
UC2.6

Precision Mineral Supplementation

RETHINKING DAIRY COW MINERAL SUPPLEMENTATION

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What Precision Mineral Supplementation is

A schematic presentation

DATA

(D, F) Big data, The Cloud, Azure IoT Hub, MS SQL - interoperability, replicability and reuse

SOFTWARE

(B, C, D E) Front end - Pitstop+ Manager, backend in master units and slave units

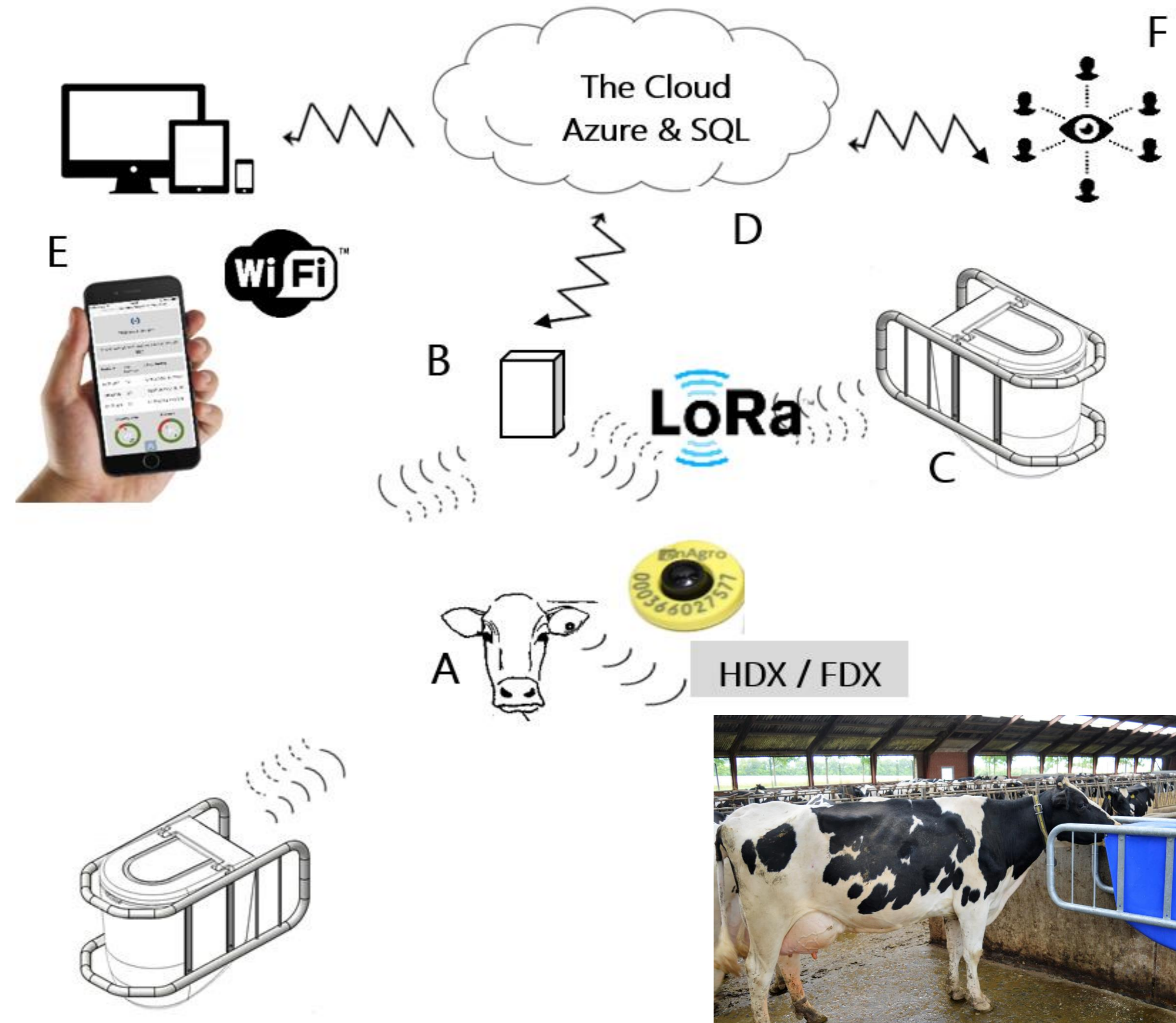
COMMUNICATION

(A, B, E) LoRa, WiFi and cabled

HARDWARE

(A, B, C) Feeders, sensors – antennas and accelerometers, PCB boards, electronic ear tags, dosing aggregates,

IoT components



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884

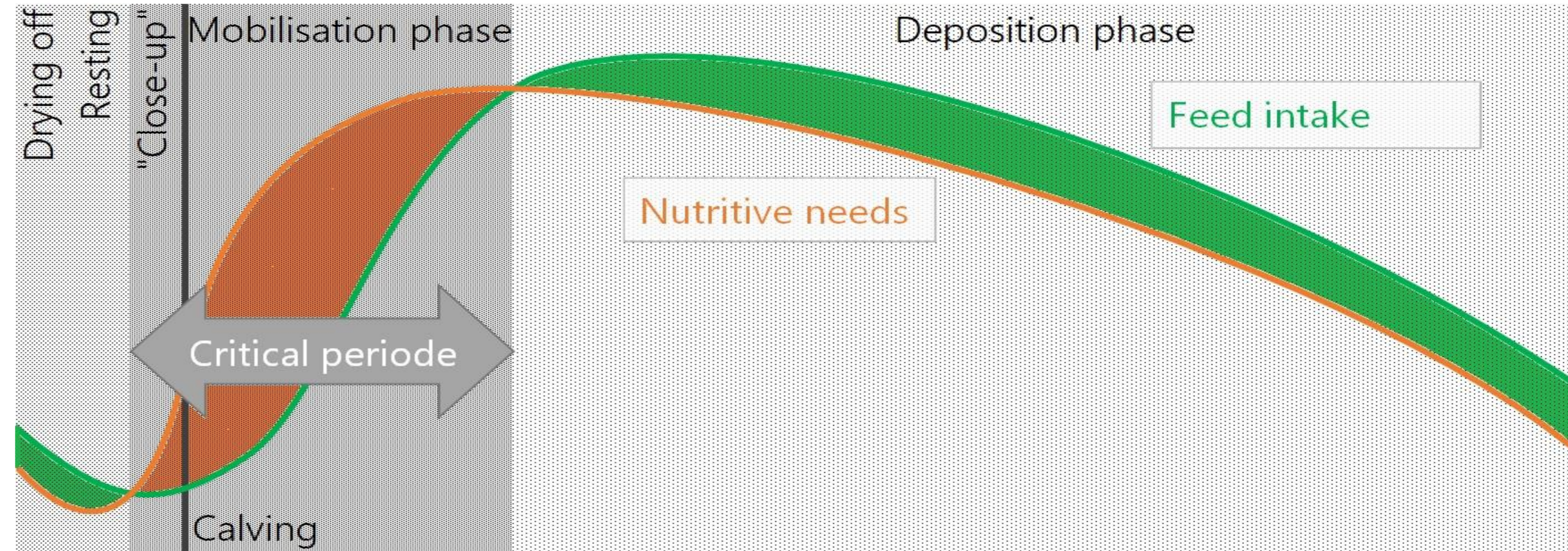


Key challenges / pain points

Why we do this



TMR is worldwide now the most used feeding concept



Increasing frequency of costly diseases and self-dead cows



Technologically advanced feed additives exists, but no practical and economic methods for dispensing



Increasing consumer concern for the ethical quality of food

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What we can expect

Milk production **the way we want it**

MAIN TARGET GROUP

Large dairy herds (> 50 dairy cows) using TMR or other standardized feeding and with high productivity.



Net value of € 146 per cow per year



VALUABLE EFFECTS

- Improved business economy and competitiveness.
- Cows with higher productivity and better health.
- Easier and more precise monitoring of transition cows.
- Ability to use advanced feed additives with effect on dairy cow productivity and health, environment, climate and animal welfare.
- Group-in-group supplementation is possible.
- Full effect of TMR feeding.
- Decoupling of development in productivity from that of disease incidences.

REALISTIC ACHIEVEMENTS (KPIs)



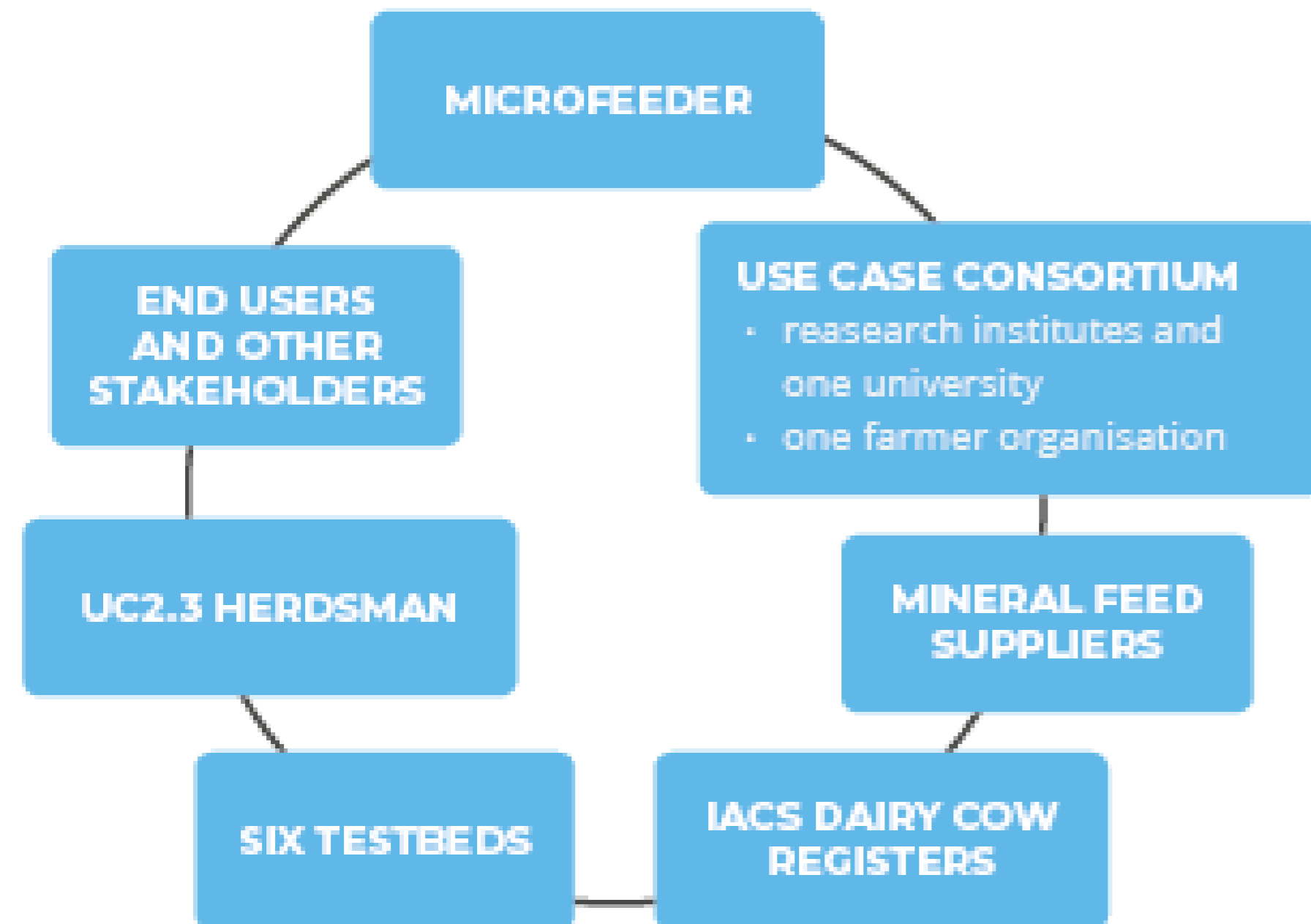
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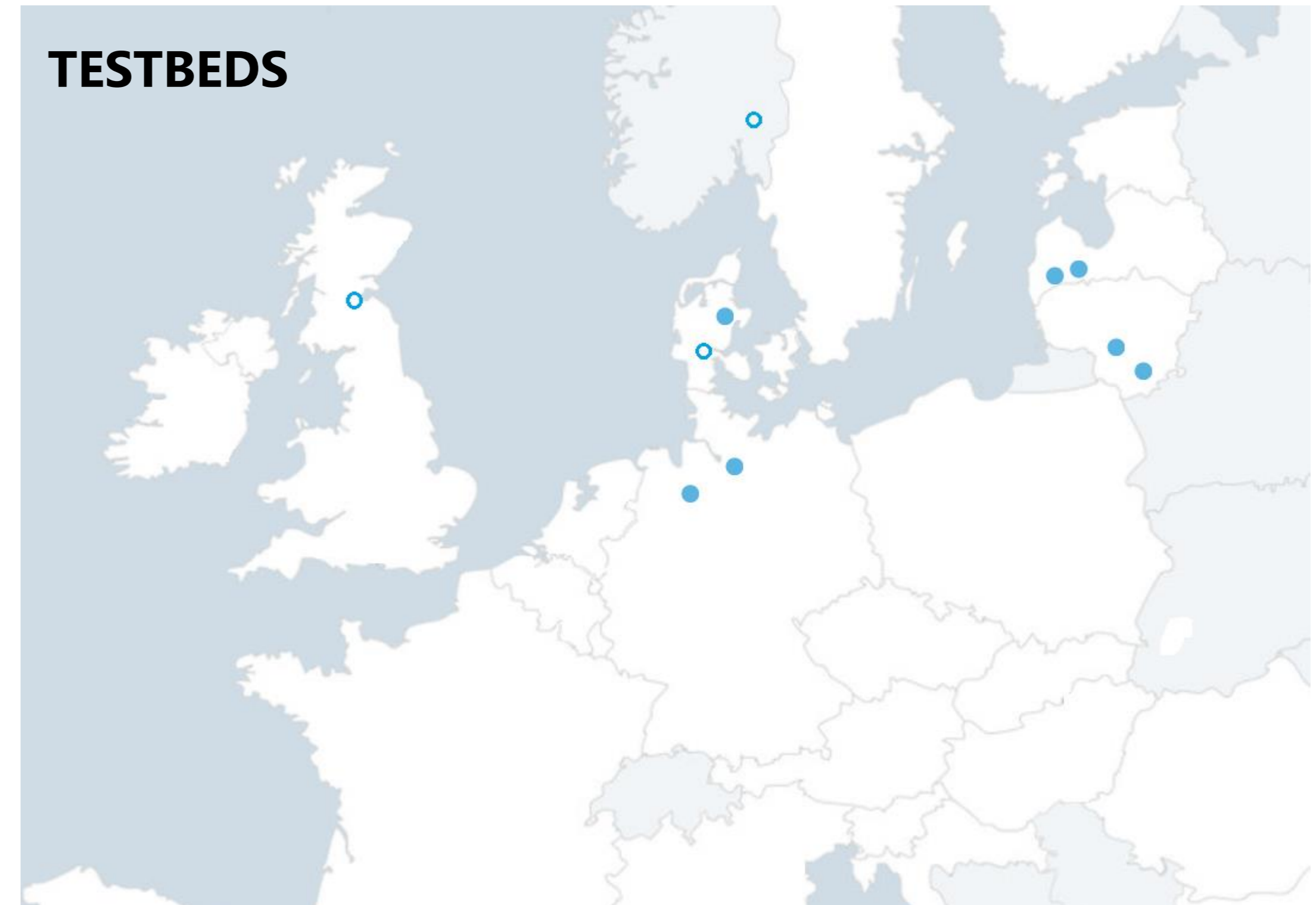
Testing and demonstration activities

Diversified research and innovation partnership covering 6 EU Member States

ECOSYSTEM



TESTBEDS



WE WILL INCREASE AWARENESS OF PRECISION MINERAL SUPPLEMENTATION, DOCUMENT ITS EFFECTS AND IMPACTS, VERIFY OPTIMAL MINERAL FEED SUPPLEMENT CHARACTERISTICS, AND INCREASE THE USABILITY OF THE SYSTEM FOR THE DAIRY FARMS.

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Experimental findings so far

UX and cows acceptance are important

FEASIBILITY OF MINERAL SUPPLEMENTS

- A low angle of response, a max particle size of 3 mm and an extraordinary good taste are desired qualities.



COWS' ACCEPTANCE

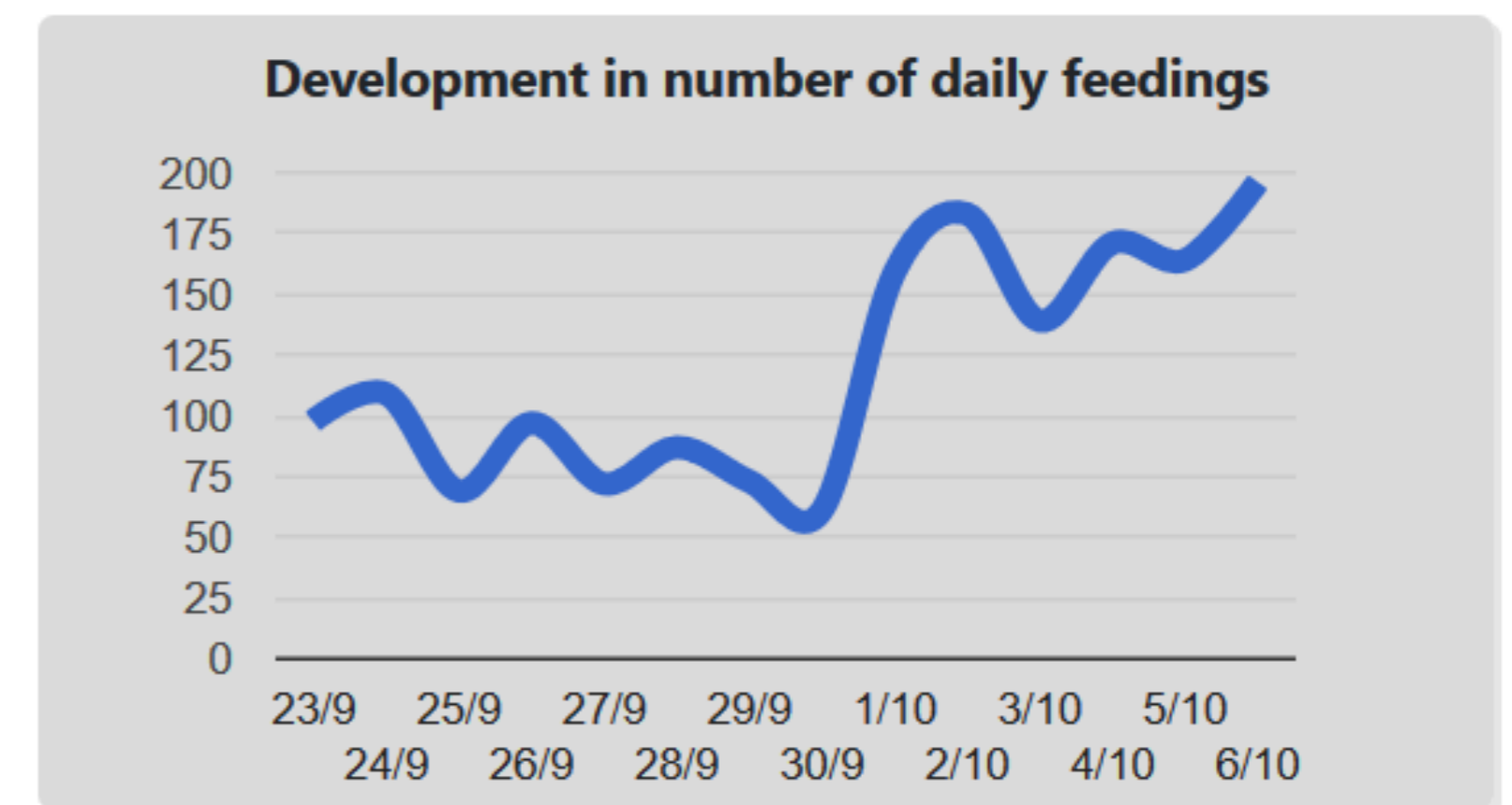
- Data from use of the system at one farm during one month – app. 42,000 data records – was analysed.
- All cows in the herd, with a few exceptions, were visiting the feeders.
- The average consumption for cows with access to eat up to 100 gram of mineral feed supplements per day was app 70 gram per day.



USER EXPERIENCE

Testbed hosts are giving feed-back to improve the system:

- The quality of user instructions and guidelines
- The design of the feeders.
- Functions of the Pitstop+ Manager app, e.g. adding a curve to follow the total number of daily feedings so the testbed hosts better can understand which event in the production that influence the use of the Pitstop+ system.

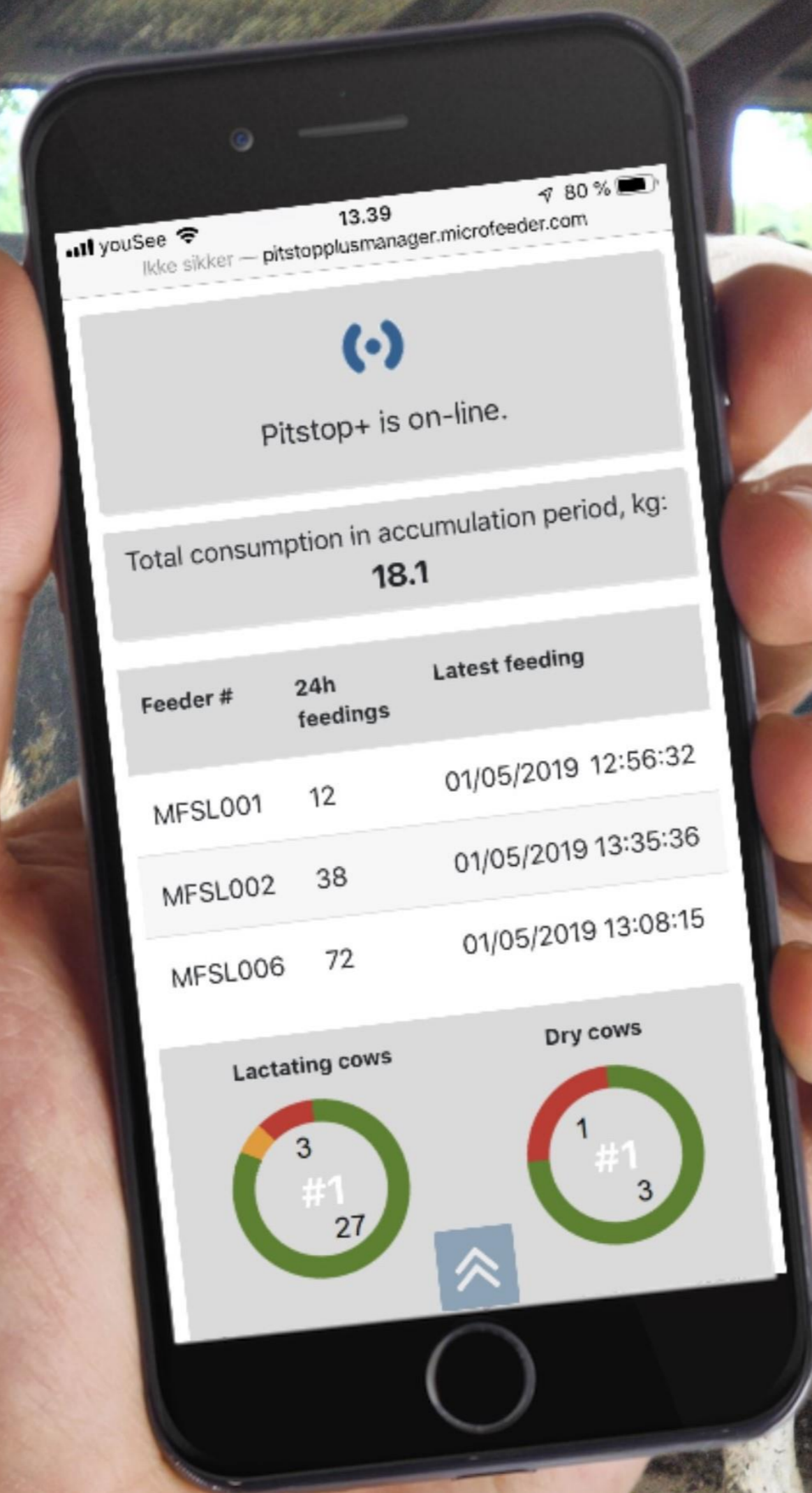


Follow us at

<https://www.iof2020.eu/trials/dairy/precision-mineral-feeding>

<https://www.pitstopplus.eu>

<https://www.organe.dk/>



We will change the way dairy cows are supplemented with mineral feeds