

Internet Technology for on Farm self directed Learning in South Queensland

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ABSTRACT

A series of qualitative semi-structured interviews with 17 south Queensland producers, 13 of whom had internet access found the most valued resource to participants in their learning about agronomic technology was their own experience and the experience of others. Internet connection has enabled access to global experiences that have assisted in adapting rural technology to Australian farming conditions. There appears to be significant potential to enhance farmer 'distance' learning about agronomic management through the inclusion of case study information, links and dialogue opportunities relevant to specific technology and farming systems. This paper outlines some of the information experiences of farmers in learning to manage science and rural technology.

KEY WORDS

Extension, rural information systems, online learning, internet.

INTRODUCTION

This paper reports on the results of a series of interviews with grain and cotton farmers in south Queensland and their experiences in accessing information and learning about rural technologies. It reports on their experiences with the Internet for accessing this information and in doing so, may provide some guidance for agricultural information system developers.

METHOD

A series of qualitative semi-structured interviews was performed with 17 grain and cotton farmers in south Queensland. Data collected from interviews were recorded in the form of transcripts. Using the grounded theory approach of Strauss and Corbin (4), data was coded into key issue categories that formed the basis of the analysis.

RESULTS

Data are presented in the following excerpts from transcripts of interviews with 5 grain and cotton farmers. Transcripts from these 5 participants were chosen because of the depth of their experiences using the internet to learn about agronomy related issues.

John, organic grain farmer

`I'm interested in tram track farming. They're doing it in situations where chemicals are used. I have to adopt some principles of it with a different accent – I'm still cultivating, they're spraying. If you're not one of the masses, you've got to do the research and adaptation all yourself. You won't see things like that in Acres Australia (the organic newspaper).

We purchased the computer and Internet system just to get information but we can't tap into its full potential. We want to use it as a wider source from which to gather information. I don't email or anything like that. I sent one to U.S. about biological weed control and it bounced back. I didn't get any reply but I used the right email address. The main thing could be that I'm not educated enough in using the Internet – that's a big effect for many. It's basically exploring for us. Email has helped us get institutional contacts that have kept us updated on seminars. I went to a `chat room', and as soon as I got on, I didn't know

what to do. We access the Internet at least once per week. It would be more no doubt about it if I knew I could get exactly what I want. That's the frustration.'

Dennis, beef, grain and cotton farmer

'I do believe we're isolated from agricultural technology. I'm very much pushing the idea of yellow pages of research on the internet. I think a lot more people want to see stuff on the Internet. I've accessed the Cotton Cooperative Research Centre website, but most stuff is in summary form and provides only a thumbnail sketch. I can't get the detailed papers. A lot of people think to just put the thumbnail sketch there because the 'average Joe' doesn't understand, but that keeps the 'average Joe' average. There's more young people in the industry now.

I have a good network of contacts, but outside everyday conventional farming systems, I don't have a support network and I find it a complicated business and I don't feel very comfortable. I used the web to search for information about the activities of other farmer groups in the state, but there was nothing there.

The Internet could capture anecdotal information related to technology adoption and management that is not captured in research. Structured research knowledge is only part of all the knowledge on a subject. It's a serious challenge just to capture the structured research knowledge. The challenge is to capture anecdotal knowledge in a form that makes it available.'

Bernard, cotton grower

'I'm working with a local group looking at the output of a crop modelling decision support program. We share information and experiences to make a gross margin. We'll talk about why we picked a particular yield and look at moisture and nutrient data. What I enjoy about the experience is being involved with the scientists. It is great. Our local group, though all access the same sort of information. In a way, it's probably bad, but where else do you go? The cotton side is pretty stressful, high pressured and time consuming, so we don't spend a lot of time chasing different information, although we'd like to.

We're on numerous email distribution lists. We received the latest information on *Fusarium* by email. *Fusarium* was a big issue – we had information coming from every direction that was good.

We're starting to use the internet to access information. We haven't got the hang of searching sites. All I know to get information is if I've got the web addresses.

I searched for nozzle information for my spray plant and got 6700 items. I didn't have the time to break it down.'

Robert, cotton grower

'I've searched the web looking for new nozzle technology for minimising spray drift, but I didn't find any major differences between the U.S. and Australia. What I found on the web was basically the same as in the handbook. Internet access to me, in this case meant the ability to do my own research. I didn't have it before and it's obviously an advantage to have it, otherwise where did we go?

I'm trialing Roundup Ready and Ingard cotton this year. I'd read about it and I'd been to cotton growers' conferences, and I'd talked to Monsanto representatives. From the web, I read about how much cotton was grown under the Roundup ready banner in the United States. Also, I chased around a little bit on the web to see if anything happened in the first year it was grown overseas. I stumbled across some information and found that it has worked better in the States. There's not too much information getting around. I found some case studies on the Internet with weed management in the States, but it was with different weeds, I gave up in the end.

Accessing information from the Internet is probably increasing in importance to me, but ninety percent of the information is not useful, it's overseas related and not related to our weather conditions. The sites that I do use, I found myself.'

Terry, cotton and grain

'I've been studying controlled traffic farming. Field days have been good. I would have liked to get to a Gatton field day, but I couldn't get there. I was lucky, I just happened to bump into an extension officer I know and I asked him if he could get me a copy of any notes from the day. He got me 2 books and I've been sifting through them bit by bit. I read and re-read some articles.

Through the books I learnt about the dramas that other people had in converting. The books helped largely through the case studies, the steps involved in moving towards tram tracking, and the transition and the row spacings of various machinery parts. The case studies also showed the reasoning people went in a particular direction and the cost savings. Case studies with pictures are an important source of information for me.

This year I've been to all the big machinery field days except the Goondiwindi machinery field day. I really wanted to go to that one. I wish they'd have a field day now when it's quiet. I've checked out the major machinery web sites looking at the sizes of machinery, row spacings and capacity. The Internet's been a good place to start with finding out about machinery related technology for the farm. The Internet is good but it's not cold hard facts, you need a more personal approach.

I haven't really chased agronomic information on the Internet, I wouldn't even know if it was there. If it was there I guess I would certainly use it. Maybe it's there already. I think there is a need for education on how to use it, someone organises some sites that are relevant for your area, grain and cotton growing together. So much time is wasted looking for things and there is some real good stuff out there that you just stumble over it.

I follow a public forum on irrigation systems. You can sit through and read other peoples' problems and you learn a little bit there. They'll suggest that if you want this sort of information, go this way. I think there is a future for online services such as this, particularly if one person puts a question out and others respond.

When we're trying to learn about this new way of farming, you can't get around everywhere and you really only talk to the same few people you know. Most of the contacts we've made, we've stumbled on. To be able to find out contacts would be great, like a directory. I think you need to simplify access to resources, we don't have time to find things. It's good to have a starting point on the computer, its here in the office, you don't have to drive.'

General Findings

The stories above highlight 5 growers' experiences in accessing information about agronomy. They show successes and difficulties and in doing so, provide some indication for future direction for agricultural information system developers. Some of the issues that have emerged from this study are listed below.

- The World Wide Web is positioning itself as an increasing source of information for some farmers' own research. Much of this farm-based research, initially, has been achieved through exploration.
- Through the use of online discussion and bulletin board facilities, the Internet provided 6 of the 17 participants with more opportunities to access other's experiences on reduced tillage, disease management, and integrated pest management and other farm related issues.
- Individual farm information needs about technology are becoming increasingly specific and many growers feel isolated from technology. Participants in this study requested more content on the web relevant to Australian agriculture and better access to scientific detail on the Internet and the provision of links and awareness training to access this.

- Most growers in this study stated that they are broadening the networks to which they rely for learning about agronomy and some suggested that the Internet could assist by providing access to a network of contacts relevant to particular areas of technology along with access to research information.

- Case studies about grower experiences adapting agricultural technology are highly valued.
- Some growers are having difficulties attending field days due to increasing time and financial demands.
- In this study, only 4 of the 17 participants had ongoing group learning experiences on farm related issues. For others, their only access to technical information from research and development organisations came in the form of newsletters and handouts in the mail. Whilst these are valued and read, they appear to do little to contribute to the learning process involved in managing the farm.
- Access to the Internet had provided opportunities for 4 growers to improve their ongoing contact with relevant institutions through email with institutional personnel. Seven participants were on email mailing lists from institutions and local businesses and appeared to value this opportunity for continued communication.
- Opportunities for dialogue associated with learning about rural technology for some are limited and in some cases declining through less participation in field days, becoming involved in innovative approaches and local variance in farming systems.

Conclusions

Internet technology will not change approaches to learning in agriculture about agronomy, but it has the potential to enhance and strengthen these. However, the cases described suggest that growers are very much on their own in accessing relevant information online. A study by Suzuki (5) identified that the biggest constraint to farmers using the Internet was not knowing what information and resources were available. Agronomy related information; links, network contacts and discussion opportunities online may assist many grower Internet users in better accessing and managing technology for their farms. Access to field day handouts and information on a field day web site would be highly valued to the broader audience.

The study highlighted the importance placed on case studies about others experiences associated with managing and adapting agronomic technology. The process of learning by adults is strongly oriented around experiences, both past and current (2) and while much of the literature associated with experiential learning is about learning from ones own experiences, learning from others experiences is an important aspect of the learning process for some and dialogue is a key aspect in this process for many adults.

To date, approaches of rural research, development and extension institutions on the web appear to provide few tools, support or linkages to assist users in learning to manage agricultural technology and change. Hypertext based information systems alone have difficulty contributing to learning about complex issues. Jacobsen and Spiro (1) report on learning failures and the inability of learners to transfer knowledge to relevant new situations. Steer and Cartan, (3) found that dialogue was an essential part of the success of their online learning project in rural Australia.

Information technology has the potential to increase farmers' accessibility to other farmers' specific agronomic experiences. It can contribute to learning about agronomy by enabling dialogue between geographically separated growers from similar farming systems (in their own time) and stimulating creative thinking and reflection as part of the learning process. However, significant efforts would need to be placed into the development, adoption and facilitation of agricultural e-learning systems.

References

1. Jacobsen, M. J. and Spiro, R. J. 1991 Hypertext Learning Environments and Cognitive Flexibility: Characteristics Promoting the Transfer of Complex Knowledge, *Proceedings The International Conference on the Learning Sciences* Illinois, USA pp 240-248.

2. Kolb, D. A. 1984. *Experiential Learning*, (Prentice-Hall, Inc., New Jersey).
3. Steer, K. and Cartan, G. 1996. Partnerships on Line: Using Multimedia to train professional staff in remote locations, *Learning Online Bright Stars for New Horizons Conference The Australian Institute of Agricultural Science* Melbourne, November 14-15 1996.
4. Strauss, A. and Corbin, J. 1990. *Basics of qualitative research: Grounded theory procedures and technique*, (Sage Publications, Newbury Park, California).
5. Suzuki, A. 1999. *Study of Computer Use in the Queensland Dairy Industry – Farmers' Perceptions-Master of Agricultural Studies Report*, University of Queensland.