

Advanced to In Practice: innovation in design of extension framework

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Abstract. The lecture style approach of the 2018 Dairy Australia Rearing Healthy Calves (DA RHC) program delivered sound content to participants, in a one size fits all purposes framework. In November 2020, an internal Dairy Australia project team updated the DA RHC extension program to provide a 'Fundamental' course supporting dairy farm employee's operational management of calf rearing, and an 'Advanced' course supporting decision makers in strategic management of calf rearing on Australian dairy farms. During a pilot of the DA RHC advanced course, participants focused on peer-to-peer discussion to remove roadblocks to practice change. As a result of this observation, the focus of the advanced course was switched from uptake of content to facilitation of participant driven pathways for practice change. The 'In Practice' focus appreciates the adoption of change requires time and space for reflection of how new learnings are being implemented to improve current farm practices.

Keywords: Redevelopment; extension framework; calf rearing

Introduction

Dairy Australia is the national services body supporting profitability and sustainability of Australian dairy farm businesses through research, development, and extension activities. The goal of delivering extension activities is to increase the capacity of farmers to adopt farm practices that benefit and advance dairy farm businesses.

Review of 2018 DA RHC extension program

The 2018 DA RHC extension program required presenters to deliver four to five topics, from a power point pack of nine topic modules, to dairy farmer participants in a face-to-face 3.5-hour classroom (i.e., room at local hall; pub; football club) session. Sound content was delivered in a framework which assumed that large quantities of detailed theory and principles would be understood and appropriately applied to achieve practice changes to improve outcomes for calf rearing across Australian dairy farms.

The triennial Dairy Australia Animal Husbandry Survey, has been tracking farmer attitudes, behaviour, and practices since 2005, to provide evidence for:

- prioritisation of extension development and delivery
- improvements in on-farm performance
- ensuring industry practices are aligned with community expectations.

The 2019 Dairy Australia Animal Husbandry Survey (Dairy Australia 2020) identified that whilst pain relief during disbudding and awareness of animal welfare standards had improved since 2016, calf rearing practices around colostrum management, bobby calf welfare and biosecurity were still key areas for improvement.

Feedback from regional extension officers, facilitating delivery of the 2018 DA RHC program, highlighted the extension program had a heavy focus on delivery of information from a subject matter expert to farmers with little opportunity to appreciate existing calf rearing knowledge of farmers attending DA RHC extension events. Farmers who engaged with the 2018 DA RHC extension program identified the value in peer-to-peer discussion and need to access current animal health information and recommendations.

In November 2020, an internal Dairy Australia project team of extension officers, technical subject matter and digital learning experts undertook a project to update the DA RHC extension program. This project team reorganised the valuable content of the 2018 DA RHC extension program and updated the DA RHC extension framework to provide farmers with improved access to targeted learning.

Rearing Healthy Calves redevelopment project 2020

Organising content for targeted learning

To support increased adoption of good calf rearing practices within a farm business the DA RHC extension must:

1. Support on boarding of dairy farm employees new to calf rearing operations.
2. Facilitate farm owners, managers, and experienced calf rearers to make strategic decisions.

To address these different levels of need, the DA RHC update project defined content within each topic module as fundamental information required for daily management of calf rearing or advanced information required for development of policies, protocols, and procedures to be performed by a calf rearing team. A few members of the project team reviewed proposed course content updates with dairy farmers experienced in calf rearing and Dairy Australia extension. The aim of seeking feedback at the start of the project was to sense check that the project team had agreement with farmers on topic emphasis in the DA RHC update project.

Developing resources to support capacity for practice change

For each topic module in updated DA RHC extension, the DA RHC redevelopment project team used Blooms taxonomy (Armstrong 2010) of educational outcomes to write learning outcomes aligned to knowledge and skills a participant must master to improve the management of calf rearing on farm. Utilising Blooms taxonomy assisted the project teams' development of appropriate resources and learning activities to support learning outcomes.

Participants with operational role responsibilities require resources to support understanding and application of principles of good calf rearing practices to their farm situation. A workbook and shed guide resources were developed to support learning around how to apply good calf rearing practices to the daily operational management of calf rearing. The shed guide is a collection of durable waterproof ring bound A4 pages containing photographs and dot point instructions of operational calf rearing procedures (i.e., how to measure colostrum quality). The workbook contains the outline of how topics will be covered in the workshop, learning outcomes for each topic, templates for learning activities associated with each topic, highlighted notes to assist engagement with activities and sections to encourage reflection on how learning could be applied on farm. A power point presentation was developed to assist presenters facilitating participants gaining an understanding of the why, what, and how of implementing good calf management practices.

Calf rearing managers or owners, with a need to increase capacity for making strategic calf rearing management decisions, require resources which support capacity for analysis, evaluation, and creation of solutions to adopt good calf rearing practices to improve calf rearing outcomes in their business. The DA RHC project team utilised the DA farm fitness checklist template from the DA our farm our plan extension program (Dairy Australia 2023) to develop the DA RHC checklist booklet. The DA RHC checklist booklet contains checklists of good practices which support good outcomes for key areas of calf rearing management including:

- preparing for calving
- housing
- calf id and traceability
- biosecurity
- colostrum
- nutrition
- husbandry procedures
- calf health
- weaning
- bobby calves and calf pathways.

Farmers work through the practices in a checklist ranking their perception of their farm management of each practice in the checklist as being in one of the following categories:

- green = yes, we have nailed this practice
- yellow = ok, but we could do better
- red = no, and we should do something about it
- white = no, and it's not relevant to us.

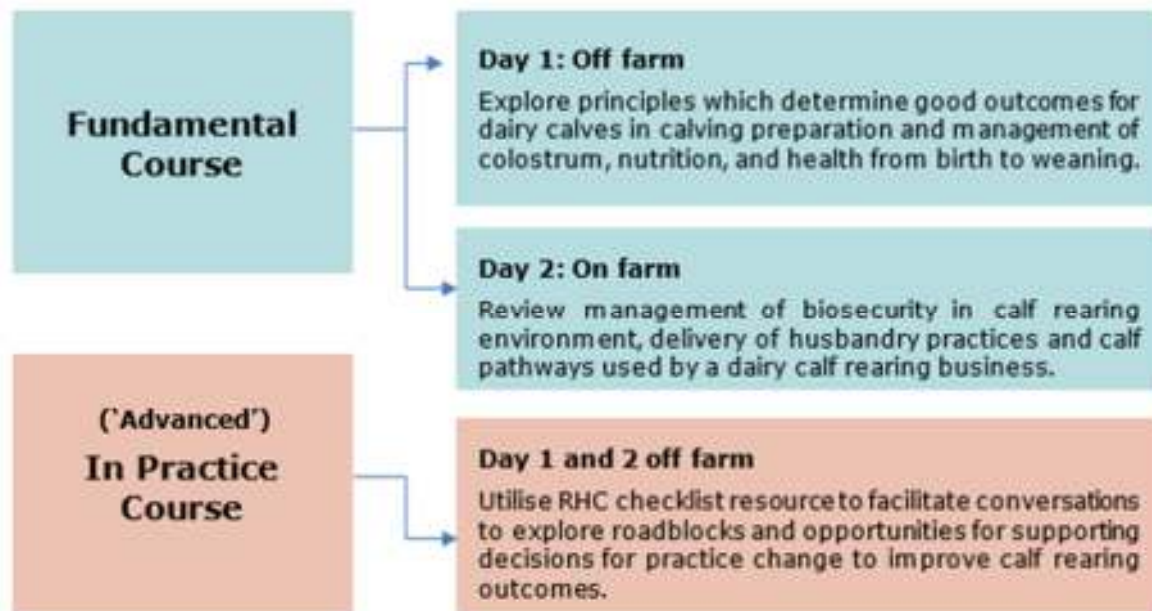
Each checklist has a strength, weakness, opportunity, and threat (SWOT) template to capture the results of a checklist assessment. This resource, intended to be given to farmers before they participate in a DA RHC extension event, enables farmers to perform a complete a SWOT analysis of their calf rearing management practices.

Redeveloping fundamental extension framework fit for purpose

The division of content into learning targeted to the needs of participants organically led to the DA RHC extension delivery being restructured from a one-day program for all participants into two distinct courses tailored to meet different learning outcomes of farmer employees versus calf rearing managers.

The DA RHC fundamentals face to face extension delivery has been redeveloped as a two-day course to support farm employees new to a calf rearing role. On the first day of the DA RHC fundamental extension course, participants use learning activities, workbook and calf shed guideline resources, to understand principles for good management of colostrum feeding, nutrition, and health care. On the second day of the DA RHC fundamental extension course participants engage with an experienced calf rearer to observe how good calf rearing practices, which support effective biosecurity and management of the calf rearing environment, are implemented on farm.

Figure 1. Framework for updated delivery of DA RHC extension



Advanced to In Practice approach to extension framework

The initial proposed framework for the updated DA RHC extension program, assumed that the DA RHC advanced course focus would primarily be on delivery of advanced information, to enable experienced calf rearers to explore how to develop, implement, monitor, and review a calf rearing management plan. Participants of the DA RHC advanced course pilot were farmers experienced with calf rearing, who had attended a DA RHC fundamental course in the last 6-18 months. Some of the participants in the DA RHC advanced pilot group had made practice changes to feeding management or housing infrastructure since attending the DA RHC fundamental course. This may have influenced their enthusiasm at the DA RHC advanced pilot to engage in activities which facilitated the sharing of their calf rearing management experiences since participating in the DA RHC fundamental course. The DA RHC advanced course pilot participants used learning activities as an opportunity to engage in conversations to share experiences around practice change and adoption. The inflexible power point presentation was redundant as conversation moved to follow areas of concern and success for participants in the room.

Following observations of participant behaviour in the DA RHC advanced course pilot and review of participant feedback, the project team decided to shift the focus from content uptake to participant driven pathways for practice change. The name of the DA RHC 'advanced' course was changed to DA RHC 'in practice' to reflect the changed extension focus.

The DA RHC in practice course builds upon the DA RHC fundamental course and the DA RHC checklist resource to provide decision makers an opportunity to reflect on how well their current calf rearing practices support their farm business.

The learning activities of the DA RHC in practice course facilitates participant exploration of their DA RHC checklist SWOT analyses to identify practices which could be negatively impacting calf rearing management. Learning activities encourage participants to identify opportunities and strategies to remove barriers to practice change. Learning activities utilise:

- think; pair; share
- bus stop
- group white board sharing

- discussion to explore and compare SWOT responses to find peer to peer solutions for change.

Rather than using a power point presentation to deliver content, the DA RHC in practice course relies on the facilitation skills of the subject matter expert (SME) to top up participant knowledge gaps exposed during DA RHC in practice course learning activities.

Discussion

Reflecting on DA RHC in practice framework

The risk of attempting on farm practice change without taking time to reflect, is that when there is a failure to achieve a desired outcome, trust in the extension program is eroded. The in-practice framework provides an opportunity to model reflective management skills to consider factors required to achieve specific outcomes. Having the opportunity to share and reflect on practice adoption successes within the framework of the RHC in practice extension course, encourages participants to build trust in principles presented in the RHC fundamental extension course. Hearing how other farms have benefited from implementing practice change can stimulate a review of self-belief in capacity for change in roadblocked participants. Through reflection and peer to peer problem solving, the in-practice framework extends management and networking skills of participants. The conversation and flow of learning will be driven by farmers and guided by the extension officer and subject matter presenter.

With an increased focus on constructive conversations the importance of language influencing outcome of participant engagement with learning activities becomes amplified. Presenters need to determine, for each cohort of participants, if the most effective lever for change will be asking farmers to identify opportunities for improvement versus focusing on how to address frustrations and roadblocks to change. Engagement in effective conversations has the potential to build connections and relationships that support improved adoption of practice change.

Rather than utilising a power point presentation to align subject matter delivery across regions, a detailed facilitation guide has been developed to support flexible delivery of learning activities within the in-practice framework. Whilst figure 1 portrays DA RHC in practice delivered as a two-day course to cover review of all checklists, the actual delivery can be adapted to meet local needs for extension. E.g., A group of farmers may choose to have a short two-hour discussion group session focused on colostrum management practices. The focus remains on participants in the extension activity driving conversations to find solutions to how they can manage practice change.

This extension framework demands a well-developed facilitation skill set in the presenter. This could prove problematic in regions with a sparse disbursement of SME confident to participate in less heavily scripted extension activities.

Farmer insights to increasing extension engagement

The objective of the DA RHC update was to increase farmer engagement with DA RHC extension to support Australian dairy farmers to drive practice changes on farm which increase capacity, sustainability, and profitability. As well as seeking farmer feedback regarding proposed updates to DA RHC extension content, the project team asked questions to gain insights that could improve the likelihood of farmer engagement with extension activities. Responses from farmer discussions around factors which would increase likelihood of attendance at face-to-face extension events in Southwest Victoria included:

- use peer respected mentors as part of the extension activity
- get subject matter experts (SME) in front of farmers, but if they are not Australian, have an Australian SME to balance the conversation
- all learning activities must be engaging and allow time for peer-to-peer discussion
- provide sufficient notice of events (at least 3 weeks)
- deliver extension one day a week between the hours of 10.30 to 2.30pm in a location close to farm.

To further increase the ability for geographically challenged farmers to engage with DA RHC extension, the project team also developed a self-paced online DA RHC fundamental course and a facilitated online DA RHC in practice course.

A single source of truth

The DA RHC manual (Dairy Australia 2022) provides farmers and facilitators with a single trusted reference point of information for best practice principles regarding the rearing of healthy calves on Australian dairy farms.

When RHC update project team reviewed topic modules of the 2018 RHC extension program against current and emerging issues for the Australian dairy calf rearing industry in 2020,

knowledge gaps were found pertaining to feed management approaches, options for calf pathway management and approaches to biosecurity management in the calf rearing environment. SME in the project team added updated information about these issues to the relevant topic module in workbooks and facilitator guides being developed to support DA RHC extension delivery.

In hindsight, this decision to house technical information across multiple resources resulted in increased work tracking changes across multiple documents and increased the cost of workbook printing. At the end of the project all technical information in workbooks was transferred to the DA RHC manual with review by a DA RHC SME.

Key learnings for extension development

1. Where a course has a manual as the single industry reference source of subject matter, start the redevelopment process with a thorough review of the manual. Identify information gaps which recent research has improved understanding since publication of the manual. Add all updated technical information to the single industry reference.
2. Be clear about the function of resources being developed to support participant engagement with change. Review how content contributes to facilitate practice change.
3. A delivery framework for an extension activity which facilitates participants to have:
 - a sound understanding of principles which support good management practices
 - time to reflect and validate with peers
 - control over finding solutions to practice change
 - is likely to support participants attempting to implement sustainable change in farm management practices.
4. Extension should be realistic about the time required to implement effective and sustainable change. Since updating DA RHC extension, participation in DA RHC fundamental extension course has increased from 52 people per 90-day period to 120+ people per 90-day period. Knowledge needs to lead to action to achieve value for farm businesses sending participants to engage with DA RHC extension activities. Developing the DA RHC in practice extension framework provides Dairy Australia regional extension programs the opportunity to facilitate modelling of reflective practice by farmer participants to assist adoption of practice change on farm.

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References

- Armstrong P 2010, 'Bloom's Taxonomy', Vanderbilt University Center for Teaching, Available from: <<https://cft.vanderbilt.edu/>> [29 September 2023]
- Dairy Australia 2020, 'Animal care on Australian Dairy Farms: results of the Dairy Australia animal husbandry survey 2019', Dairy Australia Limited, Southbank Vic 3006 Australia, Available from: <<https://cdn-prod.dairyaustralia.com.au/>> [28 September 2023]
- Dairy Australia 2022, 'Rearing healthy calves 2nd edition', Dairy Australia Limited, Southbank Vic 3006 Australia, Available from: <<https://cdn-prod.dairyaustralia.com.au/>> [28 September 2023]
- Dairy Australia 2023, 'Farm fitness checklist', Available from: <<https://www.dairyaustralia.com.au/>> [30 September 2023]