

A FRAMEWORK FOR AN AUSTRALIAN SYSTEM OF AGRICULTURE: OUTCOMES OF THE WORKSHOP SESSIONS OF THE 2002 FENNER CONFERENCE ON THE ENVIRONMENT.

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Abstract

The workshop sessions of the 2002 Fenner Conference provided a forum for landholders, researchers, policy developers, rural community members and government agency staff to come together to discuss principles and theories for a framework to develop an Australian system of agriculture. Six regions formed the basis of the workshops and this ensured many diverse and wide ranging issues were discussed. Despite the diversity of the regions, it became clear that there were common issues that needed to be addressed before any move forward could be achieved. The common elements included:

- the identification of problems by local people;
- the involvement of landholders in the development of solutions or programs;,
- financial support for the implementation of innovative practices; and
- positive recognition for innovative practices by both the local and urban community.

These key issues are presented as a framework upon which the principles and theories of an Australian system of agriculture need to be attached.

Introduction

The aim of the 2002 Fenner conference was to develop a framework that would provide for the implementation of an Australian system of agriculture. However it was clear that any attempt to develop such a framework had to include the participation of those involved in agriculture. For this reason the conference was structured around a series of workshops drawing on the experience of conference participants from six regions across Australia. To facilitate the involvement of regional representatives the conference organisers supported the attendance of four representatives from each region. The workshop sessions were not intended to solve region specific problems. The focus was to draw out common themes that could be applied more generally across regions. The workshops were a vehicle for bringing together the scientists, researchers, government agency representatives and landholders to explore the way forward. The success of the workshops in providing such a forum is summed up in a quote from a farmer from the Mallee; “The shakers and movers are surprisingly human at close range, as are farmers, and I believe an enormous amount can be achieved to everyone’s benefit with the development of empathy for the other’s position”.

Methodology

The focus regions represented a range of agricultural industries and diverse social, economic and environmental contexts. Many theories and principles were presented at the conference and the workshop process allowed participants to explore the relevance and potential implications of these theories and principles on a variety of real world situations. The six

regions chosen were: the Burdekin in Queensland; the Eyre Peninsula in South Australia; north-east Victoria; north-western NSW combined with south-western Queensland; the Mallee; and the WA wheat-sheep belt. The number of conference participants at each workshop varied from around 14 (Eyre Peninsula) to 50 (NW NSW-SW Queensland).

Workshop structure

The professionally facilitated workshops were held on each day of the conference and designed to complement and respond to conference themes and presentations. Although discussions were directed using focus questions identified by the facilitators and conference organisers, workshops were designed to be sufficiently flexible to allow different points of view to be heard.

An initial scene setting workshop was held on the first day. The workshop followed presentations and a farmer panel response to the plenary session on the theme of “the environmental, social and economic features of Australian agriculture today”. In the one-hour workshop session participants briefly presented background information about the key environmental, social and economic features of their region. Discussion in this workshop centred on identifying the key agricultural commodities, significant social, economic and environmental trends, and the main strengths and challenges to a sustainable future.

The second and much longer workshop on the second day gave participants the opportunity to reflect on the first two days of presentations and discuss possible ways forward for agriculture. Participants were invited to discuss:

- positive and negative issues in their region;
- social and environmental needs;
- new ideas that are working well;
- major barriers to an Australian system of agriculture;
- the key theories and principles presented at the conference that might be of value; and
- the requirements to put the theories and principles into practice.

At the conclusion of this workshop, notes and summaries of the discussion were presented to a Panel convened by the conference organisers. This Panel had been allotted the daunting task of synthesising key ideas presented or discussed and to articulate, if possible, a framework for an Australian system of agriculture.

A third workshop was scheduled for the final day. As a result of feedback from conference participants, the conference organisers shortened this session and added a plenary or reporting session to the conference. The plenary session allowed representatives from each region to present their views about the main message(s) from the conference, prior to the final presentation by the Panel.

Results

Workshop 1

Responses to the focus questions from workshop 1 are summarised in Table 1 and clearly demonstrate the diversity between the regions. The number of main commodities in each region ranged from three in the Burdekin to over 40 in north-east Victoria. Most industries were represented, including traditional livestock and grains, cotton, horticulture, wool,

viticulture, dairy, timber, oil seeds and pulses. Interestingly, some non-commodity based industries such as tourism, ecosystem services and education were also listed

Participants were then asked to comment on significant new trends in their region. While some responses were region specific, most included reference to new agricultural industries or the uptake of new or exciting sustainable land management practices. In addition, representatives from some regions expressed the view that there needed to be greater integration by including the range of land users at the landscape scale in efforts to develop new systems of agriculture.

Discussions about the main strengths of regions again tended to highlight regional specific topics, including land quality, proximity to markets, improving productivity and close links to research and extension specialists. Each of the regional groups identified the resilience and innovation of their people as a key strength. This was highlighted in a number of ways, including the ability to tackle issues, manage risk, adapt to change, embrace new industries and a capacity to examine their future.

The discussion of major challenges affecting each region produced two major issues affecting all six regions. The major challenges were water and institutional issues. While the specifics of these two challenges varied from region to region, it was interesting to note that these were considered more commonly than other challenges such as farm income, land prices, lack of employment opportunities and land degradation. The major challenge of water manifested itself in various ways, ranging from the lack of reliable supply and over extraction, to water conflicts and groundwater management. Institutional issues were not identified specifically, but were included through the listing of issues as government policies to support agriculture, systemic approaches to land use, short funding cycles and taxation issues.

Workshop 2

Discussions in the second workshop examined economic, social and environmental issues as well as new ideas. The much longer time available for this session enabled more thorough discussion and as a result, many region specific issues were identified. A very long list of issues and new ideas was produced. However, consistent themes emerged. Table 2 shows a summary of responses of each region in response to the focus questions.

However when participants turned their attention to discussion of the most useful theories and principles and the key requirements needed to make practical change (Table 3) two common mechanisms was identified. Firstly, for change to be initiated, those proposing change need to ensure that landholders and other regional people are involved in the research, planning and implementation of such change. Secondly, to ensure that change continues and becomes self-sustaining, a culture of positive recognition and encouragement of those landholders undertaking new practices needs to be developed. Recognition and encouragement should take many forms and may include simple measures such as financial incentives from a sustainable agriculture levy, or a more complex approach which develops an emotional and cultural shift that recognises good environmental practices rather than maximum productivity and output.

	Burdekin	Eyre Peninsula	Mallee	WA Wheat/sheep	NE Victoria	NW NSW
Key agricultural commodities	Cattle (large area). Sugar (small area). Horticulture (mango).	Grain (wheat & barley). Tourism. Sheep. Canola, peas, beans, Legumes.	Cereals. Prime lambs. Wool. Citrus. Almonds. Grapes. Potatoes.	Cereals. Oil seeds. Pulse crops. Meat. Wool.	40 types include: diary, beef feed crops, timber, wool, fat lambs, tobacco, grapes, berries, nuts. Ecological and agricultural services. Education.	Cotton. Cereals and pulses. Livestock. Horticulture (current and emerging).
Significant new trends	Tourism. Aquaculture. Trickle irrigation. Move to integrated processes involving a range of users.	Aquaculture. Vines and olives. Wind farms. Diversification and changing management practices.	Cereals increasing. Increase in olives, pistachios, grapes	No till cropping. Decreasing population. Cross-bred meat. Grain finishing. Summer cropping. Precision farming. Quality assurance. Integrated approaches to NRM. Sustainable saline land production. Exploring new options. Access to information. Environmental awareness	Off farm employment. Loss of traditional farming to life-style farming. Greenhouse planting. Increase in native veg planting/industry.	Organic beef. Ecotourism. Horticulture. Farming native plants and animals.
Main strengths	Integrated processes. Collaborative marketing networks. Tailoring products to suit sourcing. Lots of water. Opportunity to learn. Innovative people – nearby to tackle issues. Major research centres. Improving productivity.	Innovative and resilient population. Geographically well defined region. Isolation of region (eg GMO) Research capacity High % under native veg	Large areas of public land. Large choice of possible commodities (irrigation). Managers who know how to manage risks. Close to markets/ports. Good grain quality. Low peri-urban area. High return on capital	Efficient, ambitious and innovative farmers who are also self reliant. Strong support structure – sense of community Relatively well educated Awareness of environmental complexity. Economies of scale Proximity to Asian market. Excellent infrastructure. Relatively reliable rain.	Area supports diversity and embraces new agricultural industries. Natural resources. Landcare is strong. Close to regional centres. Aesthetics – desirable place to live and visit. 62% is public land	Great Artesian Basin and other water supplies. Flat arable land with good temp for growth. 3 universities plus other R&D. Resilient people, examining their future, sense of place. Biodiversity and its contribution to productive ecosystems. Indigenous communities and knowledge.
Major challenges	Water/groundwater management. Need to address R&D issues. Overgrowth of woody weeds	Infrastructure not improving. Water supply. Isolation. Native veg is in predominantly low production areas/marginal areas. Challenge to have it represent all types of veg. Rainfall use efficiency. Retaining support services. Resistance to herbicides. Maintain soil coverage and quality. 3 yr funding cycles	Highly variable rainfall. Mallee soils less understood. Lack of crop choice. Sub soil constraints. Need for perennials. Need for better adapted varieties. Pests and weeds	Changing landscape – needs active management. Recognise need to change. Need to identify ABS info that should be collected and analysed. Water management for salinity and use of existing saline water. Capacity to respond to overseas market trends (limited capacity to influence them). Maintain farm income. Identify damaging farm practices. Need to sell positives of rural living. Effective provision of research results Govt policy to support sustainable agric (institutional issues). Revitalise rural communities. Diversification away from monoculture.	Institutional/systemic approaches to land use. Prices driven by real estate values. Soil acidification. In Bust Cycle – env problems including feral animals and weeds. Increase urbanisation has flow- on pollution.	Conflicts over water. Restructure in the west. Reconciliation between different groups of people including indigenous. Ageing land managers in the west. Lack of employment opportunities esp indigenous. Institutional arrangements. Isolation (in west). Variability in climate

Table 2. Responses from Workshop 2

	Burdekin	Eyre Peninsula	Mallee	WA Wheat/sheep	NE Victoria	NW NSW
Key economic issues	Sustainability of sugar. Globalization. Managing risk on the farm with regional industries	Farm viability. New and expanding industries (eg aquaculture and tourism). Regional structures to address triple bottom line at strategic level. Isolation – distance to market.	Terms of trade/cost price squeeze, global pressures. Depressed economy. Rewards only to money making activity	High inputs V returns, decreasing returns to landholders . Seasonal variability. Need for higher level management skills. Better risk management is needed. Accessing Asian markets – positioning. Dependence on cereals, yield and price. Lack of market vision and focus and high cost of change. Biodiversity should have higher economic value	Price of agricultural lime. Property prices too high. Entrepreneurial diversity.	Property rights – water, land use and veg management. Successful adoption of change relies on bottom up – at present a clash between top down and bottom up. Lack of effective mechanisms to resolve conflict. Participation in consultation not working – see as PR and undermining social capital
Key social/people needs	Aging population. Rural drift to cities (increasingly hard for volunteers). Access to scientific information lacking. Disconnection between researchers and producers	Good lifestyle. Innovative and resilient population. Decline in health services. Population decline, particularly young people. Lack of depth of leadership (10 year loss). Capturing and retaining professionals difficult. Withdrawal of services and restructuring of them	Isolation and lack of services. Culture of blame. Tri-state issues – being heard. Declining population. Global pressures	Low population. Loss of services and political clout. Small communities lack common vision. Low industry esteem. Passionate people, ambitious and well educated. Farm and business succession. Better communication. Need to promote rural lifestyle	Large regional centres mean education, services and facilities. Volunteers are overloaded and under valued. Govt imposed negotiable constraints eg water management, downstream waste	Natural values of landscape must be protected, but there is a tension between continued economic growth and the maintenance of ecological values. Distribution of resources (social and environmental) are contested. Restructuring and its impacts on rural communities
Environmental issues	Run-off (upper and lower catchments). Galloping urbanization (on good farming land) – planning schemes not working	Good farmer awareness of environmental issues. Still have a high level of native veg. Salinity. Wind erosion. Limited water supplies. Impacts of ferals on biodiversity	Soil erosion. Clearfelling land. Water distribution mechanisms. Poor understanding of issues– eg salinity and biodiversity. Environment/production conflict	Need an attractive landscape. Need a better understanding of how the landscape functions. Limited tools are available to help. Increased awareness but still need to understand more the remaining biodiversity to manage threats. Internationally recognised as part of a mega diverse region. Soil acidity, erosion, poor soil health, salinity.	Acid soils. Weeds. Hills still tree covered. Forests are large	Climate variability – summer rainfall unreliable and extreme events are increasing
New ideas or activities	Diversification of sugarcane. Ethanol production technology. Fire management/stocking ration (research and extension) Beef cattle – more in FBA. . BeefPlan groups. Burdekin industry productivity issue (industry driven). Lower Burdekin initiative-breaking down silos. Fertiliser, water and chemical management in horticulture. Water use efficiency. Riparian fencing, off stream watering points.	Landcare. Farming systems project. Reduced tillage – one pass farming. Regional strategy – ongoing benefits. Liquid fertilizers. Farming to land capability. New crop types and varieties available. Soil conditioning (gypsum, lime, clay). Community empowerment to survive and develop. Improved rainfall water use efficiency. Farm planning for maximizing production and minimizing impact	On farm “trade-off”clear one area to protect others. Local approaches. Landcare. Off-farm income.	Marketing – needs accelerating, research, resources, will to pursue and new ethos for growers. New products need expertise. Regional delivery – government decision making in national resources management is being implemented. Extension focus on biodiversity is influencing change	Support and extend initiatives. Mobilisation of existing industries to join push for sustainable agriculture. Adoption of farming systems based on perennial agriculture	Tourism (eco and on-farm) diversifying farm income, opportunities for indigenous people/cultural heritage and local jobs. On-farm nature conservation. Multiple uses of water . Perennial crops, but be aware of impacts on other regions.. Water trading – surface and ground water. Restoring wetlands. More effective chemical use

	Burdekin	Eyre Peninsula	Mallee	WA Wheat/sheep	NE Victoria	NW NSW
Key things needed to make change more practical	<p>Accurate and truthful environmental reporting. Greater access to information and monitoring. Transition to new younger investors and producers. Peer groups, small producer groups – interacting and action learning at demonstration sites</p>	<p>Combined cultural shift (happening through generational and technological change/Landcare). Structures to aid in the quest to achieve sustainability – adaptive management. Available extension staff eg independent advice from Landcare and govt and private agronomists and consultants. Acknowledgment of sustainable practices – praise and in marketing. Industry support for research and extension –the Farming Systems. Targets/priorities 5-10 years – 20 years – Need to recognized by govt.. Broader adoption of management practices that protect soil erosion. Govt. incentive for conservation eg for soil and native veg. Syndication of equipment. Involvement of farmers in research at all levels pure and applied – interaction between farmers and researchers.</p>	<p>Seek unique markets where we don't have to compete. Deregulate labour market?. Change from agriculture in Mallee to land management. Shift pressure off farmer to consumer – need environmental standards as a base. Establish links between urban purchasers and agricultural producers. Understand that redesigning agriculture is redesigning communities.</p>	<p>Community ability to manage change and crises is critical. Pool resources on business basis to achieve economy of scale and new industry/product set up to cover long term planning and development stage. Networking for new enterprises – need more links to science and business. Relocate other industries – use technology, waste tourism – links with urban eg education. Community making decisions and taking them to levels of government and finding ways to get done. Community as driver and getting support . Community need to recognize ability to drive and develop confidence through regional empowerment models.</p>	<p>Develop sustainability indicators. Incorporating the principles of sustainability into the planning framework. Generate/facilitate group activity eg fireguard landcare ?. Increase options for funding positive outcomes</p>	<p>People need convincing on a personal level – demonstrate economic benefit to me. Those making the change must be involved in the planning. Learning environment – one on one groups, using case studies (“seeing is believing”at appropriate scale, involving role models and champions. Providing access to information with localised staff who have rapport and local knowledge – leads to credibility. Must have confidence in the proposer of change. All change happening in the area must be interlinked.</p>
Valuable theories and principles	<p>Govt recognition and reward for farmer input and opportunity costs of contributing to NRM policies and planning for sustainable agriculture. The costs of engaging farmers needs to be counted. Rural community lobbying for access to government information and funding needs to be beefed up. Need to include sustainability principles, ideas and indicators in NRM planning. Need a clear definition and awareness between incentives for farmers and myths about subsidies. Need to account for and promote the multiplier effects of agriculture (eg irrigated) when reporting and presenting. Environmental stewardship payments (complex, problematic). Building innovative practices based on what we know now!!</p>	<p>Ecosystem services. Environmental levy – payment to landholders for environmental maintenance. Education both rural and urban – both environmental and agriculture. EMS. Controlled traffic? In theory. Cell grazing. Florasearch. Next step is that there needs to be an emphasis on research and development of policies for the practical implementation of theories and principles. Farmers encouraged to initially trial new practices but risks should be shared by the Aust community. Listen to region's needs, solutions, ideas and then design products based on these. Support work to further develop market based instruments.</p>	<p>Patience. Persistence. Honesty. Information . Reflection. Build on achievements.</p>	<p>Partnerships that need community involvement from beginning and all the way, initiation can come from the community (or elsewhere) and must be pursued. Appropriate technology and information – more extension and links between farmers and scientists to ensure that outcomes are balanced. Ecological sustainability – understanding constraints and moving forward. Need to know what it means on the ground and how to factor in farm planning. EMS – needs recog and reward of landholder effort. Prioritisation – what, when, where. Scenario modelling – tool to present and initiate. Landscape design – process literacy and ecological aspects. Ecosystem services – need to explore what it offers – value of services need to be identified to make decisions on opportunities. Adaptive management</p>	<p>Value profound simplicity – use experience and local knowledge. Scenario planning and Bush Tender Trial. Exploring cooperative ways of managing land eg machinery coops. How to deal with people. Don't presume we have all the answers. Exploring specific farming techniques – low input, low yield, cell grazing, mosaic. Partnerships. Passion – creativity – plan ciscyclical ??</p>	<p>Theory of Eco Civic regions has potential even though it needs more exploration. The 5 principles by which “Top Crop” operates are the principles that need to guide change in ag for Australian environment. Being aware of all the implications (environmental, social, econ) at farm and local community level is essential in considering change. Support from this conference for an Environmental Levy (national) could play a key role in achieving the change needed – sharing the costs</p>

When the discussion turned to valuable theories and principles for an Australian system of agriculture, theories such as adaptive management, biomimicry, and ecosystem services were discussed. However, the useful principles and theories described by the workshop participants were not necessarily those presented by the academics and researchers in the plenary or concurrent sessions (Table 3). Rather, the main principles identified by the workshop participants focussed on ensuring the involvement of the community, providing financial support and recognising landholders who adopt new practices.

Discussion

The main issues raised in the workshops were, not surprisingly, practical in nature and strongly focussed on the regions themselves. This provided a balance to the, at times, highly academic and scientific nature of many presentations in the conference itself. Despite this, it is clear that there are issues common to all regions. Although the workshops were designed to discuss the issues raised in the presentations, it became obvious that the participants from the regions did not feel the need to discuss particular theories or principles. Instead it was the way those theories and principles were developed and eventually implemented that was more important.

Although there were key challenges affecting all regions, there was minimal discussion in the later workshops of ways to address those challenges. This demonstrated an understanding by participants that broader issues were more important. Clearly, one theory is unlikely to address all issues and to attempt to solve all issues with a “magic bullet” is clearly inappropriate. While there are some theories that may be sufficiently broad, such as adaptive management, that by their inherent flexibility may be useful, I believe the regional workshops articulated their own framework that many other principles must work within.

The framework I believe that evolved from the workshops is simple and could be described as obvious, but the fact that most regions discussed at least several aspects of this framework suggests that its key components are lacking on the ground. The framework is likely to ensure that issues are not only addressed but actions are implemented in the long term.

The first stage of the framework is the involvement of the community in the identification of issues and reflects the outcome of the first workshop where innovative and resilient local people were identified as the main strength common to all regions. An issue can be identified in two ways, either by the local community (eg bank closures) or by experts outside the local community (eg climate change). When issues are identified from outside the local community, the impacts on the local community needs to be determined by the communities themselves in conjunction with the relevant experts. Once issues are identified then mechanisms to address the issues can be developed.

The second stage of the framework incorporates the main outcome of workshop 2. In this workshop involvement of the local community in the research, planning and implementation of any theory or principle designed to address issues was identified as an important principle. Involvement of the community will highlight the local values that are likely to be affected and give landholders the opportunity to present their ideas.

Stage 3 is the implementation phase, guided by researchers and the local community. Successful implementation not only depends on landholder involvement but a coordinated approach from agencies, funding bodies and other institutions. The current lack of institutional coordination was identified in the workshops as one of the main barriers impeding the uptake of sustainable practices

Stage 4 follows successful initial implementation and must include funding from outside the region for losses incurred by landholders. Cost is the biggest barrier to the uptake of innovative practices and landholders cannot be expected to carry these costs. Financial support equivalent to farm income will be required to ensure sufficient returns to the landholder are guaranteed until the new practice becomes economically self-sustaining.

Stage 5 is I believe the key component that has been missing from attempts to implement new practices. One of the main outcomes of the workshops was recognition for those farmers prepared to take the risk. Recognition will take many forms ranging from financial to emotional. A key requirement is recognition from urban consumers. Such recognition is difficult to engender but must develop to ensure that innovative practices become the norm rather than the exception. A sustainable agriculture levy may be one way of ensuring sufficient funds are available (Stage 4) as well as developing an understanding of agricultural issues in urban communities. Related to this is recognition from within the local community itself. Such a cultural change within communities may be even more difficult to attain and mechanisms to develop such a change need to be developed.

The first three stages of the framework exist at various levels today, and wider adoption would enhance outcomes from a regional point of view. Some funding is available for implementation but it is ad hoc and insufficient and does not include ongoing support to guarantee financial certainty for the landholder. The biggest barrier to the implementation of this whole framework will be the final step of developing a culture of positive and ongoing recognition for innovative farming practices by both rural and urban communities.

Conclusion

Many innovative theories, principles, practices and ideas have been suggested to move agriculture from an essentially European system to one that better suits the realities of the Australian economic, social and physical environment. However no innovation is likely to have widespread effect unless it is developed collaboratively and implemented with ongoing financial support and positive recognition by all people who benefit from a productive yet environmentally sustainable agriculture in Australia. These innovative ideas need to fit within some framework that has the support of all stakeholders, in particular local communities and those directly involved in the practice of agriculture.