



Harnessing technologies for the beef industry of remote Australia



S Leigo^A, G Brennan, T Beutel, A Gray, D Phelps, T Driver and M Trotter.

^ACRC for Remote Economic Participation and NT DPIF

PO Box 8760, Alice Springs NT 0871

Sally.leigo@nt.gov.au

Introduction

Embracing innovative ideas and new technology (eg. roadtrains, telecommunications, solar powered bores and calf cradles) has allowed beef producers in remote Australia to overcome the challenges of distance, isolation, the natural environment and labour availability to improve their businesses. The beef industry continues to search for innovation to counter the escalation of costs and the declining availability of labour.

Methods

Sixty technology products were selected for review. Products were selected on their ability to meet at least one of the following criteria: commercially available technology products to be used by beef producers; new technology products available to beef producers; emerging technology products either at a development or prototype stage; technology products not available to beef producers but used by researchers; and technology products not currently suitable for Australian beef producers but that may become available or suitable in the future. These technology products were reviewed as a desktop study, based on publically available information, either from the product websites, published reports, journal or newspaper articles. The authors reviewed the products during the period of December 2011 – March 2012 and contacted product owners as needed to determine costs and functionality when information was not readily accessible.

Results

The sixty technology products reviewed were split into three categories, pasture, cattle and unique technology products. Within the pasture category, products included remote monitoring, modelling, mapping programs and management software. The cattle technology products included remote monitoring, herd modelling, remote management and software for management. In the unique technology category were products that guided or undertook management actions on a property. Of all the products, thirty-three are currently available for use by beef producers.

Discussion/Conclusion

The majority of commercially available products were for pasture management, while there is significant research and development being undertaken for cattle technology products. There are no products currently available that harness pasture, cattle and unique technology products into one management decision support system. The Precision Pastoral Management Tools Project aims to fill this gap by developing the Precision Pastoral Management System (PPMS). The PPMS will remotely monitor and analyse the performance of cattle and pasture allowing beef producers to increase precision in their management and production, decrease their costs and improve their profitability.

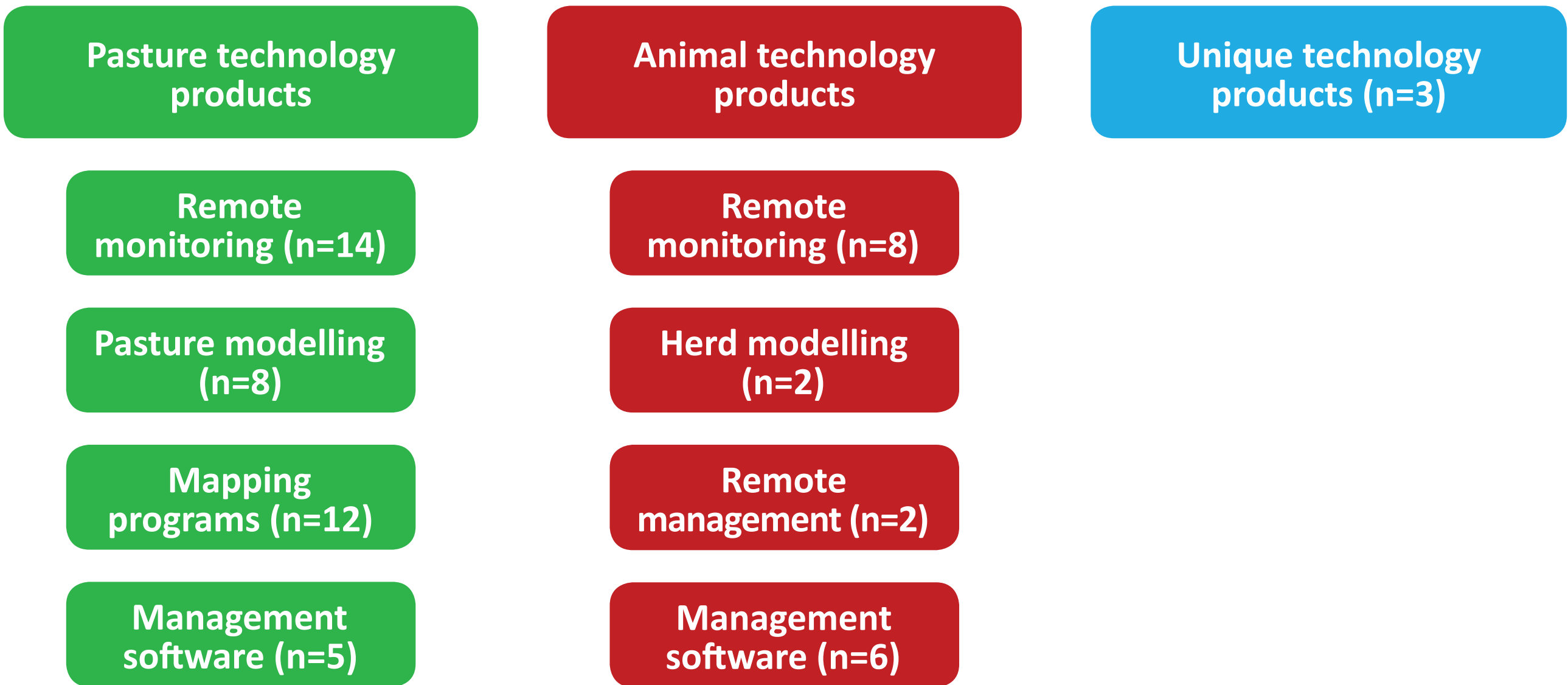


Figure 1. Categories of technology products

Product Name	Owner	Cost	Use for	Features	Requirements	Users
AgDat www.agtrix.com/products-agdat	Agtrix	Approximately \$200/year for single user but different price structure for organisations	Cloud based Farm GIS and reporting	• Integrates with Taggle data.	Standard PC	Farmers, predominately sugar cane
ArcGIS (ArcMap) www.esri.com/software/arcgis	ESRI	\$1500 (basic single user license)	Creating and maintaining property maps	• Snap to vertex to ensure no gaps between polygons • Measures areas and distances in a range of units • High level of precision	Standard PC with a minimum 560MB of memory	Cartographers
FarmKeeper www.farmkeeper.com	Livestock Improvement Australia	\$550 per single use licence	• Mapping • Infrastructure planning • Feed budgeting exercises • Recording of farm activities	• Feed Budgeting tool • Can calculate distances and areas	Standard PC	Australian and New Zealand farmers
Google Earth www.google.com/earth	Google Inc	Google Earth is free. Google Earth Pro costs \$400 annual subscription	• Maps the Earth by the superimposition of satellite imagery (Landsat), aerial photography and GIS onto a 3D globe. • Useful for multiple mapping tasks	• Pro version has higher GIS capabilities. • Simple / intuitive presentation of complex data sets. • Free access to a wide range of data.	Runs on standard PC. Requires open broadband connection.	Used widely in general community, some use by beef producers.
Google Maps http://maps.google.com.au	Google Inc	Free	• Creating basic maps • Route planning • Locating businesses	• Free • Easy to collaborate and share maps • Maps can be made public or private • Basic polygons are easy to draw • Can calculate distances	Standard PC with modern browser and reasonable internet connection	People from around the world
gpMapper www.fairport.com.au/gpMapper/	Fairport	\$550per single use licence	• Create a property map • Calculate land areas of a paddock • Measure distances for fencelines or pipelines	• Moderately easy to use (Fitzpatrick and Neale 2008) • Can link to farm record keeping for grazing, cropping or horticultural enterprises • Can calculate areas and distances • Can link to some GPS products.	Standard PC	Australian farmers, graziers and horticulturalists
iFarm Mapping www.esri.com.au/services/free-mapping.htm	eAgribusiness	Free (\$20 for postage)	• Creating and editing a property map • Preparing a property plan	• Free • Can link to cashbook, record keeping and stock movements. • Can calculate distances and areas	Standard PC	Australian Farmers and graziers
Manifold GIS www.manifold.net	Manifold Systems	\$245 – \$945 per single use licence	• Create and edit a property map	• Combination of mapping, CAD, DBMS and image processing. • Can be imported or exported to ArcMap • Microsoft integrated • Can calculate areas and distances	Standard PC and Internet connection required	• International users • Cartographers
Ozi Explorer www.oziexplorer.com	Mr D Newman	\$130per single use licence	• Route planning with GPS waypoints • Plotting of routes or points on a map	• Reads and writes ArcView shape files • Reads Mapinfo MIF files and E00 files	Standard PC	• Recreational users eg. Fisherman, bushwalkers or 4WDers • WA pastoralists • Potentially rural fire fighters, search and rescue and remote workers
PA Source www.pasource.com.au	PA Source	Free for limited services	• Create and edit property maps	• Enables production of shape files such as paddocks. • Can integrate with precision agriculture data such as yield, elevation, satellite and gamma radiometric. • Can access property maps from any computer with an internet connection	Standard PC	Australian farmers and agronomists
Phoenix Mapping www.agdata.com.au/PhoenixProduction/PhoenixMapping.html	AgData	\$596per single use licence	• Create and edit property maps • Develop property plans • Record keeping	• Can calculate areas and distances • Snap to vertex to ensure no gaps between polygons • Calculate a grazing radius within a paddock • Can store unlimited notes and images to a GPS point	Standard PC	Australian graziers and farmers
View www.farmworks.com/products/View	Farm Works™	Free, upgrade to Farm Works™ Mapping for US\$750.00per single use licence	• Read and write job data to popular precision farming devices	• Free • Able to use Google maps as a raster file • Links to multiple precision agriculture products	Standard PC	North American and Australian Farmers

Table 1. Summary of mapping programs. An example of the technology products reviewed.