



S5GConnect
Dumfries

Agri-tech Case Study - 5G Connected Cows

S5GConnect Dumfries is The Scotland 5G Centre's first rural hub with a focus on 5G applications in the agricultural and healthcare sectors. This use case highlights **the power of 5G and how it could be transferred to Scotland's farms**. 5G will improve the connectivity challenges which rural areas have faced, and will bridge the urban-rural divide while improving key rural sector performance.

Milking productivity

At its South West Dairy Development Centre in Somerset, Agri-EPI Centre used **5G technology to measure, monitor and analyse grass feed and automate milk production through collecting data from cows in real-time**.

Using a 5G enabled drone, equipped with multispectral imaging, Agri-EPI Centre analysed grass across the farm's 42 hectares of grazing fields, measuring the quantity of grass available in the grazing area and the quality of the grass feed.

Data was then collected from the cows at the centre, using sensor technology to monitor their movements, eating, milking and resting in real-time.

The information collected was then sent directly to an automated milking parlour, giving farmers a clear picture of the cow's life, well-being, diet and milk production.

The 5G difference

5G was pivotal in this use case as it allowed for multiple sensors to be linked to the cows and the environment and relay in near **real-time to the cloud for processing**. This needed the high capacity and low latency offered by 5G technology. In addition, the high resolution, high quality multispectral imaging of pasture land taken by the drone, needed 5G technology to support the transmission of the images to the cloud for processing.

Breakthrough benefits achieved

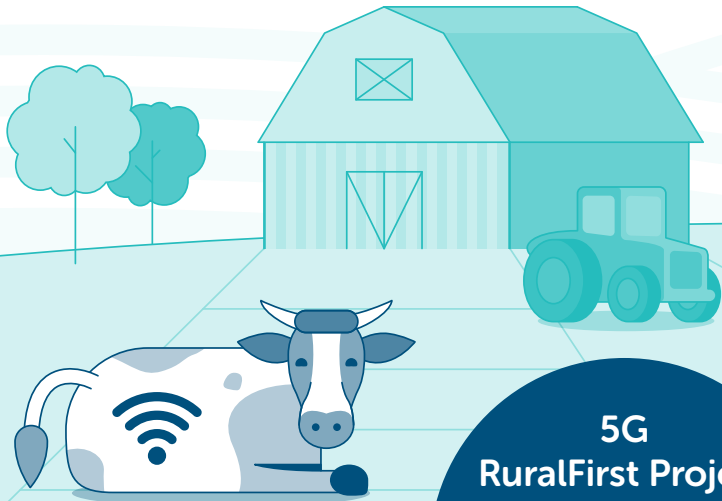
- As a result of the introduction of 5G technology, **milk production at the Centre increased by up to 20%** indicating that high capacity connectivity and technology will be key to efficiency in the future of dairy farming.
- The cow's movements, eating, milk production and resting were monitored and fed in real-time to the cloud to give a fuller **picture of cow life increasing knowledge to aid decision making**.
- Farmers could respond immediately to any health concerns and or issues cows were experiencing due to the **real time monitoring and reporting**. This improves cow wellbeing and farm management.
- Monitoring the pastures performance and health by drone helped to **improve the feed quality** and to identify how it was linked to the milk production, so effective strip grazing could be implemented.

5G AGRI-TECH USE CASE

South West Dairy Development Centre in Somerset, Agri-EPI Centre, Cisco



5G enabled drone, equipped with multispectral imaging, analyse grass across the farm's 42 hectares of grazing fields.



Each cow has flexibility on when they milk, feed, rest and move through the use of automated devices like automated milking parlours.

5G RuralFirst Project

helped to showcase the impact of 5G applications on monitoring farming conditions for the benefit of animal health & production output.

5G high capacity and low latency

Real-Time

Instant transmission of high-quality multispectral imaging and data to cloud for processing



ANALYSE

5G enabled data was gathered in real-time for processing.



UNDERSTAND

Data provided an enhanced understanding of cow behaviours, movements and environment.



HEALTH

The cow's wellbeing were monitored in real-time, providing early warnings of any issues.



ENVIRONMENT

Monitoring pasture performance to improve feed quality and implement effective strip grazing.

5G

5G allowed multiple sensors to be linked to the cows and the environment

20%

Up to 20% increase of cow milk production as a result of the 5G use case

Connect with us

Find out how S5CConnect Dumfries can support your business.

- Contact: Andy Todman at andy.todman@scotland5gcentre.org
- Visit our website <https://scotland5gcentre.org/>

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