

Final report

Forewarned is Forearmed climate coaching for on-farm decision making

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Prepared by: Esmée de Looff and Jo Jones, John James
Pinion Advisory, Enablers of Change

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Abstract

The Forewarned is Forearmed (FWFA) extension project has been the final phase of the five-year FWFA project that developed five forecasting tools for extreme weather events. In this final phase, learning materials were developed for the dairy, red meat, grains, wine and sugar industries in southern Australia. The learning materials included producer workbooks, a deliverer handbook, and a template presentation for workshop delivery. Resources were developed with input from a Reference Group that comprised of Rural Research Development Corporation (RDC) and producer representatives from the targeted industries. Resources were then tested and refined using a pilot process where trained pilot advisors delivered workshops to producers. Feedback collected via a monitoring and evaluation process was utilised to improve the learning materials. In the final stages of the project a train-the-trainer process was offered to advisors from all the aligned industries, and successfully attracted advisors from all target industries. Learning materials were distributed amongst participating RDCs as part of the project legacy plan. Both producer and deliverer workshop participants acknowledged the value of the tools and rated the quality of the learning materials as high, despite the learning content being experienced as complex. The need for more practice to improve understanding of the tools and confidence in workshop delivery was highlighted, yet participants were positive about future use of the tools to engage with producers in their industry.

Executive summary

Background

The *Forewarned is Forearmed climate coaching for on-farm decision making* project (referred to as the 'FWFA extension project') has been the final phase of the five-year Forewarned is Forearmed (FWFA) project, and focused on the extension of the project outputs to industry, and more specifically, to service providers in the dairy, red meat, grains, wine and sugar industries in southern Australia. The target audience was southern-Australian based advisors who will deliver workshops to producers to drive adoption of the five new Bureau of Meteorology forecasting tools for extreme weather events. The desired result of the project will be trained advisors, who are well-equipped with appropriate resources, to support the training of producers to use the tools, which will decrease the impacts that extreme weather events have on farm production and on business profitability.

Objectives

The main objectives of the FWFA extension project were to build the extension product and to train advisors from the five industries to deliver workshops to producers, to encourage use of the FWFA tools to improve risk management beyond the life of the FWFA project.

Methodology

The FWFA extension project activity was divided into three phases: phase 1 - program development, phase 2 - delivery of pilot workshops and phase 3 - train-the-trainer workshop for deliverers.

Results/key findings

High-quality learning materials and resources to support FWFA producer workshop delivery were created.

Ten pilot deliverers were trained to use the FWFA tools and to deliver workshops to producers in phase 2. Five face-to-face pilot workshops were delivered to 32 producers in different regions across southern Australia, and to different industries.

Thirty-seven advisors completed the train-the-trainer process in phase 3, representing the red meat, dairy, grain, wine, sugar and cotton industries.

Benefits to industry

The benefits to industry resulting from the project include:

- A suite of resources for advisors and producers which can be used to support learning about and confidence building for using the FWFA resources.
- Trained advisors who can facilitate workshops with producers to support their learning journey.
- More resilient producers who will be supplying food and fibre to Australia.

Future research and recommendations

Care should be taken to ensure that any changes to the tools on the Bureau of Meteorology site are communicated and reflected in the FWFA extension resource pack.

Future adoption projects of this nature would benefit from have the adoption phase embedded in the project from the commencement of the research and development phase.

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1. Background

Australia has one of the most variable climates of any country in the world. Extreme weather events (such as heatwaves, frost and heavy rainfall) and climate variability have a huge impact on Australia's agricultural production and income.

The Forewarned is Forearmed (FWFA) project was a five-year project that developed five new Bureau of Meteorology forecasting tools for extreme weather events. Its aim was to develop tools that provide information on the forecast of weather extremes, to equip producers with the ability to be prepared. The desired outcome of the project is decreased negative impacts of extreme weather events on agricultural production and business profitability.

The FWFA project was supported by funding from the Australian Government, Department of Agriculture, Fisheries and Forestry as part of its Rural R&D for Profit program. Support was also received from a number of project partners, including the Future Drought Fund, the Southern NSW Innovation Hub, the Bureau of Meteorology, Meat and Livestock Australia, the Grains Research and Development Corporation, The Queensland Government Department of Agriculture and Fisheries, Agriculture Victoria, AgriFutures Australia, Australian Pork, BCG Shared Solutions, Cotton Research and Development Corporation, Dairy Australia, Monash University, South Australian Research and Development Institute, Sugar Research Australia, the University of Melbourne, the University of Queensland and Wine Australia.

The *FWFA climate coaching for on-farm decision making* project (referred to as the 'FWFA extension project') has been the final phase of the FWFA project, focusing on the extension of the project outputs towards industry, and more specifically, to service providers in the dairy, red meat, grains, wine and sugar industries in southern Australia.

2. Objectives

The main objective of the FWFA extension project was to build momentum for uptake of the FWFA tools and create a producer-centric approach to improving risk management for agricultural industries beyond the life of the FWFA project. This objective has been met, as a producer-focused workshop has been developed including complementary learning materials. The workshops held throughout the FWFA extension project have created awareness of the Bureau's tools throughout. Specifications of the reach are included in the Results section of this report.

This project was tasked to develop the extension product (workshop and associated resources on how to use seasonal climate forecasts, including the five new climate forecast products, in on-farm decision making) and deliver a pilot program meeting the target of 50 producers engaged by early May 2023, followed by a train-the-trainer program targeting a minimum of 30 and up to 50 advisors across five industries, to be completed by the end of May 2023.

3. Methodology

The FWFA project team consisted of a representative from the Southern NSW Drought Resilience Innovation and Adoption Hub (SNSW Hub), MLA, the FWFA research team, as well as representatives from Pinion Advisory and Enablers of Change. The project team were responsible for guiding activity and ensuring progress against objectives.

The FWFA extension project activity was divided into three phases:

- phase 1 - program development
- phase 2 - delivery of pilot workshops and
- phase 3 - train-the-trainer workshop for deliverers.

3.1 Phase 1 - program development

During phase 1 a workplan, communications plan and monitoring and evaluation (M&E) plan were prepared and approved by the project team. A project Reference Group was established and the draft extension product developed.

3.1.1 Project Reference Group

A project Reference Group was established early in phase 1. The Reference Group was to provide linkage and continuity with the previous research and development phase of the project, and advice on the design and content of the FWFA training package and the delivery pilot. A key role of reference group Research and Development Corporation (RDC) members and the SNSW Hub was to support the project legacy beyond this pilot project. Pinion Advisory performed the secretariat duties for the reference group (developing agendas, circulating pre-reading, and drafting meeting minutes).

The membership of the Reference Group was:

- SNSW Hub Director (Chair of Reference Group).
- MLA staff: FWFA extension project manager and FWFA program project manager.
- One representative from each of the following Research and Development Corporations (RDCs):
 - Dairy Australia
 - Wine Australia
 - Sugar Research Australia
 - GRDC
 - Cotton Research and Development Corporation
 - Rice (Agrifutures)
 - Australian Pork.
- Six producer representatives, one from each of the industries and covering as diverse a geography as possible.
- Three technical experts from the FWFA R&D project phase.
- Pinion Advisory and Enablers of Change representatives
- SNSW Hub staff: Chief Knowledge Broker and Program Manager
- FWFA national coordinator.

3.1.2 Resources to support extension

During phase 1 the development of the resources to support extension occurred. These included:

- learning material - content for deliverer and participant (producer) workbooks
- delivery slides (suited to both online and face to face delivery)
- workshop runsheet / agenda
- promotional flyer template
- monitoring and evaluation template.

Learning materials

Existing products and knowledge from the FWFA project were leveraged to produce the learning materials. Outputs from the previous phases of the overall FWFA project were made available at the start of the extension project. These materials included videos, papers, reports, risk matrices and an eLearning module. The materials were studied, and a general outline of a workbook was drafted.

While studying the existing material from the FWFA project, it was evident that a basic understanding of forecasting and related terminology is important to be able to correctly interpret the FWFA tools and extract useful information for decision making.

It also became clear that a specific chapter on industry-specific, tactical decision making related to extreme weather challenges would be of great value to ensure practicality of the tools and relatability of their use in decision making. As such, an industry-specific chapter was written in addition to the generic chapters about forecasting, the FWFA tools and additional resources. The industry-specific chapters included information on tactical decision making around extreme weather challenges relevant to the considered industry.

A generic (i.e. not industry-specific) producer workbook was also developed, which was developed for industries other than the targeted industries, and included a more generic approach to understanding tactical decision making involved with extreme weather challenges. The deliverer workbook was designed to include all industry-specific chapters, as well as an additional chapter on delivery of the workshop.

Given the limited timeframe of the project, it was decided to develop the deliverer workbook first as it encompassed the most information and the train-the-trainer pilot workshop was the first workshop to be held for which an early version of a workbook was required.

These observations and decisions guided the design and content of the workbook, which is summarised in Table 1.

Table 1. Outline of producer and deliverer workbooks created as part of the FWFA extension project.

	Industry-specific producer workbook	Deliverer workbook
Glossary	x	x
Chapter 1: Overview of forecasting	x	x
Chapter 2: The five Forewarned is Forearmed tools	x	x
Chapter 3: Tactical decision making	x (industry-specific)	x (all industries)
Chapter 4: Further resources	x	x
Chapter 5: Workshop delivery		x
References	x	x
Appendix 1: How to access the FWFA tools	x	x
Appendix 2: Navigating the FWFA tools	x	x
Appendix 3: Case studies		x
Appendix 4: Event evaluation form		x

With multiple rounds of feedback and input from the Reference Group and project team, the pilot workbooks were further improved into a version suitable for the pilot train-the-trainer workshops and pilot producer workshops. All pilot workbooks were processed into a more appealing design by a graphic designer, including space for note taking throughout the workbook.

Other resources to support workshop delivery

A train-the-trainer pilot workshop runsheet and producer pilot workshop runsheets were created, a PowerPoint slide deck for the train-the-trainer pilot workshop was developed, and all were complementary to the draft train-the-trainer pilot workbook. The train-the-trainer pilot workshop runsheet and producer pilot workshop runsheet were utilised to structure the slide deck for the train-the-trainer pilot workshop, and content was based on the material gathered in the train-the-trainer pilot workbook.

Feedback on the pilot workbooks and pilot slide decks for both the train-the-trainer pilot workshop and producer pilot workshops was gathered to further improve these learning materials into their final versions. The final workbooks for both deliverers and producers, as well as the final producer workshop template slide deck, will be made available publicly on MLA's Creative Commons website.

3.1.3 Workshop design

Parallel to the development of the workbooks and both the deliverer and producer workshop slide decks, a workshop design was outlined in the format of the detailed runsheet. As with the workbooks, it was evident that understanding of forecasting and related terminology is important to be able to correctly interpret the FWFA tools and extract useful information for decision making. Therefore, it was decided to structure both the deliverer and producer workshops to suit this staged approach.

Flipped learning

Both workshops included a flipped learning approach with pre-reading sent to workshop participants ahead of the workshop. In a flipped learning approach, participants are encouraged to read information or watch short videos prior to attending the workshop. This allows workshop participants to familiarise themselves with the topic of the workshop beforehand, so the workshop could have a focus on practical use of the tools and address topics where there are specific questions or interest. As such, the workshop is less of a lecture and more of a hands-on tutorial where participants can apply what they have already learnt. The pre-reading material for train-the-trainer workshop participants was more comprehensive than the pre-reading material for producer workshop participants. This simply reflects the need for workshop deliverers to be across the content to a greater extent to be able to deliver the workshop to producers effectively and confidently.

Train-the-trainer workshop

The train-the-trainer workshops were designed to be a two-session workshop with a session duration of 1.5 hour each, and sessions held one week apart. Both sessions included pre-reading and a post-session follow-up e-mail with resources and additional information. The first training session focused on understanding forecasting, terminology and the tools themselves. The second training session focused on delivery of the workshop and how to extend the learning material effectively to producers. The detailed train-the-trainer workshop runsheets for both sessions are included in Appendix 1A. Pre-session and post-session e-mails were sent out before and after the train-the-trainer workshops and are included in Appendix 1B.

Producer workshop

The producer workshop was designed to be a 90-minute workshop with a flipped learning approach to allow for the desired flexibility of the workshop delivery. As such, the workshop was designed to be either a standalone workshop or allow to be tacked onto another workshop; for example one where climatic conditions are identified and discussed. The producer workshop includes a recap of the pre-reading material. However, the workshop runsheet is designed to not be compromised to a detrimental extent in the event of participants not completing the pre-reading material. The pre-reading ahead of the producer workshop will certainly aid in a fluent and efficient start of the producer workshop, thereby allowing more time to focus on the *application* of the tools. Chapter 5 in the deliverer workbook (provided separately and in addition to this report) includes a detailed recommended runsheet of the producer workshop, as well as template e-mails for deliverers to use for sending out pre-reading tasks and post-session information to workshop participants.

Case studies

Case studies were used in both the deliverer and producer workshops for the purpose of getting workshop participants to work through the FWFA tools using a scenario. The case studies were sent out as pre-reading to participants and used during the workshop to clarify and discuss any challenges participants might have encountered during their pre-session preparations with the case studies. At least two example case studies have been developed for the red meat, dairy, grain, wine and sugar industries, and included in the deliverer workbook. Trained deliverers have been encouraged to tailor case studies for their FWFA workshops to ensure relevance to the industry, region, timing and farming practices of their workshop audience. Guidelines for developing relevant and effective case studies as pre-reading are included in the deliverer workbook.

3.2 Phase 2 – delivery of pilot workshops

Workshop designs for deliverers and producers were piloted during phase 2 of the FWFA extension project. Advisors and service providers of the red meat, dairy, grain, wine and sugar industries were approached for the delivery of the pilot producer workshops, in-line with the communications plan of the FWFA extension project.

The purpose of the pilot train-the-trainer and pilot producer workshops was to trial the designed workshop models and receive feedback from participants on their quality. This information was used to further improve both the learning materials (workbooks and slide decks) as well as the workshop designs (i.e. runsheets).

After the first session of the pilot train-the-trainer workshop, it was decided to include an additional session ahead of the second deliverer session, to allow pilot train-the-trainer workshop participants to ask more questions to further grow their confidence in using and understanding the tools and their functionality. The runsheet used for the pilot train-the-trainer workshops is included in Appendix 2.

The learnings from the pilot train-the-trainer workshops and feedback from the reference group on the learning material and producer pilot workshop were processed into an updated producer pilot workshop runsheet. Pilot workshop deliverers were encouraged to get creative in their approach for engaging pilot participants in understanding the application of the tools. The rest of the pilot workshop was designed to follow the runsheet as outlined in Appendix 3.

3.3 Phase 3 – train-the-trainer workshops for deliverers

Promotion was conducted using the Communications plan, and participants were given the option to choose between three timeslots for session 1, and three timeslots for session 2 with a week in between sessions 1 and 2 (Table 2). Registrations were required via Zoom registrations, accessed through the links on the digital flyer. Participants then received a confirmation e-mail from Zoom, including the meeting link for the chosen sessions.

Table 2. Overview of session times available for participants to register for the FWFA train-the-trainer workshops.

Time (EAST)	Session 1 – Introduction to FWFA and using the five new tools	Session 2 – Training farmers to use the FWFA tools
8.30-10.00am	Tuesday 6 June Register here	Tuesday 13 June Register here
3.30-5.00pm	Wednesday 7 June Register here	Wednesday 14 June Register here
12-1.30pm	Thursday 8 June Register here	Thursday 15 June Register here

Several enquiries were received about where to find the registration link. For some participants it was possible to register for an alternative session 1 time. As this wasn't possible for all session 1 absentees, it was decided to record session 1c. The recording link was distributed amongst session 1 absentees, together with the e-mail sent out with pre-reading of session 2. The pre-reading e-mail

for session 2 also included instructions on where to find the Zoom link, and a call to reach out for help if the Zoom link could not be sourced at all. These actions were undertaken to encourage registrants to participate, as there was a considerable difference between number of registrations and number of attendees at session 1 (Chapter 4).

The objective of session 1 was to ensure deliverers were confident in using and interpreting the 5 new tools and understanding the technical language involved. At session 1, a technical expert from the Bureau of Meteorology was available to explain the correct interpretation of a weather forecast, explain how the FWFA project fits in the Bureau's development plan, and answer questions about the tool functionality through an interactive question & answer section while working through the pre-reading case studies live on screen.

The objective of session 2 was to ensure deliverers were confident in the FWFA resources (workbook and slide deck) and delivering to a target audience of producers. At session 2, a pilot deliverer from the pilot phase of the FWFA extension project was available to facilitate two interactive exercises in the session through which they could share their recommendations and insights from the pilot workshop they delivered.

The first exercise utilised the breakout room function in Zoom, grouping participants together to answer the following questions within a timeframe of 10 minutes:

- How would you let farmers identify how they can use information from tool outputs for improving their decision making around extreme weather events?
- What approach might you use to facilitate such a session?
- How would you assist producers in using the tools for informed decision making?

The second exercise was titled 'pre-mortem' and challenged participants to picture themselves right after delivering their first FWFA workshop where it went horribly wrong. Participants were asked to share with the group what they think might go wrong at the workshop, vote on which challenges they think are most relevant, after which a facilitated discussion was held on how to mitigate the issues highlighted. The purpose of this exercise was to discover potential culprits and develop a mitigation plan well ahead of delivering a FWFA workshop, as a preventative strategy.

3.4 Monitoring and Evaluation

Efficacy of the FWFA extension project was determined using monitoring and evaluation through conducting surveys amongst participants to gather feedback on the quality, relevance and value of the pilot workshops (deliverer and producer) and train-the-trainer workshop. A combination of PollEverywhere and SurveyMonkey was used and feedback was gathered at the conclusion of each of the pilot workshops. An overview of surveys utilised throughout the FWFA pilot activities is summarised in Appendix 4. For the train-the-trainer workshop, feedback was gathered at the end of session 2.

4. Results

The reference group met online twice, once at the start (Feb 2023) and once towards the end (May 2023) of the project. Members of the Reference Group also provided valuable feedback on written documents throughout the project.

Progress against the key project objectives is outlined below. The key objectives were:

- Develop the extension product (workshop and associated resources on how to use seasonal climate forecasts, including the five new climate forecast products, in on-farm decision making).
- Deliver a pilot program meeting the target of 50 producers.
- Deliver a train-the-trainer program targeting a minimum of 30 and up to 50 advisors across five industries.
- Communication and Monitoring & Evaluation (M&E) plans for delivery of the workshop during the pilot phase of the project.

The outputs delivered were as follows:

- I. A workplan, communications plan and M&E plan for the delivery of the workshop were developed in the first phase of the FWFA extension project. As such, this deliverable has been met.
- II. A deliverer package (including a slide deck and a manual) to support workshop delivery into the future.
A deliverer manual, industry-specific producer manual and slide deck have been developed to support workshop delivery into the future. These materials will be made available on MLA's Creative Commons website as well as on the websites of other RDC partners. As such, this deliverable has been met.
- III. A pilot program meeting the target of 50 producers.
This was broken into a pilot train-the-trainer program and pilot producer workshops.
 - (i) A two-hour training workshop for advisors on how the climate forecasting tools can be used with producers as part of a forecasting toolbox. The training workshop had to include basic understanding of forecasting knowledge, use of the eLearning package '*Using seasonal climate prediction tools – Agriculture Victoria*' and other resources. Two-part deliverer training workshops (train-the-trainer workshops) were held online for advisors, equivalent to a three-hour training workshop. The workshop included basic understanding of forecasting and forecast terminology, the tools, their explanation and interpretation, and how to effectively deliver the designed workshop to producers. The eLearning package was included as pre-learning for the workshop, as well as other resources. Ten deliverers were trained in the pilot train-the-trainer. The deliverers represented the red meat, dairy, wine, sugar, grain and mixed-farming industries. As such, this deliverable has been met.
 - (ii) Delivery and evaluation of at least six pilot workshops for producers across southern Australia, engaging a minimum of 50 producers from mixed farming, horticultural and agricultural sectors.
Due to the short time-frame available for the pilot train-the-trainer, and the complex nature of the FWFA tools, not all advisors who participated in the pilot train-the-trainer felt confident to deliver a workshop to producers. The timing of the pilot phase also clashed with extremely busy periods for producers in some of the target industries,

which meant that five producer pilot workshops were held face-to-face. This was one workshop short of the target. Through these workshops, a total of 32 producers were engaged. Participants were from red meat, dairy, grain, wine, sugar, horticultural and mixed farming backgrounds. The producer target of 50 was not reached, however extremely valuable feedback was gained through the pilot process, so in agreement with the project steering committee and the reference group, this phase was deemed successful.

- IV. A train-the-trainer program targeting up to 50 advisors across five industries. Delivery and evaluation of train-the-trainer workshops for advisors across southern Australia, engaging a minimum of 30 advisors. Six train-the-trainer workshops were held online (three sessions for each of the two parts of the deliverer training). The geographical spread from participants comprised Victoria, South Australia, Tasmania, New South Wales, Western Australia and Queensland, thereby covering at least southern Australia. Thirty-seven advisors completed the training sessions live via Zoom, and other have received the training as recordings of the sessions. As such, this deliverable has been met.
- V. Co-branding of all materials with FWFA partners and acknowledgement of funding from the Department of Agriculture Fisheries and Forestry via the Rural R&D for Profit project and the Future Drought Fund. Learning materials developed (i.e. workbooks and slide decks) have included acknowledgement of funding (Department of Agriculture Fisheries and Forestry via the Rural R&D for Profit project and the Future Drought Fund) and cooperation with FWFA partners through co-branding. As such, this deliverable has been met.

Throughout the process of meeting the project's objectives, the focus was on ensuring the extension package developed was of high quality, practical, useful and flexible in how it could be delivered. Including flexibility allows extension agents to adapt the FWFA extension materials to include them in existing extension programs and packages as a value-add, thereby increasing the likelihood of the extension package being used and subsequently increased awareness of the FWFA tools. Quality was assured by involving the Reference Group in the development of the learning materials, as well as national coordinator of the FWFA project Russell Pattinson (Miracle Dog), and technical experts Peter Hayman (SARDI) and Ann-Maree Graham (University of Melbourne). In the development stage of the learning materials, Reference Group members commented on the workshop agenda "being thorough" and "covering off on everything". The approach of focusing on how the tools could be used in practice and thereby setting realistic expectations of the tools, was also appreciated.

The practicality and usefulness of the program and its learning material was assured through the piloting and subsequent evaluating of a draft program with producers and advisors in the targeted industries in phase 2. Producers participating in the pilot workshop indicated they will likely use the tools in the future (Appendix 5: monitoring and evaluation report). Producer comments included statements like "Now that I am aware that they exist I will endeavour to use these tools" and commented on the plan to use the tools either weekly or quarterly as another information source to use in their decision making.

Pilot delivery workshop participants in phase 2 and delivery workshop participants in phase 3 indicated the need to either spend more time working through the tools, attend another workshop, or sit in on someone else delivering the workshop before feeling confident enough to deliver the workshop themselves (Appendix 5). This highlights a need and subsequent opportunity to organise and deliver follow-up deliverer training and/or new rounds of the deliverer training workshops.

The evaluation results of this phase were presented to the Reference Group, upon which comments were shared about Reference Group members being impressed with the high quality of work produced, as well as the concern about the restrictive nature of the short timeframe of the project which might present a risk for traction of the tools in industry. A difference in level of engagement between advisors and producers was noted, and the importance of acknowledging the busy times in certain industries when planning extension activities.

During phase 3, advisors participating in the train-the-trainer workshop were asked to pre-empt risk factors relevant to delivering workshops to producers. Valuable information was generated through this activity and a summary of the potential issues and possible mitigation strategies were collated and is attached in Appendix 6.

The FWFA extension product resources will be made available on various websites of organisations associated with the project. A Legacy Plan document will summarise where the resources will be found and will be circulated to all Reference Group members and trained deliverers. The Legacy Plan is attached in Appendix 7.

5. Conclusion

5.1 Key findings

The FWFA extension project has successfully developed a framework to drive adoption of the Bureau's new extreme weather event tools across the red meat, dairy, grain, wine and sugar industries across southern Australia. Key findings of this project are listed below.

- The FWFA workshop package offers an attractive opportunity for advisors to use to deliver increased value to their current or prospective clients.
- The FWFA workshop package is a good vehicle for supporting producers to use the extreme weather event tools to inform on-farm decision making.
- Through the learning material development and pilot workshops, it was evident that in general there is a poor grasp of forecasting terminology amongst advisors and producers, which subsequently hampers correct interpretation of forecast information, thereby creating unmet expectations. The workshop package assists in improving forecasting literacy and interpretation.
- Knowledge about forecasting and the FWFA tools improved and confidence in using the FWFA tools increased as a result of the pilot train-the-trainer workshops.
- Producers indicated a high level of satisfaction with the pilot workshop and described the learning materials as useful.
- Advisors rated the train-the-trainer workshop and learning materials to be of high quality with an overall high satisfaction level.
- Trained deliverers indicated moderate confidence in delivery, with some deliverers indicating they don't feel confident enough in their understanding to deliver the FWFA workshop to producers.
- Pilot producers indicated their confidence in using the tools to be moderate, yet with a high likelihood of utilising the tools.

- The FWFA tools were perceived by some as complex and difficult to understand, potentially preventing trained deliverers to commit to delivering a producer workshop and/or preventing producers from using tools in decision making.

5.2 Benefits to industry

The FWFA extension project has created a framework for advisors and producers to build understanding, skill and confidence with forecasting and the use of the Bureau's new extreme weather event tools. The train-the-trainer workshop has equipped participating advisors to deliver the FWFA workshop to producers in their region and industry, using the learning materials developed during this project. A typical advisor has the potential to influence between 20 and 50 producer clients, therefore significant reach is anticipated through this extension project. The duration and flexible nature of the workshop allows for incorporation of the workshop in other extension programs, thereby creating an opportunity for broader extension across industries and regions, outside of the direct consulting/advising network.

Despite considerable quantities of information being available online about climate drivers, forecasting and the weather, there has been limited opportunity for producers to attend workshops on practical implications of weather forecasting. The FWFA workshop package was designed to initially build understanding about the availability, functionality, and purpose of the new tools. Another objective of the workshop package is to demonstrate application of the tools and the use of the tool outputs as information to improve decision-making around climate- and weather-sensitive decisions.

6. Future research and recommendations

Participating advisors and producers in the FWFA pilot and train-the-trainer phases of the project gained new insights and misconceptions were highlighted in relation to forecast interpretation, which highlights the importance of ongoing extension of the Bureau's forecast information and forecast interpretation guidelines. Throughout the FWFA extension project, a requirement for realignment of users' expectations around the accuracy and interpretation of forecast information has been highlighted.

Albeit successful, the extremely tight timeframe to deliver on the project's objectives formed a considerable risk to the quality of the outputs and the project objectives. Integration of extension throughout the lifetime of the FWFA project rather than a relatively short, separate extension phase at the end, could have resulted in a more thorough and higher quality extension product, with more close involvement of the Bureau of Meteorology and its affiliates. Input of qualified, technical experts on climatology throughout the project would have made the process of developing the learning material content more efficient.

Three train-the-trainer workshops were held in June 2023 with no further plans of scheduling other train-the-trainer opportunities. The learning materials will be made available online with free access. However, the interactive process of the train-the-trainer workshop will not be available beyond the life of the FWFA extension project. Evaluation of the pilot deliverer and deliverer workshops indicated an interest in further training to solidify participants' understanding in the tools and subsequent confidence in delivering the workshop. Therefore, it is recommended to offer new

rounds of train-the-trainer workshops ahead of key weather times of the year, to allow trained deliverers to be prepared right before the key times when producers are facing climate- and weather-sensitive decisions. In addition, refresher courses for trained deliverers or a webpage with updates to the functionality of the Bureau's tools are examples of methods to keep trained deliverers engaged and motivated to run the FWFA workshop they have been trained to deliver.

The flexible design of the FWFA workshop package lends itself to be an add-on workshop for other extension activities, particularly if those activities are themed around climate- and weather-sensitive decisions. Representatives of RDCs who have been involved with the Reference Group have been encouraged to champion the FWFA extension project and its outputs. Incorporating the FWFA workshop in RDC suites of workshops at key times of year could aid in ongoing support of awareness creation for the FWFA tools and their application.

7. References

NA.

Appendix 1A: FWFA train-the-trainer workshop runsheet

Overview

Following a similar approach to the pilot TtT delivery, with 3 hours total training split into two 1.5-hour sessions delivered one week apart. There will be pre-learning associated with each session, therefore registrations will close one week prior to session 1 (i.e. 31 May). Registrations will be managed via survey monkey. Participants will be encouraged to attend both sessions, but some may only attend one or the other. To allow for this, every session will be evaluated. Based on the outcomes from the pilot TtT, where attendees valued the opportunity to meet and share ideas/learnings with people other industries, and also complexities with promotion in the available timeframe, the workshops will not be industry-specific but open to potential deliverers from any industry. There will be a spread of available times and days to maximise opportunities to attend. Minimum number for a session to proceed are 5, with a maximum of 25.

Time (EAST)	Session 1 date	Session 1 topic	Session 1 presenters	Session 2 date	Session 2 topic	Session 2 presenters
8.30-10.00am	Tuesday 6 June	Intro to FWFA and using the five new tools	Facilitated by John James, delivered by Esmée de Loeff and Alister Hawksford BoM	Tuesday 13 June	Delivering a FWFA workshop	Facilitated by Jo Jones, delivered by Esmée de Loeff and Tanisha Shields
3.30-5.00pm	Wednesday 7 June			Wednesday 14 June		Facilitated by Jo Jones, delivered by Esmée de Loeff and Colin Hinze
12-1.30pm	Thursday 8 June			Thursday 15 June		Facilitated by Jo Jones, delivered by Esmée de Loeff and Tanisha Shields

Pilot deliverer training session 1: using the five new BoM tools (1.5hr)

- Flipped learning approach; request to prepare by viewing the following resources: (1) eLearning module, (2) Three case study scenarios (to facilitate learning to interpret tools), (3) FWFA workbook (with a focus on chapters 1 and 2), (4) video (FWFA project)
- Online delivery (Zoom) (3x different sessions to choose from).
- Outcome: deliverers are confident in using and interpreting the 5 new tools and understand the technical language.

Time	Activity	Details	Time	Person
0:00	Welcome (8mins) <ul style="list-style-type: none"> • Introductions • Agenda overview 	<ul style="list-style-type: none"> • Quick round the room, name, organisation, location, why interested in the FWFA tools • Housekeeping • Agenda for meeting 	7 min 1 min	John
0:08	Overview of forecasting and terminology (20 mins) <ol style="list-style-type: none"> 1. Context for tools (and how they fit with other Bom products) 2. How to explain the difference between weather, multiweek and seasonal climate forecasts as well as neutral vs average forecasts 3. Technical jargon: How to explain terminology required for tools (medians, deciles, box and whisker plots, hindcast vs forecast, percent chance of exceeding the median). 4. Importance of understanding probability and accuracy Questions	Session introduction and purpose 1x slide overview tools in graph 1x slide 'bigger BOM picture' 1x slide forecast language 1x slide weather forecast interpretation 1x slide technical jargon FWFA tools 2x slide probability & accuracy Opportunity for Qs from deliverers (if tight for time: highlight plenty room for questions when running through case studies)	1 min 2 min 3 min 3 min 2 min 3 min 2 min 4 min	John Esmée Alister Esmée Alister Esmée Esmée John to facilitate with Alister & Esmee
0:28	Q&A tools and case study scenarios (56 mins) <ul style="list-style-type: none"> • Address burning questions • Work through case study scenarios • Opportunity for further questions 	Session introduction and purpose (focus on case studies) Esmée to run through (sharing her screen and running it live) and bounce Qs off Alister. Opportunity for questions/discussion throughout. 0:30 – 0:48 Case study 1: Red meat, lambing flood plain Euabalong (NSW) 0:48 – 1:06 Case study 2: Sugar, frost risk over harvest in Casino (NSW) 1:06 – 1:24 Case study 3: Dairy, rainfall flood-prone area Deloraine (TAS)	2 min 54 min (18 min per case study)	John John to facilitate with Alister & Esmée
1:24	Questions and next steps (7 mins)	Final questions session 1 Next steps (next TtT session).	5 min 1 min	John to facilitate with Alister & Esmée John
1:30	Close			

Pilot deliverer training session 2: Preparing to deliver

- Flipped learning approach; request to prepare by viewing the following resources ahead of attending the workshop: (1) FWFA workshop ppt slides and runsheet, (2) FWFA workbook (with a focus on chapters 3 and 5)
- Online delivery (Zoom) (3x different sessions to choose from).
- Outcome: deliverers are confident in the FWFA resources (workbook and PPT) and delivering to farmers

Time	Activity	Details	Time	Person
0.00	Welcome (8mins)	<ul style="list-style-type: none"> • Quick round the room, name, organisation, location, weather • Agenda for meeting 	7 min 1 min	Jo
0:08	Recap on last meeting (5mins)	Refresher (1x slide) key take home messages session 1 and opportunity for any Qs	5 min	Esmée
0:13	Delivering (45 mins)	<p>Work through runsheet and suggestions for delivery:</p> <ul style="list-style-type: none"> • Flipped learning (before) • Delivering the workshop – forecasting overview, terminology, tools • Using the tools for decision making (22 min total) <ul style="list-style-type: none"> ○ Overview and set the task ○ Breakout groups of 4-5people, confirm facilitator for each breakout group. <p>Discuss:</p> <ul style="list-style-type: none"> ▪ How would you let farmers identify how they can use info from tool outputs to improve decision making around extreme weather events? What approach to facilitate session? How assist in using tools for informed decision making? ○ Report back and discussion • Evaluation process • Further resources and follow up email • Questions on runsheet and slides 	3 min 7 min 2 min 10 min 10 min 2 min 2 min 10 min	Esmée Esmée Tanisha/Colin Tanisha/Colin Esmée Esmée Esmée with support T/C
1:00	Discussion forum	<p>Pre-mortem exercise</p> <ul style="list-style-type: none"> • 1:00 – 1:07 what went wrong? (11 mins) <ul style="list-style-type: none"> ○ Set task 1; put thoughts in chat ○ Set task 2; vote on biggest concern • 1:08 – 1:18 How can we mitigate? Facilitated discussion • Summarise major concerns & suggested actions 	7 min 4 min 8 mins 2 min	Facilitated by Tanisha/Colin Esmée support Colin/Tanisha Esmee
1:21	Final question opportunity	Questions/comments	5 min	E & C/T
1:26	Wrap-up	Evaluation of TtT workshop (survey monkey)	4 min	Jo
1.30	Close			Jo

Appendix 1B: FWFA train-the-trainer pre- and post-session e-mails

Pre-session e-mail sent to all who registered to either one, or both, train-the-trainer sessions.

Esmée de Looff

From: Esmée de Looff
Sent: Wednesday, 31 May 2023 4:31 PM
To: Esmée de Looff
Subject: FWFA workshop pre-reading
Attachments: FWFA_Workshop Delivery Booklet.pdf; FWFA-Prereading_Session1_casestudies.pdf

Hi and thanks for registering for the upcoming FWFA train the trainer workshops!

The purpose of this first session next week is for you to gain confidence in using and interpreting the five new tools and to understand the technical language.

To make sure you get the most out of this session, we ask you to come prepared by completing the following pre-workshop tasks (in order):

1. Watch a short (4min) video which gives an excellent overview of the FWFA project and the five tools we'll be discussing.
The video can be accessed here: <https://www.youtube.com/watch?v=2vSbKAMF4HI>
2. Complete Agriculture Victoria's free online course 'Using seasonal climate prediction tools'.
This takes about 30-60 minutes to complete and can be accessed here:
[https://rise.articulate.com/share/twWDSuOaj4Q03801gBK6nlFgv-rYTxYi#/#/](https://rise.articulate.com/share/twWDSuOaj4Q03801gBK6nlFgv-rYTxYi#/)
3. Read through Chapter 1 and 2 of the FWFA delivery booklet (attached).
4. Work through the three case study scenarios attached. Note: the purpose of these is to prompt you to trial all functions of the tools we'll be talking about.

If you feel like you're on a roll and want to learn some more after completing these four tasks, feel free to browse through the rest of the deliverer handbook – particularly the links with QR codes.

Completing these tasks before the first training session will ensure you have a basic understanding of the terminology and the tools, which allows us to dive straight into it and focus on clarification and further explanation. It also gives you the opportunity to play with the tools yourself *and* experience the flipped-learning approach; this same approach is used for the producer workshop which you as deliverer will be trained for.

Please log in to the meeting link 5 minutes early to ensure your sound and camera are working, as we encourage you to actively engage in the workshop and make use of the opportunity to ask questions to Alister Hawksford (Agriculture Team Leader at the Bureau of Meteorology), John James (Enablers of Change) and myself.

Please feel free to reach out to me should you have any queries.
We are looking forward to meeting you online!

Best regards,

Esmée de Looff | *CertIV(OHS), BAnimSc, MAnimSc*
Consultant
Farm Business Services



E-mail sent after the first train-the-trainer session to people who registered but did not attend session 1.

Esmée de Looff

From: Esmée de Looff
Sent: Friday, 9 June 2023 10:44 AM
To: Esmée de Looff
Subject: FWFA train the trainer workshop
Attachments: FWFA_Workshop Delivery Booklet.pdf; FWFA presentation producer template FINAL.pptx

We missed your presence during the first workshop last week!

Thanks for your interest in the FWFA tools and becoming a FWFA workshop deliverer. The delivery workshop is designed to be a two-session workshop to grow your confidence in using and interpreting the tools, as well as extending the learning materials successfully to producers.

We have recorded session 1 to give you the opportunity to catch up, ahead of session 2, which you are registered for. However, to help you make sure you get the most out of it, we encourage you to complete the following tasks (in order) ahead of session 2:

1. Complete the session 1 pre-reading sent out to you ahead of session 1
2. Watch the session 1 recording here: <https://vimeo.com/834391027/f1015e8034?share=copy> , and
3. Complete the session 2 pre-reading which includes
(3a) reading chapter 3 and 5 of the deliverer handbook (attached), and
(3b) familiarising yourself with the workshop PowerPoint presentation (attached)

Unfortunately we have experienced some trouble with Zoom registration links ending up in spam folders. Please make sure you can access your meeting link by searching for the following words in your inbox and spam folder "**FWFA Train the Trainer workshop session 2 X Confirmation**". Please check this well ahead of your chosen session, so we can still help you get access to the meeting link in time before the meeting starts.

Please feel free to reach out to me should you have any queries.
We are looking forward to seeing you online!

Best regards,
Esmée

E-mail sent to participants after session 1 of the train-the-trainer workshop.

Esmée de Loeff

From: Esmée de Loeff
Sent: Thursday, 8 June 2023 8:34 AM
To: Esmée de Loeff
Subject: FWFA pre-reading session 2
Attachments: FWFA presentation producer template FINAL.pptx

Hi and thanks for attending session 1 of the FWFA deliverer training!

The purpose of session 2 is to build your confidence in *delivering* the FWFA resources (workbook and powerpoint) to producers.

In preparation for this session, we encourage you to complete the following tasks:

- (1) read through chapters 3 and 5 of the workshop delivery booklet you received last week, and
- (2) familiarise yourself with the workshop PowerPoint presentation (attached)

If you have any specific questions about the tools, the Bureau, or feedback on the tool functionality, feel free to contact Alister Hawksford's team via agriculture@bom.gov.au

If you have any questions about the workbook, the session(s), or anything else, please feel free to contact me via this e-mail address or ring me on 0473 676 613

We are looking forward to seeing you online again next week!

Best regards,

Esmée de Loeff | *CertIV(OHS), BAnimSc, MAnimSc*
Consultant
Farm Business Services

E-mail sent to participants of train-the-trainer sessions 1 and 2 after the final workshop session.

Esmée de Looff

From: Esmée de Looff
Sent: Thursday, 22 June 2023 5:01 PM
To: Esmée de Looff
Subject: FWFA workshop resources
Attachments: FWFA pre-mortem summary.pdf; FWFA_Delivery Booklet_FINAL_SP.pdf

Thanks for attending the FWFA train the trainer workshop sessions 1 and 2!

We hope you feel prepared and confident to deliver this workshop to producers in your area and industry.

To help you get underway with organising your FWFA workshop, please find attached:

(1) The most recent workshop delivery booklet (note: this is an updated version from the one you received as pre-reading)

(2) A summary of our pre-mortem discussions

You should have received the template PowerPoint presentation for the workshop as pre-reading for session 2, titled 'FWFA presentation producer template FINAL'. If not, please let me know and I'll send it to you (it was a bit too big to include in this e-mail, too!).

There are industry-specific workbooks available for the dairy, grain, red meat, sugar and wine industries. A generic workbook is available for other industries. These workbooks differ in chapter 3, where industry-specific examples for weather extremes and examples of decisions are captured. This is the same material captured in chapter 3 of your deliverer workbook. We are currently in the process of getting these workbooks online, and will share the links with you as soon as they're accessible, so stay tuned!

Lastly, we would like to remind you that the Bureau of Meteorology is available to answer any questions you might have on the tools, via agriculture@bom.gov.au.

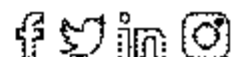
Many thanks for your participation in the train-the-trainer workshop and all the best with organising your workshops!

Best regards,
Esmée

Esmée de Looff | *CertIV(OHS), BAnimSc, MAnimSc*
Consultant
Farm Business Services



79 Smith Street, Naracoorte SA 5271
T: 1300 746 466



E-mail sent to registrants who did not attend session (1 and) 2 after completion of the train-the-trainer workshops.

Esmée de Looff

From: Esmée de Looff
Sent: Thursday, 22 June 2023 5:27 PM
To: Esmée de Looff
Subject: FWFA workshop delivery resources
Attachments: FWFA_Delivery Booklet_FINAL_SP.pdf; FWFA pre-mortem summary.pdf

Thanks for your interest in delivering the FWFA workshop on the Bureau's new five climate outlook tools!

We missed you at session 2, but would like to invite you to watch the recording here:

<https://vimeo.com/838567328/ec13aea4a2?share=copy>

We hope that after both sessions you will feel prepared and confident to deliver this workshop to producers in your area and industry.

To help you get underway with organising your FWFA workshop, please find attached:

1. The most recent workshop delivery booklet (note: this is an updated version from the one you received as pre-reading)
 2. A summary of our pre-mortem discussions (don't worry, this makes sense after you watch the recording!).
- You should have received the template PowerPoint presentation for the workshop as pre-reading for session 2, titled 'FWFA presentation producer template FINAL'. If not, please let me know and I'll send it to you (it was a bit too big to include in this e-mail, too!).

There are industry-specific workbooks available for the dairy, grain, red meat, sugar and wine industries. A generic workbook is available for other industries. These workbooks differ in chapter 3, where industry-specific examples for weather extremes and examples of decisions are captured. This is the same material captured in chapter 3 of your deliverer workbook. We are currently in the process of getting these workbooks online, and will share the links with you as soon as they're accessible, so stay tuned!

Lastly, we would like to remind you that the Bureau of Meteorology is available to answer any questions you might have on the tools, via agriculture@bom.gov.au.

Many thanks for your interest and all the best with organising your workshops!

Best regards,
Esmée

Esmée de Looff | *CertIV(OHS), BAnimSc, MAnimSc*
Consultant
Farm Business Services



Appendix 2: FWFA pilot train-the-trainer workshop runsheet

Pilot deliverer training session 1: using the five new BoM tools (1hr)

- Flipped learning approach; request to prepare by viewing the following resources:
 - eLearning module
 - Three case study scenarios (to facilitate learning to interpret tools)
 - videos (climate dogs, FWFA case studies) (optional)
- Online delivery (Zoom) – Wednesday 26th March 2023.
- Outcome: deliverers are confident in using and interpreting the 5 new tools and understand the technical language.

Time	Activity	Details	Time	Person
0.00	Welcome (5mins) <ul style="list-style-type: none"> • Introductions • Agenda overview 	<ul style="list-style-type: none"> • Quick round the room, name, organisation, location, role in FWFA project • Agenda for meeting • Housekeeping and request for observers to hold questions to the end of each session, to give pilot deliverers as much time as they need. 	4 min 1 min	John
0:05	Overview of forecasting and terminology (15 mins) <ul style="list-style-type: none"> • How to explain the terminology required for the BoM products (medians, deciles, box and whisker plots, hindcast vs forecast, percent chance of exceeding the median). • How to explain the difference between weather, multiweek and seasonal climate forecasts. • Importance of understanding probability • Context for tools (and how they fit with other Bom products) 	Session introduction and purpose Brief 1x slide recap (reinforce pre-reading), with opportunity for Qs from deliverers Brief 1 slide recap (delivered as is being explained to producers in a workshop) with opportunity for Qs from deliverers Brief overview of probability (1x slide) – what it means for interpreting forecasts. Brief overview (1x slide)	1 min 7 min 4 min 2 min 1 min	John Peter Peter Peter John
		Questions (John to note that next session will put the technical stuff whizzed through as into practical context with scenarios,		

		so don't get too bogged down here, let's experience the tools in action and bring it back to practicalities)		
0:20	Q&A tools and case study scenarios (30 mins) <ul style="list-style-type: none"> • Address burning questions • Work through case study scenarios • Opportunity for further questions 	Session introduction and purpose (focus on case studies) Questions from pilot deliverers If not lot of response – Esmée to pick a pre-work scenario to run through (sharing her screen and running it live) Opportunity for questions/discussion	2 min 10-15 min 7 min 6-11 min	John to facilitate with Peter & Esmée
0:50	Questions and wrap-up (next steps) (10 mins)	Next steps (workbook development update, reminder dates for pilot workshops, next TtT session). Evaluation poll (PE)	3 min 7 min	John
1:00	Close			

Pilot deliverer training session 2: additional opportunity to ask questions about using the tools (1hr)

The image displays six presentation slides arranged in a 2x3 grid, numbered 1 through 6. Each slide features the FWoFA logo and a background image of a rural landscape with hills and fields.

- Slide 1:** Title slide for "Pilot deliverer train-the-trainer session 2: Further exploring the FWFA tools" dated 17 April 2023. It includes logos for the Department of Agriculture, Water and Forestry, the Forewarned is Forearmed Innovation Hub, and the Forewarned is Forearmed program.
- Slide 2: Welcome**
 - Meeting purpose:
 - To further build your confidence to use the 5 FWFA tools
 - Introductions:
 - Name, organisation, location, weather
 - Housekeeping
 - Onlookers are welcome but deliverers are the VIP guests!
- Slide 3: Agenda**
 - Welcome
 - Case studies
 - Q&A
 - Wrap up
- Slide 4: Case studies**
- Slide 5: Q&A**
- Slide 6: Next steps**
 - Workbooks being refined and aim to circulate to pilot deliverers by 19 April
 - TtT session 3: 26 April 9:00 to 11.30am (EADT)
 - Pilot workshops need to be delivered between 28 April and 7 May

Pilot deliverer training session 3: Preparing to deliver (2hr)

- Flipped learning approach; request to prepare by viewing the following resources ahead of attending the workshop:
 - Workbook
 - Draft ppt
- Online delivery (Zoom) – Wednesday 26th April 2023.
- Outcome: deliverers are confident in the FWFA resources (workbook and PPT) and delivering to farmers

Time	Activity	Details	Time	Person
0.00	Welcome (5mins) <ul style="list-style-type: none"> • Introductions • Agenda overview 	<ul style="list-style-type: none"> • Quick round the room, name, weather • Agenda for meeting • Housekeeping and request for observers to hold questions to the end of each session, to give pilot deliverers as much time as they need. 	4 min 1 min	John
0:05	Runsheets	Work through runsheet and suggestions for delivery: <ul style="list-style-type: none"> • Flipped learning (before) • Overview of forecasting • The five (and 3/4) FWFA tools • Using the tools for decision making <ul style="list-style-type: none"> ○ Overview and set the task (5 minutes) ○ Breakout groups (20 min) 2x groups, EdL and RP in a group ○ Report back and discussion (15 min) • Further resources • Follow up email • Evaluation 	5 min 10 min 15 min 40 min 5 min 5 min	John John Esmée Leanne John John
1:25	Discussion forum	Pre-mortem – what went wrong? And how can we mitigate? Questions/comments	15 min 10 min	John Esmée
1:50	Wrap-up (next steps)	Next steps: <ul style="list-style-type: none"> • Delivery schedule for pilot workshops • Post-workshop debrief Evaluation of TtT workshops (share results from previous 2x TtT) Request to complete survey monkey	5 min 5 min	Leanne John
2.00	Close			

Appendix 3: FWFA pilot producer workshop runsheet

Runsheets for the pilot producer workshop as included in the draft deliverer manual, shared with pilot deliverers in preparation for their pilot workshop delivery.

Runsheets

The suggested runsheet for a 90-minute FWFA workshop is as follows:

Time	Activity
0:00	<p>Welcome (5 mins)</p> <ul style="list-style-type: none"> • Introductions • Logistics (location of toilets etc) • Agenda overview
0:05	<p>Overview of forecasting* (20 mins)</p> <ul style="list-style-type: none"> • The difference between weather, multiweek and seasonal climate forecasts. • The process of weather forecasting and the key climate drivers (ENSO, IOD, SAM and MJO) • La Nina/ El Nino • Q&A (3 mins)
0:25	<p>The Bureau's five tools* (20 mins)</p> <p>An overview of the tools. Explain terminology during the discussion (medians, deciles, box and whisker plots, hindcast vs forecast, percent chance of exceeding the median).</p> <ul style="list-style-type: none"> • Likelihood of extremes • Quintile bar charts (previously only above/below median) • Time-series graphs • Probability of exceedance • 3-day rainfall burst
0:45	<p>Using the Bureau's five tools** (35 mins)</p> <p>Starting with the homework one, use case studies to demonstrate how the tools can be used to manage the four key risks/opportunities with relevant local industry examples.</p> <ul style="list-style-type: none"> • heat extremes • cold extremes • rainfall wet extremes • rainfall dry extremes • Q&A
1:20	<p>Further resources and evaluation (10 mins)</p>
1:30	<p>Close</p>

* Using flipped learning approach | ** Using information gathered from the participant survey pre-workshop

Appendix 4: FWFA pilot workshop surveys

Pilot deliverer workshop session 1 feedback questions, collected via Polleverywhere:

When survey is active, respond at pollev.com/jjames123

Unpacking the FWFA tools

0 done
underway

Start the presentation to see live content. For screen share software, share the entire screen. Get help at pollev.com/app

13 •

When poll is active, respond at pollev.com/jjames123

What was your level of knowledge of the FWFA tools before today's session?

Very high
High
Medium
Low
Very low

Start the presentation to see live content. For screen share software, share the entire screen. Get help at pollev.com/app

14 •

When poll is active, respond at pollev.com/jjames123

What is your level of knowledge of the FWFA tools after today's session?

Very high
High
Medium
Low
Very low

Start the presentation to see live content. For screen share software, share the entire screen. Get help at pollev.com/app

When poll is active, respond at pollev.com/jjames123

What is your level of confidence now to use the tools?


Very high
High
Medium
Low
Very low

Start the presentation to see live content. For screen share software, share the entire screen. Get help at pollev.com/app

Pilot deliverer workshop session 2 feedback questions, collected via Polleverywhere:

Session evaluation (deliverers only!)

- Level of knowledge of FWFA tools (before/after)
- Level of confidence of FWFA tools (before/after)
- Level of confidence to interpret/explain results




FWFA Forewarned is Forearmed – forecasting tools for informed decision-making

7

Respond at pollev.com/jjames123

Unpacking the FWFA tools #2



1 done
underway

8

When poll is active, respond at pollev.com/jjames123

What was your level of knowledge of the FWFA tools before today's session?

Very high
High
Medium
Low
Very low

9

When poll is active, respond at pollev.com/jjames123

What is your level of knowledge of the FWFA tools after today's session?

Very high
High
Medium
Low
Very low

10

When poll is active, respond at pollev.com/jjames123

What was your level of confidence to use the tools before today's session?

Very high
High
Medium
Low
Very low

11

When poll is active, respond at pollev.com/jjames123

What is your level of confidence to use the tools now?

Very high
High
Medium
Low
Very low

12

When poll is active, respond at pollev.com/jjames123

Finally, what is your level of confidence to interpret/explain the results now?

Very high
High
Medium
Low
Very low

13

Pilot deliverer workshop session 3 feedback questions, collected via SurveyMonkey:

Forewarned is Forearmed
Pilot **TtT** workshop 2 evaluation



Name (optional):

Thank you for attending today's FWFA pilot train the trainer session. We'd greatly appreciate your feedback, so we can improve the training offered to future deliverers of FWFA workshops. Please answer this survey using the rating scales where 1 is low and 10 is high, and feel free to provide additional feedback.

1. How valuable did you find the **content** of the workshop?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Please list any specific suggestions for improvement...

2. How valuable did you find the **process** of the workshop (please consider the pre-reading as well as the workshop itself)?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Please list any specific suggestions for improvement...

3. How useful was it to break the FWFA deliverer training into two sessions – the first focusing on using the **tools** and the second on the **actual workshop delivery**?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Please list any specific suggestions for improvement...

4. How **confident** do you feel about delivering the FWFA pilot workshop after the combined training sessions you've attended?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

What else would be needed to help you become more confident?

5. To what degree did you find the **workshop booklet** useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Please list any specific suggestions for improvement...

Forewarned is Forearmed
Pilot **TtT** workshop 2 evaluation



6. To what degree has your knowledge and understanding of decision-making around extreme climate/ weather events improved?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Further comments (if [required](#))

7. To what degree has the Trainer-the-Trainer workshop met your expectations?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Further comments (if [required](#))

8. Any **other feedback** or suggestions for improvement?

Thank you!

*Privacy Statement: The information you are providing in this form may be personal information under the Privacy Act. Such personal information is collected for the business purposes of MLA and Pinion Advisory and will not be disclosed to anyone else except as notified here, in accordance with the privacy policies of these organisations or where your consent has been obtained. MLA's privacy policy can be obtained directly from MLA by calling 1800 675 717, or from their website at www.mla.com.au/privacy. Pinion Advisory privacy policy can be obtained by calling our office 1300 745 466. By providing your personal information, you consent to MLA and Pinion Advisory collecting, holding, using and disclosing that information in the manner specified in this form and as otherwise specified in the privacy policies of these organisations. If you do not provide such personal information, MLA or Pinion Advisory may not be able to provide you with products or services or keep you informed about market news, industry information and other communications from them. You can request access to and correction of your personal information by calling MLA on 1800 675 717 or 02 6332 2135 or Pinion Advisory on 1300 745 466.

Pilot producer workshop feedback questions for deliverers, collected via phone interview:

Forewarned is Forearmed
Pilot workshop deliverer evaluation



Information to be collected via phone interviews with [deliverers](#)

Name:

Please answer this survey using the rating scales where 1 is low and 10 is high, and feel free to provide additional feedback.

1. How did the workshop go from a content perspective?									
1	2	3	4	5	6	7	8	9	10

Please list any specific suggestions for improvement...

2. How did the workshop go from a delivery perspective?									
1	2	3	4	5	6	7	8	9	10

Please list any specific suggestions for improvement...

3. How valuable do you believe the workshop was for your participants, in giving them exposure to the FWFA tools?									
1	2	3	4	5	6	7	8	9	10

Please list any specific suggestions for improvement...

4. How valuable do you believe the workshop was for your participants, in giving them confidence to use the FWFA tools to support decision making?									
1	2	3	4	5	6	7	8	9	10

Please list any specific suggestions for improvement...

5. How confident did you feel about delivering the FWFA pilot workshop?									
1	2	3	4	5	6	7	8	9	10

What else would be needed to help you become more confident?

Forewarned is Forearmed
Pilot workshop deliverer evaluation



6. How interested are you in delivering future FWFA workshops?									
1	2	3	4	5	6	7	8	9	10

Further comments (if [required](#))

7. If no, why not?
8. If yes, why and what might you do differently?

9. Any feedback or suggestions for improvement regarding the support materials (ppt slides, deliverer workbook, producer workbook)?

Forewarned is Forearmed
Pilot workshop deliverer evaluation



10. Any other feedback or suggestions for improvement?

Pilot producer workshop feedback questions for producer participants, collected via hardcopy evaluation form:

Forewarned is Forearmed

Pilot event evaluation



Name (optional):

Thank you for attending today's FWFA pilot workshop. We'd greatly appreciate your feedback, so we can further improve the next series of workshops. Please answer this survey using the rating scales where 1 is low and 10 is high.

1. How likely are you to use the FWFA tools in future?									
1	2	3	4	5	6	7	8	9	10

Further comments (if required)...

2. How confident do you feel using the FWFA tools after the workshop?									
1	2	3	4	5	6	7	8	9	10

What else would be needed to help you become more confident?

3. To what degree did you find the content of the workshop useful?									
1	2	3	4	5	6	7	8	9	10

Please list any specific suggestions for improvement...

4. To what degree did you find the process of the workshop useful (please consider the pre-reading as well as the workshop itself)?									
1	2	3	4	5	6	7	8	9	10

Please list any specific suggestions for improvement...

5. To what degree did you find the workshop booklet useful?									
1	2	3	4	5	6	7	8	9	10

Please list any specific suggestions for improvement...

6. Overall, how useful did you find today's workshop?									
1	2	3	4	5	6	7	8	9	10

7. Do you have any other feedback or suggestions for improvement?

Thank you

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Appendix 5: FWFA monitoring and evaluation report

1.1 Phase 2: Pilot train-the-trainer sessions

These pilot train-the-trainer sessions were delivered as a three-part online workshop. The first workshop introduced the five new FWFA tools, the second discussed several case studies, and the third focused on workshop delivery.

1.1.1 TtT session 1: Using the five new FWFA tools – part 1 (29 March 2023)

At the conclusion of the first Train-the-trainer (TtT) session, Poll Everywhere was used to gather participant feedback.

Q1: Level of knowledge of the FWFA tools

Using a five-point scale, from 1 (very low) to 5 (very high), the participants indicated that their level of knowledge of the FWFA tools increased on average from 2.9 beforehand to 3.6 afterwards, and the distribution of responses is shown in Figure 1.

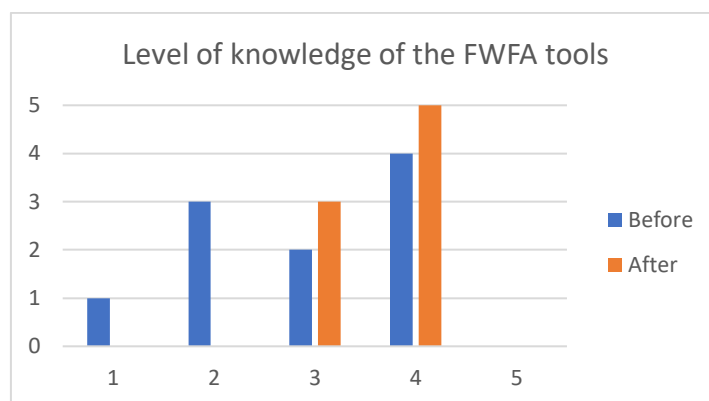


Figure 1. Level of knowledge of the FWFA tools.

Q2: Level of confidence to use the FWFA tools

Their level of confidence to use the FWFA tools after the session was on average 3.4, and the distribution of responses is shown in Figure 2.

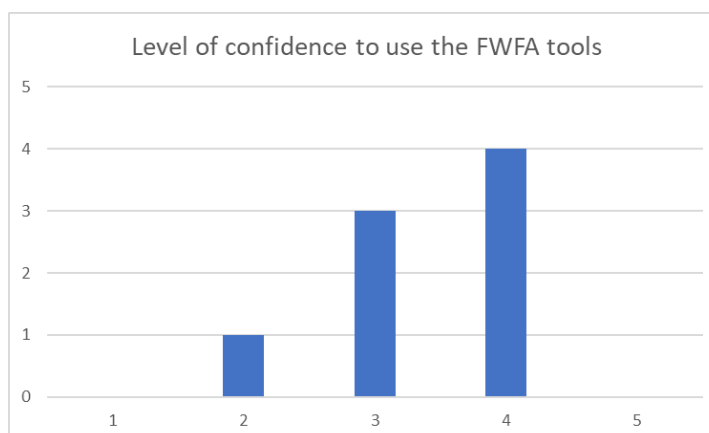


Figure 2. Level of confidence to use the FWFA tools.

1.1.2 TtT session 2: Case studies using the five new BoM tools (17 April 2023)

Q1: Level of knowledge of the FWFA tools

At the conclusion of the second TtT session, participants indicated that their level of knowledge of the FWFA tools increased slightly, from on average 3.4 beforehand to 3.6 afterwards, and the distribution of responses is shown in Figure 3.

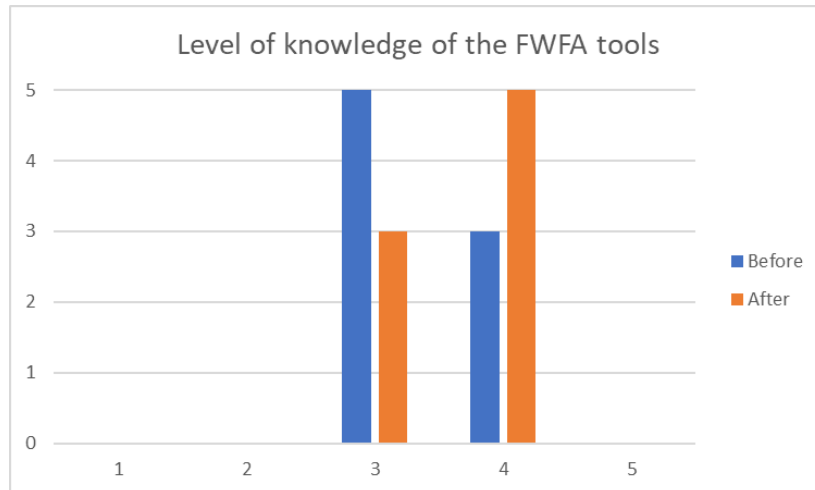


Figure 3. Level of knowledge of the FWFA tools.

Q2: Level of confidence to use the FWFA tools

Their level of confidence to use the FWFA tools increased from on average 3.3 beforehand to 4.0 afterwards, and the distribution of responses is shown in Figure 4.

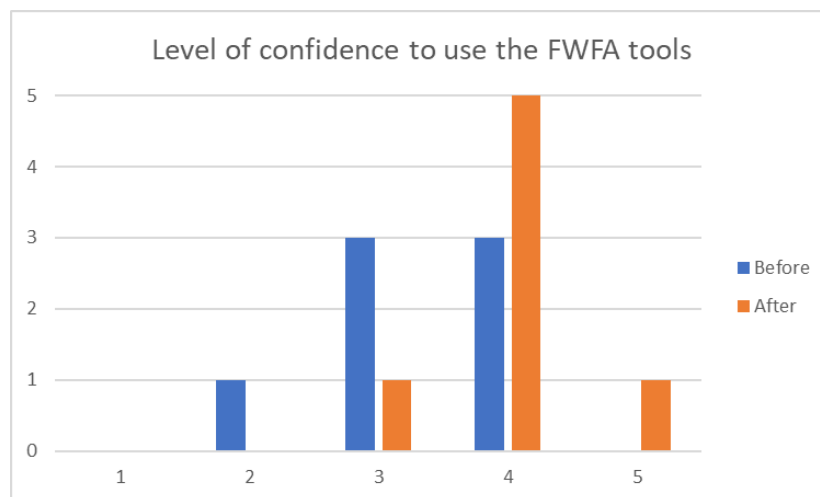


Figure 4. Level of confidence to use the FWFA tools.

Q3: Level of confidence to interpret/ explain the FWFA tools

Their level of confidence to interpret/ explain the FWFA tools after the session was on average 3.9, and the distribution of responses is shown in Figure 5.

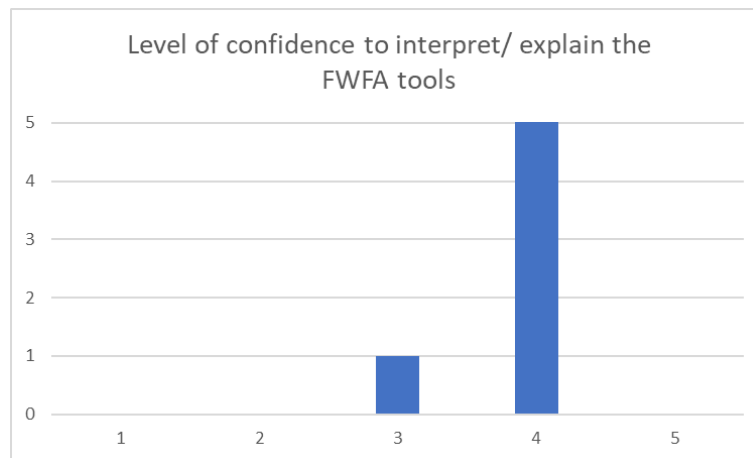


Figure 5. Level of confidence to interpret/ explain the FWFA tools.

1.1.3 TtT session 3: Preparing to deliver (26 April 2023)

Q1: How valuable did you find the content of the workshop?

At the conclusion of the third and final TtT session, participants were asked how valuable they found the content of the workshop. On average, the participants rated it at 9.2 on a 10-point scale and the distribution is shown in Figure 6.

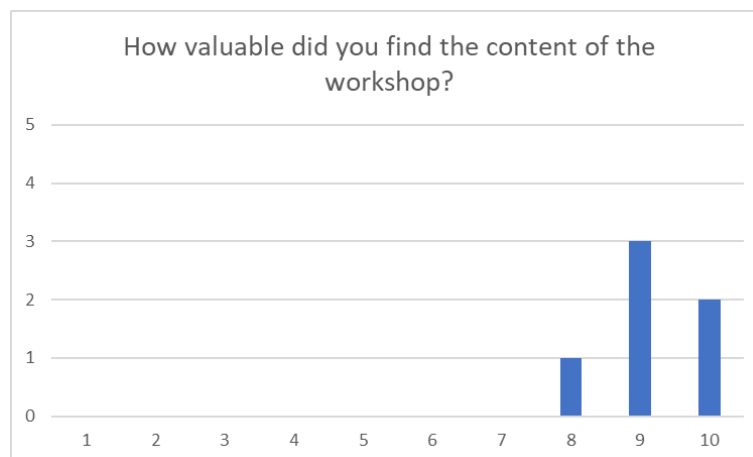


Figure 6. How valuable did you find the content of the workshop?

Q2: How valuable did you find the process of the workshop?

When asked how valuable they found the process (including the pre-reading), the average rating was 9.0 and the distribution is shown in Figure 7.

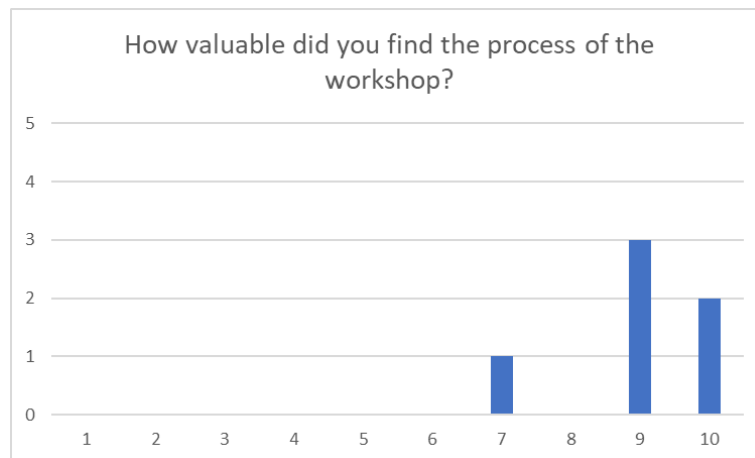


Figure 7. How valuable did you find the process of the workshop?

Q3: How useful was it to break the FWFA deliverer training into two sessions?

When asked how useful it was to break the FWFA deliverer training into two sessions (the first focusing on using the tools and the second on the actual workshop delivery), the average rating received was 9.8 and the distribution is shown in Figure 8. The comment was made “No suggestions for improvement. I just wanted to say I appreciated that the second session was optional and recorded”.

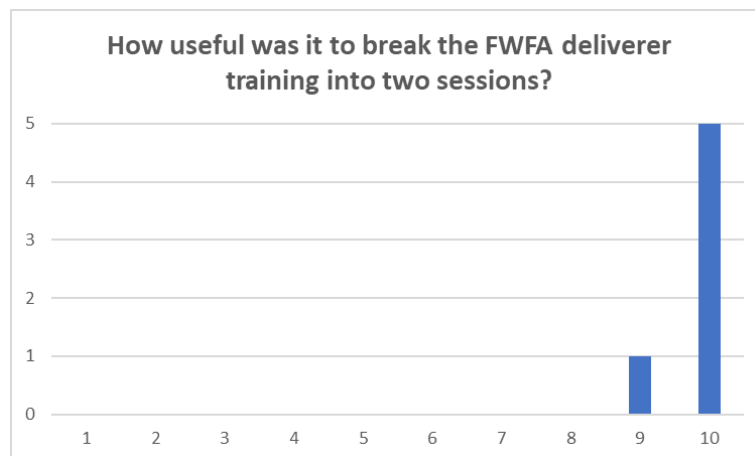


Figure 8. How useful was it to break the FWFA deliverer training into two sessions?

Q4: How confident do you feel about delivering the FWFA pilot sessions?

Regarding how confident they were feeling about delivering the FWFA workshop, the average response was 8.3 and the distribution is shown in Figure 999. The comment was made “Will know more after delivery”.

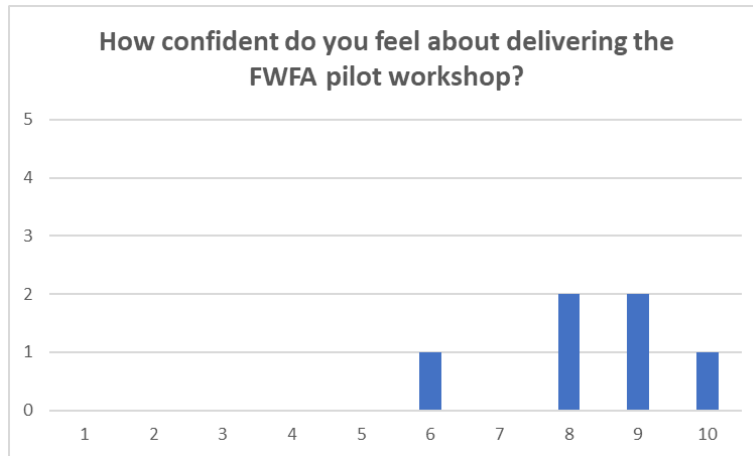


Figure 99. How confident do you feel about delivering the FWFA pilot workshop?

Q5: To what degree did you find the workshop booklet useful?

Regarding how useful they found the workshop booklet; the average response was 8.7 and the distribution is shown in Figure 10. The comments included “Good to have on hand and likely to revisit” and “Would have been helpful to get the workbooks earlier - understand that timeframes were tight”.

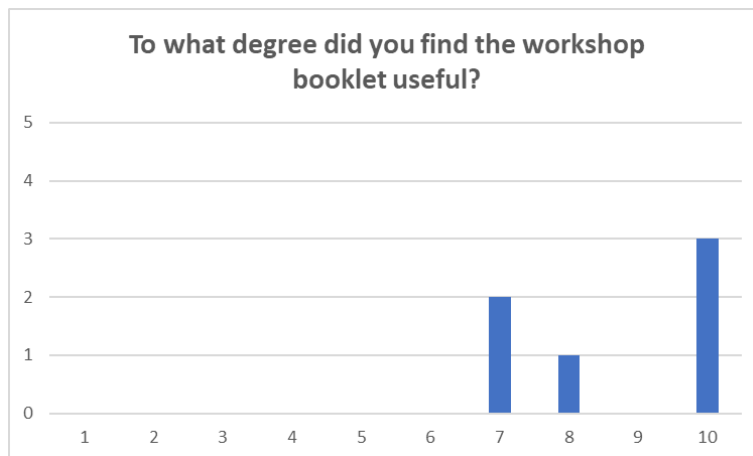


Figure 10. To what degree did you find the workshop booklet useful?

Q6: To what degree has your knowledge and understanding of decision-making around extreme climate/ weather events improved?

When asked to what degree their level of knowledge and understanding of decision-making around extreme climate/ weather events improved, the average response was 9.0 and the distribution is shown in Figure 111. The comment was made that while they were now aware of the tools, they needed to better see the practical application of them.

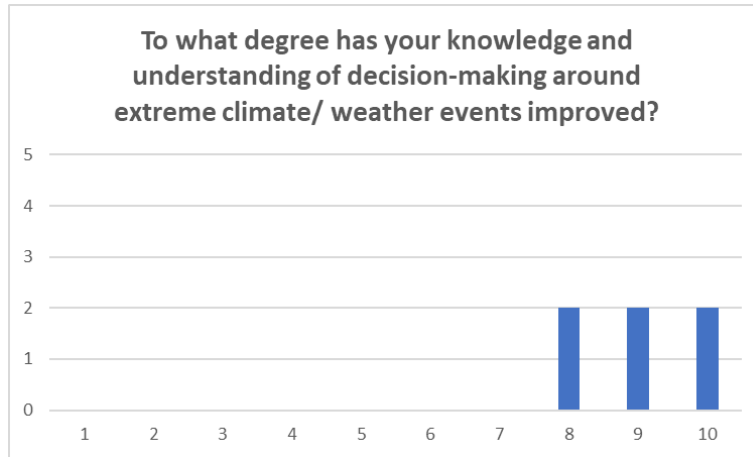


Figure 111. To what degree has your knowledge and understanding of decision-making around extreme climate/ weather events improved?

Q7: To what degree has the Trainer-the-Trainer workshop met your expectations?

When asked to what degree had the Trainer-the-Trainer workshop met their expectations; the average response was 8.5 and the distribution is shown in Figure 12.

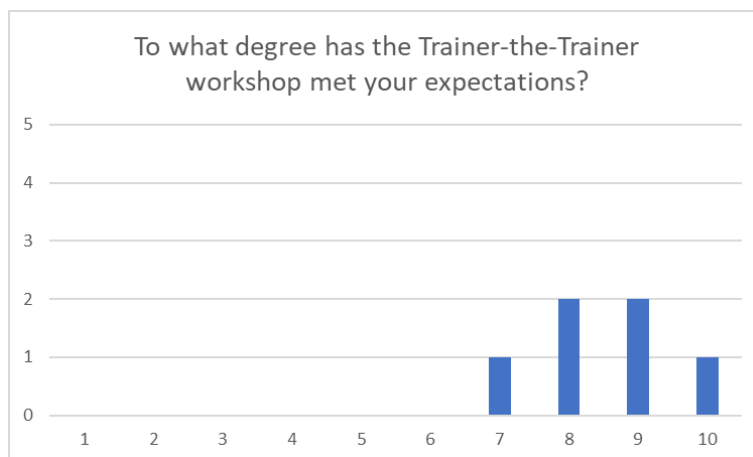


Figure 12. To what degree has the Trainer-the-Trainer workshop met your expectations?

Q8: Would you be interested in being involved in the Train-the-Trainer session for future deliverers?

Finally, when asked if they would like to be involved in the TtT session for future deliverers, three responded in the affirmative.

1.2. Phase 2: Pilot workshops for farmers

The feedback and learning from the previous sessions were incorporated into the FWFA training materials, and a series of pilot workshops were delivered to farmers. At the conclusion of each of the pilot workshops, participants were asked to complete a hardcopy feedback form, and these were then manually entered into SurveyMonkey for analysis. A total of 32 responses were received, and Table 3 shows the details of each workshop, including the number of survey responses received.

Table 3. Details of pilot producer workshops held as part of the FWFA extension project.

Deliverer	Responses	Workshop location	Workshop industries	Workshop date
Colin Hinze	3	Langhorne Creek, SA	Wine	3 May 2023
Esmée de Looff	5	Hobart, Tasmania	Dairy	4 May 2023
Tanisha Shields	14	Hay NSW	Grains, red meat, cotton	5 May 2023
Edmund Hogan	6	Berry, NSW	Beef	5 May 2023
Rebecca Stacey	4	Deniliquin, NSW	LLS colleagues	27 April 2023
Total	32			

Q1: How likely are you to use the FWFA tools in future?

When asked how likely it was that they would use the FWFA tools in future, using a 10-point scale from 1 (not at all likely) to 10 (extremely likely), the average response was 8.1 and the distribution is shown in Figure 13.

Comments included the following:

- May look at them occasionally, not sure how much I will refer to them longer term though.
- Circled between 6 and 7
- Will certainly promote to brother who manages farming enterprise
- More info the better
- Might look at it when looking for rainfall predictions
- Highly likely, to look at future potential forecasts to make informed decisions and preparation for most activities on farm.
- Probably use it quarterly as part of our business planning throughout the year
- Interesting to learn, will help with farm management decisions. Quite likely in terms of specific management decisions
- Now that I am aware that they exist I will endeavour to use these tools, especially for rainfall predictions
- I already use some of these tools but will definitely be using a few more of them now I have an understanding of how they work with each other
- Likely, to help guide trading times when selling and buying stock
- Very useful tools
- Weekly
- Maybe, time required to understand tools is a factor when looking at these then accuracy
- As an association, to look at what growers may be facing and help forward planning

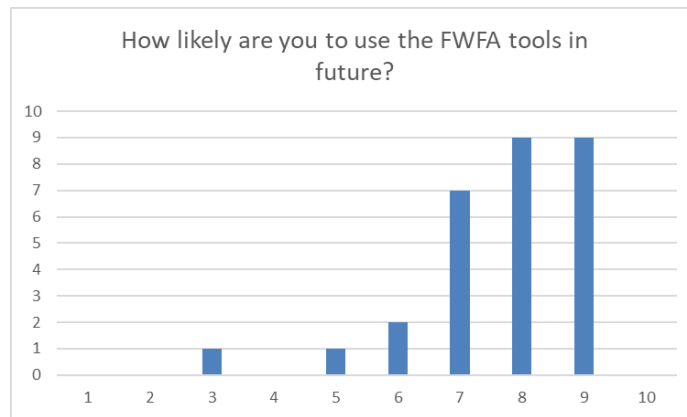


Figure 13. How likely are you to use the FWFA tools in future?

Q2: How confident do you feel using the FWFA tools after the workshop?

Regarding how confident the participants felt using the FWFA tools after the workshop, the average response was 7.2 and the distribution is shown in Figure 14.

Responses to the follow-on question “What else would be needed to help you become more confident?” were as follows:

- Probably follow up seminar in a few months. Good to listen & learn from others in the workshop.
- Practice
- I just need use it more often & then compare its accuracy to what actually happens.
- A little more time to be explained in a bit more depth
- Just more practice at home
- Computer skills. Accuracy would make us more confident in using it more.
- I just need to practise using these tools
- Time using the features
- Practice
- More practice
- Just more general use
- Call line for help and practice in using. Basic 101 factsheet for the tools and how to quickly and easily understand them
- Not too much I can figure it out
- Use it more
- Own practice

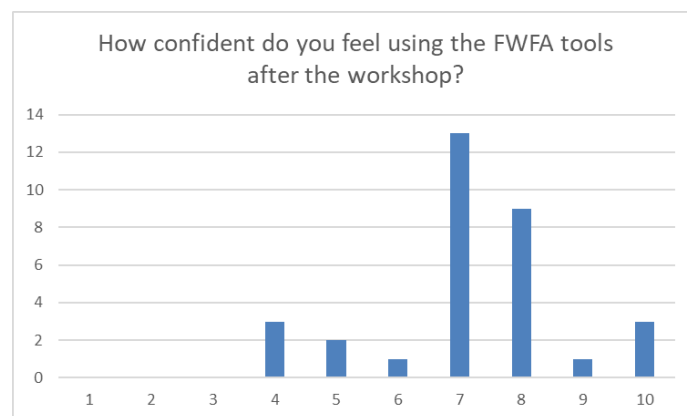


Figure 14. How confident do you feel using the FWFA tools after the workshop?

Q3: To what degree did you find the content of the workshop useful?

When asked to what degree they found the content of the workshop useful, the average response was 8.4 and the distribution is shown in Figure 15.

Responses to the follow-on question “Please list any specific suggestions for improvement” were as follows:

- Very thorough workshop and good use of information sharing and application of knowledge and tools in case study or real scenarios
- other respected world weather resources
- All good
- Explained over a little more time.
- It was very clear how to find the tools. Prior to the workshop I looked and couldn’t find them. Clear explanations and easy to understand
- Covered everything thoroughly to give everyone a good understanding.
- Maybe in the pre workshop reading there could be a glossary of the terms used in weather forecasting??
- More allocated case studies to help make it relevant to course to help deliver the point
- More videos
- Maybe get everyone to follow using their lap top
- Live feed on how to use it
- One on one explanation of deciles, medians, averages, star ratings, whisker graphs etc

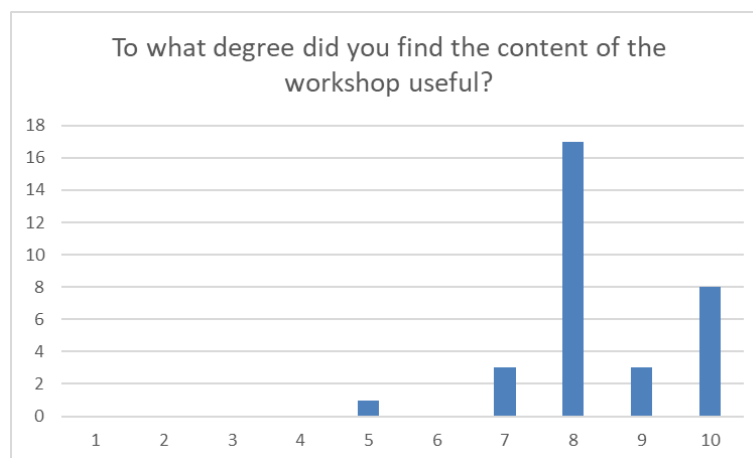


Figure 15. To what degree did you find the content of the workshop useful?

Q4: To what degree did you find the process of the workshop useful?

Regarding the degree the participants found the process of the workshop useful (considering the pre-reading as well as the workshop itself), the average response was 8.4 and the distribution is shown in Figure 16.

Responses to the follow-on question “Please list any specific suggestions for improvement” were as follows:

- 5 participants/ workshop is probably the limit
- Members say what they are using now
- The presenter delivered the workshop well
- Just a few more examples of how to use it

- It was good to watch the video beforehand and have a bit of an idea about the process. But it was much easier to understand at the workshop
- All pretty good.
- The process was fine. Maybe more time to play with the tools but I can do that in my own time.
- Maybe more practice questions if time permits
- possibly a video
- Live demonstrations
- Small one on one and lots of opportunities

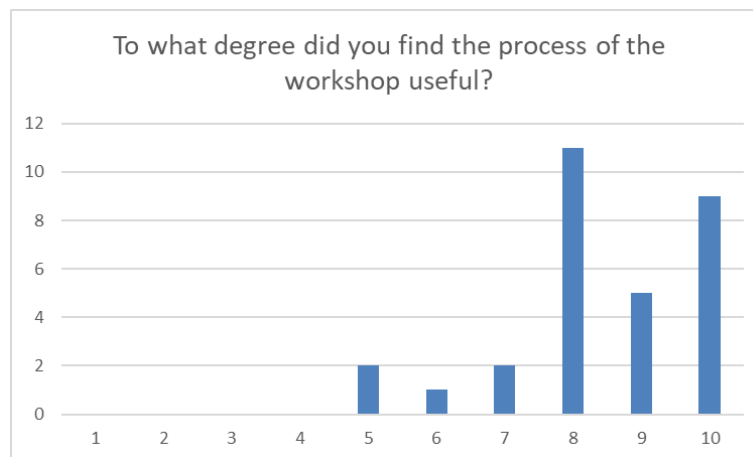


Figure 16. To what degree did you find the process of the workshop useful?

Q5: To what degree did you find the workshop booklet useful?

When asked to what degree they found the workshop booklet useful, the average response was 7.8 and the distribution is shown in Figure 17.

Responses to the follow-on question “Please list any specific suggestions for improvement” were as follows:

- Need a step-by-step example to be undertaken by each participant. Helped through from website to individual farm.
- No score entered
- Circled 8 and 9.
- The appendices were very useful on how to find things
- Lots of information on it.
- I will use the booklet to consolidate learning and share with my husband who was unable to attend the workshop
- To be used more in the presentation
- Yet to read it thoroughly
- Have it include the PowerPoint shown in the big screen so we can go over info we missed
- It was good
- Not looked much yet, but good to have I'm sure
- Only handed out at the end of the workshop

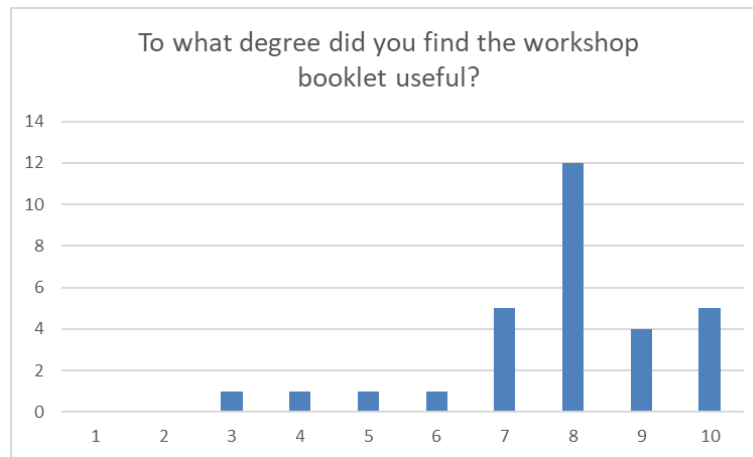


Figure 17. To what degree did you find the workshop booklet useful?

Q6: Overall, how useful did you find today's workshop?

Regarding how useful overall they found the workshop, the average response was 8.4 and the distribution is shown in Figure 18.

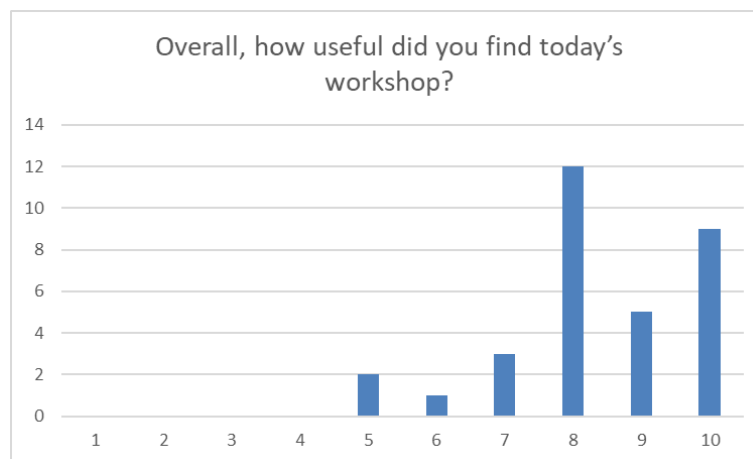


Figure 18. Overall, how useful did you find today's workshop?

When asked if they had any other feedback or suggestions for improvement, the responses were as follows:

- I found the amount of material presented overwhelming. This was compounded by the complexity of the program itself.
- Well thought out and delivered. Very helpful as a tool for managing climate change and maximising value from soil improvement programs.
- Workshop delivery/ presenter was good. Content complex and difficult to identify specific circumstances where I would use these tools. Have been using other forecasts for a while now and haven't looked at BOM for a while.
- I found navigating through the tools on the website not very straight forward, and I didn't feel clear after walking away from the workshop how I would be able to use them on-farm for decision making. The presenter was good but I found the content a bit too complex. I feel that if there needs to be a presentation on how to use it, it's too complicated. All the information on how to use the tools should be embedded in the website including how to use videos.

- Where is the MLA seasonal outlook tool at? Could the tools be linked to options to deal with the events.

Content:

- Bit more background on website
- Bring a computer (provide Wi-Fi). This could be really interactive - No need for case study. Could look at case issues.
- Good timing wise (e.g. 1.5h). Would be good to have the explanation of the tools before doing the case study pre-work but valuable either way. Well done!
- Well spend time understanding and that we have another tool in our toolbox. Thank you.
- Very knowledgeable presenter.
- Great workshop. Presenter articulate & knowledgeable with good examples for discussion.
- This can also be used for planning lots of things events etc.
- Great workshop, very useful information!
- The timing was good. It was very useful having time to use the tools on our own laptops on the day so we could ask questions.
- Overall pretty good.
- Tanisha is a very engaging presenter. Thank you!
- Great job Tanisha.
- Well presented to demonstrate tools availability and understand use and limitations of tools.
- Great chat and exposure and good to have input from members and understand their perspective.
- All covered and noted by Colin.
- Some language consistency needs improving.

1.3 Phase 3: Train-the-trainer workshops

A series of free, online workshops to learn to use the FWFA tools was held for consultants, advisors and NRM professionals working with farmers. The workshops aimed to train deliverers from relevant industries to enable future delivery of the workshops. They were all delivered online and were split into two 1.5 hour sessions delivered one week apart, as detailed in Table 4.

Table 4. Details of the Train-the-trainer workshops.

Time (EST)	Session 1 – Introduction to FWFA and using the five new tools	Session 2 – Training farmers to use the FWFA tools
8.30-10.00am	Tuesday 6 June	Tuesday 13 June
3.30-5.00pm	Wednesday 7 June	Wednesday 14 June
12-1.30pm	Thursday 8 June	Thursday 15 June

At the conclusion of each of the Train-the-trainer workshops, participants were asked to complete an evaluation using SurveyMonkey. A total of 17 responses were received.

Q1: How valuable did you find the content of the workshop?

Participants were asked how valuable they found the content of the workshop and on average, the participants rated it at 8.5 on a 10-point scale and the distribution is shown in Figure 19. When asked to list any specific suggestions for improvement, comments included:

- Possibly a bit more on the application of the tools to farming decision making situations.
- More breakout groups in session 1.

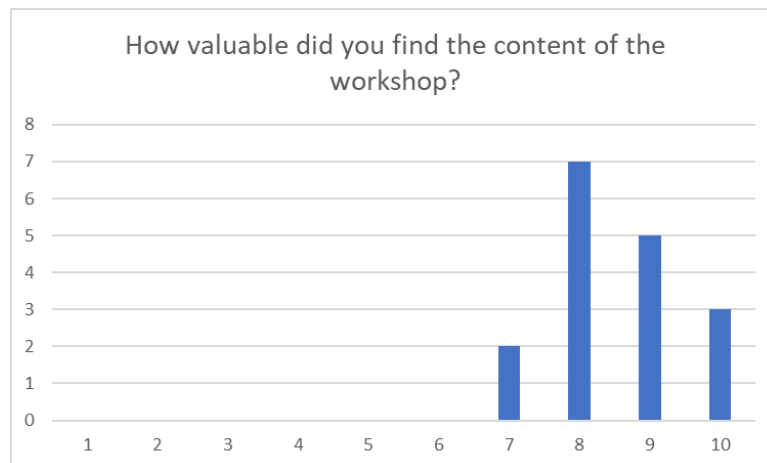


Figure 19. How valuable did you find the content of the workshop?

Q2: How valuable did you find the process of the workshop?

When asked how valuable they found the process (including the pre-reading), the average rating was 8.4 and the distribution is shown in Figure 20. When asked to list any specific suggestions for improvement, comments included:

- The pre reading is quite long but I get the depth of the topic does need a good understanding.
- Pre reading was really good and good chance to use tool. Could there be less time recapping in session 1?
- Pre-reading was a good amount of time, got the information across without having to spend hours looking at it.
-

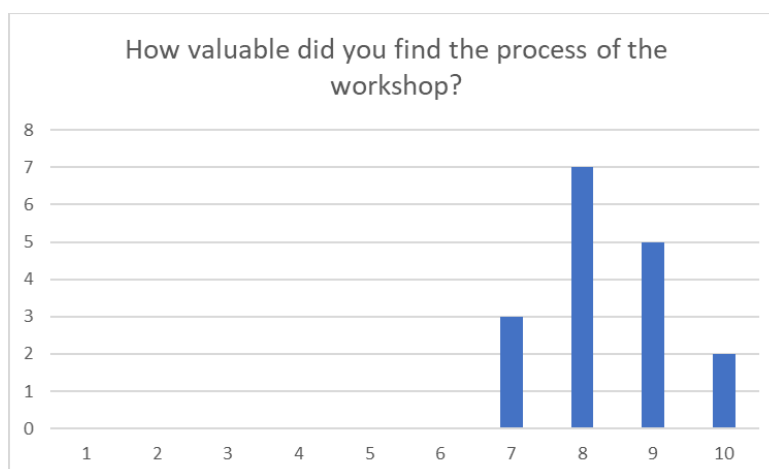


Figure 20. How valuable did you find the process of the workshop?

Q3: How useful was it to break the FWFA deliverer training into two sessions?

When asked how useful it was to break the FWFA deliverer training into two sessions (the first focusing on using the tools and the second on the actual workshop delivery), the average rating received was 8.8 and the distribution is shown in Figure 21. When asked to list any specific suggestions for improvement, comments included:

- Provide a clearer outline of what will be covered each day in the promotional material.
- Easier to slot in current workload.
- It was great to go in depth with the delivery of the tools.
- Perhaps just send out pre-work a bit earlier to give more time to do it.
- Good to have a week between the sessions to run back through the resources before the next session to really understand the content.

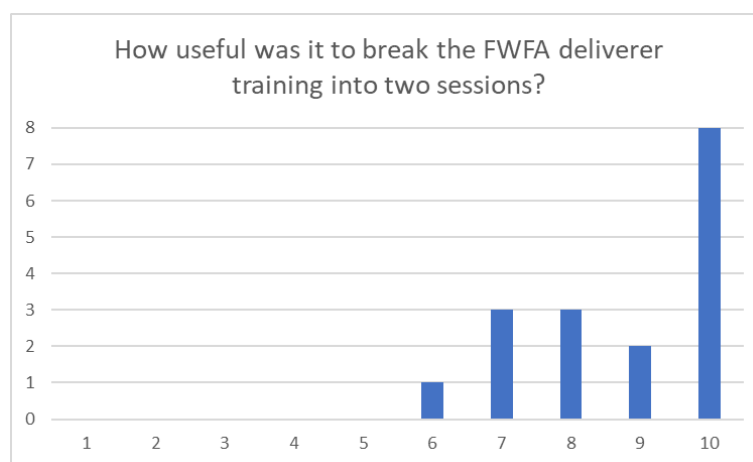


Figure 21. How useful was it to break the FWFA deliverer training into two sessions?

Q4: How confident do you feel about delivering the FWFA pilot sessions?

Regarding how confident they were feeling about delivering the FWFA workshop, the average response was 6.6 and the distribution is shown in Figure 22. When asked to list any specific suggestions for improvement, comments included:

- Time, to get my head around the tools and time to find an easy way to explain the probability and confidence.
- Use the tools a few more times and develop some locally relevant case studies.
- Need to use tools more myself before being full confident.
- Just more play time and a practice run with colleagues!
- Work through some more case studies myself
- Tech backup for designing presentation!
- Practice.
- More time to play with the tools to familiarise myself more.
- Need to use the tools more and discuss with colleagues.
- It would be good to sit in on someone else presenting one first, even a recorded example one.
- I need to practice with the tools more, perhaps an e-Newsletter to deliverers with tips and tricks, notes about the web updates etc.
- Still need more practice, potentially a third workshop a fortnight later for final questions or extra case studies to practice.

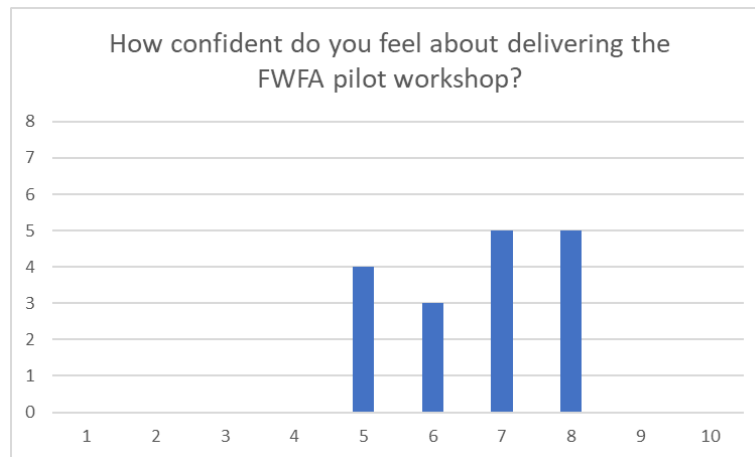


Figure 22. How confident do you feel about delivering the FWFA pilot sessions?

Q5: To what degree did you find the workshop booklet useful?

Regarding how useful they found the workshop booklet; the average response was 8.6 and the distribution is shown in Figure 23. No suggestions for improvement were mentioned.

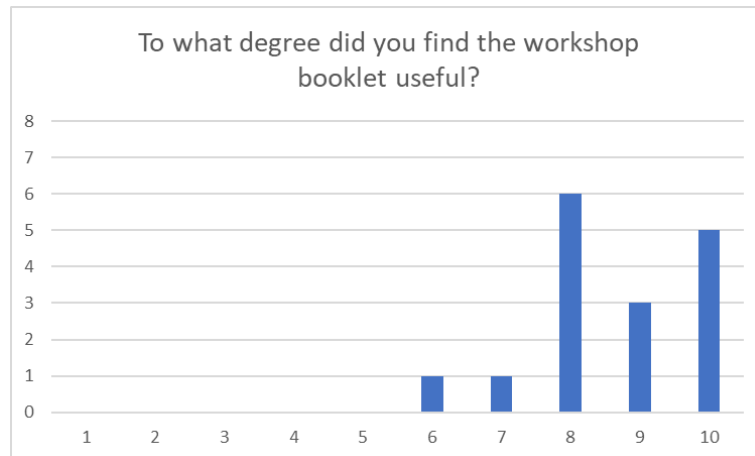


Figure 23. To what degree did you find the workshop booklet useful?

Q6: To what degree has your knowledge and understanding of decision-making around extreme climate/ weather events improved?

When asked to what degree their level of knowledge and understanding of decision-making around extreme climate/ weather events improved, the average response was 8.1 and the distribution is shown in Figure 24. When prompted for further comments, these included:

- Hasn't changed the understanding of decisions making. It has changed the knowledge or tool available to make more informed decisions.
- Much better understanding.

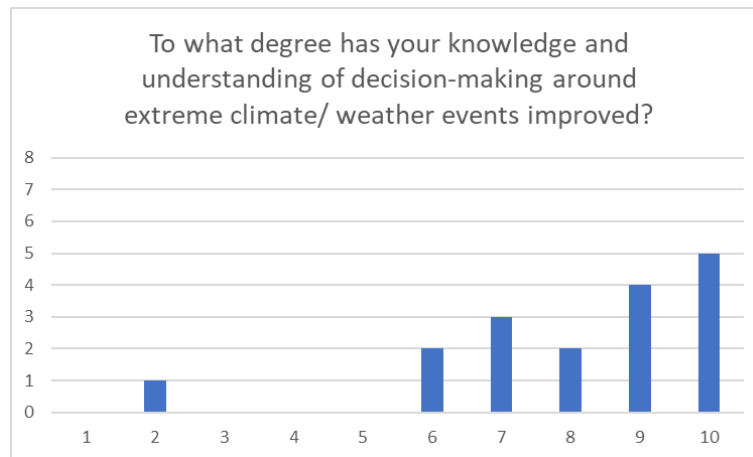


Figure 24. To what degree has your knowledge and understanding of decision-making around extreme climate/ weather events improved?

Q7: To what degree has the Trainer-the-Trainer workshop met your expectations?

When asked to what degree had the Trainer-the-Trainer workshop met their expectations; the average response was 8.5 and the distribution is shown in Figure 25. When prompted for further comments, these included:

- Was unsure of what my expectations were. Hard to assess it against criteria I hadn't established.
- Top job!
- Above my expectations.
- The sessions weren't quite what I was expecting, however, I think I got more out of it than I expected. I was thinking that there would be more time spent on the science behind climate drivers e.g. El Niño etc. It was good to leave these topics alone as you would quickly lose farmers' attention if your workshop got too technical.

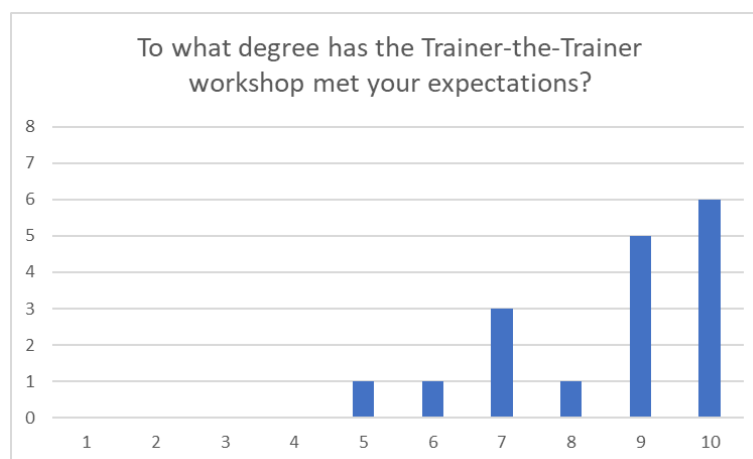


Figure 25. To what degree has the Trainer-the-Trainer workshop met your expectations?

Q8: Which state/s do you anticipate you will deliver FWFA to producers?

When asked in which state/s the participants will deliver FWFA to producers, the responses were Vic (8), Tas (5), and NSW (3). When prompted for further comments, these included:

- It is more applicable on a one-on-one basis in my role rather than a workshop.
- Maybe others if required.
- Unsure if I will be delivering workshop.
- But I would like to.

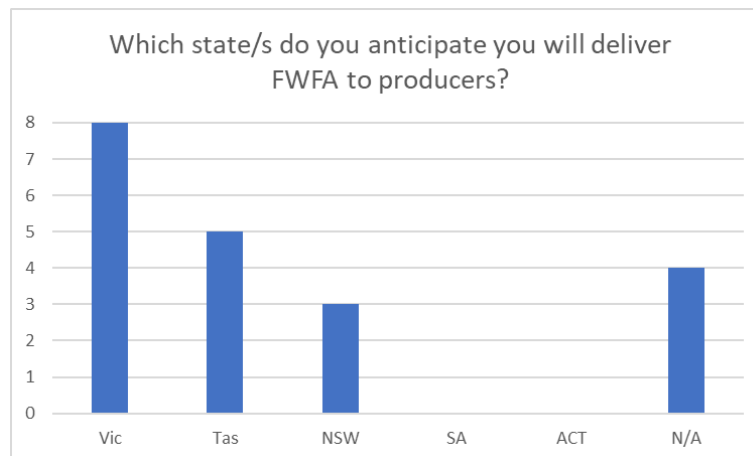


Figure 26. Which state/s do you anticipate you will deliver FWFA to producers?

Q9: Which industry/ies do you anticipate you might deliver FWFA to?

When asked which industry/ies the participants will deliver FWFA to producers, the responses were red meat (8), horticulture (6), dairy (5), grain (5), wine (3), sugar (1), and cotton (1). When asked to specify other, these included:

- Berry fruit, grass seed production.
- Apiary.
- I might be supporting other staff who work directly with the industries to deliver this - not sure yet.

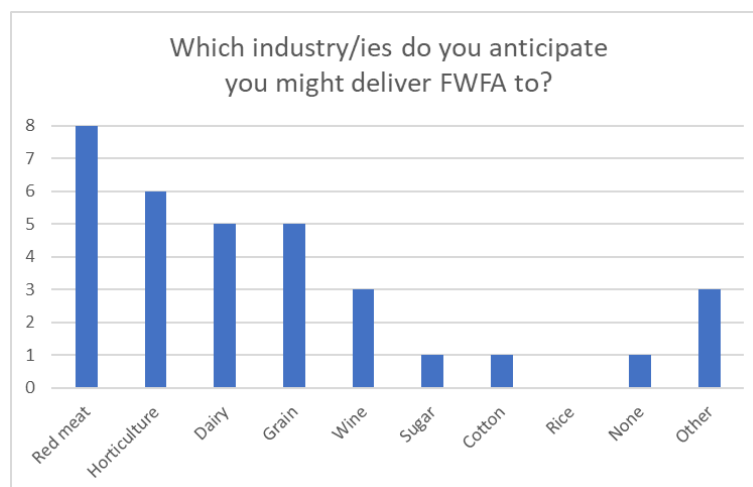


Figure 27. Which industry/ies do you anticipate you might deliver FWFA to?

Q10: Any further comments or suggestions?

When prompted for further comments or suggestions, these included:

- Maybe provide a clearer goal of the purpose of the course. We aren't all going to be able to deliver this as part of our current offerings. And a breakdown of what would be covered each day would be good.
- Well done all.
- Well done team. Great set of tools that I will use with clients moving forward.
- Thanks!
- Thank you for a great couple of sessions. The info in the workbook is great and I look forward to looking at it in more detail as I work through using the tools and designing how to build this into our current service offer to farmers in Victoria.
- Thank you for running the sessions.

Summary of all responses***TtT session 1: Using the five new BoM tools – part 1***

Question	Average response /5
Level of knowledge of the FWFA tools	2.9 beforehand to 3.6 afterwards
Level of confidence to use the FWFA tools	3.4

TtT session 2: Using the five new BoM tools – part 2

Question	Average response /5
Level of knowledge of the FWFA tools	3.4 beforehand to 3.6 afterwards
Level of confidence to use the FWFA tools	3.3 beforehand to 4.0 afterwards
Level of confidence to interpret/ explain the FWFA tools	3.9

TtT session 3: Preparing to deliver

Question	Average response /10
Level of value: content of the workshop	9.2
Level of value: process of the workshop	9.0
Level of value: breaking the training into two sessions	9.8
Level of confidence to deliver the FWFA workshop	8.3
Level of value: workshop booklet	8.7
Level of knowledge and understanding of decision-making around extreme climate/ weather events	9.0
Degree to which the Trainer-the-Trainer workshop met their expectations	8.5

Pilot workshops

Question	Average response /10
Likely use of FWFA tools	8.1
Level of confidence to use the FWFA tools	7.2
Degree to which the content of the workshop was useful	8.4
Degree to which the process of the workshop was useful	8.4
Degree to which the workshop booklet was useful	7.8
Overall usefulness of workshop	8.4

TtT workshops

Question	Average response /10
Level of value: content of the workshop	8.5
Level of value: process of the workshop	8.4
Level of value: breaking the training into two sessions	8.8
Level of confidence to deliver the FWFA workshop	6.6
Level of value: workshop booklet	8.6
Level of knowledge and understanding of decision-making around extreme climate/ weather events	8.1
Degree to which the Trainer-the-Trainer workshop met their expectations	8.5

Appendix 6: FWFA workshop risk mitigation strategies

Forewarned is Forearmed deliverer training

Pre-mortem exercise, session 2 – June 2023

During the second section of the deliverer training, we imagined ourselves the day after delivering our first FWFA workshop which had gone horribly wrong. As a group, we shared some of the things we thought could go wrong with this workshop. We voted on what we were most concerned about, and discussed what we might do to mitigate those risks. This is a summary of the concerns shared during this exercise, and mitigation strategies that were put forward. Please note that there will certainly be more mitigation strategies, but we hope this gives you an opportunity to prepare yourself confidently for the delivery of your (first) FWFA workshop!

A reliable internet connectivity was not available and technical difficulties during the workshop arose

The tools require considerable bandwidth to function properly, meaning a reliable internet connection is required to run the tools live during your workshop. If you don't have reliable internet, or you're not sure, consider the following:

- Visit the venue beforehand to check the internet connectivity.
- Record your own screen at home as you step through the case studies and narrate how you navigate the tools (similar to how Esmée and Alister stepped through the tools during the first training session). Your own recorded video can then be played at the workshop. An additional benefit of this is that you can read the room while watching the video, and clarify anything that might have caused confusion or was misunderstood.
- Hold the workshop online. This way you can share your screen and navigate the tools live using your own reliable internet connection.

There wasn't enough time allocated for the workshop and we ran out of time

The workshop is designed to be a 90-minute session and the runsheet of the workshop contains recommended time allocations to help you plan the session. By stepping through the workshop agenda at the start, you can set the expectation for the session. This can help you stick to time. Don't be afraid to pull up a conversation if it poses a risk to your timeframes; no one wants to be late. If you think the conversation is too fruitful to pull up, you can offer the decision to the participants: are you okay with us going over time so we can keep discussing this, without having to cut the upcoming parts of the workshop short?

Another suggestion is to play a recorded video of yourself running through a case study (as mentioned above). This allows you to get the task done, and take questions or facilitate discussion after playing the recording. This suggestion addresses the risk of poor internet connectivity as well.

A 'The Bureau never gets it right, so why should I look into these tools?' bias

Workshop participants might have prior experiences where they relied on a forecast prepared by the Bureau for a decision on farm, only to learn that the reality was not even close to how they interpreted the forecast. If this has occurred multiple times, this can form the belief that the Bureau *never* gets it right. This can be a challenging conversation and can catch you off guard. In such a situation, you can consider several approaches:

- Educate participants on how to interpret a weather forecast correctly and emphasise how the chance of something occurring also tells you about the chance of something *not* occurring.
- Explain the difference between weather forecasts, climate outlooks and the five tools you're teaching about in your workshop. Explain the differences in the type of information, resolution, timeline, accuracy and probability associated with the different forecasts and talk through what we *can* and *can't* reasonably expect from a weather forecast.
- Ask for examples when the Bureau got it wrong, and use the situation as a case study to step through the tools and their correct interpretation. Use the example as a topic of conversation with prompting questions such as: "what decision did you make based on the forecast at the time?", "if you knew what the weather was going to do, what would you have done differently?", "what information can help you with making the decision that you had made at the time?", "is there information you could use from these tools to help make that decision with more confidence in the future?".
- Explain that it is important to recognise when *not* to rely on a forecast. Acknowledge that, pending the probabilities and accuracies presented, some forecasts are neutral, non-descriptive or lack accuracy to

confidently use as information for a decision. You could also discuss how individuals can differ in their appetite for risk and how this determines the different attitudes towards taking on information with a certain level of probability and accuracy.

The group discussion is not flowing and there is a general lack of engagement

This workshop is built on active participant engagement. There can be several reasons participants are not actively engaging, such as (but not limited to): not keeping up or understanding the information presented, disinterest, not feeling comfortable speaking in a group. In this situation, you can consider the following approaches:

- Use your knowledge of the participants in the room. You could ask people that you already know before the workshop to actively engage if the group is not participating.
- Consider a ‘think-pair-share’ approach when doing an exercise where you rely on participant input; ask people to jot their ideas down individually, invite them to chat about it with the person sitting next to them, and lastly, invite them to share some ideas with the larger group. Consider using a whiteboard in this process to capture the ideas.
- Be mindful of the timing of your workshop; choosing a time where more climate-sensitive decisions are being made might help with discussion as participants may be able to relate to them better.

No one did their homework

Although the pre-reading is not essential, it can be a real bonus if participants have forecasting in front of mind before coming to the workshop. It can allow you to move through the first parts of the workshop faster, which will leave more time available for discussion about interpretation and application of the tools – which is where the real value of the workshop is. Consider checking in at the start of the workshop to gauge who has or hasn’t done their pre-reading, and be upfront about it. You can explain the consequence might be that more time will need to be spent on the tools, leaving less time for the application, or it could mean the workshop will go over time. You can offer the choice to participants: go over time, or cut the tool-application part of the workshop shorter to finish at the scheduled time.

An emotional response to experiencing an extreme weather event occurred

Extreme weather events are common in Australia. There may be participants in your group that have had a traumatic experience with an extreme weather event and talking about weather extremes might trigger an emotional response. To be prepared for this, do your research on your local counselling services that you can recommend. Be mindful of your own skillset and don’t overstep where you’re not experienced and skilled to do so. Acknowledge emotions are real.

Lack of understanding by the deliverer about how tools can influence operational activities

Test your own understanding of the tools and their application by doing a test run with a group of peers. Run through how you would go through the session and invite their feedback. Read through your deliverer handbook or additional resources if topics are unclear, and make use of the Bureau’s help line via agriculture@bom.gov.au if you have any questions about the tools.

Ensure you know your audience and the type of enterprises they run. You can collect this information during the event registration process and ask participants to enter information about their area, operation and weather extremes of interest to them. Knowing what’s relevant to participants at the timing of the workshop will help you prepare a relevant and interesting workshop.

Appendix 7: FWFA Legacy Plan