

30 May 2013

ANNEX 1

CURRICULUM VITAE

D C EDMEADES

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NEW ZEALAND

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PERSONAL DETAILS

Full Name: Douglas Charles Edmeades
Age: 68
Marital Status: Married (Margaret)
Family: Two children, 36 and 34
Health: Excellent
Hobbies: Music, reading, gardening, cricket.

ACADEMIC QUALIFICATIONS

BSc Chemistry, University of Auckland
MSc (Hons) Chemistry, University of Auckland.
PhD Soil Science, University of Canterbury
Diploma of Management University of Auckland
Management Development Program Mt Eliza, Monash University, Melbourne (Aust.)

HONOURS & DISTINCTIONS

1985 Arthur Yates Award
1986 ANZAC Fellow, University of Queensland
2005 Landcorp: Agricultural Communicator of the Year
2011 Finalist: Agribusiness Person of the Year
2012 Agriculture Personality of the Year
2013 Officer of the New Zealand Order of Merit for services to agriculture

PROFESSIONAL SOCIETIES

Member NZ Soil Science Society
Member NZ Grasslands Association
Member NZ Institute of Agriculture (Chairman, Waikato)
Member NZ Institute of Primary Industry Management
Member NZ Royal Society

EMPLOYMENT HISTORY

1976 - 1988 Scientist, MAF, Ruakura
1988 - 1991 Group Leader, Soils and Fertiliser Group, MAF, Ruakura, Hamilton
1991 - 1997 National Science Leader, Soils and Fertiliser, AgResearch Ltd
1998 – 1999 Student: Diploma in Management
2000 - 2002 Managing Director: Fertiliser Information Services
2002 - 2012 Managing Director: agKnowledge Ltd

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PUBLICATIONS

Scientific:	Scientific Papers: 105 Chapters in science books: 3
Science Management:	Three papers (peer reviewed).
Extension Videos:	Farming With Pictures, Dairying. Farming With Pictures, Sheep and Beef. Responsible Fertilizer Use, BOP Fertiliser Co-op.
Books:	Science Friction: the Maxicrop Case and the Aftermath.
Extension Booklets:	Fertilisers for Dairy Farms. Fertilisers for Sheep & Beef Farms. Fertiliser Facts & Fallacies: Exposing 50 common myths used to sell fertilizers. A Farmers Guide to Soil Testing.
Extension Bulletins	The Fertiliser Review. A product and service guide for farmers and farm consultants on soil fertility, fertiliser and related issues. 4000 word per Bulletin, published twice a year. Issue 26 in progress.
Newspapers:	Hundreds of press articles and releases

INTERNATIONAL EXPERIENCE

- Invited by the Grasslands Society of Victoria (1986), Australia, on a speaking tour through Victoria on, "Soil Acidity and Liming- The New Zealand Perspective".
- Invited by the Grasslands Society of Victoria Australia to present the Mac Troupe Memorial Lecture, "Maxicrop- Science Farming and the Law". (Ballarat, Victoria Australia, 1988).
- Invited speaker to the Conference "Phosphorus Requirements for Sustainable Agriculture in Asia and Oceania". International Rice Research Institute, Manila, Philippines, 1990.
- Member of the International Committee on Soil Acidity and Liming (1994-96).
- Invited by The Sulphur Institute (Washington DC) to give papers on "New Sulphur Fertiliser Technologies in New Zealand" at conferences in USA (Washington DC., June 1996) and India (New Delhi, Feb. 1997).
- Study tour to Federal Republic of Germany (June 1997) to visit research organizations and fertilizer industry personnel, and to discuss and share knowledge and information regarding sulphur deficiency. Funded by the NZ/FRG Science Scheme.

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- Keynote Speaker (2000): Third International Conference on Soil Acidity, Natal South Africa.
- Speaking tour of Western Australia (2009) at the invitation of the Department of Agriculture. Key-Note Speaker at an industry/farmer conference and Invited Speaker at the University of Western Australia (Paper: Science under Threat).
- Keynote Speaker (2011): 26th Annual Conference of the Grasslands Society of NSW. (Paper: Pseudo-science: A threat to Agriculture?).

PERSONAL STRENGTHS

In terms of modern management theory I am best described as a leader as distinct from a manager. Consequently, I bring to my activities:

- A strong strategic focus: visionary, big picture, concerned for the future.
- A strong people focus: caring, communicative, motivational, inspirational
- A strong goal orientation: pro-active, getting things done, setting goals and objectives

Character and personality tests (e.g. Myers-Briggs, Margerison-McCann) reveal the following preferences:

- Strongly motivated by my values and beliefs
- Strong on ideas, innovation and creativity
- Enthusiastic and optimistic
- Intuition and feelings are important
- People rather than process driven
- Team oriented
- Well developed writing and verbal communication skills
- Individualistic and often misunderstood.

For these reasons, I am most productive when working in an environment, which is open, honest and free from internal and external politics, oriented towards people and focused on results.

SKILLS AND EXPERTISE

Science

Specific areas of scientific experience and expertise include:

- Soil acidity and liming
- Soil chemistry and fertility
- Soil and plant analysis and interpretation
- Nutrient requirements of pastures and crops
- Fertiliser inputs and advice
- Fertiliser formulation

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- Environmental issues related to the above

Management

Specific area of managerial experience and competence include:

- Leadership.
- Strategic planning and implementation.
- Managing scientists in teams and ensuring they work towards common goals.
- Communication (verbal and written)

Expert Witness

I have been called as an expert witness in the following cases:

- Bell-Booth Group v Ministry of Agriculture and Fisheries 1987, (The Maxicrop Case), Wellington
- Lindsay Watts v Superior Minerals 2005, Dunedin.
- Sands v Cashmore, 2007, Wellington, Dispute re farm Sale and Purchase Agreement
- Commerce Commission v Probitas 2007, Tauranga.
- Forsyth Enterprises, 2009, Hawkes Bay, Dispute re farm Sale and Purchase Agreement.
- Robertson 2009, Taranaki, dispute re Lease Agreement.
- Hall v Walker, 2010, Taihape, dispute re Lease Agreement
- Bunnings v Hasting District Council 2010, Napier.
- Ballance v Ravensdown 2010, Auckland.
- Waipa Pastoral v Turere 2010, Hamilton, dispute re farm Sale and Purchase Agreement.
- Expert Witness. 2012. Environment Court. Horizons One Plan.
- Expert Witness. 2013. Environment Court, Canterbury Land & Water Regional Plan

During the Maxicrop case I was also retained (for 12 months) as the Scientific Adviser to the lawyers representing the MAF.

In his judgment in the Commerce Commission v Probitas, Judge Callender reported ([75]):

“I believe him (Dr Edmeades) to be of great experience and a leader in his field. His analysis of the *Probitas* product and its mode of use was careful, thorough, objective, and fair. In short, I found him to be a very credible witness. He is a man of great standing within the agricultural scientific community. Notably his evidence has not been contested by any other expert and his expertise on any matters relevant to representations has not been successfully challenged. It is of significance that most of his learned research papers were published well before the present investigation commenced.”

COMMERCIALISATION OF SCIENCE

One of the reasons for leaving institutional science in 1997 was as a consequence of the science reforms in New Zealand, which commenced in 1990. In particular I became aware that the drive to commercialize science could corrupt its objectivity and independence. I therefore enrolled in a postgraduate diploma in management in search of answers to the

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questions: given the requirements of science and in particular its inherent values, what is the optimal management for science? And, is the commercial model appropriate for science?

A consequence of this period of study was two science management papers published in the peer reviewed journal, New Zealand Science Review.

COMMERCIAL CAREER

A further consequence of the science reforms was that the gap between agricultural science and the farmer widened. For this reason I established the company Fertiliser Information Services in 1998 which evolved into agKnowledge Ltd in 2002. The purpose of this privately owned company is to provide farmers and consultants with independent, objective, science-based information on the management of soil fertility (fertiliser, soil and plant testing, and nutrient management). The company has three areas of activity: contract research, publishing information on soil fertility and fertilisers for farmers and farm consultants and a one-on-one service to farmers providing nutrient management plans and budgets.

Currently agKnowledge Ltd employs 2 staff and contracts 4 field representatives.

Research Projects:

1. A series of reviews (published in NZ J Agric Res) of New Zealand research on the nutrient requirements of pastures covering each of the major nutrients (Calcium, Magnesium, Sodium, Phosphorus, Sulphur and Potassium).
2. A review of the field research comparing the effects of soluble and reverted P on pasture production.
3. A review of the long-term international trials comparing organic fertilizers (manures) and conventional (chemical) fertilizers.
4. Field research (15 trial x site years) examining the efficacy of a nitrification inhibitor (DCD) formulation.
5. A review of New Zealand research on the efficacy of ecoN (a proprietary formulation of DCD) on pasture production and soil nitrate levels.
6. A review of the Efficacy of ProGibb (a proprietary formulation of gibberellic acid) on pasture production.
7. A review of the efficacy of LessN (a proprietary formulation of unknown constituents) on pasture production.

Publications:

1. The Fertiliser Review, published twice yearly (26 Bulletins to-date). Initially sold on subscription but now available as a free download from the website www.agknowledge.co.nz.
2. Booklet 1: Fertiliser Facts and Fallacies: Exposing 50 myths used to sell fertilisers
3. Booklet 2: A Farmers Guide to Soil Testing

On-farm Consultancy:

AgKnowledge Ltd has developed a process trademarked as Total Nutrient Management (TNM) to deliver nutrient management plans for farms based on the FESLM definition of

sustainability (Framework for the Evaluation of Sustainable Land Management). Currently 600 clients.

ACHEIVEMENTS

Science: Personal

My personal research interests have been focused on soil acidity and its effect on pasture production. As a science leader my interests broadened to include defining the relationships between soil tests and pasture production (i.e. calibrating soil tests) and using these production functions to develop expert systems and tools (e.g Overseer) so that fertiliser advice could be offered based on economic outcomes.

My achievements to these areas of research include:

- Elucidating the mechanisms by which liming increases pasture growth on New Zealand soils.
- Defined the relationship between soil pH and pasture responses to liming on NZ soils and incorporating this into an econometric 'Lime Recommendation Scheme' enabling Consultants to offer advice on lime, based on the likely economic benefits. A world first.
- First comprehensive New Zealand study of the chemistry of soil solutions and their composition and in the process showing that our temperate soils have a low ionic strength not unlike tropical soils.
- Based on the above confirming that the standard method for measuring soil pH in New Zealand soil (1:2.5 soil to solution) best mimicked the soil pH in the field (i.e. at the same ionic strength).
- Development, based on the above, of a realistic method (low ionic strength hydroponic solutions mimicking soil solutions) to test the effects of aluminium (Al) on plant growth.
- The discovery that most New Zealand pasture cultivars are very sensitive to Al toxicity.
- Calibrating a soil test (0.05 M calcium chloride) for measuring aluminium toxicity in New Zealand pastoral soils.
- As the science leader, instigating the establishment of a data-base containing the records of all past (1940 to 1990) pasture fertiliser field trials on P, K and S (about 5,000 trials).
- Initiating and managing a large pan-discipline project, to develop dynamic (as distinct from static) nutrient models for P, K and S, using the historical information in the data-base. Dynamic models were essential in order to introduce economics outcomes into fertilizer recommendations. This process required introducing some new concepts into

soil fertility research such as the ‘nutrient production functions.’- the relationships between relative pasture production and soil nutrient levels (soil tests). Prior to this time applied soil scientists rejected this approach as a means of summarizing pasture production data from fertilizer trials.

- Managing the inclusion of these new models, in conjunction with the fertilizer industry, into a software package ‘Overseer’ – a new tool to examine the long-term economics of fertiliser use and produce nutrient budgets. These developments are world firsts and Overseer is now well established and accepted as an important tool in NZ agriculture.
- In my capacity as a private scientist (agKnowledge Ltd), writing a series of 7 review papers (published in NZ J Agric Res and Aust J Experimental Agric.) on the nutrient requirements (calcium, magnesium, sodium, phosphorus, sulphur and potassium) of New Zealand pastures using the information in the agResearch field trial data-base established earlier. Two additional reviews were published (A comparison of the efficacy of soluble P fertiliser and lime-reverted P fertiliser and a paper summarizing international data from long-term trials comparing organic and chemical fertilizers has also been published). These papers represent a summary of New Zealand pasture nutrient research over the period 1940 to 2009.

Science: Management

In 1988 I reluctantly agreed to become involved in science management (Group Leader, Soils and Fertiliser, Ruakura) and subsequently was appointed to the position of National Science Leader (Soils and Fertiliser). As such, I had responsibility for 20 scientists and 40 science technicians with a budget of \$5.5m. In addition, I had responsibility for the Soil Fertility Service, a commercial soil and plant-testing laboratory with a staff of 20 and turnover of \$2.0m.

My achievements in terms of management include:

- Transforming an introverted and dispirited group of scientists into a vibrant and exciting group with a positive attitude, undertaking relevant research.
- Providing strategic direction to the group and being amazed to see how readily people respond to this simple expression of leadership.
- Increasing non-crown revenue from nil to in excess of \$2.0 in 5 years.
- Restructuring the core science programs to give them strategic relevance to industry.
- Involving the fertiliser industry in our research planning and ultimately seeing them commit funds to our research effort.

Science: Society

I have a deep passion for science, together with a strong conviction that science has a vital role to play in society. Accordingly it is my view that to survive, science must be relevant to society needs and must be visible and audible to society. I do not believe that science ends at the laboratory door or in a scientific publication.

Achievements reflecting this conviction include:

- Developing a strong and vigorous technology transfer capability within AgResearch's Soils and Fertiliser Group.
- Exposing the staff to relevant clients and their needs, and urging staff to make their problems our problems.
- Being prepared to speak out on matters of public interest (viz. the "RPR Issue", 1990)
- Being willing to defend that right (viz. Bell Booth Group vs MAF, High Court, Wellington, 1986-87)
- Publishing the book "Science Friction: the Maxicrop Case and the Aftermath" (2000).
- Publishing two papers ("Is the Commercial Model Appropriate for Science" NZ Science Review 2004 and "A response to the MoRST sector engagement paper. NZ Science Review 2006) on the subject of science management and in particular raising the question of the impact of commercialization on the integrity of science
- Successfully establishing agKnowledge Ltd.
- Publishing a paper "Science under Threat" in the Australasian Science magazine, which highlights why modern science is in such a precarious position.
- Publishing a paper "Pseudo-science; A Threat to Agriculture. Grasslands Society of NSW, which considers the dangers of pseudo-science on agriculture.