**Curriculum Vitae: Dr John Allen Kirkegaard (FAA)**

**Born** 14 December 1962, Killarney, Queensland, Australia.

**Education**

1983 Bachelor of Agricultural Science (1st Class Hons) (conferred 16/12/1983)
University of Queensland, St Lucia, Brisbane, Australia.

1990 Ph.D. in Agriculture (conferred 26/7/1990)
University of Queensland, St Lucia, Brisbane Australia.
*The effect of soil compaction on the growth of grain legumes on clay soils*

**Research Positions**

1989 Research Officer (part-time), Dept Agriculture, University of Queensland
*Physiology of drought resistance in barley genotypes*

1990-2023 Research Scientist to Chief Research Scientist, CSIRO Agriculture and Food
*Development of more productive, efficient and climate-smart farming systems in water-limited environments by translating underpinning science of root-soil interactions into novel on-farm innovations with profound impacts on global food security.*

Currently Chief Research Scientist and Team Leader in *Innovative Agronomy*

**Adjunct University Positions**

2013-present Adjunct Professor, Charles Sturt University, Gulbali Institute, Wagga Wagga NSW, Australia.

2013-present Adjunct Professor, University of Western Australia, School of Plant Biology, Perth Western Australia.

**International Fellowships**

2023 to 2025 ZALF Fellow, Leibniz-Centre for Agricultural Landscape Research, Germany
*Integration of grain legumes into sustainable and resilient farming systems*

2019 Visiting Scientist, Faculty of Science, University of Copenhagen (Nov 2019 – Feb 2020)
*Investigating the capacity for deep root growth in European winter canola during the winter months.*

2012 Velux Visiting Professorship, Faculty of Science, University of Copenhagen (April – Oct.)
*Investigating effects of subsoil water and nitrogen on root growth in diverse Australian and Danish wheat genotypes*

1997 GRDC Senior Fellow, John Innes Centre, Norwich UK (July – Dec.).
*Research to increase the disease suppressive potential of Brassica crops (canola) using genetic modification of the precursor compounds in the root tissues.*

**Major Honours and Awards**

2021 Sir Ian McLennan Medal for Impact from Science and Engineering Medal
*This Award honours Sir Ian McLennan one of the pioneers of Australian industry and perpetuates the kinds of achievement promoted and encouraged from scientific research. The Award provides visible recognition for outstanding practical contributions to industry and recognises exceptional individuals or research teams who have created value for customers through innovation that delivers impact for Australia. The citation read for "world class multidisciplinary science teamed with effective industry partnering to conceive, develop and translate the novel concept of dual-purpose canola (graze and grain). Now adopted on 200,000 ha and growing across all southern states, impacts are profitability, sustainability and resilience with an estimated value of $1Bill to date (growing at $200 Mill pa).*

2018-2022 Web of Science Highly Cited Researcher, Agriculture and Cross Discipline
*Highly Cited Researchers have demonstrated significant and broad global influence reflected in their publication of multiple highly cited publications in the last decade. The highly cited papers rank in the top 1% by citations for a field and publication year in the Web of Science. Of the world's scientists, highly cited researchers are considered in the top 0.1%. Highly Cited in Agriculture 2018, 2019 and in Cross Discipline 2021, 2022.*

2018 Australian Grains Industry Recognizing and Rewarding Excellence Award
*Awarded by the Australian grains industry research and development corporation to recognise excellence, commitment and passion for the Australian grains industry and recognise the important contributions of the recipients and support their ongoing endeavours.*

2017 Farrer Memorial Medal for distinguished service to Australian Agriculture
*The Farrer Memorial Medal is awarded annually to a recipient within Australia, chosen by trustees of the Farrer Memorial Trust from the ranks of those persons who have rendered distinguished service in agricultural science in Australia in the fields of research, education or administration.*

2016 Elected Fellow of the Australian Academy of Science
*Fellows of the Australian Academy of Science are among the Nation's most distinguished scientists, elected by peers for ground-breaking research and contributions with clear impact.*

2014 Eureka Prize for Sustainable Agriculture
*The Australian Museum Eureka prizes are the country's most comprehensive national science awards honouring excellence across areas of research and innovation, leadership and science engagement. The Department of Agriculture Landcare Eureka Prize for Sustainable Agriculture was awarded for leadership of the National Water Use Efficiency Initiative which delivered innovative farming systems science and achieved widely adopted and profound impact on crop productivity and sustainability as well as environmental benefits through the implementation of achievable practice change for growers.*

2013 CSIRO Medal for Impact from Science
*Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) presents this Medal annually to recognise exceptional individuals or research teams who have created value through innovation that delivers impact for Australia. Awarded for leadership of the National Water Use Efficiency Initiative which delivered innovative farming systems science and achieved widely adopted and profound impact on crop productivity and sustainability.*

2008 Australian Grains Industry "Seed of Light" Award
*The prestigious Seed of Light awards were established by the Australian grain industry research corporation to recognise a researchers' outstanding communication of research.*

**Editorial Appointments**

2006 Guest Editor, *Australian Journal Soil Science* Special Issue on Soil Biology
2012 Section Editor, *Plant and Soil*
2012 Editorial Board, *European Journal of Agronomy*
2015 Guest Editor, *Crop and Pasture Science* Special issue on Dual-purpose Crops
2016 Guest Editor, *European Journal of Agronomy* Special issue from 2014 Hungary meeting
2016 Guest Editor, *Crop and Pasture Science* Special issue on Canola Productivity

**Academic and Research leadership**

2000 - 2011 Group Leader, *Innovations in Sustainable Agriculture* Sub-Program/Group (35 staff)
2009 - 2014 Stream Leader, *Frontiers of Farm Productivity* within CSIRO National Sustainable Agriculture Flagship (45 projects Australia-wide; $30M Annual Budget)
2014-present Team Leader, *Innovative Cropping Systems* within Integrated Agricultural Systems
2013-present Adjunct Professor, Charles Sturt University, Gulbali Institute (formerly Farrer Centre)
2013-present Adjunct Professor, University of Western Australia, School of Plant Biology

**Membership, activities in professional organisation**

Australian Society of Soil Science, QLD, ACT, NSW Branches (1985-1996)
Australian Institute of Agricultural Science (1988-1998)
Australian Society for Agronomy (1990-current)
Australian Canola Association (1998-current)
Global Wheat Initiative Expert Working Group on Agronomy (Vice Chair, 2017- current)
Australian Academy of Science (Sectional and Prize Committees, Council Member, 2016-current)
GCIAC, Global Council for Innovation in Rapeseed and Canola (Agronomy Lead, 2023-current)

**Invited keynote speaker at international meetings (last 10 years)**

2014 Pacific Northwest Conservation Agriculture Symposium, Kennewick, WA, USA
2014 5th International Biofumigation Symposium, Birmingham, UK
2014 American Societies of Agronomy, Soil Science and Crop Science, Long Beach CA, USA
2014 European Society of Agronomy Meeting, Hungary
2014 Foundation Arable Research, NZ National Crop Forum, Lincoln NZ
2015 Rhizosphere 4, The Netherlands
2015 Food Security Meeting, Lancaster University, UK
2015 World Congress on Integrated Crop-Livestock-Forest Systems, Brazil
2015 Global Plant Council's Stress Resilience Symposium, Brazil
2015 American Societies of Agronomy, Soil Science and Crop Science, Minnesota, USA
2016 Universities of Copenhagen and Wageningen Root Ecology meeting, Copenhagen, Denmark
2016 South African Canola Symposium, South Africa
2016 International Biofumigation Symposium, South Africa
2016 Brassica2016, International Brassica Genetics Symposium, Melbourne
2016 Australian Academy of Science, Indonesia-Australia Science meeting, Canberra
2017 ASA-CSSA-ASSS Tri-Society meeting, Tampa Florida USA
2018 Global Plant Council meeting, ASA-CSSA meeting Baltimore, USA
2018 USA Canola Association Symposium, *Global Canola Production*, Baltimore USA
2019 Gates Foundation *Adapting Smallholder Farmers to Climate Change* meeting, Seattle USA
2019 15th International Rapeseed Congress, Berlin, Germany
2020 Danish Plantekongres2020, *N fertilizer and C sequestration,* Herning Denmark.
2020 International Crop Science Congress, Saskatoon Canada (postponed to 2021; COVID19)
2021 Gates Foundation and World Resources Institute, Workshop on Soil Carbon (online)
2023 International Rapeseed Congress, Sydney Australia
2024 Australian Academy of Science National Symposium, Future Food: Nourishing a Nation
2024 International Wheat Symposium, Perth Australia

**Professional activities and consultancies (last 10 years)**

2014 International Scientific Committee, 5th International Biofumigation Symposium, UK
2014 International Scientific Committee, European Society of Agronomy, Hungary
2015 Invited Session Chair, Rhizosphere 4, Maastricht, The Netherlands
2015 Organizing Committee, International Society of Root Research, Canberra
2015 Department of Environment, Carbon Farming Initiative, Technical Committee
2015 Australian Academy of Science Decadal Plan for Agriculture Workshop, Canberra
2015 Steering Committee, GRDC National Frost Initiative
2015 Invited member Expert Working Group on Agronomy, Global Wheat Initiative
2016 International Advisory Board, Velum Foundation “DeepFrontier” Project, Denmark
2016 International Scientific Committee, 6th International Biofumigation Symposium, Sth Africa
2017 Vice Chair, Expert Working Group on Agronomy, Global Wheat Initiative
2019 Australian Academy of Science, Sectional Committee (Agriculture/Vet/Applied)
2019 Gates Foundation, Adapting Smallholder Farmers to Climate Change, Seattle USA

2019 Expert Advisory Group, CGIAR Excellence-in-Agronomy Program
2020-22 Chair, Australian Academy of Science Sectional Committee (Agriculture/Vet/Applied Sci.)
2021-14 Member of Council, Australian Academy of Science
2021-14 Member, Global Council for Innovation in Rapeseed and Canola
2022 Dept. of Agriculture Advisory Committee for Drought Fund (Long-Term Trial Initiative)
2023 Organizing Committee (Agronomy Lead) International Rapeseed Congress, Sydney

**Teaching, student supervision and scientific visitors and exchanges**

CSIRO is not a teaching institution and does not confer degrees, but I have acted as a co-supervisor of several PhD students and Postdoctoral Fellows and given numerous guest lectures as follows:

- 8 graduated PhDs, 1 current PhD student, I graduated Master student
- 8 completed and 3 current Postdoctoral Fellows
- Annual guest lectures on aspects of conservation farming and efficient water use at:
- Australian National University (2000-2010), Melbourne University (2019-2023), Copenhagen University (2012-present).

I have welcomed 12 International scientific visitors on study visits to Australia (2-12 months) since 2000 (from Japan, France, Italy, USA, Canada, Denmark, Taiwan, Korea, UK).

**Major research grants initiated and led**

2000-2006 ACIAR Bilateral Funding Australia-Philippines $2.0 Mill
*Evaluating biofumigation for soil-borne disease management in tropical vegetable production*
2007-2014 GRDC National Dual-Purpose Cropping Initiative $6.0 Mill (3 sequential projects)
*Integrating dual-purpose crops in the mixed farming systems of southern Australia*
2008-2014 GRDC National water-use efficiency initiative $17.5 Mill
*Increasing whole-farm water-use efficiency – a nationally coordinated approach*
2013-2018 GRDC National stubble management initiative $14.4 Mill
*Improving crop productivity in stubble-retained systems*
2014-2019 GRDC Canola physiology and tactical agronomy initiative $9.1 Mill
*Understanding the relationship between canola physiology and tactical agronomy management*
2017-2028 GRDC Southern Farming Systems Project $18.0 Mill (3 sequential projects)
*Improving the efficiency of the cropping sequence*
2023-2027 GRDC Soil carbon sequestration using supplementary nutrients $4.5 Mill
*Options to increase soil organic carbon in grain production systems*

**Community Service**

Voluntary Community Work at:
CSIRO Childcare Care: Centre Maintenance Days 2001-2007
YMCA-Brindabella Ski Club: Clubhouse Maintenance Weekends (1998-present)
BelSouth Soccer Club: Weekly game support duties 2006-2011
Radford College and ACT Basketball Clubs: Game Administration Roster 2013-2019
Weetangera Primary and Radford College School Fete Day support 2005-2019
Long term financial donations to:
Fred Hollows Foundation, Medicine San Frontiers, Epilepsy Australia, Children's Cancer Institute, CanTeen

**Personal interests**

Gardening, cooking, bushwalking, surfing, camping, snow-skiing, travel, history, archaeology

**Publication history**

My Researcher ID A-1449-2010 (accessed October 2025); ORCID ID 0000-0001-5982-9508
Journal publications 193; Career citations 14,596; H index 64. Highly cited researcher 2018-2022
A selection of my most impactful journal publications and book chapters are provided below and a full publication list can be found here:

**Selected significant journal publicatons**

1. Lilley JM, **Kirkegaard JA** (2024) Validated simulation of a long-term experiment reveals a pathway for improved productivity. *European Journal of Agronomy* 159, 127225 https://doi.org/10.1016/j.eja.2024.127225
2. **Kirkegaard JA**, Richardson AE, Kirkby CA (2023) Fate and cost effectiveness of soil carbon sequestered using supplementary nutrients applied to crop residues under field conditions. *Nutrient Cycling in Agroecosystems* https://doi.org/10.1007/s10705-023-10272-2
3. Zhao Z, Wang E, **Kirkegaard JA** and Rebetzke GJ (2021) Novel wheat varieties facilitate deep sowing to beat the heat of changing climates. *Nature Climate Change* https://doi.org/10.1038/s41558-022-01305-9 (18 citations).
4. Thorup-Kristensen K, Halberg N, Nicolaisen M, Olesen JE, Crews TE, Hinsinger P, **Kirkegaard J**, Pierret A and Dresbøll DB (2020) Digging Deeper for Agricultural Resources, the Value of Deep Rooting. *Trends in Plant Science* 25, 406-417. (94 citations)
5. Hunt JR, Lilley JM, Trevaskis B, Flohr BM, Peake A, Fletcher A, Zwart, AB, Gobbett D and **Kirkegaard JA** (2019) Early sowing systems can boost Australian wheat yields despite recent climate change. *Nature Climate Change* 9, 244-247. (120 citations)
6. Giller KE, Andersson JA, Corbeels M, **Kirkegaard JA**, Mortensen D, Erenstein O, Vanlauwe B (2015) Beyond Conservation Agriculture, *Frontiers in Plant Science*, 6 Article 870 doi: 10.3389/fpls.2015.00870. (247 citations)
7. **Kirkegaard JA**, Hunt JR, McBeath TM, Lilley JM, Moore A, Verburg K, Robertson M, Oliver Y, Whitbread AM, Ward P, Milroy S (2014) Improving water productivity in the Australian Grains industry – a nationally coordinated approach. *Crop and Pasture Science* 65, 583-601 (72 citations)
8. **Kirkegaard JA**, Conyers MK, Hunt JR, Kirkby CA, Watt M and Rebetzke GJ (2013) Sense and nonsense in conservation agriculture: Principles, pragmatism and productivity in Australian mixed farming systems. *Agriculture, Ecosystem and Environment* 187, 133-145. (138 citations)
9. Kirkby CA, Richardson AE, Wade LJ, Batten GD, Blanchard C and **Kirkegaard JA** (2013) Carbon-nutrient stoichiometry to increase soil carbon sequestration. *Soil Biology and Biochemistry* 60, 77-86. (229 citations)
10. Wasson AP, Richards RA, Chatrath R, Misra SC, Sai Prasad SV, Rebetzke GJ, **Kirkegaard JA**, Christopher J and Watt M (2012) Traits and selection strategies to improve root systems and water uptake in water-limited wheat crops. *Journal of Experimental Botany* 63, 3485-3498. (512 citations)
11. **Kirkegaard JA** and Hunt JR (2010) Increasing productivity by matching farming system management and genotype in water-limited environments. *Journal of Experimental Botany* 61, 4129-4143. (171 citations)
12. White R and **Kirkegaard JA** (2010) The distribution of wheat roots in a dense structured subsoil – implications for water uptake. *Plant Cell and Environment* 33, 133-148. (262 citations)
13. **Kirkegaard JA**, Christen O, Krupinsky J and Layzell D (2008) Break crop benefits in temperate wheat production. *Field Crops Research* 107, 185-195. (332 citations)
14. **Kirkegaard JA**, Lilley JM, Howe, GN and Graham JM (2007) Impact of subsoil water use on wheat yield. *Australian Journal of Agricultural Research* 58, 303-315. (293 citations)
15. Matthiessen JM and **Kirkegaard JA** (2006) Biofumigation and enhanced biodegradation: Opportunity and challenge in soil-borne pest and disease management. *Critical Reviews in Plant Sciences* 25, 235-265. (310 citations)

16. **Kirkegaard JA** and Sarwar M (1998) Biofumigation potential of brassicas. 1. Variation in glucosinolate profiles of diverse field-grown brassicas. *Plant and Soil* 201, 71-89. (242 citations)
17. Cresswell HP and **Kirkegaard JA** (1995) Subsoil amelioration by plant roots - the process and the evidence. *Australian Journal of Soil Research* 33, 221-239. (180 citations)
18. **Kirkegaard JA**, Gardner PA, Angus JF and Koetz E (1994) Effect of *Brassica* break crops on the growth and yield of wheat. *Australian Journal of Agricultural Research* 45, 529-545. (116 citations)

**Selected book chapters**

1. **Kirkegaard JA** and Lilley JM (2020) Using systems agronomy to exploit deep roots in crops. In: Gregory, P. J. (ed.), Understanding and improving crop root function, Burleigh Dodds Science Publishing, Cambridge, UK pp 531-560 (ISBN: 978 1 78676 360 0; *www.bdspublishing.com)*
2. **Kirkegaard JA**, Lilley JM, Berry PM, Rondanini DP (2020) Canola. In "*Crop Physiology Case Histories for Major Crops*" V. Sadras and D. Calderini. (Eds.) Academic Press ISBN: 9780128191941.
3. Pratley J, **Kirkegaard JA** (2019) From conservation to automation in the search for sustainability In: (Eds Pratley JP, Kirkegaard JA) Australian Agriculture: From Conservation to Automation. pp 419-436 (Agronomy Australia and Charles Sturt University: Wagga Wagga)
4. Hunt J, **Kirkegaard JA**, Celestina C, Porker K (2019) Transformational agronomy: restoring the role of agronomy in modern agricultural research. In: (Eds Pratley JP, Kirkegaard JA) Australian Agriculture: From Conservation to Automation. pp 373-388 (Agronomy Australia and Charles Sturt University: Wagga Wagga)
5. Sadras V, **Kirkegaard JA,** Hunt J (2019) Water use in rainfed systems: physiology of grain yield and its agronomic implications. In: (Eds Pratley JP, Kirkegaard JA) Australian Agriculture: From Conservation to Automation. pp 205-220 (Agronomy Australia and Charles Sturt University: Wagga Wagga)
6. Conyers M, Dang Y and **Kirkegaard JA** (2019) Strategic tillage within conservation farming. In: (Eds Pratley JP, Kirkegaard JA) Australian Agriculture: From Conservation to Automation. pp 107-116 (Agronomy Australia and Charles Sturt University: Wagga Wagga)
7. **Kirkegaard JA** and van Rees H (2019) Evolution of conservation agriculture in winter rainfall areas In: (Eds Pratley JP, Kirkegaard JA) Australian Agriculture: From Conservation to Automation. pp 47-64 (Agronomy Australia and Charles Sturt University: Wagga Wagga)
8. Gregory PJ, **Kirkegaard JA** (2017) Growth and Function of Root Systems. *Encyclopedia of Applied Plant Sciences* Vol 1, 230-237 http://www.sciencedirect.com/science/referenceworks/9780123948083
9. **Kirkegaard JA** and Robertson MJ (2012) Agronomic principles of water and nutrient use efficiency – case studies in dryland grain production. In 'Improving water and nutrient use efficiency in food production systems' (Ed. Z Rengel). pp 211-234 Wiley-Blackwell
10. **Kirkegaard JA,** Peoples MB, Angus JA and Unkovich M (2011) Diversity and evolution of rain-fed farming systems in southern Australia. In *'Rainfed Farming Systems'* (Eds P Tow, I Cooper, I Partridge, and C Birch) pp. 715-754, Springer, Dordrecht, Netherlands.
11. **Kirkegaard JA** (2009) Biofumigation for plant disease control – from the fundamentals to the farming system. **In:** *Disease Control in crops: biological and environmentally friendly approaches* (Ed D Walters) Wiley-Blackwell Oxford, 173-195.