CHANGES ON MILK FATTY ACID COMPOSITION IN COW´S MILK AFTER SUPPLEMENTATION

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INTRODUCTION Many dietary factors, which affect conjugated linoleic acid (CLA) in milk fat have been researched over the last years all over the world. It is now possible to modify milk fatty acid composition through changes on the ration of dairy cows and as a result unsaturated fatty acids showed a substantially increase.

The CLA has several associated health promoting attributes including anti-carcinogenic, growth promotion and anti-obesity activities.

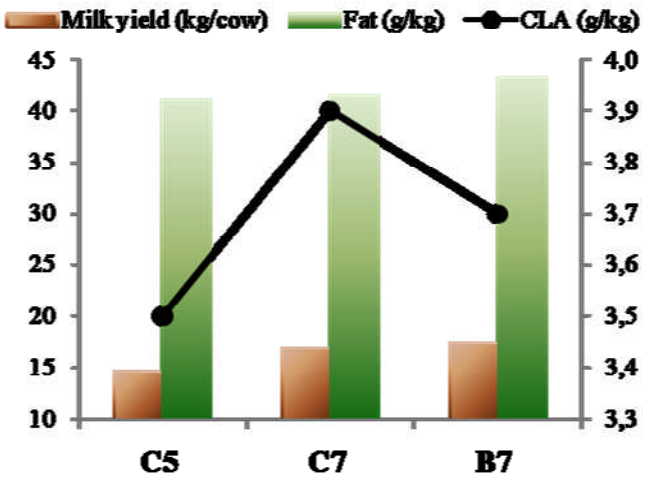
MATERIALS AND METHODS The experiment was carried out in autumn (70 days). Thirty-six Holstein-Friesian dairy cows (mean calving date, 19 February) were balanced and randomly assigned to one of two levels of concentrate (5 or 7 kg/cow/day). Two different feeding systems were examined cotton (C5 or C7) and barley (B7).

Milk yield was recorded daily and milk profile, including fatty acid composition and CLA content were determined weekly by gas chromatography. A data analysis was performed using SPSS 15.0.

OBJECTIVE The effect of supplementation with oilseeds (cotton) compared to cereal grains (barley) at two levels of concentrate was studied in order to establish differences between milk fatty acid composition and CLA in milk fat of spring calving dairy cows maintained in three confinement systems.

RESULTS AND DISCUSSION

	Milk fatty acids		
(g/kg)	C5	C7	B7
C6:0	$20.7^{a} \pm 1.6$	$22.1^{b} \pm 1.7$	$21.6^{b} \pm 1.7$
C8:0	$11.8^{a} \pm 1.2$	$12.4^{ab} \pm 1.1$	$12.6^{b} \pm 1.3$
C10:0	$25.8^{a} \pm 2.1$	$26.8^{ab} \pm 2.5$	$28.1^{b} \pm 3.4$
C12:0	$29.6^{a} \pm 2.3$	$30.6^{ab} \pm 2.7$	$33.3^{b} \pm 4.4$
C14:0	$100.2^{a} \pm 4.4$	$105.5^{b} \pm 5.8$	$104.6^{ab} \pm 7.1$
C16:0	$332.1^{ab} \pm 18.6$	$329.4^{b} \pm 14.4$	$337.7^{a} \pm 18.9$
C18:0	$76.6^{ab} \pm 11.7$	$84.1^{b} \pm 12.9$	$67.3^{a} \pm 8.7$
C18:1	$173.5^{a} \pm 21.1$	$180^{a} \pm 16.3$	$173.4^{a} \pm 18.3$
C18:2	$19.6^{a} \pm 2.3$	$23.7^{b} \pm 2.5$	$21.1^{a} \pm 1$
C18:3	$2.4^{a} \pm 0.1$	$2.6^{b} \pm 0.2$	$2.7^{b} \pm 0.3$



-There were significant differences in milk yield for treatments (C5: 14.6, C7: 16.9 and B7: 17.4 kg/day, respectively). Fat and protein were significantly higher in the B7 than in the cotton treatments.

- Saturated fatty acids, lauric and palmitic, decreased in both cotton treatments and stearic increased..

- Linoleic acid was significantly higher in the C7 than in the B7 (23.7 and 21.1 g kg^{-1}, respectively).

- It was showed that with high levels of cotton, CLA was higher (C7: 3.9 *vs* B7: 3.7 g/kg, in milk fat).

CONCLUSIONS Milk fatty acid composition is influenced by changes on the ration of dairy cows.

1. The linoleic acid increased significantly with 7 kg/cow/day of concentrate based on cotton.

2. The CLA content, in milk fat, was higher in cotton than barley at the same level of supplementation.

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