METHANE CONCENTRATION PHENOTYPES OF DAIRY COWS MEASURED IN AUTOMATIC MILKING SYSTEMS

PO129

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Introduction

- Reduction of methane (**CH_4**) production of dairy cows through breeding requires data on many individual animals.
- Measuring CH_4 in automatic milking systems (**AMS**) can be used to obtain such data.

Aim

Explore CH_4 concentration phenotypes that can be used to perform genetic analyses on CH_4 production of dairy cows.

Material and methods

- CH_4 and CO_2 were measured twice per second in AMS with Fourier Transformed infrared sensors.
- Data were available of 67,553 AMS visits on 942 cows on 8 farms.
- Four phenotypes were calculated per AMS visit based on CH_4 and CH_4 and CO_2 ratio.
- Animal model with fixed effect for day-AMS, lactation stage and hour of day.
- Repeatability: $\sigma^2_{animal} / \sigma^2_{animal} + \sigma^2_{error}$

Conclusion

- There is large variation present in the four methane concentration phenotypes.
- Mean and median of CH_4 had higher repeatabilities than the ratio phenotypes.

Results

CH_4 concentration phenotypes	CV	Repeatability
CH_4 mean	106%	0.32
CH_4 median	105%	0.24
Mean ratio (CH_4/CO_2)	68%	0.10
Ratio (mean CH_4 / mean CO_2)	89%	0.09

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