Investigating future training and education opportunities for both new and existing vegetable industry members

Richard Mulcahy
AUSVEG Ltd

Project Number: VG12077

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Mr Richard Mulcahy
AUSVEG

30 April 2013

FINAL REPORT

Project:

VG12077 - Investigating future training and education opportunities for both new and existing vegetable industry members

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Purpose:

The purpose of this Final Report is to communicate the successful delivery of Project VG12077.

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Media Summary

This project was developed to allow a subgroup from the Australian vegetable industry's Consumer Alignment Design Team to participate in a series of meetings throughout Australia with several recognised agriculturally-focused universities. The meetings aimed to stimulate ideas on how the vegetable industry can increase the uptake of horticultural courses by tertiary students; and to boost the training and up-skilling of individuals already in the industry, with a minimum impact on their farming operations.

Three outputs were identified in the project brief:

1. To investigate the feasibility of a scholarship program or scheme;
2. To provide vegetable levy payers with direct access to funds for subsidising skills enhancement and education; and
3. To attract and introduce new people into the industry, up-skill existing members of the industry, and provide potential industry leaders with greater levels of knowledge.

Several universities were identified as delivering well regarded agricultural courses, including: Curtin University (WA), University of Western Australia (WA), University of Adelaide (SA), University of Tasmania/Tasmanian Institute of Agriculture (TAS) and University of Queensland (QLD). Meetings were organised with representatives from each of these institutions over a period of four days. The University of New England (NSW) was unable to find a suitable time to meet with the Design Team delegation, and the project time frame and budgetary allowance did not permit meetings with further universities or colleges.

AUSVEG National Marketing Manager, Simon Coburn, coordinated the logistics of the meetings and also minuted meetings for reference. The delegation that participated in these meetings was comprised of the following participants:

- Belinda Adams (Consumer Alignment Design Team)
- Michael Nixon (Consumer Alignment Design Team)
- Peter Ward* (Vegetable Industry Advisory Committee)
- Peter Melville (Horticulture Australia Limited)

*Peter Ward participated in place of Richard Gorman who was unavailable

The selected universities provided a geographical spread, which ensured that an accurate view was obtained of the national position with regards to enrolments in agricultural courses, as well as opportunities offered by these institutions for up-skilling existing industry workers. While national enrolments across the selected universities suggests that the uptake of agricultural courses may in fact be increasing, which is in contrast to the perceived decline of enrolment numbers in agricultural-related courses, they are nonetheless significantly lower than they were 10 years ago. Information provided has also indicated that the majority of enrolments in agricultural courses do not translate into horticultural careers.

Several suggestions and strategies were put forward by representatives of the universities visited, which may positively alter this trend. These are detailed in the report below.

Introduction

Under the three pillars of the vegetable industry's Strategic Investment Plan (SIP), the three Design Teams have been tasked with generating ideas that can be subsequently developed and implemented as projects for the sound investment of levy funds. The Consumer Alignment Design Team developed a project concept, approved by the Vegetable Industry Advisory Committee (IAC), which sought to investigate the methods by which the horticulture industry, and specifically the vegetable industry, can increase the undergraduate uptake of horticultural courses at universities and colleges, and develop practical methods of up-skilling existing growers and their employees, whilst limiting the impact on the day-to-day operations of their business.

The execution of this concept involved a group of industry representatives – which comprised two Design Team members, an IAC representative, a Horticulture Australia Limited (HAL) representative and a representative from the Peak Industry Body (PIB), AUSVEG - visiting a range of universities from diverse geographical locations and meeting with heads of departments relevant to agricultural education, to obtain feedback and suggestions on these two objectives.

The geographical spread was essential in identifying national trends regarding the direction that enrolments in agricultural courses is currently taking, and ensured that a broad range of opinions were put forward on both objectives.

The universities visited by the delegation were:

- University of Western Australia (WA)
- Curtin University (WA)
- University of Adelaide (SA)
- University of Tasmania/Tasmanian Institute of Agriculture (TAS)
- University of Queensland (QLD)

University of New England (NSW) was unable to meet with the group due to the schedule of the meetings.

While the general overview provided by the universities visited was that enrolments in agricultural courses are no longer declining, and in fact are either remaining steady or slowly increasing, they have nonetheless significantly decreased in the last 10 years, with many agricultural courses having either been discontinued, or merged into other courses. There are currently no courses offered that exclusively focus on horticulture at any universities, and many of the agricultural courses have a reduced or limited focus on horticulture.

Representatives from the universities that the group met with had a range of interesting suggestions on ways in which enrolments could be increased, and courses more targeted towards horticulture. These are detailed in the subsequent report.

All of the universities visited demonstrated a willingness to participate in the delivery of short courses for up-skilling existing members of the industry, however the suggested approaches to this varied slightly between the universities. These too are addressed in the subsequent report.

Itinerary

Sunday 10 February 2013

All participants arrived at Perth from various cities. Overnight accommodation at Rydges Perth.

Monday 11 February

The group met with representatives from University of Western Australia and then Curtin University. Following the meeting, the group flew to Adelaide. Overnight accommodation at Arkaba Hotel.

Tuesday 12 February

The group met with representatives from University of Adelaide. Following the meeting, the group flew to Sydney. Overnight accommodation at Citigate Central.

Wednesday 13 February

The group flew from Sydney to Hobart to meet with representatives from University of Tasmania and Tasmanian Institute of Agriculture. Following this meeting, the group flew to Brisbane via Melbourne. Overnight accommodation at Rendezvous Brisbane.

Thursday 14 February 2013

The group met with Professor Neal Menzies, University of Queensland. Following the meeting, all participants either flew or drove home to their respective cities/states.

Tour Report

The following tour report outlines the feedback, suggestions and ideas generated from each of the meetings, addressing the two key objectives of the project separately. Recommendations and conclusions from each of the meetings are provided.

Day 1: Monday 11 February 2013
University of Western Australia (UWA)

The delegation met with Professor Graeme Martin, who is the Deputy Director of the University of Western Australia (UWA) Institute of Agriculture, and Head of School of Animal Biology. UWA is regarded as a well-respected agricultural university, with approximately 80% of the top students in Perth enrolled there. The demographic of UWA students is generally comprised of approximately 50% city and 50% country students, with an equal female to male ratio (approximately).

University Course Enrolments

UWA has a range of degrees oriented around agriculture (to various extents), with approximately 80 – 100 students enrolled in relevant courses. However, the university has identified significant cut backs in agricultural course options over the past ten years. While there has been an increase in the uptake of international students at the university, these are mostly associated with postgraduate degrees.
The predominant agriculture-related course at UWA is an agricultural science degree, however the structure of enrolment in this course has changed compared with the traditional course structure. To elect this course,

students must first enroll in an undergraduate science degree, and subsequently elect agriculture as a major in their second year. In the current calendar year, approximately 22-25 students have elected the agricultural major in their second year of the course. The degree contains components of economics and commerce, but in order for students to gain focused skills in these areas, they need to elect these fields as major elective units. This course does not have a large focus on horticulture.

UWA has a reputation as being somewhat difficult to be accepted into, with a Tertiary Admission Rank (TAR) requirement of at least 80. And with the university restricting enrolment numbers and accepting only the highest scoring applicants, the actual TAR required to be accepted into the course is quite often substantially higher.

Professor Martin identified the need to have large groups of students enrolled in a course or major in order for the university to invest financial resources into it. Traditionally, courses relating to horticulture have not had more than around five enrolments at a time. One of the problems identified by Professor Martin is that the teachers of these courses now teach large class sizes, particularly in the first year, making it increasingly difficult for them to provide guidance to individual students and to adequately champion the merits of various courses and career pathways.

Recommendations

One of the outputs identified in the project brief and discussed by the group of participants prior to the meetings was the topic of targeted scholarships. Professor Martin's suggested method of attracting students from agricultural degrees into horticulture, and specifically vegetables, was to subsidise the cost of postgraduate degrees (i.e. Honours and Masters degrees), as opposed to undergraduate degrees. Alternatively, it was suggested that these postgraduate degrees could be included within the HECS scheme, however this would involve significant advocacy of government; an activity which could not be funded by industry using the National Vegetable Levy, due to its agri-political nature.

According to Professor Martin, another key driver to raising the profile of horticulture and attracting more students, would be to provide work placements in conjunction with the degrees. The opportunity for students to be provided with on-farm experience during university holidays, for example, would provide them with valuable insights into the industry, as well as networking opportunities. Participating students would also benefit from seeing practical career opportunities that may not be conveyed to them through the university course itself. An arrangement such as this may benefit both the student, and the grower whose farm is selected for the work experience. The relationship formed may lead to a graduate position for the student upon completion of their studies, while providing the grower with a tertiary educated employee who has acquired practical experience and intimate knowledge of that particular growing operation. Identifying and developing a network of work placement growing operations around the country should therefore be undertaken by industry.

Within the science research field, the vegetable industry can maximise benefits by offering a financial incentive to postgraduate students to undertake research in this sector. By offering payments to students, the industry could benefit from valuable research at a heavily reduced cost, while also stimulating student interest for research in the vegetable sector. A best case outcome from this situation is that the researcher (student) moves into the industry upon completion of their postgraduate degree. The worst case outcome is that the vegetable industry has achieved some research at a fraction of the cost needed for levy-funded investment by a specialised company.

The final suggestion that Professor Martin had in relation to increasing the uptake of courses within agriculture was for the industry to increase its focus on high school students (particularly those nearing completion). The suggestion was made that there is a significant divide between the perception that school students have regarding agriculture and what is the reality of this industry. Professor Martin suggested that industry could become involved in taking city-based school children out to rural areas to visit leading growing operations, to demonstrate the connection between the vegetables they eat and how they are produced. Demonstrating to students that there is a viable career in agriculture, and more specifically horticulture, should

be done to combat the misconception that this sector is purely about picking product out of the ground, for example, and that there are a range of terrific career opportunities that exist within the industry. Professor Martin suggested that getting school students interested and excited about the sector is vital to increasing enrolments at a tertiary level.

Up-Skilling Existing Growers

Currently, UWA doesn't engage in specialised courses, such as after-hours courses or intensive short courses. Professor Martin suggested that it would be something the university would consider doing should there be a clear cost benefit. The costs associated with preparing the teaching material, the material itself, and the wages involved in the preparation and teaching processes of such courses, dictates that any course would need to have sufficient number of participants for it to be justified.

Conclusions

From the discussions had, it seems that while UWA continues to demonstrate a commitment to agricultural education, there is limited focus and application to horticulture within the courses it offers, and that any engagement of students into the vegetable industry would need to be driven by industry. The most logical approach from these suggestions would be for the provision of work placements on local, successful farming operations, with a view towards long-term placement upon graduation. Alternatively, a reference could be provided for employment with another growing operation. Discussions with other universities further developed this concept, addressing a targeted scholarship approach in conjunction with placement opportunities. This concept is discussed in greater detail later in this report.

Curtin University (WA)

The delegation next visited Curtin University, where it met with Mr Mark Gibbard and Professor Richard Oliver. Mr Gibbard is the Head of Department for the Department of Environment and Agriculture (Western Australia) and Professor Oliver is the program leader for agriculture within the university.

University Course Enrolments

Historically, Curtin University offered a horticulture degree with both business and technical components. With competing universities in Perth offering similar courses, the decision was made at Curtin to withdraw from the technical offering and the suggestion was made (and subsequently supported by information provided by other universities) that a Bachelors degree in horticulture would no longer be offered. At Curtin University, enrolments in one of the agricultural degrees, Bachelor of Agribusiness, have actually been increasing, with approximately 48 students currently enrolled. This is however a science-based degree and one of the criticisms is that students gain little exposure to actual farming operations. Only one week per semester of on-farm participation is required in this course, followed by a 12-week placement.

The 12-week on-farm placement is the responsibility of the student to organise and engage with local farming operations. The placement is not restrictive though and can focus on either horticulture or wider agriculture. With only two of 24 subjects within the Bachelor of Agricultural Science focused on animal science, and the remainder on crop science, there is wide scope to attract students of this course into the vegetable sector.

A general trend identified by the university is a growing number of students switching from a general science degree to the Bachelor of Agribusiness, following the completion of their first year. While this opportunity is promoted by the campus as an option, it is not deliberately marketed to science students.

Recommendations

There is an opportunity for the vegetable industry to take advantage of the aforementioned trend and target general science students, with a focus to attracting them not only into the Bachelor of Agricultural Science, but also into horticulture long-term. A more focused on-campus marketing campaign could leverage off the trend to increase the uptake rate through promoting the job opportunities in horticulture. This would need to be coordinated with the next recommendation.

Mr. Gibbard suggested that providing a system similar to what was suggested by UWA would likely be the most successful approach to increasing the uptake of horticultural courses; that is, offering targeted scholarships to students (not in first year), in conjunction with providing guaranteed employment during holiday periods and work placement requirements. Furthermore, growers' engagement with traineeships could be used as an effective tax break for their businesses, while simultaneously providing valuable opportunities for the participating student. In order for this avenue to be effective and successful, a network of recognised grower organisations would first need to be established on a national level.

A further recommendation was that the vegetable industry could investigate the possibility of funding, or part-funding, a university employee who specialises in horticulture, as part of the curriculum. For example, a university employee could undertake vegetable research for half of their employment hours and then teach for the other half. A teacher with a horticulture background could largely influence the direction of the curriculum and ultimately, could have a bearing on the choices of their students. This could be coordinated with field trips to vegetable producers as part of the curriculum.

Additionally, there are opportunities for the vegetable industry to present at lectures on a special 'one off' basis, to highlight the opportunities available in the vegetable industry for graduating students.

Mr. Gibbard was in agreement with Professor Martin from UWA that high schools and agricultural colleges need to be targeted in order to increase the uptake of agricultural courses at the tertiary level. Through a study of school-aged students, it was identified that plants and agriculture were the least favourite topics and subjects of both girls and boys. It was suggested that an emotional trigger should be identified at a young age that would help to invoke an interest in these areas in later years. This would involve the vegetable industry investing into high schools, possibly selecting schools renowned for their interest in agriculture, and developing a program or curriculum that would interest the students. An example that is currently adopted in some schools is the establishment of the vegetable garden and the involvement of the students through the process of planting until harvest. Scientific experiments can be designed with the vegetable garden in mind, addressing different processes to increase growth capacity, for example. This process could stimulate a connection with the foods that students eat, and as a result, may generate interest in the industry. Linking the benefits of vegetables to health messages is also one such outcome that Mr. Gibbard identified as a positive link for students to associate with the process of vegetable growing.

<u>Up-Skilling Existing Workers</u>

Mr. Gibbard was amenable to the notion of developing short courses targeted at specific skill deficiencies. The first point that was made, however, was the need to ensure that there is full cost recovery by the university. It was suggested that a minimum of 10 participants, with a weighting towards 20, would be required to ensure that the university received value for any short courses it made available, tailored for identified topics.

In order for this idea to be fully developed, it would be essential for industry to determine the level of qualification required; that is, whether the short courses would be required to provide recognised national qualifications, or simply to impart the knowledge and skill-set sought. This outcome level would help to determine the costs involved, the duration and the feasibility of the short courses offered. It was also identified that these courses need not be funded purely by the vegetable industry, as the federal and state governments have a range of funding programs to encourage such skill development.

Conclusions

The meeting with Curtin University essentially yielded similar information and recommendations offered by UWA, with added opportunities identified for industry involvement in both high school and tertiary institutions. The key message identified was that to effectively shape course curriculum, it would perhaps be most beneficial to fund (or part-fund) a 'horticultural specialist' in a teaching capacity.

Day 2: Tuesday 12 February
University of Adelaide

The group met with Dr. Jason Able and Professor Eileen Scott, both from the School of Agriculture, Food & Wine at the University of Adelaide. Professor Scott is the Professor of Plant Pathology and the Deputy Head of School. The ratio of males to females in agricultural courses at University of Adelaide is around two thirds male, one third female.

University Course Enrolments

Professor Scott estimated that enrolments in the agricultural courses were approximately 55-60 for the 2013 calendar year. Based on these figures, enrolments have increased approximately 50% on 2012 numbers. Unfortunately, the university is unsure of the reason for this increase and was unable to provide any further insight at the time of the meeting. They were, however, planning to survey the students and would make those results available in due course. The number of international students is low in undergraduate degrees and significantly higher (around 60%) in postgraduate degrees, although from the university's experience, a large number of postgraduates will return to their home country upon completion of study.

The university offers separate courses in the areas of viticulture, agriculture and food nutrition science courses, with a total enrolment pool of over 100. Long-term, this significant pool of students presents opportunities for the vegetable industry, through attracting students from competing courses into horticultural courses. The Bachelor of Agricultural Sciences has been restructured, to a broad approach focusing on general skills. It contains a requirement that students complete 12 weeks (approximately 450 hours) of work experience over the length of the course, however it is at the student's discretion as to what area of agriculture this is completed in. It is expected that this work experience is completed during university vacations. The degree contains business subjects in the second year and students can elect further business or targeted subjects in the third and final year of the degree.

As it currently stands, University of Adelaide does not offer scholarships or sponsorships for students, however with the correct funding, this is an area that the School of Agriculture, Food & Wine would like to develop. The suggested method would be to provide the scholarship in years two or three, to target those students who are serious about postgraduate careers in the horticulture industry.

Recommendations

Professor Scott and Dr. Able suggested a very similar approach to UWA and Curtin University. From their experience, the logical first step is to approach and target high schools as a method by which industry can generate an interest in and passion for horticulture. In instances where there has been a high school teacher with a focus or background in agriculture, generally students have been more receptive to a future career in this industry. Incorporating farm visits within the school curriculum, with a coordinated marketing approach that identifies and highlights the employment opportunities available, should be a key focus, rather than focusing on the income potential of the industry, which may not be competitive with other career paths.

It is imperative that information and guidance is not only provided to high school students, but that education about the opportunities for employment in a range of areas relevant to horticulture is also targeted at parents and guidance counselors. This would help to dispel some of the negative views of 'growing', such as that the only avenue for work in the sector is to physically pick vegetables. To adequately educate students, parents

and counselors about the broad range of career opportunities that exist in horticulture, including the finance, management and marketing components of growing operations, could have a positive outcome for the vegetable industry.

Similarly to the suggestions made by the universities in Western Australia, any targeted tertiary education scholarship or traineeship opportunities would need to be met with the strong possibility of paid employment upon completion of tertiary studies for the student. This may serve as an incentive for students to pursue this field of study. Furthermore, students may be enticed to select horticulture operations during the work experience component of the course they are undertaking, should paid employment be offered during this period. One unique suggestion made by Professor Scott was that the scholarship or traineeship provider, that is, the industry funding body, could establish an interview process for candidates applying for the scholarship to ensure that only the most appropriate students receive the scholarship. Such a system could promote healthy competition between applicants and stimulate interest in the scholarships. As the body funding the scholarship, the vegetable industry could have some influence in the direction and potential career opportunities for the student.

It may also be of benefit to provide an opportunity for any students undertaking agricultural courses, or more specifically, postgraduate research projects, to have access to industry websites, and importantly, the research components of these websites. This may assist in 'whetting the appetite' of students and invoke an interest in pursuing research within the vegetable industry. This may also facilitate an opportunity for networking and leveraging off the industry's established connections and links.

The University of Adelaide runs a series of career events, providing guidance and information to tertiary students. These events are open to sponsorship, with certain sponsorship tiers providing varying levels of opportunities, including speaking positions. Several industry businesses and representatives already take advantage of these opportunities, such as Elders and agri-banks, which perhaps lends to the idea that graduates are poached by other sectors of the industry. To insert a grower or a representative of growers into the program through sponsorship could provide a valuable opportunity to promote the virtues of the Australian vegetable industry. Gold level sponsorship, which includes speaking opportunities, costs approximately $1,000. One identified problem with this approach is the lack of attendance at these events by students. To have a significant turnout of students, it may be necessary to provide incentives to the speaker sessions in particular. It would be open to industry to determine the scope of any such incentive.

Conclusions

While the suggestions from this meeting followed a similar path to previous university discussions, there were some developmental ideas which built on earlier discussions. The delegation began to form a clearer understanding of the possibilities that exist within the university sphere and began to tease out the finer details of the suggestions put forward. The consistent theme in all of the discussions held at this point was to target scholarships for students nearing completion, and providing them with paid employment for work placement requirements within their respective course.

Day 3: Wednesday 13 February
University of Tasmania/Tasmanian Institute of Agriculture

On the third day of the education road show, the delegation visited the University of Tasmania (UTAS), in conjunction with the Tasmanian Institute of Agriculture (TIA), to meet with Associate Professor in Plant Pathology, Dr. Calum Wilson; Senior Lecturer in crop science, Dr. Tina Acuna; and vegetable center leader Associate Professor Colin Birch. The vegetable industry has a long standing relationship with TIA, and in particular Dr. Wilson, who often engages in various research projects for the industry.

University Course Enrolments

Undergraduate enrolments at UTAS for 2013 are approximately 85, which is consistent with recent years, suggesting that the decline in enrolments has ceased. As was consistent with all other universities, postgraduate courses at UTAS predominantly consist of international students, who are also in higher representation in postgraduate than undergraduate degrees.

There are two targeted agriculture courses offered by UTAS. The first is a Bachelor of Agricultural Science, including Honours. This is a four-year course which provides the fundamentals of science within the first year, then moves into a more specialised focus in the following years, with one business component. The second course offered at UTAS is a Bachelor of Agriculture, which is a three year course. Within this degree, students are able to focus more on the business aspects of agriculture. The university also offers a Masters in Business Administration (Professional), under which you can obtain a degree in Agricultural Innovation. Around 30% of students enrolled in agricultural courses undertake the shorter three-year course. As part of the agricultural courses, during the lectures UTAS often engages an industry representative to present to students. An example of this is a representative from Simplot - a leading food processor based in Tasmania.

The Bachelor of Agriculture contains a work placement component, which according to the university, leads to employment for approximately 80% of placement students.

UTAS and TIA are heavily involved in the Primary Industry Centre for Science Education (PICSE), which is a national strategy of collaboration between universities, their regional communities and local primary industries, which aims to attract students into tertiary science and to increase the number of skilled professionals in agribusiness and associated research institutions. This program undertakes significant involvement in high schools at no cost to the school and in part provides guidance and teaching for the teachers at those schools, as well as generating knowledge and interest for the students. PICSE encourages programs within schools that promote an understanding of agriculture, not simply 'schoolyard farms', including science projects involving agricultural components.

Recommendations

One of the identified issues with UTAS (and perhaps universities on a national scale) is that postgraduate courses offered are full-fee paying and not supported under the Higher Education Loan Program (HELP). Full-fee paying courses act as a deterrent to students who may not have the disposable income to spend upfront on course fees. While TIA provide scholarships to a limited number of students, the suggestion was made that industry could assist by also providing targeted scholarships, for those looking to specialise in postgraduate degrees with a focus on the vegetable industry. UTAS was of a similar view to University of Adelaide, in that there is a prevailing view that if a student pays for tertiary education, then they are likely to apply that education in an industry that offers a higher income than agriculture. Assisting with the financial burden of course fees could assist with dispelling this notion.

Leveraging off the system already in place in the course curriculum, the vegetable industry could take advantage of the lecture series opportunities by nominating a representative to address students and provide first-hand experience of the opportunities in horticulture. Taking this one step further, there is an opportunity to influence the core subject curriculum of these courses, with a horticultural focus. This would require substantial financial funding to ensure appropriate personnel are involved in the creation of the course content.

The final recommendation made was for industry representatives to engage and participate heavily in the PICSE program. The program was initially established using federal funding, however it now receives support from many industry organisations. This kind of involvement in PISCE could help industry to shape the future career paths of the students targeted.

<u>Up-Skilling Existing Workers</u>

As was the case with the other universities that the delegation met with, UTAS was amenable to the idea of providing short courses for up-skilling workers within the industry. The university already engages in such a

program with the Tasmanian Fruit Growers Association, which engages in courses every two years with approximately 15 people participating each time.

The point was made that to determine the feasibility and practicality of this venture, it is crucial to identify what level of up-skilling is required and what 'class' of workers would be targeted. The course work involved would be affected by whether the worker participating in the program is at an operational level, with little to no formal skills, or at a management level, who may be looking to develop or refine existing skills. A guaranteed level of grower involvement, or financial funding, would need to be settled from the outset for the university to see merit in investing time and resources into the development of such courses.

UTAS was also agreeable to the idea of delivering the course work interstate, ensuring consistency in the provision of the skills training on a national scale. Whilst travelling interstate to conduct the training was not cited by UTAS as being an issue, it was noted that delivering such short courses on-farm would not be an ideal learning environment, as there may be too many distractions for those workers participating. Providing training offsite was identified as the preferred option.

Conclusions

While there was little new information garnered from this visit, the discussions held with UTAS/TIA did reinforce the ideas already suggested by the previous universities; namely that the provision of skills training for existing industry workers had merit, that the information and training provided in courses should be consistent, and that there would be a need to ensure accountability and transparency. Substantial funding would need to be committed to provide an incentive for the respective universities to allocate resources to the project. It would therefore be expected that industry engage in the process of determining which individuals should be involved in delivering the outcomes to ensure that its needs are met.

Day five: Thursday 14 February
University of Queensland

The final day of the university meetings took place at the University of Queensland (UQ) with Professor Neal Menzies, who is the Professor of Soil and Environmental Science, Head of the School of Agirculture and Food Science, and Dean of Agriculture. Professor Menzies provided some insightful suggestions, proposing similar ideas to the previous universities, but quite often from a unique perspective.

University Course Enrolments

Traditionally, UQ attracted a lower standard of students into agricultural courses, as the Overall Position (OP) scores required for entry into these were substantially lower than other science courses. Agriculture had a separate facility and while it was shrinking in terms of interest and enrolments, the state government dictated that agriculture should continue to be part of the university curriculum in Queensland. All other agricultural degrees were then merged, with the veterinary school remaining as a standalone curriculum.

The newly merged Faculty of Science became the largest faculty - approximately one quarter of the university - and also became the largest faculty for postgraduate education. With the substantial changes made to the course structure and a renewed drive to excel, UQ adopted several initiatives. Professor Robert Henry was installed as the Head of School and made sweeping reviews of the faculty staff. Many under-performing senior staff members were removed from their positions and a younger, more dynamic group of teachers was installed. The theory behind this was that younger teachers have a better rapport with students and can provide fresh enthusiasm behind the course curriculum. Some of the more senior staff members were not necessarily removed from the university altogether, but were instead installed as mentors for the younger teachers to provide guidance.

UQ has two campus locations; one at St Lucia and one at Gatton. The location of the Gatton campus is of

great benefit to the university, as it is in close proximity to many agricultural growers. A Bachelor of Agribusiness is offered at the Gatton campus, which is sufficiently different to the business offerings at the St Lucia campus to justify having a separate course. A Bachelor of Natural Economics (Agricultural Economics) is offered at the St Lucia campus.

While UQ ranks as number 12 in the world in regards to agricultural research (postgraduate), the undergraduate agricultural science enrolments generally tend to struggle, with approximately 20 students enrolled. Professor Menzies had several thoughts as to why this may be the case. The lower OP entry score had the effect of suggesting that the course was not for the brightest students, who instead enter into mainstream science courses. In addition, and similarly to the suggestions put forward by the other universities, the 'good news stories' originating out of agriculture in the 1980's have long since been replaced with negative and even desperate messages that now emanate out of the industry, with constant reports of farmers doing it tough and going broke. In comparison, the mining industry, albeit with plenty of challenges of its own, manages to sell the opportunities in this industry in a positive light and has moved from strength to strength in terms of the public perception. It was noted that when the media is engaged on issues facing the industry, often as a means of conveying a message to relevant government Departments and Ministers, unfortunately that same message is also being conveyed to the very people the industry needs to attract, and imparts a negative perception of the industry.

In light of the perception that agricultural courses are 'weaker' than others, UQ has now adopted an approach to raise the OP entry score to above that of general science courses, and market it as a premium course that accepts only the brightest students. For instance, the Bachelor of Veterinary Science requires an OP score of 1 (the highest score) with an intake of 120 students each year, while around 800 students with an OP score of 6 or better apply for entry. The hope is that a similar outcome can be developed for the agricultural courses offered. One suggestion has been to alter the course structure further and provide the Bachelor of Veterinary Science as a postgraduate degree, with the preferred pathway through an agricultural science degree.

Furthermore, the Bachelor of Agribusiness is now offered as a dual degree, incorporating a Bachelor of Applied Science. The standalone degree has around 15-20 students enrolled, while the dual degree currently attracts a further 30 students.

As a general rule, UQ does not provide external online education with the view that a lower standard of education is provided through this medium – it does not facilitate appropriate levels of guidance and teaching for the student.

The final background point made by Professor Menzies was the assumption that the closure of agricultural schools and courses is a negative thing may not necessarily be correct. He made the point that rationalization can be a positive thing. Removing courses and schools that are potentially providing substandard education and skill-sets, can in fact result in an overall improvement of educational standards. Professor Menzies stated that it is better to have a smaller number of high performance universities and/or courses offering quality education, than to flood the market (or workforce) with under-prepared graduates.

Recommendations

The first suggestion Professor Menzies made was regarding the image portrayed by industry. While understanding that the industry may have to approach negative issues within the frames of the media, Professor Menzies said that it is important to counterbalance any negative stories with some positive messages, giving the opportunities and successes achieved within the industry equal focus. This should be supported by reinventing the image of agricultural courses for school-aged graduates, marketing the courses as designed for the brightest students and encouraging a high level of competition for entry.

In the discussions, Professor Menzies was not convinced that offering scholarships is a sound solution, and suggested that this could in fact have a negative impact. UQ generally have more scholarships to offer than students who are eligible to receive them, which can weaken the notion that scholarships should be worked

hard for in order to receive them. Providing scholarships simply for the sake of funding students should not be the justification for providing them. The recommended approach is again similar to that of the other universities; that is, to provide a packaged scholarship that provides paid work placement opportunities and graduate employment.

Other suggestions followed a similar trend to those already mentioned in previous discussions. Professor Menzies encouraged the involvement of industry in course lectures, for example by local agronomists or industry representatives, as well as the funding of professional positions at universities for individuals with a background and interest in the vegetable sector. Linking agricultural students at university with research that has already been commissioned would be a positive initiative that could be facilitated by providing a link to the industry's website (i.e. the research and development components of the site specifically).

Discussions on postgraduate courses also followed a similar trend; that is, to provide funding to finance the cost of postgraduate students undertaking agriculture courses, who would otherwise be required to pay the full fee themselves upfront. Professor Menzies noted that should this funding be made available, UQ would seek to deliver a Masters of Agricultural Science, consisting of one year of coursework, followed by two years of practical placement. This could be outsourced to different industries as a means of attracting postgraduate students into the industry long-term. This method has been adopted by Meat and Livestock Australia (MLA), with great success.

Up-Skilling Existing Workers

As it currently stands, UQ does not employ any teacher who has strong skills relevant to the vegetable sector. As such, any short courses with a specific focus on vegetables would be limited. This could easily be rectified if industry were to fund a vegetable specialist to be employed by the university, who could allocate a portion of their time delivering short courses, and the remainder of their time in teaching and/or research activities. Other skills identified that need to be addressed by the courses - such as negotiation, marketing, occupational health and safety (OH&S) and finance - are broad skills that could be applied across many of the agricultural sectors and could likely be addressed by UQ.

The format of these courses would essentially involve distributing course material to participating workers in advance, which would then be followed by an intensive face-to-face session(s). These could be delivered interstate by UQ, provided there is adequate funding. Professor Menzies reinforced the point that industry needs to determine what level the skill-sets to be taught are seeking to reach; that is, whether they would be recognised qualifications, or simply information and skills attainment.

Conclusions

The approach adopted by UQ with regard to marketing agricultural courses, was in many ways unique and innovative. While many of the ideas put forward by UQ were similar to the previous suggestions – such as providing targeted students with financial support - the university's approach to some of the issues discussed built confidence amongst the delegation that some level of success in this area can be achieved.

Of all the meetings that the delegation engaged in, UQ (under the guidance of Professor Menzies), instilled the most confidence and is perhaps the most appropriate institution to take the lead on any engagements by industry.

University of New England

A meeting subsequent to the four-day meetings was held with Mr Michael Williams, Program Developer for the University of New England (UNE). He identified that UNE have committed to developing a Bachelor of Agrifood Systems with a Production Horticulture Major. It is the first agricultural undergraduate degree that has a focus on horticulture, addressing a range of course subjects including leadership communication, marketing, pest and disease control, financial reporting and soil science. The expected commencement date

for this degree is 2014.

Recommendations

Having met with universities from around the country that offer agricultural courses, it is concluded that while the number of enrolments in these courses has dropped significantly from those seen 10 or more years ago, this decline appears to have halted and in some cases may now be reversing. What is clear, however, is that this more recent trend has not necessarily translated into any tangible benefits for Australian horticulture industries, and specifically the vegetable industry.

Three key outputs were identified within the project brief, which are detailed below.

1. To investigate the feasibility of a scholarship program or scheme. Several ideas were generated from these meetings to stimulate interest in and increase the uptake of agricultural courses, with a focus to ensuring graduates enter the vegetable industry. These include:

- Establishing and providing targeted scholarships to a limited number of tertiary students, promoting competition and interest. These should take the form of packaged scholarships with inclusions of paid work placement during courses; funded research opportunities for science-focused students; and opportunities for employment upon under- and postgraduate course completion.
- Establishing a recognised network of vegetable-focused businesses that are equipped to provide consistent and long-term work placement opportunities for tertiary students.
- Funding horticulture-focused people in professional and teaching positions within universities, to provide influence on course curriculum and teaching guidance.
- Engagement by vegetable industry representatives with universities and high schools to communicate messages and information as part of course work (e.g. via lectures).

It is clear that a scholarship program will only be effective if it is implemented in consideration with certain factors; namely that it should target students who have 1-2 years remaining in their studies and who have demonstrated an interest in horticulture. It is also evident that a scholarship alone will not be sufficient, but should be bundled with the opportunity for access to paid work through an established and recognised grower network during coursework placement, facilitating the establishment of network creation and potential graduate employment.

2. To provide vegetable levy payers with direct access to funds that would subsidise skills enhancement and education. This links with part of the third key output, which seeks to up-skill existing members of the industry and provide potential industry leaders with a greater level of knowledge. These outputs were addressed by all of the universities the delegation met with, which were willing to investigate the feasibility of providing short courses. The universities did, however, require that the following issues be addressed:

- That a detailed ‘outcomes strategy’ be created for developing the skills-set for existing workers, in order for the universities to adequately create a short course program.
- That sufficient and consistent funding be provided for universities to deliver the short courses, and that there be a sufficient number of growers participating in these courses.

The general consensus was that recognised qualifications are not essential and that any short courses provided should focus instead on delivering the required skills-set, coupled with a certificate of acknowledgment that the course was completed. This would greatly reduce the amount of time required to complete any course and would ensure minimal impact on the operations of farming businesses.

3. To engage a marketing mechanism, that promotes the virtues of the Australian vegetable industry, and participation within it. This output is essentially a combination of the first two outputs and can be

addressed by the following two ideas generated:

- Targeting high schools (both students and teachers) to dispel some of the negative perceptions of agriculture and to create an emotional link between the students and the food they eat.
- Engaging in positive mainstream and targeted media to promote the successes and employment opportunities that agriculture/horticulture can offer and dispel the notion that agriculture only involves manual labour, and lower salaries compared with other industries.

In order for industry to effectively address the issues identified by this project, it is recommended that the work/activities undertaken in this project be extended, or that a secondary project be created. This would ensure that the suggestions put forward can be fully developed.

It is also recommended that for industry to truly benefit from the proposals put forward during this project, industry will need to consider how to apply these practically. This will include determining specific costs associated with the implementation of each proposal - both in the short and long-term.

Acknowledgments

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