Anthurinfo

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VARIETIES

Turenza®

The Anthurium pot plant Turenza®

The Turenza® is a top variety, especially in the 14 cm and 17 cm pot sizes, yet has a different cultivation practice from a variety such as Dakota®. With Turenza®, sufficient height has to be achieved. By spacing too quickly, this variety can produce too many lateral shoots and stay too short. It is known, on the other hand, that the Dakota® variety must be spaced out promptly to achieve optimal plant structure.

If you want to achieve the same height as the Dakota®, the first cultivation phase of Turenza® should be six to eight weeks longer than that of the Dakota®, starting from a 7 cm pot. Furthermore, the plants can be placed closer in their final position, namely 11-12 plants per m^2. The cultivation period of a 60-65 cm Turenza® plant totals 42-46 weeks. The area needed for cultivation is more advantageous with this variety than with many other varieties. Overall, more plants can be produced per m^2 thanks to the longer initial position and the closer final position.

The roots of this variety are comparable to varieties such as Sierra®, Vito® and Arebo®. This means that the rooting of this plant is a bit slow at the beginning and that it has to be grown in rather dry soil. It is also important to plant this variety 1-1.5 cm deeper compared to other varieties to ensure the plant is stable. This variety is highly suitable for cultivation using an ebb/flow system, although irrigating directly onto the pot or with a dropper is also possible. Due to the umbrella shape of the plant, it can sometimes be difficult to water this variety from above. This can be solved by increasing the amount of water per irrigation session.

The Turenza® leaf keeps growing well in summery conditions. The temperature can rise significantly then and cause the flower to discolour at high day temperatures. Yet as soon as the day temperature drops again, the colour will recover. This is an important reason why this plant is particularly suited to the Southern European market.

Turenza® is a jack-of-all-trades, because this pot plant is suitable for 14 cm, 17 cm and 21 cm pots. No other red Anthurium pot plant features such large, bright flowers, making the Turenza® really unique. The beautiful, strong, glossy leaves complete the picture. The vivid flowers stand above the foliage and catch the eye both by their colour and position. The plant structure and the colour and size of the flowers give this plant a sensual, refined and elegant personality.

A close-up of a beautiful Turenza® flower

This richly flowering plant is cold-tolerant, which is a good sales argument. In addition, Turenza® keeps well on the shelf and even with the next link in the chain, the consumer, its vase life is good.

In short, Turenza is an absolute hit in the red segment for every link in the chain!

Lucardi®

Lucardi® used in an arrangement

This flower can be combined easily with other flowers in bouquets thanks to its range of fresh summer colours. The ears are a lime green pastel shade that runs into a lemon yellow/green colour as the basis of the flower with a red/pink vein. A huge advantage is that this vein is present all year. When you prefer a softer autumn colour, you can harvest Lucardi® four weeks later than normal to obtain its special 'antique' colour. Thanks to the different colour shades, there is always a match to make.

The leaf quality and vase life are excellent,

as a result of which the flower and leaf both can be processed. When you use the young leaf-breaking technique on this variety, the flower production of Lucardi® will be higher.

Anthurium flowers should not be transported under 15°C. Lucardi® has limited cold tolerance. Should the temperature drop under this threshold for a short period of time, the effect on the quality and vase life would be limited. The minimum temperature is not established for nothing, but the right treatment will allow the consumer to enjoy Lucardi® for the longest time.

INTERVIEW

Interview with Mr. Sarai of Sarai Engei Ltd, Japan

Anthura exports its products all over the world, including Japan. The majority of pot Anthurium growers can be found around Nagoya and are guided by the Japanese distributors Hakusan, Yamada and KMS. One of our customers is the company Sarai Engei Ltd. Mr. Sarai lives with his wife and son in Astum-Gun, Aichi, Japan, approximately 100 km south of Nagoya, which is also the location of their nursery garden business.

What is your company history?
We started in 1967 with Diffenbachia, Dracaena, Yucca and Jasmine, among others. In 1981 we continued under the name Sarai Engei Ltd and around 1990 we added Anthurium to the assortment. At present, it is our most important product and we are very happy with its sales. We are a real family business and we work with a close team of employees on an area totalling 16,500 m^2. Over the last few years, we have grown quite a lot of varieties of Anthura. We have been doing business with each other for several years now, not only because the Anthura varieties do well in Japanese greenhouses, but also because of their quality and reliability. Furthermore, Anthura works with Japanese agents, which simplifies communications. At the moment, our assortment includes Vitara®, Sierra®, Otazu®, Pink Champion® and White Champion® top plants, among others. The varieties are not too bushy underneath and produce beautiful flowers above the leaf.

What is your opinion on the current worldwide economic situation and what does it mean for you?
If affects virtually everything, with some exceptions here and there. In Japan, there has been a lot of talk about the building sector, the car industry, the computer industry and so on. These industries are subjected to great pressure. The horticulture sector is not immune from this economic downturn either. People have less spending power and are starting to cut back on plants, among other things. This puts our sales under pressure. Thanks to our good quality we are still able to cope well, but it is not easy of course. Everybody tries to stand out, especially in the field of marketing. We are doing so with our excellent quality and beautiful cover, as a way of adding value. Fortunately, there are some signs that the economy is starting to recover.

A part of the greenhouse of Mr Sarai in Japan

Which promotional activities do you use to sell your final product?
Most of our products are sold via the plants/flower trade. This is comparable to the agency in Holland. You can present your products in a showroom, where the trade can make their choice and place orders. Moreover, we often attend shows organized by the flower sector. Now and then, we participate in local promotional activities. But I do want to emphasize that however many marketing and/or promotional activities you do, quality will always be the most important factor in Japan.

Is Anthurium a flowering pot plant like so many others in Japan or does it have something special?
Anthurium has an exclusive image. Both cut and pot Anthurium enjoy great popularity. Consumers not only like the product, but they particularly praise the long shelf life. It is considered a high-quality product. When you compare, for example, the shelf life of a cut Anthurium to that of a cut rose (which still has an exclusive image), an Anthurium will keep three to four times as long.

Do you expect the future of the horticulture industry to stabilize again?
In Japan the horticulture industry has experienced a small decline in the last 10 years. This resulted in fewer growers and a more professional horticulture industry. The growers with the right varieties and good quality have a future and will survive. This will restore stability. Expansion in the horticulture industry can be seen in Japan too, but not to the same extent as in Holland, for example.

What are the differences between Japanese and Dutch growers in your opinion?
I think the difference in standards between Japanese and Western European growers (notably the Dutch growers) is still quite substantial. The facilities of the Dutch growers are often much better than ours. Another difference is that we have to make our greenhouse constructions heavier because of possible earthquakes and/or typhoons, which increases the investment substantially.

In Holland everyone thinks that land is expensive, but you should come to Japan! Here, the availability of land is even more limited than in Holland. Because of this, the prices per square metre sometimes double those of Holland.

On the other hand, in Japan we are less frequently confronted with all sorts of environmental requirements or the need to grow, modernize and automate. The collection of condensation or irrigation water, for example, will not be due for discussion in the near future. This is further borne out by the fact that in Japan there are few or no farms of the size of farms in Holland. Most pot plant growers have between 5,000 and 12,000 m^2.

Our customers (the trade) ask for at least six different varieties, which forces us to offer a wider assortment. In Holland you are not very big when you own an area of 20,000 m^2 and a grower often has only three, four or five varieties of Anthurium.

I really wanted to explain things about Japanese horticulture and draw a comparison. Of course, it is only my personal view, but it is a fact that there are interesting differences in the field of the Anthurium cultivation in Japan.

CULTIVATION TECHNIQUES

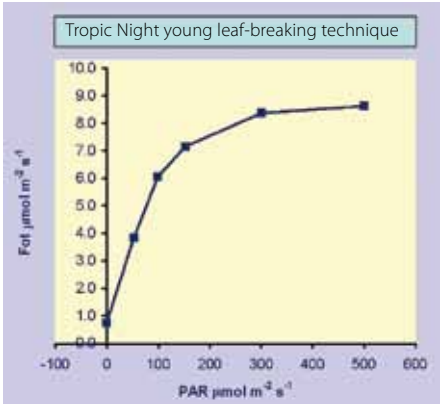
Photosynthesis and Anthurium

Growers who are busy every day with the climate in the greenhouse, the irrigation system and other cultivation measures, see the plant growing and developing nearly each day. The processes that are taking place in the plant to achieve this growth and development are generally known, yet they do not belong to the grower's day-to-day activities. Quite often the comment "how does it work again?" is heard. In this article, we will discuss some details about the basis of this growth and development, i.e. photosynthesis or plant assimilation.

What is photosynthesis?

Plants absorb solar energy and convert it into chemical energy. This is the basis of the assimilation. The known equation reads: $CO_2 + H_2O$ -----LIGHT------> SUGARS $+ O_2 + H_2O$. Put differently: influenced by light, carbon dioxide and water are converted into sugars, releasing oxygen as well as some water.

Only a maximum of 5% of the light (light energy) falling on a leaf is used for photosynthesis. The plants lose an average of 60% of light energy to evaporation, 10% to reflection, 10% to light falling through and 15% is converted into heat in the environment. Based on the above equation, it can



Result of photosynthesis with increasing light values

Photosynthesis measurement in Anthurium

be seen that the speed of photosynthesis and the quantity of sugars resulting from this process depend on: light and light loss, CO_2 and temperature. These factors are discussed separately below. To conclude, we will examine what the plant does with the sugars produced.

Light

Because only 5% of the incident light energy is used, it is important to allow in as much light as possible for good photosynthesis. However, an Anthurium is a half-shadow plant. This means that the plant reaches its saturation level faster and that leaf scorch will occur quickly at excessively high irradiation. The light energy that the plant is able to use is important for photosynthesis. The light energy particle that the plant needs for photosynthesis is called a photon. The total number of photons, between 400 and 700 nm, emitted by the source (sun or lamp) per second, is called the PPF (Photosynthetic Photon Flux = photon flux for photosynthesis). The number of photons that can be used for photosynthesis is then indicated in µmol photons per m^2 per sec. (µmol/m^2/sec). If you count the photons emitted during the hours that the sun is shining or the lamp is burning, you get the total photons. This is the PAR-sum in mol photons per m^2 per day.

LAI and plant shape

Extra loss of light energy occurs when part of the light falls next to the leaf. Therefore, it is important to have a good LAI (Leaf Area Index = leaf coverage) and plant shape. For most plants an LAI of 3 is ideal, because approximately 10% of the light falls through the leaf.

Yet in the shadow-plant Anthurium, the light passing through the leaf is very limited. Therefore, the best use of light can be achieved by covering up the soil and letting the leaves of the plants overlap each other minimally. This way, a minimal quantity of light will fall away from the leaf. Because Anthurium leaves let through less light, an LAI of 2-2.5 is optimal. But if the light is diffused (generally with an energy screen) and the leaf layers are kept further from each other (by a better plant shape), relatively more light can be intercepted. It is then possible to intercept part of the passing and reflected light energy to further utilize the efficiency of the incident light energy. The ideal leaf coverage is achieved with some varieties by breaking off half, one third or even less from the leaf using the young leaf breaking technique.

CO_2

When the light energy (photons) is intercepted via the chloroplasts, it can be used very efficiently. In the Calvin cycle, the light energy is transformed into sugars with an

Half-leaf method optimizes plant photosynthesis

efficiency of 90%. For this reaction, CO_2 is needed. If insufficient CO_2 is present, the O_2 molecule is combined in the photosynthesis process (dark reaction) instead of CO_2. This process is called photorespiration. This will cause the efficiency of the photosynthesis to drop and it occurs especially in cases of high O_2 content in the cytoplasm. For example, at low CO_2 values in the air, more photorespiration (=loss) will occur. For the moment, a value of 800 p.p.m. is given as a maximum. Several photosynthesis measurements (including Plant Dynamics) point out that higher values lead to the closing of the stomas.

Temperature

Enzymes in the dark reaction stage take care of fixing the CO_2 in the Calvin cycle. For Anthuriums, these enzymes are expected to work (react) optimally at a temperature of 19°C. (Note: this is not the optimum temperature to process sugar. For Anthuriums, this value is 23°C). A lot of photorespiration will occur when there are low CO_2

values in the ambient air at high temperatures.

Sugars

After photosynthesis, the sugars produced are used immediately as fuel in the leaves or transported to other parts of the plant through the vascular tissue. The sugars are transported to sugar sinks or sent to storage organs through the vascular tissue. In the sugar sinks, the sugars can be transformed into other sugars or used as fuel for the growth or maintenance of the sugar sinks. If the sugars are not processed quickly enough, it can slow down or even stop the photosynthesis process in spite of good conditions for photosynthesis.

The sugars are stored in the storage organs. It is known that the Anthurium stores these sugars as a reserve. It is not clear exactly where the sugars are stored. Sugars can also be stored temporarily in the chloroplasts. It has not been possible yet to control how sugars are sent to the sugar sinks (sink operation) by another process. By breaking young leaves, the sink operation of a young leaf is kept as short as possible in order to send the most developed sugars to the marketable flowers. The PAR sum allows you to determine how many sugars can be produced and what the optimum temperature is for photosynthesis and sugar processing. For the grower, this is the recipe for an optimal production.

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Irrigation of Phalaenopsis

Irrigation is one of the most important components in the cultivation of Phalaenopsis. When the irrigation is optimal, 50% of the cultivation is already won. It is therefore important to pay a lot of attention to the timing of watering, as well as to determining the right quantity.

Apart from providing the plant with sufficient water to be able to evaporate and to grow, irrigation has several other purposes, the most important being the moistening of the substrate to create a good microclimate.

Several irrigation sessions can be distinguished: the spray nozzle or intermediate session 1-2 l/m^2, the small irrigation session 3-4 l/m^2, the normal irrigation session 10-14 l/m^2 and the large irrigation session 15-20 l/m^2.

Goals of each irrigation session:

The spray nozzle or intermediate session is intended to wet the top layer of the substrate. This stimulates the microclimate and hence the aboveground growth. It also prevents excessive rooting to a large extent. A spray nozzle or intermediate session is usually programmed exactly between two irrigation sessions or, at the most, two days before the irrigation sessions. One spray nozzle session per week is normal; never give more than two spray nozzle sessions per week. A spray nozzle or intermediate session should never contain nutrients in order to prevent the top layer of the substrate from becoming salty.

Excessive rooting in Phalaenopsis

The small irrigation sessions are often programmed in the first two weeks after potting the plants. At first, the substrate is fairly dry, being unable to absorb enough water. This can be solved by watering more frequently with smaller quantities. Every other day an amount of 3-4 l/m^2 should be sufficient to wet the substrate well. The advantage of this system is that the microclimate is stimulated, allowing the plant to strike root more easily. Furthermore, the small quantities also further stimulate root activity because the existing roots are not yet being exposed to excess water. Keeping the top layer of the substrate moist also stimulates the growth of new aerial roots. Two weeks after potting, the plants must be watered using the 'normal irrigation session' with a frequency of approximately once every 6 to 7 days.

A normal irrigation session uses between 10 and 14 l/m^2. Small quantities increase the differences in pot humidity; larger quantities make it too moist in the greenhouse. The frequency is once every 6 to 7 days for young plants, and 4 to 5 days in the spacing stage and the cooling and finishing phases.

You might decide to plan a large irrigation session when:

a) The pot humidity is not uniform. This can be solved by watering them excessively, i.e. a quantity of 15 to a maximum of 20 l/m^2. In order to improve water absorption by the substrate, the irrigation session can be organised in parts (with an interval of half an hour to one hour). This allows the dry pots to absorb enough water, while the moist pots drain more water, hence reducing the differences in humidity;

b) The salt content in the pot is too high (the drain water is EC >1.4 mS/cm). In this case, it is advisable to rinse with a large quantity of water without fertilizers. A single rinse with 15-20 l/m^2 should be sufficient.

The irrigation volumes given above are based on the use of bark. The differences in substrate can cause the optimal quantities to vary slightly, yet the essentials are the same.

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COLOFON

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