

Curriculum Vitae

Prof Kevin Francis Smith MAgSc, PhD, DipFLM

Summary

Kevin Smith is an experienced researcher and consultant in the areas of plant science, pasture improvement, plant breeding, grain and horticulture production, dairy and meat production, biotechnology and science policy and strategy.

Tertiary Education:

1988	Bachelor of Agricultural Science, University of Melbourne
1994	Master of Agricultural Science, University of Melbourne (Thesis title: 'The potential use of near infrared reflectance (NIR) spectroscopy in pasture plant breeding')
1999	Doctor of Philosophy, University of Melbourne (Thesis title: 'The genetics and physiology of water-soluble carbohydrates in perennial ryegrass (<i>Lolium perenne</i>)')
2002	Diploma of Management, RMIT University

Distinctions/Honours:

1995	PhD Scholarship, Dairy Research and Development Corporation.
2007	Associate Editor – <i>Crop Science</i>
2009	Appointed Full Professor – Molecular Plant Breeding LaTrobe University
2010	Principal Research Fellow (Adjunct) – Institute of Food and Environment, The University of Melbourne
2012	Appointed Full Professor – Agronomy – The University of Melbourne

Experience:

Employment Record

1989-1997	Plant Breeder, Pastoral and Veterinary Institute, Department of Natural Resources and Environment, Hamilton, Victoria, Australia
1995-1997	Visiting Scientist, CSIRO Plant Industry, Canberra, Australia

1996	Visiting Scientist, Institute of Grassland and Environmental Research, Aberystwyth, UK
1998-2001	Senior Plant Breeder, Pastoral and Veterinary Institute, Department of Natural Resources and Environment, Hamilton, Victoria, Australia
2001	Visiting Scientist, Department of Agronomy, University of Wisconsin, USA
2002	Resource Manager - Plant Science, Pastoral and Veterinary Institute, Department of Natural Resources and Environment, Hamilton, Victoria, Australia
2003	Visiting Scientist National Agricultural Research Centre, Sapporo Japan
2004 - 2009	Statewide Leader Molecular Plant Breeding, Department of Primary Industries, Victoria
2007 – 2009	Deputy Research Director Biosciences, Department of Primary Industries, Victoria
2010 - 2013	Managing Director AbacusBio PtyLtd
2012 -	Professor – Agronomy – The University of Melbourne

Consultancy Experience

In my previous role as Managing Director of AbacusBio Pty Ltd I provided strategic consultancy in Australia, New Zealand, China and Brunei to a range of clients including:

Rural Industries Research and Development Corporation: Review of Pastures Australia.

Meat and Livestock Australia: Strategic Review of Forage Plant Breeding Research Investment; Strategic Review of Feedbase Investment Plan. Review of the Research and Development Activities of MLA.

Dairy Futures CRC: Development of Strategic Plan and Investment Plan for Farming Systems Research and Development to Support Genetic Innovations.

Dairy Australia: Development of Strategic Plan for Maximising Adoption of Feedbase Research.

Government of Brunei: Development of a Biotechnology Science Strategy for the Sultanate of Brunei.

Private Seed Company: Development of a Research and Development Strategy and Implementation of Joint Research Program with Public Sector Agencies.

Private Biotechnology Company NZ/China: Development of a Genomics and Breeding Program for a Novel Source Crop Based Source of a Non-Sucrose Sweetener.

Private Dairy Company: Development of Grazing Strategies for Corporate Dairy Farms in Uruguay

Research Experience

Extensive experience in the development and implementation of molecular marker technologies for a wide range of plant species particularly forage grasses, fungal grass endophytes and forage legumes. More recently I have been actively involved in the leadership of molecular breeding activities in strawberry, pear, potato, pulse crops and wheat.

I am recognised as a world leader in the development and application of modern technologies in forage plant breeding and have a strong reputation and recognition for developing and delivering joint public:private programmes.

Recent highlights have included:

- Validation of molecular marker systems for varietal discrimination in pasture species.
- Development of molecular markers for key agronomic traits including resistance to crown rust, root morphology, photosynthetic efficiency, fructan content, annual and perennial growth habit.
- Commercial release of Dundas tall wheatgrass, Avalon perennial ryegrass, Bolton perennial ryegrass, AVH17 perennial ryegrass, AVH37 white clover and Mink white clover.
- Management of world's first field evaluation of transgenic white clover and the world's largest field trials in transgenic forage grasses.
- Scientific leadership of the world's largest transgenic wheat evaluation program.
- Leadership of plant breeding activities in horticulture, cereals, oilseeds and pulses.
- Supervision of PhD and Masters students in molecular plant breeding

Research in these areas is currently funded by the Molecular Plant Breeding Cooperative Research Centre (MPBCRC), Dairy Australia (DA), Meat and Livestock Australia (MLA), Geoffrey Gardiner Dairy Research Foundation (GGDF), Horticulture Australia (HAL), Grains Research and Development Corporation (GRDC), Department of Primary Industries and a range of private companies. I have an excellent working relationship and reputation with these funding agencies around successful project delivery and strong focus on conversion of science outcomes to commercial products.

I have been invited to present on the molecular breeding of forages by a range of organisations around the world including:

- North American Grass Seed Breeders Association
- Argentinian Society of Genetics
- Argentinian Society of Agronomists
- New Zealand Grasslands Association
- European Society of Plant Breeding (Eucarpia)
- Australasian Society of Plant Breeding.

Management Experience

I was Deputy Director of Research for the Biosciences Platform of the Victorian Department of Primary Industries. The Biosciences Platform has 220 staff and students working in plant and animal biosciences and an annual operating budget of

ca. \$40 million. I was also research leader for all of DPI's plant breeding activities in forages, pulses, oilseeds, cereals and horticultural crops, this team of 60 staff and students are located at 5 sites throughout the state of Victoria.

I have extensive experience on national and international working groups relating to strategy setting and prioritisation of agricultural research and development including

- Victorian representative on National Steering Committee which led to the formation of Barley Breeding Australia
- Victorian representative on National Steering Committee which led to the formation of Pulse Breeding Australia
- Commissioned by Pastures Australia to review quantitative genetics and breeding strategies used in forage breeding programs in Australia and New Zealand.
- Led the national "prebreeding" working group as part of the Australian National Horticulture R, D & E strategic planning process.
- Member of the team reviewing the research and development operations of Meat and Livestock Australia

Recent Competitive External Grant Funds

- 2004 - 2009. Candidate based genes for forage species. \$1million pa. Investors: Meat and Livestock Australia, Dairy Australia, Geoffrey Gardiner Dairy Foundation. Co-PI with Prof John Forster.
- 2008 – 2012. Designer Endophytes. \$700k pa. Investors: New Zealand Trade and Enterprise, Agriseeds NZ. Co-PI with Prof German Spangenberg.
- 2008 – 2010. Virus Resistant White Clover. \$60k pa. Investors: Heritage Seeds. Co-PI with Prof German Spangenberg.
- 2007 - 2010. Australian Temperate Field Crops Collection. \$250k pa. Investors: Grains Research and Development Corporation. PI.
- 2007 - 2010. Designer Pears. \$250k pa. Investors: Horticulture Australia Ltd. PI.
- 2009 - 2012. Development of Molecular Markers for the Australian National Potato Breeding Program. \$250k pa. Investors: Horticulture Australia Ltd. Co-PI with Tony Slater and Prof John Forster.
- 2009 – 2012. Pulse Markers Program. \$300k pa. Investors: Grains Research and Development Corporation. Co-PI with Dr Michael Materne and Prof John Forster.
- 2004 – 2009. Molecular Plant Breeding CRC ca. \$5m pa from Commonwealth Government.

- 2009 Member of bid development team and leader of Forages Program for Dairy Futures CRC ca. \$6m pa from Commonwealth Government, Principal Investigator of Sub-Program 1.5.
- I was also a member of the bid development team for a number of current “commercial in confidence” projects with BASF Crop Science, Barenbrug, NZ Agriseeds and Dow Agrosiences.
- 2013 – 2015 Mutation breeding of buffelgrass - \$0.75M. Meat and Livestock Australia
- 2013 – 2016 Genomic assisted breeding of phalaris - \$1.6M. Meat and Livestock Australia. Collaboration with CSIRO, DEPI Vic
- 2017 - 2023 Program Leader for DairyFeedbase - \$10.5M. Dairy Australia, Gardiner Foundation and Agriculture Victoria.

Editorial Experience

Editor in Chief

- Grass and Forage Science

Current Associate Editorships

- Crop and Pasture Science
- Bioenergy Research

Previous Associate Editorships

- Crop Science

Graduate Students Supervised:

Completed

- Anthony Leddin MSc. LaTrobe University. *Genetic control of waterlogging in perennial ryegrass*. Principal Supervisor
- Nathaniel Bannan PhD. LaTrobe University. *Strategies for implementation of molecular markers in perennial ryegrass breeding*. Principal Supervisor
- Kathryn Guthridge. PhD LaTrobe University. *Development of molecular markers in perennial ryegrass*. Co-Supervisor
- Julie George PhD. LaTrobe University. *Development of SSR markers in white clover*. Co-Supervisor
- Peter Dracatos. PhD LaTrobe University. *Development of molecular markers for the crown rust pathogen of perennial ryegrass*. Co-Supervisor.
- Yingying Cao. PhD LaTrobe University. *Functional genomics of fructan biosynthesis in perennial ryegrass*. Associate Supervisor.
- Yi Tu. PhD LaTrobe University. *Functional genomics of lignin biosynthesis in perennial ryegrass*. Co-Supervisor
- Eline vanZijldeJong. PhD LaTrobe University. *Development of SSR markers for Neotyphodium lolii*. Co-Supervisor.
- Arturo de Lucas. PhD LaTrobe University. *Risk assessment of transgenic white clover*. Principal Supervisor.

- Fernando Rossello. PhD LaTrobe University. *Modification of organic acid biosynthesis in white clover*. Co-Supervisor.
- Shanshan Liang. PhD LaTrobe University. *Transgenic wheat with non-host disease resistance*. Co-supervisor.
- Pei X Tian. PhD LaTrobe University. *Evaluation of novel endophyte symbioses in perennial ryegrass*. Primary Supervisor.
- Allison Hogg. PhD LaTrobe University. *Candidate gene based markers for stress tolerance in perennial ryegrass*. Co-Supervisor.
- Hiroshi Shinozuka. PhD LaTrobe University. *Candidate gene based markers for self-incompatibility in perennial ryegrass*. Co-Supervisor.
- Piyumi Ekinyake. PhD LaTrobe University. *Novel endophytes in tall fescue*. Co-Supervisor.
- Melanie Hand. PhD LaTrobe University. *Development of candidate gene based markers in tall fescue*. Co-Supervisor.
- Cameron Ludemann. PhD The University of Melbourne. *Predicting the value of high-energy perennial ryegrass in Australian Dairy Systems*. Primary Supervisor
- Claire Lewis. PhD The University of Melbourne. *Understanding the value of novel traits in legumes for dairy pastures*. Primary Supervisor
- Pieter Badenhorst. PhD LaTrobe University. *Developing breeding systems for transgenic forages*. Co-supervisor.
- Katherine Wynn PhD The University of Melbourne. *Real Options Technology for Valuing GM Crops*. Primary Supervisor

Current

- Alem Gebre. *Phenomic Assessment of Pastures*. Primary Supervisor
- Paula Giraldo. *Assessment of Transgenic Ryegrass*. Primary Supervisor
- Chaya Smith *Phenomic Assessment of Forage Quality*: Co-Supervisor
- Ruwani Dissanayake. *Next Generation Sequencing of Pulses*. Primary Supervisor

Referees:

A full list of current referees to support this CV will be provided upon request.

Publications:

Total number of books, refereed journal articles or refereed conference papers published:

- 101 peer reviewed journal articles published, in press or under review
- 11 book chapters published or in press
- More than 500 conference abstracts, posters or proceedings papers