

## 21<sup>st</sup> Century Pastoralism—Remote management innovations for sustainability in arid rangeland pastoral production

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**Introduction** Beef production in Australia's arid rangelands occurs on extensive properties with an average size in excess of 3800km<sup>2</sup> and stocking rates of 1 head to the square kilometre or less (Oxley et al 2006). Paddock sizes are large (>300km<sup>2</sup>) and typically have two to four watering points in the form of bores. Normal management involves physical inspection of watering points 2-4 times per week and requires pastoralists to travel 200-700km per inspection. This project is developing and testing technology to remotely monitor the watering point (water levels, flow rates, animal activity etc.) reducing the need for a physical inspections to once a week, achieving improved water management coupled with reductions in fuel and labour costs.

**Materials and methods** The remote management technologies being investigated for this study are commercially available telemetry systems which collect information and transfer it using UHF radio up to 70 km to another location. The data being collected to assess these systems includes the cost of purchase and installation, cost of water monitoring pre and post installation and the effectiveness and reliability of the equipment. Data is also being collected to quantify the time and distance savings resulting from the telemetry installations. Five properties are involved in the study and are summarized in Table 1.

**Table 1** Properties included in the study.

Station	Size km <sup>2</sup>	No. Remote Management Technology water points / Total	Remote Management Technology Cost	1 <sup>st</sup> year indicative saving	Cost recovery period
Napperby	4452	14 / 29	\$ 80,000	\$ 39,000	24 months
Mt. Ive	852	7 / 14	\$ 25,000	\$ 35,000	8.5 months
Monkira	3730	10 / 10	\$ 40,000	\$ 25,000	18 months
De Rose Hill	1800	4 / 31	\$ 25,000	\$ 0	N/A
Quinyambie	12119	11 / 32	\$ 36,000	\$ 73000	6 months

**Results and discussion** As Table 1 shows, in most cases the repayment period for the technology is less than two years, and in the longer term remote management is likely to increase the profitability and economic sustainability of the stations. De Rose Hill station has not yet achieved any cost savings as the remotely monitored watering points are located on the route to other watering points that still need to be inspected, resulting in no reduction in distance travelled. All stations in the study have increased the number of times that they monitor their watering points, It is also likely that the producers will be able to use the time saved through this technology to improve other aspects of their station management. Further data is being collected on the time savings to quantify these benefits. The collection of data on reliability of the technology under the harsh climatic conditions of Central Australia is also ongoing.

**Conclusions** Remote management technology can be utilised in arid rangeland pastoral production systems to reduce the cost of production. Furthermore, remote management technology can allow for increased monitoring of stock watering infrastructure leading to better production and animal welfare outcomes.

### Reference

Oxley, T., Leigo, S., Hausler, P., Bubb, A. & MacDonald N. (2006). Pastoral Industry Survey NT 2004, Department of Primary Industry, Fisheries and Mines, Northern Territory Government.