

Kinetic assessment of the impact of a linseed-rich diet on a milk FT-MIR-based herbage intake indicator

K. Dichou, D. Veselko, A. Marvuglia, H. Soyeurt



General workflow

- Grazing calendars
- Certification
- Labels



120 Days

150 Days

180 Days

General workflow

- Grazing calendars
- Certification
- Labels

Bulk Tank Milk
FT-MIR spectral
predictions



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Grazing
indicator

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Herbage
consumption
indicator

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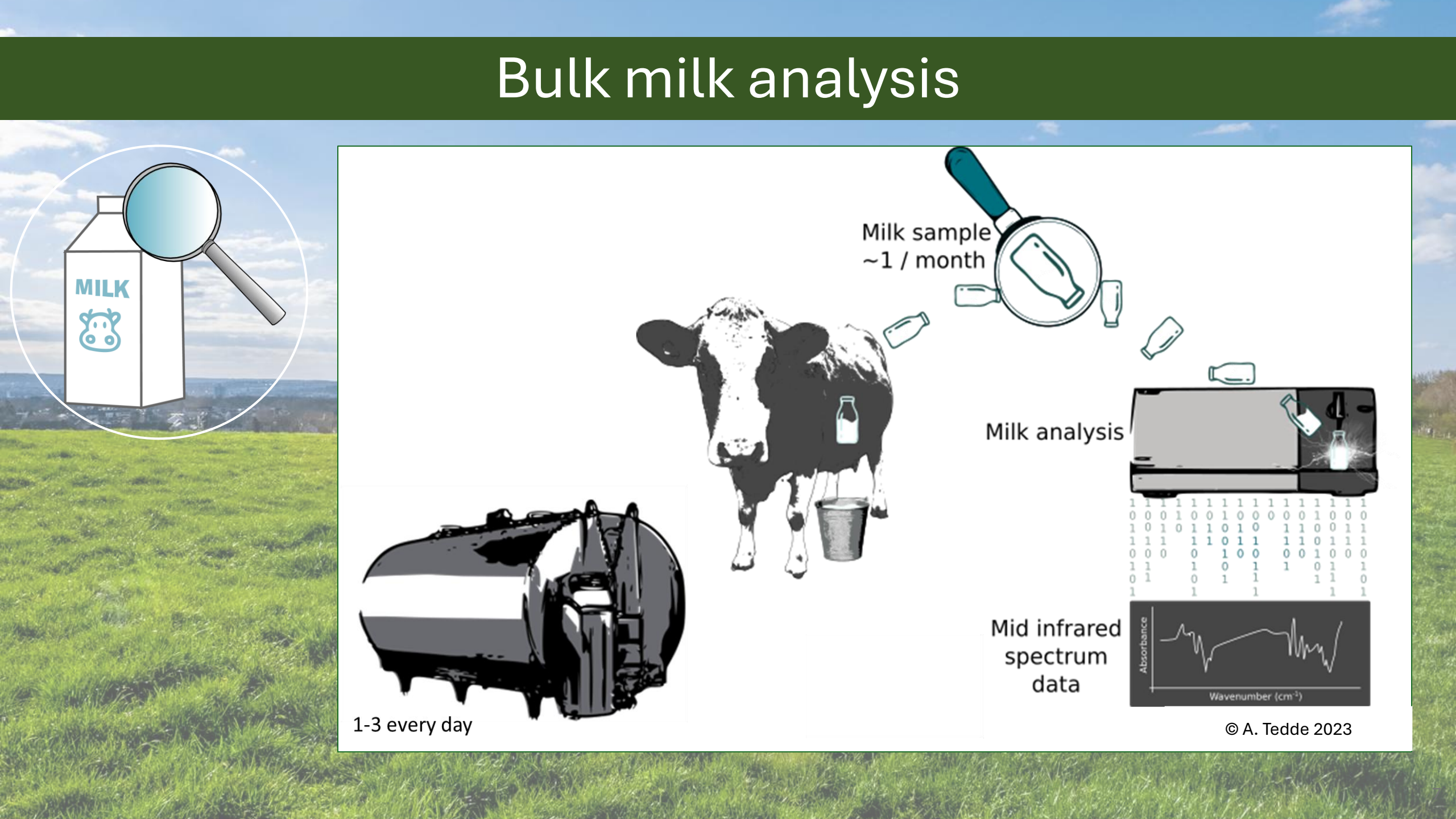
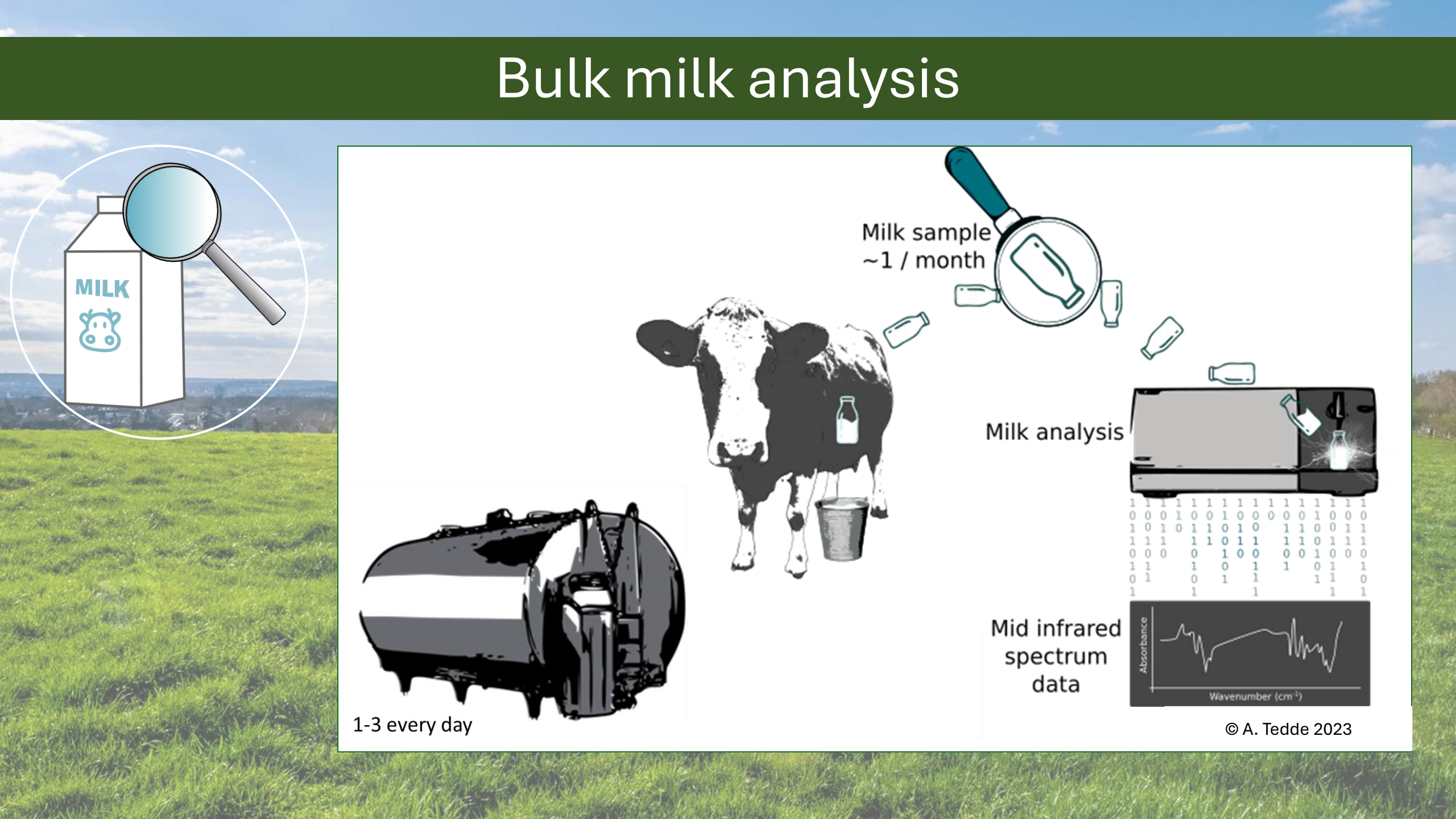


Bulk milk analysis

The diagram illustrates the process of bulk milk analysis, showing the flow from milk collection to analysis and data processing.

- Milk Collection:** A black and white striped milk tanker is shown, labeled "1-3 every day".
- Milk Sample Collection:** A cow is shown with a milk bottle attached to its udder, labeled "Milk sample ~1 / month".
- Milk Analysis:** A magnifying glass is shown over a milk bottle, labeled "Milk analysis".
- Mid Infrared Spectrum Data:** A graph showing "Absorbance" vs "Wavenumber (cm⁻¹)" is shown, labeled "Mid infrared spectrum data".
- Data Processing:** A binary code (0s and 1s) is shown, representing the digital data output.

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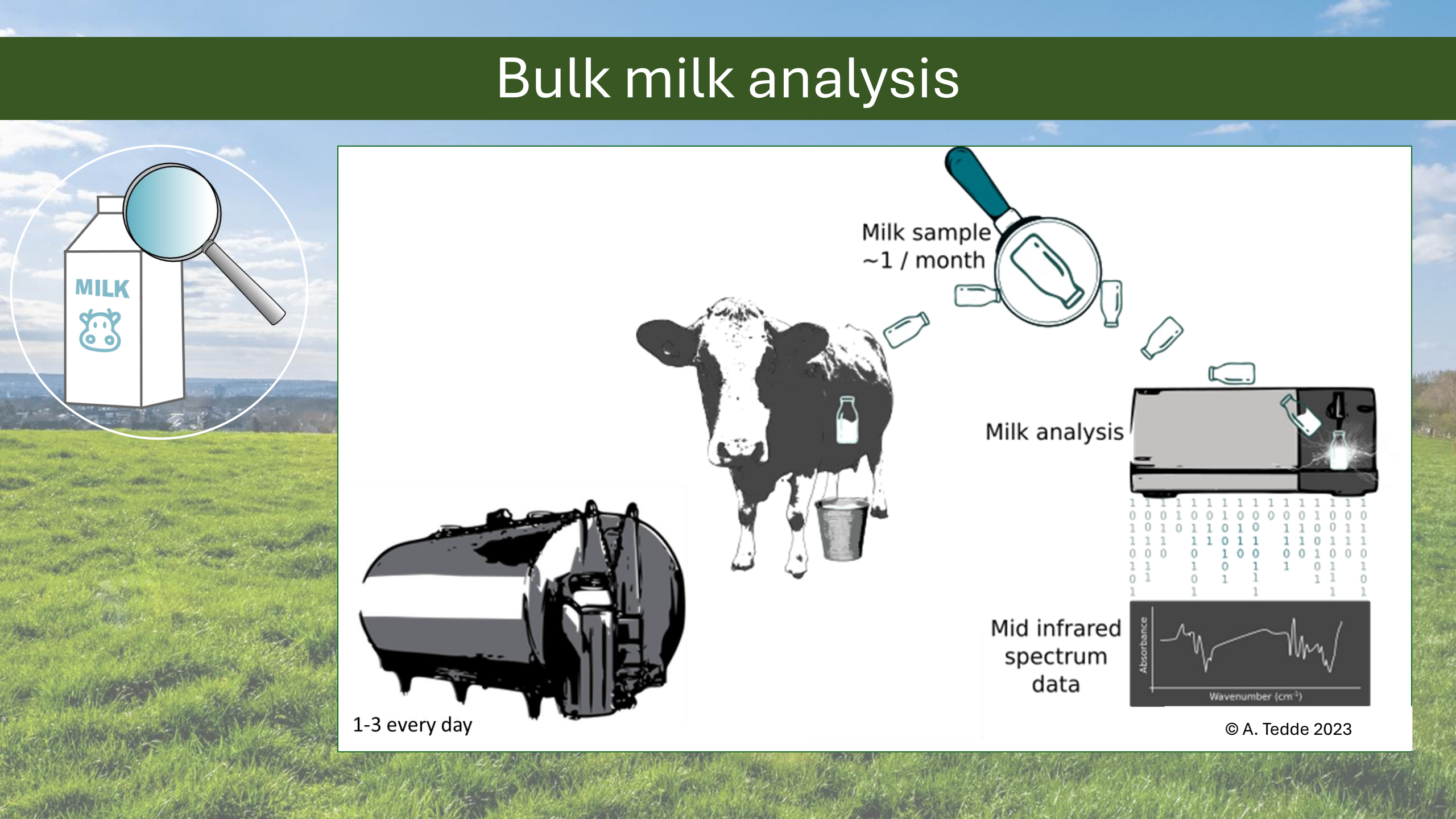


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Bulk milk analysis

The diagram illustrates the workflow for bulk milk analysis, set against a background of a green field and a blue sky. The process is divided into several stages:

- 1-3 every day:** A large black and white striped milk tanker is shown, representing the daily collection of milk.
- Milk sample ~1 / month:** A cow is shown with a small milk bottle attached to its udder, indicating the collection of a monthly sample.
- Milk analysis:** A magnifying glass is shown over a milk bottle, symbolizing the analysis of the sample.
- Mid infrared spectrum data:** A graph showing Absorbance versus Wavenumber (cm^{-1}) is displayed, representing the spectral data used for analysis.

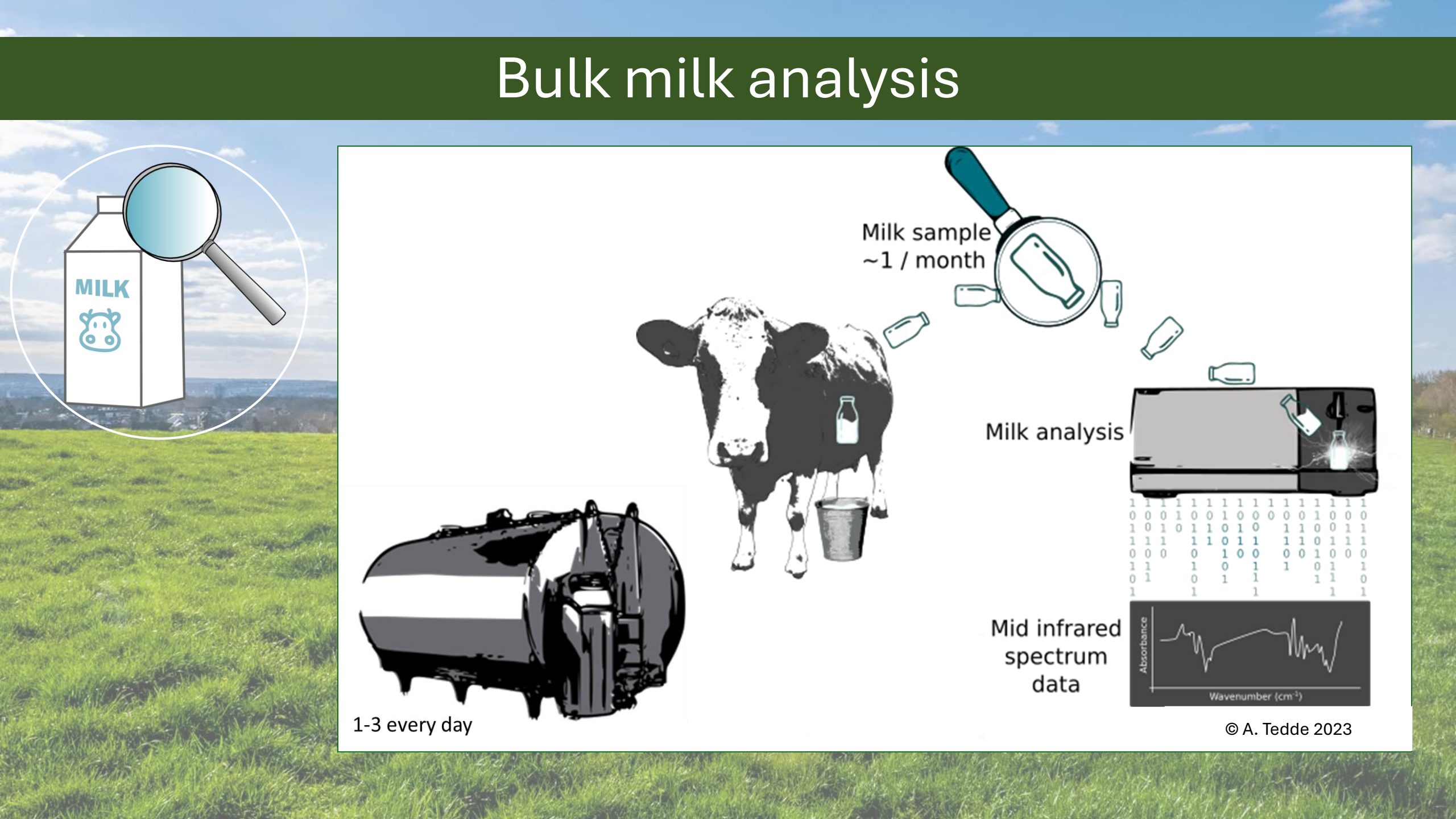
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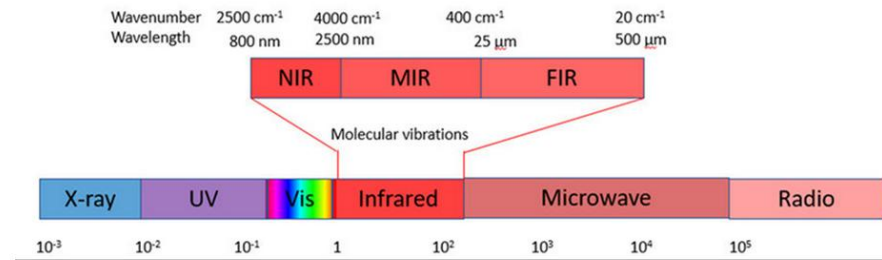
Bulk milk analysis



Milk analysis

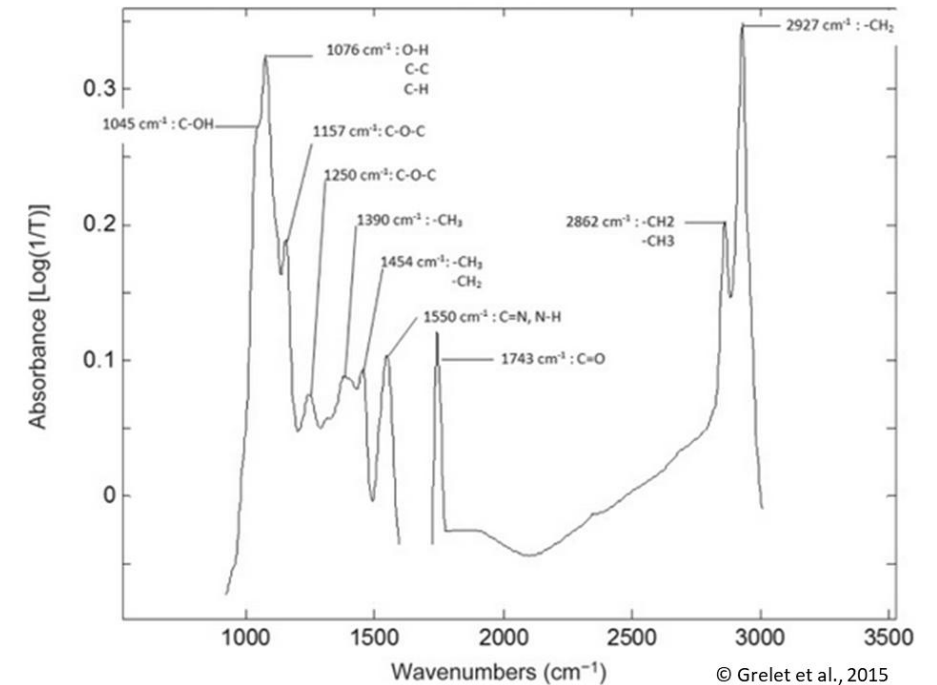


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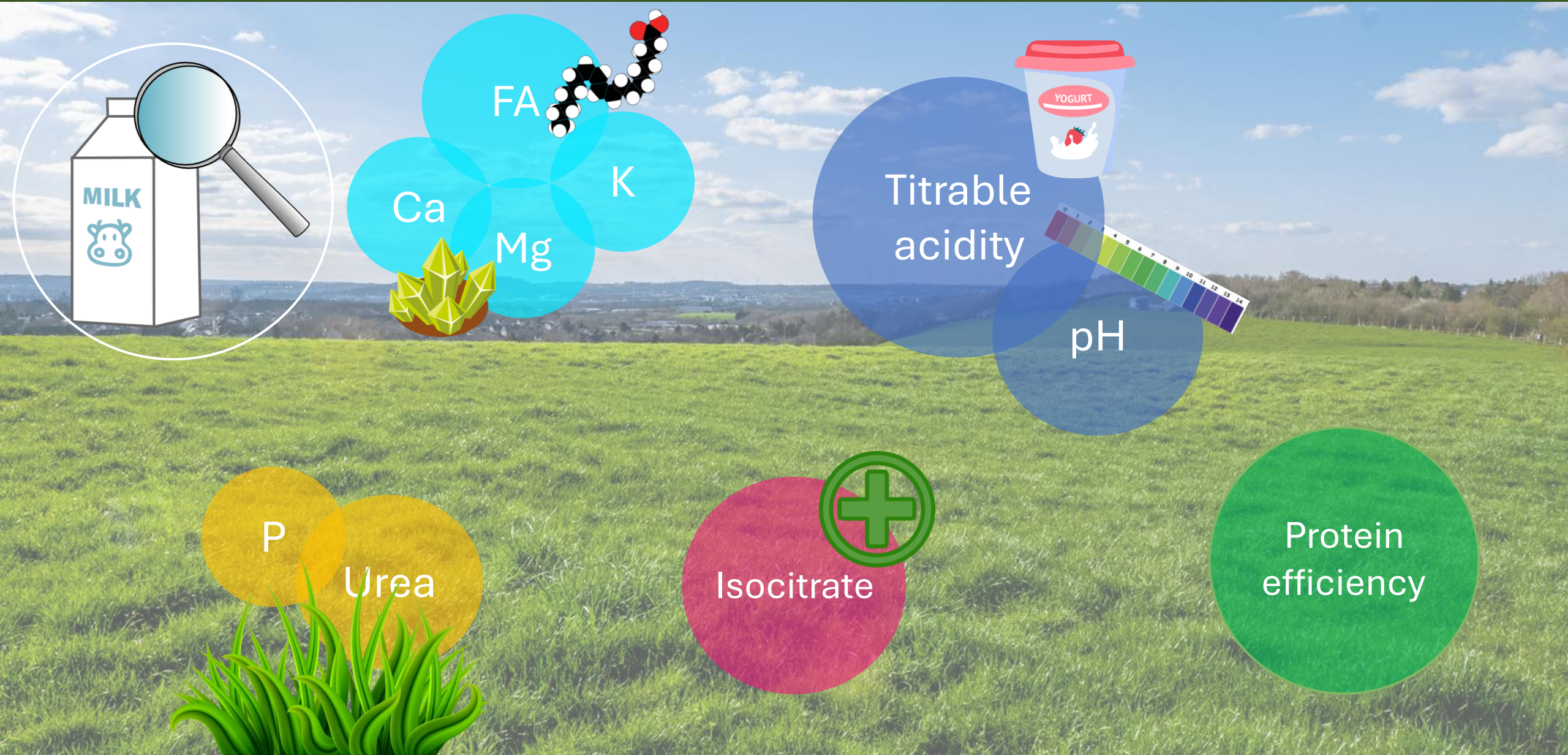


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MIR spectra
=
Absorption of infrared
radiation at frequencies
associated with the
vibrations of specific
chemical bonds.



Herbage indicator



Herbage indicator



Modeling feed herbage proportion and modeling of the likelihood of feeding strategies focused on grazing and herbage consumption using milk Fourier-transform mid-infrared spectral analysis

Killian Dichou ¹, Charles Nickmilder ², Gérard Conter ³, Romain Reding ⁴, Antonino Marvuglia ⁵,
Hélène Soyeurt ²

Affiliations + expand

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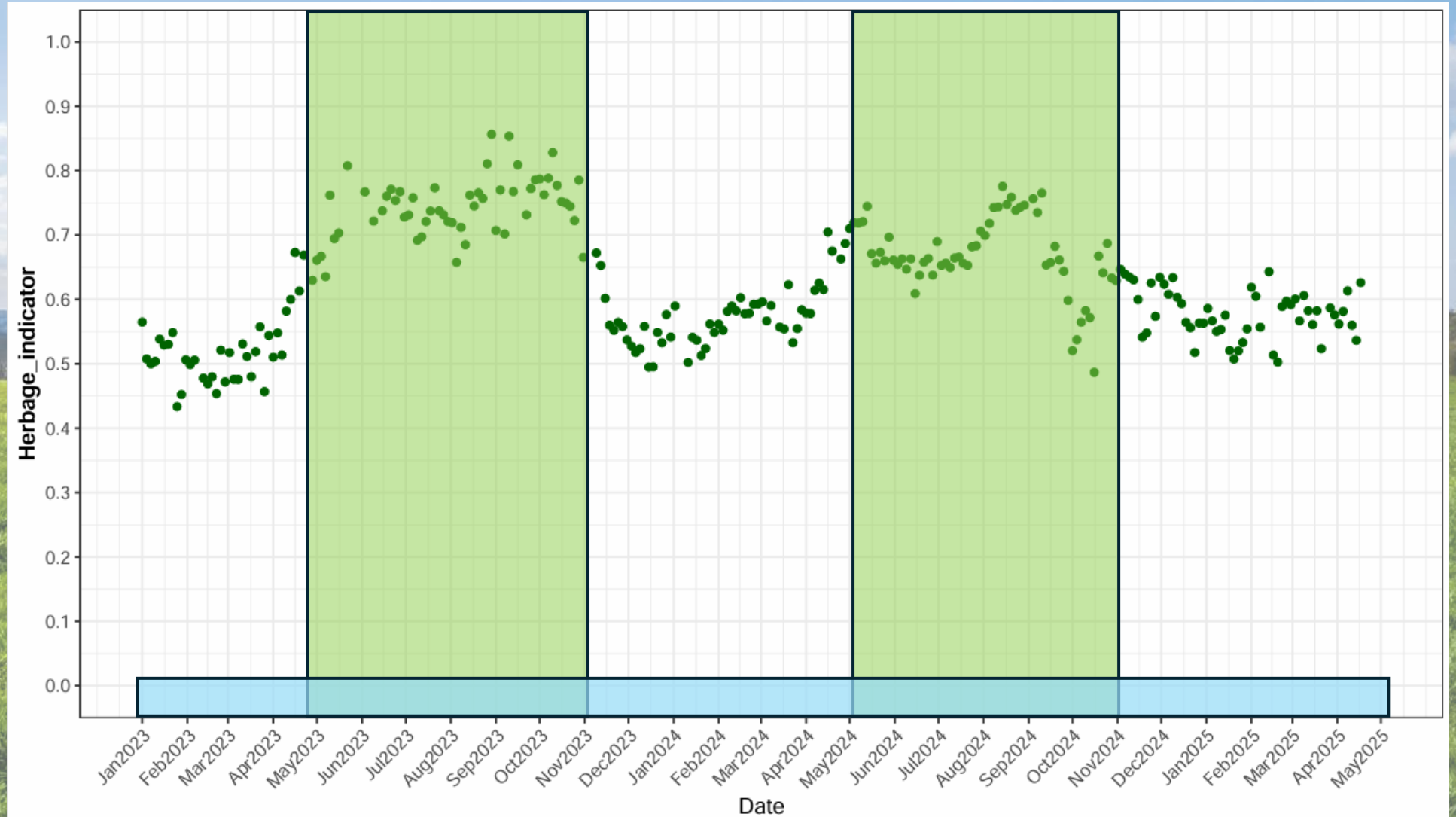
Grazing
indicator

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Added linseed to the diet - results



Added linseed to the diet - data



2,445 bulk tank milk analyses

8 farms

2023-2024



148 bulk tank milk analyses aggregated by months

grazing vs not grazing

indicator :
 $0,17 \pm 0,03$

31 bulk tank milk analyses aggregated by months

linseed vs no linseed

indicator :
 $0,12 \pm 0,01$

Added linseed to the diet - perspectives



Conclusion

- Pasture dynamics still clear
- Overall effect of the intake on the signal



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- SIMBA project, F.R.S-FNRS (Belgium), [T.0221.19]

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