



## A message from our Chair

A warm welcome to the May edition of Growing Undercover.

As we emerge from the pandemic and reconnect more face to face, it is a suitable time to reflect on the value of being part of an industry association such as PCA.

If you are a subscriber member and reading this article, I wanted to briefly outline some of the benefits of becoming a financial member of PCA.

PCA has four categories of membership. They are individual, corporate, student and subscriber. PCA cannot grow our industry and deliver enhanced member services without your generous financial support. In the end, we must add value to you and your business.

In addition to staying in the loop as a subscriber member, there are many benefits of becoming a financial member including, but not limited to:

- Advocacy on specific issues affecting our growers and industry such as greater investment in research and development
- Receiving the quarterly Soilless Australia magazine
- Connecting with like minded experts to solve your problems
- Discounted registration fees for our bi-annual conference
- Discounted fees to access Growcom Industrial Relations Products
- Discounted advertising rates
- Access to Member only Directory and webinars
- Discounts on training workshops and regional tours.

Your financial support also assists with the employment of our staff to undertake advocacy and deliver member services, maintain our website, deliver our monthly Growing Undercover newsletter and building common areas of interest with other associations and peak industry bodies.



**Matthew Plunkett** • PCA Chair

As we track towards the end of another financial year, please consider becoming a financial member. Thank you to all our current individual members, corporate partners, and students for your ongoing financial support.

Please reach out to one of our team members Michelle Harris-Spencer for assistance on 03 8560 4391 or email [protectedcropping@asnevents.net.au](mailto:protectedcropping@asnevents.net.au) for further information. Member benefits information can also be found at: <https://protectedcropping.net.au/become-a-member>.

Here in NSW, I recently attended a seminar on the Clean Coastal Catchments project in Woolgoolga on the mid north coast.

The forum was delivered by the NSW Department of Primary Industries to update industry on research being undertaken around nutrient management. The highlight of the forum was a visit to Aman Lehl's property in Corindi. Aman shared his experiences moving from an open run to waste system to a partially closed water recycling system.

Sustainability is a broad word that means different things to different people. Arguably, protected cropping's greatest asset is the ability to grow more with less. Aman was a fitting example of a work in progress moving to more sustainable and efficient system.

In team news, Sam Turner has joined PCA as the first full time Executive Officer based in Melbourne. Our team look forward to working with Sam to deliver better services to you our members.

Have a great month.

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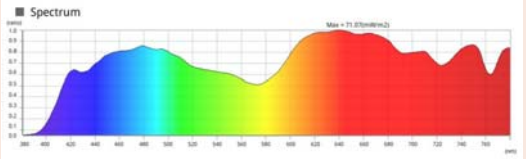
### LLEAF Pty Ltd

#### Optimising Sunlight for Increased Yield

Colour conversion films are being trialed at Western Sydney University and the results recently published in New Scientist are very promising for the industry.

At The National Vegetable Protected Cropping Center (NVPC), Distinguished Professor David Tissue and his team have been investigating the effect of light spectrum on plant growth rates.

Supported by Horticulture Innovation Australia, Prof Tissue's team lined the roof and upper internal walls of one 200m2 experimental bays with LLEAF's light shifting 620nm film. Absorbing low value green light, the film emits high value red light - providing a net shading effect of 30% and a net increase in PFD-R of 10% - performing like a shade screen and LED light combined.



The publication reports "The yield of cos lettuce, also known as romaine, rose by 14% when grown under the material, while those of butterhead lettuce increased by 27%." which is enormous for an industry more accustomed to increases of around 5% from new technology.

"I think the technology could be really important, especially as it's inexpensive and can be applied to existing facilities," says Tissue, who is now testing LLEAF on cucumbers and plans to trial it on several other crops over the next five years.

LLEAF Pty Ltd is a Sydney based agtech startup founded by industrial chemists from UNSW. The company commenced selling its film to growers in January 2022 after 5 years of R&D and grower trials.

For more information visit [www.lleaf.com.au](http://www.lleaf.com.au) or email [sales@lleaf.com.au](mailto:sales@lleaf.com.au)





## Register Now!

The Hydroponic Farmers Federation Executive Committee are excited to host their 12th Biennial HFF Conference from **Tuesday 12th July - Thursday 14th July, 2022** at the **Atura Hotel Dandenong**.

HFF 2022 is an unmissable opportunity to connect with likeminded people working in the Hydroponic Farming space.

We missed getting together with you and all our friends in the past year. Attending the conference will enable you to share your knowledge, hear the latest industry advancements and catch up with suppliers and growers after a few years with little interaction.

The three-day conference will feature over 15 invited industry experts, half day of farm tours, social functions, and ample networking opportunities. We are excited to share that Brian Nankervis from RockWise will host the Conference Dinner and Bunjil Place before you get your glow on for the After Party.

We hope to see you at Atura Dandenong in July for our 12th Biennial Conference and 25th Celebration of HFF.

For more information please refer to the conference website.

- <https://www.hff.org.au/registration>
- <https://www.hff.org.au/conference>



### View our great line up of speakers below:

- Paul Higgins - Keynote Speaker
- Paul Simmons - Trends in the World Tomato Market
- Sue Pickering - Organisational leadership and change management in Horticulture
- Graeme Smith - Vertical Farms - the missing bits
- Chris Millis - Future High-Tech Panel with Growers & Q&A
- Sohum Gandhi - Heating Systems for Greenhouses
- Greg Carick - Garden City Plastics
- James Pateras - Small Farms, Big Cities
- Emily Rigby - Medicinal Cannabis: From Seed to Patient - a Grower's perspective
- Michael Russo - Growing herbs commercially
- Ari Baelde - The transformation to vegetable greenhouse and plant factory production in Asia
- Levi Nupponen - Organics Certification
- Yoni Sharon - HMI (Human Machine Interaction) and Future Automation in Farming/Protected Farming
- Aart Slobbe - Light & Plant Interactions
- Tony Murphy - Risk Mitigation in a Post COVID World
- Sheree Marris - What can octopus sex teach us about the future of hydroponics? Why are cross-breeding cuttlefish lessons in innovation and what can corals teach us about the power of partnerships?



If you have any questions please contact Jordyn Trolove – [jordyn.t@asnevents.net.au](mailto:jordyn.t@asnevents.net.au)



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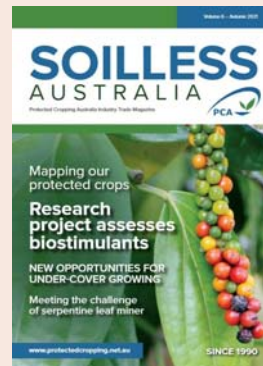
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## 5 Tips for Greenhouse Climate Control During the Cold Season

By DryGair Energies Ltd



Autumn is just around the corner, and when it comes to greenhouse growing, the cold weather and shorter days have a major impact. Both on the plants, and on growing protocols.

As the greenhouse environment gets colder, and sunlight becomes sparser, growers need to adjust their climate control methods to address new issues.

These 5 tips will help you maintain ideal greenhouse conditions throughout the cold season, and even save energy in the process.

### 01. Close the Greenhouse and Use Dehumidifiers

Low temperatures slow down the plants' metabolic processes. This leads to slower growth, less fruit, and lower quality yields. So, when it's cold outside, the first thing any grower can do, is close the greenhouse.

Closing greenhouse windows and vents keeps heat inside and protects crops from the cold. You can further insulate your greenhouse by finding and fixing any leaks you may have in the greenhouse cover.

When it's cold outside, it's also, in many cases, more humid. This is due to the air's physical properties – at lower temperatures, it can carry much less water vapor, increasing the relative humidity. So, growers who ventilate in order to release humidity from inside the greenhouse, may find it much less effective during the fall and winter.

Controlling humidity can be much more challenging during these seasons. The only way to ensure, with complete certainty, that relative humidity doesn't rise to 100%, is to use dehumidification.

By controlling humidity from inside, growers can avoid ventilation, keeping the heat they generate locked inside the greenhouse.

### 02. Spread Thermal Screens

Another way to improve heat retention in the greenhouse, is to deploy thermal screens. Screens create a buffer between the cold ceiling and the rest of the greenhouse, creating better insulation, and a more manageable greenhouse space.

There's another issue that's especially difficult to avoid when it's cold outside – condensation drips. As the greenhouse roof gets colder, condensation inevitably forms on the ceiling. Thermal screens, acting as a buffer, prevent these drips from reaching the plants. This ultimately helps to prevent some of the most common greenhouse diseases, like gray mold or powdery mildew.

## 5 Tips for Greenhouse Climate Control During the Cold Season cont.

### 03. Heat Less & Save Energy

Closing the greenhouse windows and vents, and deploying thermal screens, helps retain the heat you generate. It doesn't matter if you use heating pipes, a heat pump, HVAC, or any other heating system. By retaining heat inside, you can heat much less.

Using a dehumidifier may be critical for this to succeed. Without the proper solution to actively reduce humidity, you'll inevitably experience humidity spikes. But ventilating in this case will quickly release hot air from the greenhouse, and cold air from outside will replace it, requiring reheating.

Operating in a closed greenhouse with dehumidification is one of the best ways to reduce energy consumption and can save as much as 50% on heating!

### 04. Take Lighting into Consideration

Besides cold weather, winter time also means shorter days. There are also more cloudy, rainy, or even snowy days in some regions. So overall, sunlight is in much shorter supply.

In order to provide the best conditions for the plants, growers often introduce grow lights to lengthen the day or add extra radiation. Light is crucial for plants to photosynthesize to their best ability, helping them grow larger and healthier.

But there's a side-effect to this – they transpire much more water. Using grow lights will inevitably increase humidity in the greenhouse. It's important to take this into account when planning your humidity control protocol and adjust accordingly.

### 05. Adjust for Longer Nights

Humidity is most problematic between dusk and dawn, making these hours critical for dehumidification. As the nights grow longer, it's important to make sure to increase your dehumidifiers' operation time, to cover these periods.

Maintaining optimal climate conditions throughout the afternoon, night, and early morning, stimulates plant growth and contributes to larger, higher quality yields.

Overall, the cold season presents several unique challenges for greenhouses. But with modern technology and growing techniques, there's no reason for growers, or plants, to suffer during this time of year.

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