Charles Sturt University Submission to the Senate Inquiry:
Higher Education and Skills Training to Support Future Demand in Agriculture and Agribusiness in Australia
November 2011

Introduction

Charles Sturt University (CSU) welcomes and applauds this inquiry into an area of great national importance. CSU's submission arises from the institutions long history and demonstrated capacity as a national provider of agriculture and agriculture-related education programs.

CSU is committed to the development and sustainability of regional Australia. The excellence of the CSU (and predecessor institution) programs builds on over 100 years of involvement in Agricultural education and working closely with all areas of the Agricultural industry. The diversity of programs has arisen from a continual reflection and update of offerings; demonstrating responsiveness to the changing needs of the community, the industry and the environment. New programs cover areas of emerging importance such as, Sustainable Agriculture, Irrigation, Water Management, Ecological Agricultural Systems and Animal Science. Examples of the breadth of CSU Agriculture and Agriculture –related courses are noted in Appendix 1.

In total, 400 students completed agriculture or agriculture related course at CSU between 2002 and 2011; including 128 in the Bachelor of Agriculture (& specialisations) and 39 in postgraduate Agriculture Masters and PhD programs. Contrary to most Australian institutions[1,3], however, CSU has seen a slight increase in enrolment numbers in Agriculture specific courses in recent years. In the same period, in line with the vast majority of Australian providers[1,2], CSU has seen a significant decline in Horticulture, Viticulture and Wine Science enrolments, while Animal Science course enrolments have increased over the same period. Although the majority of Animal Science graduates do not enter the livestock production industry, CSUs success in placing over 85% of its Veterinary Science graduates in regional or remote areas is an outstanding outcome.

CSU's responses to the terms of reference of the inquiry

Re the adequacy of funding and priority given by governments at the federal, state and territory level to agriculture and agribusiness higher education and vocational education and training

CSU contends that a shortage of appropriately targeted funding and insufficient priotisation and promotion of agricultural education have contributed to the general decline in numbers of graduates across Australian higher educational institutions (HEIs). A recent report[1] by Professor J. E. Pratley, Secretary to the Australian Council of Deans of Agriculture and Professor of Agriculture at CSU, has documented this significant decline across the country and the effect this will have on the industry in the coming years; especially in relation to the increasing gulf between the number of positions vacant (estimated in excess of 4000/annum) and the number of available graduates to fill these positions (estimated 700/annum). The percentage of the agricultural sector with tertiary qualifications (approx 7%) is now well below the national average (approx 25%).

In this time of increasing stress on the industry in terms of increased food security requirements, climate change and increasing reliance on advanced technology, we would suggest that three major challenges face providers of agricultural education and training: namely (a) the need to increase student interest in and aspiration towards Agriculture and related degree programs in general; (b)

the provision of easily accessible pathways for regional students; and (c) adequate recognition within funding models of the costs of both in-field and in-lab practical skills training for agriculture and agriculture-related courses (including e.g., viticulture and horticulture, veterinary science, animal sciences, etc).

Proposed solutions in respect of (a) and (b) are covered in more detail below. In respect of (c), we suggest that in-field and other 'hands-on' practical experience is a vitally important component of the education of agricultural science students to enable them to rapidly and competently contribute to meeting the national challenges of enhancing agricultural productivity, export earnings, and the quality of environmental stewardship. The provision of these practical skills requires the funding of appropriately specialised and experienced academic and technical staff at lower than usual student:staff ratios to satisfy both the requisite learning outcomes and meet the necessary health and safety, and where necessary, animal welfare requirements associated with these activities.

Re solutions to address the widening gap between skilled agricultural labour supply and demand

Increasing opportunity for engagement in tertiary education programs remains problematic, especially for many regional, remote, low socioeconomic and indigenous communities. TAFE-based (or equivalent) programs have the advantage that many institutes have campuses in regional areas. Based on their extensive interaction with the industry and long history of agricultural training, the majority of TAFE institutes (or equivalent) produces high quality Certificate III, Certificate IV, Diploma and/or Advanced Diploma agriculture graduates, although in many instances enrolment is declining and few students are progressing to Degree level qualifications.

This is most likely related to a combination of:

(a) Lack of student aspiration;

(b) Lack of 'local' opportunity (leading to increased financial pressures of living away from home);

(c) Lack of flexibility of programs to allow working students to upgrade qualifications

To address these issues, some higher education institutions, including CSU, provide distance education (DE) programs; allowing students the opportunity to study in all states and territories. In addition, recent years have seen the move towards the development of dual sector institutions; usually providing a simplified pathway from a TAFE to a university qualification, although this has not resulted in a significant increase in enrolment because degree offerings are usually restricted to the original university campus locations.

Based on a long-standing and extremely successful relationship between CSU and TAFE, we would suggest that increasing DE options in the current format or development of dual sector institutions does not necessarily lead to increased aspiration or engagement by students in degree-level agriculture courses. Instead of developing a dual sector model, however, CSU has built on its long standing relationship with TAFE institutions to develop alternative pathways at the local level. For example, due to the significant increase in enrolments from students living in Victoria, CSU is working closely with Goulburn Ovens TAFE (GOTAFE) to develop pathways that will see local students able to progress from Cert III through to Degree in Agriculture and Agribusiness in a supported local environment; with flexible completion options supporting working students. By careful mapping of programs and provision of study support and residential schools based at the

GOTAFE campus in Wangaratta, students will be able to remain in their local area for the duration of their program.

Similarly, CSU is planning to offer the Bachelor of Horticulture, Bachelor of Agriculture and/or Bachelor of Agricultural Business Management using the facilities of North Coast Institute of TAFE in north-eastern NSW. This will have a significant impact on successful student recruitment in these areas.

Increasing student aspiration towards and interest in gaining a tertiary agriculture qualification remains a major challenge. To begin to address this, CSU has joined the Primary Industries Centre Science Education scheme (PICSE) to increase the awareness of primary and secondary students in higher education and careers in the primary industries. In addition, CSU has introduced a mobile student support unit (to provide assistance to students studying by DE in regional and remote areas) and significantly increased the number of postgraduate scholarships available in agriculture and related disciplines. Finally, CSU will have a significant involvement in 2012's Year of the Farmer programme.

Successful introduction of all the initiatives noted above, including development of TAFE partnerships, has required a significant financial commitment from the University with little support from government; clearly demonstrating the institution's on-going commitment to agricultural education

Re the impacts of any shortage on agricultural research

Given the national decline in undergraduate completions, post-graduate training in agriculture also requires attention, particularly in relation to national/international research and meeting the needs of the future academic workforce. Again, CSU advocates the building of strong, productive and sustainable relationships to further agricultural education. For example, the EH Graham Centre for Agricultural Innovation, a research alliance between Charles Sturt University and the NSW Department of Primary Industries, has a vision to be the Australian centre of excellence in temperate mixed farming systems. The EH Graham Centre has a clear mission to provide a source of valued knowledge on mixed farming systems to deliver profitable, sustainable farming systems for the future at regional, national and international levels. This highly successful partnership addresses the challenges of food security, climate change, increasing costs of resources, biosecurity and, of course, the major skills crisis.

Training in research is a critical component of the Centre's activities, including the provision of training at both the undergraduate and postgraduate research higher degree levels. The success of this model has been demonstrated through increasing funding support from the Rural Research Development Corporations, such as the Grains Research and Development Corporation and Meat and Livestock Australia, and from the private sector.

Finally, CSU is the only institution delivering a specialist Bachelor of Horticulture. This is critically important for the provision of Horticultural scientists to the sector.

Re the incorporation of animal welfare principles in agriculture education

The principles of animal welfare are firmly embedded in relevant agricultural subjects taught at CSU and the School of Animal and veterinary Sciences places a commitment to animal welfare at

the front of its mission statement. Formal teaching is through subjects such as VSC112, Animal Behaviour and Welfare and, at an advanced level, ASC225. Attitudes to welfare are also developed through case and problem based scenarios as well as clinics and practical placements. There is a strong teaching/research nexus where staff use welfare research to inform and enrich their teaching. For example, students are involved in projects such as one supported by industry to design welfare training modules for Indonesian abattoir workers. CSU has animal ethics committees at the School, Faculty and University level and every activity involving animals is submitted to the appropriate committee for approval.

Summary

CSU suggests that the following broad areas should be made priorities of government to address the challenges currently facing the agricultural sector:

1. A greater emphasis should be placed on agricultural topics within the School curriculum;
2. Grants should be made available for regional schools to embark on projects with regional TAFEs and Universities that increase student aspiration to study agricultural disciplines at post-secondary levels;
3. An increased emphasis by State government to direct agricultural research through regional universities is required; and
4. Initiatives that encourage the agricultural industry to accept students on work experience programs must be developed.

Increasing aspiration, provision of alternative pathways to higher education and industry engagement are key to re-engaging student interest and participation in careers in Agriculture.

Professor Nick Klomp
Dean, Faculty of Science
Charles Sturt University

References:

[1]Pratley, J. E. (2008) Professional Agriculture – a case of supply and demand. Australian Council of Deans of Agriculture, Charles Sturt University, Wagga Wagga, NSW 2678

[2]Pratley, J and Copeland, L (2008)Graduate completions in agriculture and related degrees from Australian universities, 2001–2006. *Farm Policy Journal* Vol. 5 No. 3, 1-10

[3]Pratley, J and Hay, M (2010) The job market in agriculture in Australia. *Occasional Paper* 10-01, Australian Farm Institute, pp1-14

APPENDIX 1: Examples of Charles Sturt University Agriculture & Related Programs

Agriculture-specific Undergraduate:

- Bachelor of Agricultural Business Management
- Bachelor of Agricultural Science
- Bachelor of Agriculture
- Bachelor of Ecological Agricultural Systems

Agriculture-specific Postgraduate:

- Graduate Certificate in Sustainable Agriculture
- Graduate Certificate in Irrigation
- Graduate Diploma of Sustainable Agriculture
- Master of Sustainable Agriculture
- Master of Agricultural Business Management
- Doctor of Philosophy (Agriculture)

Horticulture:

- Bachelor of Horticulture

Water Management/Sustainability/Environmental Undergraduate:

- Bachelor of Environmental Science
- Bachelor of Environmental Science (Catchment Management)
- Bachelor of Environmental Science (Land and Water)
- Bachelor of Environmental Science and Management
- Bachelor of Environmental Science and Management
- Graduate Diploma (Water Policy and Governance)
- Graduate Diploma in Environmental Management
- Master of Applied Science (Environmental Management & Restoration)
- Master of Environmental Management
- Master of Natural Resource Management
- Master of Water Resource Management

Wine Science & Viticulture:

- Bachelor of Viticulture and Wine Science
- Bachelor of Wine Business
- Bachelor Wine Science
- Master of Viticulture and Oenology

Animal/Equine Science:

- Bachelor of Equine Science
- Bachelor of Animal Science
- Master of Animal Science

Postgraduate (all areas noted above):

- Master of Philosophy
- Doctor of Philosophy