



Agribot

Case study

Background

Grass growth is crucial for pasture-based dairy farming, affecting herd nutrition, milk production, and farm efficiency. Traditional methods, like manual plate measurements or visual checks, are time-consuming and inconsistent. However, satellite data offers near real-time, objective insights into grass biomass, growth rates, and stress indicators, enabling farmers to optimise grazing rotations and avoid overgrazing or underusing feed.

By using two- to three-week grass growth forecasts, dairy farmers can adjust grazing strategies proactively, supplement feed when needed, and ensure cows have high-quality pasture. Combining satellite data with atmospheric forecasts helps farmers anticipate feed surpluses or shortages, balancing stocking rates and feed budgets to reduce reliance on costly supplementary feed.

Additionally, satellite monitoring improves pasture management, removing unnecessary use of synthetic fertilisers and pesticides. By optimising grazing and ensuring grass stays in its productive phase, nitrogen use can be reduced without sacrificing yield. Healthier pastures also enhance soil carbon storage and water retention, promoting long-term farm sustainability. Ultimately, satellite data enables farmers to increase efficiency, maximise profit, and boost environmental resilience.

Innovation story

Agribot's technology revolutionises pasture-based dairy farming by using satellite data to measure and forecast grass growth. Combining satellite remote sensing, climate modelling, and AI, it provides farmers with precise, timely insights to optimise grazing, reduce costs, and improve environmental sustainability with minimal manual effort. The UK Agri-Tech Centre has worked closely with Chris and Agribot to support the 'Grassland Modelling for Improved Utilisation' project.

The system processes satellite imagery from multispectral and radar data to monitor grass cover, growth stage, and stress factors like drought or overgrazing. Unlike manual methods, it delivers standardised, objective data across entire farms, even in cloudy conditions, using radar satellites.

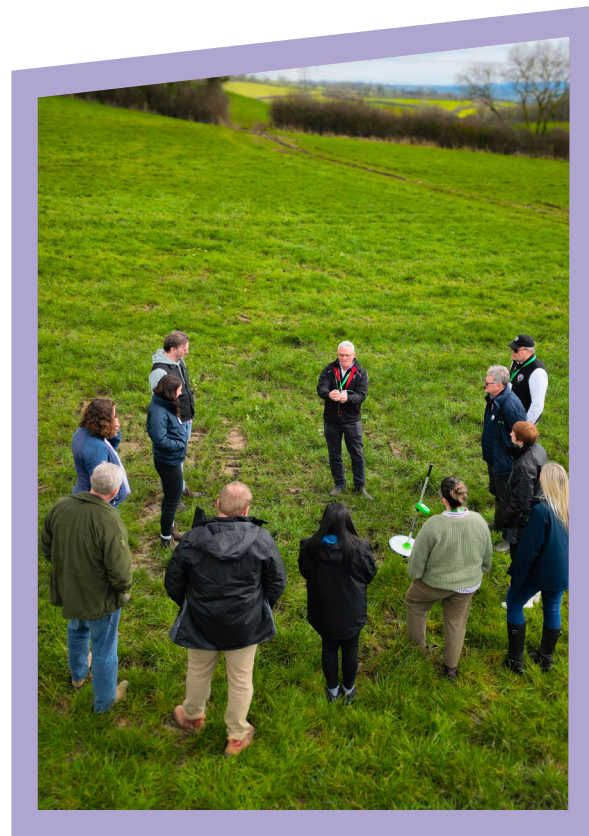
In addition to real-time monitoring, Agribot's forecasting models predict grass growth based on weather patterns and historical data. By integrating AI and weather data, it helps farmers plan grazing rotations, feed allocation, and fertilizer use, maximizing pasture use and reducing reliance on synthetic inputs.

The system also provides actionable insights through an intuitive digital platform, offering traffic light-based maps, growth trends, and management recommendations. This allows farmers to make informed decisions on livestock movement, feed allocation, and fertilisation strategies.

By leveraging satellite technology and AI, Agribot enhances farm profitability, reduces input costs, and promotes regenerative practices, helping dairy farmers remain resilient and sustainable in the face of climate challenges.

"Through our collaboration with the UK Agri-Tech Centre, we got to engage directly with farmers. Their insights and on-the-ground feedback have been invaluable in refining and validating our technology."

Chris Knight,
Founder at Agribot



Collaboration and support

"Our journey in grass growth monitoring and forecasting has been dramatically accelerated by the incredible support and collaboration we've received from key industry and research partners. The UK Agri-Tech Centre has been instrumental in our progress, working alongside us in a partnership with Innovate UK to bring cutting-edge solutions to pasture-based dairy farming.

Through this collaboration, we engaged directly with farmers as part of the initial project and later as adopters after attending our dissemination events. Their insights and on-the-ground feedback have been invaluable in refining and validating our technology.

Additionally, the company's academic foundation came from Cranfield University, where our founder completed their PhD, and has played a crucial role in shaping this innovation. The PhD research was funded by CENTA, part of NERC and UKRI, whose support enabled me to explore the intersection of climate science, remote sensing, and agricultural applications. These partnerships—spanning industry, government, and academia—have been essential in transforming our vision into a practical, impactful tool that is now helping farmers optimise their operations for economic and environmental sustainability."

- Chris Knight, Founder at Agribot

