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# Farmer Communities of Practice and High Tech Futures

## Abstract

*In the past farmers have been key rural citizens as farming has played an important role in local rural economies. Today there is a reduction in the number of people working on the land and farms as a business no longer make such a large direct economic contribution. At the same time the importance of farmers for managing farmland for wildlife, landscape value and tourism has been increasing. Yet commercial pressures mean that many farmers are leaving the profession or becoming more specialised, and it is no longer clear to many of them how they will continue to play an important economic role in the future.*

*Although they are physically dispersed, individual farmers are part of a farming community - living, working and interacting with one another. Current trends run the risk of placing an increasing strain on their ability to work together as a 'community of practice' and experience a clear, shared, farming identity. At the same time new agricultural technologies are being developed that also impact on the relationships that farmers have with others. For example, genetically modified crops, which have the potential to drive a wedge between farmers who may see the future of agriculture differently, but they can also demand, or be opportunities for greater farmer co-operation. Drawing on the findings of our study on farmers understandings of new, future technologies and genetically modified crops, this paper considers the impact of new agricultural technologies on farmer communities of practice.*

## Keywords

Communities of practice, farmers, GM crops, new technologies, knowledge management

## 1. Introduction

Our rural landscapes are not only places where local people live and work, they are also enjoyed by tourists, the subject of study by scientists, and they are managed by planners and decision makers. Crucially, however, they are also part of a commercial farming environment. For farmers the rural landscape is not only where they live, but also their livelihoods. In the past farmers have been key rural citizens as farming has played an important role in local rural economies. Today, however, there is a reduction in the number of people working on the land, and farms as a business no longer make such a large direct economic contribution. Commercial pressures mean that many farmers are leaving the profession or becoming part-time farmers. The total number of active farm holdings in England has been decreasing over the past few decades with a consequent rise in the

average size of active holdings (Commission for Rural Communities, 2005, DEFRA, 2004). Increasingly farms are becoming multifunctional as farmers are diversifying into other farm and non-farm related activities such as food processing, food shops or tourism. Adding to these pressures, are the expectations for farmers to deliver inexpensive, high quality products, yet also to farm in an environmentally sensitive way and any changes that they make are generally wide open to public scrutiny. Thus farmers are attempting to serve a range of goals which are often in direct conflict. Although it should be noted that the need for rural landscapes to provide a mix of visual, ecological, and economic benefits, has always raised the issue of the balance between these different benefits in different areas and how best to achieve that balance (Tait, Lane and Carr, 1988).

Even though they are physically dispersed, individual farmers are part of a farming community - living, working and interacting with one another. Current trends, leading to larger farm units and increased diversification, run the risk of placing an increasing strain on farmers' ability to work together and experience a clear, shared, farming identity. Farming is also an increasingly complex business employing a wide range of technologies. New agricultural technologies are being developed that may also impact on the relationships that farmers have with others. This paper draws on some of the findings from our study on farmers' understandings of genetically modified (GM) crops, to consider the impact of new agricultural technologies on farming communities of practice.

## 2. Our Research

Our research has been investigating farmers' understandings of herbicide tolerant GM (GMHT) crops within the context of new technologies more generally and in relation to their social setting. Interviews with large scale commercial farmers in England, with and without experience of growing GMHT crops, mapping techniques and workshops with members of their local influence community, are being used to:

- explore how farmers construct their understandings of GMHT crops through their interactions with others, in particular family members, neighbouring farmers, seed companies, farming advisors and the local community.
- ascertain the acceptability to farmers (both those with experience of GMHT crops and those without) of recommended management practices for GMHT crops used in the Farm Scale Evaluation (FSEs), and
- develop models of social learning systems appropriate to support individual farmers within informal social settings who decide to adopt contentious new technologies such as GMHT crops.

Our research has been concerned with obtaining a more complete picture of farmers' understandings of new technology and has been focusing on farmers' knowledge management and learning. The following section discusses some of our findings.

### 3. Farmers and New technologies

Farmers are having to adapt to the changing circumstances of farming in a highly competitive world market and it was clear from our research that farmers are not finding this easy. They are feeling buried in bureaucracy and too much paperwork. They feel the pressure to keep up with a constant barrage of rules and compliance measures, with new developments in research and with new demands for environmental stewardship. New rules require constant learning to keep on top of what is going on, although our research found that there was also a degree of resignation to this.

New technologies generally were viewed as particularly important for “moving forward”. Farmers were concerned over limits to conventional breeding techniques and that varieties were only improving slowly. GM crops were seen as a way of speeding up the process and delivering fast benefits in a rapidly changing world (for further details see Oreszczyn, 2005). Although GM crops are a new technology that would add to their burden of rules and regulations, like other new agricultural technologies, they were found to be attractive to these large scale conventional commercial farmers because of their potential for increasing agricultural competitiveness in the face of global competition. The farmers believed using GM crops would reduce their production costs, improve yields and provide significant environmental and time saving benefits, particularly through reduced chemical use. They are weighing up the pros and cons of GM crops and considering how they would fit into their farming business as a whole, in exactly the same way as they would weigh up any new technology. In this respect GM crops are considered no differently from a new conventionally bred crop. All the farmers interviewed, whether they had experience of using GM crops or not, were keen to use the crops if they were allowed to. GM crops were seen as part of a continuum, just another step in the plant breeding process and a quicker and more scientific route for doing what was done before by chance. That is, such crops were viewed as an incremental innovation by farmers, whereas many of those opposed to GM crops view it as a radical innovation, i.e. as a major step change in plant breeding.

Over the last few decades, in response to policy signals, farmers have moved away from being predominantly farm industrialists and towards being ‘public’ stewards of the land (as opposed to ‘private’ stewards of their estates). Measures such as the CAP reform and the new Environmental Stewardship scheme are strengthening farmer’s engagement with environmental measures. Farmers have always tended to consider themselves as ‘stewards of the land’ in the sense that they care for it, however, now more emphasis is placed on ‘public’ stewardship that encompasses the environmental expectations of society. Consequently farmers are beginning to recognise that new technologies can help them meet such obligations. New technologies like GM crops are offering an alternative way to approach environmental responsibility. The focus on the potential wildlife effects of GM crops through the Farm Scale Evaluations (FSEs) has raised their profile as a potential new technology that could not just provide economic benefits, but also significant environmental benefits in a single, simple package. Thus GM crops offer farmers a way of reconciling conflicting demands for increasing competitiveness and environmental measures. However, this raises the issue that generally new agricultural technologies are primarily designed and marketed to meet business needs, with little advice on how to meet the needs of multifunctional landscapes.

#### 4. What are 'communities of practice' and why are they important?

Communities of practice are groups of people who share a common activity or concern. Members do not necessarily work together, but form a common identity and understanding through their common concerns, interests and interactions. Many different communities of practice exist and we are all members of several, for example, through our work or hobbies. For some communities of practice we may be a core member, for others we may sit on the periphery. The theory of communities of practice (Lave and Wenger 1991, Wenger, 1998 Barton & Tusting, 2005) is a social theory of learning. It is useful for understanding the social processes of learning and identity formation, local practice, tacit learning, meaning making and indigenous knowledge (John, 2005). The theory considers relationships, practice, participation and context. As Wenger notes, "*Practice does not exist in the abstract. It exists because people are engaged in actions whose meanings they negotiate with each other.*" (Wenger, 1998, p72-73). The importance of conversations in learning and generating new knowledge has also been noted by Baker (2002). In this view conversations are viewed as social experiences through which people may discover new ways of seeing the world. Thus an individuals learning is situated, i.e. it does not simply occur in their head but as a result of their participation in the social world (Lave and Wenger, 1991) where peoples' understanding and experience is constantly interacting with one another to produce new understandings or new knowledge. Participation in communities of practice is therefore an essential process of learning (Barston & Tusting, 2005).

Communities of practice are often informal, rather than formal groups or networks. They are important for the supportive environment and sense of identity they provide for people. As Wenger et al, (2002) note, they are also reservoirs of explicit knowledge and also the less tangible tacit knowledge and hold the key to any form of change process. Communities of practice are inherently stable and it is this stability that allows for learning to take place (John, 2005).

#### 5. Situated knowledge, learning and farming communities of practice

As the management of knowledge over the last decade has become a significant issue for all sectors of the economy, little attention has been given to small and medium sized enterprises such as farmers (Hutchinson & Quintas, 2005). Whereas scientist, planners, decision makers and particularly policy makers may operate on a short to medium term time-scale, farmers have to operate on a long time-scale. What they do is affected by many things outside their control, such as climate and physical resources. The many factors involved when making decisions mean that the judgements farmers make rely heavily on their less formalised, experiential, situated knowledge. Our research shows how farmers are required to continually learn and adapt to keep up with new agricultural developments and initiatives. As also noted by Hutchinson & Quintas, (2005), for farmers, knowledge sharing, and the informal process of knowledge creation through problem solving based on experience, is a strong feature of their lives. In this respect farming is unlike other industries where people are wary of sharing information with their competitors. They have strong personal networks that give them access to a wealth of knowledge and information, some of which is formal and some of which is informal. New

technologies such as GM crops increase the amount of formal knowledge that farmers, as small businesses, have to absorb and synthesise. Yet at the same time, the compliance with regulations, etc, reduces the scope for their informal or tacit knowledge to be employed. Although, as Wenger (1998, p69) notes, there are difficulties with classifying knowledge as tacit or explicit as both aspects are present to some degree, the importance of informal knowledge is often overlooked by those making policies or doing scientific research. Our research found this to be particularly the case in the Farm Scale Evaluations for GM crops where farmers involved in the evaluations were angry at the way the final results of the trials were presented because they did not feel their practices were represented fairly. At issue was the amount of herbicide that the farmers were asked to apply, as demonstrated by one farmer's view:

“And in many ways they planned the trial wrongly in my opinion, although I'm no scientist, in that they suggested that you use a very high level of the herbicide ..... And certainly with this technology you would use a small amount and if you had to go back in with another small amount you would do that. But unfortunately they were suggesting that you use a huge amount, 4 litres, which nobody in the real commercial world would do, because there is no point.”

New technologies are not only a potential source of discord between farmers and scientists or policy makers, but they also have the potential to enhance or divide farming communities. For example, although there are no GM crops being grown in the UK at present, many actors, particularly industry representatives, believe that it will ultimately happen (Oreszczyn, 2004). If GM crops are grown in the UK then farmers may also eventually turn to different crops, including non-food crops. One aspect of growing such crops will mean that farmers will need to have greater contact with their farming neighbours. Issues concerning the co-existence of GM and non-GM crops due to the potential for gene transfer between crops, mean that farmers growing GM varieties will be obliged to have greater contact with their neighbours growing conventional or organic crops about what they are growing and where. This could mean increased contact between farming neighbours. Our research suggested that this kind of active farmer collaboration was not normal practice, however, we also found that during the Farm Scale Evaluations farmers saw no difficulty with notifying their neighbours about what they were doing, and in some cases the increased contact was welcomed. However, GM crops could also bring greater divisions between those who do not wish to use the technology and those who do.

In conclusion, our research has found that although they may appear to be a fairly closed community, farmers are adaptive and naturally reflective practitioners. They are open to new ideas and technologies that may improve their business and are often on the look out for new ways of doing things. Farmers gain much from their interactions with a like minded community and such communities help to form their identities within the wider farming community. However, new technologies that result in changes to their enterprise could impact on their existing membership to a community of practice in more subtle ways. As nature of their enterprise changes, farmers may renegotiate their identities accordingly, creating further divisions. Therefore, although new technologies that result in changes in interactions and changes in enterprise could strengthen existing farmer communities of practice, it may also mean that the general farming community is weakened as it becomes more fragmented.

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