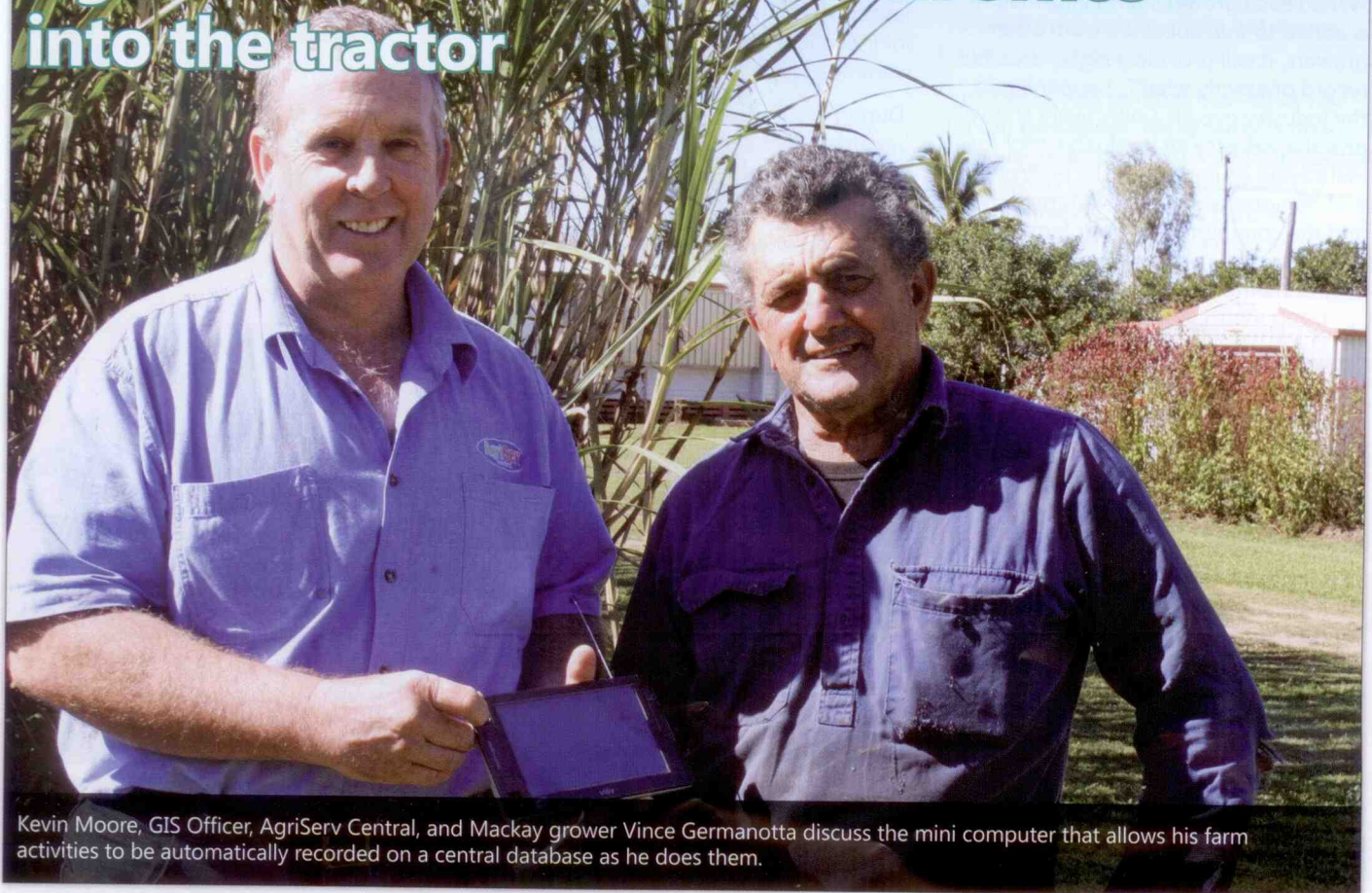


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AgDat remotes take the farm office into the tractor



Kevin Moore, GIS Officer, AgriServ Central, and Mackay grower Vince Germanotta discuss the mini computer that allows his farm activities to be automatically recorded on a central database as he does them.

By Bill Kerr

As an aid to crop management, Mackay cane grower Vince Germanotta used to record farm jobs in a notebook and painstakingly transcribe the numbers at night into his own spreadsheet.

Now that he runs a one-man enterprise producing 20,000 tonnes of cane and holds down directorships with Mackay Sugar and MAPS (Mackay Area Productivity Services) he neither has the time nor the inclination to tackle time-consuming bookwork at the end of a long day.

Fortunately he does not have to, courtesy of AgDat Remote. AgDat Remote is a clever piece of computerised technology developed using Geographic Information System (GIS) technology that

automatically records details of farming activities as he does them - and with greater accuracy and in more detail than he could ever have imagined.

AgDat Remote helps a grower focus more on farm management and less on tractor driving. As jobs are done on the farm he adds the basic details into the touchscreen of a mini-computer half the size of an A4 page.

This feeds the data into his confidential farm account in the mill database, allowing him to generate detailed historical reports and maps on his home computer of what he did, when and why, and what it cost per hectare.

AgDat Remote devices contain a GPS receiver and are also fitted with a LabJack data logger that is wired to different

sensors on the tractor. The device reads the GPS data and translates information from sensors in the tractor before sending the data to the brains of the operation called Interpolator. This smart bit of software interprets what the tractor is doing and the area covered, sending this to the AgDat database. It can identify when a job actually begins and stops, disregarding non-productive activities such as travelling.

Apart from regular production reports the grower can customise reports to suit his own needs, selecting from a range of dropdown lists and options covering everything from weed control to fertilising and water management.

All the physical recording work has been done, leaving the grower free to concentrate on analysing the



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performance and costs of management decisions.

"When each grower's farm information is added to that collected from other growers, it will provide a highly credible record of exactly what is happening in the industry overall. Collectively, this will give the industry an invaluable tool for identifying its impact on the environment and demonstrating to government and the community that our farming-milling systems are best practice and environmentally sustainable," he said

Vince Germanotta is one of Mackay 45 growers already using the revolutionary record keeping concept in a program being developed by Mackay Sugar, CANEGROWERS, BSES and AgServ Central with substantial financial help from the Reef Rescue program.

AgDat is one of the useful outcomes of a decade of labour by John Markley, Projects and Productivity Manager, Mackay Sugar, who has worked with software developer Robert Crossley of Agtrix in Billinudgel, NSW, and others to develop the concept. John has worked in the milling sector since leaving school at age 16 and has been associated with Mackay Sugar's cane supply department since 2000.

He reasoned that since milling companies traditionally keep a raft of grower information relating to crop estimates, paddock geography and harvesting on behalf of their growers, it should be feasible with the addition of extra grower input to create a single industry database that gives farmers a powerful management tool and the industry a big picture information resource that it can use to counter unjustified environmental criticism or claims based on opinion and hearsay.

He knew that for such a system to be successful he would have to make it easy for growers to maintain their farm records. Farmers can use AgDat Remote or AgDat Web without needing to be computer geeks.

AgDat had its origins in the 1990s when Mackay Sugar began replacing traditional manual record keeping by cane

inspectors with FarmMap, a customised GIS that digitally collects and interprets spatially derived data on the physical aspects of farms such as location, layout of individual paddocks, different cane varieties, crop yields and soil types.

During the crushing season the mill records harvest progress, harvester efficiency, and the relationship between yields and varieties and soil types.

AgDat was identified as a suitable tool for disseminating relevant information to a wider audience of growers, harvesters and productivity advisors because all the information is linked to specific parcels of land, regardless of ownership changes.

AgDat was developed in three main modules – the base mapping module, harvest management and data recording.

The data recording module has three different interfaces all using the same basic data:

- AgDat Desktop allows productivity staff and professional grower advisors to access more comprehensive reports.
- AgDat Web is a web mapping interface that allows growers and their authorized representatives to view and edit previously recorded data and to add extra information.
- AgDat Remote allows growers and machinery operators to record paddock activities as they happen. Using a simple point and push approach based on drop-down lists the operator records what he is doing. The GPS location and sensor details are then sent automatically to an AgDat Interpolator which calculates the area covered.

The AgDat remote concept is also being rolled out at Plane Creek, Proserpine, the Burdekin and New South Wales. Bundaberg may follow.

Kevin Moore, GPS Officer, AgriServ Central, who oversees the practical implementation of AgDat Remote, says the response to the concept by growers has been very positive. Financial support from the federal government's Reef



The remote uses a simple point and push approach based on drop-down lists so the operator can easily record what he is doing.

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Key learnings

- Growers have the opportunity to apply for funding through Reef Rescue for computerised farm data management tools, such as AgDat.
- Mackay grower Vince Germanotta has been using AgDat for the past five months to record farm jobs.
- AgDat digitally collects and interprets spatially-derived data on farms such as location, layout of individual paddocks, different cane varieties, crop yields and soil types. During the crushing season the mill records harvest progress, harvester efficiency, and the relationship between yields and varieties and soil types.



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Kevin Moore (left) GIS Officer, AgriServ Central, Mackay, and John Markley, Projects and Productivity Manager, Mackay Sugar, shown here at Pleystowe Mill, discuss the progress of AgDate Remote, a system that allows participating growers to supply information about their farming activities to a central database as they work.

Rescue project has helped accelerate adoption by growers and made the system simpler and more comprehensive.

Kevin had his first experience of GIS in South Africa where he worked in the game industry. Tracking Rhinos to prevent them becoming victims of poachers seeking their valuable horns is a far cry from recording information on Australian cane farms - but the principle is similar.

Vince Germanotta has been trialing AgDat Remote for about 15 months. Since buying his present farm on Homebush Road, Rosella five years ago he has reduced the number of blocks from 24 to eight and improved layout of paddocks, lengthened rows and laser leveled about 90% of the area.

He has installed three centre pivot irrigators (one covering 65 ha and the other two about 50 ha each) including one with financial help from Reef Rescue. This is his third year of using GPS for cultivating, zonal tillage, billet planting, and spraying on about 285 ha on 1.83 m wide rows.

Reef Rescue helped him acquire one of his three GPS equipped tractors. Although GPS is costly, he believes it is essential for accurate low-cost farming.

He has found that record keeping is much simpler now because all planting and spraying activities are automatically recorded as he works.

"The hard part about keeping farm records previously was setting up your own system and then keeping it up to date," he says.

His goal is to grow the best crop he can as cheaply as he can every year, regardless of whether the price is up or down.

"The little decisions you make along the way can make a big difference to the end result and you need to make decisions based on accurate information," he says.

Being able to press a button and get reliable historical data as he needs it is an invaluable decision-making tool which he considers will become even more important when world sugar prices fall. He says farmers often rely on gut feelings and past experience because they don't have all the facts. Actual results sometimes show that gut feelings are not the best basis on which to make management decisions.

"For example it is generally accepted that you shouldn't continue a crop after fourth or fifth ratoon but on one occasion my figures showed that the

best crop was the plant cane with the second best being ninth ratoon," says Vince.

"Keeping cane young might not always be your best option.

"Just being able to remember what you did can be difficult. Many farmers now have bigger areas to work and can't be expected to know the details of every block intimately. Often it's hard to remember when you cut a crop let alone when you sprayed it and all the details."

Fertilising is another area where good records are valuable.

"We used to treat the whole farm the same way but with more detailed information about individual paddocks, soil types and yields we know that different blocks respond to different treatments," he says.

However, Vince believes the main value of AgDat will be in helping farmers keep the accurate records on chemical and nutrient applications needed to satisfy new government regulations.

"Growers simply don't have the time to do all the necessary record keeping and the fact that it is all done automatically is a huge advantage," says Vince.

He says time is crucial not only to larger growers but also to those with small areas who have to work off-farm.

Although he is now much better equipped to keep accurate records he considers the state government's decision to introduce strict rules on farming was mainly politically motivated. Some of the changes have taken good growers back 20 years, creating an extra burden on them.

"These days if farmers do the right thing from a production viewpoint it is usually good for the environment."

Over the next two years Reef Rescue will pay half the \$2500-2600 cost of installing AgDat Remotes, the yearly administration fee of \$700-750 and training by CANEGROWERS.

There is no cost for growers to access web information or get updates. ■



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