

**Six sites in the state of Victoria are working with the Department of Primary Industries to demonstrate the economic benefits of using RFID tags to identify individual animals.**

By Dave Friedlos

July 18, 2008—The state government of Victoria, Australia, is rolling out radio frequency identification technology across six farms to investigate the benefits of tagging sheep. Victoria's [Department of Primary Industries](#) (DPI) was previously instrumental in the rollout of RFID in the cattle industry, launching a trial in 1999 to track cattle through saleyards, feedlots and abattoirs in order to improve traceability.

In 2003, the National Livestock Identification Scheme (NLIS) was launched nationally to track cattle—the largest application of RFID in Australia. Now the DPI wants to investigate the economic benefits of tagging sheep, and has established six demonstration sites at farms across rural Victoria, including Casterton, Ballarat, Benalla, Euroa and Swan Hill.

RFID has already improved the traceability of cattle, according to DPI animal standards manager Tony Britt, which he says is essential to meeting the demands of international markets. "The NLIS is a mature system, and about 25 million cattle movements are now recorded on the database annually," he says. "With the sheep industry, we wanted to start on a small scale and let commercial forces drive the adoption. So at a meeting in 2005, where an identification system based on visual, readable tags was introduced, it was agreed to allow the voluntary use of electronic tags instead if farmers saw a commercial benefit."

The DPI agreed to supply RFID tags to sheep farmers at a subsidized rate of AU\$1.35 (US\$1.31) per tag, with hardware and software also subsidized to encourage take-up of the technology. "The tags are available to any farmer that wants to introduce RFID, and we are getting about five orders a week," Britt says. "But we also wanted to provide independent, credible information on the technology to farmers. We will monitor the use of tags on the demonstration sites, and the information gained on the benefits of RFID will give farmers a good feel for what the technology can be do."

Australian agriculture consultancy [Mike Stephens and Associates](#) (MS&A) will evaluate the six sites over the next three years, then report on RFID's potential commercial benefits to farmers. "Victoria led the way in establishing RFID in the cattle industry, and now it wants to understand how it can work in the sheep industry," says MS&A consultant Jim Shovelton. "But we need to be able to demonstrate the economic benefits if we are to encourage farmers to adopt tagging technology."

Australian farmers have traditionally managed sheep as a single flock, Shovelton says, but there are hidden economic gains in using RFID tags to manage individual sheep. "There is a lot of variability in a sheep flock," he explains, "but managing individual sheep manually is just too costly and time-consuming. RFID tags can store information on sheep, such as weight gain and loss, to determine the healthiest animals, and if a sheep has lost weight, it can be drafted off to get more food."

In addition to breeding healthier sheep for consumption, Shovelton says, the value of the animals' fleece can vary by up to \$50 between the best and worst producing sheep in a particular flock. RFID could enable farmers to weed out those sheep that produce low-quality wool. By identifying the best performing and most valuable specimens, he adds, farmers could then manage them appropriately to maximize productivity and profitability.

"Another potential way to do this using RFID is to link lambs with their ewe to determine if the offspring of one ewe is better than others," Shovelton says. "This is difficult to do manually. But lambs follow their mothers. By tagging the sheep, it would be possible to automatically identify lambs with their mother as they walk past an RFID reader together." There are clear economic gains in the identification of well-performing sheep, he explains: Farmers could separate poorly performing sheep from flocks, manage the distribution of feed appropriately and direct labor to where it is most needed.

The biggest obstacle, Shovelton says, would be data management. "A project like this will generate huge amounts of data," he states, "and managing that would be very time-consuming." Examining that issue, however, is one of the purposes of the six demonstration sites. RFID will not always be the most cost-effective solution, Shovelton says, but it is vital to determine where the economic benefits are, and to demonstrate how RFID can be employed practically.

According to Britt, the DPI and MS&A have installed RFID equipment at six commercial farms to test the technology under normal conditions. RFID interrogators have been installed on sheep drafts—narrow races, or passageways, with swinging gates that enable sheep to be separated into different pens—to allow individual sheep to be detected and the flock split up according to the information on the tag. Readers have also been installed in shearing sheds, and farmers have been trained in the equipment's operation. In addition, the DPI is utilizing passive half-duplex (HDX) tags that operate at 134.2 kHz and comply with the ISO 11784 and 11785 standards—the same standards utilized for cattle tags.

"RFID is a technology that we are familiar with, given that there have been about 70 million tags produced for the cattle industry," Britt says. "So we go into this project with a lot of experience and a lot of confidence." The project will run for three years, he adds, though MS&A expects to have preliminary data on RFID's benefits by the end of 2008.

"It is about getting comfortable with the technology and ensuring it works," Shovelton states. "If the economic benefits are proven, a push to roll it out across all sheep farmers could come from the industry itself, rather than a government mandate."