

**Table S1** Nutrition levels, and fatty acid composition of MRs

Items	MR <sup>1</sup>		
	CON	CCO	PLO
Nutrition, g/kg DM <sup>2</sup>			
CP	254	259	252
EE	127	125	122
Ash	64	63	64
Ca	14	14	14
P	13	13	13
ME, Mcal/kg	4.82	4.80	4.87
Main fatty acids, g/100g MR <sup>3</sup>			
C12:0	0.55	4.90	0.04
C14:0	1.53	2.00	0.17
C16:0	4.15	1.22	6.72
C18:0	1.33	0.41	0.74
C18:1	2.33	0.95	4.19
C18:2, n-6	0.10	0.23	0.98
MCFAs	1.14	6.24	0.06
LCFAs	10.13	4.84	12.94
SFAs	2.88	1.19	5.22
UFAs	7.84	4.99	7.74
MUFAs	2.68	0.96	4.23
PUFAs	0.19	0.23	1.00

<sup>1</sup>MR=milk replacer; CON, only whole milk powder as fat source of MR; CCO, only coconut oil powder as fat sources of MR; PLO, only palm oil powder as fat sources of MR.

<sup>2</sup>DM = dry matter; CP = crude protein; EE = ether extract; NDF = neutral detergent fiber; ADF = acid detergent; Ca = calcium; P = total phosphate.

<sup>3</sup> MCFAs = total of medium-chain fatty acids (6- to 12-carbon FA); LCFAs = total of long-chain fatty acids (>12-carbon FA), SFAs= total of saturated fatty acids; UFAs = total of unsaturated fatty acids, MUFAs=total of monounsaturated fatty acids; PUFAs=total of polyunsaturated fatty acids.

**Table S2** The ingredient composition and nutrient profile of starter

Ingredients, g/kg	Content	Nutrients	Content
Extrude corn	100	CP, g/kg DM	236.3
Wheat flour	45	EE, g/kg DM	49.8
Soybean meal	250	NDF, g/kg DM	165.6
Extruded soybean	80	ADF, g/kg DM	67.8
Wheat bran	60	Ash, g/kg DM	76.9
Soybean molasses	70	Ca, g/kg DM	15.1
DDGS	50	P, g/kg DM	9.6
Glucose	20	ME, <sup>2</sup> Mcal/kg DM	4.50
Dried whey powder	30		
Limestone	22		
CaHPO <sub>4</sub>	5		
NaCl	8		
Premix <sup>1</sup>	10		

<sup>1</sup> The premix provided the following per kg of the starter: vitamin A 15 000 IU, vitamin D 5 000 IU, vitamin E 50 mg, Fe 90 mg, Cu 12.5 mg, Mn 60 mg, Zn 100 mg, Se 0.3 mg, I 1.0 mg, Co 0.5 mg.

<sup>2</sup> Calculated according to NRC (2001).

**Table S3** Effect of coconut oil or palm oil in MRs on rumen fermentation parameters of suckling calves

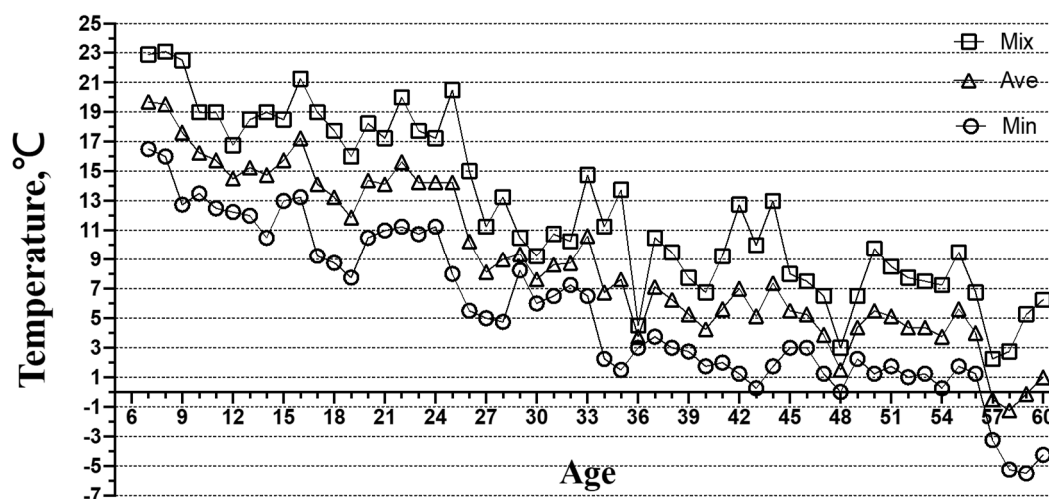
Items <sup>1</sup>	Treatment			SEM	P-value
	CON	CCO	PLO		
pH	6.60	6.31	6.39	0.082	0.349
NH <sub>3</sub> -N, mg/L	72.9	73.8	74.1	0.856	0.871
Total VFA, mM	81.6	84.7	84.4	3.275	0.691
Acetate, %	54.99	51.08	52.46	1.178	0.454
Propionate, %	28.55	31.46	31.38	1.425	0.688
Isobutyric, %	1.55	1.74	1.49	0.149	0.798
Butyrate, %	7.67	7.36	7.33	0.458	0.956
Isovaleric, %	3.27	3.95	3.26	1.309	0.723
Valerate, %	3.97	4.41	4.08	0.155	0.560
Acetate/Propionate ratio	1.98	1.70	1.71	0.112	0.562

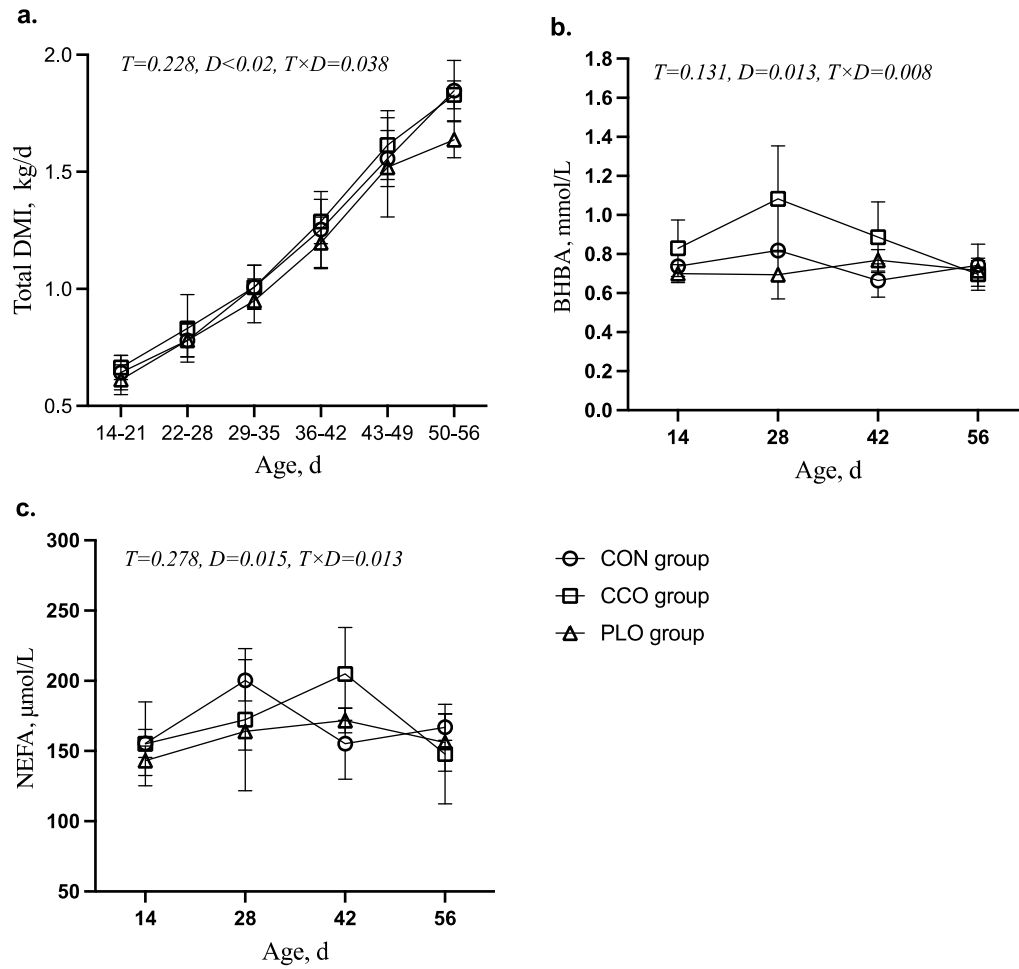
<sup>1</sup> NH<sub>3</sub>-N = ammonia; Total VFA = total volatile fatty acid.

**Table S4** Effect of coconut oil or palm oil in MRs on rumen digestive enzyme activities of suckling calves (per gram of true protein)

Items <sup>1</sup>	Treatments			SEM	P-value
	CON	CCO	PLO		
$\alpha$ -amylase, U/g	40.3	41.9	45.7	2.903	0.753
Neutral protease, U/g	75.0	75.6	80.2	1.804	0.459
CMCase, U/g	8.3	8.4	8.4	0.182	0.931
Xylanase, U/g	17.6	17.2	17.2	0.631	0.959
Lipases, U/g	15.3	15.6	15.1	0.453	0.876

<sup>1</sup> CMCase = carboxymethyl cellulose.

**Figure S1.** The maximum (Max), average (Ave), and minimum (Min) ambient temperature the daily during the trial. The average temperature of 9°C, ranging from -5 ~ 23°C.



**Figure S2.** **a.** Effects of different sources of fat on total DMI in suckling calves; **b.** Effect of different sources of fat on concentrations of serum BHBA in suckling calves; **c.** Effect of different sources of fat on concentrations of serum NEFA in suckling calves;  $T = p$ -value of treatment,  $D = p$ -value of age,  $T \times D = p$ -value of interaction between treatment and age