



## A message from our Chair

Welcome to the September Edition of Growing Undercover – I hope this email finds you all well and that your crops are kicking into gear with the beautiful spring weather about.

Well, it has been another month of lockdown for those of us in Greater Sydney, Melbourne and it's surrounds – it's still a very weird way to operate a business and many people are growing more and more weary mentally. Please reach out to the PCA Directors if you just need someone to listen to you or if there is anything we can try to assist you with.

### VACCINATION IN THE WORKPLACE

I am exceptionally proud of our big team at Family Fresh Farms, everyone has rolled up their sleeves and had their first dose of AstraZeneca – unfortunately, we didn't have the privilege to wait for Pfizer – as we have over 70 people living and working together on this site – so obviously a high risk business IF anyone gets infected with the virus.



I've been asked how we managed to get everyone on board with the idea – and this is how we did it.....

**1. The management lead by example** – we spoke openly and honestly about what we knew about the virus and the vaccine – we never once professed to be doctors or scientists but we just knew we cared enough about people's health especially when many of our staff are living far away from home and families to care for them.

**2. The team leaders were onboard** - we were



**Nicky Mann • PCA Chair**

extremely fortunate to have a very progressive and informed group of leaders who wanted to be vaccinated. (AstraZeneca is the only vaccine available in Vanuatu – so their families back home do not have a choice of vaccine – this has helped!).

**3. Started with small groups** - we did the vaccination in small groups of 10 to begin with at our lovely country pharmacy who treated our team with lots of respect and made them feel like heroes.

**4. Celebrated the wins** - we took lots of photographs and really celebrated the people taking responsibility for their own health & safety and that of the rest of the team working at this farm.



**5. Genuinely cared and took the concerns of the side-effects seriously** - these first workers then were given a day off to recover as we were worried of side-effects.....but nothing – they were all fine, happy and strong. By the following day – the list of volunteers to get vaccinated grew to 20 with a waiting list for the following day.....

**6. Amazing local pharmacist who cared and respected our team and farm** - our lovely pharmacist accommodated the groups of 20 willingly and encouraged us to come back every afternoon with anyone wishing to be vaccinated. Within a week we had 78 of our staff (including our local Australian team) vaccinated.

**7. Respected people's choices and opinions** - 2 of

### A message from our Chair (cont.)

our NIVANS resisted vaccination claiming that it was “666” and “the work of the devil” – this was ok and I was really understanding of their opinion and point of view. However, the rest of our team were not so forgiving and said they had all been apprehensive about getting vaccinated but felt so much happier after protecting themselves from serious illness from getting COVID – and it was safer for everyone to be vaccinated on this farm



**8. Let the leaders and team decide what's best for everyone** - the leaders requested that these 2 workers for their (unvaccinated employees) own safety be drafted to another employer in the Seasonal Worker Scheme where everyone wasn't vaccinated so people would be extra careful of catching the virus



in the first place – with this information the 2 outstanding Nivan's decided they would like to join the rest of the team and be vaccinated.

**9. Be grateful as it is extremely daunting and intimidating for some people** - they were applauded and thanked by everyone living in our accommodation when they finally had their vaccination – our leaders where there to support and care for these two workers on the day of their 1st vaccination. On reflection of the process 2 days after vaccination – they were both very pleased they had made this step and felt very included and respected in our team.

We are still being extra careful on our farm and have together decided to wait 8 weeks between the 2 doses to get maximum benefit but also be fully vaxxed (double vaxxed) before strict lockdown rules reduce. The Vanuatu government is insisting all returnees to the island are vaccinated and our farm is also encouraging all incoming teams be vaccinated before they arrive. We do respect our people's choices but the last thing we want is someone becoming seriously ill far away from their loved ones in a foreign country.

Until next month – take care, be kind and enjoy protected cropping and please take solace in the noble work you do to keep our nation fed and healthy. Thank-you!



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### Advertise here!

Looking for more advertising opportunities?

Then look no further!

Our Undercover Grower's Newsletter has you covered.

Quarter page advertisements are available or you can purchase a package deal which includes one newsletter advertisement and a commercial e-mailout.

For more information visit our website: [protectedcropping.net.au/publications/advertising](https://protectedcropping.net.au/publications/advertising)

or email us at: [protectedcropping@asnevents.net.au](mailto:protectedcropping@asnevents.net.au)

## PCA Advocacy Update

Greetings to all our members.

I was reading an article the other day from the Food and Agriculture Organisation of the United Nations which predicted the world must increase agricultural output by 70% by 2050 to feed a growing population.

Another intergenerational report of over 10,000 young people surveyed in Australia found that the 3 most important priorities for the future include climate change solutions, wellbeing and security, and equity and inclusion.

It got me thinking how these priorities align with the growth and development of protected cropping in Australia and what our industry will look like in 2050?

One of the key projects advocated by the PCA in the last 3 years is the development of a National Map of Protected Cropping systems. How will we know that the sector has grown if we don't have accurate baseline data? This exciting project has now started to establish baseline data on the size of our industry and will be critical to invest in year on year.

The protected cropping industry is innovative and technologically driven by nature and undoubtedly part of the future in a changing climate where food security is - and will increasingly become more important worldwide.

That said, investing in our people is crucial to meet the growth and development of our sector in addition to better engaging with our customers about the protected cropping industries sustainability credentials.

How can protected cropping products be better differentiated in the marketplace across the productivity and sustainability areas to grow the horticulture sector? How can we improve the shelf life of protected cropping grown products to contribute to halving food waste by 2050?

The recently released Hort Innovation Sustainability Framework is one such opportunity to engage with our industry on how to tell this story – particularly to investors and the consumer. Many businesses are now innovating to engage the consumer around how products are grown, packed, and marketed and that it



**Matthew Plunkett • PCA Deputy Chair**

is being undertaken in an ethical and sustainable way.

Improving the profitability of our growers is crucial so they can invest more in people and innovative solutions to the challenges they face. Telling the story about how protected cropping products can grow more products with less inputs is a key point of difference that the protected cropping industry can leverage and build upon.

New growers looking to move into some form of protection will need significant help and support.

Research and development in targeted areas that give the best return on investment will also be crucial that better reflect the relevance to Australian conditions. Extension of research and working with our allied trade, other peak industry bodies and partners will also optimise these returns on investment.

Long term solutions to the labour workforce constraints are well documented in addition to ensuring red tape is minimised so our sector can reach its full potential. Export opportunities and new markets are also significant to diversify opportunities for the horticulture sector.

It is essential that we listen to, and actively mentor and engage with our Next Generation. The PCA currently undertakes this through our student membership category, representation on the Industry Advisory Council, the formation of the Next Gen group (planning underway) and active involvement in our PCA conference.

The PCA encourages all our members in the 18–35-year age bracket to participate in our Next Gen group and stay tuned for more on these initiatives.

In closing, it was concerning to hear that up to 20 growers in the Western Sydney area had contracted COVID-19 over the last couple of months. Fortunately, many have made a full recovery and vaccination rates are increasing.

Until next time, take care and stay safe.

## Request for pre-farm gate input to national waste program via Agrifutures: Workshop Wastes

Agrifutures Australia is running a program of work to support innovative ideas and options for the avoidance, recycling, and reuse of pre-farm gate waste (specifically wastes from workshops), and ensure there is clear direction and coordination of activities for the sector to achieve the required change. [Murrumbidgee Earth Sciences](#) and [Science into Action](#), along with sector experts, are investigating practical options for agriculture, fishery, and forestry communities to revalue and manage these workshop wastes. While we have our own expertise frankly, to develop useful and practical ways of managing workshop waste, we need to understand what concerns you/your members and what you/they need.

We are running some online sessions to work with people who run or manage family-owned fishing, forestry, or agricultural enterprises, as well as representatives of peak bodies, and associated relevant government bodies.

If you are interested in participating, please click here to find out more and register:  
[www.eventbrite.com.au/e/169222939367](http://www.eventbrite.com.au/e/169222939367)

Please note that we will need to limit participation to less than 75 people (spread across the sectors and the country) directly in the online sessions however we welcome ideas, thoughts or other engagement via reply email or [info@scienceintoaction.com](mailto:info@scienceintoaction.com).

## Biosecurity and Hygiene



**Shané Steffen • PCA Director**

The impact of pathogens and pests on the health and production of crops is a rising challenge facing today's growers.

Diseases not only reduce crop productivity but also cause disruption to the movement and marketability of the produce. Human activity can be a common method of spreading infection of diseases such as *Phytophthora* spp. Anyone coming onto a farm can pose a biosecurity risk for the incursion of many pests and diseases that catch a ride on clothing, skin, hair, footwear or vehicles, machinery and tools.

Having effective hygiene management practices can significantly minimize the potential for pest and disease spread. One of the first steps to reduce this risk and spread on-farm is to install biosecurity signage at all property entrance points.

AUSVEG has Biosecurity signage available free-of-charge.

Please send an email to [science@ausveg.com.au](mailto:science@ausveg.com.au) or call 03 9882 0277 to request signs or for further information.



The PCA Board would like to extend our warmest welcome and good wishes to our new members.

### Individual Member

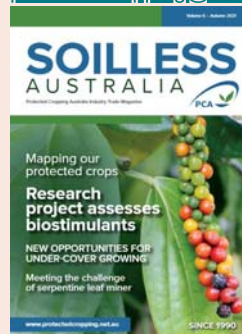
Patricio Brevis Acuna, Ambius  
Sandcher Honnor, Autogrow  
Craig Salmon, Advanced Nutrients

We look forward to many successful years together!

## Soilless Australia Hard Copy Opt-Out

Wanting to be more eco-friendly?  
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Log into your dashboard and change your preference or send us an email at [protectedcropping@asnevents.net.au](mailto:protectedcropping@asnevents.net.au).



## PALM - Pacific Australia Labour Mobility Scheme

DFAT have released a new website on the PALM scheme, which includes the attached factsheet on the changes that have been announced around the Pacific Labour Scheme and Seasonal Worker Program. Hopefully the factsheet should be able to cover off on any questions people might have.

[www.palmscheme.gov.au](http://www.palmscheme.gov.au)

Further changes are under consideration by government, being led by DFAT. Timelines for further changes are likely end of the year (this is referred to in the factsheet).

### PALM Factsheet

## Protected Cropping System Survey



You can help build the national map of Australia's protected cropping systems by completing this 60 second survey in just four simple steps!

1. Launch the survey by clicking [this](#) link (it will open in any browser on any device)
2. Add location of the protected crop by clicking on the map:
  - either select the cross-hair button to quickly 'find my location' or search for an address
  - place the pin on the protected crop by clicking

the map and continue the survey (from a mobile device confirm the location by selecting either the ✓ or the back arrow (<) button in the top-left corner to continue the survey).

3. Select system type and optionally include the crop and a photo.
4. Click submit to complete the survey!

Scientists at the University of New England's Applied Agriculture Remote Sensing Centre (AARSC) will interpret the survey information to update the national map, senior researcher Craig Shephard said—

*"The map is built from multiple-sources of information including satellite imagery, industry and existing land use data. We developed the survey as a simple location-based tool to enable contribution from industry and stakeholders—its invaluable to building an accurate map".*

The national map includes all commercial systems of: polytunnels, shadehouses, glasshouses, polyhouses and permanent nets.

The map will assist the Protected Cropping Industry prepare for biosecurity incursions and coordination of on-ground surveillance, and for quantifying the impacts following a natural disaster event. Identifying the location of specific farming systems also provides essential information around value-chains, traceability, transport and market accessibility.

Importantly, the mapping adheres to national standards and privacy concerns are acknowledged and respected as no personal or confidential information is collected nor contained within the map.

This initiative is being delivered through RDC [Hort Innovation](#) and we are fortunate to have the support from [Future Food Systems](#) CRC, [Protected Cropping Australia](#) LTD and Greater Sydney and North Coast [Local Land Services](#).

Contact: Craig Shephard, University of New England  
e: [cshepha2@une.edu.au](mailto:cshepha2@une.edu.au)

Take the Survey

Media Release

## Protected Cropping Australia 2022 Conference

PACIFIC BAY RESORT,  
COFFS HARBOUR, NSW

28 – 31 MARCH 2022

[www.pcaconference.net.au](http://www.pcaconference.net.au)



## Emily says farewell to Cannatrek



**Emily Rigby • PCA Director**

After more than four years with Cannatrek as part of my medical cannabis journey, this time has now come to an end.

My journey in the cannabis industry so far has been nothing short of incredible.

In early 2016, when medical cannabis became legal in Australia, I embarked on a change in career to give more back to humanity in my field of work - not to mention the opportunity to research one of (if not) the most beneficial plants on earth 🌿 🌿 🌿

During these years, I am honoured to have played an integral role in advocating, researching and establishing a blooming Australian medical cannabis industry. Including establishing a licensed medical cannabis cultivation and research facility, releasing Australian grown cannabis medicine into the local Australian and export markets; and participating in every opportunity to improve education, patient access, research, and regulatory reform, to remove the stigma surrounding this magnificent plant.

In this short but challenging time, the Australian medical cannabis industry has come so far but admittedly still has a long way to go. My contribution to Cannatrek, building it from start-up to a successful company with over 50 employees and Australian grown cannabis medicines now available, is a testament to my passion and dedication to this plant medicine.

I would like to thank everyone who has supported me through this project 🌿 🌿 🌿



## Did you know PCA offers a range of Membership options?

Financial Individual Members are usually individual grower or smaller allied trade organisations. Corporate Memberships are usually for larger grower or allied trade organisations.

See our corporate members at <https://protectedcropping.net.au/our-partners/>

A Corporate Membership 'bundle' includes five Individual Memberships and up to 10 Subscriber Memberships. Subscribers are non-financial members who are encouraged to upgrade to financial membership status to access PCA's full range of benefits and opportunities.

Details of Membership options are available at: <https://protectedcropping.net.au/become-a-member/> or by contacting:

Michelle Harris - Spencer: +61 (0) 3 8560 4391 or at [protectedcropping@asnevents.net.au](mailto:protectedcropping@asnevents.net.au)



## Tell us your story!



People love hearing about what their peers are up to - and we're always on the lookout for news about what's going on in the protected cropping industry. Our monthly e-newsletter, Growing Undercover, is a great place to catch up on these stories.

If you've got something you'd like to share, or there's an issue you'd like addressed, we're all ears.

Please give us a call on +61 (0) 3 8560 4391 or via email: [protectedcropping@asnevents.net.au](mailto:protectedcropping@asnevents.net.au)

# Should you grow blueberries in 100% coir substrate?

By The Galuku Team



Around the world growers are moving their blueberries above ground and into substrate. While some argue that this substrate should be a blend of coir, peat and perlite, Agronomist Ronan Hoyle believes that not only can blueberries be grown in 100% coir substrate, but in 100% coir they thrive. Hoyle says “With a moderate budget and use of current day technology, growers are able to accurately fertigate and monitor blueberry crops in 100% coir, providing them better yields and improved farm productivity.”

What then do you need to factor in to make the switch to 100% coir substrate and how can you improve your blueberry crop’s potential?

## Consistent Monitoring

The level of control coir provides also brings with it the requirement of consistent monitoring. To effectively manage blueberries in coir substrate you need to monitor and control three basic parameters; substrate moisture content, substrate pH and substrate EC. If not kept in check, these basic parameters can have consequences on crop productivity over consecutive years.

While it sounds like hard work, modern technology actually enables consistent monitoring in a centralised place, with control for optimisation at the touch of a button (or a few). With the right technology, checks can be easily undertaken daily and real-time, providing growers with the necessary feedback to adjust their crop inputs for maximum success.

## Technology for better monitoring

At Galuku we recommend the Bumpercrop RootZone Monitoring System. This system is designed to increase yield with automated rootzone, water content and EC Sensors.

## Coir Composition

Equally important as monitoring, is the integrity of your coir substrate. For the best results it is vital that the right quality and grade of coir for blueberries be selected for the particular site they will be grown.

According to Hoyle, “Your coir substrate should encompass a good balance of water holding capacity (WHC) and air-fill porosity (AFP) whilst also be free draining.”

Coir composition especially matters due to the relatively shallow root structure of blueberries. Commonly, the majority of resource seeking roots for the plant are located in the top 20-30cm of the substrate profile. This needs to be factored in the grade and composition of your coir, to ensure the chip size, fibre length and screened fines provide the necessary WHC and AFP required for crop longevity. As well as taking into consideration the capillary uptake value (CUV) and water retention efficiency (WRE) of the coir, so as to allow for optimal use of the upper substrate profile.

## Container Specifications

Lastly, for greater success growing blueberries in coir substrate container choice is also important. The right container ensures substrates characteristics are not compromised, and has great bearing on the productivity of crops over many years.

According to Hoyle the “size of the container should ensure enough substrate volume for proficient root growth relevant to the crop type.” While there has been a historical belief that larger volumes of substrate mean better yields, Hoyle explains that there is no merit to this and in fact “the greater the container volume above optimal, the more difficult it is to control or steer the substrate moisture and EC.”

With less control, a less consistent root-zone environment is created, opening up more variation which can quickly have a negative impact on moisture sensitive crops like blueberries. Rather by pairing the appropriate container size to the crop type, you provide control over the 24hr moisture pattern.

The transition from commercially growing blueberries in soil to growing in 100% Coir substrate has changed the way for many farms. With coir, many growers are able to overcome site and soil conditions and produce

## Should you grow blueberries in 100% coir substrate? (cont.)

better yields from their crops. Whether the in ground struggle in soil pH, drainage characteristics or other challenges, crop specific coir formulation and dedicated fertigation are getting growers around the world better results.

### Containers and bags to help you succeed



Easyfil Big Berry

Bags Drainage Pads

Coconut Fibre Weed Mats

Plantlogic Pots

For more information about growing blueberries in coir substrate visit:

[www.galuku.com/blog/should-you-grow-blueberries-in-coir-substrate/](http://www.galuku.com/blog/should-you-grow-blueberries-in-coir-substrate/)

## Greenhouse Growers Toolbox

The *Greenhouse Growers Toolbox* is brought to you by *Graeme Smith Consulting*



*Graeme Smith Consulting* is a company founded by Graeme Smith in 1998 to supply specialised services to the national and international protected cropping industry.

Graeme entered the industry as a greenhouse grower in the late 1980's and since this time has delivered a range of services to the wider industry including,

1. Greenhouse & Hydroponic System Design
2. Principal Contractor, Project Management & Work, Health & Safety Services
3. Greenhouse & Hydroponic Crop Advisory Services
4. Representation on state, national and international Industry bodies
5. Developed Climate & Financial Feasibility Studies for New & Extended Greenhouse Projects
6. Delivered Industry Training in Protected Cropping, Soilless Culture & Hydroponic Systems

*Graeme Smith Consulting* acknowledges that protected cropping is the 'modern, efficient and sustainable face of horticulture' and has the capacity to increasingly meet the future needs of sustainable quality food production in the key areas of tomatoes, cucumbers, capsicums, egg plant, Asian greens, herbs, lettuce, strawberry, etc.

Additionally, the integration of aquaculture & hydroponics to convert a waste stream into a revenue stream via 'aquaponics' is the next logical step to produce high-value crops on the same footprint with connected water with negligible impact on the natural environment.

Add to this the floriculture production of cut-flowers in protected cropping systems, it delivers a modern sustainable industry going forward that forms part of the horticultural production solution for future human needs that has additional benefits in high yield, quality and produce uniformity.

This updated app is intended to be an industry resource to meet the needs of growers, researchers, hobbyists, trainers, retailers, suppliers, advisors, etc in the wider area of protected cropping.

This is the third release of this app from Graeme Smith Consulting and it is planned to continue to make available additional calculators in the future.

For more information visit [www.graemesmithconsulting.com](http://www.graemesmithconsulting.com)

**App Name:** Greenhouse Growers Toolbox

**Description:** The Greenhouse Growers Toolbox was developed for commercial & hobby greenhouse or hydroponic growers for everyday system design or management use. (n.b. all app information is given in good faith however no liability is accepted for content or its application.)

The complete Greenhouse Growers Toolbox App is a suite of 15 calculators that include;

**1. Greenhouse Acid or Product Dosing**

Calculate treatment PPM or volume (litres) of various products/acids when added to water

**2. Greenhouse Area & Volume**

Calculate area (m<sup>2</sup>) or volume (m<sup>3</sup>) of greenhouse structures

**3. Greenhouse Boiler Fuel Cost**

Calculate and compare costs of various common greenhouse boiler fuels (\$ per GigaJoule of energy)

**4. Greenhouse Hydronic Boiler Calculations**

Estimate minimum required greenhouse boiler size (in kW & MCal/hr)

**5. Greenhouse Dripper Timing and Volume**

Calculate greenhouse irrigation flows, rates & volumes (media-based dripper systems only!)

**6. Greenhouse Irrigation Pump Capacity**

Calculate required greenhouse irrigation pump capacity & maximum number of solenoid valves (media-based dripper systems only!)

**7. Greenhouse Irrigation Rate Targets**

Calculate greenhouse irrigation volumes based on area, dripper rates and light sum, and compare to actual irrigation volume delivered over the same period

**8. Irrigation Timings per J/cm2 Calculations**

- Calculate how often (in minutes) you need to irrigate based on current radiation intensity (in W/m2 and reverse).

**9. Air Filled Porosity (AFP) Calculations**

- calculate approx growing media water content for pots/containers in %, based on weight in grams

**10. Greenhouse Radiation & Light Units**

- Compare and convert common light (radiation) units used in greenhouse horticulture (inc. kLux, W/m2, J/cm2/h and mol/m2/h).

**11. Assimilation Lighting & DLI Calculations**

- Convert and sum common light (radiation) units used in greenhouse and indoor horticulture: PPFD - DLI - Radiation Sum - Total DLI, & reverse! (n.b. allows for both additional sunlight and/or artificial lighting if desired).

**12. Greenhouse Nutrient Deficiency Chart**

Use the flowchart to determine in a systematic way which element/s may be causing deficiency symptoms in the leaves. (Includes typical examples of leaf deficiency)

**13. Greenhouse Nutrient Feed Recipe Guidelines**

Standard feed recipe guidelines for both Open and Recirculation media based hydroponic systems (in PPM and mmol/μmol) and includes most common greenhouse vegetable crops

**14. Greenhouse Nutrient Drain Reference Guidelines**

Enter laboratory analysis of your hydroponic drain water and compare to reference guidelines for your vegetable crop (in PPM and mmol/μmol) and includes automatic EC correction (in mS/cm)

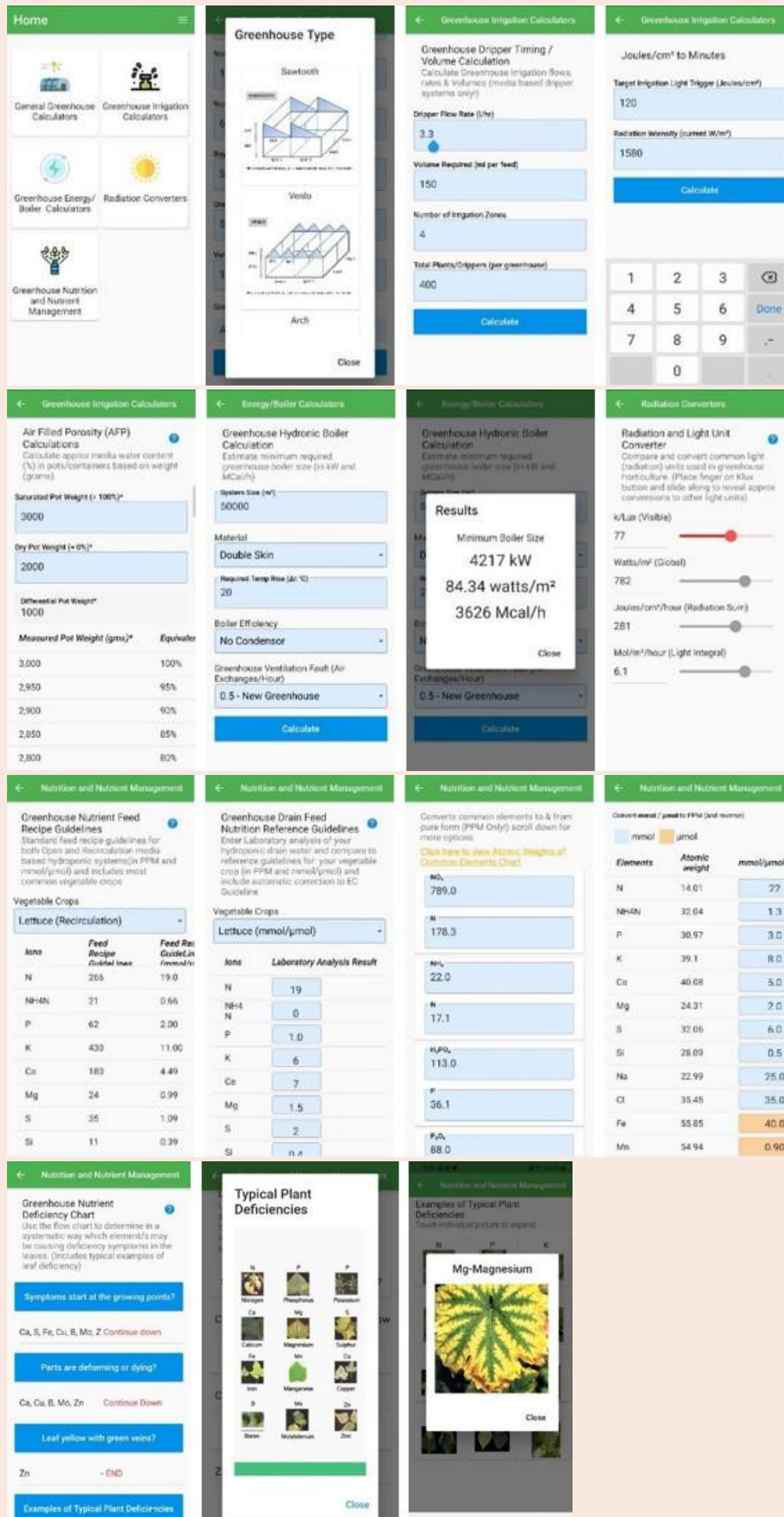
**15. Common Elemental Conversions**

Converts common elements to/from pure form (PPM only!) and lists common atomic weights

You can download the app from the [Google Play Store](#) for an Android version, or from the [Apple Store](#) for an IOS version

## Greenhouse Growers Toolbox (cont.)

### Example App Screenshots



# THANK YOU TO OUR CORPORATE MEMBERS FOR YOUR ONGOING SUPPORT

