Effects of n-3 fatty acid sources on milk fatty acid profile, and milk fat properties in dairy cows

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Supplementary Table S1 *Mean values of the four groups of dairy cows during pre-experimental period (ELB: addition of extruded linseed by-product, ALG: addition of DHA Gold® and ELB/ALG: addition of DHA Gold®/extruded linseed by-product mixture)*

	CTRL	ELB	ALG	ELB/ALG
Milk yield, kg/d	33.4 ± 5.5	33.5 ± 5.7	33.5 ± 5.9	33.4 ± 5.4
Fat content, %	3.55 ± 0.36	3.78 ± 0.37	3.73 ± 0.36	3.73 ± 0.44
Protein content, %	2.87 ± 0.10	2.85 ± 0.15	2.89 ± 0.18	2.87 ± 0.18
Lactation stage, d	99 ± 20	99 ± 18	100 ± 16	100 ± 20
Dry matter intake, kg/d	22.3 ± 3.3	21.8 ± 2.9	22.0 ± 4.2	22.6 ± 3.4
Monounsaturated FA[1], %	30.3 ± 1.4	30.3 ± 2.8	29.7 ± 3.1	31.2 ± 2.8
Polyunsaturated FA[1], %	3.8 ± 0.3	3.9 ± 0.6	3.8 ± 0.4	4.0 ± 0.2

[1]FA = fatty acid

Supplementary Table S2 *Chemical composition and nutritional value of feeds*

Item, g/kg of DM unless noted	Maize silage	Energy concentrate[1]	Soybean meal 48	Extruded Linseed byproduct[2]	DHA Gold®	DHA Gold®/ Extruded Linseed by-product[3]	Urea	Minerals
DM, %	33.7	89.4	88.6	91.0	98.0	91.6	100	100
NE_L[4], MJ/kg of DM	6.33	7.62	8.26	9.96	12.88	9.61	0	0
CP	67	117	503	198	121	182	2 875	0
Organic matter, g/kg	964	945	932	956	898	948	0	0
NDF	399	225	141	296	11	262	0	0
ADF	218	89	65	99	3	91	0	0
Starch	247	466	36	78	1	78	0	0
PDIE[5]	63	106	398	168	49	114	0	0
PDIN[6]	41	81	429	163	86	133	1 472	0
Ca	1.8	3.4	3.8	1.6	0.4	1.5	0	270
P	1.7	3.9	6.8	7.8	10.0	9.0	0	55
Fat	34	40	20	277	622	283	0	0
n-3 FA[7]	3.74	1.60	1.60	147.42	298.56	144.33	0	0
18:2	15.64	21.78	10.56	53.67	2.92	42.11	0	0
18:3, ALA[8]	3.19	1.28	1.57	144.74	0.43	104.25	0	0
20:5, EPA[9]	0.0	0.07	0.03	0.0	5.53	0.73	0	0
22:6, DHA[10]	0.05	0.0	0.0	1.64	280.8	37.89	0	0

[1] Energy concentrate on DM basis: 20% wheat, 20% maize, 20% barley,20% beet pulp, 15% wheat bran, 3% cane molasses, 1% vegetal oil, 1% salts

[2] Extruded Linseed by-product = 50% extruded linseed by-product, 50% wheat bran; Valorex, Combourtillé, France

[3] DHA Gold ® / Extruded linseed by-product = 37% extruded linseed by-product, 13 %DHA Gold® and 50% wheat bran; Valorex, Combourtillé, France

[4] NE_L = net energy for lactation

[5] PDIE = protein digested in the small intestine supplied by rumen undegradable protein and by microbial protein from rumen-fermented OM (INRA, 2007)

[6] PDIN = protein digested in the small intestine supplied by rumen undegradable protein and by microbial protein from rumen-degraded dietary nitrogen (INRA, 2007)

[7] FA = fatty acid

[8] ALA = alpha linolenic acid

[9] EPA = eicosapentaénoic acid

[10] DHA = docosahexaenoic acid

Supplementary Material S1

Samples were analyzed for DM, mineral matter (NF V17-101, 1977), crude protein (NF V18-100, 1977), NDF, ADF (Van Soest et al., 1991), starch (Thivend et al., 1965), organic matter, digestibility of organic matter (Aufrère et al.,1989), P (NF V18-106, 1977) and Ca (NF 18-108, 1984). The fat of samples was extracted with a mix of chloroform/methanol (v/v 2:1) according the method of Folch et al (1957). The methyl FA composition was determined by GC on fat obtained from the Folch method (1957) (7890 GC system, Agilent technologies, CA, USA).

References

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