Seasonal variation in fatty acid contents of cow milk from indoor and pasture-based feeding

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Introduction

The objectives of this study were to determine the effects of two different feeding systems on the fatty acids (FA) composition in the milk and to investigate the development of the different FA during the year.

Materials and methods

Pasture-based :

- Day and night pasture with restricted concentrate feed of 290 kg cow^{-1} y^{-1}
- Calving season between February and April
- Ø milk production: 5800 kg cow^{-1} y^{-1}
- 28 cows

Indoor feeding:

- Mixed ration of grass and maize silage as well as a supplementation of concentrates of 1135 kg cow^{-1} y^{-1}
- Calving season mainly between June and September
- Ø milk production: 8407 kg cow^{-1} y^{-1}
- 24 cows

Surface: 13 ha per variant
Monthly tank milk samples for FA composition

Conclusions

- Milk from grazing cows contained less saturated and more mono- and poly-unsaturated FA than milk from cows fed conserved forage and a higher supplementation of concentrates.
- Milk from grazing cows had higher amounts of CLA and omega-3 FA in comparison to milk from cows fed conserved forage and a higher supplementation of concentrates.
- CLA and omega-3 FA increased during the grazing season from March to September.

Results

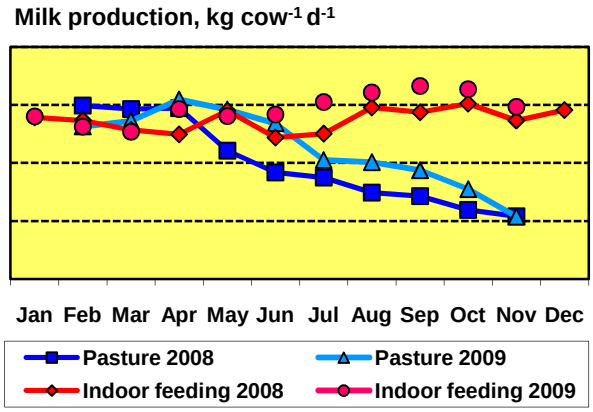

Figure 1. Evolution of the average milk production

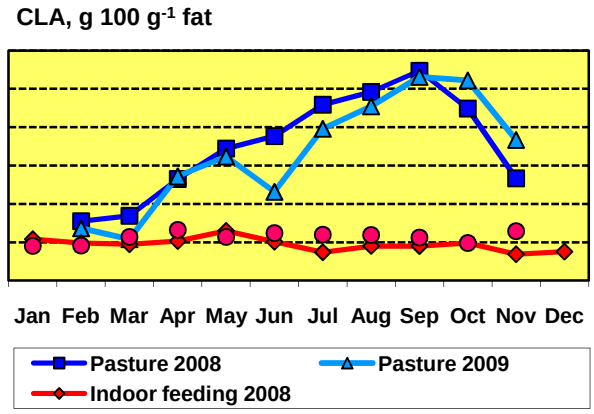

Figure 2. Evolution of the conjugated linoleic acids

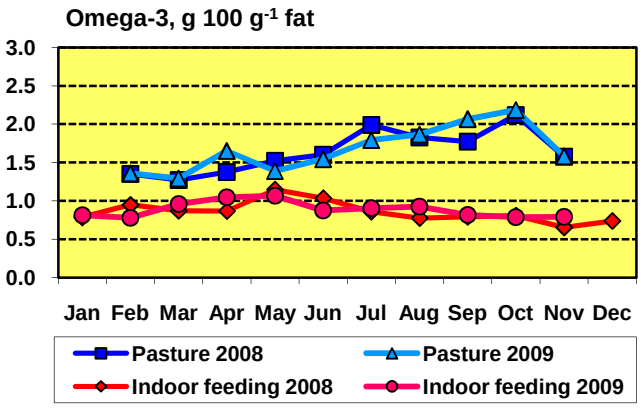

Figure 3. Evolution of the Omega-3 fatty acids

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