

New frontiers in protected cropping

Cannabis as a medicine is nothing new – its use spans several thousands of years. However, the global ‘war on drugs’, prohibition and blatant mis-information over the past century has certainly set us back in terms of research, cultivation and acceptance of what is now re-emerging as a highly beneficial and therapeutic medicinal plant says EMILY RIGBY.

Thankfully there is currently a rapid global shift de-stigmatising the cannabis plant, making it available as a ‘new’ medicine across the world, including Australia. Increasing research is demonstrating the growing evidence to support medical cannabis as a valuable option for treating a range of symptoms.

Earlier this year, the World Health Organization recommended that the United Nations re-schedule cannabis. Today countries around the world are racing to become leading global suppliers of medical cannabis.

Meet the cannabis plant

The cannabis plant and its interactions with our own endocannabinoid system are nothing short of remarkable. The American Herbal Pharmacopoeia monograph on cannabis suggests there are more than 700 unique chemical compounds in the cannabis plant. Those compounds include at least 144 different cannabinoids and more than 100 different terpenes that have been identified within different cannabis varieties, known as ‘chemovars’ (that is, chemical varieties).

What’s happening in Australia

In February 2016 the Australian government established a licensing and permit scheme for the lawful research, cultivation and manufacture of medicinal cannabis products. Australian doctors and specialists can already legally apply to prescribe a range of (predominantly imported) cannabis medicines for certain conditions under patient special access schemes.

But the Australian medical cannabis industry is still in its infancy. The regulatory process to obtain licences and permits to cultivate, research and manufacture cannabis is a lengthy and somewhat frustrating and painful process. The government body in charge, the Office of Drug Control (ODC), is scrambling to process and regulate this new industry while being significantly understaffed. The ODC is unfortunately currently overwhelmed by the number of applications from companies wanting to get into the industry, as analysts have repeatedly underestimated the market for cannabis, not only in Australia, but around the globe.

Future directions

We know Australia is well positioned to lead the world in this new and emerging industry thanks to its innovative and adaptive agricultural and biomedical industries, international trade relationships, quality branding and favourable climatic conditions.

As the use of medical cannabis increases worldwide, the domestic and global medical cannabis market represents a new opportunity for Australian protected cropping and biomedical industries.

We need to work together to remove the regulatory burden and assist companies to gain access to licences while providing education on industry best practice to create a leading Australian supply of medical cannabis to patients globally.

Emily Rigby (rigby.research@gmail.com) is a member of the Protect Cropping Australia Board and a researcher on medicinal cannabis. She is based in Queensland and is session convenor, MC and speaker at the Costa PCA Conference 2019 on July 8.

Costa PCA 2019 Conference



This year’s Protected Cropping Australia conference will have a special focus on medicinal cannabis. The conference runs from July 7-10 at the Gold Coast in Queensland. The focus on medicinal cannabis is being held on July 8. Get a preview of this special conference session here with an introduction to the topic, speaker list and program.

For more information, or to make a booking, visit the dedicated conference website at pca2019.com

To receive a copy of the latest issue of *Soilless Australia* magazine, contact editor@protectedcropping.net.au

Top speaker line-up for medicinal cannabis session

MEDICINAL CANNABIS IS AN EMERGING INDUSTRY FOR PROTECTED CROPPING AROUND THE WORLD AND A FOCUS FOR THIS YEAR'S PCA CONFERENCE.

The Medicinal Cannabis Session (see the day's program on back page) will cover all aspects of production with a line-up of speakers from Australia, The Netherlands, the United States and Israel. The session is designed for anyone considering growing medicinal cannabis or who wants an update on this new opportunity in protected cropping and will include several panel sessions.



Drying medicinal cannabis.



Emily Rigby

Director of Research and Compliance,
Cannatrek Ltd, Queensland

'Australian medicinal cannabis industry overview'

Emily Rigby is a horticultural research scientist who has been working in the field of medicinal cannabis since legislative changes came into effect in 2016. Emily is Director of Research & Compliance for Cannatrek and Director of Research Programs for the Australian Institute for Medicinal Cannabis Inc (AIMC). Her areas of expertise include cultivation methods, regulatory compliance, licensing and permit applications, facility design, patient access, education and research from seed to patient. She will provide an overview of the industry in Australia.



Carl van Loon,

CEO, Power Plants, Victoria

'Greenhouse design for medicinal cannabis in Australia'

Carl van Loon has a long background in greenhouses and growing and enjoys solving technical problems especially with mechanical systems like greenhouses and automated climate control systems. He has qualifications in both engineering and horticulture, which bring together his two fields of interest.

His presentation will demonstrate that there is no single answer to the design of greenhouses for medicinal cannabis so the question needs to be redefined with the need to explore the purpose of the greenhouse, as well as the available resources such as labour cost, energy cost, water availability and climate before a design can be recommended.



Reyhaneh Pordel,

Agronomist, Garden City Plastics, Victoria

'Growing media for medicinal cannabis'

Reyhaneh holds a Ph.D. in Agronomy and a Master of Molecular Biology. The main drivers for selection of substrates in growing media were based on performance and economic factors. Recently increasing concern about the environmental impacts of some commonly used materials has resulted in the identification of environmental-friendly replacements. To ensure continued growth and sustainable development of soilless cultivation, it is fundamental that effective and organic materials for growing media are identified. Reyhanaeh will review the most commonly used organic materials and explain the advantages and challenges associated with each of them so medicinal cannabis growers can choose the right growing media for a sustainable cultivation system.



Justin Sinclair,

Research Fellow, NICM Health Research
Institute, Western Sydney University, New
South Wales

'The ethnopharmacology of cannabis'

As one of Australia's foremost experts in medicinal cannabis, Justin has published on the topics of pain management, the endocannabinoid system, herb/drug interactions and the therapeutic applications of the *Cannabis* genus. He is a member of the Society of Cannabis Clinicians and the International Cannabinoid Research Society and has spent the last decade investigating medicinal cannabis use both in Australia and the USA. He will provide examples of the extent to which this plant was used medically, demonstrate how many of the 'new' scientific findings have been reported before, and offer a rationale for why studying our ethnopharmacological history can be a rich fishing ground for research topics for the future.



Tim Oates

CEO, Deltra Tetra Consultancy, Victoria

Panel discussion participant

After working at Apple Inc and in the UK with medicinal cannabis, Tim developed a strong background in client relations, business development and practical cannabis management with an emphasis on people and communications. He has worked tirelessly to innovate and progress sensible approaches to cannabis legislation across Europe. This has led to an applicable and practical knowledge of the cannabis industry globally as well as a wealth of experience in medicinal cannabis and its relating nuances. As CEO of Australia's original cannabis specific consultancy firm, Delta Tetra, Tim has been immersed in business strategy and commercialisation, regulatory compliance as well as intensive networking and deal flow. With a strong focus on cannabis breeding and cultivation, Tim is able to draw parallels between the ever-changing regulatory space and practical cannabis management.



Yanor Yazma,

Agronomist & Sales Manager, DryGair, Israel

'Dehumidification: explained'

Often overlooked and misunderstood, humidity is one of the central climatic parameters impacting the growth, quality and uniformity of plants, alongside temperature and radiation. Dehumidification is a necessity for every growing operation and proves to be especially important in medicinal cannabis cultivation, where the plant's biology, combined with rising regulatory standards, further increase the need for effective control of humidity. Successful dehumidification plays a major role in boosting plant vitality and productivity and disease prevention. Beyond this, the interplay of humidity with other growth parameters including climate, energy consumption, and uniformity makes dehumidification a powerful tool for growers to leverage a multitude of benefits. Yanor will discuss the science behind dehumidification, its centrality in greenhouse climate control, and how to develop a successful dehumidification strategy whose impact is far-reaching and profitable.



Matthew Hayes,

Lead Horticultural Consultant,
PharmOut, Victoria

'Licensing, regulation and design of medicinal cannabis facilities'

PharmOut is a professional consultancy supporting the medicinal cannabis, cosmetics, medical devices, veterinary and pharmaceutical manufacturing industries with offices across Australia and around the world.

As medicinal cannabis is high value crop its recent regulation in Australia is an opportunity for growers and investors. Australian Protected Cropping Industry members are well suited to participate in the medicinal cannabis industry as technology and methods are readily transferred to cannabis production from contemporary crops. Matthew will outline the licensing and regulatory processes and how they influence facility design and operations. He will also discuss allowed activities under Medicinal Cannabis and Industrial Hemp licences.

Elliott Akintola,

Horticultural Agronomist & Sales, Garden City Plastics,
Queensland

'Container selection for medicinal cannabis'

Elliott holds a Bachelor of Agricultural Technology, specialising in crop production. His presentation will focus on different growing containers and the key factors to consider before making a container choice in medicinal cannabis production. He will also explore the benefits and opportunities of this type of growing system.

Sonny Moerenhout,

Product Manager New Business, Grodan, The Netherlands

'Growing medicinal cannabis is pharma, not food'

Sonny grew up in greenhouses in The Netherlands and graduated as a Master of Science in Plant Science from the Wageningen Agricultural University with greenhouse horticulture as his specialisation.

He believes consumers are looking for quality produce that is healthy, safe and cultivated sustainably. Challenges in horticulture stretch further than increasing profit and decreasing costs. Global challenges, such as an increasing need for food and resource scarcity, demand a more efficient and effective approach in growing. The answer is 'precision growing', which is focused on using minimum input to generate maximum output. Measuring and managing the root zone environment and recycling of drain water are crucial. In this way, greenhouse growers can further improve their water use efficiency and become more sustainable producers.



Travis Higginbotham

Global Director of Cultivation Support, Fluence
Bioengineering, US

'Advances in sensor and lighting technology'

Travis oversees global cultivation and production-efficiency support, ensuring clients successfully manage critical environmental factors. Prior to joining Fluence, Travis was Director of Research and Development for Battlefield Farms. He has a B.S. from Clemson University and is finishing his master's degree in Horticulture at Virginia Tech.



Andrew Olley,

Plant Specialist Horticulture LED Solutions,
Signify

'Integration of lighting with climate and irrigation for medicinal cannabis'

With 25 years experience in the protected cropping industry Andrew says his appointment to Signify has added the final layer of expertise to his knowledge of high performance plant production systems.

The design of a lighting system in a greenhouse or warehouse medicinal cannabis facility requires integration with the climate and irrigation systems. This need for integration is a result of the plant's use of light and is completely dependent upon factors such as temperature, humidity, carbon dioxide and water with contained nutrient. Lighting systems for medicinal cannabis require custom design and cultivation support to ensure the light is aligned with climate and irrigation for maximal yield and quality of flower buds.



Graeme Smith

Founder and Principal Consultant Graeme Smith
Consulting, Victoria

'Lighting considerations for medicinal cannabis'

With extensive experience in the hydroponics industry and protected cropping, Graeme Smith offers hydroponics training, feasibility studies and international greenhouse tours. Graeme is a Certified Practising Agriculturist (CPAg) and an Accredited Member of the Australian Institute of Agricultural Science and Technology (AIAST). He is also Chairman of ISHS Working Group – Hydroponics and Aquaponics and Vice Chair of ISHS Division – Protected Cultivation and Soilless Culture. He will present a review of current lighting developments and emerging technologies driving innovation in what is proving to be a major new crop for global protected cropping.

Medicinal cannabis session

July 8, 2019

0920-0950

Australian medicinal cannabis industry overview
Emily Rigby

1105-1110

Welcome
Emily Rigby

1110-1130

The Ethnopharmacology of cannabis
Justin Sinclair

1130-1150

Licensing, regulation and design of medicinal cannabis facilities
Matthew Hayes

1150-1210

Growing medicinal cannabis is pharma, not food
Sonny Moerenhout

1210-1230

Greenhouse design for medicinal cannabis in Australia
Carl van Loon

1400-1420

Lighting considerations for medicinal cannabis
Graeme Smith

1420-1440

Advances in sensor and lighting technology
Travis Higginbotham

1440-1500

Integration of lighting with climate and irrigation for medicinal cannabis
Andrew Olley

1500-1530

Q&A panel
Session speakers

1615-1635

Dehumidification: Explained
Yanor Yazma

1635-1655

Growing media for medicinal cannabis
Reyhaneh Pordel

1655-1715

Container selection for medicinal cannabis
Elliott Akintola

1715-1750

Q&A panel discussion
Session speakers

1745-1750

Close
Emily Rigby

