

# Rumen fermentation and milk fat composition of dairy cows fed linseed and hay or fresh grass



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## Introduction

- ✓ Fresh grass and linseed are rich in linolenic acid (18:3n-3).
- ✓ Rumen micro-organisms effectively biohydrogenate unsaturated fatty acids.
- ✓ In grass 18:3n-3 is predominately bound to glycolipids and in linseed to triacylglycerols.

**Does the lipid source affect the transfer rate of 18:3n-3 into the milk ?**  
**Do the feedstuffs affect rumen fermentation ?**

## Material and Methods

### Animals

- 6 multiparous ruminally cannulated Brown Swiss cows
- Milk yield: 19.1 ± 3.7 kg/d
- Days in milk: 150 ± 8



### Experimental design

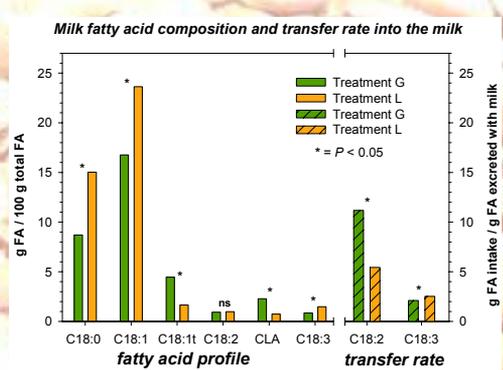
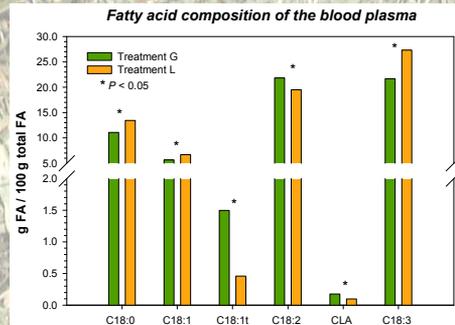
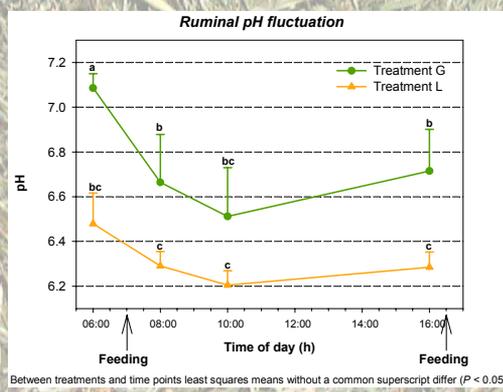
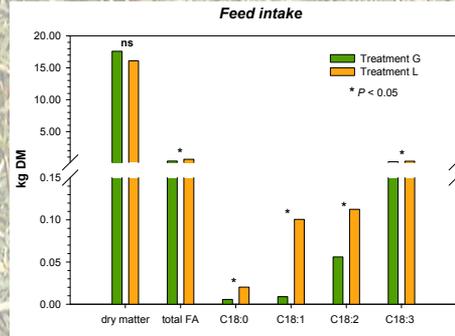
- Cross over design
- 16 d adaptation period and 5 d data collection period

Treatment	G	L
Fresh grass	60-70 kg/d	
Linseed		1.6 kg/d
Hay		9.0 kg/d
Mineral feed	300 g/d	300 g/d

### Fatty acid composition (% of total fatty acids)

	Linseed	Hay	Fresh grass
16:0	5.9	18.4	12.0
18:0	3.4	1.7	1.4
18:1	18.5	4.0	2.2
18:2n-6	16.5	18.9	14.2
18:3n-3	54.9	56.9	69.0

## Results



## Summary

- ⇒ Treatment G increased ruminal pH compared to treatment L.
- ⇒ The CLA concentration and the transfer rate of 18:2n-6 but not of 18:3n-3 was higher in treatment G compared to treatment L.