

Tertiary agricultural education in Australasia: where to from here?

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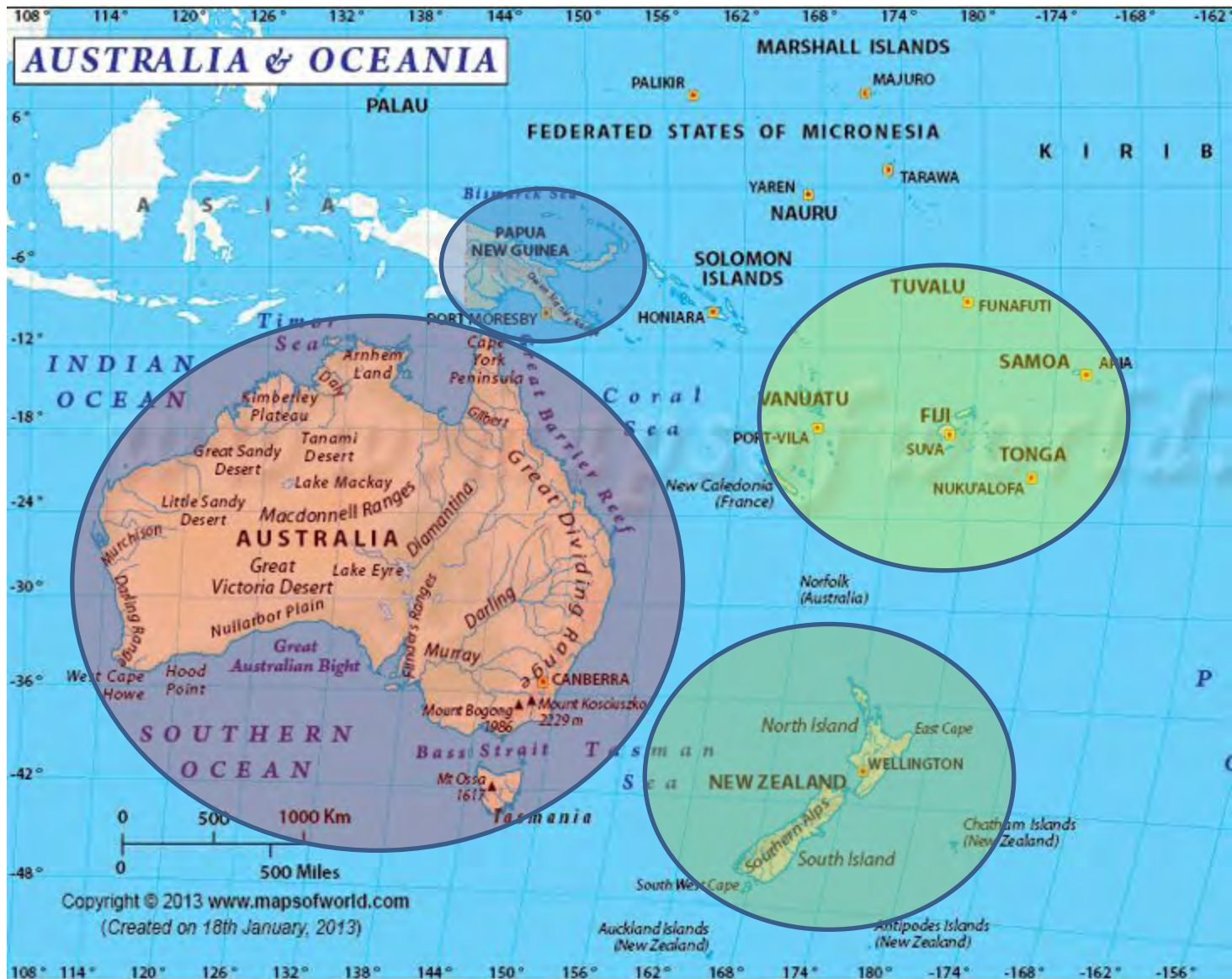
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Australasia: where is it?







**There are more people living inside
this circle than outside of it.**

<http://i.imgur.com/CK6aONG.jpg>

Percent of agriculture as a contributor to GDP based on farm-gate value

Country	% of GDP	Population (million)	as of
UK	0.7%	64	2013
Germany	0.9%	81	2013
Japan	1.2%	127	2012
USA	1.3%	316	2012
France	1.7%	66	2013
Netherlands	2.0%	17	2013
Australia	2.5%	23	2013
Brazil	5.7%	200	2013
New Zealand	7.2%	4	2010
China	10.0%	1,357	2013
Fiji	12.2%	>1	2013
Indonesia	14.4%	250	2013
India	18.2%	1,252	2013
Vietnam	18.4%	90	2013
Papua New Guinea	36.3%	7	2012

Australia and New Zealand

- Australia and New Zealand are the two major providers of agricultural research and education in the region.
- Their ag sectors are characterised by the use of modern technology, a high degree of mechanisation (a direct consequence of high labour costs), scale efficiencies and a strong research – teaching – industry nexus.
- Australia has 43 universities; in 2007, those universities that offered a degree course in agriculture or related areas formed the Australian Council of Deans of Agriculture (ACDA) as the peak body for higher education.



Australia and New Zealand

- 15 universities offering agricultural education and research programs are current members of the ACDA.
- Their course offerings are wide and varied.
- New Zealand has eight universities spread across its two main islands.
- Two of those, Lincoln University and Massey University, have strong agricultural offerings.
- Lincoln is the only university in the Austral-Pacific region that fundamentally has agricultural roots.



Fiji

- The University of the South Pacific (USP) has its main campus in Fiji with smaller campuses in 12 other Pacific Island nations.
- Offer 2 degrees: a Bachelor of Agriculture and a Bachelor of Commerce (Agricultural Economics and Agribusiness)
- Employment opportunities outside the public sector are scarce (consequence of the small-scale, subsistence-style agricultural systems, impeded by high transport costs and a lack of scale).



PNG

- Only three of PNG's six universities offer degree-level agriculture.
- Similarly to Fiji, career prospects outside the public sector are scarce.
- Anecdotal evidence indicates that all institutions suffer from low funding levels and poor maintenance.
- The Australian Overseas Development Assistance (ODA) program as well as the New Zealand ODA program offer several higher degree by research scholarships that are training future scientists and research managers.



‘In the next 50 years we will need to produce
as much food as we have in the preceding ten
thousand years’

Deloitte (2014)

It is not a matter of
predicting the future, but
of being prepared for it.

Pericles (495 – 429 BC)





At any time our societies
are only nine meals away
from anarchy.

Lord Cameron of Dillington

Some statistics

Australia currently feeds about 60M people
with a maximum capacity of about 200M (or
less than 3% of the world's population)

Supermarkets stock enough food for 2-4 days
(‘nine meals’)

In Australia and NZ there are about 4 jobs for
every ag graduate.

Our industries are desperately short of skilled
workers.



Australia:
Decline in graduate completions for 'Field of Education 05' and for agriculture from 2001 to 2010 (Pratley, 2015b)

Source	2001	2010	% decline
Undergraduate completions, FoE05	2991	2207	26%
Undergraduate agriculture completions	886	413	53%



NEWS FROM THE UNIVERSITY OF TASMANIA, AUSTRALIA

Media Release

Chiefs of Staff, News Directors

Monday 27 April 2015

Healthy food out of reach for many

Despite growing some of the best produce in some of the most fertile land in the world, many Tasmanians struggle to access healthy food because of where they live.

This is the paradox recent research conducted by the University of Tasmania has confirmed.

The Tasmanian Healthy Food Access Basket (HFAB) Survey examined the availability, cost and affordability of a basket of healthy food in Tasmania for different sized families living in different areas of the State.



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We're on the cusp of an agriculture career boom

Business topics



By Agribusiness View

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The changing landscape of Australian agriculture is creating a raft of opportunities across the sector, according to NAB's General Manager of Agribusiness, Khan Horne.

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China's growing thirst for dairy heralds golden era for Australian farmers, analysts say

Landline By Tim Lee

Updated earlier today at 6:39am

Australia's dairy industry is on the cusp of a golden era of prosperity, financial analysts say, and the much-talked-about boom to supply dairy products to China is well underway.

Some experts even contend that this new "dining boom" will rival Australia's recent mining boom.

A tally of investments makes for impressive reading.

In the past two years, Australian dairy companies have spent or plan to spend more than \$1.5 billion building new or upgrading existing dairy factories.



PHOTO: The demand for baby formula in China represents a massive opportunity for the dairy industry, analysts say.

(flickr: Jason-Morrison)

8 Reasons Why Ag Careers are Needed More than Ever

By: Alyssa Schwarck, AgCareers.com Marketing Intern

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The increasing shortage of ag graduates

Posted May 11, 2015 by Bob Meyer

Report Projects Shortage Of New Graduates For Agricultural Jobs

Tue, 05/12/2015 - 10:40am

by Andy Szal, Digital Reporter

Get today's manufacturing headlines and news - Sign up now!

A federal report anticipates that new college graduates in agriculture and related fields will only be able to fill about 60 percent of the available jobs in those industries in coming years.



(Charlie Neibergall/AP Photo)

The [analysis](#) by U.S. Department of Agriculture officials and Purdue University researchers expects an average of 57,900 vacant jobs in the food, agriculture, renewable natural resources and environmental industries between 2013 and 2022.

During that span, however, only 35,400 new graduates with at least a bachelor's degree in agriculture-related fields are expected to enter the job market. Although enrollment in those programs is expected to increase, analysts [said](#) good employment prospects should remain in place over the next five years.



U.S. agriculture faces shortage of trained scientists

Olivia McClure, LSU AgCenter | Southeast Farm Press

May 20, 2014

So we have problems ...

Deloitte labelled 'Agribusiness' as 'Australia's forgotten hero', a sector ideally placed to capitalise on a world-wide leap in demand for higher-value food products, but the system isn't working. Why?

- Agriculture is not regarded as a serious science by our innovation system
- Many people still hear 'agriculture' and think 'farming'
- Farmers and lobby groups often present a poor self-image in the mistaken believe that this will buy sympathy and ongoing support; images of farmers walking of the land or shooting sheep are unhelpful

But with good leadership and strong policy frameworks we could succeed

Australasia will never be the 'bread basket' of the world, but we

- can build food systems that are globally competitive and offer reliable, safe and high-quality food products;
- can shape the transformation to our agriculture and food sector in response to 5bn of the emerging middle class, particularly in Asia;
- can assist industry and governments in making the right choices so that agriculture will remain as a strong, resilient and flexible part of the Australian economy;
- can move the perception of agriculture being about 'farming' to a view that includes the entire value chain, including the consumers.

The AgLTAS statement

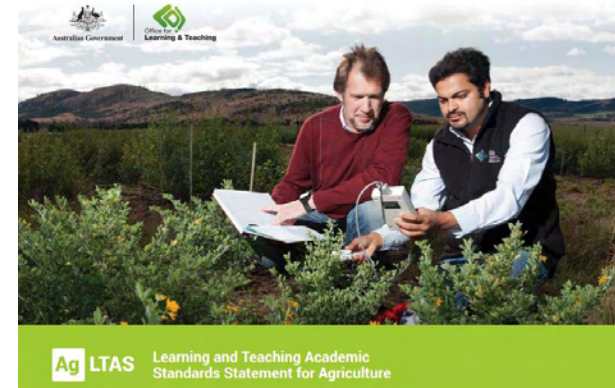
is a description of the nature and extent of the discipline as well as a set of TLOs that closely reference those for the Science discipline

- Knowledge
- Understanding
- Inquiry & Problem Solving
- Communication and
- Personal and Professional Responsibility.

This represent what a pass-level graduate in agriculture should know, understand and be able to do upon graduation.

Acuna et al., 2014. [Academic, industry and student perspectives on the inclusion of “vocational knowledge” in a ‘learning and teaching academic standards statement’ for agriculture](#). Journal of Learning Design, 7(2).

<http://www.agltas.edu.au/>



About

The Learning and Teaching Academic Standards Statement for Agriculture is a project delivered from a consensus approach to deriving standards for learning outcomes and informing course design for agriculture. Support for this project has been provided by the Australian Government Office for Learning and Teaching. The views expressed in this document do not necessarily reflect the views of the Australian Government Office for Learning and Teaching.

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Hopefully we have turned the corner

Since 2013 enrolment in ag have increased.
This year by between 10 to 40% across all universities, including NZ.

- The role of a university in providing tertiary education in agriculture has become multi-faceted demanding maximum flexibility from staff, curriculum developers, industry and students.
- We can raise to this challenge if we are willing to cooperate and show agility in the way we engage with each other in order to address the issue of highest societal importance: how to sustainably and profitably feed a growing population.



Regional priorities

- Agriculture remains an important part of the regional economies.
- The region undergoing transformational change triggered by Asia's rapid population increases, urbanisation and the emergences of a wealthier and discerning middle class.
- Australia and NZ have
 - the capacity and the natural resources to increase agricultural production;
 - the governance and institutional infrastructure to act as educational hubs for the region.



Regional priorities

- To increase quality and number of ag graduates requires a focus on communication, collaboration, innovation and continuous curriculum reform.
- Early signs that this is actually translating into higher numbers of students enrolling in agricultural courses and degrees.
- We must embrace new ways of teaching such as on-line delivery, blended learning and concepts such as 'flipped classrooms'.
- Employers have highlighted the need for a generally better educated workforce, but not necessarily to degree level.



Regional priorities

- Shortage of staff with practical, technical skills that are required to perform in modern and often high-tech workplaces.
- Agriculture is complex. Required competencies includes computer skills, core STEM skills, knowledge and appreciation of OHS standards and procedures, a better understanding of legal and financial issues, as well as marketing.
- Many workplaces now embraced the concept of life-long learning and are keen for their staff to upgrade their skills and qualifications regularly (short, one-day courses to intensive and highly specialised programs).



Regional priorities

- The Vocational Education and Training (VET) sector needs to be better integrated with the curriculum of universities.
- Satisfying market demands in the pre-degree space might also create pathways for a future university education.
- Universities are increasingly expected to provide non-traditional educational services and experiences, in addition to their academic roles.



Conclusion

- Moving forward requires maximum flexibility from staff, curriculum developers, industry and students.
- Universities can raise to this challenge if they are willing to cooperate, show agility in the way they engage with each other and with their communities.
- As universities we must produce graduates that can address the issue of highest societal importance: how to feed a growing population sustainably, efficiently and effectively.



