



# Hydroponic Farmers Federation Newsletter

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October 2023



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# The Secretary



Well hopefully by the time you read this newsletter we will be basking in the warm Spring sunshine and the cold days of winter will be behind us - well you can but hope at least! According to the weather bureau we have had one of the warmest winters on record - that bit of meteorological news obviously didn't apply to the Narre Warren South area as it seemed colder than ever to me as I got up for work each morning. But it seems that this year we are heading for a more 'traditional' summer which will mean dryer days and a heightened risk of wildfires, so now would be a good time to look around the farm and tidy up any potential flammable materials and general piles of rubbish that may have accumulated. With Covid being our major issue across the past couple of years the old fire threat has taken something of a back seat, but as I complete my 33rd year of CFA firefighting, I can tell you with some confidence that this year will more than likely see a 'return to normal' on the fire

fighting front. A good point to think about is that spotting from a fire would certainly damage plastic greenhouse roof coverings, so reducing the risk of fires by maintaining outlying areas on the farm is well worthwhile. But with travel back on the agenda this year I was able to catch up with family back in the UK in June and 'technically' enjoy something of a break from work. But as horticulturalists never really seem to stop work, I took the opportunity to catch up with an old friend - Lee Stiles - who runs the Lea Valley Growers Association north of London, and it seems that grower issues are uniform globally! More details of the visit are in the report on page nine of this newsletter. And after flying back into Australia on the Saturday night - it was an overnight stay at the airport before flying to Brisbane for the PCA conference on the Sunday! However, next month we have a planned grower day. The event is being kindly hosted by the Australian College of Agriculture and Horticulture at their Werribee campus, and it should make for a great day. Make sure you have the date of Tuesday the 31st of October in the diary! See you there! Regards **TB**

## HFF Executive Details and Contacts

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## The President



Hi everyone, Welcome to the latest HFF newsletter and there has been a fair bit going on in the HFF world. Firstly the committee are working hard behind the scenes to get the 2024 conference planning in place. Details of the trade show allocations etc can be found in this newsletter, and we are really excited to be planning for this event. In order to secure some of the trade booth allocations, Simon Monk and Michael Tran both attended the recent PCA conference in Brisbane and not only promoted the HFF at our booth but also secured a large amount of corporate booth allocation for the HFF conference - Well done Michael and Simon! As you will see in this newsletter, we are returning to running a grower day, which will be at the ACAH site at Werribee, (more on that later...) and after this event the committee will be travelling to Tabcorp Park Melton (site for the 2024 conference) to meet with the events team there and discuss some of the finer points around planning for the conference.

Anyway, back to the grower day! We always look forward to these events and my thanks to the good people at the Australian College of Agriculture and Horticulture for agreeing to host our next grower day. The fundamental reason for the HFF being formed was 'growers helping growers' and the grower days allow us to do exactly that. The site itself has some really interesting examples of differing growing methods and I am sure it will be an interesting day for all concerned. And when you add the networking opportunities to the day - it really isn't an event you can afford to miss! So get the diaries out and add in **Tuesday the 31st of October** in as a reminder - and yes, I did intend for this to be in bold letters!

In this edition of the newsletter we also have to sadly make mention of the passing of two of the industries finest personalities. Brian Hanger was absolutely one of the pioneers of the Hydroponic growing industry and did a lot of work to not only advance growing techniques, but also took a lead in the formation of what we now know as the PCA. On more of a local level, we also have had to say farewell to Frank Donato. Frank operated out of the Mornington Peninsula and grew herbs from his farm. Frank was a great leader in the use of LED lights, and also worked closely with Country Fresh Farms in Basil production. On behalf of the HFF I offer our sincere condolences to both families. Lastly, you will see that once again our newsletter editor Tony B has put together another great edition of this document - well done Tony B. The newsletter is sent out to all members in a hard copy and is also available in an e form from the website. So the newsletter gets in front of all the growers, meaning that it's a great publication to advertise in! So if you are a trade members and don't have an ad, have a think about placing one in this newsletter - you know it makes sense! See you all at the grower day - and don't be late! **John Elford**

## Membership

G'day all. I'm pleased to report that our membership figures are steadily climbing and we welcomed another three members to the organisation last month. But of course it would be better if we could report gaining a few more. And what better opportunity could there be than to introduce potential new members to the organisation by getting them to come along to the next grower day! All the details are in this newsletter, but if you know of a potential new member, friend, neighbour etc that isn't a member, then please consider bringing them along. Plus of course we have the conference happening next year so another lure to get new people along, So feel free to 'phone a friend' and I look forward to seeing you and your potential new member at our next event. Thanks everyone, **Ian**



# Royal Brinkman

## Global specialist in horticulture

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T 03 9587 2566 | [info@royalbrinkman.com.au](mailto:info@royalbrinkman.com.au)



## royal brinkman

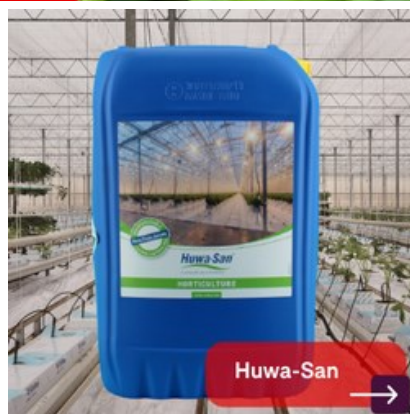
global specialist in horticulture

## Prevention is better than correction

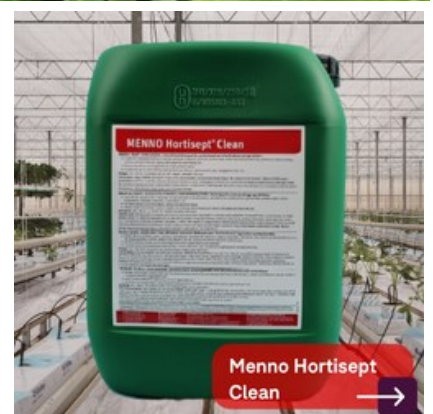
Prevent against diseases and pests



Menno Clean



Huwa-San



Menno Hortisept Clean

# Fernland



Contact Zak Iqbal on **0455 415 504**  
or [zak.i@fernland.com.au](mailto:zak.i@fernland.com.au)  
Contact Head Office on **1800 672 794**  
or [sales@fernland.com.au](mailto:sales@fernland.com.au)

## HORTICULTURAL Cropping Products



### READY TO GROW MEDIA for Your Hydroponic Crops

We stock and supply a wide range of grow bags, customised to your requirements. Supplying growers with grow bags for berry crops, vegetable's, cut flowers and medicinal cannabis.

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- ▶ UV Rated bags to your specifications
- ▶ Layered bags for longer term crops
- ▶ Consistent quality coir with stable EC
- ▶ Available in low EC or buffered
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### PRODUCT RANGE:

- ▶ Grow Bags
- ▶ Substrates
- ▶ Stakes
- ▶ Coir Pot Tops
- ▶ Shadecloth
- ▶ Coir Discs & Pot Tops
- ▶ Plant Bags
- ▶ Weedmat
- ▶ Shadecloth
- ▶ Bird Netting
- ▶ Hold Down Pins
- ▶ Fixing Channel
- ▶ Wiggle Wire
- ▶ Plastics



# Bushfire Season Warning

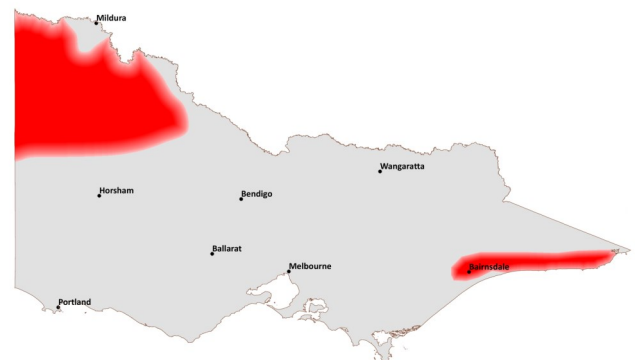


After two years of relative mild and wet conditions, the Australasian Fire Authorities Council has released the Seasonal Bushfire Outlook for spring 2023. This report serves as a strong reminder to communities and businesses across the country to prepare now. Australia's climate influences have shifted significantly since last spring. Following above average rainfall experienced during consecutive La Niña years, the Bureau of Meteorology predicts a switch to higher chances of above average

temperatures and below average rainfall for almost the entire country. Recent rainfall means many regions have also seen increased fuel growth, which is contributing to increased risk of bushfire for many regions of Australia during the spring season. increased risk of bushfire has been identified for large areas of the Northern Territory, Queensland and New South Wales, as well as regions in Victoria and South Australia. AFAC CEO Rob Webb said 'The climate influences driving increased risk of bushfire this season are widespread. Almost the entire country can expect drier and warmer conditions than normal this spring, so it is important for Australians be alert to local risks of bushfire over the coming months, regardless of their location.' 'Fire is a regular part of the Australian landscape in spring. Wherever you live, work or travel, now is the time to plan and prepare. Understand your risk, know where you will get your information, and talk to your family about what you will do.'



Seasonal Bushfire Outlook  
Spring 2023



Increased Risk of Fire

## AFAC Seasonal Bushfire Outlook Spring 2023

In Victoria, despite below average rainfalls for winter, much of the state has moist soils due to above average rainfall for much of the last three years. This moisture is likely to result in higher grass and crop growth during the spring outlook period. In the east, a strong drying trend has emerged recently in far east Gippsland, extending to central Gippsland, which has resulted in recent planned burn opportunities. As a result, there is a higher than normal potential for forests to carry fire in the outlook period, especially in and surrounding coastal communities close to bushland where vegetation was unburnt or lightly burnt during the 2019-20 fires. This outlook indicates drier and warmer conditions than usual for spring. As a result, there is a high likelihood that the bushfire season of 2023-24 will commence earlier across much of central, western and northern Victoria. In agricultural areas, elevated grass fuel loads will likely cure earlier than most years and may present an elevated risk until harvest occurs.

CFA Chief Officer Jason Heffernan recently gave his viewpoint on the Nine news channel.



Full details of the interview can be viewed at <https://twitter.com/i/status/1694606293523218577>

**CFA Chief Officer Jason Heffernan**

# The HFF 2024 Conference Update

Our 2024 Conference is being held at Tabcorp Park, Melton from July the 18th to the 20th, and we are delighted to announce that we already have a number of sponsors and exhibitors on board. The trade exhibition floor plan displayed to the right, highlights where booths have been allocated and where there are free exhibition areas. So if you are looking to secure an exhibition booth it would probably be a good idea to get in quick! To date we are delighted to announce that the following companies will be participating:-

**Naming Right Sponsors**

- Katunga Fresh Booth 23 & 24
- Perfection Fresh Australia
- Centuria
- Rainbow Bee Eater

**Platinum Sponsor**

- Rijk Zwaan Booth 34

**Dinner Sponsor**

- A & D Australasia Booth 37

**Exhibitors**

- Fernland Booth 3
- Garden City Plastics Booth 6
- A1 Growsystems Booth 20
- Ecomix Booth 21
- Redpath Ideal GH Booth 22
- Greenlife Gro Booth 25
- Biological Services Booth 26
- Royal Brinkman Booth 27
- AIS Greenworks Booth 28
- E.E. Muir & Sons Booth 29 & 33
- Roam Technology Booth 30
- Australian Growing Solutions Booth 35
- Apex Greenhouses Booth 36





# HFF Grower Meeting



## Hydroponic Farmers Federation Grower Meeting

### Tuesday 31st of October

### 25 Whites Road, Werribee South, VIC 3303

Our next Grower meeting and farm tour will be kindly hosted by “Alvin Gopal” at the Australian College of Agriculture and Horticulture

Join us (HFF) in an opportunity to see and talk with other Growers/Wholesales/Trade at this premier Research/Training facility.

After the facility tour we will be having lunch, which will be followed by a meeting

Please note: Non member cost - \$50.00

#### PROVISIONAL AGENDA

09:30 am Registration tea/coffee

10:00 am Welcome and introduction by the HFF President—John Elford

10:15 am Facility Tour, visit to production and research/training areas

12.00 pm Networking / Lunch provided

13:30 pm` Research/Training Opportunities at ACAH, Examples of Research including Results. Ie LED Lighting, Solar power, Boiler and Different types of Plants that can be grown Hydroponically. etc

14:00 pm Industry update. Graeme Smith

14:15 pm HFF wrap up - including briefing on forthcoming 2024 Conference

14:30 pm PCA Update

14:45 pm Any other business

15:00 pm Meeting closes

#### What You Can Expect to See At This Venue.....

- 1000m<sup>2</sup> glasshouse with 3 compartments, double screens, fogging, 2 irrigation mixer systems, Dutch Venlo ventilation, Priva control, L.E.D Lighting (Small Scale) etc
- Compartment 1 houses F&D rolling benches for propagation and many and varied potted plants
- Compartment 2 houses F&D rolling benches for varied potted plants (50%) & NFT for leafy greens (50%)
- Compartment 3 houses gutters for various vine crops
- Small stone-fruit pip and kernels boiler system
- Container Growing System.
- The facility is located on 17 acres with outdoor crops out-sourced, as well as various tools, machinery and a large shed complete with training room.

**FOR CATERING PURPOSES PLEASE RSVP BY TUESDAY 24th OCTOBER**

**PLEASE EMAIL RSVP TO John Elford—[johnelford@bigpond.com.au](mailto:johnelford@bigpond.com.au)**

**NAME/S.....**

**NAME OF BUSINESS/COMPANY.....**

**PHONE NUMBER/Email address.....**





# HFF Grower Meeting



**ACAH are located at 25 Whites Road, Werribee South, VIC 3303**



## HFF Represented Overseas

Our Secretary was recently in the UK, and took some time to catch up with long time friend Lee Stiles. Lee is the Secretary of the Lea Valley Growers' Association, as well as acting as the specialist protected Horticulture Insurance Agent for the NFU Mutual organisation. The Lea Valley itself is situated north of London and has been the largest area of commercial glasshouses in the UK, holding the title of the Cucumber, Pepper & Aubergine Capital of Britain. However the number of greenhouse horticulture farms has nearly halved in the last fifteen years, from over 1,500 to just 822. Lee has been a great representative of the industry and regularly liaises with government to lobby for the growers. 'The growers in the UK seem to face the same tensions with supermarkets as those in Australia - constant battles with prices and increasing demands for a variety of audits' said Lee. 'Sadly we are seeing a number of growers stopping growing altogether with increased energy costs and access to labour diminishing' added Lee. The growers that are leaving the industry are selling sites for industrial or domestic development, which in itself means that the overall area of production is decreasing. As part of the 'catchup' Lee took Tony to visit local grower Rob Morreale on his farm to look at production techniques. The farm produces cucumbers on grodan slabs and was a great example of progressive growing. The farm uses bumble bees for pollination - something we don't have access to in Australia which was quite a surprise to the UK growers! Overall it was a great chance to look at a farm on the other side of the world and to see how the growers operate.



**Tony Bundock and Lee Stiles**

## Solar Glass reduces energy use



**ClearVue Solar Glass Greenhouse**

A world-first clear solar glass greenhouse installed in Western Australia in 2021 using home grown BIPV technology has been found to have cut the agrivoltaic facility's energy use almost in half, compared to a conventionally glazed alternative. Perth-based ClearVue Technologies says the results from a "first of a kind" two-year study of the company's Australian designed clear solar glazing technology at Murdoch University has demonstrated a roughly 40% reduction in the solar greenhouse energy use intensity. As well as a "significant offset of facility energy consumption,"

the results of the study, published in peer-reviewed paper in MDPI's Technologies journal, also reveals remarkably consistent energy generation by the solar greenhouse. The ASX-listed ClearVue's solar windows use a transparent interlayer enhanced with nano and micro particles that spread the solar energy that hits surface toward the optimally positioned solar cells along the perimeter of the insulated glass units (IGUs). The company completed the construction of the demonstration greenhouse in April of 2021, at Murdoch University's new grains research precinct at its South Street campus, south of Perth. The demonstration facility used three different versions of ClearVue's transparent solar PV glazing panels to power research on two fronts: new plant breeding technologies and solar greenhouse energy generation. It also includes a conventionally glazed reference room. All rooms provided a controlled plant growth environment and were climate-controlled individually, using a combination of reverse-cycle air-conditioners, high-pressure water mist evaporators, motorised shading and louvre window-vent systems, ventilation fans, and an online-monitored custom-built, IoT building management system. The recently published study focuses on the results of long-term energy generation performance of the solar powered part of the greenhouse, compared to a non-solar powered room, and contrasted with a standard 6.6kW rooftop PV installation in metropolitan Perth. ClearVue says the solar energy harvested by the solar windows at the Greenhouse were data-logged continuously, via the system of Enphase microinverters connected to parallel-bundled solar window arrays. According to the study, initial measurement results analysed over the autumn–winter of 2021 suggested that the solar greenhouse demonstrated a relatively stable energy production output, despite having a large area of vertically oriented windows. On some rainier days, the report says, the greenhouse solar windows even outperformed the standard Perth rooftop array. The energy amounts harvested daily approached ~19 kWh/day. Some energy harvesting limitations were also observed, arising due to the maximum AC power output limitations of microinverters used, and affecting primarily the roof-mounted arrays on summer days. "Significant energy savings were demonstrated in greenhouse grow-rooms fitted with ClearVue solar windows, which demonstrated approximately 40% of total (season-averaged) energy self-sufficiency, due to the renewable energy generated," the report says. Solar glazing solutions have been talked about for years, yet until now, commercially available clear vision solar glass designed for commercial building façades has not been put to the test in a real-world environment for extended study," says ClearVue's chief business development officer Clifton Smyth. "The only long-term installation of its kind has shown that solar energy harvesting with ClearVue solar glazing solutions is not only feasible on vertical surfaces, but effective throughout all seasons. Each installation is unique, so results will vary depending on how demanding energy use is for any given building, and where and how the solar glazing is installed on a building. (Story courtesy of Sophie Vorrath and [RenewEconomy.com.au](https://reneweconomy.com.au), ) For further details feel free to contact Clearvue via their website at <https://www.clearvuepv.com/>

# PCA 2023 Conference Report

PCA 2023 was held at the Brisbane Convention and Exhibition Building at South Bank, beside the Brisbane River. With the theme of 'People. Planet. Profits', the focus was firmly on growers. Conference convenor and board member, Emily Rigby, said she was thrilled with the numbers of growers who attended, many making the last-minute decision to take part and many taking advantage of free grower passes on offer. "PCA conference gives us such a fantastic opportunity to connect, to network and to work together to grow our future," said Emily. "And what better way to do that than having so many growers here, who literally have their hands on plants, growing our future."

To encourage the grower focus, the conference began with a Plant Empowerment Workshop on Monday with Ton Habraken, Remy Maat and Evripidis Papadopoulos, who had flown in from Europe, to give a series of presentations that took a holistic approach to growing and addressed uniformity of climate, root zone and data.

Registrations and trade exhibits opened at 2pm with hundreds of attendees joining in for drinks and snacks at the Welcome Function sponsored by Achmea Farm Insurance, where there was ample opportunity to catch up with colleagues from across Australia and to view the large trade show.

The drinks and talking continued with two other social gatherings, the Growers Social Event at South Bank Beer Garden, and the informal Conference Dinner at Felons Barrel Hall (sponsored by Perfection Fresh).

PCA's biennial conference provides the opportunity to acknowledge excellence within the protected cropping industry. This year, business and individual awards were announced on during conference sessions. Student awards for student presentations as well as awards for posters were presented at the conference dinner.

The following awards were made to the worthy recipients

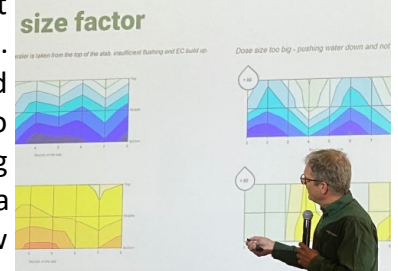
**Young Achiever's Award** - Samuel Davies, Head Grower, Perfection Fresh, for his passion for sustainability and food security.

**Industry Development Award** - Olumuyiwa Elliot, Garden City Plastics, for the uptake of sustainability programs including the P5 Recycle Program and for his contribution to NexGen activities in the nursery industry.

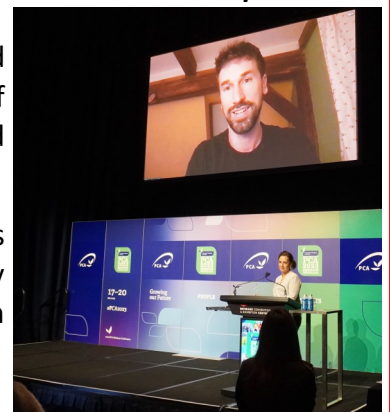
**Grower of the Year Award** - Josh Pirrone, Pirrone Bros, for proof-of-concept greenhouse system to achieve profitable and sustainable year-round production in the tropics.

**Rick Donnan Memorial Award** - Will Millis, Head Grower, Flavorite Group, for his significant contribution to the protected cropping industry and for his sharing of knowledge and his role in the expansion of the Flavorite Group

**Chair's Award** - Andy Swan, Coir Crop, for his positive and significant contribution to the protected cropping industry over a long period and his willingness to assist PCA through his mentoring role.



**Plant Empowerment Workshop**



**Remote presentations!**



**PCA Chair Matt Plunkett**



**Delegates prepare for a farm visit in ppe**



# Ecomix



**Pioneers in Manufacturing Cocopeat Growing Medium**



Ecomix Australia  
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sales@ecomix.com.au, 0434 930 977  
[www.ecomix.com.au](http://www.ecomix.com.au)



# The Mongolian Story

Agriculture in Mongolia constitutes over 10% of Mongolia's annual gross domestic product and employs one-third of the labor force. However, the high altitude, extreme fluctuation in temperature, long winters, and low precipitation provides limited potential for agricultural development. The growing season is only 90 – 100 days and rest of the days temperature drops to between -1°C to -50°C. Due to the cold climate, Mongolia cannot fully meet its vegetable needs and is dependent on imports from China. In 2011, HFF members David and Marika Pearson and others of the International Relief organization, Samaritan's Purse Australia, visited the "Vegetable Income Generation" (VIG) project. This project was funded by Samaritan's Purse Australia and implemented in Mongolia. This project was introducing indoor, outdoor vegetable production methods to the ex-herders who lost their livestock (income source) during the severe winter. During his visit, David recommended to the VIG project team to build well insulated passive solar greenhouses that would potentially both extend and increase the growing season and vegetable yields of project participants. Initially David wasn't happy with the single plastic layer hoop greenhouses used by project participants, so he drew his first well insulated greenhouse's design on the napkin while he had dinner with Mr. Turkhuu Yadmaa who is CEO of FARM Mongolia! After David's initial visit, the HFF community together with David invited Turkhuu and Hoiga, (who is Board member of FARM Mongolia) to meet Australian farmers at the HFF's Conference to gain more knowledge. That farming study tour combined with mentoring by David greatly helped to initiate the design and build of greenhouses that are now extending growing season as well as increasing productivity. The passive solar greenhouse design has since been updated and improved year by year, and in 2023 FARM Mongolia and farmers proudly built the 100<sup>th</sup> greenhouse in Mongolia. In addition to this, production using cheap Chinese LED's is now possible for 240 to 260 days per annum. The farmers of Mongolia and the FARM Mongolia community express their big thanks to the HFF and David and Marika for their support, technical advice and ongoing assistance! Take a bow David and Marika....a job very well done.



**Positive results in the greenhouse!**



**The refined greenhouse design**



**Turkhuu and David**



# Eclipse Enterprises

TOM-System is the new, quick, and easy working method for trellising greenhouse plants such as tomatoes, cucumbers, and capsicums/peppers to string lines. These metal clips support similar or heavier loads than other tying methods, do not hinder plant growth and support formation of the stem. **For a demo or quotation, feel free to contact Michael Tran at EE Muirs - 0418 899 586**



## AGRIFAST

### TOM SYSTEM

Greenhouse tying system

Innovative and unique Clipping solution for trellis and greenhouse crops, saving you time and money

Contact us for further information, pricing and your nearest distributor.



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V-46 -Tomato crop



V-46 - Cucumber crop



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E: info@eclipseenterprises.com.au  
www.eclipseenterprises.com.au

PHOTOGRAPH

# Western Sydney University

WESTERN SYDNEY UNIVERSITY



SCHOOL OF SCIENCE

**“From this course I gained a deep understanding of how crops are produced in controlled environments which I now apply in my job.”**

Mamta Khadka  
Assistant Grower  
Green Camel

To find out more about our Protected Cropping courses, give us a call on **1300 897 669**, visit our webpage or contact Prof Zhonghua Chen on **0466 544 696** [z.chen@westernsydney.edu.au](mailto:z.chen@westernsydney.edu.au) CRICOS provider code 00917k

# Powerplants



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# AgNova

## Protected Cropping

Wuxal Calcium Xtra Uptake can be applied in protected cropping situations at the following rates:



Calcium

CROP	RATE PER 100 L	NUMBER AND TIMING OF APPLICATION
Cucumbers	300-500 mL	Repeated applications at 7-10 day intervals starting about 10 days after fruit set to 2 weeks prior to harvest
Brussels Sprouts Cauliflower Celery Chicory Chinese Cabbage Endive Head Lettuce	300-500 mL	Weekly applications Cauliflower, Chinese Cabbage & Head lettuce: Start before head formation Celery: Start about 5-7 weeks before harvest, properly wetting the heart of the plant Endive: Start about 10-14 days after planting
Tomatoes / Peppers	100-400 mL	Repeated applications at 7-10 day intervals starting about 10 days after fruit set

Nutrient	Total Product Basis (% w/v)	Nutrient	Total Product Basis (% w/v)
Nitrogen (N)	16	Copper (Cu)	0.064
Calcium (Ca)	17.2	Iron (Fe)	0.08
Magnesium (Mg)	1.8	Manganese (Mn)	0.16
Boron (B)	0.08	Molybdenum (Mo)	0.0016
		Zinc (Zn)	0.032



Brad Johnson

agnova.com.au Innovation. Quality. Solutions. \*Plant's complete nutrition of 45 essential nutrients, 18 amino acids, 12 vitamins, 12 trace elements.

# Have you considered being part of the HFF Committee?

In the last newsletter I made a second plea for those that might be interested in coming on board and joining the HFF organising committee. The response was shall we say 'underwhelming' to say the least! The crickets were chirping

# COME ON DOWN

away as I awaited the flood of applications - which must have got lost in the post or email system! In fairness we did have an overseas application from a trade member, but we are really in need of having grower representation on the committee. so we are still on the hunt for some new blood to join us. So what's the commitment? Well as we have mentioned before, basically a zoom meeting once a month to deal with the behind the scenes management of the organisation (which also will guarantee you a good laugh with the rest of the team!) and lending a hand at the practical field days and the conference organisation. You will also get the opportunity to have direct input into the overall direction that the organisation is taking for the future. The committee is more than willing to take new ideas on board, so if you have a burning wish to see something particular happen, this could be your opportunity! Feel free to have a chat with me or any other of the committee members at the grower day - we'd love to hear from you! **John Elford**



## Vale Brian Hanger

It is with great sadness we advise of the passing of Dr Brian Hanger on 19th May 2023. Brian's involvement in hydroponics began in 1957, when as an undergraduate at Melbourne University, he was first introduced to plant nutrition and was fascinated by the way nutrients affected plant growth and from then on, his career was focussed into this area of horticultural science and hydroponics. On completion of his studies, a position was created for Brian in the Victorian department of Agriculture to manage a research program using radioactive calcium to unravel many secrets on how calcium was taken up by the plant roots and leaves and distributed throughout the entire plant and what factors could change this movement. This work was conducted over 15 years and received world-wide recognition whereby Brian received his PhD and was the keynote speaker at an international conference in Beltsville USA in 1977. In the 1970's, Brian had a major change in his career that became focussed on growth stimulation of cereals by microorganisms when grown in sand culture and frequently it was found that seedlings grew faster when treated however the effect became lost as the plants developed and aged. Brian was invited to establish a tissue-culture laboratory at the Research Institute at Burnley Horticultural College, with the aim of freeing important agricultural crops from virus diseases and transferred his hydroponic skills and know-how to the tissue culture tube and flask and in a few years, had freed numerous potato, chrysanthemum and carnation varieties, amongst others, from viruses and devised a number of simple and practical methods for their rapid multiplication. Plantlets that were removed from tissue cultivation were grown on by hydroponic methods. In the Mid to late 70's, Brian monitored the development of the European hydroponic industry that initially focussed on NFT systems until the anticipated returns were not realised and around the same time, saw professional flower growers in Victoria develop a simple containerised system for carnations and roses using scoria as the substrate, to control the spread of root diseases. Some of these early systems remain to this very day. Brian was a ready participant at the various hydroponic seminars and conferences at Burnley Horticultural College, in the early days, with the first one, with a specific focus on hydroponics, being the Commercial Applications of Hydroponics Seminar in July 1979, followed by another seminar in 1980. In the 1980's, Brian conducted a number of surveys of commercial hydroponics in Australia to provide for the first time data on the industry, its problems, successes, constraints and main crops, and for many years, gave a crash course in hydroponics to Antarctic teams, to enable them to operate the hydroponic units which had been established at a number of Australia bases. In 1982, Brian moved to the Victorian Horticultural Research Institute at Knoxfield that enabled him to apply his hydroponic skills and work with different growing systems that had direct application to the commercial growers where he experimented with and trialed the hydroponic production of Australian flowering plants (Kangaroo Paw, Sturt's Desert Pea and ornamental eucalyptus species), in rockwool and scoria. Brian also undertook a highly successful research program for the selection of improved and outstanding Gerbera varieties, using both tissue culture and hydroponics to overcome disease and propagation problems. During this decade of research, Brian increasingly wanted to impart his wealth of experience and knowledge more directly to the commercial hydroponic industry and growers, so in 1991, he resigned from the VIC Dept of Ag and became a well known and successful horticultural consultant. Brian was a foundation member of the Hydroponic Society of Victoria (HSV) and became President, and the Australian Hydroponic Association (AHA – forerunner to PCA), and for over 8 years was the editor of HSV newsletter and inaugural editor of Soilless Australia and was Chair of a highly successful AHA Conference in Melbourne in 1993. From the early 1980's, Brian was instrumental in supporting the fledgling Victorian and Australian hydroponics industry by developing and sharing the fundamental growing principles and hydroponic solutions, their chemistry and effect on crop





## Vale Brian Hanger

production, that paved the way for the professional industry we now enjoy and for this the PCA and HFF, amongst many others, owe him a great debt of gratitude and thanks for a life well served by having an independent, science based expert, seen as very important in terms of understanding the processes and building credibility for an emerging industry. Brian Hanger will be much missed by the industry for his long and important contributions, calm and generous manner, professional support to anyone who asked, and a life of continuously giving freely to others and we extend our sincere condolences to Susan and the extended family.



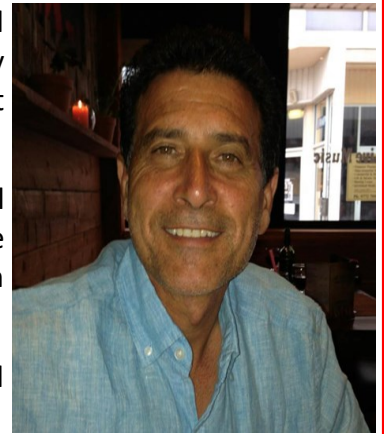
*This tribute kindly compiled by Graeme Smith, Steven Carruthers and Geoff Connellan*

## Vale Frank Donato

It is with great sadness that we advise of the passing of the well known and highly respected grower - Frank Donato. Frank passed away on the 9<sup>th</sup> July 2023 and was farewelled at a memorial service and requiem mass at St Macartens Catholic Church.

Frank was born on the 11<sup>th</sup> August 1957 in Camberwell. After his initial schooling, Frank continued his educational journey and attended La Trobe University to study for his Bachelor of Agricultural Science, and graduated from there in 1980

He then went on to study a Diploma of Education at Monash University and graduated from there in 1986



Frank was always passionate about plants and devoted much of his time and knowledge to those around him whom shared the same passion. From the site known as 88 Craigie Road, Mount Martha, Frank alongside his parents who owned and operated the general store known to locals, started experimenting in growing soil grown strawberries and other vegetables and selling them at the store.

Frank was something of a visionary, and he decided to construct eight large glasshouses on the site and commenced growing a variety of herbs. The freshly grown produce was used to supply the large supermarket chains in Victoria and New South Wales, which including Coles and Woolworths as well as Ritchies stores. Frank then teamed up with Country Fresh Herbs and the two businesses embarked on a program of mass producing Basil for all stores across Australia. Frank was a leader in the industry, and he became fascinated with growing herbs and lettuces under LED lights. His goal was to see if he could grow the crops without natural sunlight, allowing various businesses to use these methods within their operational sphere, and have them operate anywhere in the world. Frank was indeed a pioneer at a time when not a lot was known locally about hydroponic production. But it was not all work that was important to Frank, and he married his wife Luana, and then later welcomed their two boys Nicholas and Daniel into the world.

Frank will be missed by all the people associated within the hydroponic industry, and his associated wealth of knowledge and passion for growing the juiciest tomatoes, sweetest strawberries and evergreen herbs whilst ensuring the glasshouse was at the perfect temperature.

Frank's eldest son Nicholas operates and owns the café currently on the site at 88 Craigie Road, Mount Martha, so please feel free to visit when on the Mornington Peninsula. Rest in peace Frank.

## Harvesting by vacuuming



As we see technology constantly evolving in our industry, the use of robotic systems to replace manual labour is an ever developing area. To optimize the future production of cherry tomatoes, Syngenta Vegetable Seeds recently worked with Pittsburgh, PA-based Four Growers, Inc. to test its GR-100 robotic harvester in tomato research.



Today tomatoes are harvested with human hands, which accounts for a sizeable portion of overall production costs – up to 30% of the total. On top of costs, growers are finding it more difficult to find enough laborer to service their requirements. With rampant labor shortages, growers need solutions to ensure consumers have access to the tomatoes they need. Enter robotic harvesting.



“Using robotics in agriculture will enable us to eat higher quality, healthier, more affordable produce,” says Brandon Contino, Four Growers CEO. “Unlike other machines that we see in the field today that harvest every crop (ripe or unripe) in one pass, at Four Growers, our robotics and AI enable us to pick produce Individually so that we only harvest those that are perfectly ripe.” Harvesting robots can save time and human resources. For Syngenta, it is important to partner with Four Growers to be ready for the production styles of the future and fully understand needs of the grower.

***The vacuum harvesting system in action***

Running on the inter row pipe rail system, the robot has the capacity to see the ripening fruit via it's on board camera. The robot will then decide whether or not the fruit is at the correct stage for harvest, and if it is at the correct stage - the robot literally sucks the fruit off of the vine by placing the machines collection nozzle against the fruit. The harvested product in turn passes up a tube and into a crate. When full this crate moves onto a packing cart and once the row is finished the cart automatically returns to the

pack area. The harvesting robot has a working duration of up to eighteen hours before requiring recharging. On top of the harvesting capacity, the robot will also enable growers to gather and assimilate data relating to harvest volumes and timing, which in turn provides greater insight into the the overall growing process.

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