

Inquiry into Rural Skills Training & Research

The following submission has been prepared by NSW Department of Primary Industries (DPI) in response to the House of Representatives Inquiry into rural skills training, research and extension. The submission is divided into sections associated with the various elements of the Inquiry.

TERMS OF REFERENCE**1. Availability and adequacy of education and research services in the agriculture sector.**

NSW DPI has extensive experience in vocational education and training both for youth and adults. The Department operates two agricultural colleges: CB Alexander Agricultural College, Tocal, Paterson in the Hunter Valley and Murrumbidgee College of Agriculture, Yanco in the Riverina.

Collectively the two colleges conduct over 200 training courses annually. Of these 200 courses (full-time, part-time and short courses) 60 courses have a focus on sustainability. Enrolments in the full range of courses for 2004/05 is expected to reach 20,000 participants.

The Department conducts a highly successful and recognised Aboriginal Rural Training Program from Murrumbidgee College of Agriculture, with enrolments of 160 in 2004/05.

95% of College graduates from full-time courses obtain employment in rural industries or proceed to further education.

Whilst the Department conducts no formal research into educational needs or delivery mechanisms, the colleges have extensive networks of former students, farmers and rural supporters for feedback on needs for rural skills training and the best ways to meet that need. This, along with the Department's network of professional extension officers, ensures that the most appropriate and scientifically up to date training courses are conducted in a timely and convenient manner for clients. NSW DPI is the only provider of both extension and education services in Australia.

The NSW DPI network of extension and advisory officers deliver education and training across NSW. Extension services will be covered under Term of Reference 3.

The NSW Government has recently announced a new strategy direction, Pro-Farm, to focus on the delivery of farmer education and training in NSW.

- Pro-Farm is a new initiative that will feature popular short courses currently offered through the DPI, plus a range of new topics.
- Each of the courses will be available for primary producers, landholders, agri-business professionals and community support officers.
- The program will initially include around 20 individual short courses held throughout the State.
- A network of 200 DPI education specialists and research and extension officers will run most of the courses, with private providers sourced for certain sessions.

2. **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.**

Primary industries have special needs because they are largely found in the regional part of Australia and have particular cultural characteristics which need to be understood if VET programs are to be successful. It has been found that generally 'broad-brush' policies are difficult to apply in rural and regional situations. Therefore consideration needs to be given to the special needs not only of regional areas but the primary industries that occur within them.

Role of Research and Development Corporations (RDC) and Cooperative Research Centres (CRC)

There has been a limited but successful role for these organisations in past VET programs. Some CRCs have been active and involved, which has strengthened VET programs. For example the Weeds CRC program has been very active in preparing resources and liaising with VET providers across Australia. Likewise the Sheep CRC has an active VET program and an active program is proposed by the new Cotton CRC.

The Grains Research and Development Corporation has developed a successful VET scholarship program that has been well received by the agricultural colleges in Australia. Australian Wool Innovation has also undertaken some excellent developments for VET trainers in recent times.

Other CRCs have been less active or effective in interacting with the VET networks, to the detriment of their particular VET sector. NSW DPI has been in an ideal position to observe these interactions, having both extensive professional activities in research as well as an active and successful VET program.

Competency Based Training (CBT)

This training has been adopted strongly by NSW DPI since its inception in the 1990s. This training system has a number of shortcomings in its application to agriculture. These should be considered in any review of competency-based training. It is acknowledged that some of these shortcomings are brought about by a narrow interpretation and application by some professional educators. There are however significant issues which need to be addressed within CBT to make it more effective and relevant for rural industries.

NSW DPI has found it very difficult to have extra competencies included in existing Training Packages. The system is cumbersome and takes a long time to occur. This makes it difficult for VET providers to keep up to date with the latest developments in rural industries.

Competency based training by its very nature is based on a historical perspective of an industry. In other words competencies are developed through extensive industry consultation over a period time and are then made available for the VET sector to apply. This is really like driving a motor car looking in the rear vision mirror.

The risk is that competency-based training is reflecting yesterday's industry rather than tomorrow's.

NSW DPI has had extensive experience in training people from a non-English speaking background in the Sydney Basin. These producers require training at most of the AQTF Levels I-V. This range of levels has made it difficult to both apply the packaging rules of the Training Package to enable their studies to result in a qualification, as well as to seek funding from FarmBi\$ for training support. FarmBi\$ did not fund training below Level IV which cuts out much of the training that is relevant to farmers in this client group.

There is potential within the CBT system to develop competencies that are more generic and flexible in application.

Training Package boundaries do not necessarily reflect the needs of industry and the individuals within those industries. For example someone working partly in agriculture and partly in land management may find it difficult to obtain a formal qualification even though their skills are at an appropriate level. The merging of some of Training Package competencies should assist in resolving these issues.

The training market

The concept of a commercial training market operating in Australia has been discussed for many years. While it is government policy to encourage the private sector of the economy, the training area is problematic, particularly in some industries. DPI recognises these issues and works to provide support for rural industries.

The incentives for youth training, particularly traineeships, are often difficult to apply and interpret for training organisations. For example the current incentives for training are mainly for Certificate III, even though the needs in the industry extend beyond this level of qualification. It is difficult for a trainee to undertake the extra training desired, due to lack of incentives.

The current severe drought and high petrol prices in rural areas are having a major impact on the training market. Any incentives to stimulate the training market during the current conditions should take into account these factors. When there are severe droughts and downturns, primary producers stop spending money in any areas of a discretionary nature. To farmers, paying for education is a discretionary expenditure. Government should not expect farmers to spend extensively on education in drought years.

The formal recognition of a producer's skills will encourage confidence in either seeking alternative employment or being more positive about the future of farming as a profession. To date this mechanism has not been fully used to support adult training.

Australian Qualifications Training Framework (AQTF)

NSW DPI has considerable expertise in the application of the AQTF. It has used a number of Training Packages extensively through the scope held by both of its colleges. The operation of AQTF has largely been a success in Australian VET. It has brought together training on a national basis and the industry is much further ahead than it was a decade ago.

The AQTF has a number of shortcomings when applied to training in primary industries.

It seems that the only way quality can be determined is by regulation rather than by good investment in training. VET training is becoming more and more regulated and atomised resulting in much effort and resources going into recording minutiae, rather than in training students. The sanctions and systems that are now in place through AQTF are in many ways a disincentive for the application of accredited training across rural areas.

The costs of compliance and the associated efforts involved make it difficult for providers and trainers to focus on high quality technical training. They become focussed on the details of regulation rather than seeking to achieve excellence in their area of endeavour.

NSW DPI has provided high quality training through its excellent range of trainers and colleges which comply to AQTF. This high quality training would be maintained without AQTF because of the professionalism of the staff and the organisations involved.

Promotion of VET to primary industries

Australian primary industries are probably one of the least receptive areas of the economy for formal training. The promotion of training to this sector is therefore a challenging and often expensive process. The current funding arrangements and operation of VET in Australia has no mechanism for acknowledging this issue.

As a result, the uptake of VET in some primary industries leaves a lot to be desired. This manifests itself through the industry having a low level of formally qualified personnel, despite the best efforts of providers. Lack of training also results in an unacceptably high level of serious farm-related accidents. Improved VET promotion and training should result in a lower accident rate as well as encouraging higher productivity in this sector.

Promotion of primary industries to schools

The promotion of primary industries to schools has been fragmented and un-coordinated both on a state and national basis. It is imperative that primary industries have a continued supply of able people entering the industries for a career. In addition the general community should have a good understanding of primary industries, their impact and relevance to the economy.

An initiative is underway in NSW involving NSW DPI, Royal Agricultural Society and NSW Farmers to work collectively on the promotion of agriculture to schools. While this initiative is in its infancy, it promises to bring great benefit to both industry and the school system. In addition, a network of interested organisations representing agricultural industries has been created nationally and this group will provide interstate collaboration for the most effective use of funds to promote agriculture to schools.

Recommendations

- *It is recommended that resources continue to be applied to improve consultation and input into national policies on VET for primary industries.*
- *It is recommended that Research & Development Corporations and Cooperative Research Centres be encouraged to take a greater role in VET programs. This will benefit their core activities through the application of research results.*
- *It is recommended that consideration be given to make competency-based training more forward focused and ensure that competencies are applied in a way that addresses the future and not the past.*
- *It is recommended that some of the Training Packages be merged to make them more flexible and enable people who work holistically in an industry to gain a qualification across Training Packages.*
- *It is recommended that incentives for traineeship programs be reviewed and that trainees be encouraged to seek training at the highest possible level.*
- *It is recommended that further consideration should be given to training for rural adjustment. This can be supported by skills recognition for adults on the land.*
- *It is recommended that the application of AQTF works to encourage high quality training.*
- *It is recommended that courses be promoted and delivered in ways that inform, encourage and enable people in remote areas to undertake training.*

- *It is recommended that this inquiry address the issue of the promotion of primary industries to schools, in particular agriculture. However the same applies for other primary industries such as forestry and fisheries.*
- *It is recommended that the Standing Committee notes this schools initiative and support is provided for it in future years.*

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

NSW DPI has a network of approximately 250 extension and education staff at over 90 locations. Extension disciplines include crop and pasture agronomy, livestock, horticulture, veterinary services, environmental services (salinity, water use efficiency, soils), irrigation, economics, weeds and industry development.

NSW DPI education staff support extension through the development of accredited training courses for extension staff to deliver. Over half of DPI's extension staff have Certificate IV in Assessment & Workplace Training qualifications.

The NSW Government has recently announced its Pro-Farm initiative.
Pro-Farm Short Courses for Farmers:

- Pro-Farm is a new initiative that will feature popular short courses currently offered through the DPI, plus a range of new topics.
- Pro-Farm's focus will be on Better Risk Management for Farmers.
- Each of the courses will be available for primary producers, landholders, agri-business professionals and community support officers.
- Pro-Farm courses will take the place of the previous FarmBis program in NSW.
- The program will initially include around 20 individual short courses held throughout the State.
- A network of 200 DPI education specialists and research and extension officers will run most of the courses, with private providers sourced for certain sessions.
- The DPI will also offer a 50% subsidy for many of the courses.
- The Pro-Farm courses will cover a wide range of topic areas and needs, as identified through consultation with NSW Farmers' Association, Catchment Management Authorities, NSW DPI College Advisory Councils and rural industries in general. These include farm risk management issues such as climate, drought, natural resources, grazing management, quality assurance and property management planning.
- Pro-Farm courses will build on those already available through the Murrumbidgee College of Agriculture at Yanco in the State's southwest.

NSW DPI extension staff aim to develop and deliver extension training programs which are relevant to landholders and other clients, as well as providing material which meets Department objectives for productive and sustainable agricultural communities. Extension aims to contribute to capacity building, either at the individual level (human capacity), or at a community level (social capital).

Extension training is focused on meeting the needs of clients by working in conjunction with stakeholders, utilising a 'bottom up' approach where appropriate to ensure relevance. In all cases relevance relates to improving production and the efficiency of resource utilisation, while protecting and enhancing the environment.

NSW DPI is well placed to deliver extension training to agricultural industries, as it has highly trained and effective staff in both extension and research, and is able to offer an integrated package of research and extension to address sustainable resource management issues. The ability of the Department to develop and extend solutions for landuse issues is critical in maintaining ongoing relevance to its client base. The Department's information exchange loop between clients, researchers and extension staff is unique. A significant part of extension effectiveness relates to the development of locally driven solutions for district problems.

Courses are designed to develop technical and management skills. When a local group of landholders requests a course it can usually be organised to run in their local area.

Major topics for extension delivery

Livestock:

- Husbandry and Management including: breeding, feeding, parasite control etc
- Risk management- including drought management, cost of production, Stockplan/DSE,
- Decision support systems- marketing, economic factors.
- ProGraze and grazing management systems- including tactical grazing

Horticulture:

- Pest and disease management including IPM
- Agronomy- soils and nutritional
- Water use efficiency and irrigation
- Marketing and varieties
- Weed management
- Quality assurance

Agronomy:

- Crop and pasture agronomy: including nutrition, varietal selection, establishment
- Water use efficiency
- Top Crop and other discussion groups
- ProGraze
- Landscan
- Soil management – health, acidity, salinity, sodicity, alkalinity
- Weeds and herbicide resistance
- Insect and pest management
- Risk management
- Ground cover

Other:

- Waterwise
- Salinity
- Organic production

- Economics
- Property management planning
- Environmental management systems

Role of Vocational Education and Training (VET) in Extension

NSW DPI has worked extensively in merging the role of VET with both extension and research. As a result a number of well-regarded products are now in the market place for farmers, based on the best of research and delivered by extension officers in the context of VET. An outstanding example of this is the ProGraze course, which has been attended by thousands of primary producers over recent years. ProGraze originated from the work of NSW DPI in NSW working with industry organisations and is now run interstate.

NSW DPI believes that further support should be given to VET to ensure that farmers become better qualified, more professional and have a better standing in the community. It has also undertaken Recognition of Prior Learning (RPL) programs for farmers, which have been well regarded. RPL is seen as a way of raising the self confidence and self esteem in the rural community, especially in times of severe adjustment and change. This has been of great assistance to farmers—particularly in the dairy industry—given the changes which have occurred in recent years following deregulation.

It is recommended that further consideration should be given to training for rural adjustment and the role of VET in this process.

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

Training in primary industries, particularly agriculture, is faced with small and in some cases, declining markets. It is difficult to obtain a critical mass of trainees at an institution, given the vast distances involved. Support from the Commonwealth for training does not satisfactorily recompense the costs involved in travel.

Australian Government programs such as the National Landcare Program, Natural Heritage Trust and the National Action Plan for Water and Salinity are a good mechanism to encourage participation in training programs to develop skills and knowledge in natural resource management.

It is recommended that greater support and more incentives to travel be given for rural residents undertaking VET.

It is recommended that these programs be continued and expanded.

APPENDIX I
Beekeeping Industry

Summary

The Australian beekeeping industry is small in size but important for the continued success of the agricultural and horticultural industries through paid and incidental pollination. The Australian Government could assist the beekeeping industry by providing funding grants to finance infrastructure and development costs in the areas of research, education and bee breeding.

Background

The Australian beekeeping industry is based on a number of sub-species of the European honey bee *Apis mellifera*. Australia has no indigenous members of the genus *Apis*. Colonies of *Apis mellifera* first arrived in Australia in 1822, This was the beginning of managed beekeeping which is now practiced in all Australian states.

Industry size

Beekeepers in all states owning one or more bee hives are required to be registered with their State Department of Agriculture, principally for disease control purposes. The numbers of beekeepers registered in each state and the number of hives owned are shown in Table 1.

Table 1. Numbers of beekeepers and numbers of hives in each State and Territory.

State/Territory	Beekeepers*		Hives*	
	Number	%	Number	%
New South Wales**	3 256	32	244 736	41
Queensland	3 056	30	118 664	20
Victoria	1 812	18	97 773	17
South Australia**	779	8	66 731	11
Western Australia	930	9	45 289	8
Tasmania	255	3	18 380	3
Total	10 088	100	591 553	100

* Based on state registrations and include estimates for unregistered beekeepers.

**Estimates for ACT and NT are included in figures for NSW and SA respectively.

Beekeepers may loosely be categorised according to the number of hives owned. For example, beekeepers owning less than 4 hives are considered to be hobbyists, beekeepers with 5-49 hives have limited commercial interests, beekeepers with 50 – 499 hives are considered as part-time commercial and beekeepers owning more than 499 hives are full time commercial.

Table 2. Number of beekeepers in each size category in each state.

No. of hives owned	Number of beekeepers						
	NSW	Qld	Vic	SA	WA	Tas	Total (%)
1-4	1 223	1 301	789	260	470	130	4 173 (41)
5-49	1 313	1 356	734	328	261	79	4 071 (40)
50-499	564	351	255	152	163	39	1 524 (15)
>499	156	48	34	39	36	7	320 (4)
Total	3 256	3 056	1 812	930	779	255	10 088 (100)

Seventy to eighty percent of honey is produced from native flora, particularly eucalypts. Australia produces around 31 000 tonnes honey per year with an estimated gross value of production of \$49 million. The gross value of production when queen bees, package bees, beeswax, pollen and paid pollination are included is \$65 million. In addition the overall value of pollination to the Australian economy has been estimated to be between \$600 million and \$1.2 billion (Rodriguez

VB, Riley C, Shafron W and Lindsay R 2003 Honeybee industry survey, RIRDC Publication No 03/039).

Comment – the industry is small in size with regard to the numbers of persons involved, although beekeepers are widely dispersed within each state.

Terms of Reference

1. Education – the availability of beekeeping education for each state –

NSW – NSW DPI manage (i) a 2 day short course for beginner beekeepers each year, (ii) a 3 day detailed practical course on queen rearing one or more times each year (both at Tocal Agric. College). (iii) participate in 1 or more field days on topical beekeeping subjects each year. OTEN operate courses designed for beginner beekeepers in conjunction with NSW DPI beekeeping staff. Univ. of Western Sydney cooperate with the OTEN courses and operate courses for beginner beekeepers from time to time.

Qld – Univ. of Qld, Gatton Campus operate a 3 day general course each year. Qld DPI has monthly, half day information sessions in different locations

Vic. - no regular formal beekeeping courses. Beekeeping Clubs may deliver short courses on an irregular basis.

DPI Vic. facilitates short courses on OH&S. The Victorian Apiarists' Association has run one course on queen rearing.

SA – no formal TAFE courses. Several regional and metropolitan High Schools provide training material on beekeeping as part of their curriculum.

A 6 day course on bee husbandry and bee diseases is run by the President of the SA Amateur Beekeeping Society on an as needs basis.

PIRSA in conjunction with industry bodies provides ad hoc training through field days, seminars and information sheets.

WA – the WA Beekeeping Association may provide courses, details not available.

NT – no formal training or educational courses.

Education adequacy – education services available to experienced beekeepers and to persons with no or limited beekeeping experience are severely limited in the number of courses available, the subjects covered by courses, and the depth of coverage of courses which are available.

2. Skills and needs of the beekeeping industry in Australia.

Although not formally recognised, beekeeping is a highly skilled industry –

- (i) honey production - requires extensive knowledge of honey bee husbandry and of the plant species providing nectar and pollen utilised by their bees.
- (ii) many beekeepers are specialists in associated industries.
- (iii) pollination - beekeepers supplying bee colonies for pollination of agricultural and horticultural crops require extra skills in managing colonies to be in the correct condition for pollination of the crop required. Pollinators also require a sound working knowledge of pesticides applied to the crops being pollinated and crops in nearby fields, and the effects of those pesticides on honey bees
- (iv) live bee production – a number of beekeepers specialize in producing live bees for sale in the forms of queen bees and package bees for the domestic and the export markets. Both require specialised skills in rearing queen and worker bees for a particular month to meet market requirements
- (v) a small number of beekeepers specialise in producing other by-products of the bee hive such as comb honey, beeswax, propolis, royal jelly and pollen. All require

specialised skills in managing their bee colonies, and collecting and preparing the product for market.

- (vi) persons involved in the packing, distribution and marketing of honey, bee products, and live bees all require specialist skills not normally found outside the beekeeping industry.
- (vii) ancillary industries associated with the beekeeping industry – specialists in the manufacture of beekeeping industry equipment, eg. honey and wax extracting and handling machinery, beehive component materials, machinery for manhandling beehives in the field. All require skills for their particular field which are not readily available from other industries.
- (viii) Many of the skills described above need to be accompanied by standard skills required in the broad agricultural industry such as business management, management of employees, OH&S, Quality Assurance, bush and long distance truck driving and use of machinery.

Comment – the beekeeping industry requires people with a wide range of skills not able to be transferred from other industries. Current available vocational training for an estimated 80% of the skills required is not available within Australia. Competency levels are being developed which will assist in basic beekeeping training.

3. Provision of research, extension and advisory services

Industry bodies and private businesses are able to provide limited extension and advisory services principally only to members of the particular section of the industry each caters for. Small industry size has also resulted in few, if any, private consultants being available to advise on honey bee management practices.

The past and current history is that State Government Departments of Agriculture have provided the major source of extension and advisory services to the beekeeping industry. This service is not as strong as in the past but is continuing in various forms in most states –

NSW – NSW DPI has 3 f/t (full time) officers with advisory and extension roles, 2 of those also have research roles, and one p/t (part time) research officer.

Sydney University has a research person and a number of post graduate students involved with pure research projects on honey bees, principally funded by ACIAR.

University of Western Sydney has a research person and a small number of post graduate students involved with practical beekeeping research projects.

ACT – CSIRO Entomology Laboratories has 1 p/t research person principally funded by ACIAR. Aust. National University has a research person and a small number of postgraduate students involved with projects with a practical application.

QLD – QDPI has 3 f/t apiary officers who are extension/ advisory and regulatory staff with a small amount of time committed to research, 1 p/t Honey Lab diagnostic microbiologist, and 1 p/t project Coordinator.

Vic. – DPI Vic. has 1 f/t and 2 p/t persons for advisory/extension activities, and 1 f/t research person on a time limited project.

SA – PIRSA has 1 f/t apiary inspector and 1 p/t projects manager. Not recently active in research.

WA – WA Dept Agric has 1 p/t advisory/extension, 1 p/t inspector and 1 f/t research persons.

NT – NT Dept Agric has 1 p/t advisory/extension person.

Links and co-ordination between education, research and extension – there are loose links only, based principally on personal contacts and on which industry subjects are considered important at the time. The HBRDC has a Five Year Plan prepared in consultation with industry to provide research direction necessary for current best practice and preparation for future development.

4. The role of the Australian Government

The Australian Government supports RIRDC funding and provides support to ACIAR which indirectly supports Australian beekeeping research. Other funding of projects directly related to the Australian beekeeping industry may occur at an irregular and minor level.

Comment – area of interest able to benefit from an increased role by the Australian Government

(i) in general, research, education and training for the beekeeping industry in Australia are at unacceptable low levels. There has been a past, current and probable future history of lack of funds to support research, education and training at the required level due to the small size of the industry.

(iii) the industry lacks dedicated research laboratories and bee breeding programs utilising current technologies. Both of these factors can be expected to negatively impact on the future of the beekeeping industry in Australia.

5. Some solutions requiring Australian Government assistance

There is a large potential for the beekeeping industry to expand and become more financially supportive of people involved in the industry. Two areas capable of immediate expansion are the provision of honey bee colonies for pollination purposes and the provision of queen bees and package bees for the export market.

The Australian Government could assist the beekeeping industry by providing funding grants to finance infrastructure and development costs in the areas of -

(i) **Research, education and bee breeding.** The establishment at a recognised tertiary institute of a honey bee research, education and bee breeding centre. The centre would have three responsibilities, each providing a limited amount of income sufficient to provide full time employment for a small number of staff.

- the central point for Australian honey bee research, although honey bee research would continue to be carried out at a number of institutes.
- education would train researchers involved with honey bees and the beekeeping industry. A training component could be introduced into tertiary agricultural and horticultural courses to provide students with a background into honey bees and their contribution to crop pollination. Advisory and extension personnel would develop from this training. This would place pollination extension with persons dealing directly with agricultural and horticultural crops where it would be more effective, rather than with extension personnel dealing with beekeepers as at present.
- bee breeding program

By operating one centre incorporating the three roles described, the centre may be able to be financially self supporting. A problem remains with the establishment costs and this is where the Australian Government could provide assistance.

(ii) Training. Training of personnel within the industry eg. persons involved in honey production, queen bee breeding, crop pollination, packing and marketing and other aspects of the beekeeping industry would need to be managed at a level comparable to the level of expertise required and the financial package offered to persons completing those courses.

These courses could be managed from State Agricultural Colleges with lecturers sourced from Apiary Officers in State Departments of Agriculture, and from persons within the beekeeping industry.

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