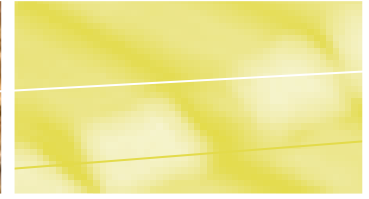
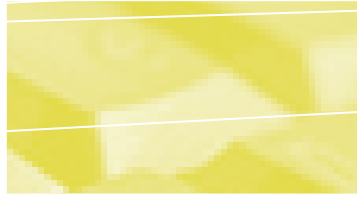
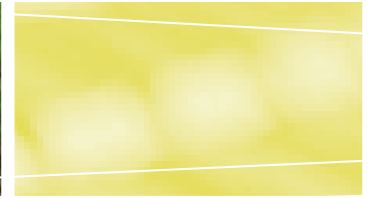




Australian Government
**Rural Industries Research and
Development Corporation**



Using low-cost, low-bandwidth Internet conferencing to support farmer group operations and learning

A report for Rural Industries Research and Development Corporation

Foreword

Travel time and cost are barriers to information uptake for farmers in remote regions of Australia. Low-cost, low-bandwidth Information and Communication Technology (ICT), such as Microsoft NetMeeting™ (NM), offers rural communities access to research and information which can be shared with others without leaving home.

The Liebe Group in Western Australia, in collaboration with the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) Agricultural Production Systems Research Unit (APSRU), based in Toowoomba, Queensland, and with funding from the Rural Industries Research and Development Corporation (RIRDC), developed a case study to demonstrate the benefits of conducting meetings using ICT.

Using NM, members met via the Internet, sharing spreadsheets and finance software in real time, while using a conference telephone call for discussion. Remote participants valued the ability to participate from their own properties.

This project was funded from RIRDC Core Funds which are provided by the Australian Government.

Peter O'Brien
Managing Director
Rural Industries Research
and Development Corporation



The project

The Liebe Group is a dynamic farmer group situated approximately 300 km north of Perth. It was established in 1997 to ensure that research and development remained local, innovative and relevant. One of the group's objectives is to educate and encourage local farmers towards profitable and sustainable environments, in part by encouraging adoption of new technology.

RIRDC was approached to help fund a project to establish capacity for the Liebe Group to utilise NM to conduct regular Internet meetings for its business operations using online communications, and to promote the benefits of real time online Internet meetings to other grower groups nationwide. The project was undertaken in close collaboration with CSIRO/APSRU.

Establishing internal capacity

To establish the capacity of the Liebe Group to use the Internet for group meetings, a better understanding of technology (such as line speed and equipment) was needed. An audit of the district determined where Internet exchanges were located and the technology available at the exchanges. This was achieved by analysing what line speeds Liebe farmers had access to on their farms and assessing whether they had the capability to participate in an Internet meeting. Low-bandwidth ICT tools trialled in this project required a minimum line speed of approximately 30kb/second, but some growers had access to speeds of less than 20kb/second.

Over 30 growers took advantage of the initial Higher Bandwidth Incentive Scheme (HIBIS) offer to invest in satellite Internet connections at minimal cost. HIBIS (an initiative of the Federal Government's Department of Communications, Information Technology and the Arts) was a precursor to the Broadband Connect initiative, a program that provided access to higher bandwidth services for people in regional, rural and remote Australia at prices comparable to those in metropolitan areas.

This technology has given our businesses the opportunity and the confidence to access people we would normally consider 'out of reach', such as researchers throughout Australia – not only Western Australia. It has made us realise we can access information from experts and contribute grass roots experience and information to those experts.

(Participant in a Liebe Group Internet meeting project)

The initial needs assessment undertaken by CSIRO indicated that the Liebe Group required: i) a reliable and robust video conferencing solution for hosting seminars, and; ii) application sharing between multiple sites.

Using Microsoft NetMeeting™

Dean Hargreaves, of CSIRO Sustainable Ecosystems/APSRU, provided on-site training and support in designing and setting up trial activities, which included testing the group's office network and helping farmers in the district with their home-office configuration. Technical training provided by Dean allowed the group to eventually conduct Internet meetings unassisted.

The technology allowed staff members to work on documents simultaneously. They were able to use Internet meetings on a regular basis to develop projects, application writing skills, protocols and general group processes. One member worked from home, which saved time and travel on several occasions.

Of the five group subcommittees, the Finance Committee was selected as an NM pilot group. Committee members generally travel several hours to meet in person at the group head-

quarters near Dalwallinu (green arrow on Figure 1). The committee included nine farming businesses and one banking business; these members were trained by Liebe staff. Meetings were organised to review monthly reports, update budgets and review financial information. While the system was effective, problems were encountered. Although documents were shared over the Internet, verbal communication was conducted via a teleconference system, which proved expensive and became confusing when participants spoke simultaneously. To ensure the meeting ran efficiently, a chairperson was elected and an agenda provided for each Internet meeting. The pilot group identified and documented protocols for successful future meetings. An evaluation was carried out after each meeting to ensure the process continually improved.

The Liebe Group tested a Polycom and a video conferencing phone. Dean provided equipment for the group to determine which device would be appropriate. A videophone was chosen and the group was able to hire-purchase an Aethra Theseus Video phone (selected for its simplicity). The Aethra video phone is well suited to both one-on-one and group scenarios as it includes a high quality



conference phone, has the facility to plug into a standard television set and can use any standard video camera for input. To establish a video call, one only needs to enter a video number, which looks the same as a regular phone number.

There are two ways to use the Aethra videophone. The first is using an Integrated Services Digital Network (ISDN) to make a video call to another person with an ISDN enabled unit. An ISDN is a telephone network designed to allow digital transmission of voice and data over ordinary telephone copper wires, resulting in better quality and higher speeds than that available with the normal telephone system (<http://en.wikipedia.org/wiki/ISDN>). ISDN is used like a telephone line, calls are charged per minute and STD charges often apply. Most commercial video conferencing systems support ISDN, and it is the standard for conducting business-grade video conferences. The Liebe Group office has an ISDN connection, which gives a speed of 128kb/second.

The second method is to connect via the Internet using Internet Protocol (IP). IP is often less expensive, as the cost of the conference call is only the cost of your existing Internet

plan. The average user would, therefore, be unlikely to incur any additional charges. However IP calls are less reliable than ISDN calls, as the quality is dependant on the vagaries of the Internet rather than a single telecommunications service provider with contractual service levels. Video conferencing via IP can be more complicated to set up, as it requires a broadband modem and other network equipment that are compatible with IP video conferencing. IP video conferencing can suffer from 'latency', which results in a delay between one person speaking and another person hearing. This delay can be disconcerting. Conversational protocols are





needed to minimise its effect. However, there is a general shift to IP video conferencing due to its lower cost and the ubiquity of the Internet and as the technology improves, latency will likely be reduced.

To take advantage of IP's lower cost, it became apparent that the Liebe Group needed to upgrade to a more sophisticated network 'router'. A satellite Internet connection is the least expensive option for video conferencing through IP – but may also exhibit the most significant latency, due primarily to the distance to the satellite and back. The group found it difficult to use the video phone through IP and instead, used the ISDN system, which was more costly but ultimately less complicated and more reliable.

Promoting to other grower groups in WA

Research process and evaluation results have been documented for distribution. The Liebe Group is one of the core groups of the Grower Group Alliance which acts to extend information to other grower groups in Western Australia and across Australia.

An article was published in the Kondinin Group's Farming Ahead in November 2005. The project was also referred to in an article for the Board Builder publication that is part of the Australia-wide Our Community Network.

Results and implications

This project aimed to increase the use of Internet communications technology within the Liebe Group farming district by introducing a number of local farmers to Microsoft NetMeeting™.

It provided growers with the requisite software, hardware, training and support. The ability to share documents has been the greatest benefit. One grower used the technology, unexpectedly, to 'share' his tractor's repair manual with a service agent in Perth who remotely directed him to the relevant sections of the manual. This proved advantageous to the farmer at a time, when travelling to Perth was potentially costly and inconveniently close to harvest.

Having trialled Microsoft NetMeeting™, the Liebe Group is confident about using the system regularly. The technology is low-cost and efficient enough to allow remote farmers access to colleagues' advice and to relevant research. As Internet meeting technology continues to improve, it will become increasingly useful to farmers. However users of video conferencing systems require either a reasonable knowledge of Internet technology, or access to a local information technology expert to provide technical support.

Acknowledgements

The Liebe Group acknowledges support from Dean Hargreaves and Peter Carberry from CSIRO.

This report, an addition to RIRDC's diverse range of over 1600 research publications, forms part of our Human Capital, Communications and Information Systems R&D program, which aims to enhance human capital and facilitative innovation in rural industries and communities.

Most of our publications are available for viewing, downloading or purchasing online through our website;

- Downloads at www.rirdc.gov.au/fullreports/index/html
- Purchases at www.rirdc.gov.au/eshop

More information

Other publications related to this area are available from RIRDC at the addresses below, and include:

- Effective Use of the Internet - Keeping professionals working in rural Australia (05/171 UWO-5A)
- Internet Field Days - Helping farmers to make better decisions (06/122 BCG-1A)
- A Virtual Meeting Space to Support Farmers Learning About Natural Resource Management (06/113 CSW 40A)
- Community Voice – A new electronic communication model for local communities A web development handbook for rural, regional and micro-communities (05/079 UBA-2A)
- Broadband Adoption by Agriculture and Local Government Councils - Australia and the USA (04/127 WHP-7A)
- The Internet & Regional Australia - How rural communities can address the impact of the Internet (01/087 RSI-1A)

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