

## Thoughts on reflexive learning strategies: structural decision-making in forage management innovation

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**Abstract:** As noted in the introduction to workshop 1, one of the most pressing challenges of change and knowledge management in modern farming research is the creation reflexive learning systems that are capable of creating learning and knowledge transfer opportunities for the farmers, researchers and organisations who have invested their time, effort and money in them. Accordingly, the learning structures of the future must be capable of reacting as rapidly to the suggestions and advice of those actually farming as they do to the various researchers whose work they encompass. This paper explores some of the strategies employed to address this issue within a research project in Victoria, Australia, whose primary aim is provide farmers a 30 percent return on assets by increasing their annual home grown forage by 30 percent.

**Keywords:** learning, process, communities, practice, collaboration.

This paper concerns a collaborative research and multi-disciplinary approach to the on-farm adaptation and adoption of innovation. It is based upon social research within the 3030 Project in South Eastern Australia. The project seeks to prove that a 30% increase in home grown forage may translate to a 30% increase in return on assets for Australian dryland dairy farmers. The research is focussed on the use of innovative forage management practices in dairy farming to extend the yearly feedbase. The aim of the social research component of the 3030 project is to better understand how farmers adapt and use technologies with high learning challenges and to identify principles for the design and evaluation of large development programs which can be used to support change within the dairy industry. Within the context of this discussion, our aim is to outline the various social structures within the project as a whole and to explain how the issue of scaling up is addressed within the project at a structural level.

The research design is grounded within a multi-disciplinary, collaborative approach in which a high degree of communication between the various component groups within the project is systemically vital to its success. For the purposes of social research, we have chosen to employ Wenger's (1998, 2002) 'Communities of Practice' (CoP) concept to understand how the social actors involved are creating and transferring knowledge within and between the various groups of the broader project structure. We have modified Wenger's notion of the CoP concept to include three bands of association which we have labelled the core (invested) band, the participatory (engaged) band and the peripheral (associated) band. Additionally, by understanding the participants as intellectuals engaged in what Gramsci (see Holub 1992) called a 'structure of feeling' operating in what Beck (1992, 1994, 1998) might entertain as a 'risk environment', we are coming to understand how the participants within these groups contribute to their socio-political and socio-economic dynamics in relation to their proximity to each group's key decision making core.

As alluded to above, in addition to the more traditional trial plots and teams of institutionally based scientific researchers, the project contains three partner farms (Crawford *et al.* 2007) and five forage insight activity (FIA) groups. As mentioned above, each of these groups is considered as a CoP within which meaning is created, received and transferred from one CoP to another. The partner farms are located in the three main dryland dairying regions of Victoria. They are each complemented by a regional development team consisting of local farmers, local extension professionals, farm consultants and members of the scientific and social research teams. These partner farms are functioning commercial enterprises containing established successful farm systems. Their role within the research is twofold.

In the first instance, they incorporate the innovative technologies and practices resulting from the work of the project's experimental research team within their farm systems. This then exposes the innovation to commercial realities on a whole farm system level which, in turn, leads to the early identification of its strengths and weaknesses, well before it is more broadly disseminated throughout

the industry. This approach provides a deeper context to the research in which issues such as management practice timeframes, market realities, strategic planning and regional and local resource availability can potentially be given the same weight as other, more traditional research concerns. The issues that have arisen from this aspect of the partnership are things such as the accessibility of supplemental feed in summer, sowing depths to avoid a false strike in the period before the Autumn break and determining which cultivar of a particular cereal crop is likely to go to head if not grazed early. In the second instance, the partner farms provide an arena in which real time decisions may be monitored and analysed in order to (a), better understand how the innovation may be best utilised by the industry and (b), develop an effective method of delivering the innovations stemming from the 3030 Project research to dryland dairy systems.

The smaller on-farm forage cereal trials overseen by the FIA groups are spread throughout the state and consist of local service professionals, such as seed company representatives and farm contractors. Their goal is to endeavour to establish best practice in relation to the utilisation of forage cereals as complementary forages. This approach also seeks to identify the ways in which industry professionals communicate and transfer knowledge between each other in order to provide their clients with the best available industry practices. This learning opportunity is of great importance to the 3030 Project as it is intended to inform the development of a professional training program aimed at delivering the projects outcomes to the broader dairy community.

Over the past 15 months data was collected concerning important on-farm forage decisions. The 3030 social research team have investigated the processes by which these decisions were arrived at and have identified a number of factors, such as the importance of reliable information specific to locality and region, scale and system composition as being crucial for confident decision making. Importantly, initial discursive analysis suggests that the degree and type of social capital held by the participants and the contexts in which they interact impact upon their ability to participate in communal learning and effectively transfer knowledge. Additionally, the transfer of knowledge at a CoP level has been found to be highly reliant on informal channels of communication which may be greatly enhanced by a more formal and conscious approach to knowledge transfer.

Embedded within the research is the notion that the structures it creates must be highly reflexive and resilient. The structures within the project have been designed to allow the direction of the research to be driven by both farmers and researchers in order to create an environment in which the learning challenges presented by innovation can be successfully engaged through a true partnership between R&D and commercial farms.

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