



APEN Response to the Agricultural Competiveness Issues Paper - April 2014

About APEN

APEN, the Australasia-Pacific Extension Network, is the leading association for extension and advisory professionals in Australia, New Zealand and the broader region. Formed in 1993, APEN has a membership of about 500 extension practitioners. Most of these work in the areas of primary industries RD&E, natural resource management and/or on related community development issues. APEN members come from all Australian primary industries, including both government research and extension staff and private sector consultants and advisers. APEN's membership also includes a strong contingent of social/extension researchers.

Scope of APEN's response to the Issues Paper

APEN is pleased to have the opportunity to contribute to the Agricultural Competiveness White Paper process. APEN's submission will focus on the importance of an Agricultural Innovation System that supports effective research, development and extension capacity to ensure the future competitiveness of Australia's agricultural sector. Within that area, we will focus on some specific aspects around the importance and role of extension in achieving these objectives, the rationale for continued investment in this area, and possible reforms to ensure that these extension investments are more targeted and effective. Maximising the impact of extension practice and delivery will have an important role in boosting Australia's agricultural productivity.

APEN would argue that extension has a contribution to make under many of the topics raised in the Issues Paper. Two key topics that we identify as being relevant to APEN and extension, but that we will not consider in detail here, are:

Issue 2 - Farmer decisions for improving farm gate returns. This topic is clearly related to extension and its role in building skills, knowledge and capacity in the agricultural workforce. By more effectively linking farmers with the insights and technologies generated by research and development (R&D), extension ought to, and does, enhance the quality of quality of farmer decisions, leading to better financial outcomes for individual farming businesses.

Issue 5 - Enhancing agriculture's contribution to regional communities. Extension, especially when it is addressing rural workforce development issues, also has a strong connection to this issue. We trust it is clear that whenever extension contributes to a more prosperous agricultural sector through a variety of training, education and other initiatives, better-skilled and more resilient regional communities will be the result.

However, for the purposes of this submission APEN will focus its contribution around **Issue 6 - Improving the competitiveness of inputs to the supply chain** - and the following two questions from the Issues Paper:

- How can rural industries and governments better identify, prioritise and fund research, development and extension?
- What skills including specialised skills and training, will be required in the future and how can these be delivered and uptake encouraged?

APEN Response to Issue 6 – Question 1

Improving the competitiveness of inputs to the supply chain

How can rural industries and governments better identify, prioritise and fund research, development and extension?

Summary:

- Australian agriculture still relies heavily on public sector agencies to house national RD&E capacity and deliver innovative solutions to industry.
- Continuing funding cuts pose a major threat to these public sector RD&E agencies, and thus to the international competitiveness of Australian agriculture.
- While some RD&E services currently provided by government may be able to be taken up by the private sector, full deregulation would result in market-failure and a dramatic loss of national RD&E capacity.
- Given the threats above, the transition to new industry-owned RD&E institutions, with a greater mix of industry, private and public funding, ought to be considered and enabled by government policy.
- There are already examples of these transitional reforms taking place in the Australian agricultural RD&E system.

Some recommendations

1. *Develop industry-owned RD&E institutions that expand on the current role of the RDCs*
2. *Further expand producer, processor and government co-investment in RD&E*
3. *Avoid total deregulation of RD&E*
4. *Integrate research and extension capacity within the new RD&E institutions*

RD&E in a systems context

APEN, in line with contemporary thinking about Agricultural Innovation Systems (e.g. Klerkx 2013), regards agricultural research, development and extension as interdependent partner disciplines working in a complementary and, by necessity, collaborative framework. Thus, in this part of our response, we will not be differentiating between extension and the other elements of an overall RD&E effort. A major theme here is that Australian government policies have resulted in a continuous and cumulative reduction in the role of public sector RD&E since the late 1980s, prompting a need to consider reforms. These reforms are made more complex because RD&E is the domain of a variety of actors from the private sector and non-government institutions, e.g. universities and farmer agencies.

Threats to past policy successes

To suggest that the Australian agricultural research, development and extension system is in a state of failure would be incorrect. The development of a policy model that saw the implementation of the Rural Research and Development Corporations (RDCs) in the late 1980s was a major step-change for the agricultural sector, and ensured the maintenance of capacity when many other developed nations were abandoning different aspects of their agricultural RD&E. Australia took a different policy pathway, which has been largely successful. The model achieved a milestone in persuading rural industries to contribute financially to their own RD&E needs. While not on a full cost basis, it did achieve that important goal of getting industries to 'buy in'. However, the initiation of RD&E levies and matching Australian government funds sent signals to State and Territory Governments that they could divest and redirect funds to other sectors.

While the RDC model continues to be effective for many industries, it is likely that it has remained so because of the legacy RD&E capacity remaining in Departments of the different jurisdictions, which have enabled the RDCs to access suitably-qualified RD&E capacity. The effects of State and Territory Government public policy decisions to reduce or discontinue services because of fiscal or ideological drivers is now resulting in a situation where expert RD&E capacity available to agricultural industries in Australia is under threat.

The case for policy change

In this context, alternative structures for organising and delivering agricultural RD&E need to be considered, as well as new funding systems to prevent existing Australian export industries from becoming uncompetitive against other nations who are investing more heavily in the agricultural sciences. Despite current interest in developing northern Australia, we are not yet developing significant tracts of new arable lands for food production; in fact numerous valuable agricultural zones have already been subsumed by urban expansion. The impacts of climate viability and change

poses further challenges to sustaining agricultural business competitiveness. Increases in productivity must be made largely using the existing land and water resources. This requires increasing investment in agricultural RD&E.

Some recommendations

1. *Develop industry-owned RD&E institutions that expand on the current role of the RDCs*

With a retreating level of State and Territory Government investment, industry-owned RD&E institutions offer a more secure prospect for industries that want to build and retain human capacity in agricultural research and extension. Moving beyond an RDC model that assesses and funds projects on a competitive basis would entail the formation of new industry-focussed bodies that employ their own research and extension staff. Such institutions would understand the importance of capacity building and ensure the succession of knowledge and skills over time. This is vital for ongoing industry development. Where there are multiple agencies involved in particular industries' RD&E efforts, rationalisation into single corporate entities for the purposes of efficiency ought to occur.

Examples of these proposed reforms can already be found within Australian agriculture. For example, a longstanding model of industry-owned RD&E capacity can be found in the Australian sugar industry's former Bureau of Sugar Experimental Stations (BSES), which recently merged into a new entity called Sugar Research Australia. In this case, the RDC function of SRDC and the RD&E delivery functions of BSES (and two other sugar R&D entities) were merged into the one organisation. Other industries should consider the utility of this model as an example of what integrated self-contained RD&E capacity owned by an Australian agricultural industry could look like in practice.

Some RDCs, such as the Cotton Research and Development Corporation and Dairy Australia, while not yet employing their own R&D staff, have moved from relying on state agency extension staff, to employing their own. A key aim of these staff appointments is to unlock the value of industry-funded R&D through better delivery and coordination of extension services. It is likely that these examples represent the early stages of the evolution and transition to new models of industry-owned RD&E organisations within Australian agriculture.

2. *Further expand producer, processor and government co-investment in RD&E*

Processors of agricultural products have long benefited from advances of agricultural RD&E but, in the case of many industries, have contributed limited amounts to the investment and advancement of RD&E. This was argued strongly by several high-profile submissions to a national review of the RDCs in 2011, however, it did not receive the support of the Commissioners. Producer, processor and government co-investment arrangements have been demonstrated in some sectors for decades (e.g. sugar, red meats). This position is especially warranted in industries where field-based factors have a significant impact on factory performance which drives the processor's profitability – a clear case of mutual dependence that is often forgotten by those in the processing sector.

3. *Avoid total deregulation of RD&E*

Findings from a review of New Zealand's Crown Research Institutes indicate that a completely deregulated RD&E, highly-competitive funding framework should be avoided. Formed in 1992, CRIs were given a charge to become more financially independent and operate on commercial lines. In a 2010 review of the CRIs, a past policy imperative of government for the CRIs to be economically sustainable was shown to have negatively affected the nature of the science generated and the net benefits to client industries. Among the findings, commercial drivers were faulted for fostering the pursuit of competitive contracts that were short-term relative to the time frame in which science could be expected to produce results.

The CRIs also had little in the way of extension capacity so R&D generated by the organisations relied on industry service providers or private consultants to undertake many active extension works. Extension ('technology transfer' in the review) was also seen to have been undervalued by

the agricultural CRIs and highlighted as a core responsibility to redevelop. On these and other observations from overseas, a radically deregulated agricultural RD&E system is unlikely to deliver the outcomes Australia needs.

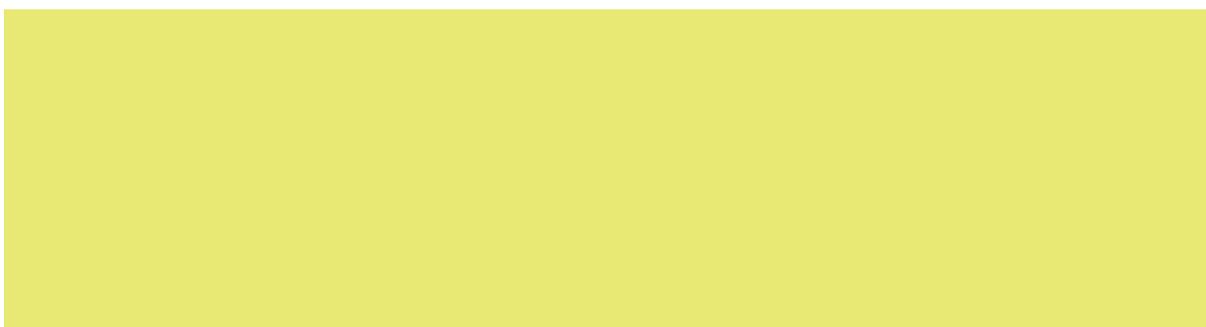
4. Integrate research and extension capacity within institutions

Extension services must not be considered as add-ons to R&D - they must be fully integrated into the process and delivery of research, and be active in providing feedback from industry stakeholders to research elements, as well as in identifying farmer innovation which can be tested through science. Extension agents should function as credible technical experts in their specific roles, and be present in the field. An absence from the field results in a decline in support for extension services. Appropriate planning, provisioning, and skilling of extension in adult education skills and process should be used to complement and not be a substitute for technical competency. Failures identified such as in the CRI review in New Zealand and elsewhere (e.g. Britain) flag that a separation of research and extension capacities is detrimental and should be avoided.

APEN proposes not an overthrow of Australia’s current market-orientated agricultural paradigm, but a restructure of the RD&E system to deliver further autonomy and responsibility to the rural sector in terms of managing its own RD&E efforts. In many respects, these proposed reforms are similar to adjustment that some RDCs, industries and other actors are already making. However, there remains a significant role for federal government oversight and investment given the importance of the sector to the national economy, the environment, and other nations that rely on Australian food production.

This paper has emphasised that industries must further invest in their longer-term capacity and resilience. It is time for the Australian Government and rural industry stakeholders to revise and reform how RD&E is organised, resourced and delivered.

In the next part of our response to issue 6, we will focus on the issue of specialised skills and training required to support agricultural competitiveness – with a focus on skills and training relevant to the provision of extension and advisory services to industry.



APEN response to Issue 6 – Question 2

Improving the competitiveness of inputs to the supply chain

- What skills including specialised skills and training, will be required in the future and how can these be delivered and uptake encouraged?

Summary:

- As a means of delivering skills and training to agricultural industries, extension is a useful policy instrument for driving innovation and the international-competiveness of Australia's agricultural sector.
- Extension is not just a deliverer of R&D information to industry, but has a broader communication and coordination role to ensure that the right individuals, organisations and knowledge are connected in ways most likely to deliver innovation, change, and economic competitiveness.
- Investment in skills and training is important for those involved in implementing (and managing) the delivery of extension and advisory services to rural industries.
- Extension training ought to consider both the technical and social dimensions of effective extension delivery.
- Extension research can be used to guide how extension investments, including training, are best targeted
- The capacity-building challenges which extension aims to address are common to all agricultural industries, yet there is little coordinated investment in this area.

Some recommendations

1. *Elevate 'Capacity Building' to the status of a cross-sector issue in National Primary Industries Research, Development and Extension Framework.*
2. *Resource an industry-owned institution or initiative to oversee RD&E into Capacity Building for agricultural industries. Suggested roles for such a body could include:*
 - *Funding research into effective extension methodologies and coordination structures*
 - *Extension curriculum development for VET and tertiary sectors, in alignment with industry needs*
 - *Professional development of extension professionals and advisors of all kinds, including from public and private sectors, industry and the NRM sector*
 - *Investigation of accreditation of extension professionals*
 - *Development of national framework for monitoring and evaluating extension deliver*

Extension and its role in Agricultural Competitiveness

Extension is a broad area of professional expertise. At a simple level, extension can be seen as the end point of a research and development (R&D) process, where the outputs are 'extended' to end users, resulting in industry innovation and practice change. Such technology transfer activities are still critical to the success of Australian agriculture. A key trend, however, is the greater reliance on private sector consultants and advisers, rather than government extension officers and researchers, to develop and provide science-based information to farmers and industry. Other institutions, such as grower groups, have also emerged to play an important role in this area.

Thus, today's agricultural innovation landscape is far more complex than in previous generations, with multiple, often competing actors, providing information, technology and new practice options to farmers and other end-users. There is also a greater awareness that the agricultural sector needs to build technical and skills capacity throughout the whole supply and value chain, not just on the farm. While Australian governments continue to be major investors in technology development and industry capacity in agriculture, they are no longer the dominant investors and providers they once were.

Systems thinking, extension practice and training needs

Similarly, extension as a discipline has continued to evolve in the way that it contributes to industry and community innovation. It is now well-understood that agricultural innovation does not occur as the result of a simple linear approach, with RD&E delivering new technologies in a pipeline configuration, but is the outcome of a broader innovation system that involves processes such as 'networking, interactive learning and negotiation (activities) among a heterogenous set of public, private and third-sector actors' (Klerkx 2013). To be effective in this more complex environment, extension professionals require an understanding that their role is to not just deliver technical information, but to ensure that these diverse communication and coordination functions are occurring so that industry-level innovation can and does occur.

Thus, despite perceptions based on history, extension is not the mere 'messenger boy' for research and development. Rather, it is a critical communication function within an overall innovation

systems approach to ensure that the right individuals, organisations, institutions, and knowledge are connected in ways most likely to deliver innovation, change, and economic competitiveness.

The implications are that training for extension professionals must also evolve to meet the complex demands of industry and society. APEN would also argue that, in an innovation systems context, not only do extension operatives require a greater understanding of their what extension is intended to achieve, but so do senior RD&E managers, industry leaders and policy makers.

Notwithstanding some of these complexities, it is worth reiterating APEN's view that extension agents should function as credible technical experts in their specific roles, and that training in adult education skills and processes should be used to complement technical competency, not be a substitute for it. It is therefore imperative that initiatives to improve extension/advisory skills consider both the technical and social components of delivering effective extension delivery.

Extension research and policy – a neglected area?

One of APEN's key themes in this submission is that that investing in extension is critical to agricultural innovation, but the best way to administer, organise and build extension capacity may not always be obvious. This may especially be the case for those removed from the frontline yet who are charged with setting the overall shape of RD&E service delivery in an industry or organisation.

While much agricultural RD&E focuses on the development of new technologies and practices for the growing, harvest, and post-harvest handling of products, research into extension itself is another valuable tool. When commissioned with the intent of addressing real industry or policy questions, extension research can be a useful for guiding RD&E investments, ensuring they are well targeted at the outset and likely to achieve their objectives in terms of practice change and intended outcomes. In a similar vein, extension research can also play a role in monitoring and evaluating RD&E efforts and whether they have been successful.

It is APEN's observation is that, in Australia, there is comparatively little recognition of the potential for social/extension research to guide industries and other institutions when developing RD&E policies, strategies or projects. There appears to be even less extension research that is done collaboratively and shared between industry sectors. In considering the issue of developing extension skills and knowledge, targeted research would be of great value in prioritising and guiding investment in this area. In short, the capacity-building challenges which extension aims to address are common to most agricultural industries, yet there appears to be little sustained and coordinated investment in this area.

In fact, this is not dissimilar to the situation facing many 'cross-sectoral issues' identified under the National Primary Industries RD&E Framework, such as animal welfare, plant and animal biosecurity, and water use in agriculture. While industries, RDCs, state and federal agencies and others have been readily able to develop industry-specific plans around research and development needs under this still-developing framework, the cross-sectoral strategies have proved more complex to develop, in part because there is no single body to take responsibility for developing them.

Thus the lack of a single institution (or arrangements between institutions) to provide leadership and coordinate RD&E investments across a range of vital cross sectoral issues is a major impediment to Australia's agricultural competitiveness in these areas. In APEN's view, the effective direction and coordination of capacity-building investments is one such cross-sectoral area that needs to be addressed. However, to date capacity building is not recognised in the National RD&E Framework as requiring its own cross-sectoral RD&E strategy. Until it does receive this recognition, investment and policy focus on this critical area is likely to lag.

Some recommendations

1. ***Elevate Capacity Building to the status of a cross-sector issue in the National Primary Industries Research, Development and Extension Framework.***

Provided there is still bipartisan support for the long-running National RD&E Framework process, we see this as a key recommendation to ensure that Capacity Building RD&E, capable of informing Australia's agricultural innovation policies and strategies, is given the attention that it warrants. It is a critical area of investment to ensure that our agricultural competitiveness policies, (including those around extension skills development) are grounded on a solid evidence base, and thus more likely to achieve their intended results.

2. ***Resource an industry-owned institution or initiative to oversee RD&E into Capacity Building for agricultural industries.***

Once the premise is accepted that there is a fragmentation of effort in the capacity building investment area, and a need for greater coordination and leadership, two key questions emerge: What are the specific functions that a lead institution in this area should perform, and what sort of an institution should it be?

In considering the sort of institution, one principle stands out that the investment in this area needs to be owned by industry, even if supplemented with some public funds. While there is a range of investment models that could be considered, the main preferred options would be a requirement for all the RDCs (or similar industry-owned RD&E bodies) to invest part of their resources into Capacity Building initiatives, including a research component either:

1. **within their own programmes**, ('Status quo option')
2. **within a shared Capacity Building initiative administered by an existing RDC** or other body to which all the RDCs were expected to contribute (e.g. similar to the earlier Joint Venture for Cooperative Capacity Building programme, that was optional for the RDCs). ('Special programme option')
3. **within a new institution set up specifically to address Capacity Building RD&E** and skills development initiatives across a range of industries, ('Extension Australia' option), **or**
4. **within a new institution set up to address a range of cross-sectoral RD&E strategies**, including Capacity Building (similar to the Rural Research Australia proposal canvassed in the recent Productivity Commission review into the RDCs) ('Land, Water and People' RDC option).

Given the need to get focussed attention on these areas, APEN would recommend either the 'Extension Australia' or 'Land, Water and People' RDC options as the better ones to consider. Either way, what is probably more important is the functions that such a program or body might perform. Based on APEN's role in supporting several policy initiatives over the last decade, including recent process towards a National Extension Framework for Australia (NEFA) involving ten identified sectors (including private consultants, agribusiness, universities, state agencies, the federal agriculture department and others), we can propose some core functions we would like to see in any national Capacity Building RD&E initiative:

- ***Funding of research into extension itself, including effective methodologies and coordination structures***
- ***Extension curriculum development for VET and tertiary sectors, in alignment with industry needs***
- ***Professional development of extension professionals and advisors of all kinds, including from the public and private sectors, industry and the NRM sector***
- ***Investigation of accreditation of extension professionals***

- **Development of national frameworks for monitoring and evaluating extension delivery**

In most cases, these are initiatives that APEN is already pursuing as the leading professional body for extension professionals in Australia, New Zealand and the broader region. However, we see the potential to make the necessary gains faster with a larger public and industry investment into these initiatives. As the peak body representing extension specialists in the region, APEN is both willing to assist with progress against any of these goals.

In closing, any further decline in the capacity of the public and industry sectors to engage in effective extension is not in the best interests of Australia’s agricultural productivity and competitiveness. Private sector extension/advisory services alone are insufficient to support change and innovation in important areas of Australia’s primary industries sector. New and emerging models of public/private investment will be critical in delivering extension services that maximize the reach and effectiveness of Australia’s RD&E system, ensuring gains in our agricultural productivity and competitiveness continue both now and into the future.

Further reading:

Klerkx L 2013. ‘The Agricultural Innovation Systems Perspective: What does it mean for extensionists?’ in ExtensionNet – newsletter of the Australasia Pacific Extension Network Vol 21 No. 1, December 2013 M Bourgault. Online resource: www.apen.org.au.

Pannell D and Marsh S 2013. ‘Public-sector agricultural extension: what should it look like in 10 years?’ Farm Institute Insights, Vol. 10, No. 1, February 2013. *Reprinted as Appendix A below.*

State Extension Leaders Network (SELN) 2006. ‘Enabling Change in Rural and Regional Australia: The role of extension in achieving sustainable and productive futures’, online resource: www.seln.org.au.

State Extension Leaders Network (SELN) 2008. ‘Extension works: case studies demonstrating how extension enables change in rural Australia’, online resource: www.seln.org.au.

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Appendix A

This article by David Pannell and Sally Marsh is endorsed by APEN's National Extension Policy Subcommittee (Australia) as encapsulating many of the challenges facing Australian agriculture as the result of a decline in public funding of extension, and of RD&E in general. It is reprinted here with the author's permission (Sally Marsh).

Public-sector agricultural extension: what should it look like in 10 years?

Authors: David J Pannell and Sally P Marsh, School of Agricultural and Resource Economics, University of Western Australia

Our focus is on what should happen in the public sector, on the grounds that it is not helpful to ask what "should" happen in the private sector. The private sector will develop in response to commercial opportunities available to them, irrespective of what we might think should happen.

To set the context, here are some predictions about the environment within which extension will operate. Agriculture will continue to change in response to technology, markets and climate. Cutbacks we have seen in funding for public-sector agricultural extension will not be reversed and may continue. The dismantling of extension infrastructure and capacity in the public sector has gone too far for it to be reversed without major new public investments, and we don't foresee those occurring. Private sector capacity in extension will continue to grow – including extension provided by purchasers of agricultural products (e.g. dairy, horticulture, sugar), input suppliers (e.g. fertiliser, feeds) and farm management specialists.

There will be continuing increases in the average size of farms, and in the number of corporate farms, with resulting growth in the vertical integration of information services ("extension") into farm businesses. There will continue to be growth in the use of advanced information and communication technologies in agriculture, providing information to farmers in novel ways. Falling numbers of graduates from agricultural programs could create a serious challenge to extension services (public and private) to obtain employees with the required knowledge and skills.

In this context, is there a need for ongoing public investment in agricultural extension? We believe that there is. Public-sector agricultural extension can continue to play important roles that address various market failures. One key role is to foster two-way information flows between researchers and farmers. Information flow from farmers to researchers is needed to ensure that the research conducted will be beneficial to farmers and likely to be adopted by them. Some researchers already have sufficiently strong relationships with their farmer audience not to need this sort of help from extension agents, but many others don't. The traditional role of extension agents in promoting uptake of beneficial new research results (technologies, systems and practices) should continue.

We do not share the negative view of technology transfer that seems to exist among some theorists of extension. We believe that technology transfer and approaches such as participatory research and farmer-to-farmer learning are not mutually exclusive. Indeed, these latter approaches, as part of a broad portfolio of extension methods, can make valuable contributions to the success of technology transfer in appropriate circumstances. Farmer groups and organisations such as the Grower Group Alliance (www.gga.org.au) have key roles to play in this process.

Given that public budgets for extension are unlikely to grow, and may shrink further, it will be crucial for public extension services to take a more business-like approach to prioritising their activities than they have commonly done in the past. Extension efforts should be focused on issues for which there would be substantial benefits to farmers from changing

their practices, especially if those new practices would also generate benefits for the broader community (e.g. environmental benefits). Extension would not focus on practices that farmers already have good knowledge about and have decided not to adopt, because non-adoption is a clear signal that the practices do not generate large enough private benefits. The heterogeneity of farms and farmers should be recognised when looking at reasons for non-adoption. This more sophisticated approach to planning extension effort will require greater collection and analysis of information.

As important as social media and other modern communication methods will be, public extension should not rely on them exclusively, but should maintain a level of face-to-face communication. Farming is already socially isolating for some farmers, and with declining farmer numbers this may become a more widespread issue. It is likely that farmers will always put a high value on personal contact in extension.

Finally, we note that, in the past 20 years, public sector extension has been prominent in supporting natural resource management (NRM) policy for agriculture. It has been the go-to policy response of most government NRM programs. Unfortunately, these programs have often funded extension efforts without asking fundamental questions, such as, 'are the practices we wish to promote actually adoptable by farmers?' A more thoughtful, selective and evidence-based use of extension is needed in this policy context.

End of APEN Submission