



USING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING TO OPTIMISE HERD AND COW LEVEL OUTCOMES

**Developed by Quality Milk Management Services in
Collaboration with the University of Nottingham**



**University of
Nottingham**
UK | CHINA | MALAYSIA



Developed with Support from



What is REMEDY?

As a dairy farmer you are faced with many challenges including improving efficiency and remaining profitable in the face of the move towards net zero, reducing antibiotic use and collating increasing amounts of data to meet the demands of modern dairying and milk supply contracts.

Modern dairy herds increasingly collect large amounts of data from different, often incompatible systems in an attempt to improve efficiency and optimise health and production. Unfortunately, this data is often collated into different data 'silos' with little or no communication or compatibility between the systems. Much of this new data comes from new precision technologies and hardware solutions which often deliver isolated solutions to individual components of complex dairy production systems incurring significant capital and maintenance costs.

REMEDY (Real-TiMe DairY) is a new cloud-based platform developed by a team of industry specialists and vets at Quality Milk Management Services Ltd (QMMS) in conjunction with the University of Nottingham (UoN). REMEDY uses cutting edge technology, artificial intelligence and machine learning to predict and help optimise herd and cow level outcomes on dairy farms using both existing and new data sources.

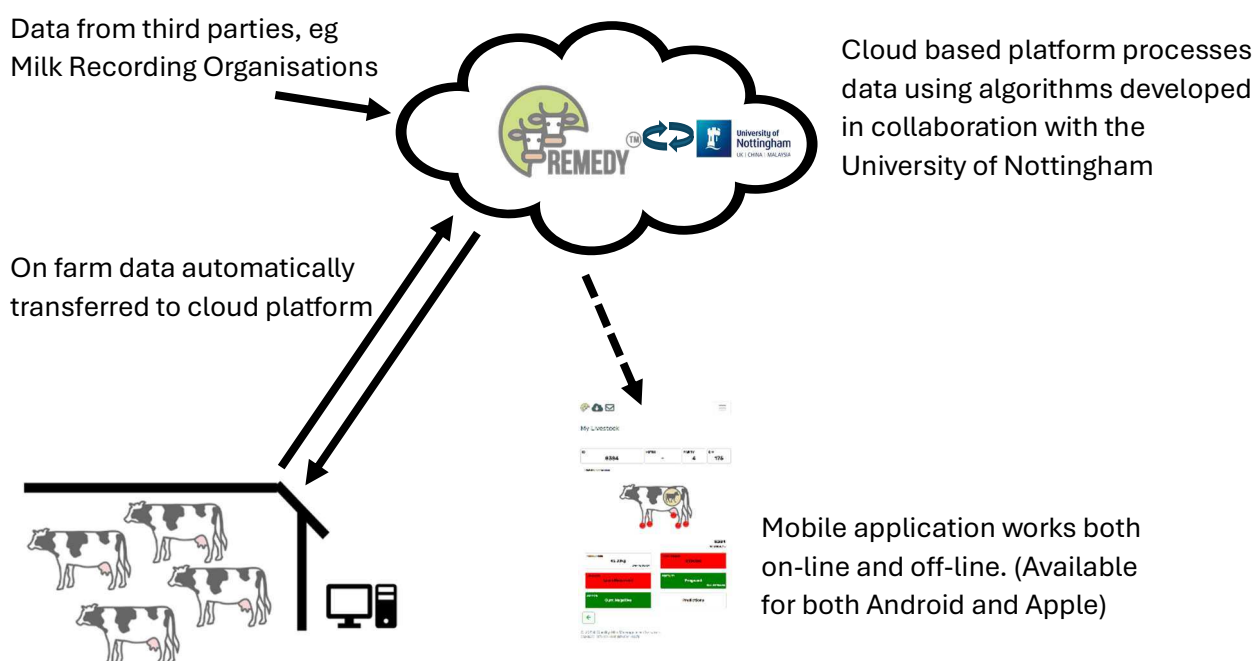
REMEDY comprises a cloud-based desktop application with a mobile application to seamlessly and automatically process farm information delivering key data and evidence-based solutions to inform both herd management and cow-side decisions. REMEDY uses existing data and on-farm infrastructure without the need for expensive new technology or testing.

How does it work?

REMEDY seamlessly combines data from numerous existing sources as well as allowing the merge of additional information collected outside of automated systems. After initial set-up, the system can run with minimal intervention by the user, using self-updating procedures and algorithms to ensure that you are always presented with the most up to date information and predictions.

REMEDY can be fed with data directly from your milk recording organisation or from compatible on-farm software.

REMEDY Dataflow



Data is stored on secure servers within the EEA and can allow secure sharing with third parties authorised by you.

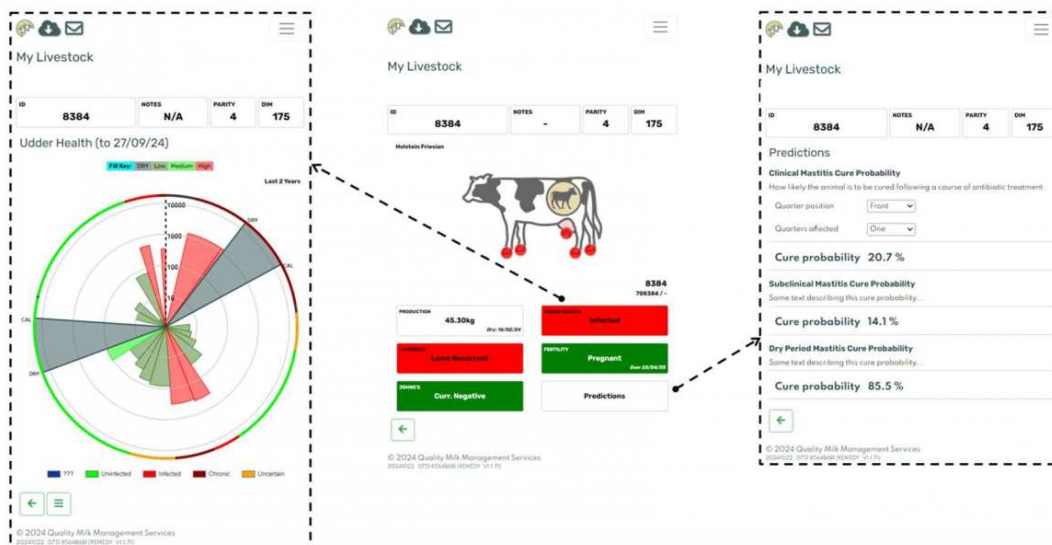
The REMEDY Mobile APP

The REMEDY Platform comes with a Mobile APP. This is available for Apple and Android and can be found in the Apple App Store and Google Play Store respectively.

The APP links securely with your data in the cloud. Your data is downloaded to your phone and is then available off-line. Additional users can be authorised through the REMEDY Dashboard.

The APP summarises key data about individual animals covering production, udder health, lameness, fertility and Johne's disease using an intuitive graphical interface (see below).

Screen shots from the REMEDY Mobile APP



As well as visualising data, the user can access predictions relating to both udder health and Johne's Disease.

Udder Health

Based on routine milk recording data and animal history, the APP can calculate the probability of cure of an intramammary infection following antibiotic use. There are three models covering treatment of clinical and sub-clinical mastitis in lactation, as well as the probability of cure with dry cow therapy.

Johne's Disease

Using a novel approach (unsupervised clustering and machine learning) to interpreting existing Johne's ELISA test data we are able to provide a probability estimate that a cow will become a 'high-risk shedder' in the next 12 months and 'at calving' in pregnant cows. The former allows a more informed approach to high value breeding decisions around replacement heifers and the latter optimal management of 'hidden high-risk' cows around the time of calving.

In addition, actions lists can be configured on the desktop application and sent to the APP for implementation cow-side.

A **free** version of the APP is available which allows manual entry of udder health data to obtain a cure calculation on individual cows – once entered data is sent to the cloud and probabilities returned.

How do I sign up?

REMEDY is currently available at two levels, either as a free-to-use service where farmers can sign up to receive the Mastitis and Johne's Disease Pattern Reports or as a subscription-based service giving access to cow level data and additional tools. These are available by signing up at <https://cloud.remedy.farm/dashboard/#/signup-generic>.



Signup to Remedy

For use by Farmers, Vets and Consultants.

If you are signing up for the Mastitis Pattern Analysis Tool please [click here](#)

The following screens capture data to allow you to create a **Remedy** account with one user.

Once your user details are confirmed, you will be able to log in and associate farms with your account and add additional users as required.

The data captured below will be used solely for the purposes of setting up your account. None of your data including contact details will be shared with any third parties without your express authorisation.

I represent a

Farm

Located in

United Kingdom

Avg. Number of Milking Cows across your Enterprise (inc. Dry Cows)

Less than 100

[Next](#)

[Back to Login](#)

Once signed up data will either begin to flow automatically via your milk recording organisation or we will contact you to arrange automated upload of your on-farm data.

What are the benefits?

The benefits of the existing REMEDY system are clear – they will allow you to make more informed decisions about herd management using the existing Pattern Tools, whilst future developments will give access to powerful simulation tools (see later). However, even at the most basic level, the benefits of the current system can be easily demonstrated.

Mastitis is acknowledged as the costliest endemic disease in UK dairy herds with mild cases costing over £100 per case and severe cases in excess of £1,000. A significant part of the cost of mastitis comes from the cost of treatment and associated milk discard. Every year, a large number of clinical and sub-clinical mastitis cases are treated when there is little prospect of cure, incurring additional loss and unnecessary antimicrobial use.

REMEDY research has demonstrated that it is possible to estimate the probability of cure of both clinical mastitis and sub-clinical mastitis and that this probability is independent of the causal organism. The REMEDY APP offers the opportunity to rationalise antibiotic use and reduce treatment costs without the need for expensive on-farm diagnostics with not testing and treating just one case with a low probability of cure potentially saving over £150 per case.

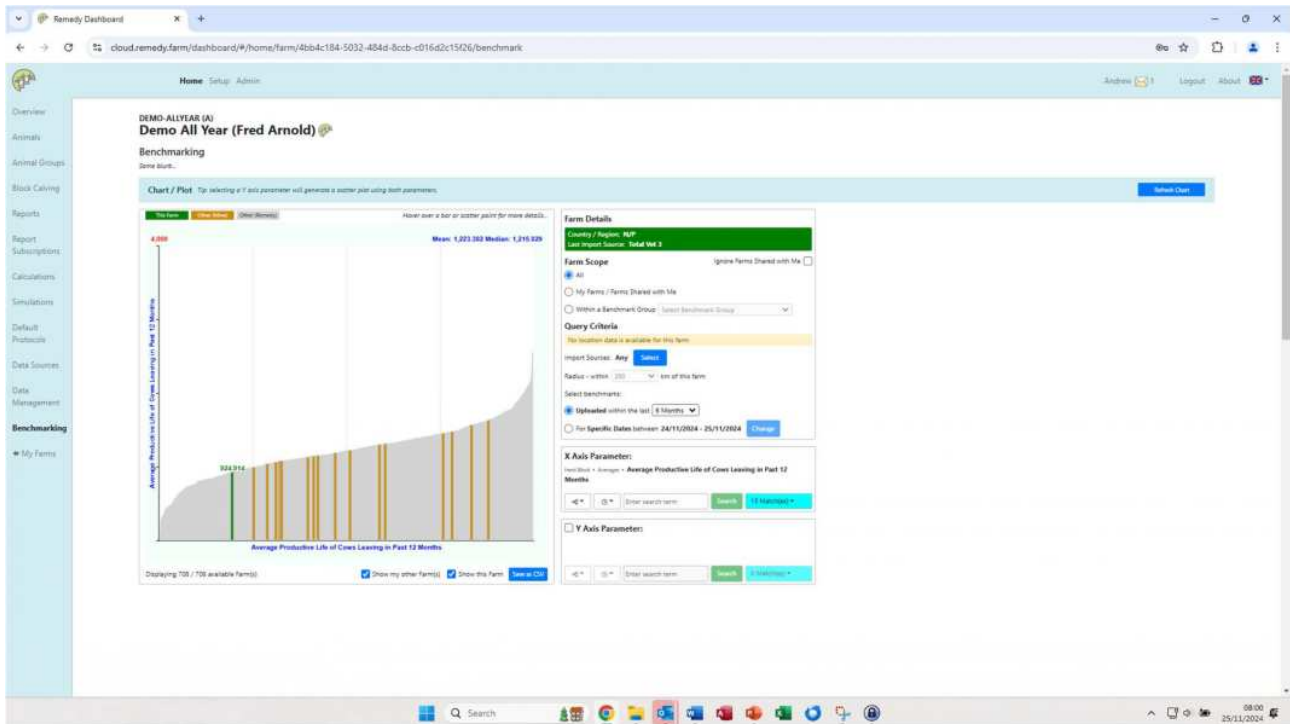
Johne's disease has been estimated to cost in excess of £100 per cow per year (SRUC) to over \$800 per case in the US. Action Johne's estimate costs can exceed 1-2ppl. Stopping just one calf being infected per year through identification, and better management of hidden, high-risk cows could save upwards of £250.

10:1 Return on Investment

Based on a REMEDY subscription cost of as little as £1.20 per cow per year, in an average herd, reducing mastitis treatment by 10% and preventing two new Johne's transmissions a year would give a return on investment of 10:1.

What else will REMEDY do?

The REMEDY Platform is part of an active on-going project with additional features being added all the time. As well as the features outlined above, REMEDY already offers the opportunity to undertake a carbon footprint calculation and anonymously benchmark your performance against other herds.



A full farm simulation model is also in the final stages of development which will allow users to investigate the impact of all aspects of farm management from feeding and slurry management to disease incidence and fertility on herd demographics, production and carbon footprint.



Contact Details

Quality Milk Management Services Ltd

Cedar Barn

Easton

Wells

Somerset

BA5 1DU

Tel: +44 (0)1749 871 171

Email: remedy@qmms.co.uk

Sign up at: <https://cloud.remedy.farm>

