Effect of housing system and season on methane and carbon dioxide concentration in a dairy cow barn

M. Bric, M. Podgornik Milosavljević, T. Perčič, S. Rogina, M. Klopčič

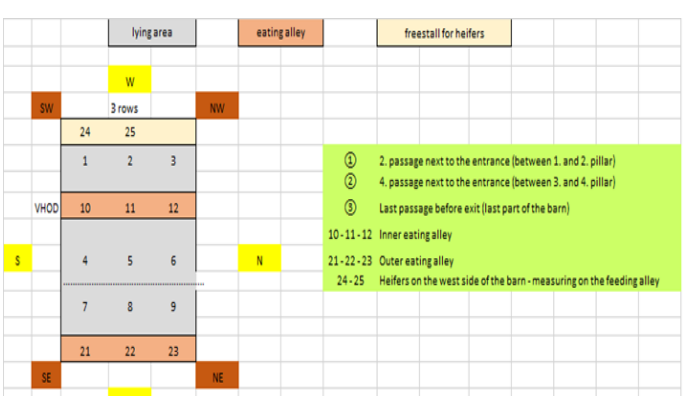
University of Ljubljana, Biotechnical faculty

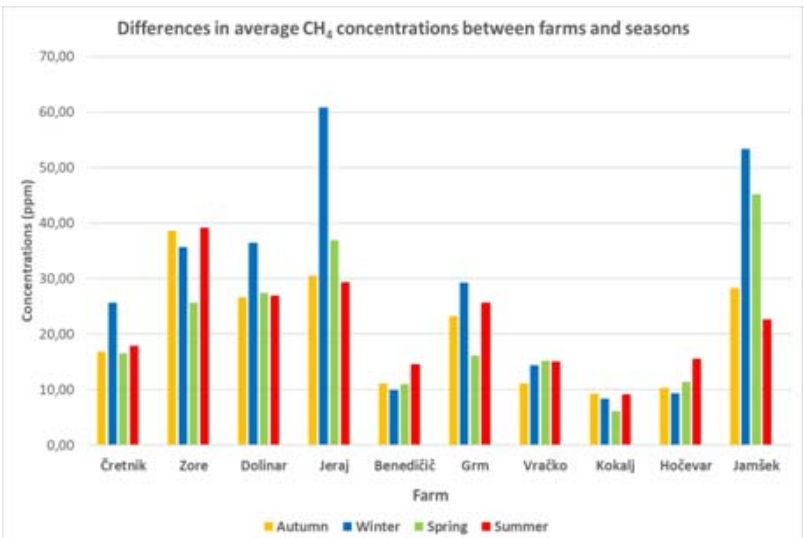
AIM OF THE STUDY:

To determine the effect of housing system and seasons on the concentration of methane and carbon dioxide in dairy cattle barns

MATERIAL AND METHODS:

- CH_4 and CO_2 concentration measurements on ten dairy farms with different housing systems
- Gasmet GT5000 Terra, TESTO 435
- July 2022 - October 2023





RESULTS AND DISCUSSION

- 4.633 measurements in total
- **Differences between individual farms and seasons**
- Lowest concentrations: CH_4 in **compost bedded pack barn** and CO_2 in **deep straw barn**
- Highest concentrations CH_4 and CO_2 in **tied housing system**
- Higher concentrations of CH_4 and CO_2 in **winter months**
- Higher concentrations of CH_4 and CO_2 in more **closed barns**
- A **correlation coefficient of 0.755** between CH_4 and CO_2 concentrations → Changes in CH_4 concentrations closely associated with changes in CO_2 concentrations.