



2 December 2019

House of Representatives Standing Committee on Communications and the Arts
PO Box 6021
Parliament House
CANBERRA ACT 2600

Via email: communications.reps@aph.gov.au

To whom it may concern,

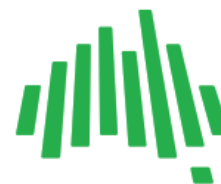
Re. Inquiry into 5G in Australia

The National Farmers' Federation (NFF) welcomes the opportunity to make a submission to the Inquiry into 5G in Australia.

The NFF was established in 1979 as the national peak body representing farmers and the agriculture sector more broadly across Australia. The NFF's membership comprises all of Australia's major agricultural commodities across the breadth and the length of the supply chain. Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations form the NFF.

Access to quality telecommunications services is an essential part of modern life, underpinning social connectivity and the delivery of many essential services. Digital connectivity is also central to economic growth and industry competitiveness, and there is much to be gained by improving and expanding connectivity in regional Australia – both for agricultural businesses and for the regional communities they are part of.

Access to quality, reliable, affordable telecommunications consistently ranks as one of the highest priorities of the NFF's members. This includes basic voice connections as well as access to data services that meet the growing needs of farm families and businesses, including for the adoption of new digital technologies that build efficiency and unlock growth potential.



While still at an early stage, deployment of 5G with its high data capacity, high speeds, high reliability and low latency offers significant opportunities for regional, rural and remote Australians. This submission touches on some of the potential applications of 5G in the agriculture sector and regional Australia more broadly, and outlines a number of considerations for the deployment of 5G.

5G technology could support agricultural productivity gains

An ability to fully implement digital technology is central to achieving the productivity gains needed to realise NFF's vision of a \$100 billion agricultural industry by 2030. To harness that opportunity, regional Australia needs access to connectivity options that will allow the efficient deployment of a range of digital tools.

Economic analysis conducted as part of a 2017 collaborative research project *Precision to Decision: Accelerating Precision Agriculture to Decision Agriculture* found that unconstrained implementation of digital agriculture would result in a lift in the gross value of agricultural production (including forestry and fisheries) of \$20.3 billion¹. To put this opportunity in context, in 2019-20 the gross value of agricultural production is forecast to be \$59 billion. While there are a range of factors that influence a farmer's decision to invest in and adopt digital technology, access to telecommunications infrastructure and connectivity is a central issue and is recognised as a constraint to realising the potential of digital agriculture¹.

There are already a vast range of applications for digital technology in agriculture, and this is growing quickly. Applications include water management and maintenance alerts, remote monitoring and management of livestock, crops and soil, precision chemical and fertilizer application, objective measurement, and traceability. These applications assist farmers to make better decisions and to realise efficiencies – for example, by more efficiently managing stock, applying inputs, monitoring watering points and managing irrigation. They also assist with demonstrating – and improving – regulatory compliance. Future applications will further encompass technologies that employ automation and robotics, artificial intelligence and machine learning.

Connectivity allows farmers to harness the benefits of these technologies, and the nature of the broadband connectivity options available (including coverage, speed, price, capacity and latency) is an important factor in technology uptake. Farmers access a range of broadband options including 3G and 4G, fixed line, fixed wireless and satellite. In many cases users report limitations in coverage or capacity, or that services only

¹ Perrett, E., Heath, R., Laurie, A. and Darragh, L. (2017). *Accelerating precision agriculture to decision agriculture – analysis of the economic benefit and strategies for delivery of digital agriculture in Australia*. Australian Farm Institute and Cotton Research and Development Corporation. Available at <https://www.crdc.com.au/precision-to-decision>



meet basic household needs and may not allow uptake of more data-intensive business applications including supporting multiple IoT devices. The significant growth in data usage occurring across Australia is mirrored in the agriculture sector and regional communities, however the services and infrastructure in these areas are less likely to be 'up to the job'.

Deployment of 5G in rural Australia has the potential to better support existing farm technology applications and encourage further adoption, as well as the development and adoption of new applications. This will be relevant not only to on-farm technology but also to other supply chain businesses that operate in regional towns and cities.

5G could be an important part of the future connectivity 'mix' in regional Australia

The rollout of 5G will provide an important new complementary service offering, and will bring with it a range of benefits in terms of speed, capacity and latency. It should be noted however that there are still a number of regional, rural and remote Australians who only have access to the 3G network, or who rely heavily on the 3G network. Furthermore, there are large areas of Australia that do not currently receive any mobile network coverage.

For Australians who live and work in these areas, the prospect of a 5G service – at least in the foreseeable future – is not realistic. It is important that consideration is given to how services in these areas are managed, particularly as carriers move to shut down their 3G networks and focus on 4G and 5G expansion. Customers also need assurance that upgrades to services (i.e. from 3G to 4G and from 4G to 5G) won't negatively affect the coverage footprint or otherwise constrain the service available to existing customers.

The NFF understands that 5G services will operate over several different spectrum bands, from low bands that can travel long distances but carry less data, to high bands that carry more data but cover shorter distances. The deployment approach will inevitably differ by carrier, but in general it is expected that areas of low population density are more likely to be accessing the low band services. We also understand that the ultra-high speeds and associated use cases that have been promoted as part of the 5G offering require a network density that is unlikely to be practical in rural Australia, and will be restricted to areas where investing in deployment of a high band frequency makes economic sense for carriers. This would include areas of higher population density, or a high concentration of businesses with demand for ultra-fast internet.

Notwithstanding these realities, 5G will provide a significantly improved service offering that stands to benefit regional Australians using the internet for social or business purposes or to access essential services. It's worth observing that the increased capacity and speed of 5G offers significant benefit to those who rely exclusively on



mobile broadband to access the internet – a group that tends to be less ‘digitally included’.

It should also be noted that pricing will be an important determinant in how rural customers use 5G – be that as a complementary service or as a substitution for an nbn or other broadband service.

The introduction of 5G in regional Australia also presents significant opportunity for ‘non-consumer’ applications, including healthcare and education. Access to healthcare in particular can be a huge issue in rural areas, where patients often need to travel long distances to access routine or specialist health services and are at risk in the event of a medical emergency requiring prompt intervention. These patients are increasingly relying on telehealth services through video conferencing and email. The high reliability and low latency of 5G stands to vastly improve existing telehealth experiences and the capacity and speed of 5G will lead to an array of new remote healthcare applications, which could include remote diagnosis and remote surgery.

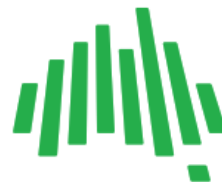
The 5G roll out should be supported by appropriate policy and regulatory settings

It’s not clear at this stage how much of regional, rural and remote Australia will be able to access the 5G network (in terms of population as well as area coverage), and what level of service will be available. Realising the benefits of 5G in regional areas will require significant investment in the physical network infrastructure – including base stations and backhaul, as well as towers and small cells. To optimise the roll out, it’s important that appropriate policy and regulatory settings are in place that encourage competition and investment in Australia’s 5G network and associated devices and technologies. Government co-investment models and funding arrangements – such as the Mobile Black Spots Program – also need to evolve to encourage telecommunications providers to continue to participate and to best enable the latest network technology to be made available to regional Australians.

Ongoing consumer education will be important

There is scope for more consumer education and awareness of the benefits and opportunities offered by 5G. Clear communications is also needed regarding 5G deployment plans. This should include information about network band and density (and associated network capability) as well as how users will access the network, including infrastructure requirements and the compatibility of mobile and IoT devices and other equipment such as boosters and aerials.

The NFF considers that there is also a need for regulators and the telecommunications industry to engage proactively with the community in response to concerns about perceived health risks of 5G. As the committee is well aware, there is some anxiety in the community regarding electromagnetic radiation from 5G deployment and use.



Decision making around network regulation and communications with the community should always be informed and guided by up to date and independent scientific advice.

Thank you for the opportunity to provide a submission to this inquiry. Should you require any further information in relation to this submission, please contact Adrienne Ryan, General Manager Rural Affairs on 02 6269 5666 or aryan@nff.org.au.

Yours sincerely,

A handwritten signature in blue ink that reads "Tony Mahar". The signature is fluid and cursive.

TONY MAHAR
Chief Executive Officer