

## **Piglet birthweight and sex affect growth performance and fatty acid composition in fatty pigs**

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**Table S1.** Calculated analysis (g/kg, dry-matter basis) and fatty acid composition of the diets.

Item	Sow		Offspring					
	Gestation	Lactation	1st Prestarter	Prestarter	Starter	Growth 1	Growth 2	Finisher
Age			7-25 d-old	26-35 d-old	36-70 d-old	71-140 d-old	141-210 d-old	from 211 d-old
Calculated analysis <sup>1</sup>								
Net energy, Mcal kg <sup>-1</sup>	2217.0	2250.0	2300.0	2400.0	2400.0	2350.0	2400.0	2464.0
DM	899.9	894.9	894.5	895.4	895.6	894.5	899.4	906.1
Crude protein	140.0	160.0	150.0	157.8	165.0	156.0	142.5	125.0
Crude fat	26.1	36.6	40.0	40.0	40.0	31.5	42.0	57.0
Crude fiber	64.0	50.0	20.0	29.3	28.8	35.0	35.0	34.0
Nitrogen-free extracts	606.7	584.6	634.5	621.6	613.9	622.4	631.6	643.3
Ash	63.1	63.7	50.0	46.7	47.9	49.6	48.3	46.8
Fatty acids composition (g/100 g total FA)								
C14:0	1.12	0.80	0.73	0.73	0.78	1.04	0.66	0.91
C16:0	16.14	14.07	23.61	20.69	20.11	21.86	22.85	22.24
C16:1 n-9	0.04	0.03	0.11	0.18	0.21	0.31	0.18	0.16
C16:1 n-7	1.14	0.78	0.72	0.91	1.20	1.64	0.73	1.19
C17:0	0.41	0.43	0.43	0.61	0.52	0.52	0.54	0.48
C17:1	0.18	0.06	0.13	0.18	0.23	0.29	0.15	0.20
C18:0	5.78	3.42	5.86	5.18	6.02	7.70	4.61	7.07
C18:1 n-9	25.87	22.17	28.97	24.91	29.96	33.50	33.91	32.42
C18:1 n-7	1.12	1.10	0.85	1.30	1.40	1.21	1.51	1.39
C18:2 n-6	40.06	47.23	34.43	39.74	34.79	27.17	26.54	28.58
C18:3 n-3	4.54	5.06	2.54	3.32	2.81	2.47	4.38	3.15
C20:0	0.31	0.33	0.32	0.25	0.24	0.18	0.31	0.33
C20:1 n-9	0.47	0.40	0.50	0.70	0.72	0.84	0.89	1.01
C20:3n-6	0.16	0.13	0.11	0.09	0.13	0.17	0.06	0.11
C20:4 n-6	0.02	0.11	0.04	0.26	0.05	0.08	0.19	0.05
C20:5 n-3	0.91	1.34	0.02	0.25	0.19	0.10	0.15	0.20

C22:4 n-6	0.05	0.18	0.29	0.15	0.12	0.25	0.29	0.10
C22:5 n-3	0.20	0.18	0.10	0.18	0.18	0.43	1.63	0.15
C22:6 n-3	1.46	2.19	0.24	0.38	0.32	0.25	0.40	0.27
SFA	23.77	19.05	30.93	27.45	27.68	31.30	28.97	31.02
MUFA	28.82	24.54	31.29	28.17	33.71	37.79	27.38	36.37
PUFA	47.41	56.41	37.77	44.38	38.60	30.90	43.65	32.61

<sup>1</sup>According to De Blas *et al.* 2013 (g /kg of diet). Nitrogen-free extracts: DM-( ash + crude protein + crude fat + crude fiber).

FA= fatty acids, SFA = sum of saturated FA, MUFA = sum of monounsaturated FA, PUFA = sum of polyunsaturated FA.

**Table S2.** Fatty acids composition of longissimus dorsi muscle (g/100 g total fatty acids).

Item	n	Groups								RMSE	P-value					Int
		VLBIW		LBIW		MBIW		HBIW			Contrasts					
		Females	Males	Females	Males	Females	Males	Females	Males		1	2	3	4	5	
<b>Neutral Lipids</b>																
C14:0	232	1.54	1.51	1.50	1.47	1.51	1.51	1.46	1.44	0.14	ns	ns	ns	ns	0.02	ns
C16:0	232	25.51	24.48	25.72	24.28	25.96	25.71	25.39	24.06	2.23	0.01	ns	ns	ns	0.008	0.01
C16:1 n-9	232	0.20	0.20	0.20	0.22	0.22	0.21	0.22	0.21	0.04	ns	ns	ns	ns	ns	ns
C16:1 n-7	232	4.40	4.67	4.33 <sup>B</sup>	4.87 <sup>A</sup>	4.51	4.48	4.52	4.87	0.64	0.02	ns	ns	ns	t	ns
C17:0	232	0.14	0.15	0.14	0.15	0.12	0.14	0.12	0.15	0.05	0.03	ns	ns	ns	ns	ns
C17:1	232	0.18	0.19	0.18	0.21	0.15	0.17	0.15	0.20	0.06	0.01	ns	ns	ns	ns	ns
C18:0	232	11.25	10.81	11.23	10.34	11.02	11.07	10.98	10.41	1.08	0.02	ns	ns	ns	t	ns
C18:1 n-9	232	47.58	48.47	47.60	48.67	47.42	47.40	48.14	48.85	2.20	ns	ns	ns	ns	0.008	ns
C18:1 n-7	232	4.66	4.91	4.60 <sup>A</sup>	5.12 <sup>B</sup>	4.80	4.73	4.82	5.15	0.58	0.02	ns	ns	ns	0.004	0.02
C18:2 n-6	232	2.62	2.68	2.60	2.73	2.45	2.68	2.40	2.73	0.53	t	ns	ns	ns	ns	ns
C18:3 n-3	232	0.44	0.47	0.46	0.48	0.44	0.46	0.44	0.47	0.04	0.003	ns	ns	0.04	ns	ns
C20:0	232	0.20	0.19	0.19	0.20	0.17	0.19	0.16	0.18	0.05	ns	ns	ns	ns	ns	ns
C20:1 n-9	232	0.97	0.97	0.92	0.96	0.93	0.94	0.90	0.94	0.11	ns	ns	ns	ns	ns	ns
C20:3 n-6	232	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
C20:4 n-6	232	0.15	0.15	0.16	0.13	0.13	0.15	0.14	0.15	0.06	ns	ns	ns	ns	ns	ns
C20:5 n-3	232	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
C22:4 n-6	232	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
C22:5 n-3	232	0.09	0.10	0.11	0.11	0.11	0.11	0.09	0.11	0.04	ns	ns	ns	ns	ns	ns
C22:6 n-3	232	0.06	0.07	0.07	0.06	0.06	0.07	0.07	0.07	0.05	ns	ns	ns	ns	ns	ns
SFA	232	38.65	37.14	38.78	36.44	38.78	38.61	38.11	36.24	3.22	0.01	ns	ns	ns	0.01	0.02
MUFA	232	57.98	59.40	57.82	60.05	58.03	57.92	58.75	60.23	3.02	0.03	ns	ns	ns	0.007	0.02
PUFA	232	3.37	3.46	3.40	3.51	3.19	3.47	3.14	3.52	0.61	t	ns	ns	ns	ns	ns

Σn3	232	0.59	0.64	0.65	0.65	0.61	0.64	0.60	0.65	0.09	t	ns	ns	ns	ns	ns
Σn6	232	2.78	2.82	2.75	2.86	2.58	2.83	2.54	2.88	0.56	t	ns	ns	ns	ns	ns
Σn6/Σn3	232	4.68	4.52	4.33	4.38	4.27	4.46	4.28	4.48	0.82	ns	ns	ns	ns	ns	ns
IU	232	65.98	67.66	66.01	68.41	65.69	66.22	66.32	68.64	3.64	0.01	ns	ns	ns	0.02	0.03
MUFA/SFA	232	1.51	1.64	1.50 <sup>B</sup>	1.71 <sup>A</sup>	1.51	1.51	1.55	1.70	0.25	0.006	ns	ns	ns	0.01	0.008
C18:1/C18:0	232	4.72	5.05	4.67 <sup>B</sup>	5.36 <sup>A</sup>	4.79	4.76	4.86	5.30	0.76	0.02	ns	ns	ns	0.03	0.02

Item	n	Groups								RMSE	P -value					
		VLBIW		LBIW		MBIW		HBIW			Contrasts					Int
		Females	Males	Females	Males	Females	Males	Females	Males		1	2	3	4	5	
<b>Polar Lipids</b>																
C14:0	232	2.09 <sup>B</sup>	2.89 <sup>A</sup>	2.84	2.82	2.80	2.62	2.68	2.63	0.67	ns	ns	ns	ns	ns	ns
C16:0	232	19.62	18.52	18.76	17.94	18.62	18.53	18.72	18.21	1.50	0.02	ns	ns	ns	ns	ns
C16:1 n-9	232	0.32	0.31	0.30	0.40	0.31	0.30	0.31	0.34	0.14	ns	ns	ns	ns	ns	ns
C16:1 n-7	232	1.24	1.34	1.10	1.14	1.04	1.16	0.98	1.14	0.29	t	0.01	t	ns	ns	ns
C17:0	232	0.50	0.58	0.52	0.58	0.49	0.54	0.52	0.53	0.12	0.02	ns	ns	ns	ns	ns
C17:1	232	0.84	0.70	0.86	0.71	0.86	1.14	1.00	0.73	0.87	ns	ns	ns	ns	ns	ns
C18:0	232	9.59	9.20	8.88	8.93	8.92	9.11	8.86	8.78	0.75	ns	0.02	0.04	ns	ns	ns
C18:1 n-9	232	16.90	16.80	15.29	16.43	14.51	15.36	14.62	16.08	2.21	0.04	0.01	ns	ns	ns	0.003
C18:1 n-7	232	3.48	3.65	3.52	3.51	3.44	3.45	3.47	3.50	0.36	ns	ns	ns	ns	ns	ns
C18:2 n-6	232	27.86	28.43	29.46	28.96	29.92	29.44	30.16	29.71	2.22	ns	0.02	ns	ns	ns	ns
C18:3 n-3	232	0.54	0.57	0.54	0.56	0.54	0.55	0.54	0.54	0.09	ns	ns	ns	ns	ns	ns
C20:0	232	0.22	0.22	0.23	0.24	0.21	0.26	0.22	0.23	0.06	ns	ns	ns	ns	ns	ns
C20:1 n-9	232	0.38	0.38	0.32	0.36	0.30	0.34	0.33	0.34	0.10	ns	t	ns	ns	ns	ns
C20:3 n-6	232	1.28	1.33	1.32	1.32	1.38	1.29	1.26	1.37	0.18	ns	ns	ns	ns	ns	ns
C20:4 n-6	232	11.17	10.94	11.70	11.58	12.13	11.50	11.66	11.42	1.92	ns	ns	ns	ns	ns	ns
C20:5 n-3	232	0.47	0.50	0.47	0.51	0.52	0.49	0.49	0.49	0.08	ns	ns	ns	ns	ns	ns

C22:4 n-6	232	1.26	1.26	1.39	1.43	1.47	1.36	1.46	1.42	0.23	ns	0.009	0.04	ns	ns	ns
C22:5 n-3	232	1.36	1.51	1.59	1.64	1.63	1.60	1.73	1.63	0.33	ns	0.02	t	ns	ns	ns
C22:6 n-3	232	0.87	0.88	0.90	0.95	0.92	0.95	0.97	0.92	0.18	ns	ns	ns	ns	ns	ns
SFA	232	32.02	31.40	31.23	30.51	31.04	31.06	31.00	30.38	1.55	t	0.04	t	ns	ns	ns
MUFA	232	23.16	23.18	21.40	22.54	20.47	21.75	20.72	22.12	2.72	t	0.02	ns	ns	ns	0.04
PUFA	232	44.81	45.41	47.37	46.95	48.49	47.20	48.28	47.50	3.41	ns	0.007	t	ns	ns	ns
Σn3	232	3.25	3.44	3.50	3.65	3.60	3.60	3.72	3.57	0.47	ns	0.04	ns	ns	ns	ns
Σn6	232	41.57	41.97	43.87	43.30	44.90	43.60	44.55	43.93	3.13	ns	0.008	t	ns	ns	ns
Σn6/Σn3	232	12.88	12.24	12.71	11.97	12.55	12.29	12.19	12.43	1.30	ns	ns	ns	ns	ns	ns
IU	232	1.48	1.50	1.54	1.55	1.57	1.54	1.56	1.55	0.09	ns	0.02	t	ns	ns	ns
MUFA/SFA	232	0.72	0.74	0.69	0.74	0.66	0.70	0.67	0.73	0.09	0.009	ns	ns	ns	ns	0.001
C18:1/C18:0	232	2.12	2.23	2.14	2.24	2.02	2.09	2.05	2.26	0.33	0.04	ns	ns	ns	t	0.02

VLBIW= Very low birth-Wt, LBIW= Low birth-Wt, MBIW= Medium birth-Wt, HBIW= High birth-Wt. Wt=Weight. Nd= Not detectable

SFA = sum of saturated fatty acids, MUFA = sum of monounsaturated fatty acids, PUFA = sum of polyunsaturated fatty acids,

UI = unsaturation index =  $1 \times (\% \text{ monoenoics}) + 2 \times (\% \text{ dienoics}) + 3 \times (\% \text{ trienoics}) + 4 \times (\% \text{ tetraenoics}) + 5 \times (\% \text{ pentaenoics}) + 6 \times (\% \text{ hexaenoics})$ .

RMSE = root-mean-square error. Ns= not significant,  $t = 0.1 > P > 0.05$ . Different letters in a line indicate significant differences in each BIW group ( $P < 0.05$ ).

Contrast 1: Females-Males; C2: VLBIW-(LBIW+MBIW+HBIW); C3: VLBIW-LBIW; C4: LBIW-(MBIW+HBIW); C5: MBIW-HBIW; Int: Interaction birth-Wt and sex.

**Table S3.** Fatty acids composition of subcutaneous fat (g/100 g total fatty acids).

Item	n	Groups								RMSE	P-value					Int
		VLBIW		LBIW		MBIW		HBIW			Contrasts					
		Females	Males	Females	Males	Females	Males	Females	Males		1	2	3	4	5	
Outer layer																
C14:0	232	1.58	1.54	1.54	1.50	1.55	1.51	1.51	1.49	0.11	t	ns	ns	ns	ns	ns
C16:0	232	24.84	24.10	24.80 <sup>A</sup>	23.82 <sup>B</sup>	24.95	24.50	24.77	23.87	1.18	0.001	ns	ns	ns	t	0.003
C16:1 n-9	232	0.30	0.36	0.31	0.41	0.38	0.34	0.33	0.36	0.16	ns	ns	ns	ns	ns	ns
C16:1 n-7	232	2.73	2.78	2.74	3.11	2.82	2.81	2.73	3.02	0.40	0.02	ns	ns	ns	ns	ns
C17:0	232	0.27 <sup>B</sup>	0.31 <sup>A</sup>	0.27	0.30	0.28	0.28	0.28	0.31	0.05	0.003	ns	ns	ns	ns	ns
C17:1	232	0.31	0.34	0.30 <sup>B</sup>	0.35 <sup>A</sup>	0.32	0.33	0.31 <sup>B</sup>	0.36 <sup>A</sup>	0.05	0.0001	ns	ns	ns	ns	ns
C18:0	232	11.30	11.46	11.64 <sup>A</sup>	10.66 <sup>B</sup>	11.57	11.21	11.64	10.78	1.08	0.01	ns	ns	ns	ns	0.02
C18:1 n-9	232	44.66	45.32	44.53	45.45	44.13	45.04	44.50	45.61	1.37	0.0004	ns	ns	ns	t	0.0004
C18:1 n-7	232	3.46	3.34	3.27	3.81	3.40	3.29	3.04	3.40	0.95	ns	ns	ns	ns	ns	ns
C18:2 n-6	232	8.49	8.23	8.52	8.44	8.55	8.54	8.82	8.71	0.66	ns	ns	ns	ns	t	ns
C18:3 n-3	232	0.63	0.63	0.64	0.65	0.65	0.65	0.67	0.67	0.05	ns	t	ns	t	0.01	ns
C20:0	232	0.20 <sup>B</sup>	0.22 <sup>A</sup>	0.19	0.19	0.19	0.20	0.19	0.19	0.03	ns	0.02	t	ns	ns	ns
C20:1 n-9	232	1.09 <sup>B</sup>	1.22 <sup>A</sup>	1.09	1.15	1.04 <sup>B</sup>	1.15 <sup>A</sup>	1.05	1.07	0.12	0.0003	t	ns	t	ns	ns
C20:4 n-6	232	0.15	0.16	0.16	0.16	0.17	0.16	0.16	0.16	0.03	ns	ns	ns	ns	ns	ns
SFA	232	38.19	37.63	38.43 <sup>A</sup>	36.47 <sup>B</sup>	38.55	37.70	38.39 <sup>A</sup>	36.63 <sup>B</sup>	2.11	0.001	ns	ns	ns	ns	0.003
MUFA	232	52.55	53.35	52.25 <sup>B</sup>	54.28 <sup>A</sup>	52.08	52.96	51.95 <sup>B</sup>	53.82 <sup>A</sup>	1.89	<.0001	ns	ns	ns	ns	0.0003
PUFA	232	9.27	9.03	9.32	9.24	9.37	9.35	9.66	9.54	0.72	ns	ns	ns	ns	t	ns
Σn3	232	0.63	0.63	0.64	0.65	0.65	0.65	0.67	0.67	0.05	ns	t	ns	t	0.01	ns
Σn6	232	8.63	8.39	8.68	8.60	8.72	8.69	8.99	8.87	0.68	ns	ns	ns	ns	t	ns
Σn6/Σn3	232	13.69 <sup>A</sup>	13.30 <sup>B</sup>	13.56	13.28	13.44	13.34	13.33	13.23	0.46	0.009	ns	ns	ns	ns	ns
IU	232	0.72	0.72	0.72	0.74	0.72	0.73	0.72	0.74	0.03	0.02	ns	ns	ns	t	0.02
MUFA/SFA	232	1.38	1.43	1.36 <sup>B</sup>	1.50 <sup>A</sup>	1.36	1.41	1.36 <sup>B</sup>	1.48 <sup>A</sup>	0.14	0.0003	ns	ns	ns	ns	0.001

C18:1/C18:0		232	4.29	4.36	4.13	B	4.71	A	4.15	4.35	4.15	4.61	0.58	0.002	ns	ns	ns	ns	0.006			
Groups													P-value									
Item	n	VLBIW		LBIW		MBIW		HBIW		RMSE	Contrasts											
		Females	Males	Females	Males	Females	Males	Females	Males		1	2	3	4	5	Int						
Inner layer																						
C14:0	232	1.54	1.46	1.53	1.46	1.51	1.48	1.48	1.44	0.14	0.03	ns	ns	ns	ns	ns	ns	ns	ns			
C16:0	232	25.97	A	24.49	B	25.98	A	24.86	B	25.96	25.60	25.97	A	24.87	B	1.28	<.0001	ns	ns	ns	ns	0.0003
C16:1 n-9	232	0.24	0.26	0.26	0.26	0.26	0.26	0.25	0.27	0.05	ns	ns	ns	ns	ns	ns	ns	ns	ns			
C16:1 n-7	232	2.43	2.56	2.37	2.66	2.39	2.54	2.46	2.73	0.40	0.005	ns	ns	ns	t	ns	ns	ns	ns			
C17:0	232	0.23	B	0.28	A	0.23	B	0.27	A	0.24	0.25	0.23	0.26	0.04	<.0001	ns	ns	ns	ns	ns		
C17:1	232	0.24	B	0.29	A	0.24	B	0.29	A	0.25	0.26	0.24	B	0.29	A	0.04	<.0001	ns	ns	ns	ns	ns
C18:0	232	13.29	12.67	13.52	A	12.32	B	13.62	12.71	13.53	A	12.29	B	1.28	<.0001	ns	ns	ns	ns	<.0001		
C18:1 n-9	232	44.03	B	45.54	A	44.00	B	45.32	A	43.68	44.61	43.76	B	45.32	A	1.62	<.0001	ns	ns	ns	ns	<.0001
C18:1 n-7	232	2.65	2.71	2.57	2.79	2.58	2.77	2.55	B	2.89	A	0.38	0.004	ns	ns	ns	ns	ns	0.01			
C18:2 n-6	232	6.99	7.25	6.92	7.33	7.18	7.13	7.22	7.31	0.54	t	ns	ns	ns	ns	ns	ns	ns				
C18:3 n-3	232	0.81	0.85	0.82	B	0.88	A	0.84	0.84	0.05	0.002	ns	ns	ns	ns	ns	ns	ns				
C20:0	232	0.21	0.23	0.21	0.22	0.21	0.21	0.21	0.21	0.03	t	ns	ns	ns	ns	ns	ns	ns				
C20:1 n-9	232	1.26	1.26	1.22	1.20	1.14	1.20	1.12	1.12	0.15	ns	0.03	ns	t	t	ns	ns	ns				
C20:4 n-6	232	0.12	0.13	0.14	0.14	0.13	0.13	0.14	0.14	0.02	ns	0.04	t	ns	t	ns	ns	ns				
SFA	232	41.24	A	39.13	B	41.48	A	39.14	B	41.54	40.25	41.42	A	39.08	B	2.32	<.0001	ns	ns	ns	ns	<.0001
MUFA	232	50.84	B	52.63	A	50.65	B	52.51	A	50.30	51.64	50.37	B	52.61	A	2.04	<.0001	ns	ns	ns	ns	<.0001
PUFA	232	7.92	8.24	7.87	8.35	8.16	8.11	8.20	8.31	0.59	t	ns	ns	ns	ns	ns	ns	ns				
$\Sigma n3$	232	0.81	B	0.85	A	0.82	B	0.88	A	0.84	0.84	0.85	0.86	0.05	0.002	ns	ns	ns	ns	0.02		
$\Sigma n6$	232	7.11	7.39	7.05	7.47	7.32	7.27	7.36	7.45	0.55	t	ns	ns	ns	ns	ns	ns	ns				
$\Sigma n6/\Sigma n3$	232	8.71	8.64	8.60	8.49	8.67	8.63	8.66	8.63	0.31	ns	ns	ns	ns	ns	ns	ns	ns				
IU	232	0.68	B	0.70	A	0.67	B	0.70	A	0.68	0.69	0.68	B	0.70	A	0.03	<.0001	ns	ns	ns	ns	0.0001



MUFA/SFA	232	1.23	<sup>B</sup>	1.36	<sup>A</sup>	1.22	<sup>B</sup>	1.36	<sup>A</sup>	1.21	1.29	1.22	<sup>B</sup>	1.36	<sup>A</sup>	0.13	<.0001	ns	ns	ns	t	<.0001
C18:1/C18:0	232	3.55		3.91		3.47	<sup>B</sup>	3.98	<sup>A</sup>	3.42	3.77	3.45	<sup>B</sup>	4.01	<sup>A</sup>	0.51	<.0001	ns	ns	ns	ns	<.0001

VLBIW= Very low birth-Wt, LBIW= Low birth-Wt, MBIW= Medium birth-Wt, HBIW= High birth-Wt. Wt=Weight.

SFA = sum of saturated fatty acids, MUFA = sum of monounsaturated fatty acids, PUFA = sum of polyunsaturated fatty acids,

UI = unsaturation index =  $1 \times (\% \text{ monoenoics}) + 2 \times (\% \text{ dienoics}) + 3 \times (\% \text{ trienoics}) + 4 \times (\% \text{ tetraenoics}) + 5 \times (\% \text{ pentaenoics}) + 6 \times (\% \text{ hexaenoics})$ .

RMSE = root-mean-square error. Ns= not significant,  $t = 0.1 > P > 0.05$ . Different letters in a line indicate significant differences in each BIW group ( $P < 0.05$ ).

Contrast 1: Females-Males; C2: VLBIW-(LBIW+MBIW+HBIW); C3: VLBIW-LBIW; C4: LBIW-(MBIW+HBIW); C5: MBIW-HBIW; Int: Interaction birth-Wt and sex.

**Table S4.** Fatty acids composition of liver (g/100 g total fatty acids).

Item	<i>n</i>	Groups								RMSE	<i>P</i> -value					Int
		VLBIW		LBIW		MBIW		HBIW			Contrasts					
		Females	Males	Females	Males	Females	Males	Females	Males		1	2	3	4	5	
Neutral Lipids																
C14:0	232	0.62	0.80	0.86	0.94	0.80	0.68	0.68	0.82	0.27	ns	ns	ns	0.02	ns	ns
C16:0	232	19.21	20.71	20.40	21.54	20.78	19.49	19.58	20.80	2.46	ns	ns	ns	ns	ns	ns
C16:1 n-9	232	0.52	0.63	0.72	0.79	0.68	0.58	0.61	0.73	0.21	ns	ns	t	0.04	ns	ns
C16:1 n-7	232	1.33	1.73	1.69	2.13	1.62	1.51	1.42	1.81	0.52	0.04	ns	ns	0.01	ns	ns
C17:0	232	0.54	0.58	0.57	0.52	0.60	0.62	0.70	0.59	0.16	ns	ns	ns	0.03	ns	ns
C17:1	232	0.36	0.37	0.32	0.38	0.31	0.33	0.30	0.35	0.06	0.02	ns	ns	t	ns	ns
C18:0	232	25.77	23.16	20.91	19.42	23.08	23.32	23.64	22.07	3.96	ns	ns	0.02	0.003	ns	ns
C18:1 n-9	232	24.34	28.65	29.11	31.50	26.85	25.95	24.85	28.24	5.50	ns	ns	ns	0.005	ns	ns
C18:1 n-7	232	1.59	1.76	1.53	1.73	1.67	1.69	1.66	1.88	0.31	t	ns	ns	ns	ns	ns
C18:2 n-6	232	10.94	9.76	11.21	10.25	10.60	11.04	11.77	10.37	1.87	ns	ns	ns	ns	ns	ns
C18:3 n-3	232	0.21	0.24	0.31	0.30	0.26	0.28	0.27	0.26	0.09	ns	ns	0.04	t	ns	ns
C20:0	232	0.35	0.33	0.25	0.38	0.39	0.29	0.28	0.33	0.26	ns	ns	ns	ns	ns	ns
C20:1 n-9	232	0.72	0.71	0.54	0.80	0.67	0.58	0.60	0.70	0.32	ns	ns	ns	ns	ns	ns
C20:3 n-6	232	0.67	0.47	0.61	0.38	0.52	0.53	0.76	0.51	0.27	0.01	ns	ns	ns	0.04	ns
C20:4 n-6	232	9.43	7.62	8.43	6.81	8.58	10.06	9.84	8.03	3.40	ns	ns	ns	t	ns	ns
C20:5 n-3	232	0.24	0.20	0.20	0.17	0.23	0.24	0.25	0.23	0.07	ns	ns	ns	0.007	ns	ns
C22:4 n-6	232	0.66	0.56	0.65	0.55	0.63	0.77	0.73	0.60	0.23	ns	ns	ns	ns	ns	ns
C22:5 n-3	232	0.90	0.77	0.89	0.65	0.82	1.06	1.10	0.76	0.51	ns	ns	ns	ns	ns	ns
C22:6 n-3	232	0.94	0.95	0.80	0.76	0.89	1.00	0.96	0.92	0.32	ns	ns	ns	0.04	ns	ns
SFA	232	46.69	45.58	42.99	42.81	45.66	44.39	44.88	44.61	3.25	ns	ns	0.03	0.02	ns	ns
MUFA	232	28.87	33.85	33.91	37.33	31.80	30.64	29.43	33.72	6.37	t	ns	ns	0.01	ns	ns
PUFA	232	23.99	20.57	23.10	19.87	22.54	24.97	25.69	21.67	6.26	ns	ns	ns	ns	ns	ns

Σn3	232	2.29	2.15	2.20	1.88	2.21	2.58	2.57	2.16	0.82	ns	ns	ns	t	ns	ns
Σn6	232	21.70	18.41	20.90	17.99	20.34	22.39	23.11	19.50	5.47	ns	ns	ns	ns	ns	ns
Σn6/Σn3	232	9.68	8.62	9.76	9.95	9.53	8.97	9.36	9.46	1.25	ns	ns	ns	t	ns	ns
IU	232	1.05	0.99	1.06	0.98	1.03	1.11	1.11	1.02	0.17	ns	ns	ns	ns	ns	ns
MUFA/SFA	232	0.62	0.75	0.81	0.88	0.70	0.70	0.66	0.77	0.17	t	ns	0.04	0.0009	ns	ns
C18:1/C18:0	232	1.07	1.35	1.70	1.87	1.30	1.24	1.17	1.46	0.54	ns	ns	0.02	0.0003	ns	ns

Item	n	Groups								RMSE	P-value								
		VLBIW		LBIW		MBIW		HBIW			Contrasts					Int			
		Females	Males	Females	Males	Females	Males	Females	Males		1	2	3	4	5				
Polar Lipids																			
C14:0	232	0.22	<sup>B</sup>	0.34	<sup>A</sup>	0.27	0.29	0.29	0.28	0.28	0.33	0.07	0.02	ns	ns	ns	ns	ns	
C16:0	232	15.94	<sup>B</sup>	18.57	<sup>A</sup>	17.41	19.94	18.20	17.25	17.79	18.90	2.25	0.02	ns	ns	ns	ns	ns	
C16:1 n-9	232	0.20		0.26		0.24	0.25	0.25	0.23	0.24	0.26	0.05	ns	ns	ns	ns	ns	ns	
C16:1 n-7	232	0.57	<sup>B</sup>	0.76	<sup>A</sup>	0.61	<sup>B</sup>	0.79	<sup>A</sup>	0.69	0.65	0.14	0.001	ns	ns	ns	ns	ns	
C17:0	232	0.59		0.68		0.67	0.64	0.68	0.73	0.78	0.69	0.17	ns	ns	ns	ns	ns	ns	
C17:1	232	0.16	<sup>B</sup>	0.32	<sup>A</sup>	0.22	0.29	0.25	0.22	0.21	0.25	0.09	0.005	ns	ns	ns	ns	ns	
C18:0	232	32.29	<sup>A</sup>	29.72	<sup>B</sup>	30.16	28.91	30.22	29.65	29.79	29.69	1.40	0.002	0.03	0.03	ns	ns	0.01	
C18:1 n-9	232	15.30	<sup>B</sup>	17.88	<sup>A</sup>	15.77	17.28	16.54	15.93	15.15	17.16	2.24	0.02	ns	ns	ns	ns	ns	
C18:1 n-7	232	1.27	<sup>B</sup>	1.64	<sup>A</sup>	1.34	1.59	1.42	1.45	1.32	<sup>B</sup>	1.60	<sup>A</sup>	0.0003	ns	ns	ns	ns	ns
C18:2 n-6	232	13.07	<sup>A</sup>	11.49	<sup>B</sup>	12.45	11.82	11.88	11.89	12.86	<sup>A</sup>	11.55	<sup>B</sup>	1.13	0.003	ns	ns	ns	0.01
C18:3 n-3	232	0.15	<sup>B</sup>	0.25	<sup>A</sup>	0.20	0.23	0.20	0.22	0.19	0.21	0.04	0.0001	ns	ns	ns	ns	ns	
C20:0	232	0.28		0.33		0.34	0.32	0.32	0.35	0.33	0.36	0.10	ns	ns	ns	ns	ns	ns	
C20:1 n-9	232	0.22	<sup>B</sup>	0.31	<sup>A</sup>	0.25	0.27	0.26	0.24	0.24	0.28	0.07	t	ns	ns	ns	ns	ns	
C20:3 n-6	232	0.86		0.67		0.85	0.56	0.67	0.65	0.95	0.70	0.27	0.007	ns	ns	ns	0.003	ns	
C20:4 n-6	232	14.58		12.78		14.80	12.95	14.00	15.43	14.85	13.19	2.98	ns	ns	ns	ns	ns	ns	
C20:5 n-3	232	0.44		0.36		0.39	0.35	0.38	0.41	0.38	0.41	0.08	ns	ns	ns	ns	ns	ns	

C22:4 n-6	232	0.78	0.80	0.89	0.84	0.85	0.97	0.93	0.84	0.18	ns	ns	ns	ns	ns	ns
C22:5 n-3	232	1.46	1.37	1.65	1.41	1.52	1.77	1.84	1.46	0.56	ns	ns	ns	ns	ns	ns
C22:6 n-3	232	1.63	1.47	1.50	1.29	1.38	1.68	1.22	1.37	0.41	ns	ns	ns	ns	0.005	ns
SFA	232	49.32	49.64	48.84	50.10	49.72	48.25	48.97	49.97	2.43	ns	ns	ns	ns	ns	ns
MUFA	232	17.71 <sup>B</sup>	21.18 <sup>A</sup>	18.43	20.46	19.42	18.73	17.81	20.31	2.62	0.007	ns	ns	ns	ns	0.04
PUFA	232	32.97	29.18	32.73	29.45	30.87	33.02	33.22	29.73	4.53	t	ns	ns	ns	ns	ns
Σn3	232	3.68	3.44	3.75	3.28	3.48	4.07	3.63	3.45	0.80	ns	ns	ns	ns	ns	ns
Σn6	232	29.29	25.74	28.98	26.16	27.39	28.94	29.59	26.27	3.88	0.04	ns	ns	ns	ns	ns
Σn6/Σn3	232	7.99	7.60	7.83	8.06	8.10	7.24	8.39	7.82	1.14	ns	ns	ns	ns	t	0.01
IU	232	1.28	1.19	1.28	1.18	1.23	1.32	1.28	1.20	0.15	ns	ns	ns	ns	ns	ns
MUFA/SFA	232	0.36 <sup>B</sup>	0.43 <sup>A</sup>	0.38	0.41	0.39	0.39	0.36	0.41	0.04	0.02	ns	ns	ns	ns	0.01
C18:1/C18:0	232	0.51 <sup>B</sup>	0.66 <sup>A</sup>	0.57	0.66	0.60	0.59	0.55	0.63	0.08	0.001	ns	ns	ns	ns	0.006

VLBIW= Very low birth-Wt, LBIW= Low birth-Wt, MBIW= Medium birth-Wt, HBIW= High birth-Wt. Wt=Weight.

SFA = sum of saturated fatty acids, MUFA = sum of monounsaturated fatty acids, PUFA = sum of polyunsaturated fatty acids,

UI = unsaturation index =  $1 \times (\% \text{ monoenoics}) + 2 \times (\% \text{ dienoics}) + 3 \times (\% \text{ trienoics}) + 4 \times (\% \text{ tetraenoics}) + 5 \times (\% \text{ pentaenoics}) + 6 \times (\% \text{ hexaenoics})$ .

RMSE = root-mean-square error. Ns= not significant,  $t = 0.1 > P > 0.05$ . Different letters in a line indicate significant differences in each BIW group ( $P < 0.05$ ).

Contrast 1: Females-Males; C2: VLBIW-(LBIW+MBIW+HBIW); C3: VLBIW-LBIW; C4: LBIW-(MBIW+HBIW); C5: MBIW-HBIW; Int: Interaction birth-Wt and sex.