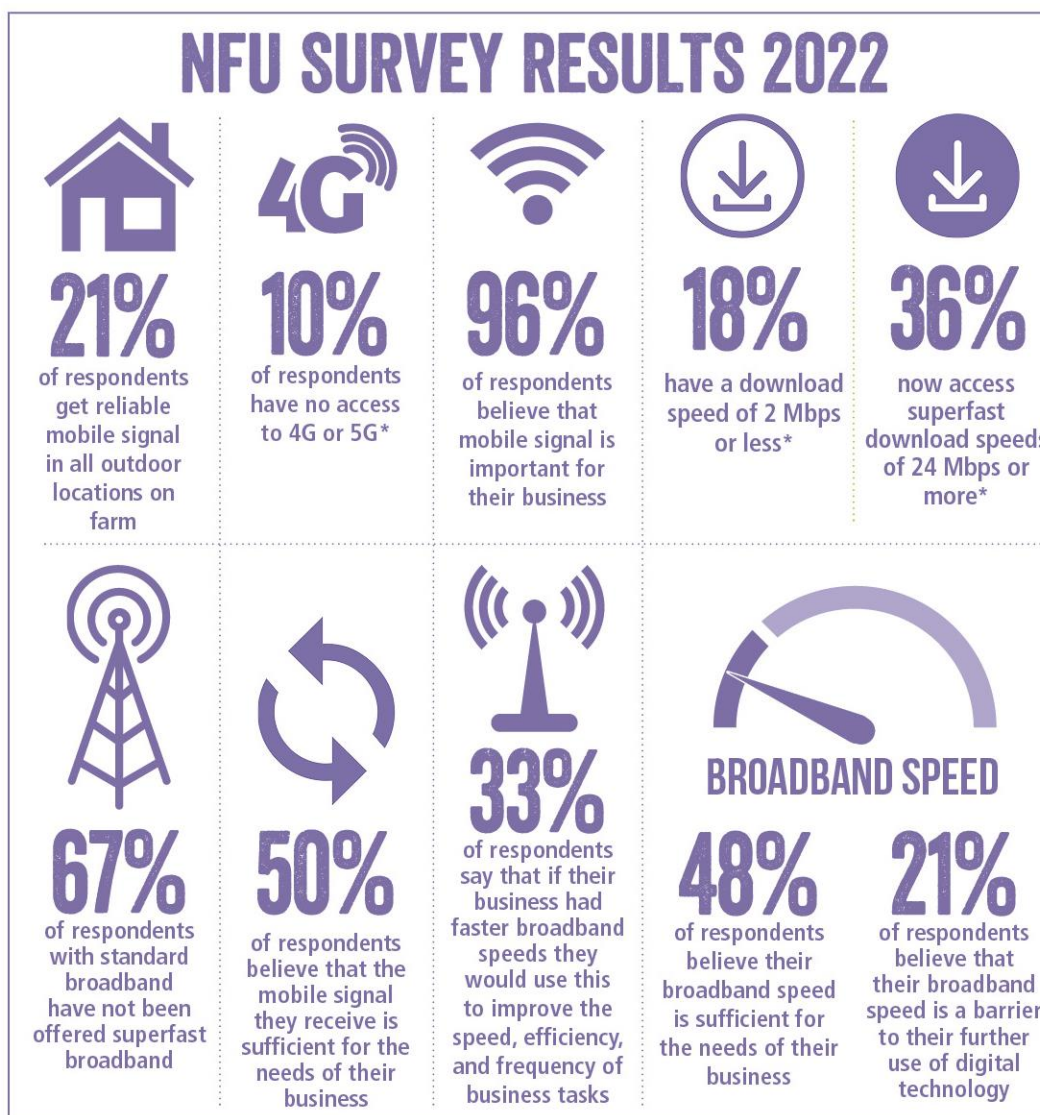


Date: 24/05/2023
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The NFU represents more than 46,000 members across England and Wales. In addition, we have 20,000 NFU countryside members with an interest in farming and rural life.

2022 Digital Technology Survey Results

The results below summarise a snapshot of farmer connectivity from 814 NFU farmers and growers surveyed between 14 Dec 2022 to 24 Feb 2023.



* These figures are not inclusive of respondents answering "don't know"

Executive Summary

Digital connectivity is vital to modern businesses, for safety, productivity, and to meet regulatory and legal obligations. Farm businesses are no exception. Significant opportunities exist through improved connectivity to harness new and productive technologies, whilst the safety benefits of mobile telecommunications are vital given the prevalence of lone working in the industry.

Key Findings: Mobile

- **50%** of members believe they have an acceptable mobile signal (6% better than last year)
- Only **21%** of members have reliable mobile signals across whole farms – important for safety (4% more than last year)
- **80%** of members have access to 4G on their mobiles and **10%** have access to 5G. **10%** remain without access, but we are encouraged to see improvements in 5G access.

Key Findings: Broadband

- **Fewer than half** (48%) of members have broadband speeds adequate for business needs (10% better than last year)
- **18%** have broadband speeds of less than 2 Mbps (12% fewer than last year)
- **36%** had superfast (24Mbps+) broadband speeds (up 12% from last year), however, other members still report prohibitive costs for installation.

Policy Asks

- The **Shared Rural Network** must remain a priority and be entirely complete by 2025
- All **government broadband schemes must be applicable to all types of broadband access**, not just fibre, which can be prohibitively expensive and impractical to install
- **Rural and agricultural-specific digital skills training** must be offered and widely supported in government skills initiatives

Rural Connectivity and Agricultural Productivity

Like most modern businesses, farmers are increasingly using digital technologies in order to manage their business operations and daily lives. Moreover, many of the necessary services and advice from relevant professionals and government agencies are now often only accessible via online services.

Farmers now have increasing obligations online, including registering online with the Rural Payments Agency in order to apply for agricultural subsidies (Basic Payment Scheme and the Environmental Land Management Schemes), as well as submitting VAT returns and Real Time PAYE information to HMRC via a Government Gateway account. Livestock farmers are also required to register animal births, deaths, and their movements via British Cattle Movement Service's CTS Online website. In an increasingly digital world it is, therefore, essential for farmers to be able to access online services in order to comply with UK regulations and to operate their businesses as efficiently as possible.

The voice of British farming

Although every effort has been made to ensure accuracy, neither the NFU nor the author can accept liability for errors and or omissions. © NFU



Like other businesses, farmers also depend on mobile telecommunications for day-to-day operations such as GPS, as well as talking to customers and suppliers. This technology is also essential for health and safety in an industry recognised by the International Labour Organisation as “particularly hazardous”¹, where farmers are often working alone in remote areas.

Reliable mobile and broadband connection can support:

- Increasing farm productivity through improved planning, monitoring and delivery of farming operations and the employment of technology
- Driving environmental performance through data driven resource use efficiency, precision agriculture, and engagement in environmental schemes delivered through online platforms
- Access to remote learning and working
- Expansion of businesses and engagement in the planning system
- Access to online government and public services including farm support schemes
- Diversification of farm businesses
- Combating social isolation
- Networking
- Farm safety
- Integration of AgriTech and 5G technologies onto farms

The farming industry is facing major challenges due to new agricultural policies that will see current direct payments being phased out and new schemes focussing on payment for public goods being introduced. This change is presenting a key challenge for the profitability of farming enterprises. British farming businesses are being required to significantly adapt their business models in order to remain competitive and contribute to the government targets for net zero and nature recovery. A fundamental building block for driving efficiency and productivity growth is access to new technologies and management practices that will come with digital connectivity.

For example, a public-private collaboration in rural Dorset used 5G to enable “per plant” farming, using autonomous vehicles to capture data and eliminate weeds individually with electricity, which trial participants believe has the potential to increase yields by 200%, whilst simultaneously reducing inputs through greater resource use efficiency². This is a clear example of what may be possible once existing digital connectivity issues are removed. Further, a report from the Centre for Economics and Business Research (CEBR) for Openreach estimated that businesses with a substantial broadband speed increase of 200-500 Mbps had an estimated incremental impact of 3% productivity gain per worker³. Though we welcome the government efforts to bridge the productivity gap in agriculture through the Farming Equipment and Technology Fund, there should be a recognition that matching this with an improvement in the quality of internet access is required to ensure significant future productivity increases. Levelling up the rural economy towards a greener and more prosperous future clearly relies on continued improvements in rural connectivity.

¹ [Agriculture: a hazardous work \(ilo.org\)](https://www.ilo.org/)

² [5G in Rural areas | GSMA 5G Business Accelerator Hub](https://www.gsma.com/5g-business-accelerator-hub/)

³ [CebrReport_online.pdf \(openreach.com\)](https://www.openreach.com/cebr-report-online.pdf)

Key results: Mobile

In 2022, 86% of farmers have either a smartphone or a mobile phone with internet access. Of those with a smartphone and knowledge of their level of connection, 90% have access to 4G or 5G connections (Figure 1). This is the first year this survey has asked respondents about their access to 5G and we are encouraged to see that approximately 1 in 10 farmers can access the internet using the latest technology, opening up the possibility to use novel technologies and practices to improve their businesses. However, the current level of coverage of 4G and 5G represents a lack of meaningful progress since 2018 (Figure 1). The Shared Rural Network (SRN) is designed to deliver 4G connectivity across the UK through the sharing of masts which will increase the mobile coverage of all the major operating networks (EE, Vodafone, O2, and Three) by 2025. Our results indicate that a concerted effort to reach the most remote areas still without coverage is required to achieve this aim by the 2025 deadline.

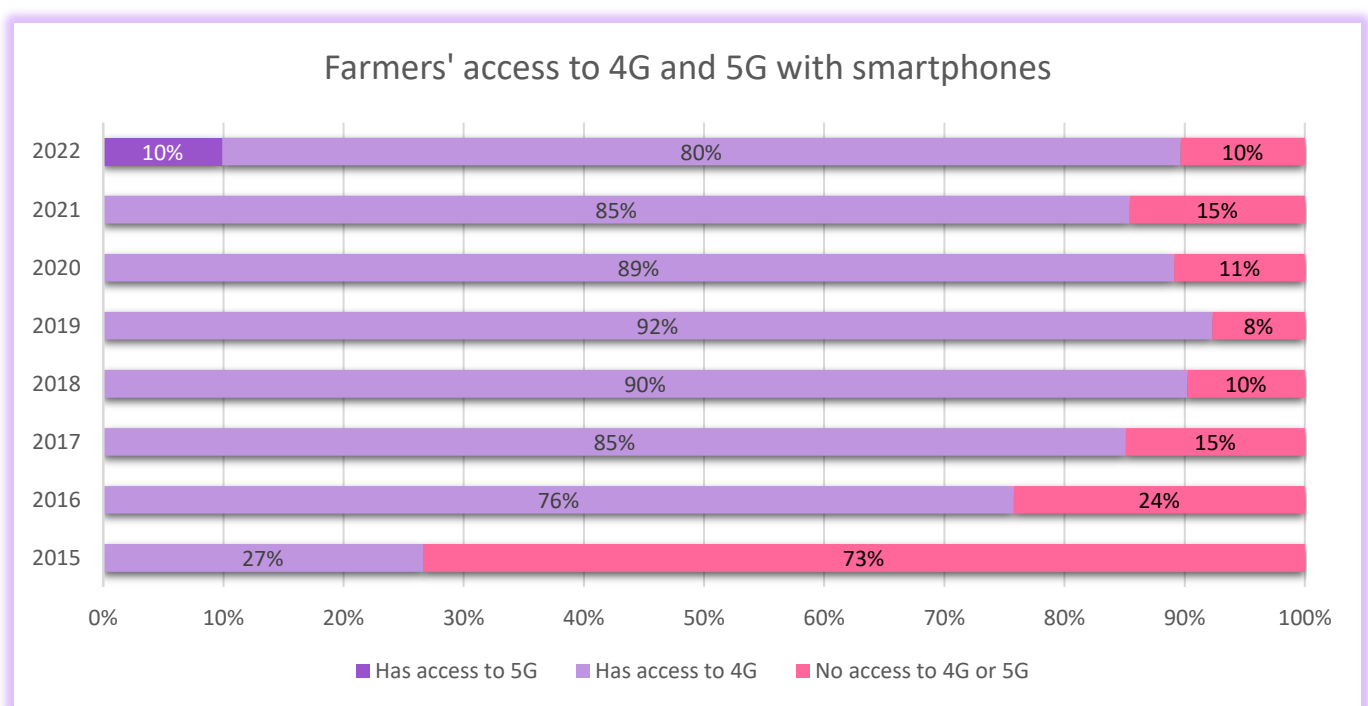


Figure 1: Access to 4G and 5G with smartphones⁴

Only one in five (21%) of respondents reported having a reliable mobile signal in all locations on farm, with a third stating they have very limited or no signal which represents a lack of progress since at least 2020 (Figure 2). **One farmer in every twenty (5%) still has no on farm outdoor locations with a reliable mobile signal.** This lack of real improvement in basic mobile signal is concerning for a number of reasons. The unreliable signal makes farm working even more dangerous as a problem may occur where someone has no way to call for help. As one member put it, “mobile signal is crucial for running the business, but also for health and safety reasons as we are often lone working and work in one of the most dangerous industries”.

⁴ Figures are not inclusive of members who did not know their level of connection.

Furthermore, only 50% of respondents believe that their mobile signal is sufficient for the needs of their businesses. As one member said, “farmers or people who live in rural areas still need to run businesses and have reliable connectivity for issues such as security, and daily management of a number of complex and demanding systems”. With 96% of those with a mobile phone believing that access to a reliable mobile signal is essential for their business, it is clear that the needs of their businesses are not being met by current levels of connection.

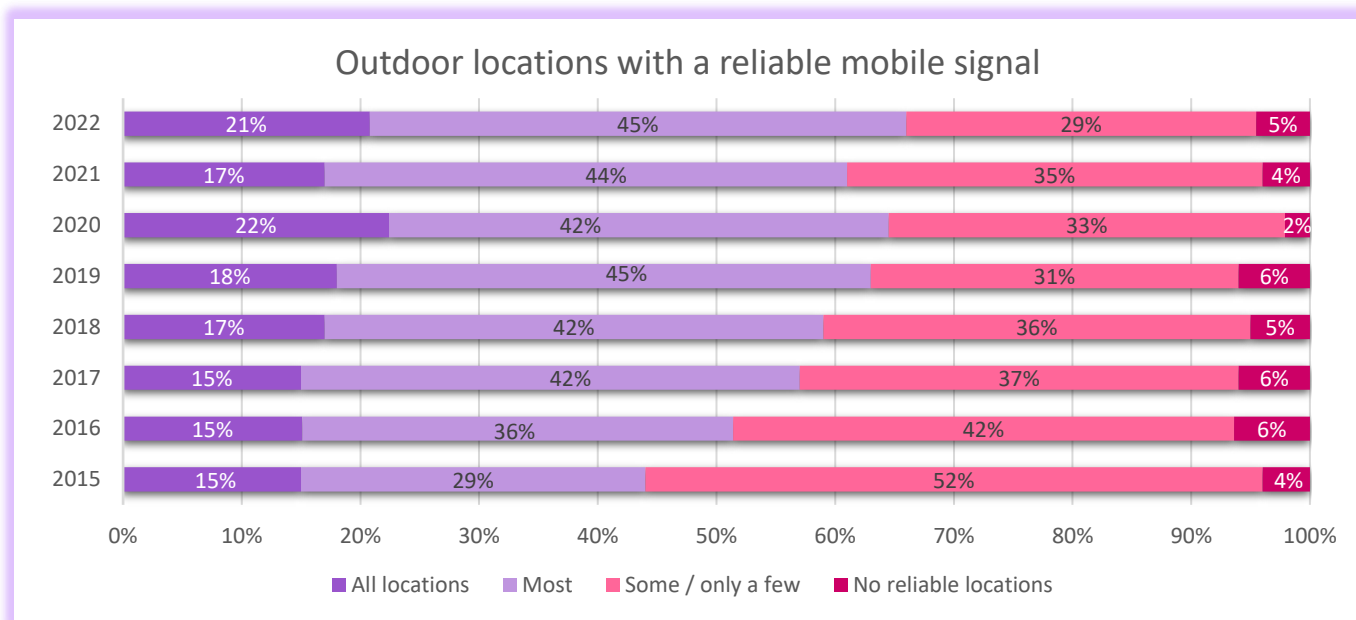


Figure 2: Outdoor locations with a reliable mobile signal

Key Findings: Broadband

Similar to the mobile coverage results, broadband access has largely remained the same over the past 12 months. The vast majority of members have access to a PC/laptop and almost two thirds have access to a tablet. Many members are now accessing the internet in more than one way. 71% are actively accessing the internet through 3G/4G on phones or tablets, whilst 61% have access to the internet via copper wires and 25% of members have fibre optic connections, a small increase from 2021 (Figure 3).

Despite a limited increase in the number of fibre connections reported, the proportion of members receiving a superfast connection has increased by 12%, with approximately one third of farms now able to download at 24 Mbps or faster. This has been matched by an equal decrease in the number of farms with connections of 2 Mbps or slower, showing that improved connections have not been limited to the easiest to reach locations. This will have made a significant improvement to the way these businesses carry out day to day tasks and is proof that the combined government and industry intervention is having a positive effect. As one member said, “we used government grants to get fibre access for the entire village, so speeds are now excellent”.

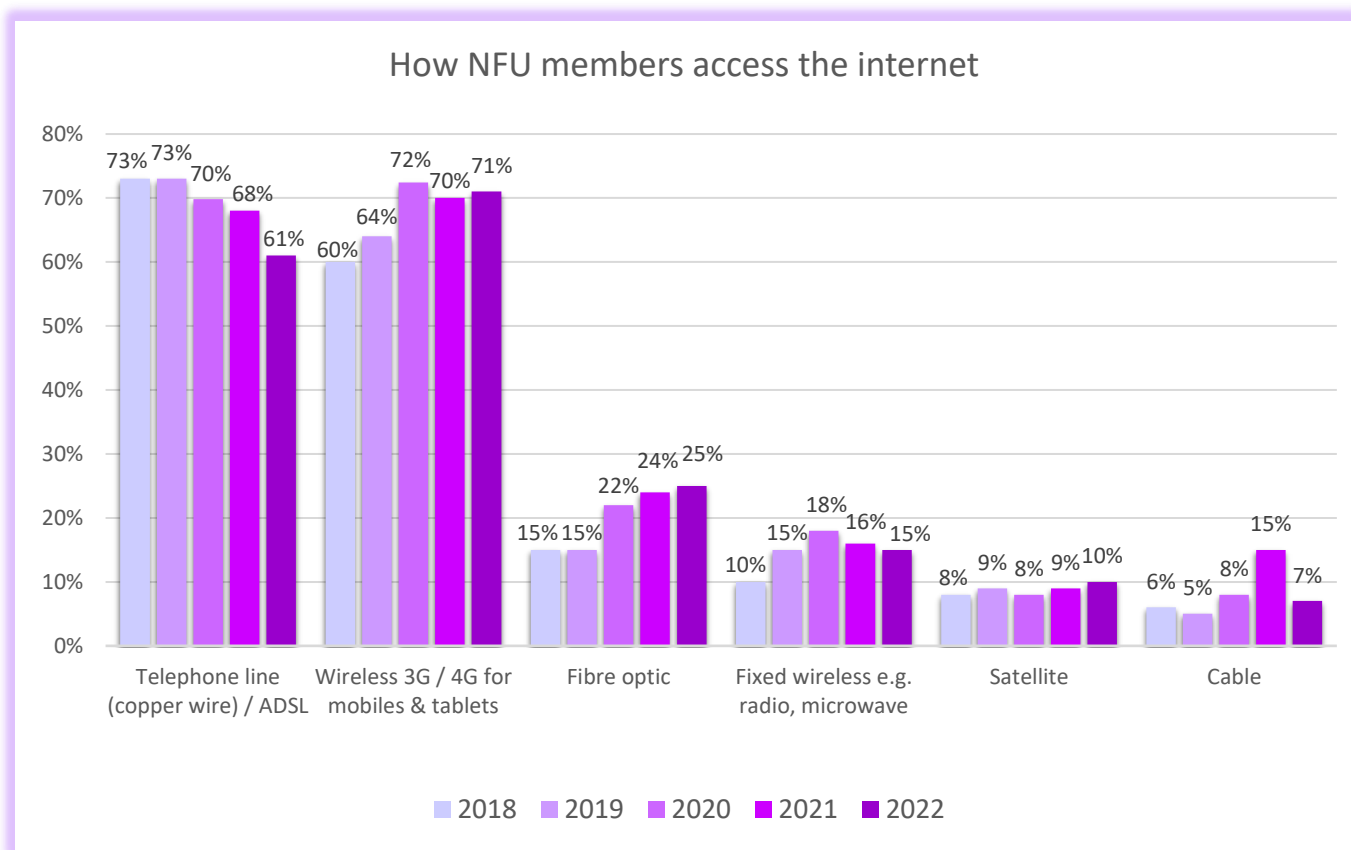


Figure 3: How members access the internet

While speeds are improving, the overall picture is still far below national averages. According to Ofcom’s 2022 [Connected Nations Report](#)⁵, access to superfast broadband is 97%, with rural areas at 88%, yet only 36% of our members who know their internet speeds report superfast speeds. Ofcom has recognised that the potential for superfast is lower in rural areas, however, their estimations are far higher than the figures reported by our members, disguising the true difficulties faced by those in the most remote settings.

Superfast broadband is also becoming a measure of the past, with gigabit capable broadband being the target of the future. Gigabit capable broadband refers to speeds of 1000 Mbps, which equals 1 Gbps. According to Ofcom, Gigabit capable coverage of the UK is 71% of UK homes, a huge increase from 46% last year, however, it is clear that the remarkable progress in rolling out this infrastructure is not yet happening in rural communities. The huge leap in coverage proves that rapid progress could be achieved if resources were more fairly distributed to include rural areas, rather than the overwhelming focus being on improvements in urban areas.

⁵ [Connected Nations 2022: England \(ofcom.org.uk\)](https://www.ofcom.gov.uk/consult/condocs/cn2022/cn2022.pdf)

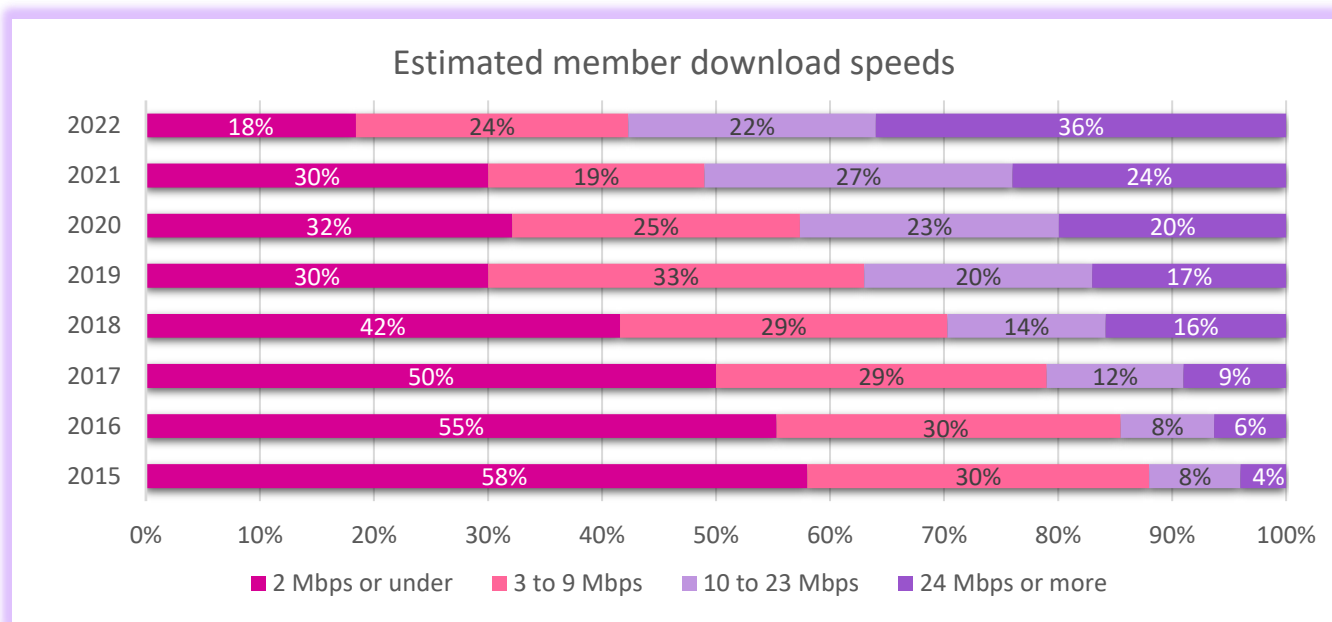


Figure 4: Estimated member download speeds⁶

The Ofcom report claims that only 0.2% of English properties are unable to access decent broadband speeds (categorised as less than 10 Mbps), however, 42% of members that have measured their speeds are running farm businesses on less than 10 Mbps (Figure 4). It is no surprise, therefore, that fewer than half of members believe that their broadband speeds are sufficient for the needs of their business (Figure 5). This is an improvement on previous levels, bringing an end to several years of stagnation in the levels of satisfaction, which is surprising given the limited (1%) increase in the number of members accessing fibre optic, and the ever-growing importance and reliance on a fast connection.

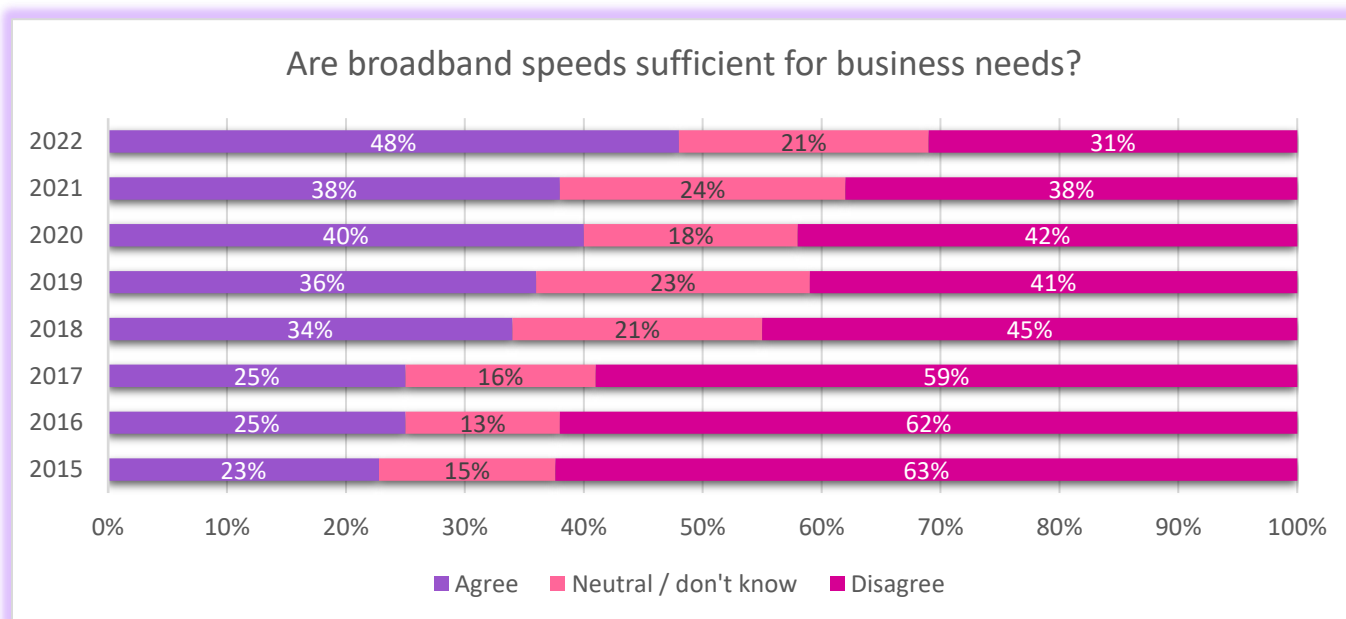


Figure 5: Members' response to if their broadband speeds are sufficient for the needs of their businesses

⁶ Figures exclude those members who did not know their internet speed.

Use of Digital Technology

The lack of reliable mobile and broadband is a barrier to members being able to effectively run their businesses. Over 50% of members surveyed note at least one barrier to making use of more digital technology on their farm (Figure 6). The most common response is slow broadband speeds and poor bandwidth.

One member reports that “internet speeds cause considerable disruption to communicating with the outside world. We struggle to download videos and cannot easily attend online training sessions requiring audio and visual. The problem is particularly severe at times of inclement weather”. A member with a diversified business including holiday lets reported that “you cannot expand the business as you would. Slow/poor internet use is a common complaint from guests, which causes more problems”. Another member lamented the time lost due to unreliable connections, “we have very poor broadband signal, usually half a megabit, and sometimes can’t connect at all and have to try later, wasting a lot of time”.

An important area to address is the lack of knowledge and training around digital skills. As one member put, there are “obligations with cattle registrations, wages, VAT, RPA etc.”, yet 11 % of members feel they do not have the necessary training or knowledge to deal with the increasing digitalisation of farming businesses.

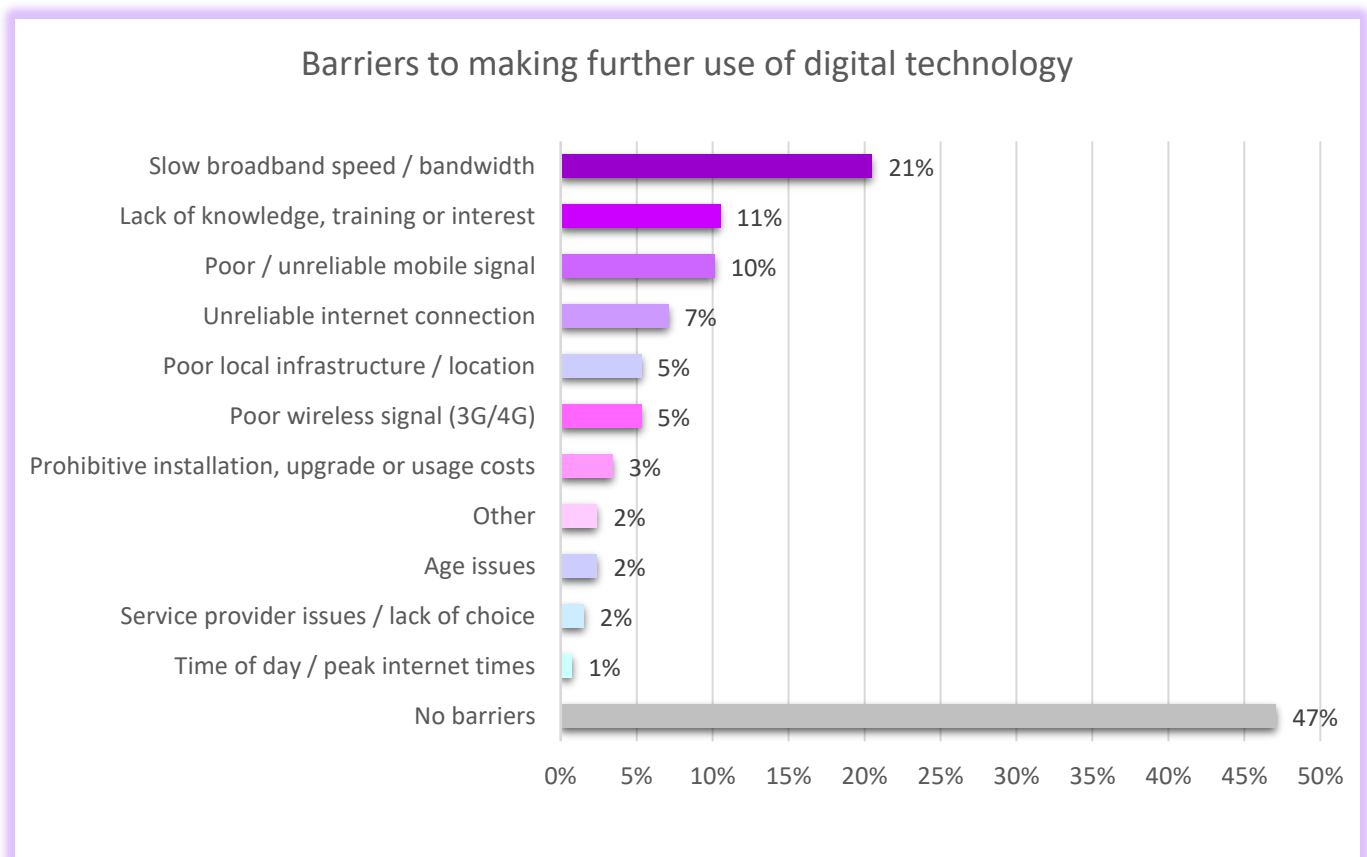


Figure 6: Barriers to making further use of digital technology

Figure 7 looks at how faster broadband speeds would be used, and over half of members would make changes to their businesses and productivity. Some previous member responses include:

- We'd do all our cropping software, which is all cloud based, a lot quicker around the yard and in other buildings. We would do what we're already doing but it would be a lot quicker".
- "I would do more virtual meetings and courses. It would be easier for my wife to work from home and support me more on the farm. It would save a lot of time and frustration in managing the holiday business that we do. Researching farm machinery and techniques and information would be much more straightforward. Accessing pesticide information would be much quicker and simpler".

According to LinkedIn, in March 2022, 13% of jobs advertised and 23% of applications in the UK were for remote roles⁷. For the families of those who live and work on farms in remote locations, a poor internet connection can freeze them out of a key aspect of the labour market.

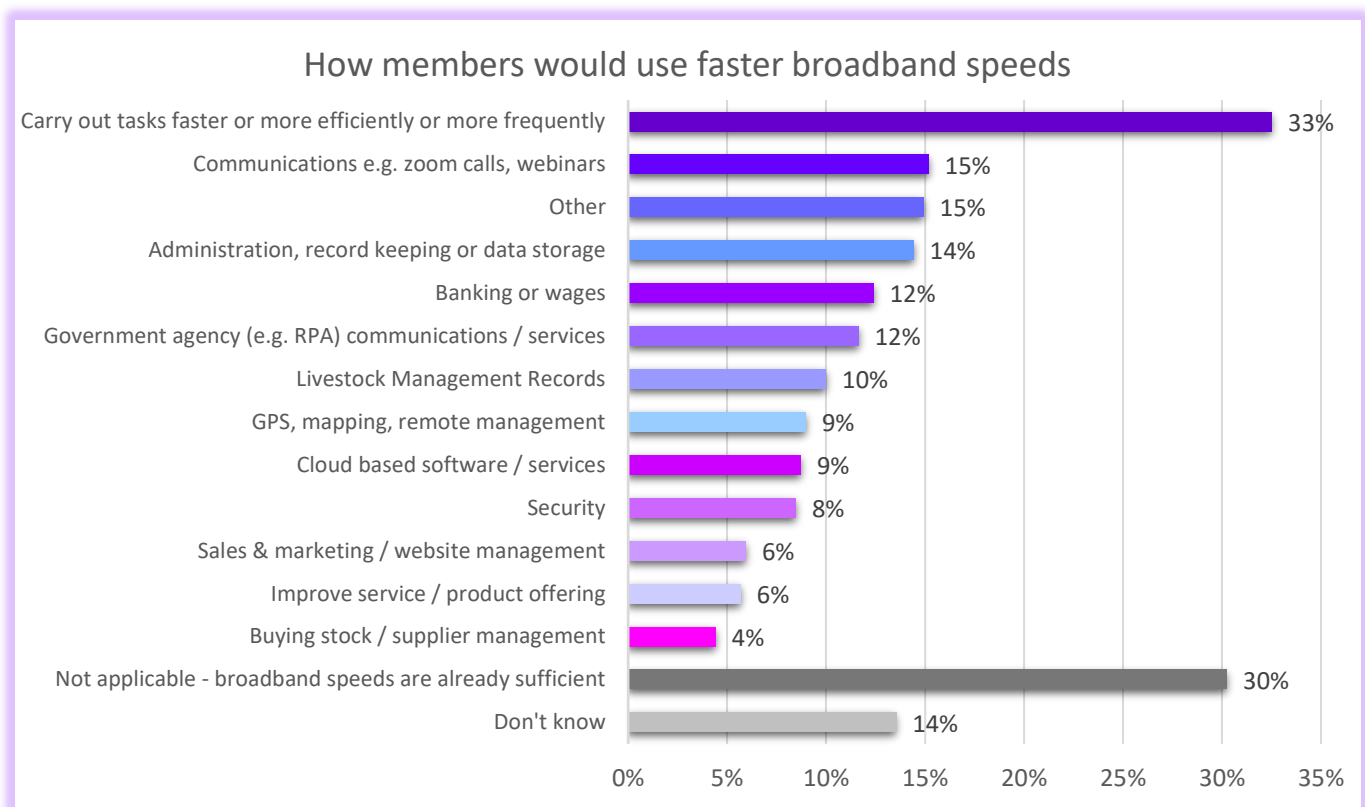


Figure 7: How members would make better use of faster broadband speeds

The ability to work more efficiently is important to farm businesses and to the industry's Net Zero by 2040 ambition. The NFU have set the three pillars of this goal as: improving farming's productive efficiency; improving land management and changing land use to capture more carbon; and boosting renewable energy and the wider bioeconomy. Each of these pillars is underpinned by good broadband and mobile access so farmers can be as efficient as possible.

⁷ [Is the 'remote work window' about to close? - BBC Worklife](#)

NFU Mobile and Broadband Policy Asks

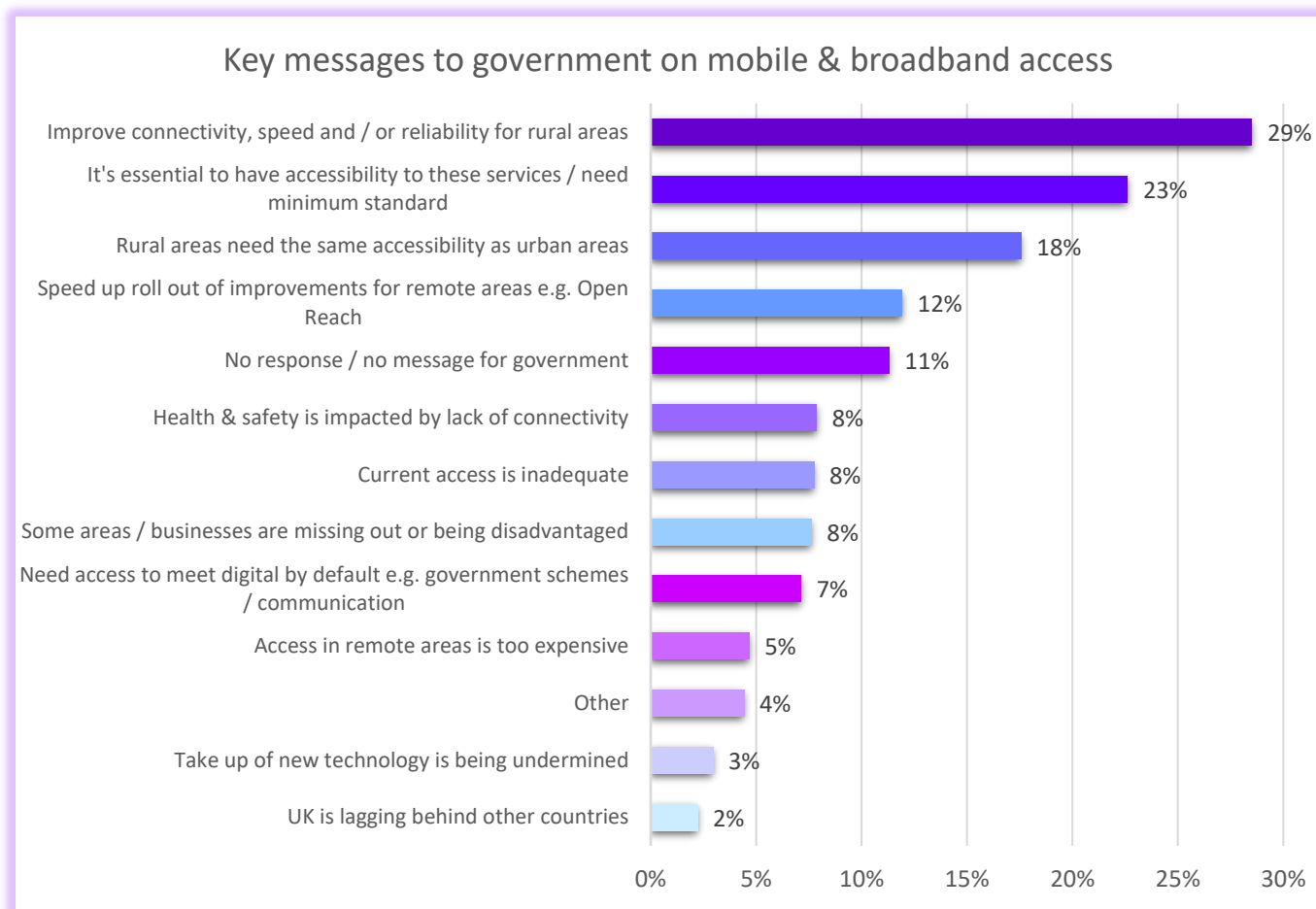


Figure 8: Key messages to government on mobile and broadband access

The results of this survey indicate a mixed picture regarding progress on the levels of broadband and mobile access. There has been a welcome reduction in the proportion of members on very slow (2 Mbps and under) broadband, however, 18% still represents a significant proportion of those who know their speeds. Combined with slow progress in mobile data connections, this presents serious challenges to farm businesses that are trying to future-proof their businesses and work within an increasingly online world. The government is aware of the challenges faced by rural areas and has pledged to deliver 100% nationwide gigabit-capable broadband coverage by 2030.

While we welcome the commitment to delivering 100% coverage, the fact that the goal has been pushed back by 5 years from the original 2025 date set out in the 2017 Conservative Manifesto is disappointing. The increase to 71% gigabit capable connections in the past 12 months is encouraging, however, the record on superfast connections shows that progress is not equally distributed. **A situation where 71% of the country has the potential to reach speeds of 1000 Mbps whilst 18% of our members cannot access above 2 Mbps highlights that rural communities are not given sufficient priority in digital infrastructure delivery.** Significant intervention is required from government and industry combined to

ensure that rural areas do not continue to be left behind. As one member put it “everyone, no matter how remote they live, should have access to decent broadband as a given. It is unfair to concentrate on faster and faster broadband for the cities, and still have ‘not-spots’ in the countryside”.

While looking at what message members would like to send to government (Figure 8), the most common responses were that government and industry need to ensure that connectivity speeds and/or reliability for rural areas must be improved, with a minimum standard of service a key ask. Members would also like recognition for the fact that rural areas need an internet connection for the same reasons that urban areas do, so should have the same accessibility. As one member reported “with increasing requirements to carry out work online, and with advancement in technology, we need the same broadband speeds as those businesses in towns”.

In order to best support farmers and other rural businesses, the NFU has the following asks of government for delivering mobile and broadband connectivity to rural areas:

- **The Shared Rural Network to remain a priority and to be entirely complete by 2025.** This is so that all communities can have access to a good mobile signal, which can also be used for mobile broadband as a working solution while communities wait for fibre broadband.
- **All government broadband schemes must be applicable to all types of broadband and not just fibre. Fibre can often be extremely expensive and often impractical to get to rural locations.** There are solutions that are rural-proofed including mobile broadband or fixed wireless broadband which can offer decent broadband speeds and are not as cost intensive to install as fibre. This will also help the government achieve the goal of 100% gigabit capable coverage by 2030 without rural areas being the last to be upgraded.
- **Rural and agricultural-specific digital skills training must be offered widely and supported in government skills initiatives.** With many farmers and business owners not having the knowledge to make best use of increasing speeds and new technologies, the skills gaps leave huge areas of opportunity for productivity increases.

Annex 1: Broadband Solutions for Members

Universal Service Obligation (USO)

The 2017 Digital Economy Act set out the government's plans for universal access to broadband. The Universal Service Obligation (USO) is intended as a safety net for those currently without any access to broadband connectivity. The USO is a pledge to give homes that ask for access to broadband with minimum speeds of 10 mbps at a cost of no more than £46.10 a month. Ofcom has determined this to be an appropriate speed to ensure that a family does not remain isolated due to lack of access. Universal service providers have an obligation to provide the broadband if the project can be undertaken for less than £3,400 per household. Due to this caveat, it is often advantageous that rural communities ask for the broadband as a whole in order to reduce costs per household.

To find out if you are eligible or read more information from Ofcom [here](#) and from BT [here](#).

Gigabit Broadband Voucher Scheme

The Department for Culture, Media, and Sport (DCMS) launched a programme in March 2018 to help support houses and businesses that want to install gigabit-capable broadband. Rural premises with broadband speeds of less than 100Mbps can use vouchers worth £1,500 per home and up to £3,500 for each small to medium-sized business (SME) to support the cost of installing new fast and reliable connections. These vouchers are designed to be used by communities in order to reduce the total cost to businesses and industry.

To check for eligibility, look [here](#).

Openreach – Community Fibre Partnerships

If you live in a community that is impacted by poor broadband speeds, then a community-led programme may work. Openreach have a programme where interested communities register their interest and together, Openreach will work with the community to install fibre broadband. Openreach will contribute to some of the costs while the community covers the rest. Openreach will also advise on more localised funding streams that may be available in an area.

More information can be found [here](#).

Further DCMS guidance on community-led broadband programs can be found [here](#).

Other Options

In the unfortunate event that none of these solutions work, there are some other options.

- **Mobile broadband** can be accessible and easy to connect and cheap to run for some with a decent mobile signal. The speeds can vary, but with the [Shared Rural Network \(SRN\)](#) working to

increase 4G mobile coverage to 95% of the population by 2025 from all providers, mobile broadband will increase in reliability.

- **Satellite broadband** is a good rural broadband option as it can be installed virtually anywhere where a clear line of sight to the sky is available. However, satellite broadband can be expensive and does not have the fastest speeds but can provide broadband access to the most remote areas.
- **Fixed wireless access** provides connectivity through radio links. This is often provided by local providers and can be worth checking if there is a local rural specific provider in your area.