

The Many Turnings of Agricultural Extension in Australia

Warren Hunt, Colin Birch, Jeff Coutts and Frank Vanclay



Agricultural extension in Australia was initially developed to deliver food security and economic potential for isolated British colonies in an environment not necessarily suited to European farming practices. Extension contributed to building wealth through creating agricultural export industries in a young nation state, and to the national and British imperial war efforts in two global wars. By the late twentieth century, agricultural extension in Australia reached a high point of achievement in organisational scale, technical expertise, academic recognition and training in contemporary methodologies, but has since undergone major shifts triggered by reforms in national agricultural policy.

This article discusses the origins of extension in Australia, its evolution in organization, thought and practice, and the likely future direction of the discipline.

To help understand the growth and current decline of extension in Australia we employed a cyclical framework of four 'turnings' as described by Straus

and Howe (1998), who explain that Anglo-American society has over 500 years exhibited definitive and temporally repetitive patterns in human social behaviour. They argued that the four turnings comprise a 'saeculum' which may last 80 to 100 years, and encompass a 'seasonal rhythm' of periods of intense challenge, growth, maturation and entropy. The turnings are:

- Crisis - a decisive period of upheaval, where a sense of urgency drives deep institutional transition.
- High - an upbeat period of sequential strengthening and consolidation, followed by expansion and prosperity.
- Awakening - during which new ideas emerge and previous norms are challenged or overturned.
- Unravelling - a downcast period of weakening institutions as older orders decay.

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The Many Turnings of

The Turnings

The late colonial **Crisis**
(late 1860s – late 1880s)

In the second half of the nineteenth century Australian farmers faced problems of crop and animal husbandry in an environment unlike Europe or the Americas where many traditional farming practices had originated.

During this period, the development of Australian agricultural research and extension was established under the structure of government departments and largely remained within that paradigm for over a century. In addition to research scientists and a network of research farms, a core of professional officers were developed for consulting and advising farmers about findings derived from agricultural science research in Australia and overseas. The climax of this period of crisis was the major impact of wheat rust which led to Australian flour millers forced to import wheat. The response to this crisis was the vanguard for the first high period in Australian agricultural development.

The Federation **High**
(Late 1880s – 1910)

This period commenced with the widespread adoption of improved varieties of wheat in the early twentieth century. The 1880s and 1890s also saw the

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establishment of agricultural colleges in South Australia, Victoria, New South Wales and Queensland, driven largely by the political imperative of land reform.

Also of interest was the emergence of a different organizational model for RD&E at the turn of the century in the Australian sugar industry. While other Australian rural industries were relying exclusively on the public purse for RD&E support, the Australian sugar industry developed its own RD&E capacity with the Bureau of Sugar Experiment Stations (BSES) set up as a statutory body under the Queensland Government in 1900. This agency received a portion of its finances from levies on sugar growers and millers.

The Early Federation **Awakening**
(1910 – late 1920s)

In the first decades of the twentieth century agricultural faculties were created and fostered in Australian universities.

Universities began to develop the intellectual capacity necessary for growing an emerging agricultural RD&E sector. This was also the time that the Commonwealth Government launched the first Soldier Settlement scheme with some 40,000 returned servicemen and women taking up offers of farming land throughout the nation. The scheme was not universally successful with many ex-servicemen, who had no previous farming experience, thrust on to land which often had very marginal agricultural potential. The scheme also experienced serious agricultural production catastrophes, e.g. drought, rabbit plagues, locust plagues and invasion by prickly pear.

In 1926 the CSIRO was established and began the expansion of scientific knowledge on Australian agricultural production. They played a major role in addressing agricultural challenges including control of pests such as prickly pear and the national rabbit plague. In addition they provided information capital for state departmental extension staff to deliver on improvement of production technologies and pest control.

The Great Depression **Unravelling**
(late 1920s – World War II)

The Great Depression in Australia saw major declines in most agricultural commodity prices and widespread rural protests and militancy. Consequently, Commonwealth and state governments introduced agricultural policy instruments including price stabilization schemes. However, Australian agriculture was unable to fully recover in the 1930s as incomes were largely insufficient to allow for reinvestment in capital items (e.g., new machinery and farm improvements). During the Depression, public sector austerity measures also led to stagnation of state government agricultural RD&E capacity. This would have detrimental consequences during World War II and it was not until 1942 that a renewed level of urgency was reinjected into agricultural extension.

The World War II **Crisis**

World War II imposed restrictions on some agricultural RD&E but also expedited advancements in others. In the early phase of the war (1939-1941), operations were principally confined to Europe and



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North Africa, and Australian agriculture continued essentially unchanged from pre-war years, with Britain the major market. Following Japan's entry into the war in late 1941, agriculture came to prominence in the Australian war effort. With Australia under threat of invasion, men either volunteered or were conscripted for military service, resulting in combined pressures of a diminishing farm labour force and loss of technical training and expertise. There was also the urgency to produce food and fibre for large numbers of Allied forces in the Asia-Pacific region.

In 1942, the Australian Government re-organized agricultural RD&E into District War Agricultural Committees who were tasked with targeting RD&E necessary for the war effort and with allocating scarce resources, i.e., labour, machinery and materials. Unfortunately, this system of rural industry engagement lapsed after the war and services reverted to the pre-war public sector-driven paradigm dominated by the technology transfer and diffusion doctrine.

Nation-building **High** Period (End of WW II – Early 1970s)

Post-World War II, the Australian Government showed an increased interest in agricultural research activities which initially resulted in a professional imbalance, with research capacity developing far more than extension capacity. However the importance of extension as a component of the RD&E system was gaining recognition as without the accompanying effort to advise people of research findings much of the usefulness and benefits of research could be lost by slow adoption.

Extension services even received prime ministerial approval in the 1963 policy speech on agriculture by Bob Menzies who stated: 'We regard the whole matter of extension services as of major importance to higher production and lower costs'

Commonwealth and state governments continued to invest and build their RD&E capacity, providing Australian rural industries with a highly skilled and capable agricultural RD&E capacity of international repute. During the 1960s, university graduates became more prominent in the ranks of extension practitioners and Australian universities began to undertake academic research into extension.

Specialist graduate and post graduate training in extension was also established, principally at the University of Queensland and the University of Melbourne.

The Twentieth Century **Awakening** Period (1970s – early 1990s)

In the 1960s and 1970s, extension continued to focus on refining and applying the diffusion of innovations theory, but moved to incorporate 'bottom-up' approaches. Systems research began to emerge in response to failures of the technology transfer model to resolve problems of increased complexity. Farmer discussion groups informed research and extension priorities, and research was carried out in a farming context or in simulations. At this time most extension practitioners were still employed in the public sector, with many funded by Commonwealth Government grants.

In the 1970s, the emerging challenge of sustainability in agricultural production became a major extension focus. RD&E agencies were forced by public policy decisions into resolving more complex issues that incorporated production, natural ecosystems, business-planning and sociological perspectives. This induced a change in the skills sets of extension practitioners from dealing primarily with technical issues to developing facilitative styles of extension engagement.

The early 1990s also saw the development of a pluralism in extension - with a growing literature on theories, methods, tools, providers and processes, extension was increasingly able to deliver outcomes while meeting diverse client needs'. Institutions formerly focused on reductionist scientific thinking and traditional diffusion extension methodologies began to embrace participatory extension models and techniques. This was the high point of institutional progress of extension in Australia. It also involved a shift from state agencies being the primary

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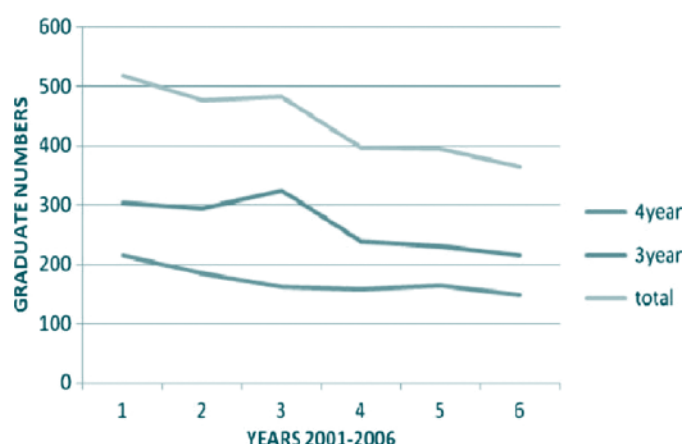
provider of services to encouraging other providers, and emergence of public/private partnerships, public/private benefit, competitive neutrality and increased private sector service provision. Also, NRM (Natural Resource Management) regional bodies became major stakeholders.

Today's **Unravelling** (Mid 1990s – present day)

The 1980s and 1990s were a time when major public policy forces were at work in the Australian government, including a review commissioned by the Australian Government into national agricultural policy, the Balderstone Report (1982). It facilitated a series of public policy decisions at federal and state levels. This resulted in Australian agriculture to become one of the least supported farm sectors in the world and its impacts on the function and structures of agricultural RD&E still remain today. The Balderstone Report investigated issues relating to technical and economic efficiencies in Australian agriculture, e.g., government assistance programmes, development and extension of agricultural innovations, and agricultural resource management. It triggered movement towards a competitive agricultural sector in a changing international economy. Commonwealth and state-based institutions responsible for earlier RD&E successes in agriculture underwent considerable change. Policy changes laid the foundations for emergence of Australian Government statutory Rural Development Corporations (RDCs) in the early 1990s. The RDCs function by collecting industry levies, supplemented with Commonwealth funds for RD&E. The RDCs decide on the allocation of funds for RD&E and contract private or public agencies to provide these services, in accord with negotiated commitments to the Australian Government. The RDCs remain a structural cornerstone in the organization and funding of agricultural RD&E investments today.

The RDCs also work with specialist Cooperative Research Centres (CRC) in which a number of providers cooperate to deliver research outcomes for specific industries. Between the RDCs and the CRCs, a new organizational platform for agricultural RD&E investment had emerged. This structural reorganization sent a signal to state governments that

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Graduate completions from Australian universities in three-year and four-year agriculture programmes for 2001 to 2006. Source: Pratley and Copeland, 2008.

where farmer populations are greater and in irrigated areas, significant advisory service businesses have arisen. Another significant development has been the appearance of farmer-based extension organizations e.g., the Kondinin Group in Western Australia and the Birchip Cropping Group in Victoria.

Conclusion

Coutts (2000) described extension's role in society as 'the oil that makes things happen - it is about interaction between people, information sharing, dialogue, learning and action. Nothing is going to change on the ground, regardless of the excellence of legislation or science unless this oil is there'. Therefore, if government or industry leadership wish to enact change in agriculture or rural communities, they need to be in the extension business, or at the very least in support of it.

As the current unravelling continues there may be greater pressure on agricultural industries via public policy to invest more in their own RD&E capacity rather than relying on the public purse. Given the current low and inadequate numbers of young people entering and completing agricultural training in Australia, RD&E agencies whether public, industry resourced or exclusively private sector will have the challenge of recruiting and retaining skilled and experienced staff, maintaining critical organizational mass, and having adequate geographical positioning of extension personnel to meet industry and community needs. Hence, there is an opportunity for enhanced partnering between public, industry and private institutions involved in agricultural extension, with public sector investment focusing on activities that the commercial stakeholders are unable or unwilling to deliver because of market realities.

The opportunity for innovative institutional development perhaps similar in design and mission to the Australian sugar industry's BSES Limited should be explored. There is also the prospect of universities functioning as regional RD&E hubs for agricultural industries, or farmer-led agencies such as the Kondinin and Birchip groups taking wider industry service roles. It is unlikely that there will be a return to the former public sector models where state Departments of Agriculture were the major extension provider, as the

they could legitimately reduce investment in agricultural RD&E as from 1997 to 2007; state government investment in agricultural RD&E fell from 53% of the total investment to 30%. This retreat, by state governments, from traditional extension roles has, according to several authors, led to down-grading of professionalism, capacity and skills in many state and territory government agricultural agencies, in turn causing problems with recruitment and lack of career path for staff retained in the public sector. Concurrently, a shift from production oriented extension into Natural Resource Management (NRM) extension services has occurred.

In the 2000s, the momentum for exiting from State government extension services gathered pace. The Commonwealth Government continued to fund extension services through non-government organisations such as regional Natural Resource Management (NRM) bodies, private service providers and public sector extension. During this period, Schools of Agriculture (and Agricultural Colleges) diminished, and with this diminution, the investment in extension research declined. This has resulted in a decline in academic capacity and capability, a return to transfer of technology approaches, their application in situations with poor fitness for purpose, which challenges the development of solutions to the increasingly complex problems facing agriculture today.

Understanding the Impact of the Unravelling

The sustained reduction of public sector RD&E services in Australian agriculture is now being re-evaluated by some rural industry and academic commentators as there is emerging evidence of both public

and private sector service failures in the new RD&E environment. Some authors have also observed that the decline in extension presence and capability has caused a disconnection in the RD&E feedback loop. Furthermore, as corporate suppliers or resellers of agricultural consumables move into roles traditionally occupied by institutional extension services, some producers perceive there is a risk to the reliability and independence of advice being provided by commercial agents.

The restructuring of RD&E services has also resulted in short-term funding and thus tenures of new positions in agricultural disciplines (i.e., one to three year contracts) rather than continuing employment. Predominance of short-term contract arrangements for extension professionals does not provide effectively for professional succession, retention of expertise, or maintenance of client and partner agency relationships. Nor does it facilitate the ongoing building or retention of additional knowledge, skills acquisition and human capital in rural so necessary for effective extension.

Opportunities for the private sector have certainly increased during this period, often with former state departmental officers establishing private advisory services. In some Australian regions

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majority of the states have gone too far in dismantling their former infrastructure. However, innovation in terms of industry-owned RD&E agencies, government and industry partnerships with universities or a broadening of government partnerships with private sector providers, are possible outcomes in the next couple of decades.

Adequately funded and properly staffed, these arrangements could leave a long-lasting legacy in terms of the nation's contribution to global food security, international commercial competitiveness, environmental stewardship and regional community sustainability. In previous crises, the stimulants for action were focused around food security, an urgency to generate wealth, regional development and war effort. Similar forces could again be the drivers for agricultural

RD&E re-investment in Australia in the coming decades. The form in which some of these issues might develop into crises is speculative, but they could manifest as a need to respond to world food shortages and soaring prices for basic food commodities, exotic animal or plant disease outbreaks, a need for adaptation to water scarcity in Australia as a consequence of climate change, or population redistribution.

Australia has in the past tended to be a follower of international Anglo-American or Anglo-European socio-economic trends and in this case the field of agricultural RD&E. Due to its current relative economic strength, Australia now has an opportunity to lead future developments in extension. Unfortunately, ongoing public policy signals indicate that the agricultural RD&E

portfolio is still unravelling in Australia. We assert that confrontation with currently unknown crises will be the primary driver that will stimulate investment in the agricultural RD&E system in Australia.

Article summarised by Kate Charleston

The full article was published in the Journal of Agricultural Education and Extension Vol. 18, No. 1, 9-26, February 2012

<http://dx.doi.org/10.1080/1389224X.2012.638780>

Editors note – Around 4000 agricultural graduate jobs are advertised each year but there are currently fewer than 700 agricultural science graduates to fill those roles (The Australian Newspaper on 29 September 2012)

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FROM THE EDITOR

While most government employed extension officers were spared in the recent public service job cuts in Queensland, the future of extension is not so bright on a national level. This is the conclusion of the feature article 'The Many Turnings of Agricultural Extension in Australia' which tells the story of the highs and lows of agricultural extension from the late 19th century to present day. This fascinating and insightful account of extension Australia is a must-read for all extension officers and while I have tried to capture the most important aspects, I recommend you also read the full article. The link to this is provided at the end of the article.

The second article featured in this newsletter regards online training. The internet has made our jobs easier in many ways but we also need to be mindful of how we use the internet with training or online information dissemination. Online moderation can provide some challenges and extension officers need to

have much more than just technical competence if they are to be successful online. The online facilitation article provides a number of resources and tools.

I am delighted to also feature an article by one of our members from Chile. It is clear that extension in Chile is still in its infancy and I hope that becoming a member of APEN will assist Catalina and her Chilean colleagues in identifying potential improvements for extension in their rural industries.

On a different note – after nearly three years of editing this newsletter, I am stepping down as editor of ExtensionNet. I have had an expression of interest for editor from two very capable APEN members. They will introduce themselves in the next edition. Thank you for your positive feedback and comments over the last few years.

Kate

*Computers make it easier to do a lot of things,
but most of the things they make it easier to do
don't need to be done.*

Andy Rooney

EverTrain®

Contemporary Education Resource for Agriculture Extension

*Valerie Draper, Deb Slinger and the EverTrain team
NSW Department of Primary Industries*



Valerie Draper

EverTrain® is an education and extension training system that combines online courses with workshops to make training more accessible for land managers. EverTrain® is a NSW Department of Primary Industries e-learning initiative funded through the Future Farm Industries Cooperative Research Centre. The key objective of EverTrain® is to support the overall path to adoption and industry use processes of the Future Farm Industries (FFI) CRC by improving client access to research, development and extension (RD&E) outputs.

Utilizing national online technology it is possible to extend training across a greater geographical location to remote groups through the EverTrain® system. Costs and time dedicated to attending and presenting courses are reduced. Previously the EverTrain® courses were presented as workshops which demanded more than one day away from work/home for participants and trainers. Training is flexible and the online component is self-paced. Courses are based on current and topical research.

The combination of the online component with conventional face to face workshops (blended course), allows greater training flexibility and improved access to information. The underpinning knowledge presented in the online format provides all participants with key knowledge prior to attending workshops. Workshops present additional knowledge and practical skills to meet course requirements for nationally accredited courses. Field trips, property plans, practical activities and presentation sessions from topic specialists are features of the workshops.

The EverTrain® system is a valuable asset to the Australian agriculture extension sector due to its streamlining of research and extension products through customised training pathways. It has the capability to deliver and track training that is accredited or non-accredited, plus capture training delivery and market research data. The Content Management System (CMS) and Student Management System (SMS) perform several functions that automate much of the record keeping and reporting required to satisfy the requirements of the Australian Qualifications Framework. The content is SCORM1 compliant and Moodle is used as the Learning Management System (LMS).

The EverTrain® website improves access to multimedia stories from farmers and advisors, links to websites and further reference material, print versions. All courses have audio versions to increase client access.

Potential clients include landholders, agribusiness, natural resource management bodies, government agency staff, tertiary educators, postgraduate students and participants interested in agriculture and natural resource management. The courses are also a valuable teaching resource for schools and training organisations that provide information and undertake assessment.

The Learning Management System employed in the online component of the courses allows rapid MER from the participant and reporting to the FFI CRC. Evaluation of the courses is ongoing and changes to the courses in response to evaluation are easily incorporated with the online format without the cost issue of adjusting printed materials. Monitoring and evaluation activities will provide strong data to inform adaptive management. Online evaluations are conducted throughout the course and can be set up as a mandatory part of the course content. Feedback is used to modify and update the course and system. Follow up surveys collect data on intended and actual practice change.

The following courses will soon be available online through the EverTrain® website: Soil Biology, Managing Land for Carbon, Soil Carbon for Professionals and Climate Risk Management for Primary Industries and Salinity Concepts, Salinity Management.

Making training more accessible through the use of flexible delivery methods, EverTrain® engages diverse audiences to deliver real and measurable practice change. Nationally accredited courses and non-accredited training on the EverTrain® platform will assist in the up-skilling and training of regional adviser networks and end users in the agricultural and natural resources management industries. The online platform will be used to customise courses for existing workshops and deliver research outcomes to the end users in an accessible, flexible delivery style. EverTrain® is an effective and contemporary education resource for the agriculture sector.

**Visit the EverTrain®
website at**

<http://www.evertrain.edu.au/>

¹ SCORM - Sharable Content Object Reference Model is a collection of standards and specifications for web-based e-learning. It defines communications between client side content and a host system called the run-time environment, which is commonly supported by a learning management system (LMS). *Ed - note*

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Effective Online Facilitation

Extension officers increasingly use the internet as a means of providing information and connecting with clients. Online moderation can provide some challenges and extension officers need to have much more than just technical competence if they are to be successful online. They need an understanding of the dynamics of online communication and interactions and need to learn effective ways of facilitating and providing information online.

Effective online facilitation should engage, guide and motivate participants, and provide a safe and conducive environment for learning and communication exchange for all learners regardless of their prior experience and predisposition or otherwise towards online learning technologies.

There are a number of useful tools and resources that may assist in improving your online facilitation and communication skills.

Texts on facilitation

E-Moderating: The Key to Teaching and Learning Online

Book by Gilly Salmon, an experienced moderator, researcher, and online teacher of international acclaim. Salmon lays out in clear terms the qualities and competencies required for online teaching. Of particular note is the practical five step model to facilitate effective communication and interaction. The text is used by many as a professional development resource. It includes many practical resources that can be used by practitioners.

Facilitating On-line Learning: Effective Strategies for Moderators

Book by G Collison, B Erlbaum, S Haavind, and R Tinker. Another principal text for practitioners wanting to learn basic or advanced techniques of online facilitation.

Teaching Online: A Guide for Teachers, Facilitators and Mentors

A guide for teachers, facilitators and mentors produced by RMIT.
<http://www.learnlinks.com.au/docs/downloads/online.pdf>

Articles on online facilitation

Teaching on the Web - Exploring the Meanings of Silences

An article by G Benfield, provides explanation on why silence occurs in online conversations and provides practical advice on coping with them.

<http://ultibase.rmit.edu.au/Articles/online/benfield1.htm>

e-Moderation - Managing A New Language?

Paper presented by Michael Coghlan at the NET*Working 2001 Conference, discusses the various communication options available to support online teaching and learning (i.e. synchronous and asynchronous). Coghlan looks at 'what constitutes successful online facilitation and examines theoretical models that attempt to make explicit e-moderation strategies'. Provides links to a number of authoritative sites.

http://www.chariot.net.au/~michaelc/nw2001/emod_newlang.htm

Wearing Four Pairs of Shoes: The Roles of E-Learning Facilitators

An article in Learning Circuits by Ed Hootstein on the roles of an e-learning facilitator and ways in which the facilitator guides learning.

<http://www.learningcircuits.org/2002/oct2002/elearn.html>

Virtual Games for Real Learning: Fast, Cheap, Effective

A paper presented at NET*Working 2000 by Marie Jasinski and Sivasailam Thiagarajan who are researching email games as a way of facilitating dialogue for the construction and sharing of new knowledge, understanding perspectives and insights. Email games are templates (or frames) that can be adapted to the learning and learner requirements. This paper discusses issues and considerations when designing and facilitating games, and describes three of them.

<http://flexiblelearning.net.au/nw2000/talkback/p51.htm>

Relevant Australian Flexible Learning Framework websites

Flexways

This website developed by the Flexways project (also known as Staff Capability Review Models; Capability Review - Closing the Gap) provides a practical online tool to help people identify skills, actions and professional development resources required to achieve identified scenarios based around online course development or teaching objectives.

<http://flexways.flexiblelearning.net.au/index.jsp>

EdNA VET Online

A major portal serving the VET, higher education and school communities. The EdNA VET section provides annotated links to resources, many of which relate to online teaching and learning, and a wide range of services. Useful browse categories to explore are 'Project, Research, Development/delivery modes/online, computer-based learning'; and 'teaching with new technologies' categories. The EdNA site also has communication services, including online forums for discussion available from the 'Communicate' menu.

<http://www.edna.edu.au/vet.html>

Online courses on facilitation

e-Moderation

Online Short course by Learnlinks on online facilitation skills.

<http://www.learnlinks.com.au>

Online Communication - Let's Get Connected

A William Angliss short course (fully online) facilitated by Pam Wright, for TAFE and ACE practitioners to develop basic online facilitation skills

http://www.angliss.vic.edu.au/angliss_online/pages/pd_training.htm#commun

Extension officers in Chile

Catalina Montalvo A.
Dairy Chile (Consorcio Lechero)



In Chile we have different technology transfer activities. In the Dairy sector we don't have a unique institution that provide the extension officers, so they are formed on the services companies, on research institutions, even in the Dairy industry by itself. These extension people in general use their own abilities and capacities to relate with the farmers, to obtain their confidence and to transfer them a new technology. The private companies provide them the platform to assess the farmers, to do field days, workshops and seminars.

In our country, a few years ago started to sound familiar the word "extension" as a tool to be used by different professional people like agronomist and vets to get to the farmers. The government tried to impulse this creating the technology transfer groups or GTT, those were farmers groups that had meetings every month on different farm each time. These groups attempt to solve the farmer problems on that field, and they were coordinated by an extension officer that works like a facilitator. The group coordinator also usually has an important technical background, he could be a well known consultant or a researcher, in that way is easier to the farmers to be open to listen to him and to be helped by him. This groups ends later, but there's still a small number of farmers that keep those groups until today, because help them to solve their problems, throughout given the opportunity to share experiences, and because they trust each other and because of that they are open to receive critics; important point at the moment to be open to adopt a new technology or knowledge.

Today, we have an important number of extension officers working day by day with

farmers on the field. Taking the farmers to technology transfer activities, giving them information and helping them to solve their problems. Currently the commercial companies are giving more importance not just to the price inputs like fertilizers, seeds and others; but also to the fidelity with the company by the farmers, and this is through the consultancy that they give the farmers.

Then here, is where we had found our biggest deficiency, on the lack of extension training to these extension officers. They solve really well how to transfer the technologies to the farmers, but if they could do it with a log frame, or looking to solve specific issues, this could be more efficient, and we could achieve our aims faster than the way we are doing it now. Perhaps to identify the problem, and be conscious of the way that we'll proceed to work with the farmer, how are we going to deal with them, based on their own knowledge and on our input to solve the problem together. At the moment we have a lot of scattered initiatives on extension area, but we hadn't stopped to see if we are being efficient on our efforts. That's why for us is so important to create an evaluation extension program, that way we could based our effort on improve those low indicators.

This is a general picture of the situation of the extension in Chile in the Dairy industry. We are open to receive suggestions and experiences from the APEN to assure the success in our challenge.

Editors Note – while I could have edited this article into grammatically correct English, I chose not to. It is important to note that English is not Catalina's first language and yet she was able to give a clear outline of extension in Chile.

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Global megatrends that will change the way we live

CSIRO Futures

Humans have always been curious about the future. What is our future, what awaits us in say...20 years?

In 2009 CSIRO started a global foresight project. The aim was to inform internal and long range investment planning choices. The CSIRO Futures team has members with backgrounds in economics, geography, business management and strategic planning. In determining the six megatrends of the future, they drew upon specialised capabilities through CSIRO's extensive internal and external networks containing tens of thousands of world-leading experts in all fields of research.

Here are six megatrends as identified by the CSIRO, accompanied by a brief description as the research group sees them:

1. More from less.

The earth has limited supplies of natural mineral, energy, water and food resources essential for human survival and maintaining lifestyles. Many of these resources are being depleted at alarming rates. Add to this equation climate change and growing demand. The bottom line: Mankind will need to learn to live on less, or use its ingenuity to get more out of less.

2. Going, going ... gone?

Many of the world's natural habitats, plant species and animal species are in decline or at risk of extinction. Thankfully, while the state of biodiversity is in decline, human response is on the rise. Governments, companies and societies are doing more than ever before to protect valuable habitats and reduce greenhouse gas emissions. It is hard to place a monetary value on this biodiversity, but we may still have a chance of preserving what is culturally invaluable.

3. The silk highway.

Coming decades will see the world economy shift from west to east and, north to south.

We are stepping into the Asian Century, along with the rise of emerging markets in South America and Africa. This will build new markets and business models, and Australia's cultural composition will grow more diverse. Our nation is well positioned to be part of the new world.

4. Forever young.

The ageing population is a growing asset. Elderly citizens in Australia and many other Organisation for Economic Cooperation and Development (OECD) countries will provide a wealth of skills, knowledge, wisdom and mentorship. This resource is as yet not fully utilised by governments, companies, communities and families, and this megatrend may well be called "hidden treasure."

5. Virtually here.

The world is becoming more connected. People, businesses and governments are increasingly moving into the virtual world to deliver and access services, obtain information, perform transactions, shop, work and interact with each other. The rapid growth in connectivity is associated with new meta-level functionality and changed organisational and individual behavior, and will fundamentally change communities.

6. Great expectations.

Like the convict in Charles Dickens' Great Expectations, people will increasingly demand great experiences and social relationships, rather than great products alone. This consumer, societal and cultural megatrend captures the expectation people have for personalised services and has implications for the Australian retail sector and human service delivery systems of government and private sector organisations.

The full report can be downloaded from:

<http://www.csiro.au/Portals/Partner/Futures/Our-Future-World-report.aspx>



World's most populous countries in descending order:

China (1.3 billion);

India (1.2 billion);

Facebook (800 million);

Skype (521 million);

Twitter (380 million);

United States (312 million)...

Nothing will ever be attempted if all possible objections must first be overcome.

Samuel Johnson

New APEN members

If you've recently joined APEN, welcome! You'll reap plenty of professional and personal rewards. If you've been in APEN for a few seasons now, be sure to say hello to the new members.



Anthony Kachenko

Anthony Kachenko is the National Environmental and Technical Policy Manager at Nursery & Garden Industry Australia (NGIA). At NGIA, Anthony is responsible for driving the industry's research, development and extension programs which includes a professional and highly regarded national Industry Development Officer network. The broad aim of the Industry Development Officer network is to enhance the ability of all nursery industry levy payers (growers) to remain current with industry developments, marketing activities and technical issues. In addition to this network, Anthony manages the NGIA National Research & Development Database (http://ngia.com.au/Section?Action=View&Section_id=473) which houses the final reports from completed research, development and extension projects. Utilising and embracing modern extension technologies is of key interest to Anthony with NGIA utilising Facebook (<http://www.facebook.com/nurseryandgardenindustry>) Twitter (http://twitter.com/ngi_news) and a blog referred to as 'Your Levy at Work' (<http://yourlevyatwork.com.au>) to provide regular communications to whole of industry. Anthony is also involved in policy development and government/stakeholder relations and represents industry in key areas including biosecurity, quarantine, climate change and urban forestry. He has a strong science background having completed an Honours Degree in Horticultural Science and a PhD in Agricultural Science and has enrolled to commence a Masters of Agribusiness in 2013.



Mary Cannard

Mary's early employment career has been quite diverse, ranging from working in various administrative positions to selling wheels and tyres. After ten years of office work Mary decided she needed a change and as she had always loved gardening, she enrolled in a six month practical horticulture course at the local TAFE College. Upon completion of this first course Mary really wanted to learn more about plants so enrolled in a further twelve-month course, ending up with an Advanced Certificate in Horticulture, but still wasn't satisfied. Mary successfully complete a Bachelor Degree in Horticulture in 1999, graduating the following year with first class Honours. Her research topic was using insect specific fungal pathogens to control citrus mealy bug. While studying Mary also worked part-time for the Beneficial Bug Company, producing predatory mites for the control of two spotted mites.

For the next five years, Mary worked at the University of Western Sydney as a technical officer on a variety of lab and field based projects. She left the University to work for two years in a sales and market role for a large wholesale nursery, producing natives and exotics for the home gardener.

Mary is now based in Mildura and her current position is the Industry Development Officer for the Murray Valley Citrus Board. Mary provides extension and industry development services to citrus growers on both sides of the Murray River (Victoria and NSW).

Welcome to these new members who have joined since last edition. We're glad to have you all on board.

John McPhee	<i>TAS</i>
Daniel Healey	<i>VIC</i>
Karen Mitchelmore	<i>New Zealand</i>
Maryse Bourgault	<i>QLD</i>
Sarah Saxton	<i>VIC</i>
Lesley Irvine	<i>TAS</i>
Daniel Casement	<i>SA</i>
Carla Wegscheidl	<i>QLD</i>
Alison Anderson	<i>NSW</i>
Mary Cannard	<i>VIC</i>
Anthony Kachenko	<i>NSW</i>
John McDonald	<i>QLD</i>
Megan Connelly	<i>NT</i>
Matthew Trent	<i>WA</i>
David Reid	<i>VIC</i>
Grant Dalwood	<i>SA</i>
Trevor Winter	<i>WA</i>
Steven Falivene	<i>NSW</i>
Michelle Kelly	<i>VIC</i>
Azizan Asmuni	<i>Malaysia</i>

New APEN members

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Azizan Asmuni

Azizan Asmuni is currently the Deputy Dean at the Faculty of Educational Studies and Associate Professor at the Department of Professional Development and Continuing Education, Universiti Putra Malaysia (UPM). He is involved in teaching, research and professional development in the field of adult and extension education. He graduated in Bachelor of Sc.(Agri.), UPM and obtained his Master Degree and Ph. D (Extension) from Japan. He had sixteen years experience with the Department of Agriculture. He has held various positions at the Malaysia Japan University Center, Institute for Distance Education and Learning, Center for External Education and Centre for Extension, Entrepreneurship and Professional Advancement. He now focuses on a research, 'The Development of an Alternative Extension Model to Ensure an Effective Transfer of Technology to Farm' under Long Term Research Grant Scheme from the Ministry of Higher Education. The main objective of the research is to increase productivity of paddy farms in Malaysia.

(E-mail: azizanas@putra.upm.edu.my)



Sarah Saxton

Sarah has recently joined the field of extension as an extension officer for the Australian Dairy Herd Improvement Scheme (ADHIS). In her role at ADHIS Sarah supports farmers and their advisers to maximise the opportunities to improve dairy herds using Australian Breeding Values (ABVs). Sarah works closely with the Dairy Futures CRC, DPI Victoria, and Dairy Australia as well as industry and farmers to ensure research relevance and value to the Australian Dairy Industry. Sarah comes to this role after completing a first class Honours degree in Animal Science from the University of Melbourne. She specialised in dairy genomics and has a strong passion for helping dairy farmers make the best breeding decisions. Sarah has made Melbourne her home after growing up near Khancoban, NSW. With a real passion but no formal education in extension Sarah is keen to use APEN to develop strong networks and skills.



Dr Alison Anderson

Alison recently joined Horticulture Australia Limited in the role of Portfolio Manager – Industry Development. She has a long history of facilitating industry development in rural industries, from writing soil management manuals and delivering associated workshops to being the Vegetable Industry Development Officer for NSW, a position Alison held for over 8 years.

Alison has worked for soil and environmental consulting companies and NSW Department of Industries. She also has experience in agripolitics; prior to joining HAL Alison was the Policy Manager for Horticulture, Agricultural Chemicals and Bees at NSW Farmers' Association.

Alison has a Bachelor of Science in Agriculture and a PhD in Soil Science from The University of Sydney.

*Minds are like parachutes...
They only function when open.*

Thomas Dewar

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*You cannot plough a field by turning it over
in your mind.*

Anonymous

Guidelines and deadlines

Submissions should be made in MS Word 6.0 with minimal formatting. A portrait photograph of the author is required. All photographs, figures and/or tables ought to be provided as separate files (preferably TIF or JPEG; photos scanned at 300 dpi). Feature articles should be around 1000 words and minor articles 500 words. The editor reserves the right to edit submitted material to meet space restrictions. Letters to the editor or general items of news of interest to the network are welcome. Articles should be submitted at least four weeks prior to publication.

Preference is given to articles that are grounded in some form of project or event.

Editing: Kate Charleston

Layout: Ross Tasker, Snap Albury Wodonga, Victoria.

Production management: Rosemary Currie, APEN Secretariat, Wodonga, Victoria.

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