Federal Office for Agriculture and Food

Group 1

1a. Production Technology & Management – Ruminants

- Including housing, manure and range management
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Challenges

- Enteric methane: Improve efficiencies BUT also need silver bullet.
- **Uptake of strategies: existing and new tech wider societal acceptability**
- Functional land use : what is the appropriate scale
- How to manage intensification
- **Inventories: reflecting mitigation stocks vs EF vs geography vs timing: verification of emissions reduction and C sequestration**
- **Animal health**
- **Manure management: tradeoffs**
- Reducing crop inputs
- Grazing management
- **Fundamental understanding of rumen manure and soil nutrient cycling**

Strategies

- Enteric methane in confinement systems : can you filter it?
- Nitrification inhibtors: Targeted delivery
- Biological nitrifcation inhibition
- Use of remote sensing to identify urine patches and areas of high and low N
- Better understanding of rumen, manure and soil microbiomes inorder to develop vaccines etc
- Precision feeding based on sensing milk prodn in real time
- Use sensors of increase efficiency
- Link between feed efficiency and manure quality
- Targeted and representative network of long term sites for C and N cycling
- AD (Biogas/biomethane) but tradeoff with ammonia need post processing
- Flare off methane from MM
- Acidification
- Crusts and oxidizing layers in manure

Research Questions

- Can we develop housing systems that are good for the environment and animal welfare – what AW requirements do we want?
- **Better understanding knowledge of rumen microbiome, soil microbiome, manure microbiome**
- **Thematic area: Strategies to improve inventories**
  - How to best share experience
  - Methodologies
- **Optimisation of whole farm/sector "sustainability" and validation**
- Validation of sensing as proxies for losses, efficiency, SOC sequestration
- Housing – better EFs and mitigation
- Can we develop farm level MRV?
- Precision farming
- Feed chain – impact of feed quality across whole chain
- Improving pasture sustainability (use of sensing)
- Inhibitors
- Quantifying fate of N
- High throughput low-cost technologies
- Characterising soil characteristics
- Drainage – impacts on nutrient cycling
- **Thematic area – farmer uptake and wider societal impacts**