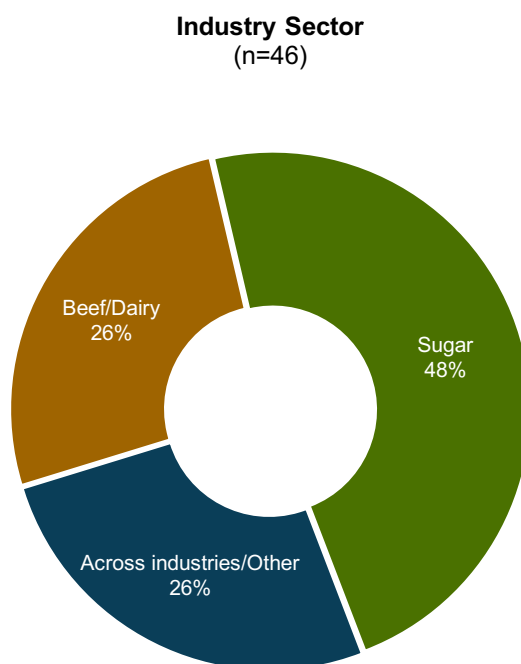


REEF EXTENSION STAKEHOLDER SURVEY RESULTS 2017

1. Demographics

A total of **46 stakeholders** responded to the web survey, with 48% from the sugar industry, 26% from the beef/dairy industry, and 26% from across industries/other. The majority of respondents (76%) serviced a single region, with 9% servicing multiple regions and a further 9% servicing all regions. The Wet Tropics region was most represented with 41% of the total respondents, followed by Burdekin (30%) and Fitzroy (both 28%). The most common roles were extension/advisor/consultant (54%) and Natural Resource Management (30%) – other roles included government (4%), industry organisation (2%), and other (9% - e.g. economist, GIS and information management).

Chart 1:



2. Responses - All Roles

2.1 Current effectiveness of extension in supporting water quality outcomes

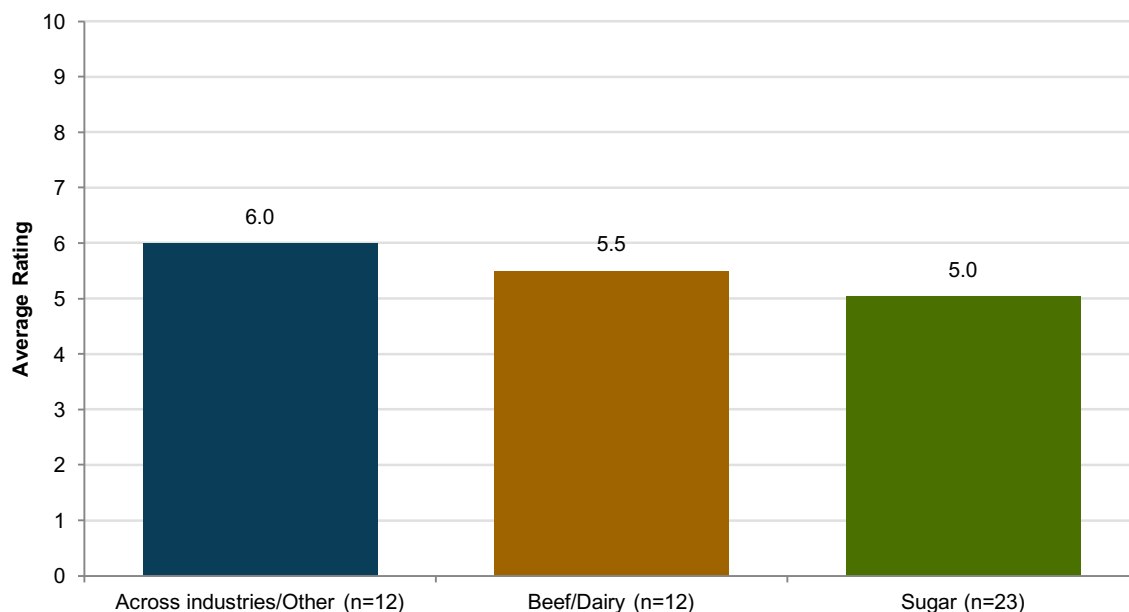
Overall, respondents felt that current extension was only moderately effective in supporting water quality outcomes in the reef regions – providing an overall average rating of 5.4 (on a 0-10 scale, n=46). By sector, similar average ratings were provided with *Across industries/other* respondents providing the highest comparative average of 6.0 (n=12), followed by *Beef/Dairy* (5.5 avg. n=12), and *Sugar* (5.0 avg. n=23).

Issues noted included: growers not being effectively reached (5 mentions); a lack of coordination with current extension efforts (4 mentions); a lack of resources (3 mentions); issues with extension provider knowledge/training (3 mentions); conflicting priorities (e.g. sales productivity/focused, 2 mentions), high staff turnover (2 mentions); and lack of long-term follow-up (2 mentions).

While some respondents were generally positive with current extension effort (5 mentions), many noted there was always room for improvement (9 mentions).

Chart 2:

Current effectiveness of extension in supporting improved water quality outcomes in the reef regions
(Overall avg. 5.4; N=46; 0=Low and 10=High)



2.2 Examples of successful extension approaches

Factors that were identified as key to successful extension approaches included: evidence-based locally/personally relevant practical information; demonstrated results; skilled, knowledgeable and motivated extension officers; collaborative learning experiences that have grower buy-in; innovative partnerships between NRM regions and industry; minimising financial risks involved in early adoption; and working with the right landholders who are receptive and motivated to learn and adopt changes.

Table 1: Extension examples

Project/Activity	Extension approach	Impacts	Success Factors
Across industries/Other			
Banana BMP phone/tablet App	Growers attend app launch and learnt how to install and use the app.	Made it easier to complete record keeping (part of BMP)	Launching simultaneously on all operating systems (e.g. apple, android, web)
Burdekin Fallow project	Implemented extensive trial showing difference between fallow length, fallow crop combinations and planting time.	Many growers realised the potential of breaking the monoculture and took up an 18 month approach growing alternate crops.	<ul style="list-style-type: none"> • Farm walks and presentations to local growers • Using 'hard data' showed the benefits that can be gained from adopting the system • Seeing is believing
Grazing BMP	<ul style="list-style-type: none"> • One-on-one • Workshops • Field days 	Actual on-farm practices changes	
Reef Rescue	<ul style="list-style-type: none"> • Risk assessments • Farm plans • Training 	<ul style="list-style-type: none"> • Enabled people to expand their skills and knowledge • Created a cultural shift in land managers 	Innovative partnership between NRM regions and industry.
Rural WUE / Reef Programme	Delivered as package: <ul style="list-style-type: none"> • Targeted on farm technical support via BMP outcomes • Transfer of technology • Incentives • Targeted workshops via BMP outcomes • Demonstrated practice change outcomes 	<ul style="list-style-type: none"> • Optimised practice change outcomes • Demonstrated practice change outcomes 	<ul style="list-style-type: none"> • Delivered as a package • Tangible outcomes for growers capacity to invest
Dual herbicide sprayer trials and workshops	<ul style="list-style-type: none"> • On-farm trials • Workshops • Advice 	<ul style="list-style-type: none"> • New technology Developed and rolled-out • Significantly reduces the amount of PSII herbicide applied (and hence reduces risk of loss), whilst ensuring weeds are controlled 	<ul style="list-style-type: none"> • Personality and knowledge of extension officer • Ability for results to be visually demonstrated (i.e. obvious outcome - weeds or dead weeds) • Machinery/props can be useful to attract interest

Project/Activity	Extension approach	Impacts	Success Factors
Beef/Dairy			
Resilience in grazing project in collinsville region	Grazier led field days and demonstration sites	<ul style="list-style-type: none"> • Increased acceptance for sustainable land management • Supported land management changes across 50,000ha of priority properties for water quality • Assisted over 200 individual land managers with information and trial outcomes 	<ul style="list-style-type: none"> • Grazier led • Innovative
Women in Grazing Bus Tour	Innovation - promoting new concepts to the women in the business	<p>Radical changes in some enterprises since first 2015 bus tour:</p> <ul style="list-style-type: none"> • Set stocking moving to high rotational grazing • Establishment of pastures and monitoring systems • Introduction of gully/erosion remediation 	Supportive learning environment promoted the establishment of peer support networks, mentoring and thirst for knowledge.
Reef Rescue Water Quality (Grazing - Fitzroy Region)	<ul style="list-style-type: none"> • Employed soil consultant • Promotion and information sharing with a bus tour to multiple locations throughout the Fitzroy Region 	<ul style="list-style-type: none"> • Landholder to landholder information and approach • Soil Consultant to landholder 	<ul style="list-style-type: none"> • Landholder discussing change implementation • Booklet developed with actual on ground actions
Gully Remediation project	<p>Several visits to landholder's property:</p> <ul style="list-style-type: none"> • Information gathering • Collaborating on remediation measures • Working with landholder on ideas and program guidelines 	<ul style="list-style-type: none"> • Landholder more aware of cattle movements in the paddock and impacts • Landholder willing to try a new approach to revegetating scalds 	Willingness to listen to landholder's issues, past strategies used, concerns and to collaborate and negotiate a plan.
One-on-one property visit (post grazing BMP Fitzroy workshop attendance)	Property visit		<ul style="list-style-type: none"> • Bringing information presented at workshop to help the landholders see the value of it on their property and in their situation/circumstance • Most extension is very good at telling people that they should do things but not good at HOW they start to do that practically (and reduce income loss)

Project/Activity	Extension approach	Impacts	Success Factors
Reef Programme Erosion Control Grader workshop training	Training workshop with limited participants		<ul style="list-style-type: none"> Useful tools for practical work
Sugar			
Wet Tropics Nitrogen Trials	Collaboratively run trials – growers the beneficiaries of the findings.	Growers see how the whole trial process works and identify with the findings.	Professional yet friendly interaction with growers
Hiring of reef friendly equipment	Diffusion of technology	<p>Achieved rapid adoption of reef friendly equipment by greatly reducing financial risk of trialing a new practice:</p> <ul style="list-style-type: none"> Greater amount of fertiliser being applied sub-surface Reduced N loss from surface runoff Productivity and yield maintained or improved Reduced expenditure on N fertiliser 	<p>Financial incentive:</p> <ul style="list-style-type: none"> Growers don't bear the costs of R&D and major teething problems Growers don't bear the risk of potential failure
Farmacist model (Mackay and Burdekin)	Demand-driven extension to the grower that wants to engage and upgrade practice.	focus on farming system and site-specific ag technology	<ul style="list-style-type: none"> Working with the right grower, receptive and seeking to advance on productivity and business profitability, and sustainability. Chance that there is spin-off to other neighbouring or network growers.
Health Waterways SEQ (addressing high nitrates in sub-catchment)	Engagement of local growers through a working group.	<ul style="list-style-type: none"> Improved understanding More aware and supportive working group supported by industry and many key stakeholders Trialling mitigation Trialling sediment retention ideas Farmers asking better questions to try new approaches 	<ul style="list-style-type: none"> Safe supportive environment Learning experience that had buy in from growers Joint information discovery Learnt by doing using their own real data
Project NEMO Herbert sugarcane industry	Demonstration plots & targeted extension (group & one-on-one)	Improved application technique & changes to enhanced efficiency fertiliser for improved WQ outcomes	On-farm demonstrations/grower focused trials backed with one-on-one and group

Project/Activity	Extension approach	Impacts	Success Factors
			extension activities in targeted "hotspots"
Development of minimum tillage planter for sugarcane	<ul style="list-style-type: none"> • Sourced grant • Consulted with farmers and manufacturers • Developed ideas • Built planter • Tested observed results (not measured but encouraging) observations) 	One farmer using the planter on their property	<ul style="list-style-type: none"> • Awareness of grants • Knowledge of farmers and their wants • Contacts with machinery industry that is attuned to agricultural innovation
6 Easy Steps	Provided growers with something real and applicable (not generic)	Broad industry uptake and ensuing practice change	Practicality - a real issue that can be used on a real farm
Automation of Furrow Irrigation in the Burdekin	Demonstration and economic assistance for the set up (research based)	Reduction in volumes of water applied and runoff	<ul style="list-style-type: none"> • Financial contribution to setting up • Early adoption characteristics of the participants
The Reef Water Quality Grants program	<ul style="list-style-type: none"> • Extension from field officer • Grant funding to assist in making change affordable for farmers 	<ul style="list-style-type: none"> • Water quality improvements were made in terms of a reduction in runoff • This went hand in hand with making farm practice efficiency's. • Success in changing on ground practices to meet industry bench marked BMPs 	Collaboration with farmers and industry expertise working together.
Real time water quality monitoring (Barratta Creek sub catchments)	Provide real time water quality results that match farm management practices.	Raised awareness of issues gives land managers reason to change.	<ul style="list-style-type: none"> • Real time water quality data supplied through trusted agencies/ personnel • Motivated and knowledgeable extension officer
Dual Herbicide sprayer (R&D project)	<ul style="list-style-type: none"> • Workshops • One-on-one 	<ul style="list-style-type: none"> • Reduction in residual herbicides. 	Technical skills of staff is the primary reason.
One-on-one nitrogen rate trials	One-on-one on-farm trials	<ul style="list-style-type: none"> • Reduced N usage and financial savings • Implied WQ improvements 	<ul style="list-style-type: none"> • Regular communication with the grower • Grower involved in all aspects of 3-4 year trial

2.3 Opportunities to (further) strengthen extension in supporting on-farm change

The highest rated areas that would strengthen extension in supporting on-farm change all related to assisting extension and advisory personnel with stronger technical skills (8.0 avg.); improving the way services are undertaken and the methods used (7.8 avg.); stronger extension skills (7.7 avg.); and increasing collaboration and cooperation between providers (7.7 avg.). Also rated highly was the need to improve overall management and decision making about the strategic use of extension and how it can support other policy approaches in relation to assisting on-farm change (7.6 avg.).

Comments

Areas needing most improvement

The need for skilled and knowledgeable extension officers was seen as key (16 mentions), with particular reference made to *quality over quantity* and *consistency of approach*. While many respondents simply noted the need to improve technical skill sets, some suggested equal importance should be placed on 'people skills' – understanding human behaviour and ensuring growers are effectively engaged (4 mentions). One sugar respondent explained that *it's not a matter of more extension staff, it's more about the quality and motivation of those staff and their ability to communicate with farmers*.

Other suggestions for improvements included: more of a tailored extension approach (6 mentions); greater coordination and cooperation between providers (6 mentions); longer-term projects and strategy (4 mentions); utilising social media to engage younger growers (4 mentions); improving grower engagement and accountability (3 mentions); improving monitoring and evaluation (3 mentions); reducing the amount of surveys and spending more time on-farm (2 mentions); increasing resources (1 mention) and one-on-one extension (1 mention).

Suggestions to address these needs/gaps

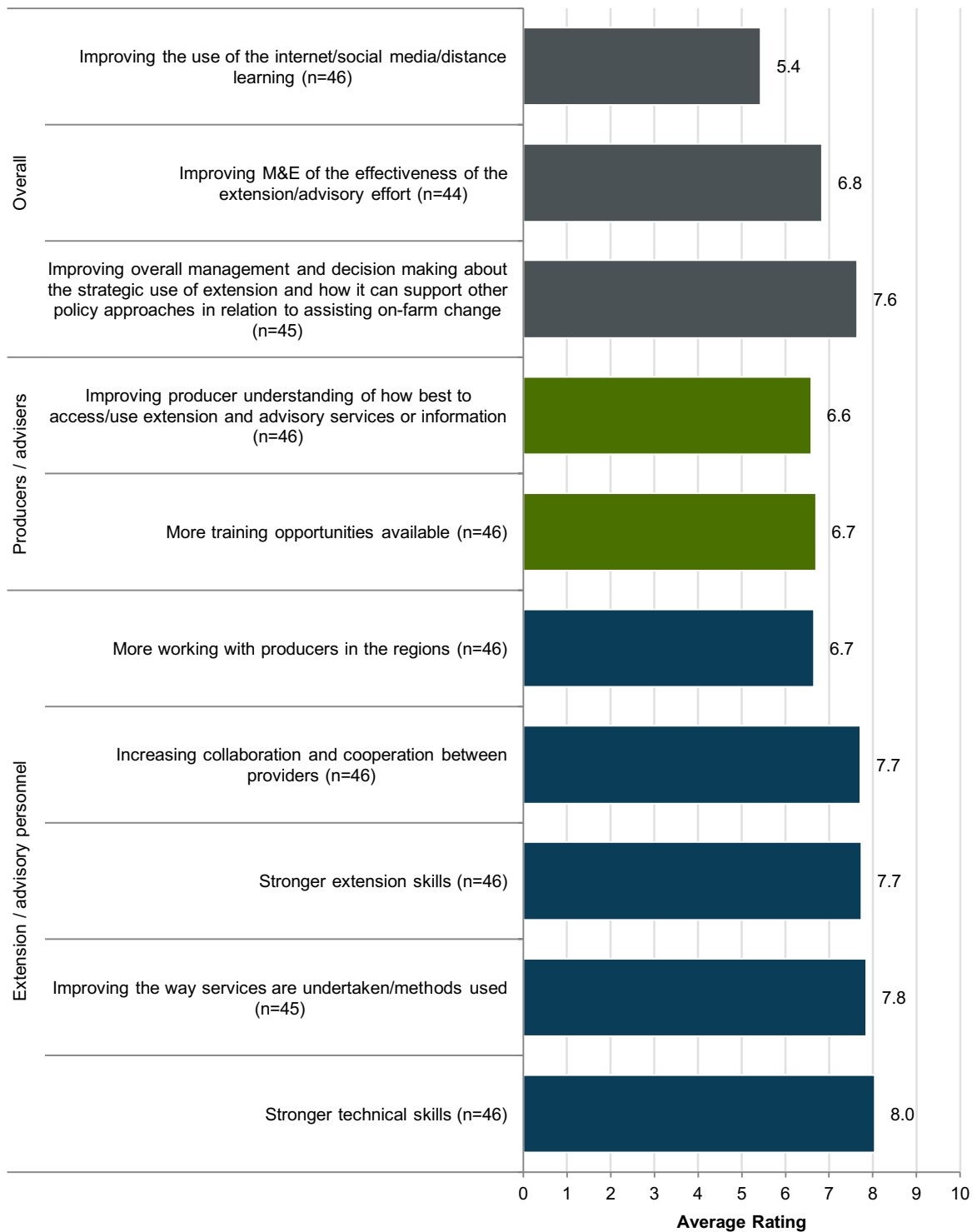
To address the need of upskilling extension officers, many respondents suggested further training or a 'change of direction' in training (12 mentions), including researching the target audience and ongoing technical training. Emphasis on developing 'people skills' as well as technical skills was also reiterated, with one across industries/other respondent noting that *much of the extension success can be attributed to the personal characteristics of the people undertaking the engagement with the target audience whether they be from the public sector or the private sector*.

Collaboration in order to coordinate and unify strategies was seen as an equally important consideration (12 mentions), with one respondent highlighting the need to ensure all extension officers are *working with producers in a particular area get together to plan, prioritise and implement their extension projects (and M&E) collaboratively*, and another suggesting that *there needs to be one comprehensive well informed and supported strategy which can be managed and monitored across the whole reef area*.

Other comments included: increased funding (5 mentions); increasing grower engagement (2 mentions); cultivating long-term relationships (2 mentions); tailored extension and funding (2 mentions); long-term funding and strategy (2 mentions); providing practical, on-farm extension (2 mentions); increasing time and resources (1 mention); reducing negative political and media spotlight (1 mention); increasing the use of social media (1 mention) and offering follow-up support with training events (1 mention).

Chart 3:

Opportunities to (further) strengthen extension in supporting on-farm change
(0=Low need and 10=High need)



2.4 Examples of effective extension projects/approaches and/or what is working well

The use of small groups and/or one-on-one advice was seen by many as the most effective extension approach (8 mentions), with one across industries/other respondent referencing the benefit of building personal relationships with clients, as this *generally holds significant weight in the trust and credibility between the parties*. Another beef/dairy respondent noted that *events are good for mass impact but one-on-one is the way of achieving on ground practice change*.

Respondents also mentioned the effectiveness of practical trials, demonstrations and on-farm visits (7 mentions), with one respondent stating that *the area we get the most (documented) practice change is through property visits after a workshop*.

Other comments included: involving farmers to raise awareness/accountability for certain issues (2 mentions); using well established/long-term projects (2 mentions); engaging experts (2 mentions); and independent auditing of extension programs (1 mention).

Two specific projects or approaches were also mentioned: *the RWQ funded 'Accelerating the use of FORAGE' project between DAF and DSITI*, and the *FEAT (Farm Economic Analysis Tool) effective in supporting sugarcane growers to see how a practice change can affect their bottom line*.

2.5 Extension and education situation in the reef regions and suggestions to increase its capacity and effectiveness

The most suggested method to increase capacity and effectiveness was for a more structured and coordinated approach (6 mentions). For example, one sugar respondent mentioned that *more coordination, consensus and consistency of extension programs are needed*, and an across industries/other respondent suggested that *effort is required, over time, to get the right people engaged and support a more persuasive, structured and subtle approach*.

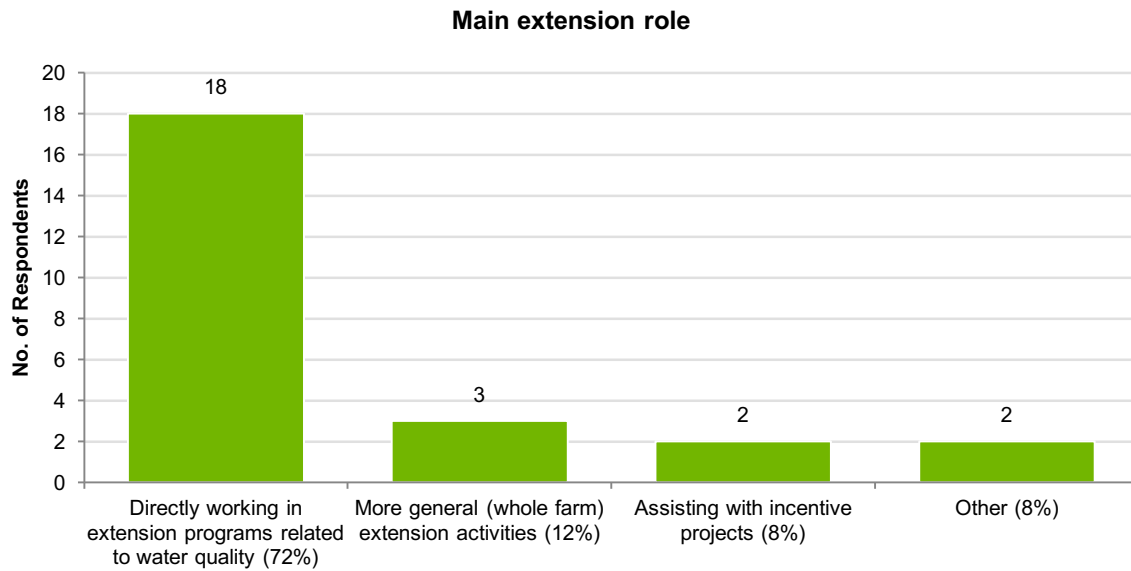
Using a whole farm approach was also suggested (4 mentions) with one across industries/other respondent commenting: *we all agree that N rate is not the be all and end all of water quality and productivity. Its a whole of farm approach and identifying the limiting factor on that particular block is the first step in the puzzle*. Another noted: *a program focused on maintaining ecosystem process would be highly beneficial, especially when considered in the context of 'whole of property' management...improvement to production systems is one focus - but improvement and maintenance of natural systems/process is also significant and needs to be included into the decision making*.

Other comments included: the need for quality extension and training (2 mentions); more financial incentives (2 mentions); reinstating a previous BSES successful model (1 mention); the need for growers to take more responsibility (1 mention) and more long-term projects and strategies (1 mention).

3. Responses – Extension Practitioners

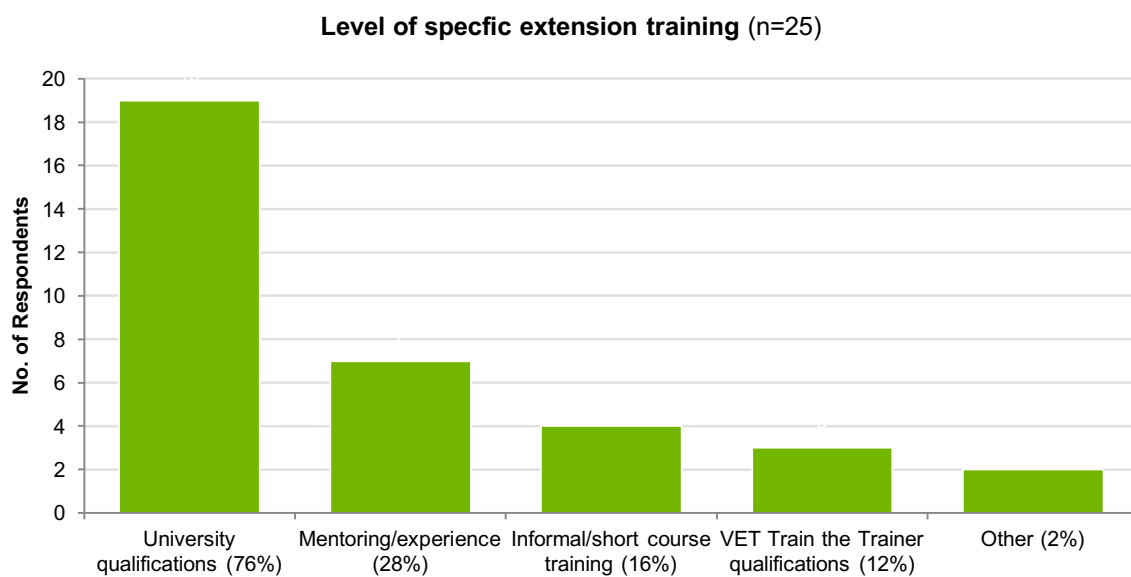
3.1 Main extension role

Chart 4:



3.2 Level of specific extension training

Chart 5:



3.3 Role of extension in assisting on-farm practice change

Overall, Extension Practitioners considered extension to be essential in assisting on-farm practice change, with comments noting the importance of relationship building and establishing trust and respect, as well as the need for high level technical skills and access to the right information and tools. Extension's role was described as: *information sharing; provides information, support and assurance; demonstrates possibilities for improvement; increasing awareness; interpreting the context of issues; providing growers with understanding of why change is needed; providing up-to-date and effective practical advice; scientific and supportive role to encourage growers to try new things; and assisting growers in identifying where there are issues.*

3.4 Best methods for assisting on-farm practice change

Relationship building was highlighted as key to assisting on-farm practice change (8 mentions), including the need to build trust and a rapport with the growers and spending the time to understand their needs. For example, one Extension Practitioner commented on the importance of having *personal relationships with customers and becoming the trusted adviser so that we can deal with the more subtle issues*, while another mentioned *empathy, and a willingness to understand the other demands in a grower's life and business.*

The delivery of more practical and tailored one-on-one advice was also seen as an effective method (7 mentions), with comments noting the value of *discussion based on regional/local need and hands-on assistance with detailed problems on-farm. Highly trained and knowledgeable extension officers with experience and technical competence* were also seen as important (4 mentions), as was the need for financial incentives (2 mentions).

3.5 Most enjoyable aspect of the job

Following the above trend, the most enjoyable aspect of the job was respondents' relationship with growers and the rural community (14 mentions) and the ability to assist in facilitating changes. One respondent described it as *mentoring, engaging with people who have the capability and capacity to make change, sharing in their successes and failures and helping them to get up and get going again.*

The opportunities to increase their knowledge through problem solving and learning opportunities, as well as the ability to *enable real change* was enjoyable for many (8 mentions), with one Extension Practitioner enjoying the *endless opportunities to learn* and another valuing *the challenge of pulling together all of my training and experience to enable real change in farming communities and the landscape.* Other enjoyable aspects included the diversity and variety of the job (3 mentions) and the ability to engage in practical outdoor work (3 mentions).

3.6 Suggested methods/changes to improve respondents' effectiveness in their role

The need for further training – particularly technical – was noted by some Extension Practitioners (5 mentions), with one describing how *being more aware of what is occurring within the industry will help with informing growers and putting the 'correct' information into the community.*

Other suggestions included: increased capacity and resources (4 mentions); working with like-minded people and building relationships (3 mentions); financial assistance/working with a budget (3 mentions); more independence/autonomy (3 mentions); more cooperation with growers and other organisations (3 mentions); and long-term planning (2 mentions).

3.7 Interest in undertaking training

The majority of Extension Practitioners had a medium to high interest in undertaking training in both extension related topics (84%) and technical related topics (88%). Short courses (76%) and mentoring opportunities (48%) were seen as the most effective methods of delivering training, with face-to-face (44%) and a combination of face-to-face and internet/webinar (48%) the preferred delivery methods.

- Specific comments on extension training included: *talk from experienced extension officers; formal training in extension; coaching in methods; effective engagement and engagement strategies; human behaviour; targeting messaging; use of media; and designing webinars and instructional videos.*
- Specific comments on technical topics included: *updates on changes; current results; technology; water management, water quality, soil science; landscape process; irrigation planning; and herbicide degradation.*

3.8 Confidence in extension as a career pathway

There was only moderate confidence in extension as a career pathway, with Extension Practitioners providing an overall average rating of 5.2 out of 10 (where 0=not at all confident and 10=very confident). Comments noted the issue with short term contracts and a lack of long-term pathways given the *project to project* and *supply driven* nature of extension. The need for motivated and highly skilled extension officers was reiterated, as was the need to *build growers capacity to use commercial extension services and realise the value in extension delivery.*