

Growers weigh up risk of 'driverless' tractors

DRIVERLESS tractors may be the ultimate grower fantasy and a new research investment by the Grains Research and Development Corporation (GRDC) shows they are already a global reality.

A research project led by the University of Southern Queensland (USQ) has investigated international developments in autonomous tractors and found technology that forms the basis on driverless machinery is well advanced.

USQ National Centre for Engineering in Agriculture (NCEA) director Professor Craig Baillie said while it may be some time before growers were controlling their machinery from outside the paddock, autonomous tractor base technology like GPS auto steer, machine optimisation and sensors for process monitoring were already in use on-farm.

Speaking at recent GRDC Grains Research Updates across Queensland and northern New South Wales, Craig said despite many technologies still requiring more testing before they were 'paddock ready,' there were already automated tractors operating under commercial farming conditions.

More precise crop management

"The development of autonomous and intelligent technology is of considerable interest to growers and the agricultural

industry, because it provides a mechanism to improve the precision of crop management," Craig said.

"In other words the right machinery can ensure the right management strategy is implemented in the right place, at the right time, which will allow growers to lever and enhance developments in cropping systems and agronomy."

He said Australia had already proved an effective testing ground for major tractor companies to refine technology ahead of commercialisation.

"This has allowed Australia to become 'relatively advanced' in comparison to North America and Europe in the practical application of precision agriculture technologies," Craig said.

"There is definitely an opportunity for more early releases of autonomous tractors in Australia if we engage with leading tractor manufacturers to incubate technology before it is released worldwide."

He said all six major international tractor manufacturers (John Deere, CNH, AGCO, CLAAS, SAME Deutz-Fahr and Kubota) had developed key technologies that provided a 'pathway to autonomy'.

Features already available

These features had been designed to improve on human operations and were already commercially available to Australian growers. They include:

- Hands free tractor/implement guidance;
- Variable rate control;
- Machine optimisation via varying transmissions;
- Auto-turn and auto-control functions;
- Sensing and perception; and,
- Telematics and infield communications for remote control of tractor operations.

Craig said the next step was to assess grower interest and ultimately uptake of technology.

Technology uptake

In a survey conducted as part of the presentation at the GRDC update at Jondaryan on Queensland's Darling Downs, 65 per cent of growers in the audience would use an autonomous tractor on their farm.

When asked the minimal level of autonomous tractor system they would adopt, 47 per cent of growers said they would be comfortable with no driver at all, while 39 per cent admitted they would prefer a person in the cab.

As for adopting new technology, 95 per cent of growers said they already utilised machine guidance technology. But when it came to auto end turns and machine implement control, 71 per cent said they did not use the technology.

"These figures reflect the responses we have had from wider research into grower interest and potential use of automated technology," Craig said.

"There are still issues around risks for growers, even when it comes to those technology features that are already available.

"People say they want to go the 'full monty' in terms of driverless tractors, but they are not using the technology they have now. So as with any new technology there will be early adopters and that will be what drives development in this area."



Professor Craig Baillie said while growers say they want to go the 'full monty' in terms of driverless tractors many were not utilising the on-farm technology available in their farm machines now. (PHOTO: USQ)