plants that are too lush;
- In the event of insufficient Ca (calcium) and absorption (an active climate), the lush plants may have weak cell walls, making them far more susceptible to Erwinia and/or Pseudomonas;
- And finally, if you don't adjust the pH in time, acidification in the pots may cause it to drop too low, making it impossible for the plants to form roots. This will usually happen in the final propagation/flowering phase. You will then end up with plants that are too loosely anchored in the pots and are more susceptible to bud drop.

This poor awareness of the risks involved in using high urea doses without further thought is rather like a young manager taking a superfast car for a spin. In the early 1990s Floricultura carried out some temperature and fertiliser trials using Phalaenopsis. We investigated the effects of different fertiliser combinations in different concentrations and at different temperatures. The results of those trials, combined with those of other trials carried out in the Netherlands and other countries and supplemented with our own practical experiences, ultimately led to a basic fertilisation scheme for Phalaenopsis. Basic schemes for other orchids such as Cymbidium and Miltonia were to follow.

Over the years we have often seen growers adjust their fertilisation schemes over and over again until they become so far removed from the basic scheme that they start to encounter all kinds of problems such as Pseudomonas, Erwinia, poor roots, reduced keeping quality, more Botrytis, more brittle spikes, flowers with marks, etc.
Those problems are often attributable not only to incorrect climate control, but also incorrect irrigation resulting in waterlogged pots, and incorrect fertilisation schemes.
We then always refer growers to our basic scheme, which, simply put, consists of 60 kilos of 20-20-20 + 10 kilos of magnesium sulphate (MgSO4) in the B tank and 25-30 kilos of calcium nitrate in the A tank. At 1 EC this composition contains approximately 1g/l fertiliser and approximately 14 mmol/l nitrogen, which is in principle quite sufficient for good growth. Most problems are caused by giving plants TOO LITTLE calcium and TOO MUCH nitrogen. Calcium is important for the elasticity of the cell walls, to prevent the risk of the walls leaking if the plant's transpiration should temporarily exceed the supply of moisture or vice versa. It is a kind of insurance premium against trouble. Higher doses of nitrogen will lead to faster growth, but also a greater risk of problems. An even bigger pitfall is created by giving plants extra nitrogen in the form of urea while simultaneously increasing the EC. Say you were to replace half of the 20-20-20 by 28-14-14 and give your plants an EC of 1.4. You'd then be giving them almost double amounts of nitrogen. Did you know that some herbicides consist of nitrogen (ammonium nitrate)? Excessively high applications of urea can lead to ammonia toxicity.
We have noted a recent tendency among growers to give plants higher doses of nitrogen, especially in the form of urea. That's why we're discussing this matter here. What should also be considered in this context is that we're all going to have to substantially reduce our nitrogen applications per hectare in the coming years, which means we will have to recycle more.

Fertilisation scheme: 60 kg 20-20-20 + 10 kg MgSO4 (=B) + 2 5kg potassium nitrate (=A)
1 EC = 1.07 g/l:

NH4	NO3	NH2	Ntot	H2PO4	K	Ca	SO4	Mg
2.15	5.74	4.95	12.85	1.90	2.92	1.30	0.46	0.50

Fertilisation scheme: 30 kg 20-20-20 + 30 kg 28-14-14 + 10 MgSO4(=B) + 25 kg potassium nitrate (=A)
1.4 EC = 1.68 g/l:

NH4	NO3	NH2	Ntot	H2PO4	K	Ca	SO4	Mg
2.78	8.30	11.95	23.04	2.54	3.86	2.03	0.72	0.75

Cym. 'Los Angeles' 8548

Day length control in orchids

Over the years, in various orchids seasonally, we have observed phenomena that are difficult to explain. The best-known example concerns Phalaenopsis grown in the northern hemisphere without lighting and cooling (air-conditioning) and at fairly low temperatures. Around week 40 (the last days of October) plants in Italy and Scandinavia, and in all the countries in between, form spikes at the same time.

Young Miltoniopsis, Odontoglossum and other hybrid plants start forming a lot of bulbs in the autumn-winter period. This is in stark contrast to the spring-summer period, in which very little bulb formation takes place. Then there's the question why Burr. Nelly Isler always produces an abundance of flowers in summer and very few or none in winter-spring. And why does Dendrobium nobile usually only flower after Christmas and into spring?

To enable other orchids to compete with Phalaenopsis we have to make sure we can produce sufficient plants per m^2 per year - plants with a keeping quality of at least 6 weeks, whose development can be planned, that have a competitive ornamental value and that can moreover be arranged on CC trolleys in at least three layers to ensure the same transport costs per plant as Phalaenopsis.

So we asked ourselves how we could influence the number of spikes and the flowering time of these hybrids. A prerequisite in the case of Miltoniopsis and Odontoglossum hybrids is the

Cym. 'Larissa' 8614

formation of at least two shoots that produce spikes at the same time. A Miltoniopsis with 3 or 4 spikes and sufficient flowers can compete with a Phalaenopsis. And the same of course holds for Odontoglossum or Dendrobium Nobile hybrids.

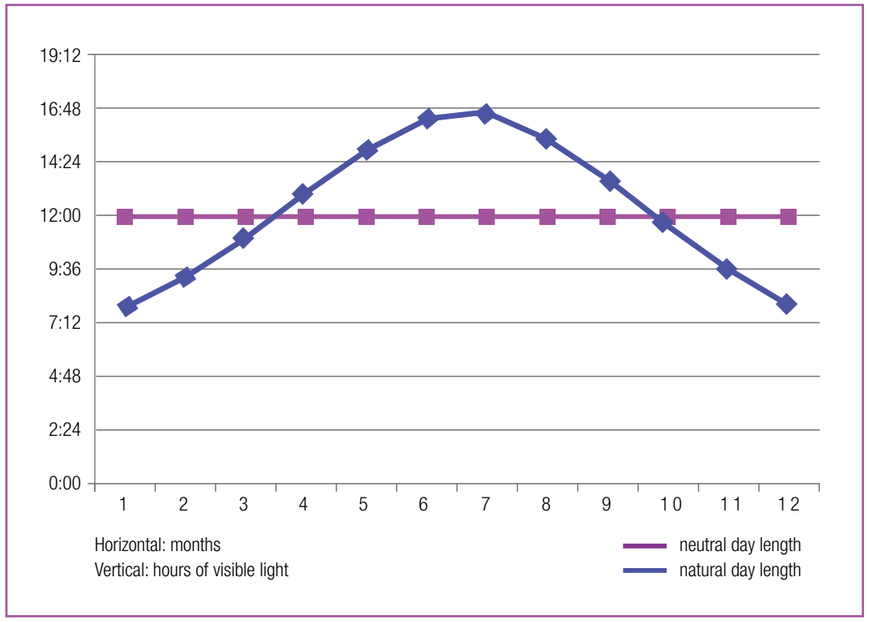
How can this be achieved? The past few years trials have been carried out to test various ideas, in cooperation with growers and researchers and by different organisations, e.g. the former experimental station in Aalsmeer, later the University of Wageningen in Bleiswijk, and also our own company. The most important aspect investigated in those trials was the possibility of promoting shoot formation by increasing the light intensity in combination with the temperature while adjusting the ambient humidity. Plants planted in spring and autumn were both tested in the trials.

The experience gained in practice was that around 70% of the plants form two shoots in the event of more (artificial) light, but never really all the same. And that 70% was not always achieved in practice either. So our aim in investigating these two different planting times in 12 cm pots was to find out what was causing the differences. Should the temperature or the humidity be raised or should the plants be given more light?

A remarkable difference is that around 70% of the orchids planted in autumn did form two shoots per plant, whereas this was the case with only about 35% of the orchids planted in spring. How to explain this? Could it have something to do with the days becoming longer or shorter?

We therefore organised a trial in which we placed Miltoniopsis plants and various Odontoglossum hybrids in a greenhouse in which we maintained a day length of 12 hours, so also a night of 12 hours, throughout the year. In a different greenhouse we then grew plants of the same size, but with the seasons being allowed to vary naturally. In the Netherlands, the longest day, 21 June, lasts about 16.5 hours and the shortest day, 21 December, 7.5 hours. The further south you travel (towards the equator) the closer those two figures will approach 12 hours. Everywhere in the northern hemisphere (above the equator) the days become longer than the nights after 21 March, and the other way round after 21 September (see the graph).

During the trial some of the plants were moved from the greenhouse with 12 day hours and 12 night hours to the greenhouse with a natural day length. This was done at different times of the year: 21 March, 21 June, 21 September and 21 December.



The results were amazing!

- Plants are best propagated and cultivated at a constant (year-round) day length of approx. 12 hours. The plants looked very uniform!
- A day length of an extra three hours results in a high percentage (more than 80%) of two shoots per plant in the case of Miltoniopsis.
- Moving plants from the 12/12-hours (D-N) greenhouse to the 16.5/7.5-hours (D-N) greenhouse on 21 June had the same effect, with comparable percentages, as moving plants from the natural greenhouse (day length of 7.5 hours) to the 12/12-hours (D-N) greenhouse on 21 December. The light intensity was the same in both greenhouses, but the sum of daylight wasn't.
- Nelly Isler started to produce many spikes at the same time when the day length was increased. Shoots began to form only when the spikes were visible and in flower.
- The aforementioned effects were observed in the case of other Odontoglossum Intergeneric hybrids too.

The results of these trials also help us understand why Phalaenopsis more readily forms spikes around week 40. After the longest day (= week 26) the days start to become shorter. Around eight weeks later we're in week 34. We know that the period of spike formation with cooling takes around six weeks. Without deliberate cooling we still see spikes being formed in week 40. The 24-hour average temperature decreases and the nights become cooler. From week 34 onwards we have to deliberately raise the temperature by one degree to prevent a dip in temperature, and preferably ensure slightly darker conditions to prevent premature spike formation. Even then spikes will readily form. The explanation for this hypersensitivity is to be found in the shortening of the days, which the Phalaenopsis plants have by this stage been experiencing for around two months already. This hypersensitivity remains until Christmas, after which time it gradually decreases.

All this is less evident at modern nurseries with lighting, which often adhere to day lengths of 15 hours or even longer. From practical experience it is known that spikes are formed less readily in April-June. The natural day length then increases, causing a decrease in florigenesis.

On the basis of these results we organised further trials with Miltoniopsis and Odontoglossum hybrids in late 2014, to obtain a better understanding of these effects and more statistical evidence. We want answers to questions like: what is the best time, what is the best length of time and can we already achieve these effects with plug plants or should the plants be larger and older? We have already noted that the effects may differ from one group of orchids to another. This new knowledge may help us to plan the cultivation of other orchid hybrids more effectively. We'll definitely be returning to this matter in future editions of our newsletter.

Phal. '332060®

Prognosis for Cymbidium for the summer of 2015

Looking back on 2014: cause and consequence
Analysing causes and consequences is essential for more effective control of your plants' development. So let's take a look back on the past season. What kind of weather is ahead of us we don't know, but the knowledge we've gained from past experiences will help us anticipate future conditions.

The past season was largely influenced by the extraordinary conditions of 2014. The winter was very mild, making it difficult to realise low enough 24-hour temperatures in the period from November '13 until the end of February '14. It was even more difficult in March, when we had beautiful sunny weather from the first day of the month onwards.
In almost all the months the 24-hour average temperature was higher than the average of the past few years. Only that of August was an average 3°C lower. In all the other months we had higher temperatures and more light.
In greenhouses with heating, screens and air humidifiers (misting) it's not so difficult to create the ideal climate for Cymbidium so as to be able to plan the plants' flowering all the year round. But there are always growers who underestimate a situation.

Ultra-early varieties

The crops of growers of ultra-early varieties, flowering in August–September, who raised the temperature of their heating system at the end of January in order to realise 24-hour average temperatures of around 20°C may have experienced insufficient low 24-hour average temperatures (12-13°C) in the preceding three months. This has consequences in the form of the formation of fewer spikes and/or fewer flowers per spike. From experience we know that extremely early or late cultivation leads to lower production. And experiences with other orchid crops have shown that plants must undergo sufficient "cold" conditions to ensure enough florigenesis. A second important factor is light. If the 24-hour average temperature is raised to 20°C in late January the amount of light (day sum of light) may still be too low. This problem will disappear around week 7, mid-February. If the temperatures are too high in relation to the day sum of light, a plant will consume more energy than it produces, at the expense of young growing points, i.e. those that are to grow into spikes later. We had a lot of beautiful sunny days after 1 March. For the ultra-early range this meant faster development of the spikes. It actually advanced the flowering a little. We indeed observed this in practice, along with signals that production was a bit lower than expected.

Very early varieties

However, for quite some time it was feared that the very early varieties, flowering from October onwards, would flower too late, possibly not until November. This was caused by the following two factors. First of all beautiful weather in spring and summer, causing the 24-hour average temperature to rise above 21°C, which slowed down the elongation of the spikes. This can only be prevented by lowering the temperatures in the daytime by means of misting. The second factor was dark cold weather in August, which many growers had not effectively anticipated by switching on their heating. The whitewash that hadn't yet been removed from the roofs made the greenhouses extra dark. This induced many growers to switch up their heating in September in the hope of getting their plants to flower in time. They were actually helped more by the excellent weather in September and October, though the quality of their plants did suffer quite a bit because their 24-hour average temperatures became too high.

Early - Christmas range

The orchids that were intended to flower in December also appeared to be a bit delayed for the same reason as those intended to flower in October, but they eventually flowered in time after all thanks to the exceptionally sunny autumn weather. However, the flowering was spread over a longer period. This was caused by the hot weather in July, which stopped the spike elongation, followed by the cold, dark month of August, after which the temperature rose again. When the temperature dropped, the spikes began to elongate again. We saw the same things happening in the Valentine's Day - Women's Day range.

Late varieties

Because of the cold weather in August the spike elongation of the late varieties started too early in greenhouses that were insufficiently heated. Warmer weather in September-October caused some of the spikes to form too early, whereas others were delayed because of the heating.

From this it can be concluded that if you don't closely focus on the right temperature and light settings, and adjust them where necessary, and instead allow your culture to be influenced by natural conditions too much, you'll never be abreast of things. In 2015 the weather may be entirely different! IR (infrared) meters for measuring leaf temperatures and PAR meters may provide very useful information in your greenhouse, showing you how, say, whitewashing and screens affect your greenhouse climate.

Cym. Fair Stewart 'Ice and Fire' 8571

Cymbidium cultivation tips

Early range

The 24-hour average temperature in the ultra-early and very early ranges must now be 20°C, preferably no higher than 24°C in the daytime and no lower than 16°C at night. The 24-hour average temperature may be 19.5-20.5°C. If your temperature should be 0.5°C below or above that (19-21°C), you're getting too far away from the desired 24-hour average temperature. Even further away will mean losing control completely. April and May can still be fairly cold. If you want your orchids to flower at the right time, you'll then have to heat your greenhouse. Avoid major differences in day and night temperatures. Especially later, in May-June, they may lead to black pollen caps and lip flushing in orchids that are susceptible to them. Misting will help you to lower the temperature substantially on hot, sunny days. Try to postpone whitewashing for as long as possible - as long as you don't exceed the aforementioned temperatures and misting is having the desired effect. If your misting capacity proves to be inadequate you'll have to resort to whitewashing. Things seem to be a lot less complicated for the Christmas range, but beware of the pitfalls of a long, cold spring with insufficient heating and/or a cold August-September period. If you're on holiday in a country with hot weather in August, remember that the weather in the Netherlands may be entirely different.

Mid-range varieties

As usual we can be very brief about the mid-range varieties: admit light and postpone whitewashing for as long as possible. If August and September should turn out to be dark and cold, use your heating system to keep your crop roots active. Heating in that period may sound odd, but it may actually be the smart thing to do. A little more heating will ensure a better quality and more efficient planning. The benefits of that will greatly outweigh what you'd save on your energy costs by not heating your greenhouse. It will also imply a saving in labour costs thanks to less sorting work. Bear in mind that Easter will be very early in 2016: 27/28 March. This means you'll have to decide which of your mid-range varieties you want to have in flower around Easter and which not. We'll return to this issue this autumn.