

## Curriculum Vitae

### Robert M Norton,

Regional Director,  
International Plant Nutrition Institute  
Australia & New Zealand

Associate Professor,  
Melbourne School of Land and  
Environment, The University of Melbourne



#### Tertiary Education

- Doctor of Philosophy Latrobe University 1987-1992  
Thesis title: "The effect of applied nitrogen on the growth, yield, water use and quality of rapeseed (*Brassica napus* L.) in the Wimmera."
- Diploma of Education, The University of Melbourne 1976.
- Bachelor of Agricultural Science, The University of Melbourne 1972-1975.

#### Synopsis:

Dr Rob Norton is the Regional Director - Australia and New Zealand for the International Plant Nutrition Institute (IPNI), which is a not-for-profit, science based research and education institute that operates in more than 50 countries.

His role with IPNI is to identify and undertake plant nutrition research projects that will improve nutrient management, as well as developing educational programs to capitalise on these opportunities. Current issues for Australia and New Zealand are matching N to water supply, meeting declining soil S levels and preparing growers to deal with climate change. He is also co-chair of the IPNI International Working group on Nutrient Performance Indicators.

Prior to his appointment with IPNI, Rob worked for the University of Melbourne in Horsham where he led projects on how climate change affects grain crops, soil and plant nutrition, oilseed agronomy, crop water use, alternative grain crops and farming systems. He led a climate change project in China, worked for a short time in Canada and has hosted scientists from India, China, Canada, Spain and Iran on visits to Australia.

He is the author of over 100 book chapters, refereed journal and conference papers as well as another 200 conference and extension articles. He has successfully supervised 14 higher degree students.

He is a member of several professional bodies including the Australian Institute of Agricultural Science and Technology.

#### Areas of Expertise:

- Field crop agronomy, with particular emphasis on crop agronomy and crop nutrition.
- Farming systems developments with particular emphasis on the role of new crops in farming systems.
- The development of Free Air Carbon Dioxide Enrichment facilities, and crop responses to high CO<sub>2</sub>.
- Education and training for the south-eastern Australian cropping industries, from vocational education and extension, through to higher degrees.

#### Teaching and Professional Experience:

Five years as regional director, IPNI, Australia and New Zealand (2009-present).

28 years experience in teaching undergraduate, postgraduate, TAFE and industry based programs for the Melbourne School of Land and Environment and its predecessors (1981-2009)

- Supervisor of Honours, Masters and PhD students in plant breeding, field crop production, soil science and related areas.
- Site leader, The University of Melbourne, Grains Innovation Park (2002-2009)
- Deputy Head, Longerenong Campus, The University of Melbourne (1993-2001).
- Acting Director, Joint Centre for Crop Innovation (2004-2007)

*Professional visits to Canada, China, Europe (various), India, Morocco, USA.*

#### Professional Association Memberships

Australian Institute of Agricultural Science and Technology.

*RM Norton, Regional Director Australia & New Zealand, International Plant Nutrition Institute.*

Australian Society of Agronomy.  
Soil Science Society of Australia.  
Australasian Soil and Plant Analysis Council.  
American Society of Agronomy.  
Australian Society of Sugar Cane Technologists.  
Indian Crop Improvement Society.

#### **Refereed Journal and Conference Publications (since 2000)**

- Hao X, Li P, Han X, Norton RM, Lam SK, Zong Y, Sun M, Lin E, Gao Z. 2016. The effects of free-air CO<sub>2</sub> enrichment (FACE) on N, P, K uptake and utilization of soybean at northern China, *Agricultural and Forest Meteorology*, 218-219, 261-266.
- Norton R, Bruulsema T, Robert T, Snyder C. 2015 Crop nutrient performance indicators. *Agricultural Science*, 27 (2), 33-38.
- Norton RM, Walker C, Farlow C. 2015. Nitrogen removal and use on a long-term fertilizer experiment. *“Building Productive, Diverse and Sustainable Landscapes”*. Edited by T. Acuña, C. Moeller, D. Parsons and M. Harrison. *Proceedings of the 17th Australian Agronomy Conference 2015*, 21 – 24 September 2015, Hobart, Tas. <http://www.agronomy2015.com.au/1243>
- Clough A, Norton R, Riffkin PA, Partington DL, Christy B. 2015. Nutrient status of soils and crops in the high rainfall zone of Victoria and South Australia *“Building Productive, Diverse and Sustainable Landscapes”*. Edited by T. Acuña, C. Moeller, D. Parsons and M. Harrison. *Proceedings of the 17th Australian Agronomy Conference 2015*, 21 – 24 September 2015, Hobart, Tas. <http://www.agronomy2015.com.au/1114>.
- Bell MJ, Sands D, Lester D, Norton R. 2015. Response to deep placed P, K and S in central Queensland. *“Building Productive, Diverse and Sustainable Landscapes”*. Edited by T. Acuña, C. Moeller, D. Parsons and M. Harrison. *Proceedings of the 17th Australian Agronomy Conference 2015*, 21 – 24 September 2015, Hobart, Tas. <http://www.agronomy2015.com.au/1043>
- Christy BP, Riffkin PA, Clough A, Norton R, Stott K, O’Leary GJ. 2015. Crop yield potential limited by nutrient status in the high rainfall zone of southern Australia *“Building Productive, Diverse and Sustainable Landscapes”*. Edited by T. Acuña, C. Moeller, D. Parsons and M. Harrison. *Proceedings of the 17th Australian Agronomy Conference 2015*, 21 – 24 September 2015, Hobart, Tas. <http://www.agronomy2015.com.au/1358>
- Robertson MJ, Rebetzke G, Norton RM. 2015. Crop simulation modeling – performance, progress and prospects: the case of the Australian grains industry. *Crop and Pasture Science*, 66(9) 877-893.
- Norton R, Davidson E, Roberts T. 2015. Nitrogen use efficiency and nutrient performance indicators. Global Partnership on Nutrient Management, Technical Paper 1/2015. 16 pp.
- Dietterich LH, Bloom AJ, Carlisle E, Fernando N, Fitzgerald G, Hasegawa T, Holbrook NM, Huybers P, Kloog I, Leakey ABD, Nelson RL, Norton R, Ottman MJ, Raboy V, Sakai H, Sartor KA, Schwartz J, Seneweera S, Usui Y, Yoshinaga S, Zanobetti A, Myers SS. 2015. Impacts of elevated atmospheric CO<sub>2</sub> on nutrient content of important food crops, *Scientific Data*, 2, Article Number 150036. doi:10.1038/sdata.2015.36
- Norton RM 2015. Phosphorus use and future supply. *Agricultural Science*, 27 (1), 63-65.
- Elliot VL, Norton RM, Khangura RK, Salisbury PA, Marcroft SJ. 2015. Incidence and severity of blackleg caused by *Leptosphaeria* spp. in juncea canola (*Brassica juncea* L.) in Australia. *Australasian Plant Pathology*, 44 (2), 149-159.
- Thilakarathne L, Posch S, Cane K, Norton RM, Fitzgerald G, Tausz M, Seneweera S. 2015. Intraspecific variation in leaf growth of wheat (*Triticum aestivum*) under Australian Grains Free Air CO<sub>2</sub> enrichment (AGFACE): is it regulated through carbon and/or nitrogen supply? *Functional Plant Biology*, 42, 299-308
- Tausz-Posch S, Dempsey RW, Seneweera S, Norton RM, Fitzgerald G, Tausz M. 2015. Does a freely tillering wheat cultivar benefit more for elevated CO<sub>2</sub> than a restricted tillering cultivar in a water limited environment. *European Journal of Agronomy*, 64, 21-28.
- Fernando N, Panozzo J, Tausz-Posch S, Norton RM, Khan A, Fitzgerald, G, Tausz M, Seneweera S. 2015. Rising atmospheric CO<sub>2</sub> concentration altered wheat grain proteome and flour rheological properties. *Food Chemistry*, 170, 448-454.
- Fixen P, Brentrup F, Bruulsema T, Garcia F, Norton R, Zingore S. 2015. Nutrient/fertilizer use efficiency: measurement, current situation and trends. In: Drechsel, P., Heffer, P., Magen, H., Mikkelsen, R., Wichelns, D. (Eds.) 2015. *Managing Water and Fertilizer for Sustainable Agricultural Intensification*. International Fertilizer Industry Association (IFA), International Water Management Institute (IWMI), International Plant Nutrition Institute (IPNI), and International Potash Institute (IPI). Paris, France. p 8-37.
- Norton RM, Speirs SD, Conyers MK, Peverill KI, Dyson CB, Watmuff G. 2014. A web-based database to support soil test calibration. *Proceedings of the 9th Conference of the Asian Federation for Information Technology in Agriculture “ICT’s for future Economic and Sustainable Agricultural Systems”* (eds LJ Armstrong, A Neuhaus) p

- 371-375. (Australian Society of Information and Communication Technologies in Agriculture Inc. Inglewood , Western Australia, 6932).
- Norton RM 2014. Combatting climate change through improved agronomic practices and input-use efficiency. *Journal of Crop Improvement*. 28(5), 575-618.
- Javid M, Ford R, Norton RM, Nicolas ME. 2014. Sodium and boron exclusion in two *Brassica juncea* cultivars exposed to the combined treatments of salinity and boron at moderate alkalinity. *Biologica*, 69, 1-7.
- Speirs S, Conyers MK, Reuter Late DJ, Peverill KI, Dyson CB, Watmuff G, Norton RM. 2014. Development of an Australian Soil Test Calibration Database. *Agricultural Science* 26(1), 41-42.
- Norton RM. 2014. Crop N & P demand under climate change. *Agricultural Science*. 26(1), 43-46
- Lam SK, Norton RM, Armstrong RD, Chen D. 2014. Increased microbial activity under elevated [CO<sub>2</sub>] does not enhance residue decomposition in a semi-arid cropping system in Australia *Soil Biology and Biochemistry* 72, 97-99.
- Fernando N, Panozzo J, Tausz M, Norton RM, Fitzgerald GJ, Myers S, Nicolas ME, Seneweera S. 2014 Intra-specific variation of wheat grain quality in response to elevated [CO<sub>2</sub>] at two sowing times under rain-fed and irrigation treatments, *Journal of Cereal Science*, doi: 10.1016/j.jcs.2013.12.002.
- Fernando N, Panozzo J, Tausz M, Norton RM, Neumann N, Fitzgerald G, Seneweera S. 2014. Elevated CO<sub>2</sub> alters grain quality of two bread wheat cultivars grown under different environmental conditions. *Agriculture Ecosystems & Environment* 185, 24-33.
- Conyers MK, Bell MJ, Wilhelm NS, Bell R, Norton RM, Walker C. 2013. Making better fertilizer decisions for cropping systems in Australia (BFDC): knowledge gaps and lessons learnt. *Crop and Pasture Science*, 64, 539-547.
- Norton RM. 2013. Agronomic Practices and Input-use efficiency. In "Combatting climate change, An agricultural perspective". (MS Kang, S Banga, eds). CRC Press, Florida, USA. p 109-129.
- Lam SK, Chen D, Norton R, Armstrong R, Mosier AR. 2013. Influence of elevated [CO<sub>2</sub>] and supplementary irrigation on greenhouse gas emissions from a spring wheat crop in southern Australia. *Journal of Agricultural Science, Cambridge*. 151, 201-208.
- Tausz-Posch S, Norton RM, Seneweera S, Fitzgerald GJ, Tausz M. 2013. Will intra-specific differences in transpiration efficiency in wheat be maintained in a high CO<sub>2</sub> world? – A FACE study. *Physiologia Plantarum*, 145 (2), 232-245.
- Tausz-Posch S, Borowiak K, Dempsey R, Norton R, Seneweera S, Fitzgerald G, Tausz M. 2013 The effect of elevated CO<sub>2</sub> on photochemistry and antioxidative defence capacity in wheat depends on growing environmental conditions - A FACE study. *Environmental & Experimental Botany*, 88, 81-92.
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- Thilakarathne L, S Posch, K Cane, R Norton, M Tausz, S Seneweera. 2013. Intraspecific variation on growth and yield response to elevated CO<sub>2</sub> in wheat depends on the differences of leaf mass per unit area. *Functional Plant Biology*, 40, 185-194.
- Wilson G, Ryder M, Fitzgerald G, Tausz M, Norton R, O'Leary G, Seneweera S, Posch S, Mollah M, Luck J, Hollaway G. 2012. Case Studies on Food Production, Policy and Trade; sustaining crop yields in a high CO<sub>2</sub> world. *In Food Security in Australia*, (Farmar-Bowers Q, Higgins V, Millar eds). Springer, New York, p 353-364.
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- Norton RM, Roberts TL. 2012. Nutrient management to nutrient stewardship. "Capturing Opportunities and Overcoming Obstacles in Australian Agronomy". Edited by I. Yunusa. Proceedings of 16th Australian Agronomy Conference 2012, 14-18 October 2012, Armidale, NSW. [http://www.regional.org.au/au/asa/2012/nutrition/8158\\_nortonrm.htm#TopOfPage](http://www.regional.org.au/au/asa/2012/nutrition/8158_nortonrm.htm#TopOfPage)
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- Tausz M, Posch S, Norton R, Fitzgerald G, Nicolas ME, Seneweera S. (2012) Understanding crop physiology to select breeding targets and improve crop management under increasing atmospheric CO<sub>2</sub> concentrations. *Environmental & Experimental Botany*, *In press*.
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- Fernando N, Panozzo J, Tausz M, Norton R, Fitzgerald G, Seneweera S. (2012) Elevated CO<sub>2</sub> concentration affects wheat (*Triticum aestivum* L.) grain sulfur concentration and N/S ratio. In (De Kok, L.J., Tausz, M., Hawkesford, M.J., Höfgen, R., McManus, M.T., Norton, R.M., Rennenberg, H, Saito, K., Schnug, E. and Tabe, L. (eds.)) *Sulfur metabolism in plants: Mechanisms and application to food security, and responses to climate change*. Springer, Netherlands. p 231-236.
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#### **Additional Publications, Activities and Conferences**

- Maintain a high quality and well used regional website for the dissemination of information on plant nutrition.
- More than 100 Conference Papers.
- 23 Project and other Reports
- Editor/Joint Editor of 9 conference proceedings and one journal special edition.
- Regular reviewer for Crop and Pasture Science, Plant and Soil and Field Crops Research.
- More than 150 extension articles
- Various teaching and learning materials, written and electronic
- more than 200 seminar presentations since 2000.
- Participated in 50 National and International Conferences since 2000
- Participated in 60 regional conferences and workshops since 2000