



GRAEME SMITH CONSULTING (CAG)

Greenhouse & Hydroponic Consultancy Services

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Curriculum Vitae

Education

- 1970 - Leaving Certificate (Electrical), Hamilton Technical School
- 1974 – Telecommunication Technician Certificate, PMG Department Melbourne
- 1997 – Community Support Facilitator & Community Development, CFA Craigieburn
- 2005 – Certified Practising Agriculturist (CPAg), Australian Institute Agricultural Science & Technology
- 2019 – Chartered Agriculturist (CAG), Australian Institute Agricultural Science & Technology



Protected Cropping Industry Qualifications

- Agribusiness Quality Assurance
- OH&S Assessment & Training
- Workplace Assessor
- Workplace Trainer
- Integrated Pest Management Training & Assessment
- Certified Practising Agriculturist (CPAg)
- Risk Management Assessor
- Conflict Resolution
- Emergency Management Plan Developer & Assessor
- Accredited Member of the Australian Institute of Agricultural Science and Technology
- Accredited Member of the Australian Association of Agricultural Consultants
- Principal Telecommunications Technical Officer
- Mediation & Facilitation Practitioner
- Community Development
- First Aid Certificate

Industry Experience

- 1988 – 1997 Managed family greenhouse tomato enterprise (Woodend Hydroponics)
- 1995 – 1999 Secretary 'Hydroponic Farmers Federation' www.hff.org.au
- 1995 – 2005 Director of Hydroponic Designs P/L
- 1997 – 1999 Committee Member 'Australian Hydroponic & Greenhouse Association'
- 1997 – 2000 Community Support Facilitator for Country Fire Authority
- 1999 – 2012 Committee Member 'Hydroponic Farmers Federation' (ex officio)
- 1998 – 2012 Managing Director 'Graeme Smith Consulting'
- 1998 – 2012 Crop advisory & agronomy services to greenhouse & hydroponic growers of vegetables, leafy greens and floriculture, etc
- 1999 – 2010 President 'Australian Hydroponic & Greenhouse Association'
- 2010 – 2012 Chairman 'Protected Cropping Australia' www.protectedcroppingaustralia.com
- 2003 – 2015 Leader of multiple greenhouse study tours to Holland, Belgium, Canada, Nth America & Mexico
- 2003 – 2012 Developed and delivered short-course training in 'Commercial Hydroponic Crop Production'
- 2005 – 2011 Chairman of 'Protected Cropping Working & Advisory Group' for Horticulture Australia Ltd (HAL) & AusVeg inc
- 2005 – 2010 Chairman of ISHS Soilless Culture Symposia Sessions in Singapore (ICESC2005 & 2010)
- 2007 – 2010 Developed and wrote full greenhouse industry training package (inc 63 units of competency) in 'Production Horticulture – Controlled Environment Horticulture' for Certificate II (horticultural worker), to Certificate VI (advanced diploma), 'Pathway to Production, a skilling program for the Australian Protected Cropping Industry'
- 2007 – 2016 Developed 'climate & financial study' packages for clients to assess business viability with ROI & EBIT studies. (also investment attraction and marketing package)
- 2007 – 2016 Developed 'due diligence' studies into new and expanding industry projects through professional development of 'independent experts reports' to ensure projects can confidently meet projected production targets.
- 2009 – 2011 Chaired National Forum on 'Pesticide Residues in Hydroponics' for HAL Ltd & AusVeg Inc.
- 2009 – 2011 National project leader of series of grower's workshops to deliver skills to convert from open (free-drainage) systems to closed (full recycling) systems, 'National Greenhouse Waste-Water Recycling Project'
- 2011 – 2019 Project Leader in developing a 'Greenhouse Technical Management for the Future' Certificate IV course for national delivery to main grower locations in Australia and international locations. (now delivered approx 36 times around Australia and international (UK, India, New Zealand and China)

- 2011 – 2012 Joined the 'National Horticulture Research Network' in countering the disinvestment in R&D that may impact negatively on the Australian protected cropping industry
- 2011 – 2012 Nominated as an 'Australian Ambassador' for the IHC2014 Brisbane congress to progress the engagement of the protected cropping industry in this major international horticultural event
- 2011 – 2012 Negotiating with state Premiers & agencies on Coal Seam Gas mining to grant access rights for landholders to some of the energy (gas) for greenhouse horticultural and energy production (WA, VIC, QLD & NSW)
- 2011 – 2012 Negotiated with Dutch Embassy in Canberra to assist with a Trade Mission from the Netherlands in June 2012. Trade Mission visited protected cropping enterprises in 3 states.
- 2012 - 2013 Attended ICESC in Shanghai and GroSci in Leiden Holland to sign up the International Society for Horticultural Science (ISHS) Soilless Culture Symposia for Australia and be convener at the Gold Coast in 2015
- 2014 Tour Leader of Nth American Greenhouse Study Tour – Oct 2014 (Canada, California & Mexico)
- 2014 Supplied technical content to GOTAFE in Victoria to develop their Online course 'Certificate III Horticultural Production in Protected Cropping'
- 2014 – 2015 Co-Convenor for ISHS Soilless Culture Symposia 'ICESC2015 Hydroponics & Aquaponics at the Gold Coast' co-eventing with PCA biennial conference, bringing together the 'knowledge makers with knowledge users' for the first time globally
- 2015 – 2016 Appointed Chair of UWS Industry Consultative Committee overseeing the \$3.3million partnership with HIA to deliver a R&D and training glasshouse at Hawkesbury NSW campus
- 2015 – 2019 Partner in the iFarmGROUP to develop leafy green production systems fully automated from seed to truck
- 2015 Honoured congress guest speaker to Greenhouse Growers Conference in Toluca Mexico
- 2015 Appointed Equity Partner and Greenhouse Horticultural Technical Advisor for Nectar Farms with plans for 40ha climate resilient glasshouses at both Stawell VIC & Oberon NSW, with other greenhouse facilities to follow
- 2016, 2017 & 2019, Attended and presented at 'Indoor Ag-Con Asia' in Singapore assessing global vertical farms, plant factories and containerised systems
- 2017 Presented at Indoor Ag-Con Asia on a 'Blueprint for Growth in Vertical Farms'
- Delivered the 36th Australian Greenhouse Technical Management Course – a 5 day Masterclass in Protected Cropping' that is presented in 3-4 Australian states each year.
- Delivered the 1st Greenhouse Technical Management Course in Pune India, with 4th course delivered in April 2019 due to heavy demand by Indian industry
- 2017 – appointed Chairman of ISHS Working Group – 'Hydroponics and Aquaponics' for next 4 years to promote and represent the society, support production of newsletters and stimulate global symposia on Hydroponics and Aquaponics
- 2018 – appointed Vice Chair – ISHS Division – 'Protected Cultivation and Soilless Culture'

System Design, Principal Contractor, Project Management & Work, Health & Safety

Graeme Smith Consulting has (beginning with Hydroponic Designs P/L), delivered over 48 protected cropping projects around Australia since 1995. These projects have largely delivered modern greenhouse food production systems ranging from 400m² to 160,000m² (16ha) in poly tunnels thru to modern glasshouses. Most food production projects involved full ROI & EBIT studies, system design, costings, project management, commissioning and ongoing crop advisory services. Graeme Smith Consulting appreciates that project viability is keenly dependent on the ability to deliver projects safely, on-time, on-budget and to agreed technical specifications, and to also offer ongoing crop support where required. Successful system design demands an intimate knowledge of greenhouse plant physiology and environmental management and the available technologies and strategies to achieve this. A sound technical knowledge is required in the areas of greenhouse/glasshouse, growing systems, growing media's, irrigation, fertigation, climate management, energy management, crop selection and growing techniques, harvesting, grading and chain management, staff training and management, internal transport and automation systems, etc.

Some projects included are:

1. 5ha turnkey project for the Moraitis Group in Victoria (inc glasshouse, seedling nursery, staff facilities, technology areas, office, toilets, grading and packaging areas, etc)
2. Independent expert reports for the Costa Group to increase truss-tomato glasshouse facility in New South Wales (from 5ha to 10 ha, then to 20ha)
3. Initial system design for the Waite Institute for the 'National Plant Phenomics Facility in Adelaide
4. Investment Attraction package for the Tasmanian Department of Economic Development to promote protected cropping opportunities in the states North Coast region with the advent of natural gas to the area.
5. System Design & Project Management for New Life Industries Ltd in Tasmania for a modern 3ha capsicum glasshouse production facility
6. System Design for a 2ha modern glasshouse facility for Holla-Fresh P/L in South Australia to produce premium herbs in a moving-gulley automation system
7. System Design for a 1ha glasshouse facility for strawberry production in hanging gutters in Western Australia
8. Climate & Financial studies for a range of international locations (inc SALT Jordan, Singapore, Chennai & Hyderabad India, Hong Kong, Balito South Africa, Hefei China, Riyadh KSA and Las Vegas Nevada)
9. System Design & Project Management for Biological Services in South Australia for a greenhouse beneficial insect breeding facility.
10. System Design, Climate & Financial Study for proposed 'National Training Centre for Controlled Environment Horticulture', a national industry training facility to deliver training services to all greenhouse growers in Australia, New Zealand, Singapore, Malaysia, Indonesia and other pacific rim countries.

11. Appointed 'Project Manager' for the Urban Environmental Systems Australia (UESA) aquaculture & hydroponics project in Sydney, NSW. This UESA project to employ a range of innovative 'state of the art' systems to deliver a zero effluent and zero emissions fish and leafy greens production system that utilises organic principles, automation, robotics, gasification, solar energy and co-generation on a multi-level glasshouse production site.
12. National Project Leader for a HAL initiative, 'Neutralising Pesticides in Recycled Water Systems Within a Protected Cropping System' to investigate commercial Australian leafy green NFT growing systems, their management practices and associated chemical spraying technologies and techniques.
13. Co-authored with the Macquarie Franklin Group to develop the report 'Protected Cropping & Agribusiness Park Opportunities in Tasmania' for the Tasmanian Department of Economic Development, Tourism & The Arts.
14. Developed for Flavorite Hydroponic Tomatoes a 'Strategic Technology Investment Report' to investigate future enterprise growth and new technologies for their next 6ha development.
15. Co authored with Capital Insight and appointed 'Greenhouse Advisor', a feasibility study report for a potential 5ha+ commercial greenhouse production facility to be sited on the University of Western Sydney Hawkesbury (NSW) campus.
16. Developed an initial feasibility study for Boomaroo Nurseries (LARA Victoria) for the commercial production of high-value & high-quality vegetable production seedlings for the protected cropping industry
17. Developed an initial feasibility study for Bundaberg Brewed Drinks (QLD) for the greenhouse production of ginger with various production systems.
18. Key greenhouse technical and industry consultant for Jacland Group on the proposed development of a 400ha protected cropping precinct at Eynesbury (Woodhouse Station) in Victoria, ultimately delivering significant investment, employment and food security for Melbourne whilst sharing common labour, water, energy, freight and packing resources.
19. Developed 'unnamed' groups of investors to develop new greenhouse projects in various Australian states consisting of 20ha, 16ha, 10ha, 10ha and 5ha modern greenhouse systems (total 61ha)
20. Appointed WH&S Manager for Marias Farm Vegies 16ha greenhouse in Newcastle NSW
21. CEO of 'Australian Greenhouse Solutions' to deliver modern greenhouse projects to India and the Middle East with first project in Hyderabad India producing ginger, vine crops and leafy greens.
22. Developed greenhouse feasibility study for HRH Prince Faisal for Royal Farm in Riyadh KSA
23. Performed local feasibility study for Northern Grampians Shire Council to attract greenhouse investors to Stawell VIC
24. Developed the first commercial level global App 'Greenhouse Growers Toolbox' as a suite of calculators to assist existing and start-up greenhouse operators to better plan and design their production technologies
25. Developed feasibility study for Clean Energy Finance Corporation and Sundrop Farms innovative 20ha solar glasshouse development in Port Augusta SA.
26. Assisted UESL in onsite assessment, feasibility study and system design for 1.5ha glasshouse in Hefei China
27. Upgraded IOS App 'Greenhouse Growers Toolbox' with 4 new calculators and all existing calculators enhanced.
28. Provided inhouse practical and theoretical greenhouse training for staff of Rijk Zwaan Australia in Musk Victoria
29. Contracted to Hexagon Tower (TIANJIN) Technology Co. LTD in Shanghai China as their 'Vertical Farm Technical Advisor' to assist in the design and production of a unique vertical farm for the hydroponic production of various leafy green vegetables
30. Joined Future Farms in Chennai India as an equity partner and their greenhouse technical advisor and Business Head - Australia & Chief Technology Officer
31. Appointed Greenhouse Technical Advisor - Food Ladder, to assist design and development of greenhouse food production systems for remote, impoverished and indigenous communities that currently includes: Katherine NT, Ramingining NT, Uganda, Bhutan and 4 schools in New Delhi India
32. Contracted to Australian government Post Entry Quarantine plant production facility (PEQ) in Mickleham Victoria to optimise and streamline their greenhouse facilities and work-practices to mitigate and safeguard plant biosecurity incursions into Australia.
33. Sub-contracted to Macquarie Franklin on the Tasmanian Controlled Environment Agriculture Investment Project on behalf of the State Government of Tasmania's Economic Development Department
34. Appointed Project Director with the iFarmGROUP to develop a modern 5ha greenhouse system that is automated from 'seed to truck' using MGS automation, robotics and transplanters for the large-scale production of leafy green vegetables on behalf of Waranga Green Energy in Stanhope Victoria
35. Developed industry assessment update for Boomaroo Nurseries in Lara Victoria to consider a specialised seedling nursery (including grafting capability) for the Australian protected cropping industry
36. Appointed Director of ROOTS Technology to assist rollout of a range of unique technology options that includes direct heating and cooling of plant rootzone using ground loop and heat pump systems
37. Appointed Panel Member on the Horticultural Investment Australia (HIA) Expert Advisory Panel (EAP) Pollination Plus, to represent the national protected cropping industry to 'strengthen & support existing pollinators, mitigate and manage challenges to honey bees (e.g. varroa mite) and investigate new and novel ways to pollinate Australian horticultural crops.'
38. Contracted to Ministry of Presidential Affairs UAE Abu Dhabi as Greenhouse Technical Advisor to design and develop large-scale greenhouse systems in 5 gulf nations to deliver national food security, employment and regional investment
39. Appointed Advisory Board member of E-AgriCo to assist development of a commercial vertical farm system
40. Developed proposal for Greenhouse development in Hawaii for Xinova
41. Managed the design process for an Australian 18ha Medicinal Cannabis production, manufacturing and processing facility for Cannatrek Medical
42. Developed full project feasibility study for 20ha greenhouse production facility for WSU at Hawkesbury Campus
43. Appointed equity partner and technical advisor for 2ha greenhouse with MGS technology for livFresh Singapore

44. Appointed technical advisor for Modular Farms, Brisbane to optimise vertical farm production & efficiency
45. Developed full project feasibility study for 20ha greenhouse production facility for Boyuan Holdings in NSW
46. Appointed technical advisor to Enersys who are engineering a sustainable future by linking resources and recycling waste streams

Published Works (1995 – 2019)

- Location, Siting & Layout of Greenhouse Systems
- Greenhouse Structures & Environmental Management
- Water Quality, EC & pH
- Basic Hydroponic Systems & Components
- Crop Varieties, Media Types & Characteristics
- Plant Structure, Nutrition & Nutrient Management
- Common Greenhouse Pests & Diseases & IPM
- Quality Assurance, OH&S, I.T. & Production Plan
- Light, a plants eye view
- Irrigation, growing media's manager
- Crop Registration, professional approach to growing
- Plant Management, physical and cultural requirements
- Recirculation, how to convert to a closed system
- CO₂ enrichment of greenhouses
- Practical EC & pH Measurements in Crops
- Implement a Hydroponic Maintenance Program
- Implement a Plant Establishment Program
- Implement a Pest & Disease Control Program for Hydroponic Systems
- Implement an IPM Program
- New Greenhouse Investment & Technology Considerations
- Implement a Plant Monitoring Program
- Introduction to Plant Physiology, Monitoring and Management
- Nutrient Uptake Influences
- Seedling Propagation Management
- Acid & Chlorine Sterilisation Worksheet
- Dripper timing Calculations
- Environmental Settings: Summer & Winter Plantings
- Field versus Glasshouse Tomatoes
- Greenhouse Management Program for Closed Systems
- Rootstock Power & Options
- Relative Humidity vs. Humidity Deficit
- Basic Greenhouse Crop Protection Principles
- Greenhouse Climate Management Influences
- Greenhouse Cooling – Negative Pressure Effect
- Identifying Plant & Fruit Problems
- Influence of Greenhouse Temperature
- Initial Greenhouse Crop Targets
- A Blueprint for Growth in Protected Cropping
- Maximising Greenhouse Efficiency & Energy Conservation
- Nutrient Deficiency Chart
- Plant Photosynthesis & Temperature Relationships
- Plant Transpiration Principles
- Plant Vigour & Balance Chart
- Rockwool Water-Content Steering
- Summer Vegetative Treatments for Greenhouse Tomatoes
- Spray System for Greenhouse Crops
- Treatment Spray Chart for Greenhouse Crops
- Typical Nutrient Feed Solutions for Greenhouse Vegetables
- General Site Selection Criteria
- General Climate Study Criteria
- General Financial Study (ROI & EBITA) Criteria
- General Sales Agreement Criteria
- General System Design (Greenhouse & Production System) Criteria
- General Marketing & Production Plan Criteria
- General Quality Assurance and OH&S (operational requirements) Criteria
- Understanding Irrigation in Protected Cropping & Soilless Culture
- Greenhouse Ventilator & Heating Set-points
- Water Content Monitoring – Overfeeding in Period 2
- Managing Plant Balance
- Potential for New Biospheric Greenhouse Industry in Victoria
- The Case for Devonport
- AHGA Bumblebee Application – Exec Summary
- Where is the Best Place to Grow Greenhouse Crops in Australia?
- Overview of the Australian Protected Cropping Industry
- Radiation Transmission Thru Greenhouse Claddings
- Maintenance Program for Closed Systems
- Operating Pressurised Irrigation Systems
- Crop Registration & Plant Balance
- A critical assessment of greenhouse technology
- Future Gazing – emerging technologies in the global commercial greenhouse sector
- Greenhouse Environment Management
- NFT Systems
- Bridging the divide between science and commercial greenhouse practice in the use of parameters and their units
- Controlled Climate Production Systems
- Vertical Farms and PFAL
- A Blueprint for Growth in Vertical Farms
- Fundamental Principles Behind Effective Greenhouse Management
- Greenhouse Technology Future Gazing for Bendigo Food & Fibre Centre
- Lighting Considerations for Medical Cannabis
- Protected Cropping & Soilless Culture– Future Gazing

Industry Awards

- 2006 – Winner – Most Outstanding Contribution to the State Industry (HFF biennial conference)
- 2007 – Winner – Most Outstanding Contribution to the National Industry (national AHGA biennial Conference)
- 2008 - Final 3 – Industry Award (AusVeg Annual Conference)
- 2009 - Final 3 – Industry Award (AusVeg Annual Conference)
- 2012 – Life Membership - Protected Cropping Australia (PCA)
- 2013 – Anita Boucher Award for Best Industry Presentation (IPPS)
- 2014 – Life Membership - Hydroponic Farmers Federation (HFF)
- 2015 – ISHS Achievement Medal
- 2017 – PCA Industry Training Award
- 2019 – IABCA Excellence in Innovation (finalist)

Industry Association Memberships

- President – Australian Hydroponic & Greenhouse Association (AHGA) 1999 – 2010
- Chairman – Protected Cropping Australia (PCA) 2010 – 2012
- Board Director – PCA 2012 – 2015 (now Life Member)
- Chairman – Protected Cropping Working & Advisory Group (HAL & AusVeg) 2008 - 2011
- Ex officio – Hydroponic Farmers Federation (HFF) (1995 – 2015, 20year committee member, now Life Member)
- Member – International Society Horticultural Science (ISHS)
- Member – International Society Horticultural Science Commission for Substrates & Soilless Culture
- Chairman - ISHS Working Group – 'Hydroponics'
- Member – International Society Horticultural Science Commission for Protected Cultivation
- Member – Australian Association Agricultural Consultants (AAAC)
- Member – Global Alliance of Independent Agricultural Consultants (GAIAC)
- Member – Australian Institute Agricultural Science & Technology (AIASST)
- Committee and Victorian State Representative – Australian Society for Horticultural Science (AuSHS)

Current Positions Held (as at December 2019)

- Director – ROOTS Technology
- Member – HIA Expert Advisory Panel Pollination Plus
- Director - iFarmGROUP
- Chairman – Western Sydney University (WSU) R&D Glasshouse Industry Consultative Committee
- Member – WSU Education Committee
- Technical Advisor (Southern Hemisphere) – Hydro-Garden UK
- Technical Advisor and Director Australian Operations– Future Farms Chennai India
- Technical Advisor – Hexagon Tower (TIANJIN) Technology Co. Ltd Shanghai China
- Technical Advisor – UESL Hefei China
- Technical Advisor – Ministry of Presidential Affairs Abu Dhabi UAE
- Technical Advisor – PEQ Mickleham Victoria
- Technical Advisor – Food Ladder
- Technical Advisor – E-Agri Co
- Chairman - ISHS Working Group – 'Hydroponics and Aquaponics'
- Vice Chair – ISHS Division – 'Protected Cultivation and Soilless Culture'
- Technical Advisor – livFresh Singapore
- Technical Advisor – Modular Farms – Brisbane
- Technical Advisor – Enesys Melbourne

Citations

- Rory Lonergan; Director Corporate & Project Finance, Clean Energy Finance Corporation
"The CEFC was extremely happy with the quality of the report provided which was delivered to the required timeframe. We found our interaction with you to be very professional and were very impressed with the depth of your knowledge in the industry."
- Philipp Saumweber, CEO Sundrop Farms, Port Augusta SA
"I really wanted to thank you for an outstanding and thorough report that I know CEFC, CBA and NAB only had positive comments on the in-depth nature of your report"
- Andrew Bodlovich, Director Blue Farms, Urban Ecological Systems Ltd, Cobbitty NSW
"We would like to take this opportunity to formally thank you for the key role you have played in helping us commercialise our unique technology. We appreciate the depth of experience you have brought to helping us, and also acknowledge your role in bringing key contractors and technology providers to our project therefore we recognise you have made a major contribution in helping us bring our technology to market"

Referees

- Rick Donnan (Growool Horticultural Systems) – +61 481 574 386, rickdonnan@westnet.com.au
(past president 'International Society for Soilless Culture' and AHA)