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AHR Submission

Inquiry into Rural Skills Training and Research

Introduction

Applied horticultural research is a private company providing research and development services to rural industries in Australia.

Most of the work we do is focused on the fruit and vegetable industries with funding for the research coming from a combination of government and private sector funding.

In addition, some staff in applied horticultural research are experienced university lecturers. Drs Rogers and Jobling are also currently senior research fellows at the University of Sydney, NSW 2006. AHR key personnel include:

Dr Gordon Rogers

Gordon has a degree in production horticulture and a PhD in plant physiology. He is active in research with a publication record in international scientific journals. He teaches horticulture and plant physiology at various Universities and NSW TAFE and has been involved with horticulture science and horticultural production for over 20 years. Gordon specializes in melon agronomy, vegetable nutrition, grapevine physiology and soil moisture monitoring.

Mike Titley

Mike has bachelors and masters degrees in agricultural science from the University of Sydney. He is an experienced vegetable crop agronomist. He is an expert in lettuce, potatoes, Brassica's, especially broccoli and carrots. He has extensive experience and contacts in the vegetable industry worldwide, especially in the seed industry and in the US where he worked for 6 months while lecturing at University of Queensland, Gatton. Mike is based in Sydney. Mike was awarded the Graeme Gregory Medal for excellence and his contribution to the horticultural industry in 2003.

Dr Jenny Jobling

Jenny has a bachelor's degree in agricultural science from the University of Sydney and a PhD in postharvest physiology. She is active in research with a publication record in international scientific journals. Jenny began her research career with CSIRO Division of Horticulture and has over 10 years postharvest research experience. She also teaches fruit production at the University of Sydney. Jenny specialises in postharvest physiology, quality and packaging. Jenny is based in Sydney.

AHR also has field research staff based in SE Qld and East Gippsland.

Terms of Reference

These comments apply mainly to the horticultural sector (annual and perennial crops) of the rural industry with which AHR has the most experience.

1. Availability

The availability and adequacy of education and research services in the agriculture sector, including access to vocational training and pathways from vocational education and training to tertiary education and work.

Research

Research in the Australian horticultural industry is currently provided by a combination of organisations. These include:

- Universities
- State departments of agriculture
- CSIRO and
- Private providers.

1. Universities

Universities undertake more fundamental research, usually funded by Australian Research Council. They also undertake research funded by and industry R&D corporations, and sometimes have difficulty attracting matching industry funds which is often a requirement of industry R&D corporation grants.

AHR has two researchers holding part time academic positions with The University of Sydney.

Some of the reasons universities may have difficulty attracting industry funding include:

- Lack of industry contacts
- Researchers may not clearly understand the needs of industry
- Researchers primarily focused on their research specialty, rather than on industry needs.
- Industry may not see the research as immediately beneficial to them

Role of University Research

1. “Blue Sky”, or fundamental research. This involves high risk, innovative type projects which are aimed at new discoveries
2. Applied research which uses research findings and the scientific methods to solve real industry issues. This area of research is often seen as at a lower level than basic research by university researchers, but without it, industry cannot benefit from the more basic research.

2. State departments of agriculture

Research by state departments of agriculture seems to be declining. The issues are similar to universities, with lack of funding, lack of effective contact between agencies and industries, and a general downgrading of the research effort.

There can be poor communication between researchers and industry. There are major exceptions to this, however and this seems to be related to the personality and efforts of individual researchers.

3. CSIRO

The research by this agency is becoming increasingly focussed on confidential research funded by industry. They have very experienced, highly qualified scientists.

4. Private Sector Research Providers

These are a relatively new addition to the pool of research providers. They are often small to medium sized companies that are formed by researchers usually from one of the previously mentioned pool of researchers. AHR belongs to this group.

Strengths of Private Sector Researchers

- Often have good contacts with industry and work on projects that are funded by industry money.
- Usually the principals of the companies are very experienced.
- They are flexible and can adapt easily to the changing needs of their clients.
- Lower overhead costs than government agencies
- Do not have “institutionalised” thinking.

Limitations of Private Sector Researchers

- Have to charge for staff time, whereas sometimes government organisations cover their own salary costs.

- There can be a temptation to conduct research in an *ad hoc* manner with a lack of scientific rigor.
- There can be a lack of ready access to experienced support people, especially in experimental design, data analysis and scientific support.

Recommendations (Research and Education Availability)

1. Improve links between research scientists and the horticultural industry. Researchers need to understand who the customers are for applied research, and must deliver a benefit if they expect funding to continue. Industry needs to respect what science can offer them and understand what motivates the scientists.
2. There must also be fundamental research, perhaps in different faculties to agriculture. e.g. biological science?

Education

Education in the Australian horticultural industry is currently provided by a combination of organisations. These include:

- Universities
- TAFE Colleges
- Private Providers

Issues

1. Not enough prospective students see horticulture as an attractive career
2. Not enough trained scientists and technologists for the industry
3. Not enough trained technicians and farm staff for the industry
4. The declining numbers of experienced scientists and industry experts will mean that less teachers are available to train young people in the industry.

There is a crisis in agricultural education in Australia. There are not enough young people undertaking agricultural or horticulture as their first preference at university, and student numbers are low at many institutions.

This is occurring at the same time as job opportunities and the demand for skilled people in the rural sector is increasing.

Jobs are often filled by people trained in disciplines other than horticulture or agriculture.

There needs to be urgent action taken to improve this situation in Australia.

The following measures are suggested for consideration by the committee in formulating a plan to improve agricultural education in Australia.

1. Undertake a legitimate, far-reaching study to find out why people do not choose agriculture and horticulture careers at university. Also try to find out from the people who do choose agriculture, their reasons.
2. Do something to address the image of agriculture and horticulture as a career option. The reality is that working in this area can be very stimulating and rewarding. Australians are widely regarded as innovators in this area. In addition, the work is often well remunerated and there are great opportunities for advancement. The public image of horticulture gets mixed up with gardening and agriculture is often associated with "the depressed farming industry", droughts and run-down towns. The positive side of agriculture is rarely publicised.
3. Increase government funding for rural education in Australia at all levels (university, TAFE and private sector).

All sectors are currently starved for funds, for facilities, course development and staff appointments. Funds must be wisely injected into this sector to boost the standard level of education available to prospective students.

2. Needs

The skills needs of agricultural industries in Australia, including the expertise and capacity of industries to specify the skills-sets required for training, and the extent to which vocational training meets the needs of rural industries.

I am not sure what is known about the skills needs of agricultural industries in Australia. This may have been done already. If not, this should be documented after extensive, meaningful consultation at a range of levels in the industry.

3. Provision of Services

The provision of extension and advisory services to agricultural industries, including links and coordination between education, research and extension.

The provision of extension and advisory services by state government departments of agriculture have declined over the last 20 years and in horticulture are effectively non-existent.

There is a huge amount of research done in Australia and overseas that is not effectively communicated to industry. Horticulture Australia have vast lists of project final reports available, and the scientific literature is full of high quality research reports, the results of which do not get out to growers.

In the vegetable industry, there are Industry Development Officers, who generally do an excellent job, but are mainly non-technical and focus on organising, but don't give technical help or advice.

There is a great need to improve the way in which research information is implemented in the Horticultural Industry in Australia.

Lack of interaction between university scientists and industry

There is a valuable resource of skill, understanding and experience with the academic staff of universities. This great asset often goes unnoticed by industry.

Industry and growers need to be more understanding of how scientists operate, and what excites them, and what they can achieve. Scientists need to be more in touch with, and relevant to industry.

Research does not always benefit the rural industry it claims to assist

The US model of Land Grant Universities providing agricultural research and extension services works more effectively than the system in Australia. Here, there are virtually no formal extension services provided to industry.

4. Role of Government

The role of the Australian government in supporting education, research and advisory programs to support the viability and sustainability of Australian agriculture.

The Australian government can improve support for education, research & advisory services in the following areas:

- Commissioning an exhaustive study of rural education in Australia to find out why students are not choosing agriculture as a career. In partnership with industry representation, develop a strategy to improve participation in rural education.
- Allocate funds to the promotion of agriculture and horticulture careers to high school students and the community.
- Determine and document the skills required by the various jobs in the horticultural and agricultural industries, if this has not already been done.
- Fund advisory services.
- Properly fund rural education supplied by:
 - Universities
 - TAFE
 - Private providers

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