

## **Agriculture in decline at Australian Universities**

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### **Abstract**

Industry is calling for more agricultural graduates to meet the workforce needs of the sector. This need is particularly acute in rural locations. The prospects for meeting this need are not encouraging as student demand for agricultural courses is not strong.

There has been a decline of more than 18% in student enrolments in agricultural courses in Australian universities in the period 2001-2006 according to official government statistics. This follows a decline in the previous period.

Australia is well served in the availability of providers with 12 universities offering agriculture courses either in the science/technology area or in agribusiness. All institutions have significant capacity to increase intakes if warranted by student demand. The reality however is that enrolments have declined to the extent that, at some universities, continued provision may be jeopardised.

Students have a wide choice of courses and agriculture has to compete with other disciplines that are seen as more exciting or rewarding. The perceived image of agriculture is not positive and needs to be addressed if the current trends in agricultural education are to be reversed. A concerted effort by all stakeholders with an interest in agriculture is needed. This should emphasise the specific and generic educational value of degrees in agriculture and show that attractive employment opportunities are, and will continue to be, available to graduates from these programs.

### **Key Words**

education, agriculture, graduates, employment

## **Introduction**

Australia has been well served by its professionals in research, extension and agribusiness. However in recent times the agricultural industry has been frustrated by the difficulties in finding suitably qualified personnel for employment opportunities. There is particular demand for agronomists but the demand is widespread across agricultural disciplines. Government statistics however have inferred that the supply of graduates is satisfactory and that there is no major

issue (ACDA, 2007 unpublished). This view is at odds with the experience of industry and with the views of the Deans and Heads of Agriculture at the Australian universities.

At a symposium on agricultural education put on by the Australian Institute of Agricultural Science and Technology in Adelaide in early 2007, the Deans and Heads of Agriculture agreed to form the Australian Council of Deans of Agriculture which became constituted in June 2007. Membership of ACDA was confined to those universities which offered an agriculture degree. The purpose of ACDA was *inter alia* to identify and address issues in agriculture and promote agriculture as a career. Of some urgency was the issue of declining enrolments in agriculture courses.

## Methods

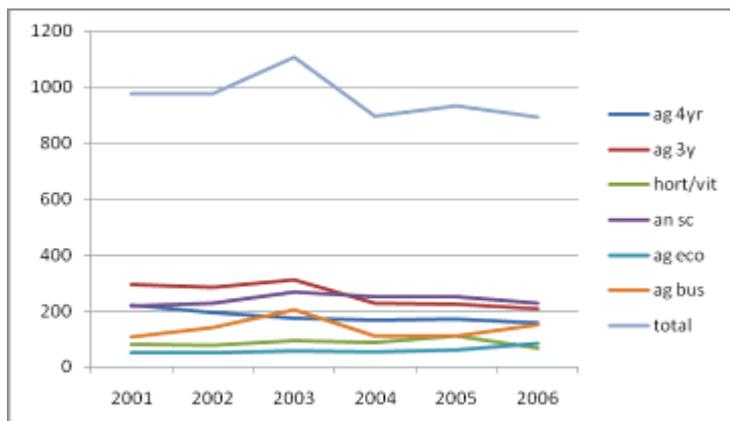
The ACDA was of the view that official statistics were distorting the real position on the supply of professionals to the industry. Members agreed that each University would supply statistics specifically on courses that were considered to provide agriculture graduates. Graduate completions were used as the most reliable and relevant indicator. Statistics used excluded food science, forestry and environmental science graduates. Included were agriculture, agribusiness, agricultural economics, animal science (excluding veterinary science and wildlife studies), horticulture and viticulture.

In order to establish trends, data were collected over the period 2001 to 2006 inclusive. The data were consolidated and evaluated.

In order to establish the level of demand for graduates in agriculture, the ACDA relied on the study on "Trends in Australian Agriculture" by the Productivity Commission (2005). This report indicated that there were 320,000 people directly employed in agriculture, supported by 39,000 in the input sector, 170,000 in the processing sector, 80,000 in the service sector and 15000 providing specialist farm services. In all this amounted to around 624,000 which is a much more modest estimate than that by the Australian Farm Institute of 1.5 million or 17% of the Australian workforce. The ACDA used the conservative data of the Productivity Commission in its deliberations. Some 7% of this workforce was deemed to have a university degree.

## Results

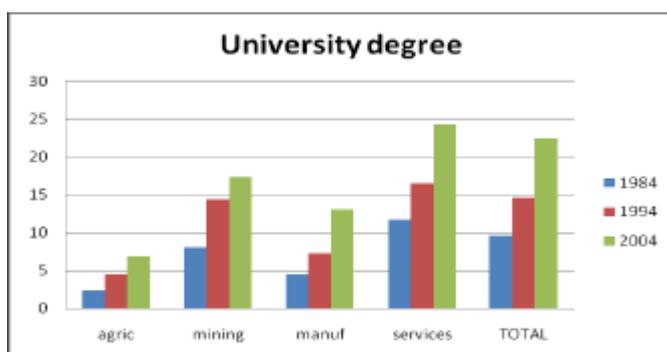
Twelve universities offer degree courses in agriculture, *viz.* University of Queensland, University of New England, University of Sydney, Charles Sturt University, University of Western Sydney, University of Melbourne, La Trobe University, University of Tasmania, University of Adelaide, University of Western Australia, Curtin University of Technology and James Cook University. The combined graduate completions data from this group of universities are presented in Figure 1.



**Figure 1. The graduate completions in “agricultural courses” from Australian universities for the period 2001-2006 inclusive**

There is an indication of a decline in number since 2003 and this decline is to continue for the near future because of a continued decline in enrolments. In 2006 there were 892 graduates but this number includes about 20 per year for specialist wine marketing and perhaps more than half of the animal science graduates (around 120) who are not trained for livestock production, reducing the effective number to well below 800. From this might be subtracted a proportion of agricultural economics graduates who would enter mainstream economics careers.

Based on the productivity commissions estimate of 624,000 jobs for the industry and an assumption of an average 20 years per job, there would be an average of 31,200 jobs per year available. If the proportion of university graduates is 7% then there would be 2184 jobs for new graduates. The Productivity Commission also showed that the proportion of university qualified employees has been increasing significantly over the past 20 years (Figure 2) but, overall, still remains significantly below the other sectors of the community. Thus, if the level of degree holding people was to be commensurate with the community at large (ie 22%) there would be a requirement for over 7000 agriculture graduates.



**Figure 2. The proportion of the workforce of different sectors with a university degree in 1984, 1994 and 2004 (Productivity Commission, 2005)**

## Discussion

It is very clear from the data that there is a mismatch between the number of jobs and the availability of graduates to fill them. Such data reinforce the experiences of employers trying to recruit as well as the views of the heads of agricultural departments in universities.

It is important to note that the data report graduate completions, not enrolments. Thus they represent enrolment patterns in 2003 and 2004. Advice from the universities is that enrolments have continued to decline since then. Graduate completions therefore would be expected to decline at least to 2011 even with an immediate turnaround in enrolments.

The calculations used assume the *status quo* from 2004 and do not allow for the increasing demand by farmers for specialist advice. The Productivity Commission records that due to the increased complexity of agriculture, the demand for specialist services increased employment in this area by around 10,000 in the 20 year period to 2003-4, ie an average of 500 per year which is approaching the total graduate cohort without allowing for replacement. There is no reason to think that such a trend would or should decline.

The number of jobs also does not take into account the age distribution of the scientific community where perhaps as high as half the scientists in State Agencies are 50 years or older and moving to retirement in the next five to ten years.

All indicators then point to the widening of the gap between professional availability and number of jobs. The number of graduates will continue to decline for some years at a time when the number of jobs for those graduates is predicted to increase. The concern for the industry is that the lack of trained professionals to meet the employment demand will result in the jobs being filled by less qualified staff with potential consequences for the industry in these buoyant but challenging times. It behoves all sectors of the industry and of government to change the image of agriculture to one that is positive and exciting and create the perception that agriculture is a worthwhile and rewarding career.

## Acknowledgement

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## References

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