ReduSystems®



OPTIMUM USE OF FREE SOLAR ENERGY



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A GOOD STRATEGY IS MORE THAN WELCOME

High energy prices are forcing every grower to reconsider his normal approach. Possibilities include less intensive cultivation, adjustment of the cultivation period, lower energy input, accelerated investment in energy saving or alternative energy sources. A relatively simple part, accessible to everyone, is paying more attention to the use of free energy. Namely, that of sunlight.

Solar radiation represents a lot of energy. About half of that is in the PAR light. That is the radiation the plant needs for photosynthesis. An old saying is 1% more light is 1% more production.

The other half of the solar energy is heat radiation. It warms the crop and the greenhouse. In the dark months, this part of the solar radiation therefore saves on heating costs. Therefore, it is necessary that as much heat radiation as possible enters the greenhouse during the winter months.

In late spring, the crop may suffer from too much light or heat. Then light- or heat-resistant or diffuse coatings are appropriate. Many growers have developed a fixed method of coating. But with the current high energy prices, it may be wise to reconsider. For example, by using a different coating or by coating in phases. By combining coatings. In this way, you don't waste useful sunlight and you achieve optimum production and high quality. The right coating, used in the right way at the right time, saves energy.







CLEAN GREENHOUSE

The glass of the greenhouse roof becomes dirty over time. This is an ongoing process that goes unnoticed. As a grower says, if you can see it, you have already lost 10%. And that is a lot if you take the saying - 1% light = 1% production - into account.

Dust, sand and soot settle on the outside. Algae and moss grow on them. But it is often forgotten that the inside of the glass is also polluted. The glass is regularly wet, providing an ideal growth environment for algae and bacteria. This can also be a breeding ground for diseases. Furthermore, volatile additives from crop protection agents precipitate and make the glass less transparent.
Regular cleaning is therefore essential. This results in a light gain of 5 to 10%. This means better crop growth in months when there is little light. But it also saves on energy costs because of the heat radiation.
On the outside, regular brushing with a greenhouse roof-washer makes sense. This can be done according to a fixed schedule. But if some sand from the Sahara settles on the outside, it is necessary to do some extra cleaning.
Cleaning the inside of the greenhouse also provides a clear gain in light. It is necessary to move with the rhythm of cultivation. If there are crops in the greenhouse, cleaning agents can cause damage. That is why the crop rotation for fruit vegetables is the best time for a good cleaning. With ornamental plants, every moment that a section becomes empty can be used.
The idea used to be that you had to use aggressive fluorides for the best result. But the emphasis has shifted to agents that are safe for people, crops and glass. GS4 from ReduSystems fits in perfectly with this trend.

"IN AREAS WHERE THERE ARE DEPOSITS OF GREASE, CHALK OR RUST, GS-4 IS A GOOD PRODUCT"

Mr. Erik Poot
Poot Reiniging



BETTER LIGHT TRANSMISSION

New greenhouses are commonly outfitted with an anti-reflective coating to improve the transmission of light. For existing greenhouses, there is the removable coating AntiReflect, which has the same effect. It reduces the reflection of sunlight on the greenhouse surface, thereby increasing transmission. This gives up to 3% more irradiation.
In the low-light period, the crop can make good use of that extra light and convert it into extra production. However, growers who have already applied the product report not only increased production. They also notice that the greenhouse heats up more quickly on the sunny side, which means a direct saving on heating costs.
Another way to improve the transmission of light is to do something about the condensation. The glass is wet for a large part of the year. This is because water vapour condenses which reduces light transmission considerably. Large drops catch a lot of light. Researchers from Wageningen University & Research have shown that the loss of light can be as high as 9%. In a plastic greenhouse, the loss is even greater.

However, if the water vapour condenses as a water film, the loss of light does not occur. ReduSystems AntiCondens ensures that such a finely divided film of water is created. Practical measurements carried out on glass show a light gain of 5-7%. In a plastic greenhouse, this could be up to 15%. This also ensures that the greenhouse heats up more quickly.
AntiCondens must be applied to a dry greenhouse surface and must dry after application. In practice, this sometimes presents some challenges. Thinking ahead helps.

BETTER UTILISATION OF HEAT

In addition to better utilisation of solar energy, better utilisation of the self-generated heat is possible. An underestimated problem is often the declining output of the heating pipes. If they start to rust, the heat output is reduced.
Painting the pipes with PipePaint increases the heat emission by no less than 10%. Moreover, this paint is bright white, which ensures an optimal reflection of the sunlight entering the building. This in turn can benefit the crop.
PipePaint is water-based. That is a great advantage compared to paints with a solvent. The latter have to be dry-cured in order to get rid of the toxic solvent. A lot of energy is lost in this process. This is not necessary with PipePaint. Moreover, it does not have to be applied during the crop rotation. The application is even possible when the crop is still in the greenhouse.





"WITH ANTICONDENS, YOU WILL REDUCE YOUR USE OF FUNGICIDES BY 80 90%, WHILE MAINTAINING MUCH BETTER CONTROL OVER DISEASES."

Willem Valstar
Stargrow Consultancy

INTELLIGENT COATING

In the spring, the light level is constantly increasing and at some point it will become necessary to protect the crop. In the past, there was only one option: blocking out the light. Nowadays, it is possible to choose. Selectively blocking heat and allowing PAR light through, diffusing the light, a combination of the two, or heavy screening. The best choice depends on the crop, region and season.

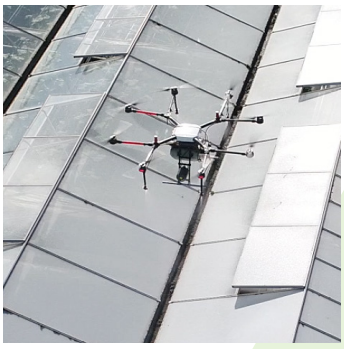
Many growers already make use of the modern possibilities. But the energy crisis is an incentive to look again at the best strategy. The starting point is to make as much use as possible of free solar energy in the spring. That means intelligent coating. Not choosing the full level of protection required in the middle of the summer, but thinking in steps.
If you are used to using ReduSol on a vulnerable crop, you might consider postponing the time of application and diffusing the light first. This can be done with ReduFuse or ReduFuse IR (which also protects against heat radiation). By diffusing the light, you reduce stress. Additionally, the time that the crop can make optimum use of the sunlight in the spring is extended. And because the full level of protection from ReduSol is not chosen straight away, the grower does not have to use additional heating on dark days. Coating in layers - first ReduFuse, then ReduSol - therefore helps save energy.





Another application of this idea is coating with ReduFuse IR twice. Instead of using 18 buckets of ReduFuse IR in one go, you can use 10 buckets in two stages. This leaves a few weeks between the first and second coating. This also results in energy savings.





There is always an interaction between coatings and the movable energy screen. The coating is the basic insurance, the energy screen the emergency brake. It makes sense to take a critical look at this interaction. If you have to close the movable energy screen very regularly in the spring, it is actually better to apply a light coating beforehand. That is much calmer for the crop than a constantly changing light level caused by the screen movement. Coating in stages is becoming more common. It contributes to energy savings in the spring and ensures a calm growth climate for the crop. The crop performs best under such conditions.
The hot summers of recent years, an indication of the changing climate, have already forced us to be creative with coatings. The energy crisis has now added to this. Modern coatings offer numerous possibilities. There is an optimum solution for every operating situation.

ReduSystems®

ReduSystems® is the global leading brand in developing coatings and cleaners for greenhouse cultivation. The products control the incidence of natural light and heat to optimise the climate for the crop in every season - from a cooler climate in summer and more light in winter, to diffuse light and changing the light spectrum.

ReduSystems is a brand of Lumiforte®