

WHAT IS CLOUD COMPUTING?

Superfast internet access allows farmers to use cloud computing, where data and programmes are stored and accessed over the internet instead of the farm computer's hard drive. Farmers can choose who to share their information with, and it can be accessed and downloaded from any location whenever needed.



KEY ADVANTAGE:

Remote Access. Information can be accessed from any device anywhere in the world. This increases efficiency and productivity.

KEY DISADVANTAGE:

Internet reliance. Cloud computing is reliant on a fast and reliable internet connection in order to access and make full use of data stored on the cloud.

HOW IS IT BEING USED?

ANDREW WEBSTER

LOCATION: LANCASHIRE **FARM TYPE:** ARABLE, HORTICULTURE

TECHNOLOGY: CROP MANAGEMENT SYSTEM

BROADBAND SPEED: 4MBPS

Andrew uses 'Greenlight Grower management', a cloud based agrochemical system. He also uses 'LiveTrace', a cloud based system used by Mercian potatoes. Both of these require the input of real-time information into the cloud. The farm's 3G coverage is reasonable but 4G is patchy meaning that information inputted into the software in the field must wait to be synced with the cloud on return to the yard. Andrew's agronomists have remote access to interpret data and make crop management suggestions, whilst potato manufacturers are able to view real-time images and information about the crop on the Livetrace system. This makes management more robust, multiple expert parties are involved in the process as opposed to it being solely reliant on one individual assessing crop need in the field, or having to wait for the agronomist.

VIV TANNA

LOCATION: KENT **FARM TYPE:** TOP FRUIT

TECHNOLOGY: WEATHER AND SOIL MOISTURE MONITORING

BROADBAND SPEED: 4MBPS

The Tannas use a cloud system for monitoring weather and soil moisture conditions. A weather station records weather conditions and transmits this information to the cloud. This is particularly important for air temperature, especially when considering how sensitive cherries are to frost. The cloud will send a temperature warning out in the form of a text if the air temperature drops below 1.5 degrees centigrade. This will alert Mrs Tanna to turn on her 'Frostbusters' which protect the cherry crop from frost.

ROGER JENKIN

LOCATION: CORNWALL **FARM TYPE:** DAIRY

TECHNOLOGY: ROBOTIC MILKERS **BROADBAND SPEED:** 5MBPS

Since Roger featured in the document a year ago his broadband speed has vastly improved. This has allowed them to install robotic milkers, these work on a cloud based system and are heavily reliant on the internet. Information from the robots is fed into and stored in the cloud system. This can be accessed remotely by Mr Jenkin and his staff. If the robots malfunction the cloud system will send an alert in the form of a text message or email to the Jenkin mobile phone. Issues are picked up quickly and some can even be fixed remotely once logged into the cloud system.

THE FUTURE: 5G

Future agri-technological advances could help all farm sectors reach their full potential using cloud technology and advanced radio networks. Now is the time to start creating connected fields and farm buildings and help farm communities live better connected and healthier lives. Effective 5G network design means universal coverage, with safe, fast and efficient network systems that farmers can access to provide food and rural based services for domestic and international markets, whilst maintaining the countryside we all cherish, work in and visit. Now is the time to plan for universal coverage.



NFU SPOTLIGHT ON FARM BROADBAND & MOBILE NETWORKS: ONE YEAR ON

The NFU surveyed over 800 members in 2015 and again in 2016.

What's happened?

- Increase in 4G coverage: 75% of smartphone users now have 4G coverage compared with 70% not having coverage in 2015
- Only 15% of farmers had reliable phone coverage across the farm
- Members report that access to voice coverage has reduced
- Lack of broadband coverage: only 6% of farmers surveyed in 2016 had superfast download speeds

Key asks for Government:

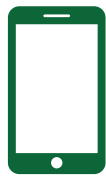
The NFU is calling on Government to make the digital economy universal by ensuring the rollout of superfast broadband to all farms and growers and their rural communities, alongside complete mobile phone coverage. This will mean ensuring that there is necessary regulation in place and there is a competitive rural market. It is essential to lay the foundations for 5G coverage for farming now; the full delivery of the Government's Agritech and Industrial Strategies depend upon it. Our Spotlight on farm broadband and mobile networks sets out the solutions to deliver this.

NFU SURVEY RESULTS 2016

MOBILE



97%
of farmers
own a phone



57%
of farmers
own a smart phone



18%
had a reliable
indoor signal



75%
of smart phone users have
4G coverage



92%
agreed having a reliable signal
was important for their
business



42%
had reliable signal
in only a few outdoor
locations

BROADBAND



5%
don't use
the internet



63%
own a tablet



79%
get internet
over copper wire
infrastructure



6%
use satellite



15%
had a reliable
outdoor signal



83%
had an upload speed
of 2mbps or less



6%
had access to superfast
download speed



56%
had a download
speed of 2mbps or less