

Enhancing grain producers' capacity for business resilience: Evaluation of the Farm Business Resilience Program in Queensland

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Abstract. The Grains Farm Business Resilience Program aims to strengthen grain producers' capacity to respond to climate variability through targeted extension activities. Between 2022 and 2025, the program delivered a range of initiatives, including business planning support, upskilling events, and participatory on-farm trials, designed to enhance producers' economic, social, and natural resource management capabilities. Over this period, more than 100 activities engaged over 800 unique farm businesses, resulting in 230 formal business plans and 212 reported on-farm practice changes across properties collectively managing more than one million hectares in Queensland. The study evaluates these activities using a Knowledge, Attitudes, Skills, Aspirations, and Practices (KASAP) framework, capturing changes in learning, engagement, and reported behaviour. Findings indicate that participatory and locally responsive extension approaches supported increased awareness, skills development, and practice change among participants. While the study does not assess long-term resilience outcomes, the results provide indicative evidence of processes that contribute to building farm business resilience, particularly through fostering more proactive decision-making.

Keywords: Resilience, business plan, knowledge and skills improvement, on-farm participatory learning, extension, practice change.

Introduction

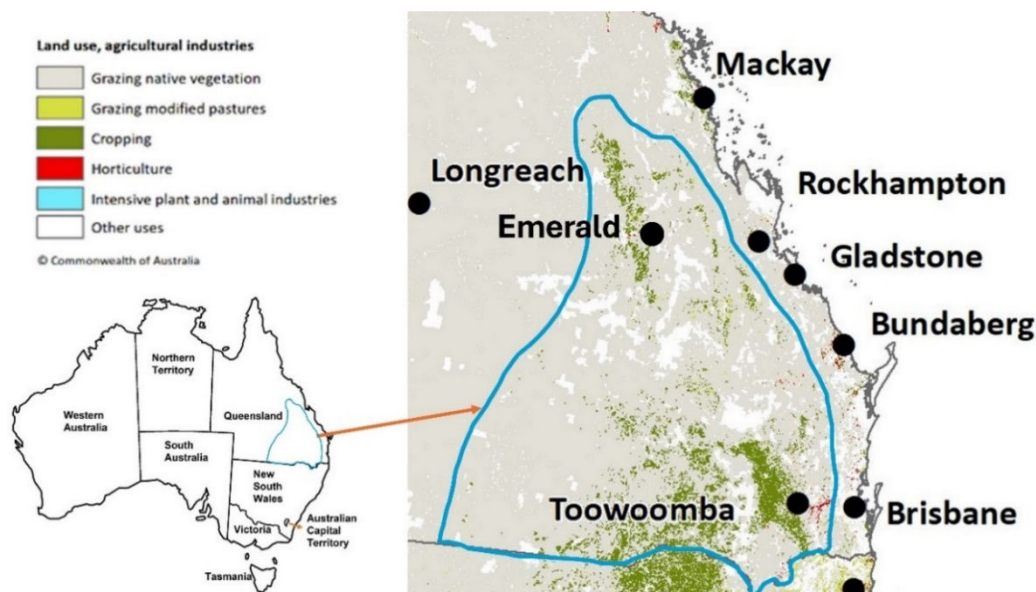
The Farm Business Resilience Program (FBRP) is designed to support producers across all primary industries to adopt proactive, rather than reactive, approaches to managing production challenges such as climate variability, market volatility, and resource constraints (DAFF, 2025). The Grains FBRP in Queensland is one of six industry-focused components jointly funded by the Australian Government's Future Drought Fund (FDF) and the Queensland Government's Drought and Climate Adaptation Program (DCAP). The remaining components target the grazing, dairy, horticulture, sugarcane, and intensive agricultural industries (Business Queensland 2025). The latter category includes enterprises such as cotton, which are characterised by relatively high input use, capital intensity, and irrigation dependency compared to broadacre or perennial systems, thereby justifying their classification as "intensive" within the program design.

Beyond its role as a policy initiative, the FBRP can be understood within an Agricultural Innovation Systems (AIS) framework, which emphasises the role of interactions among producers, advisors, researchers, industry bodies, and policy actors in enabling innovation and adaptive capacity (Klerkx et al. 2012; Hall et al. 2006). From this perspective, the program functions not simply as a funding mechanism, but as a platform for facilitated learning, knowledge exchange, and co-development, aligning with contemporary extension approaches that prioritise collaboration and farmer-centred innovation processes.

The Grains FBRP in Queensland is primarily designed to work with grain-based farming enterprises across central and southern Queensland (Isaac; Central Highlands; Banana; North and South Burnett; Western, Central, Southern and Inner Downs; Maranoa; Balonne; and Border rivers Shire councils) (Figure 1). The project highlights the important role of extension practices in helping grain producers to enhance their economic, social, and natural resource management resilience to make their farming businesses more adaptable to climate change while improving the long-term viability (Leeuwis & Van den Ban 2004; Vanclay 2004; Coutts 2005). Resilience in agricultural systems is commonly conceptualised as the capacity of a farming system to anticipate, absorb, adapt to, and transform in response to disturbances while maintaining core functions (Darnhofer 2014). In farming contexts, resilience extends beyond biophysical management to include economic preparedness, strategic decision-making, social capital, and adaptive capacity (Marshall et al. 2010). Importantly, resilience is not a fixed outcome but an ongoing social-ecological process shaped by learning, networks, and institutional support. According to FDF (2025), economic resilience refers to developing strategic business and risk management skills to enhance profitability and long-term sustainability. Social resilience refers to improving personal well-being and community support systems, while natural resource management resilience involves effective management of the farm's natural resources (water, soil, and biodiversity),

adaptation to climate change, and environmental stewardship to protect and enhance the farm's environmental assets.

Figure 1. A map showing the area of the grains-based farming enterprises across Queensland (the dark green colour within the blue border-enclosed region)



Source: ABARES 2024

As part of the process, the project team aimed to develop grain producers' formal business plans and identify knowledge and skills development opportunities and on-farm practices to improve their natural resource, economic, and social resilience that will help them to be better prepared for a changing climate. The business plan primarily aims to help producers assess their production risks and develop strategies and actions on how to manage these risks and track progress against planned outcomes (Business Queensland 2025). Along the way, the business plan also gives provisions to the producers to get access to financial assistance from the government for building permanent infrastructure (QRIDA 2025). Overall, the project team aims to help grain producers strengthen their farm business resilience by improving their capacity in decision-making and adopting improved practices on farm to face the key challenges of their business, including drought, heat stress, flood, market volatility, and rising borrowing costs.

This paper examines the extension practices employed by the Grains FBRP project, focusing on their design, implementation, and impact on farm business resilience. Additionally, the paper discusses the evaluation results of different extension practices delivered during 2022–2025 that captured the impact of grain producers' knowledge, attitudes, skills, aspirations, and practice change (KASAP), and highlighting how extension interventions influence farmer decision-making and adaptive capacity (Bennett 1975; Coutts 2005) across Queensland. The KASAP framework was selected due to its strong foundation in Bennett's Hierarchy (Bennett, 1975), its established use in Australian extension evaluation (Coutts 2005, 2013; Herrig et al. 2024; Puri et al. 2024), and its capacity to capture both learning and behavioural change (Knowles 1984). Alternative approaches, including logic models, Kirkpatrick's model, and impact pathways, were considered but deemed less suitable. Logic models primarily support program planning rather than measuring participant-level change, while Kirkpatrick's model, developed for formal training contexts, does not adequately account for the broader social, economic, and environmental factors influencing farmer decisions. Impact pathway approaches, although valuable for assessing long-term systemic outcomes, are often complex and less practical for routine evaluation, with a stronger focus on end impacts than on intermediate changes. In contrast, KASAP captures cognitive, behavioural, and aspirational dimensions, making it particularly relevant for resilience-focused programs and aligned with FDF and DCAP reporting requirements.

While farm business planning initiatives are widely used in drought policy, there is limited empirical evidence on how they function as participatory extension processes within an innovation systems framework or influence producers' adaptive capacity. This paper addresses that gap by examining Grains FBRP activities in Queensland from 2022 to 2025. Drawing on extension and innovation systems scholarship, it provides evidence on how structured business planning, peer learning, and participatory on-farm activities support adaptive capacity in grains-based farming

systems. Although long-term resilience requires longitudinal assessment, this study focuses on the intermediate cognitive and behavioural changes that underpin resilient farm businesses.

Methodology

The Grains FBRP project team delivered activities using a structured collaborative and participatory approach, engaging a broad range of stakeholders including grain producers and their family members, farm staff, agronomists, resellers, natural resource management groups, QRIDA (Queensland Rural and Industry Development Authority) and RFCS (Rural Financial Counselling Service) personnel, researchers, and extension officers. This collaborative approach was operationalised through a series of Building Business Resilience (BBR) workshops, supported by follow-up training, on-farm activities, and ongoing engagement. Between 2022 and 2025, a total of 105 activities engaged more than 800 unique farm businesses. Grounded in participatory extension and adult learning principles—particularly experiential learning and co-production of knowledge (Knowles, 1984)—the program emphasised participant-driven priorities, peer learning, and locally relevant application, rather than prescriptive practice change.

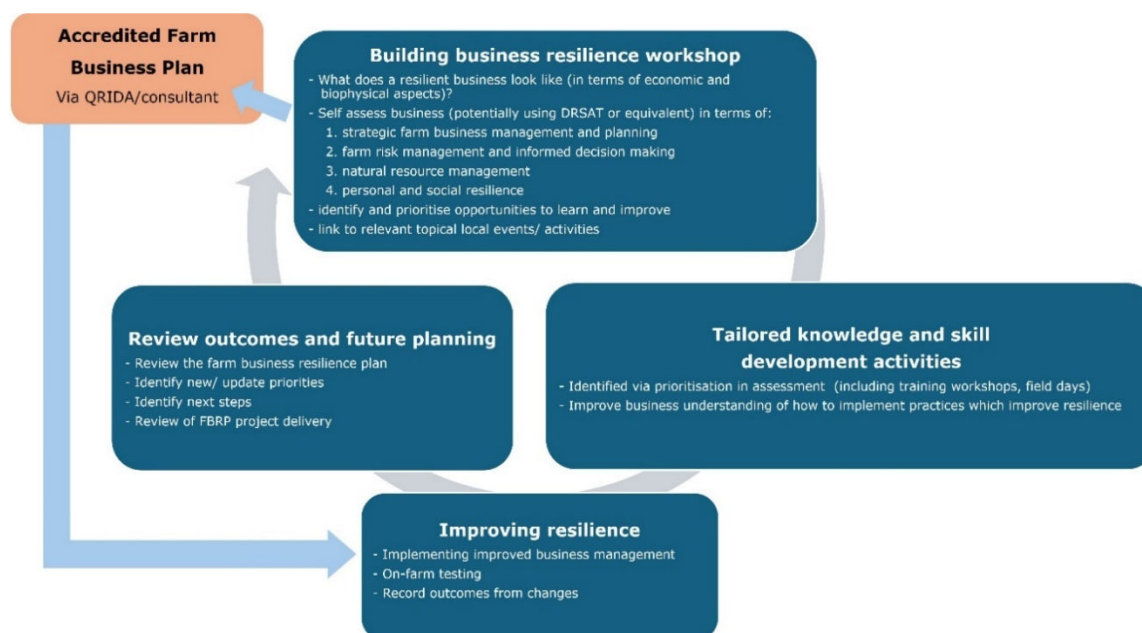
The project implementation followed a four-stage cyclical framework (Figure 2), typically delivered over a 12-month cycle, with some producers engaging in multiple iterations:

- Stage 1: Plan development via Building Business Resilience (BBR) Workshop
- Stage 2: Delivery of tailored knowledge and skill development activities
- Stage 3: Implementation of identified priorities on farm
- Stage 4: Review, reflection, and updating of priorities.

Rather than assuming linear adoption of practices, this cyclical model promoted ongoing learning, reflection, and adaptive management, which are key precursors to long-term resilience outcomes.

The delivery framework of the Grains FBRP (Figure 2) was adapted from the Grains Best Management Practices delivery process (Eames & Collins 2017). While the original model focused primarily on the adoption of agronomic best practices, the FBRP framework retained its cyclical and action-oriented structure but expanded its scope to explicitly incorporate business resilience dimensions (economic, environmental, and social). Key adaptations included the integration of whole-of-business planning rather than practice-specific change, the inclusion of financial and risk management components (e.g. drought preparedness and QRIDA support mechanisms), and stronger emphasis on structured reflection and adaptive learning through Stage 4.

Figure 2. The delivery framework of the Grains Farm Business Resilience Program team with steps and the activities of each stage



Source: The Grains Farm Business Resilience Program team (adapted from Eames & Collins 2017)

Stage 1. Building Business Resilience workshop to develop the business plan

Over the project period, 24 small-group BBR workshops were delivered by the project team, typically involving 15 participants, to support individual business plan development.

Representatives from QRIDA and RFCS attended to provide information on available support services. Workshops introduced a workbook developed by the Grains FBRP team, incorporating FBRP introductory principles from the Queensland Drought Reform process and a structured SWOT (strengths, weaknesses, opportunities, and threats) analysis. In total, 351 participants engaged in Stage 1, of whom 83% were grain producers.

The facilitated SWOT analysis guided grain growers to identify perceived risks, opportunities, and capability gaps within their own business context across natural resource, economic, and social resilience, using a facilitated self-assessment process ('on track', 'could do better', 'action required', 'not relevant'). Outcomes informed identification of training and skill development needs and formed the basis of individual business plans, with information transferred into the formal business plan template developed by the FBRP program level (Business Queensland 2025). Participants then prioritised a small number of actions (typically 3–5) based on importance and feasibility; these were captured on a whiteboard, discussed among the participants, and ranked to guide location-specific follow-up actions in Stage 2. The process was designed to support reflection and planning rather than provide a definitive measure of resilience. Post-workshop surveys (Table 1; Herrig et al. 2024) recorded perceived relevance, knowledge gain, confidence, and intended actions as indicators of learning and engagement. In total, 262 grain producers survey responses were collected in Stage 1.

Stage 2. Tailored delivery of knowledge and skill development activities

In Stage 2, 36 tailored knowledge and skill development activities (e.g. workshop) were delivered, typically involving 13 participants per workshop. A total of 456 grain producers and stakeholders (including agronomists, bankers, and representatives from QRIDA and RFCS) participated, of whom 76% were grain producers. The priorities identified in the business plans (Stage 1) directly informed the design and delivery of the tailored knowledge and skill development activities in Stage 2 of the cycle (Figure 2). Common priority areas included workplace health and safety, succession planning, financial management, risk mitigation (e.g. drought preparedness), soil health and crop nutrition, and farm expansion. Activities were delivered at varying frequencies depending on demand and seasonal conditions, with most regions receiving multiple engagements (3–6 annually). Some topics were delivered across multiple locations (e.g. succession planning in 13 locations), while others were more localised (e.g. workplace health and safety in three locations). The Grains FBRP project team provided learning opportunities to assist growers in developing the necessary knowledge and skills required to implement practices that improve resilience. Where the required expertise aligned with the project team's capabilities, activities were delivered internally. In cases where specialised knowledge was needed (e.g. financial counselling, succession planning), external service providers (such as RFCS advisors or Succession planner) were engaged to deliver targeted support. At the end of each activity, participants' feedback was recorded by supplying them a survey form (Table 1), captured satisfaction, relevance, knowledge gain, and intended practice change, informing continuous program improvement and assessment of participant learning outcomes. In total, 277 grain producers survey responses were collected in Stage 2.

Stage 3. Implementation of identified priorities on farm

Stage 3 focused on the implementation of participant-identified priorities through an on-farm participatory learning approach. This approach was informed by experiential learning theory and participatory extension frameworks, where learning occurs through active experimentation, observation, and reflection in real-world contexts. Rather than testing practices under controlled research conditions, the emphasis was on co-learning, where producers trial practices within their own farming systems and interpret outcomes in collaboration with peers and advisors. Across the project period, 45 on-farm activities (demonstration trials, information days) engaged 517 participants, including 81% grain producers, alongside agronomists, resellers, researchers, natural resource management groups, and QRIDA representatives. In practice, this stage involved small-group activities, typically comprising 10–15 producers per group, who had identified similar priorities in their business plans (e.g. weed management, crop nutrition, understanding sub-soil constraints, crop diversification, improve ground cover, and on-farm grain storage). Participants were supported to implementation of on-farm demonstration of trial and/or hands-on experience of new or modified practices relevant to their business plans. The role of the project team was to facilitate learning by providing technical input where required, encouraging peer-to-peer exchange, and supporting structured observation and reflection.

In doing so, the project team ensured sufficient observations were made to objectively measure the impact of these practices in order to maximise the learning opportunities for the grain producers involved, they also ensured that the lessons grain producers learned during the implementation process were shared with the wider farming community via field days, case

studies, and communication materials (see Communication section below). “Sufficient observations” in this context referred to the collection of practical, farm-relevant evidence to support learning and decision-making. Observations included qualitative insights (e.g. crop performance, ground cover improvement, soil properties) and quantitative indicators (e.g. crop yield, biomass, plant available water) used to inform learning. Accordingly, “objective measurement” is used here in a limited sense, referring to the use of observable and, where possible, recorded indicators to inform participant learning, rather than formal experimental or statistical evaluation. The primary aim of the learning opportunities was to support informed decision-making and build confidence, not to generate generalisable impact data. Post-activity surveys (Table 1) captured perceived usefulness, knowledge gained and intended or implemented practice change. A total of 335 grain producers survey responses were collected in Stage 3.

Stage 4. Review of the business plan, reflection, and updating of priorities

Stage 4 involved a structured review and reflection process using a questionnaire (Table 1). Participating producers revisited their business plans and assessed progress against their identified priorities through online surveys, phone interviews, and face-to-face discussions using the same questionnaire. Although all grain producers from Stages 1–3 were invited, 97 participated in this stage, including 68 online responses and 29 from phone interviews and face-to-face discussions. While the online survey was distributed to all participants, interviews and discussions focused on those who had engaged in earlier stages (particularly Stage 1) and completed at least one follow-up activity in Stages 2 or 3. No additional selection criteria were applied.

Progress was assessed using KASAP metrics (Knowles 1984; Coutts 2005), operationalised through self-reported measures, including changes in knowledge and understanding (Knowledge), confidence and perceptions (Attitudes), capability to apply practices (Skills), intentions and future planning (Aspirations), and reported implementation of practices (Practices). These measures are interpreted as indicators of learning and behavioural change rather than direct measures of business resilience outcomes. The review process also assisted grain producers in identifying other priorities for improvement and updating their business plans accordingly.

Survey form and data analysis

Three types of survey forms were used at different stages of the project (Table 1) to track the project's progress over time, identify opportunities for improvement in delivery, gather feedback from program participants regarding their experience in the process, and record the practice change already being implemented in their businesses. The forms were developed by the project team based on established agricultural extension evaluation frameworks (e.g. Knowles 1984; Coutts 2005; Herrig et al. 2024) and refined through internal review to ensure clarity and alignment with program objectives. The forms used in Stages 1–3 were informally pretested during early delivery of workshops and activities. This involved trialling questions with initial participant groups and refining wording, response scales, and sequencing based on participant feedback and facilitator observations. All forms were designed to be practical and low-burden, incorporating both quantitative items (e.g. satisfaction, relevance, and knowledge gain) and qualitative open-ended questions (e.g. key learnings, intended actions, and challenges). Quantitative responses were measured using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) (Likert 1932).

A total of 971 responses were collected from grain producers across all stages of the project (Stage 1: 262, Stage 2: 277, Stage 3: 335, and Stage 4: 97), with participation being voluntary. The response of participants from different survey questions were recorded as per activity delivered at different stages and the data were pooled by activity type for analysis in Microsoft Excel. For example, responses from all BBR workshops were combined and analysed together, with results presented in graphs (see Results section). Analysis was primarily descriptive. Quantitative data were summarised using frequencies, percentages, and mean scores, and aggregated by activity type (e.g. BBR workshops, knowledge and skill development activities, and on-farm activities). Qualitative responses were thematically grouped to identify recurring patterns in participant feedback, particularly in learning outcomes and reported practice change. No inferential statistical analyses were undertaken, as the study aimed to document participant experiences and learning processes rather than test causal relationships.

Table 1. Types of survey forms used to document participant's feedback from different engagement activities delivered by the Grains Farm Business Resilience project team

Building Business Resilience Workshops	• How did you find the day? (Likert scale 1-5) • How would you rate the BBR workshop on improving how to prepare, manage & recover from drought? (Likert scale 1-5) • How would you rate the BBR workshop on improving the sustainability of your farming practices? (Likert scale 1-5) • How useful have you found the activity on Farm business self-assessment? (Likert scale 1-5) • Did you have an existing farm business plan? (Yes, No) • What might you do differently in your preparation, management and/or recovery as a result of participating today? • Any comments/suggestions for improvements?
Tailored knowledge & skill development activities & on-farm activities	• How did you find the day? (Likert scale 1-5) • How would you rate the day to help improve your farming practices? (Likert scale 1-5) • How would you rate the day on improving your ability to make practice changes in the future? (Likert scale 1-5) • Have you attended any other FBRP activities in the past? (Yes, No) • What did you find most useful about today? • What might you do differently as a result of participating today? • Any comments/suggestions for improvements?
Review of the business plans, reflection, and updating of priorities	• What has been your interaction with the Grains FBRP project (select all that apply)? (Attended BBR workshop only, Attended knowledge improvement activity only, Attended on-farm activity only, Attended BBR workshop and other activity) • Following the interaction have you taken any of the actions (select all that apply)? (Discussed/ Shared the learning with other people, Decided to implement one or more practices/technologies on the farm, Already made a change to practices/technologies on the farm, None of the above) • What type of change have you made to your business over the past 3.5 years (select all that apply)? (Improving resilience of natural resources, Improving resilience of farm economics, Improving resilience of social issues) • What do you think the benefits of these changes will be on improving resilience for your business? • Are you planning to make any changes that improve your business resilience in the next 12 months? (Yes/No/May be) • If you have a Business plan, have you (select all that apply): Used it in the past 2 years, Reviewed it in the past 2 years, Made changes to it in the past 2 years? • Given your experience how likely would you be recommending someone else to attend the Grains FBRP activities? (Likert scale 1-5) • What do you see as the future priorities in improving your businesses resilience?

Communication and promotion of project activities

A wide range of communication approaches has been regularly undertaken before conducting an event to promote the activities to a wider network to ensure maximum participation. These approaches were informed by extension communication principles, particularly the use of multiple channels, repeated messaging, and locally relevant networks to enhance reach and engagement. Some of the approaches undertaken to promote the events include emails to local farmers and stakeholders, publishing flyers in local newspapers, the council's website, community group noticeboard, Queensland Agriculture Facebook page and LinkedIn account, Business Queensland webpage, and GRDC (Grains Research and Development Corporation) website. These approaches were selected to ensure broad accessibility and relevance, recognising the diversity of communication preferences among producers. To promote success stories among the wider audience, video/written case studies, narratives, reports, and legacy documents were shared via email communication, YouTube, and Queensland Agriculture. These materials were used to extend learning beyond direct participants, enabling other producers to engage with practical examples and insights generated through the program. The effectiveness of communication activities was assessed indirectly through participation levels, repeat engagement, and participant feedback, rather than formal communication metrics.

Results

Stage 1. Building Business Resilience workshop to develop the business plan

In total, 24 BBR workshops were delivered across Queensland during 2022-2025 that engaged 351 stakeholders (including representatives from QRIDA and RFCS) and helped to develop 230 individual written business plans (Table 2). Collectively, the grain producers managed more than 0.7 million hectares of cropping land.

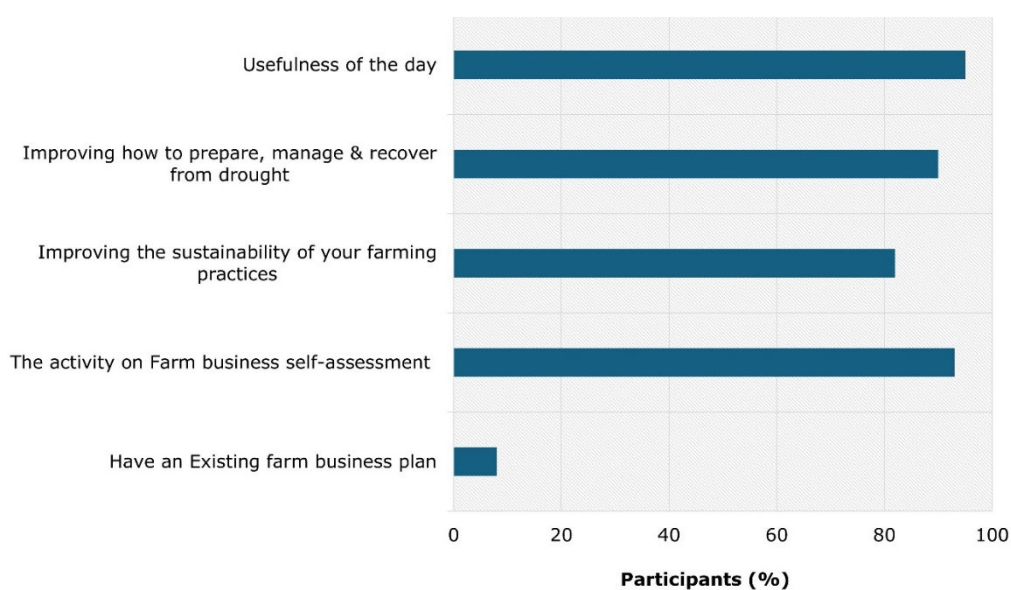
From the BBR workshops, grain producers identified soil health, crop nutrition, soil moisture retention through efficient weed management and ground cover improvement, new farming practices, grain storage, crop diversifications as means of improving their natural resource resilience, while as part of improving economic and social resilience, grain producers identified business finance management, succession planning, farm expansion considerations, workplace health and safety issues as their main priorities. Although the priority was almost identical across different locations, however, weed management, grain storage, business finance management were considered as a priority for the Central Highlands and Banana Shire councils whereas soil health, crop diversification and farm expansion were considered priority for the Burnett, Downs and Maranoa councils.

Post workshop evaluation results showed that more than 90% of grain producers happy (average response rate on Likert scale was 5) with the effectiveness of these workshops in developing their business plan and identifying priorities (Figure 2). Out of the 351 stakeholder participations, only 8% of grain producers were found to have an existing plan, many of which were not formalised or captured in a formal plan document form, which was updated to a formal business plan due to their engagement with BBR workshops.

Table 2. The number of activities delivered by the project team of the Grains Farm Business Resilience Program and their engagement scenario across Queensland during 2022-2025

Types of activity	Number delivered	Stakeholders participated	Business plan developed	Combined farming area of grain producers (ha)
Building Business Resilience workshop	24	351	230	723,045
Knowledge and skill development activities	36	456	-	101,856
On-farm activities	45	517	-	129,781

Figure 2. The survey evaluation response from the grain producers attending the Building Business Resilience workshops across Queensland during 2022-2025



n=262

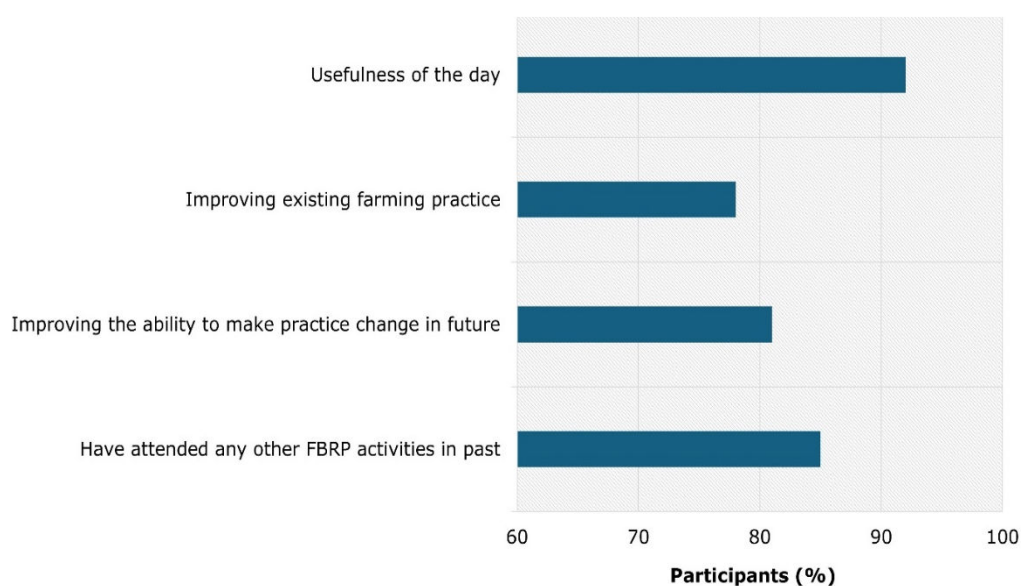
Stage 2. Tailored delivery of knowledge and skill development activities

More than 35 tailored knowledge and skill development activities were delivered across Queensland during 2022-2025 that engaging more than 450 stakeholders who managed more than 1 million hectares of cropping land (Table 2). Some of the major knowledge and skill development activities included nutrition management, weed control, succession planning, cash flow and accounting, workplace health and safety, and farm expansion/farm business forum.

The cumulative summary of the post event evaluation results showed more than 90% grain producers were happy (average response rate across activities on Likert scale was 4) with the effectiveness of these events in improving their knowledge and skills (Figure 3). More than 75% grain producers said the activities would improve their existing farming practices to improve business resilience (average response rate on Likert scale was 5), while 81% grain producers found the engagement activities would help them to improve their abilities to make practice changes in the future (average response rate on Likert scale was 4). Most of the participants (85%) were found to have attended the past events organized by the Grains FBRP project team.

To explore variation in perceived outcomes across activity types, responses were qualitatively compared between broadly defined categories of activities, including technical (e.g. agronomy-focused topics such as nutrient and weed management) and business-oriented activities (e.g. financial management, succession planning). While overall satisfaction and perceived usefulness were consistently high across all activity types, business-focused activities were more frequently associated with reported improvements in decision-making confidence and future planning, whereas technical activities were more commonly linked to immediate knowledge gains and incremental changes in farming practices.

Figure 3. The survey evaluation response from the grain producers attending the knowledge and skill development activities across Queensland during 2022-2025



n=277

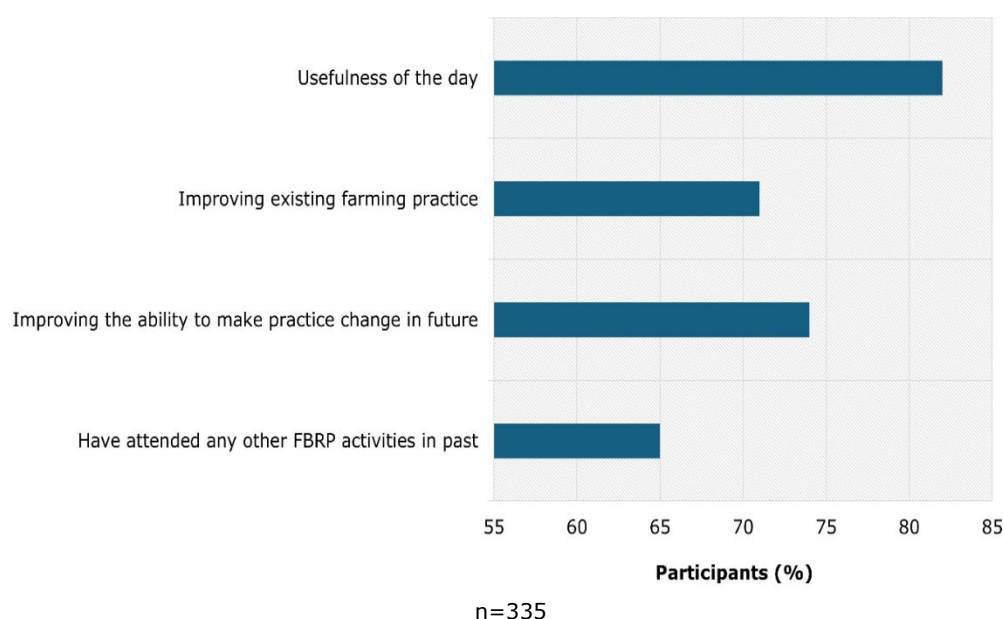
Stage 3. Implementation of identified priorities on farm

In total, 45 on-farm activities were delivered across Queensland during 2022-2025 and engaged more than 500 stakeholders who managed approximately 1.3 million hectares of cropping land (Table 2). These activities were directly informed by priorities identified in Stage 1 (BBR workshops) and further refined through ongoing consultation with participating grain producers. The Stage 3 activities were delivered using a mix of on-station field demonstration trials, facilitated group learning events, and producer-led on-farm trials, depending on the topic and local context. Some of the major on-farm activities delivered included soil pit days, spot spray technology to control hard-to-kill weeds, cover crop trials (including roller crimping and chemical termination) and impact of cover crops on following grain crops, different methods of urea incorporation, grain storage, practical demonstration of drone to improve water use efficiency, alternative crop options for both summer and winter crops. These activities followed a participatory learning approach, where producers were actively involved in observing, discussing, and interpreting outcomes within their own farming systems. Observations from these activities

were documented through a combination of facilitated group discussions during and after field events, facilitator notes, and where available, simple quantitative indicators (e.g. visual crop performance, yield comparisons). Learning and insights were shared more broadly through field days, group discussions, summary notes/fact sheets, and integration into subsequent workshops and extension materials, enabling wider dissemination beyond direct participants.

Post event evaluation results showed more than 80% grain producers were satisfied with on the usefulness of on-farm activities in-farm business resilience (Figure 4). Around 70% grain producers said the activities would improve their existing farming practices to improve business resilience (average response rate on Likert scale was 4), while 74% grain producers found the engagement activities would help them to improve their abilities to make practice changes in the future (average response rate on Likert scale was 5). More than 60% participants were found to attend the past events organized by the Grains FBRP project team. Consistent with findings from other stages of the program, these results reflect participant perceptions of learning, usefulness, and intended practice change, rather than independently verified impacts on farm performance or business resilience.

Figure 4. The survey evaluation response from the grain producers attending the on-farm activities across Queensland during 2022-2025



Stage 4. Review of the business plan, reflection, and updating of priorities

The business plan development and engagement on different activities led the grain producers to take actions towards practice change on farm. The end of project survey captured feedback from 97 grain producers (out of approximately 800 invited), of which more than 80% reported improved their knowledge and skills due to participating the events and 78% indicated they had already made a change to practices/technologies on farm (Figure 5). In total, 212 practice changes have already been implemented on farm (Figure 6), that was reported by the respondents to develop their economic (30%), social (14%), and natural resource management skills (56%) (Figure 7). Percentages are calculated as the proportion of total reported practice changes attributed to each category. Responses to the survey question "What type of change have you made to your business over the past 3.5 years?" (multiple responses allowed) were manually coded by the research team into three resilience domains using predefined definitions. Broadly, the survey response on improving soil fertility, crop nutrition, long-term soil moisture retention through efficient weed management and ground cover improvement, ag-tech innovation adoption, grain storage, and crop diversification were categorised under natural resource resilience. Improving grain producers' strategic business finance management strategies, farm expansion considerations, and adaptation to climate change were categorised under economic resilience while working on issues such as workplace health and safety, community and support, succession planning, and better uses of the business plan, were considered as improving their social resilience. Coding consistency was ensured through team review and consensus on ambiguous cases. As such, percentages represent the relative distribution of reported changes, rather than the proportion of participants. From the survey, grain producers reported to update further their business plan by updating their priorities in areas such as:

- business finance management (e.g. online course on finance management)
- succession planning (e.g. formally engaged with succession planners)
- crop nutrition (e.g. deep placement of phosphorus and potassium)
- soil health (e.g. application of gypsum to address soil hard setting)
- weed management (strategic use of chemicals)
- growing alternative crops (e.g. pigeon pea in summer and lupin in winter).

The above responses represent commonly reported themes across multiple responses, rather than isolated case studies. Among these, soil health (47 responses) and crop nutrition (38 responses) were the most frequently reported areas of intended practice change, followed by business finance management (26 responses). Other themes included weed management (16 responses), growing alternative crops (16 responses), and succession planning (13 responses). This distribution indicates a stronger focus on biophysical and production-related changes, compared to more complex and longer-term business transition areas such as succession planning.

When survey respondents were asked to rate different activities in which they participated, grain producers highly recommended (average response rate on Likert scale was 5) other producers to attend the activities, as they reported the project activities improved their KASAP on the following topics:

- Improve productivity/profitability (nutrient management/soil testing/ farm machinery)
- Improve management of natural resources (improved ground cover)
- Address workplace health and safety or similar issues
- Improve business labour management (communication/training/retention)
- Improve business record keeping (timesheets, paddock diaries, etc)
- Improve farm infrastructure (accommodations/sheds/yards/silos/water/fences)
- Write a Business Plan (annual budgets/cash flow/electronic record keeping)
- Improve farm biosecurity (disease risks considered, weed management, grain storage)
- Address wills/succession/other key documentation.

Figure 5. The survey response at stage 4 showing grain producers' key actions towards practice change across Queensland during 2022-2025

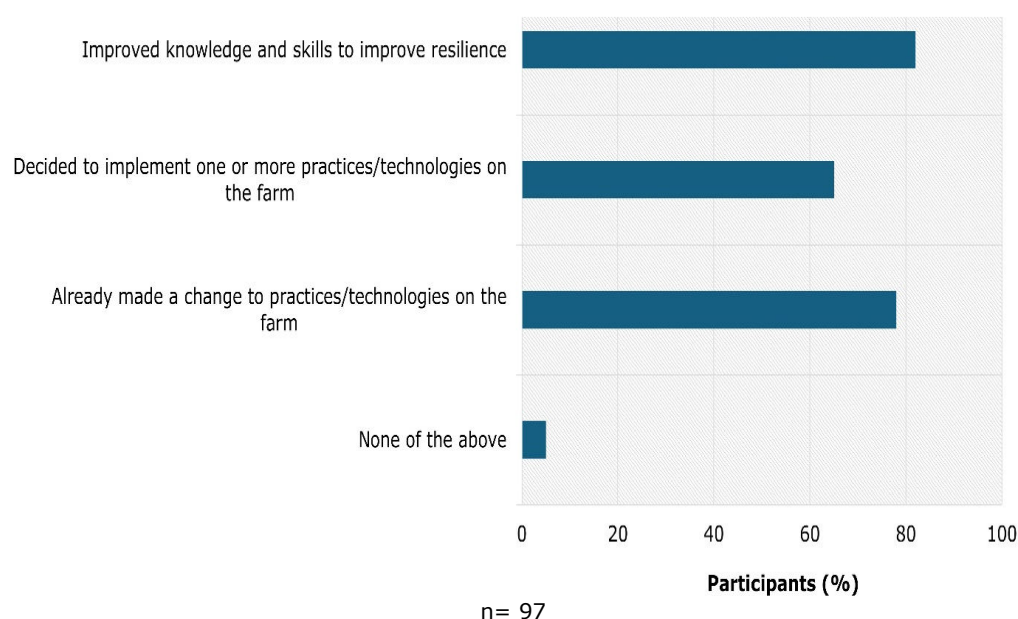


Figure 6. The survey response at stage 4 showing Queensland grain producers' who already made practice changes in different areas during 2022-2025

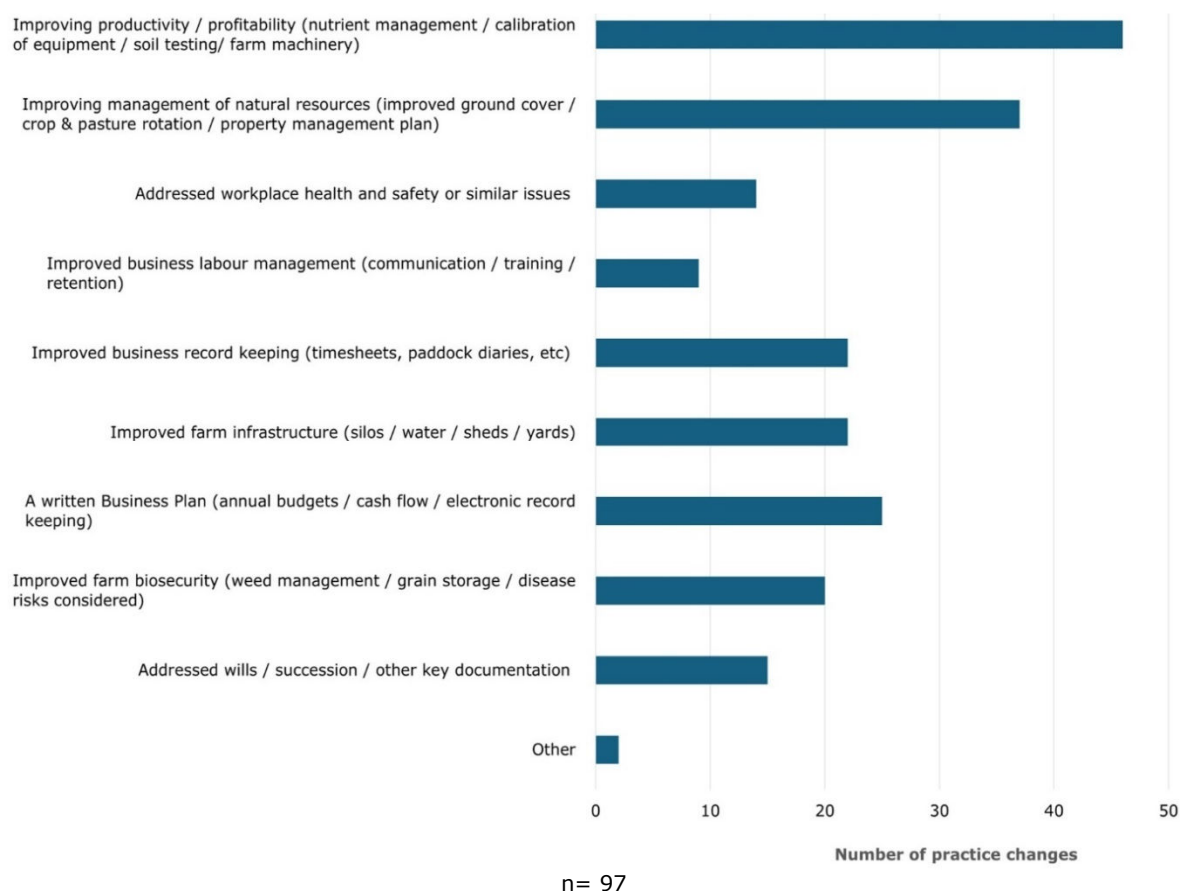
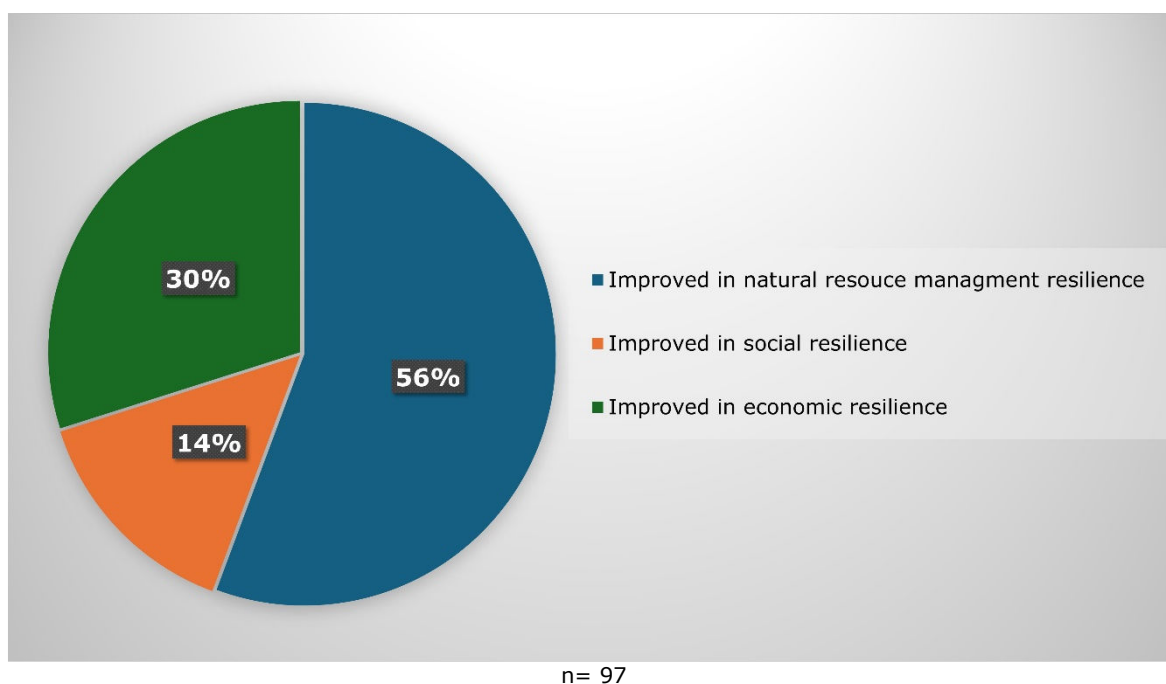


Figure 7. Category wise distribution of reported practice changes across economic, social and natural resource management domains, based on follow-up survey responses of grain producers engaged in Grains FBRP activities across Queensland during 2022-2025



Grain producers reported slightly stronger engagement and perceived benefit for natural resource management topics (e.g. soil health, crop nutrition, and weed management) compared with more complex or longer-term areas such as succession planning and strategic business management.

Despite these positive outcomes, not all participants actively used their business plans. The end of project survey results showed that 30% of the grain producers (29 out of 97 respondents) who had developed the business plan had not used it since completion. Based on the response, there were two clear categories:

1. Those who saw value in the plan but had other priorities or commitments (i.e., currently undertaking succession) that prevented them from acting on their priorities.
2. Those who would like to use the plan to apply for a QRIDA drought preparedness grant, however, felt disheartened due to the apparent inability of grain businesses to access these grants, and currently feel that investing time in developing the plan is not worth their time.

Of the 30%, 20% fell into the first category and 10% into the second. These concerns were raised by participants across multiple regions, although the extent of this issue varied depending on local circumstances and individual business contexts

Communication and promotion of project activities

The information flyers of different activities were promoted to more than 1600 stakeholders via email, local newspaper, council's website, community group noticeboard, Queensland Agriculture Facebook and LinkedIn page, Business Queensland webpage, and GRDC website. The estimate of stakeholders reached is based on distribution list counts and circulation records, rather than confirmed individual engagement. There were seven video case studies developed from the project engagement, and those were uploaded to YouTube and viewed by 1346 visitors. In addition, three written case studies were developed and distributed to over 800 stakeholders via email; however, open and read rates were not systematically tracked, limiting the ability to assess actual engagement with these materials. Three legacy documents (weed management, information on soil pit day, soil nitrogen decisions for the Burnett) and four trial reports (cover crop trial, nitrogen incorporation, alternate crop options for winter and summer season) were distributed to more than 400 grain producers. As with other communication outputs, these figures represent distribution reach rather than confirmed utilisation.

Discussion

The Grains FBRP project team worked with grain producers in Queensland during 2022-25 to help develop their formal business plan and support their learning and decision-making for developing more resilient farming businesses. Over the 3.5 years of the project, the team had involved more than 1300 stakeholders, including grain producers, advisors, agribusiness, and agricultural consultants, by delivering 105 engagement activities viz. workshops, information forums, commercial-scale on-farm research, and group discussions. These activities are widely recognised as important mechanisms for facilitating learning and bridges research-extension gaps by enabling co-design, co-implementation, and shared reflection (Snapp et al. 2019; Prajapati et al. 2025). The program design emphasised participatory and iterative engagement resulted in 230 written business plans and led to 212 reported practice changes (based on 97 survey responses) among the Queensland grain producers. Facilitated self-assessment workshops and follow-up activities might foster to the informed decision making and helped grain producers to develop skills to make a change in their business (Ridley 2005; Eames & Collins 2017). Practice change was found to have a strong link when grain producers involved in the process of peer learning and evidence-based discussion such as involved in an on-farm trial or be involved on on-farm consultation with experts (Eames & Collins 2017). This was reflected in our study (Figure 7), as we found grain producers practice changes were motivated due to project engagement that helped grain producers to be engaged with peer learning and evidence-based discussion. These findings align with principles from agricultural innovation systems (e.g. Klerkx et al. 2012), where knowledge exchange is co-produced among farmers, advisors, and researchers, and with farmer adoption frameworks (e.g. Pannell et al. 2006), which highlight the importance of relevance, trialability, and perceived benefit in driving practice change. The participatory nature of the program—particularly through on-farm trials and group-based learning—also reflects social learning theory (Reed et al. 2010), where interaction and shared experience enhance learning outcomes. Importantly, the findings highlight that learning and intention do not always translate into sustained action, with structural and contextual barriers (e.g. time constraints, succession processes, and perceived funding limitations) influencing the extent to which business planning is operationalised.

Evaluation of participants' feedback

Participant feedback collected across project activities (Figures 2–7) was used to assess program performance and inform adaptive delivery. Survey data captured both quantitative ratings (e.g. usefulness, knowledge gain) and qualitative insights (e.g. intended actions, perceived value). Six areas were identified as critical for directly contributing to the delivery of the outcomes. These included:

- Engagement and participation: all KASAP domains
- Impression of activities: Attitudes
- Understanding and application of processes: Knowledge and Skills
- Understanding and application of principles for individual circumstances: Knowledge and Skills
- Improve practices (i.e., resource, sustainability, and profitability): Practices
- Identifying and planning for change: Aspirations.

Feedback indicates (Figures 2-5) that activities have been successful in delivering the project outcomes by supporting farmers to identify tailored learning and skill required as well as planning and implementing changes to their farming systems that improve their business resilience. For example, more than 80% grain producers agreed that the BBR workshops and the follow-up on-farm action learning activities helped them to develop their business plan, improve their abilities to make practice changes, and consistently updated priority areas (Table 1, Figures 2-7).

Examples of the effectiveness of activities in achieving outcomes (translated learning into action), are not just quantitative with qualitative comments such as, "The day helped to fine-tune my storage plan, better monitoring grain conditions throughout the storage term, and showcased the latest developments in grain storage", following a grain storage day emphasising participant value. The producer who made this comment has since installed a new grain storage system by replacing the outdated silo system.

This commentary is not restricted to on-farm events with business focused activities receiving similar feedback such as, "The learning activity will help to improve my business finance issues. Planning, budget, and taking earlier action would be my proactive step in becoming a resilient business". As a result of this project activity, the producer providing this comment has started to use the formal cash flow templates to record all farm financials.

In addition, the development and ongoing review of both succession plans, and farm business plans are now considered key components in maintaining clear communication amongst staff and family, as well as ensuring a collective business objective to improve social resilience. One of the participants said, "Recording, planning for the future - succession and production, developing maps, seeking advice, and preparing wills are priorities to improve my business resilience".

These participant quotes illustrate key elements of Rogers's (2003) innovation adoption theory, particularly the concepts of perceived relative advantage and practical applicability. Importantly, the qualitative responses reflect broader, recurring themes across multiple participants, rather than being isolated or anecdotal examples.

Reflection

Feedback collected by the project, whether post event (Figures 2-4), or in later follow-ups (Figure 5) all support the value of project activities in improving grain producers KASAP-related outcomes, including increased knowledge, skills, and reported practice change. The success of the project outcomes was further contributed to by the high participation of the stakeholders, largely driven by proactive communication and local knowledge of appropriate timing to deliver the activities (time of the day and season). Priorities were identified by farm businesses giving them ownership of the issues and the project team worked collaboratively to address raised issues, which proved important drivers of adoption (Coutts et al. 2017). Although the end-of-project survey captured 212 reported practice changes, consistently positive stakeholder feedback across delivery stages suggests that the actual level of practice change is considerably higher than reflected in the survey responses. According to one grower, "The Farm Business Resilience Program is a complete package for the producers where there is something for everyone from the family business, whether it is cropping or outside cropping issues". One of the great reflections coming from the engagement activity is that the outside cropping issues is mostly being participated by the female members of the businesses (80% of total participants) whereas the cropping issues was mostly participated by the male members (75% of total participants) and issues such as developing business plan and succession planning being participated by mostly the whole family (65% as opposed to 35% individual participation). These patterns reflect the persistence of gendered roles within farm businesses, where male members continue to dominate on-farm production activities, while female members play a significant and often multifaceted role in business management and

off-farm income generation. As highlighted by ANZ (2020) and Ressa et al. (2022), women contribute 84% of off-farm income and are heavily involved in financial management, record keeping, and strategic decision-making. They also frequently act as key decision-makers, mediators, and succession planners within farm businesses. Despite this substantial contribution—including roles in diversification into areas such as agritourism, food, and hospitality—women remain underrepresented in formal industry networks, highlighting an opportunity to better recognise and support their contributions to farm business resilience and growth.

Conclusion

The Grains FBRP project activities during 2022-25 provides evidence that participatory, multi-stage extension approaches can support farmer learning, engagement, and reported practice change across economic, social, and natural resource domains. While the findings do not directly measure long-term resilience outcomes, they demonstrate how targeted activities can strengthen capacities associated with resilience, including knowledge, skills, planning, and decision-making. The study contributes to the extension literature by demonstrating the value of participatory business planning, peer-to-peer and on-farm learning, and integration of multiple resilience dimensions within a single program framework. Grain producers reported that developing and maintaining a business plan and addressing the priority areas have improved their abilities to make practice changes now and in the near future. However, translating planning into sustained action remains a challenge, particularly in the presence of external constraints and competing priorities. Future programs should consider stronger integration of structural enablers (e.g. funding access, follow-up support) to enhance the long-term impact of extension interventions.

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