

SmartCow

an integrated infrastructure for increased research capability and innovation in the European cattle sector

Methane emission, microbiome and immune function in dairy cattle

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Outline

- How did you hear about the TNA program?
- How was the preparation of the project and its realization with the RI?
- What are the conditions for the TNA project to run smoothly and are there any points to improve in the future in the process?
- What scientific breakthrough did the TNA project allow you to achieve that you would not have been able to achieve without this opportunity?

How did you hear about the TNA program?



- Prof. Cornelia Metges introduced the SmartCow Project at the Annual Meeting of the German Society of Nutrition Physiology (GfE)



- PD Dr. habil. Björn Kuhla informed that the call opened for submissions

How was the preparation of the project and its realization with the RI?

- Prepare: Discussed ongoing/planned trials and capacity for new trials with dairy cows at the host institution, animal experimentation permits and feasibility to collect blood and rumen fluid samples.
- Realize: Planned and actual research deviated slightly:

	Planned	Actual
Holstein dairy cows	N=16	N=20 early, N=14 end
Lactation	3rd, peak & end (repeated measures)	2nd/3rd/4th

What are the conditions for the TNA project to run smoothly and are there any points to improve in the future in the process?

- Good communication enables the TNA project to run smoothly
- Improve: Maybe less than 4 reports (report 0,1,2,3) for a 1-y project, e.g. 2 reports (mid-term, final)

What scientific breakthrough did the TNA project allow you to achieve that you would not have been able to achieve without this opportunity?

- Microbiome differed more between early and end lactating cows than between low and high CH₄/DMI yielders within lactation stage.
- Higher CH₄/DMI = higher ECM/DMI, additional energy through higher fermentation activity (higher CH₄/DMI, distinct microbiome) improved both immunocompetence and feed conversion efficiency during energetically demanding early lactation.

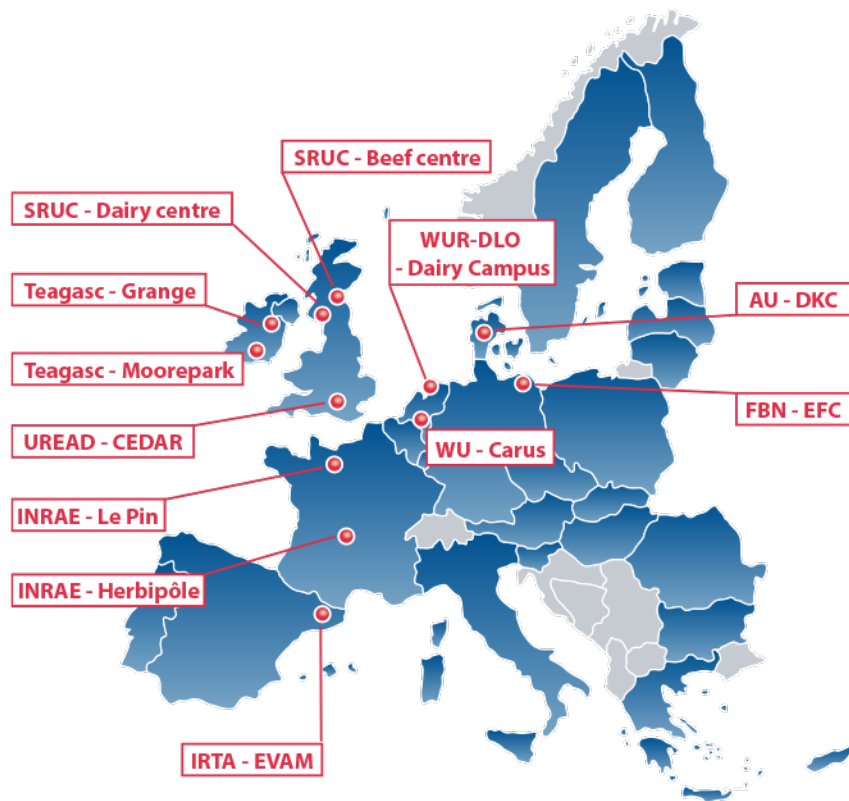


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Invited
lecture



Thank you for your attention



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- 11 major RIs distributed in 7 EU countries
- 12 locations, which include 18 installations
- 2500 dairy and 1000 beef cows
- **Networking of RIs** to inventorize resources, harmonize procedures, and share data
- **Joint research activities** to improve experimental methods and phenotyping capability
- **Interaction with stakeholders** to stay in line with industry needs and improve dissemination

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