Curriculum Vitae – **Ian Yule**

Roles : **Professor of Precision Agriculture.**
Director of the New Zealand Centre for Precision Agriculture. (NZCPA)

Contact details:
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Massey University , Private Bag 11222, Palmerston North, New Zealand.
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Expertise / Skills: Precision agriculture, remote sensing, UAV's, agricultural engineering.

Work Experience / History:

2011 – present time, Professor in Precision Agriculture. Massey University.
2007 – 2010 Associate Professor in Precision Agriculture, Massey University.
2006 – 2007 Senior Lecturer in Precision Agriculture, Massey University.
2000 – present time. Director of the New Zealand Centre for Precision Agriculture.
1997 – 2005 Senior Lecturer in Agricultural Engineering, Massey University.
1989 – 1996. Lecturer in Agricultural Engineering, University of Newcastle upon Tyne, UK.
1986 – 1988 Senior Lecturer Farm Management/ Information Technology, Durham Agricultural College, Durham, UK.

1980 – 1985 Lecturer in Agricultural Engineering, Durham Agricultural College, Durham, UK

Current Research Activities: NZCPA carrying a portfolio of contract research worth over NZ$10M. Main current activities are around the application of hyperspectral and multispectral remote imaging and sensing to pastoral agriculture, including New Zealand's hill country and dairying sectors. Using sensors to measure pasture nutrient concentrations and nutritional value. Automation and development of variable rate application technology for aerial topdressing. Development of wireless soil moisture sensing networks in remote areas.

Currently chief supervisor for 8 PhD studies.

Academic Qualifications:
1998. PhD. Agricultural Engineering. University of Newcastle upon Tyne. UK. (Part time by research)
1986 MSc, Agricultural Engineering, University of Newcastle upon Tyne. UK. (Part time by research)
1983, Cert Ed. University of Leeds, UK. (part time)
1980. BSc Hons. Agricultural Engineering, University of Newcastle Upon Tyne, UK.

Professional distinctions and appointments

2011 Fellow of the Institute of Agricultural Engineers.
1994 Charter Engineer CEng.
2014 Member of the committee of Precision Agriculture Association of New Zealand.
2011 Winner of the New Zealand Innovators Awards Environment and Agricultural Award, for the C-Dax Pasturemeter.
2014 Finalist in the Kiwinet Entrepreneur of the Year in the Personal Category for Body of Work.
2014 Finalist in Kiwinet Entrepreneur of the Year in the Agricultural Category.
Reviewer for a number of relevant journals and conferences.
External examiner for PhD for other universities, internal examiner for PhD with Massey University.

Publication Summary

Total number of *peer reviewed* publications and patents	Journal articles	Books, book chapters, books edited	Conference proceedings	Patents
	70	5	350	6

Recent Refereed Journal Publications.(2015 to date).

1. Pullanagari, R.R., Kereszturi, G., Yule, I.J., 2016. Mapping of macro and micro nutrients of mixed pastures using airborne AisaFENIX hyperspectral imagery. ISPRS Journal of Photogrammetry and Remote Sensing 117, 1-10.
2. Draganova, I., Yule, I., Stevenson, M., & Betteridge, K. (2015). The effects of temporal and environmental factors on the urination behaviour of dairy cows using tracking and sensor technologies. *Precision Agriculture*, 1-14. doi:10.1007/s11119-015-9427-4
3. Eastwood, C., & Yule, I. J. (2015). Challenges and Opportunities for Precision Dairy Faming in New Zealand. *Farm Policy Journal*, *12*(1), 33-41. Retrieved from http://www.farminstitute.org.au/
4. Grafton, M., & Yule, I. (2015). The role of technology transfer to improve fertiliser use efficiency. *FOOD SECURITY*, *7*(2), 365-373. doi:10.1007/s12571-015-0434-0
5. Grafton, M.C.E., Yule, I.J., Robertson, B.G., Chok, S.E., Manning, M.J. (2015). Ballistic Modeling and pattern testing to prevent Separation of New Zealand Fertilizer Products. Applied Engineering in Agriculture Vol. 31(3): 405-413
6. von Bueren, S. K., Burkart, A., Hueni, A., Rascher, U., Tuohy, M. P., & Yule, I. J. (2015). Deploying four optical UAV-based sensors over grassland: challenges and limitations. *BIOGEOSCIENCES*, *12*(1), 163-175. doi:10.5194/bg-12-163-2015
7. Pullanagari, R. R., Kereszturi, G., Yule, I. J., & Irwin, M. E. (2015). Determination of pasture quality using airborne hyperspectral imaging. In *Proceedings of SPIE - The International Society for Optical Engineering* Vol. 9637. doi:10.1117/12.2193844

Research vision for Precision Agriculture.

Precision agriculture is changing from a spatially enabled optimisation of farming methods to be part of a data driven digital agriculture and food production system. Data generated through the IOT and placed across physical scales as well as up and down the value chain will be used to control and drive our food production. Environmental governance, management and compliance will also become a bigger driver for most producers. All of this must be achieved at a cost that is reasonable and allow flow of information from plant/animal to plate with effective feedback.

This will become much of more of a continuum than it has been in the past but there will be many data pathways and information flows. We are capable of significantly improving the information flows around our food production to achieve high standards of food safety and provenance and we must work to provide this.

These changes have important implications for scientist and engineers working in this area of endeavour, data has become cheap and super abundant and we must learn how to utilise it effectively. We must appreciate that this data is the concern of many communities of interest throughout the physical scales and resolutions we operate in. We also need to recognise that the farm is one of the major action points along this process, meaning that precision agriculture needs to remain a strong focal point for research and innovation.

Personal: Married with three children, two young men in their twenties and a daughter of 15. Love the outdoors and enjoy keeping physically active so New Zealand is the perfect place to live.