9 February 2017

Committee Secretary
Standing Committee on Industry, Innovation, Science and Resources
Via email: iisr.reps@aph.gov.au

Re: Inquiry into the social issues relating to land-based driverless vehicles in Australia

The National Farmers' Federation (NFF) welcomes the opportunity to make a submission to the consultation on the *Inquiry into the social issues relating to land-based driverless vehicles in Australia*.

The NFF is the peak national body representing farmers and, more broadly, agriculture across Australia. Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council.

The NFF's vision for Australian agriculture is to become a $100 billion industry by 2030. Agriculture is a source of strength in the Australian economy, providing stable employment and income to rural communities. To achieve our vision, the sector needs regulatory and public policy settings that foster growth and productivity; innovation and ambition. This includes access to new technologies as Australian farmers are renowned to be early adopters with a track record of rapid uptake of higher productivity technologies.

A major barrier to the uptake of driverless vehicles outside the realms of regulation will be access to telecommunications in non-metropolitan areas of Australia. The NFF believes that digital connectivity represents the next frontier for agricultural productivity in Australia.

Driverless vehicles operating in rural, regional and remote locations will require reliable telecommunications to coordinate movements, and at present this would prove challenging given the sparse mobile phone coverage in the bush. The NFF therefore recommends this inquiry to investigate what kind of telecommunications would be needed for the safe operation of driverless vehicles in rural, regional and remote locations.

Driverless vehicles on public roads

The NFF is of the view that driverless vehicles operating on public roads could prove invaluable for rural communities, addressing major social issues such as social isolation, lack of public transport infrastructure, access to health services and comparatively high fatality rates on rural roads:

- **EDUCATION**
  Children living on farms in rural and remote locations may be able to (subject to the availability of appropriate technology and safety measures) be able to access school bus stops/ schools more easily through driverless vehicles. At present, parents struggle to

find the time to drop off their children and are forced to either drive for hours each day instead of being able to work, or to pay for boarding school if the closest school bus stop is too far away from home.

- **HEALTH AND AGED CARE**
  Elderly, ill or disabled people living on isolated properties are not able to receive the same at home care provided to Australians living in townships. Driverless vehicles could assist in enabling services such as the Commonwealth Home Support Programme to access properties further away from towns by enabling care providers to travel more safely and efficiently by, for example, doing administrative tasks while driving to farms and stations outside of the current radius of care provision. Driverless vehicles could also help facilitate the arduous drive to and from town for Australians living in rural and remote locations, thus enabling them to access health care in town withless reliance on their support network to get to medical appointments.

- **CONNECTING RURAL COMMUNITIES**
  Driverless vehicles could mitigate the current social isolation issue, enabling family members living on farms to commute larger distances to and from work, community infrastructure and services, and entertainment in town. Additionally, elderly or young family members would be able to drive into town without requiring assistance enabling them to participate in local activities. Driverless cars could also enable farm families to attend community activities such as participating in rural sport clubs, by better managing fatigue and allowing for the opportunity to do, for example, administrative tasks in the vehicle. Connecting rural communities would also benefit rural and remote businesses such as restaurants and pubs, making them more economically viable.

- **SAFETY**
  Driverless cars could make rural roads safer by removing the risks of driver error and driver fatigue during long and tedious travel on country roads. Trial runs of cars have shown that there is less risk of accidents when vehicles are controlled by algorithms. The NFF acknowledges that there still is much work to be done on the so-called "Trolley problem" that forces the algorithm operating the vehicle to make a choice between protecting passengers or protecting bystanders in case an accident is unavoidable. However, leaving this hypothetical problem aside, the NFF is of the firm belief that driverless cars could reduce the number of lives lost on roads. Furthermore, driverless cars could anticipate wildlife more easily than humans, reducing not only the number of crashes with wildlife but also lower the numbers of roadkill.

Driverless vehicles on private properties

The NFF expects driverless vehicles operating on private land to be a game changer in how farms are run. It is important to note that driverless farm vehicles that operate on private properties will require a different set of regulations to driverless vehicles operating on public access roads due to a lower risk profile. Driverless farm vehicles could help address major issues such as a demographic change and work health and safety:

- **EFFICIENCY GAINS**
  Driverless vehicles on farm will enable farmers to redirect their time and effort away from physically operating machinery to other work including data analysis of farm performance. Consequently, farmers will be able to manage physically larger areas, increasing on-farm productivity through efficiency gains. Removing the need of farmers to physically drive harvesters and other farm machinery will positively impact on farmers' quality of life, for example, no longer needing to sit in harvesters for up to 16 hours straight during harvest. Driverless vehicles could also ensure that farmers are able to manage farms for longer. At present, demographic change in the agricultural work force is a major issue with the average age of farmers continuously rising. Driverless vehicles could assist an aging farmer population to manage their respective businesses for longer.

- **PRECISION AGRICULTURE**
  Precision agriculture describes a farm management concept looking at the individual plant or animal level instead of managing paddocks or herds as one entity. This management concept requires extreme attention to detail that cannot be efficiently provided by humans on a large scale. Driverless vehicles would be able to conduct targeted application of agvet chemicals and be used for other applications such as weeding. These driverless vehicles can be a lot smaller and lighter than currently used farm machinery, thus addressing existing environmental issues by, for example, reducing soil compaction or spray drift.

- **ON-FARM SAFETY**
  Driverless vehicles could help make farms safer by lowering the risk of on-farm vehicle accidents. At present, the leading causes of on-farm fatalities are tractors, other mobile plant/machinery and quad bikes. There were 63 on-farm fatalities in 2016[1]. Driverless vehicles will help to mitigate much of the risk associated with operating vehicles on-farm. For example, the accident rate of farmers opening gates without securing the car is high and could be overcome by driverless vehicles. Driverless vehicles would also increase the ability of farmers to undertake tasks such as checking stock, mustering and physically monitoring the land without having to concentrate on operating a vehicle at the same time.

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[1] http://sydney.edu.au/medicine/aghealth/uploaded/Research%20Reports/Farm_Related_Injuries_Report_2016