

Submission to the Parliamentary enquiry on Rural Skills and Training

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La Trobe University and Agricultural Education

The current state of education in the agricultural and allied areas is one of continuing change and this mirrors the changes in primary production and the rural skill base over the last 10 to 15 years.

The Department of Agricultural Sciences at La Trobe University has also changed significantly over this period. Thus, we have moved from a School of the University with some 25 academic staff and approximately equal numbers of support staff to a Department of the School of Life Sciences with 8 academic staff and 7 support staff. This change accompanied no overall loss of student numbers though our degree offerings have risen from two (Agricultural Science and Agricultural Business) to four (Agricultural Science, Animal Science, Viticulture and Wine Production and a double degree in Agricultural Science/Business) with Agricultural Business discontinued. The enrolments in our degrees are shown in the Table below and although the numbers show a significant increase, we had been enrolling 80-90 students through the 1980s and early 90s before the slump of the mid 90s that precipitated our reorganisation. The trends to note include the diversification in our offerings and the variability in the Agricultural Science enrolments.

La Trobe University Agricultural Science First Year Enrolments (Bundoora campus*)

Year	BAgrResEco	BAgrSc	BAnSc	BVitSc	BAgrSc/BBus	Totals
1996	16	28				44
1997		34				34
1998		33	46			79
1999		31	41	10+0+0+2		84
2000		25	56	14+1+0+6		102
2001		17	62	19+0+1+6	3	108
2002		22	50	15+0+0+4	8	99
2003		17	48	12+0+1+4	2	84
2004		33+0+3+1	80	18+1+0+1	6	143
2005		30+0+6+2	56	18+0+0+0	13	125

*Multiple figures in a single column reflect enrolments at Bundoora, Bendigo, Albury/Wodonga and Mildura campuses respectively.

Specifically from 1997 to 2003, there was a gradual decline in first year enrolments in the BAgrSc degree. The ENTER score was maintained at around 65-70 over this period and

numbers fell gradually and continually. Increased enrolments occurred in 2004 and 2005, mainly as a response by the University to the fall off in demand in the Computer Science and Engineering degrees but the increased intake required a lowering of the ENTER into the 50s. It is likely that had this not happened the decline in enrolments would have continued and the BAgrSc would now be under significant threat. The BAgrResEco was cut in 1996 when enrolments declined to 16.

We would suggest that the changes to the Department are indicative of the changes to Agricultural education in Australia and strongly reflect the state of student demand for agricultural courses though not the demand for graduates from such courses. The contraction in demand for agricultural courses has been accompanied by a commensurate drop in ENTER of those applying for such courses and thus a loss of the best and brightest as well as the bulk of potential students to other sciences, commerce and other professional degrees. This also has forced the provision of extra resources to assist students with lower ENTER scores to successfully complete the science units that form part of the BAgrSc degree. It has been necessary to provide additional tutorial assistance in 2005 to students that are struggling with some subjects. A pleasing feature though is the determination shown by many of these students to master the subject material.

The Perception and the Reality

Clearly potential students in rural areas and in the cities are not convinced that agricultural based courses can provide jobs with security, the potential for advancement or high levels of remuneration. However, this assumption is not generally correct, or at least not for courses in the Agricultural Sciences or Agribusiness where virtually all our graduates are employed within a short time of completion of their degrees. In fact, Agricultural Sciences has the best employment record of any of the biologically related science degrees and equates to other professional degrees such as engineering.

The major areas of current employer interest include agronomy, nutrition (dairying), finance (banking), contract advisory services, wine making, viticulture, agribusiness (Elders, AWB etc) and targeted areas in research (international opportunities). The areas change to some extent year to year but the demand for Agricultural Science graduates has been consistent over many years.

The reasons for the lack of penetration of the strong graduate demand into Schools and the community is complex but, in our view, mainly relates to the strong negative perceptions that have built up around most forms of agricultural production in Australia over the last 20 years. Thus, the decline in the wool industry after the Wool Price Scheme collapsed. The continuing fluctuation but often low levels of commodity prices on world markets over the last 10 years (<http://www.rbc.com/economics/market/pdf/cpm.pdf>), the recent incidence and severity of drought in large parts of Australia (<http://www.bom.gov.au>) and the continuing loss of people from rural communities. These factors have all combined to suggest that our young people would be much better off to pursue careers that are not dependant on agricultural production or a rural base. There are exceptions to these negative

perceptions and these include the wine industry and tourism though the impact of both these industries is geographically limited. Not surprisingly, these industries are also those that have been targeted for strong growth in TAFE and University offerings.

The negative perceptions regarding rural careers pervades the media in all its forms and there is little effort to distinguish the fact that a drought may affect only certain parts of the country and at maximum only reduce total rural income by a few percent. Good news stories are seemingly limited to tourism programs (The Great Outdoors etc) and to certain parts of the rural press (lifestyle pages). There is little association made between the success of large business firms such as Elders and the fact that they are agribusinesses, earning most of their income from rural production. The same could be said Coles-Myer, Woolworths and very wide range of food and textile industries.

While this negative message is all enveloping the efforts of Universities, TAFEs and even the Industries themselves to engender interest in rural training and careers are bound to be very short term in their effect at best. That such advertising can work is proven by our own experience in the mid 90s when as a response to decreasing enrolments in the Agricultural Science degree we visited as many city and country schools as possible to explain the careers advantages of the degree to students. Our enrolments and ENTER improved markedly the next year but the effect was waning by 2000. Unfortunately, such a feat is not now possible both because of the logistics involved and because schools are so inundated with requests to talk to students that they restrict access and opportunities for interest groups such as ourselves and especially those with limited appeal!

Regional campuses

A development with at least the potential to alleviate these problems in rural communities was the take over of certain rural TAFE and College campuses by Universities. However, the hoped for development of new courses and stronger articulation from TAFE to University have not generally been forthcoming. Thus, the Victorian College of Agriculture and Horticulture campuses have not been advanced by amalgamation with the University of Melbourne and in fact, their positions have been significantly eroded. La Trobe University has over the last 10 years, developed new or existing campuses at Mildura, Albury-Wodonga and Bendigo and have agreements with all of these to teach the first year of Agricultural Sciences and Viticulture. In fact, first year Viticulture was set up initially with the help of the regional campuses and TAFE colleges in all these areas but the TAFE arrangements have largely broken down because of the small number of students involved. In fact, the problem to date with rural campuses is the fluctuation in student numbers from low (less than 10) to non-existent per degree (see Table). As a result, it is very difficult to plan teacher and practical requirements and even when these resources are available there is a very high level of subsidy from the metropolitan campus to maintain the course. Recently we have adjusted the rural campus courses so that they generally approximate the curricula of the metropolitan campus and after transfer in second year the students vary their subjects to meet the requirements of the degree. We have also developed more formal arrangements with Bendigo as their sciences section is

now part of our Faculty and as the largest rural Victorian campus we are hopeful that these arrangements will result in a more reliable student load.

However, the problems concerning perception remain and offering agricultural courses in rural campuses does not address this issue. It does address the issue of the cost of sending students to metropolitan campuses and the separation from the support base that is often a significant concern. Although these apparent disadvantages do not stop the majority moving to the metropolitan areas to study city based degrees. It should also be noted that the courses we offer in our regional campuses are not offered beyond first year. This is a consequence of the low levels of teaching support available in these centres with even Bendigo offering only a limited Biological Science course. The lack of critical mass in teaching in rural campuses has worsened over the last 10 years and under current policies of purely EFTSU driven funding the situation will not improve. The problem is clearly illustrated by the slow decline in the University of Melbourne's rural colleges such that even Dookie with well established TAFE and University courses is under significant pressure to reduce staff and/or increase student numbers.

Practical degree courses such as we provide in the agricultural sciences require a large range of academic expertise, laboratory equipment, accessible field sites and qualified technical staff. In fact, the only reason that La Trobe University can still offer agricultural science is the fact that staff in Departments such as Physics, Chemistry, Economics, Botany and Biochemistry all contribute to our teaching effort. Recently we have added Monash University's agribusiness group to our teaching resources specifically to address a lack of such expertise at La Trobe University. This is also a consequence of EFTSU based funding since after our agribusiness staff were moved to Economics in the 1990s they could not maintain their funding or student base while continuing to service our courses. As a result, they moved to mainstream economics teaching and our agriculture specific courses were gradually dropped.

The Monash collaboration is targeted to the Government's policy of encouraging increased University and TAFE collaboration in teaching but it is also a clear example of the decline in specific agricultural expertise and the need to be very flexible in our response to such declines. La Trobe has probably been more flexible than most because of its sensitivity to declining enrolments and the strong competition with Melbourne University. Thus, La Trobe has diversified significantly in its agricultural offerings. It was the third University to offer viticulture after Adelaide and Charles Sturt and one of the first to offer Animal Science. In fact, the Animal Science offering was and still is the agriculture-related degree experiencing the greatest levels of student demand and this is despite Melbourne's entry to the field 3 years ago. Animal Science incorporates studies in Animal Production, Zoology and one of Biochemistry Microbiology or Genetics and appeals directly to students interested in the Veterinary Sciences. It enrolls mainly city-based students whereas Agricultural Science enrolls about 50% from rural sources. It should also be noted that graduate employment prospects for Animal Science only reach the levels of the general biological sciences.

The introduction of the Viticulture degree in 1999 is also illustrative of the problems of courses aimed at specific and in this case apparently healthy rural markets. As stated above La Trobe introduced Viticulture, later to become Viticulture and Wine Production, in concert with all our rural campuses and using local TAFEs to deliver practical components of the first and second years of the course. The first year of the course is delivered locally while second and third year require the student to transfer to our main campus at Bundoora but all students are required to complete periods of work experience in the Yarra Valley, in central Victoria and in Sunraysia. The fourth year is based regionally with subjects built around significant periods in partner wineries. The degree is interesting in that it does not attract mainly school leavers as our other offerings but a high proportion of more experienced students who wish to enter the wine industry. However, enrolments have remained relatively low and competitive courses have multiplied. Thus, Deakin now offers a similar course in concert with Charles Sturt while a number of TAFE courses are available and from next year these institutions will start offering degrees in this area. It is very doubtful that the numbers of students will support all these courses and thus a period of contraction would appear inevitable especially as the wine industry also slows to absorb its own excess capacity. Interestingly, one of the new degrees will be offered by a TAFE that assisted with teaching our own degree when we began 6 years ago although there has been no suggestion of collaboration or co-operation in teaching these courses more recently. Approaches to Melbourne to jointly develop the viticulture area have been unproductive.

Clearly, the lack of critical mass and expertise in regional campuses is a major hurdle to decentralising courses but such hurdles could in part be overcome by better University and TAFE collaboration.

Research

Agricultural research is also of importance to La Trobe University as it is the major research interest of a wide range of staff in the Faculty of Science, Technology and Engineering and to a smaller extent in other faculties such as Health Sciences. The move about 10 years ago of the Victorian State Government's Plant Biotechnology Centre to the Agricultural Sciences Building at La Trobe gave a significant boost to the Departments of Biochemistry, Botany and Agricultural Sciences that continues today. In fact, the recent announcement of plans to transfer other research centres of the Victorian Department of Primary Industries to La Trobe will significantly increase our collaboration in research and teaching. Such collaborative links are bound to assist both institutions and if the Plant Biotechnology Centre is any guide have the potential to allow the development of research projects that are recognised worldwide as highly significant.

However, this optimistic note is tempered by the general decline in applied agricultural research at all levels in Australia over the last 20 years. This is most noticeable in the reduction in this type of research effort by the CSIRO and the loss of regional research centres operated by both the CSIRO and State Departments of Agriculture. As a result there is a strong concentration of research in a few areas that are of obvious and critical importance (salinity) or have a very large potential to change agricultural practices

(biotechnology). Although these judgements are not wrong and certainly these areas must be a priority, there has been a tendency to forget basic questions such as improving farm operations through extension services and continuing to improve management of diseases and pests. The recent panic after PETA (People for the Ethical Treatment of Animals) threatened to boycott wool sales in the US and Europe unless mulesing was banned is a good example of a disease (blowfly strike) on which work virtually stopped for more than 5 years because all attention was focused on new biotechnology programs. Similarly, the current and long running drought is only now beginning to result in calls for basic on-farm analysis of sustainability when such issues have been of obvious importance for many years. Thus, the ability to advise farmers and the industry generally that certain farming practices are or are not suited to specific areas or that farming in any form is likely to be unsustainable.

This type of on-farm and applied research used to be a major part of the ambit of State Departments of Agriculture and CSIRO but in the current competitive environment the research effort has moved to more strategic and 'technology driven' areas of research which are attracting the bulk of research funding.

Recommendations

The lack of interest in rural careers and thus in relevant agricultural education is largely a result of negative perceptions as to the future of such careers and misconceptions about the portability of these qualifications. Thus, degrees in Agricultural Science do not necessarily or usually lead to a job on a farm. Changing these perceptions requires advertising and education especially in schools but also within both the rural and city based community. The suggestion has been made that rural based dramas such as McLeods Daughters and the popular soaps might introduce rural characters in rewarding and worthwhile careers who also have girlfriends or boyfriends! In other words an integrated and high profile strategy is required to combat the generally negative press that surrounds jobs in the bush.

Such a strategy may require the formation of an Industry-wide taskforce to promote tertiary agriculture courses. This needs to be accompanied by a significant input of resources into promotion, to make young people and their parents aware of the strong employment prospects for graduates in these areas. Government needs to lead the way here, but substantial inputs should also flow from industry, given their need for skilled capable graduates in the future. The effort needs to be effectively coordinated and should involve all stakeholders - Government, Industry, Tertiary Institutions, Primary Producer organisations and the secondary school system. Enlightened investment in market research is required to ensure the messages appeal to the target audiences.

Provision of attractive scholarships to assist students to undertake tertiary studies in areas of graduate demand would add significantly to the promotion strategy. Perhaps there might be a special allocation of scholarships to students from regional areas to enable them to attend university. Such strategies have been successful overseas and can compensate for the additional costs of supporting rural students in either regional or city based campuses.

The Government's strategy to encourage co-operation between tertiary institutions in the delivery of courses might be given additional impetus in regional areas by offering specific competitive grants or even amounts targeted to specific course areas. This would obviously benefit established regional campuses but it would seem clear that without help a number of these campuses will cease to exist within the short to medium term.

Special financial support might also be considered to Universities to enable them to continue to offer agricultural degree streams should enrolments continue to decline. The cut-off for decisions as to the future of a degree varies between institutions but it is clear that enrolments in Agricultural degrees are low and still declining. This will result in the loss of particular degrees and may threaten the viability of whole Faculties at certain Universities. The loss of such units would significantly reduce the choice for students as well as the associated research and postgraduate training input. It is unclear that Australia could afford such losses given the problems that face primary production over the next few generations.

The major area of agricultural research that has suffered losses over many years is applied on-farm studies that assist in the management of farm operations. This extension research has been partly taken over by private consultancy but only in areas where farm profits can pay for the advice. Competitive grants in on-farm extension studies could be managed through the current rural industry research corporations and/or through a new organization that might target farm sustainability as its primary focus. The current drought and the continuing problems of water use and allocation, salinity and the long term impact of farm practices would all justify a more integrated approach to research funding.

Overall, we see no short-term solutions to the issues involved in increasing the rural skill base. The very long-term trend of depopulation of rural areas is unlikely to be reversed especially in an environment of increasing fuel costs, water shortages and poor farm profitability. However, education and training of an enthusiastic and dedicated next generation of diplomates and graduates interested in the problems and possibilities of rural living might at least solve some of the more immediate issues of manpower and expertise.