**Insulin-like growth factor-1 concentration patterns and their relationship with follicle development after weaning in young sows fed different pre-mating diets**

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*Animal* Journal

**Supplementary Material S1** Results of quality control tests

For IGF-1, the sensitivity was 2 ng/ml and intra- and inter-assay coefficients of variation were 2.0% and 1.87%, respectively. For progesterone, sensitivity of progesterone was 0.15 ng/ml. Intra- and inter- assay coefficients of variation were 5.1% and 8.7%, respectively.

**Supplementary Material S2** Additional information on statistical analyses

**FIGURE 1**

*PROC PRINT;*

*TITLE 'NEW ARRANGE';*

*DATA NEW;*

*SET PILOT;*

*DAY=1; D=DAY; IGF = IGF2; OUTPUT;*

*DAY=2; D=DAY; IGF = IGF3; OUTPUT;*

*DAY=3; D=DAY; IGF = IGF4; OUTPUT;*

*DROP IGF2 IGF3 IGF4;*

*RUN;*

*PROC PRINT DATA=NEW;*

*RUN;*

*PROC MIXED DATA=NEW;*

*CLASS SOW TRT PAR BAT BREED DAY;*

*MODEL IGF = IGF1 TRT PAR DAY TRT\*DAY PAR\*DAY / DDFM = KENWARDROGER;*

*RANDOM BAT BREED;*

*REPEATED / TYPE = CS SUB=SOW(TRT) GROUP=TRT R RCORR;*

*LSMEANS TRT\*DAY PAR\*DAY ;*

*SLICE TRT\*DAY / SLICEBY=DAY DIFF ADJDFE=ROW ADJUST=TUKEY;*

*SLICE PAR\*DAY / SLICEBY=DAY DIFF ADJDFE=ROW ADJUST=TUKEY;*

*RUN;*

**TABLE 3**

*PROC PRINT;*

*PROC GLIMMIX DATA=PILOT;*

*CLASS SOW TRT PAR LM BAT BREED;*

*MODEL EST = TRT PAR/ DIST=BINOMIAL LINK=LOGIT CHISQ SOLITION DDFM=KR;*

*RANDOM INTERCEPT/ SUBJECT=BAT(SOW);*

*RANDOM INTERCEPT/ SUBJECT=BREED;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS TRT PAR/DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC PRINT;*

*PROC GLIMMIX DATA=PILOT;*

*CLASS SOW TRT PAR BAT BREED;*

*MODEL WOI = TRT PAR / DIST=GAMMA LINK=LOG DDFM = KENWARDROGER;*

*RANDOM BAT(SOW) TRT\*BAT(SOW) BREED ;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS TRT PAR /DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS SOW TRT PAR BAT BREED;*

*MODEL EDURH = TRT PAR / DIST=GAMMA LINK=LOG DDFM = KENWARDROGER;*

*RANDOM BAT(SOW) TRT\*BAT(SOW) BREED ;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS TRT PAR /DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW PAR BAT BREED LM;*

*MODEL F0 = TRT PAR BFD0 / DDFM=KENWARDROGER;*

*RANDOM BAT(SOW) BREED;*

*LSMEANS TRT PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW PAR BAT BREED LM;*

*MODEL F3 =TRT PAR IGF1 F0 / DDFM=KENWARDROGER;*

*RANDOM BAT(SOW) BREED;*

*LSMEANS TRT PAR/ DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW PAR BAT BREED LM;*

*MODEL FO = TRT PAR/ DDFM=KENWARDROGER;*

*RANDOM BAT(SOW) BREED;*

*LSMEANS TRT PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS SOW TRT PAR BAT BREED;*

*MODEL PRG = TRT PAR / DIST=BINOMIAL LINK=LOGIT DDFM = KENWARDROGER;*

*RANDOM BAT(SOW) BREED ;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS TRT PAR /DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS SOW TRT PAR LM BAT BREED LM ;*

*MODEL CL = TRT PAR/ DDFM = KENWARDROGER;*

*RANDOM BAT(SOW) TRT\*BAT(SOW) BREED ;*

*LSMEANS TRT PAR/DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS SOW TRT PAR LM BAT BREED LM ;*

*MODEL PG = TRT PAR / DIST=GAMMA LINK=LOG DDFM = KENWARDROGER;*

*RANDOM BAT(SOW) TRT\*BAT(SOW) BREED ;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS TRT PAR /DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

**TABLE 4**

*PROC PRINT;*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL F0 = IGFC PAR IGFC\*PAR / DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL F3 = IGFC PAR IGFC\*PAR / DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL FO = IGFC PAR IGFC\*PAR / DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL EST = IGFC PAR IGFC\*PAR / DIST=BINOMIAL LINK=LOGIT DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL WOI = IGFC PAR IGFC\*PAR / DIST=GAMMA LINK=LOG DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL EDURH = IGFC PAR IGFC\*PAR / DIST=GAMMA LINK=LOG DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL IGF2 = IGF1 IGFC PAR IGFC\*PAR / DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL IGF3 = IGFC PAR IGFC\*PAR / DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL IGF4 = IGFC PAR IGFC\*PAR / DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL PRG = IGFC PAR IGFC\*PAR / DIST=BINOMIAL LINK=LOGIT DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC MIXED DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL CL = IGFC PAR IGFC\*PAR / DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

*PROC GLIMMIX DATA=PILOT;*

*CLASS TRT SOW IGFC PAR BAT BREED;*

*MODEL PG= IGFC PAR IGFC\*PAR / DIST=GAMMA LINK=LOG DDFM=KENWARDROGER SOLUTION;*

*RANDOM TRT BAT(SOW) BREED;*

*RANDOM \_RESIDUAL\_;*

*LSMEANS IGFC PAR / DIFF ADJDFE=ROW ADJUST=TUKEY ILINK;*

*ODS OUTPUT DIFFS=PPP LSMEANS=MMM;*

*ODS LISTING EXCLUDE DIFFS LSMEANS;*

*RUN;*

*%INCLUDE 'Z:\DESKTOP\PDMIX800.SAS';*

*%PDMIX800 (PPP,MMM,ALPHA=.05,SORT=YES);*

**FIGURE 2**

*PROC MIXED DATA=PILOT;*

*CLASS PAR TRT BAT BREED;*

*MODEL F0 = IGF2 PAR / SOLUTION;*

*RANDOM BAT BREED;*

*RUN;*

**FIGURE 3**

*PROC PRINT;*

*TITLE 'NEW ARRANGE';*

*DATA NEW;*

*SET PILOT;*

*DAY=1; D=DAY; IGF = IGF2; OUTPUT;*

*DAY=2; D=DAY; IGF = IGF3; OUTPUT;*

*DAY=3; D=DAY; IGF = IGF4; OUTPUT;*

*DROP IGF2 IGF3 IGF4;*

*RUN;*

*PROC PRINT DATA=NEW;*

*RUN;*

*PROC MIXED DATA=NEW;*

*CLASS SOW TRT PAR BAT BREED DAY LMLC;*

*MODEL IGF = IGF1 LMD0 LMLC PAR DAY LMLC\*DAY PAR\*DAY PAR\*LMLC\*DAY/ DDFM = KENWARDROGER;*

*RANDOM BAT(SOW) BREED TRT;*

*REPEATED / TYPE = CS SUB=SOW(TRT) GROUP=TRT R RCORR;*

*LSMEANS LMLC PAR DAY LMLC\*DAY PAR\*DAY PAR\*LMLC\*DAY;*

*SLICE PAR\*DAY / SLICEBY=DAY DIFF ADJDFE=ROW ADJUST=TUKEY;*

*SLICE LMLC\*DAY / SLICEBY=DAY DIFF ADJDFE=ROW ADJUST=TUKEY;*

*SLICE PAR\*LMLC\*DAY / SLICEBY=DAY DIFF ADJDFE=ROW ADJUST=TUKEY;*

RUN;

Code for the statistical model as programmed in ‘SAS’ (version 9.4; SAS Inst. Inc., Cary, NC, USA) with each sows used as the experimental unit. Where: IGF1: IGF-1 before weaning (ng/ml), IGF2: IGF-1 at weaning (ng/ml), TRT: Treatment, PAR: Parity, BAT: Batch, breed: BREED, day: sampling day, EST: Oestrus rate (%), WOI: Weaning to ovulation interval (h), EDURH: Oestrus duration (h), F0: Follicle diameter at weaning (mm), F3: Follicle diameter at 3 days after weaning (mm), FO: Follicle diameter at ovulation (mm), PRG: Pregnancy rate (%), CL: CL diameter at d 21 (mm), PG: progesterone at d 21 (ng/ml), IGFC: IGF-1 at weaning class, LMD0: Loin muscle depth at weaning (mm), LMLC: Loin muscle depth loss class

**Supplementary Table S1.** *Feed intake, body condition and body condition loss during lactation of first-parity and second-parity sows receiving a top-dressing (200 g) of either wheat (CON) or wheat plus microfibrillated cellulose (MF),* L-*carnitine (LC), or* L-*arginine (AR) at one of two supplementation levels (1,2) during 1 week before weaning and the weaning-to-oestrus interval*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Items | TRT | | | | | | |  | PAR | |  | *P*-values1 | |
| CON  (N = 10) | MF1  (N = 10) | MF2  (N = 12) | LC1  (N = 10) | LC2  (N = 12) | AR1  (N = 11) | AR2  (N = 11) | RMSE | 1  (N = 57) | 2  (N = 20) | RMSE | TRT | PAR |
| Average daily feed intake (Kg) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| during lactation | 4.8 | 4.7 | 4.9 | 4.8 | 4.8 | 5.0 | 4.8 | 0.3 | 4.8 | 4.9 | 0.2 | 0.99 | 0.65 |
| during the last week of lactation | 6.2 | 5.7 | 6.3 | 5.4 | 5.7 | 5.5 | 5.6 | 0.3 | 5.6 | 5.9 | 0.3 | 0.18 | 0.19 |
| Body weight |  |  |  |  |  |  |  |  |  |  |  |  |  |
| After farrowing (kg) | 231 | 211 | 221 | 224 | 236 | 227 | 228 | 7.2 | 218y | 249x | 6.5 | 0.30 | <0.01 |
| At 3 wk of lactation (kg) | 223 | 203 | 212 | 217 | 228 | 219 | 219 | 8.3 | 209y | 244x | 7.5 | 0.40 | <0.01 |
| At weaning (kg) | 208 | 190 | 199 | 197 | 203 | 191 | 192 | 8.7 | 191y | 220x | 6.1 | 0.65 | <0.01 |
| Loss during 3 wk (kg) | 7.5 | 7.8 | 8.5 | 7.4 | 8.5 | 8.5 | 9.2 | 3.4 | 9.4 | 4.6 | 2.9 | 1.00 | 0.15 |
| Loss during lactation (kg) | 23.1 | 20.6 | 21.3 | 27.0 | 25.1 | 28.0 | 26.8 | 5.2 | 26.4 | 29.1 | 3.4 | 0.17 | 0.58 |
| Loss during lactation (%) | 10.4 | 9.5 | 9.8 | 12.2 | 14.1 | 12.3 | 15.6 | 2.4 | 12.2 | 11.5 | 1.5 | 0.40 | 0.74 |
| Backfat |  |  |  |  |  |  |  |  |  |  |  |  |  |
| After farrowing (mm) | 14.8 | 14.3 | 14.2 | 14.9 | 15.8 | 14.6 | 14.5 | 0.6 | 14.6 | 15.1 | 0.6 | 0.52 | 0.33 |
| At 3 wk of lactation (mm) | 13.1 | 12.3 | 11.9 | 12.6 | 13.9 | 12.3 | 12.5 | 0.8 | 12.5 | 13.3 | 0.9 | 0.60 | 0.28 |
| At weaning (mm) | 12.1 | 11.4 | 11.1 | 11.6 | 12.8 | 10.9 | 11.3 | 0.8 | 11.4 | 12.3 | 0.7 | 0.81 | 0.26 |
| Loss during 3 wk (mm) | 1.7 | 2.0 | 2.3 | 2.3 | 1.8 | 2.4 | 2.0 | 0.5 | 2.1 | 1.8 | 0.4 | 0.91 | 0.50 |
| Loss during lactation (mm) | 2.3 | 2.5 | 3.3 | 3.2 | 3.1 | 3.6 | 3.4 | 0.7 | 3.2 | 2.8 | 0.4 | 0.79 | 0.37 |
| Loss during lactation (%) | 18.7 | 20.2 | 22.1 | 22.6 | 19.7 | 25.5 | 22.6 | 3.9 | 22.7 | 18.2 | 2.5 | 0.94 | 0.21 |
| Loin muscle depth |  |  |  |  |  |  |  |  |  |  |  |  |  |
| After farrowing (mm) | 51.2 | 53.3 | 50.3 | 50.9 | 51.4 | 50.1 | 51.5 | 1.8 | 51.1 | 50.6 | 2.4 | 0.99 | 0.73 |
| At 3 wk of lactation (mm) | 49.6 | 49.9 | 47.3 | 50.5 | 50.1 | 46.7 | 48.9 | 1.5 | 48.8 | 49.5 | 1.4 | 0.84 | 0.61 |
| At weaning (mm) | 50.8 | 48.9 | 46.5 | 47.0 | 46.9 | 45.9 | 46.5 | 1.7 | 47.0 | 48.1 | 1.6 | 0.97 | 0.52 |
| Loss during 3 wk (mm) | 1.5 | 3.4 | 3.0 | 0.2 | 1.3 | 3.4 | 2.6 | 1.5 | 2.4 | 0.9 | 1.6 | 0.90 | 0.26 |
| Loss during lactation (mm) | 2.1 | 4.4 | 3.8 | 3.9 | 4.5 | 4.2 | 5.1 | 1.8 | 4.3 | 2.2 | 1.9 | 0.98 | 0.19 |
| Loss during lactation (%) | 4.1 | 8.0 | 7.0 | 7.1 | 7.8 | 8.0 | 9.4 | 3.4 | 8.1 | 3.5 | 3.6 | 0.99 | 0.12 |

All data were presented as least square (LS) means.

RMSE = root mean square error; TRT = treatment; PAR = parity.

1 The interactions between treatment and parity were not significant (P > 0.05) and are therefore not presented.

x,y Means within a row without a common superscript are different (parity effect; P ≤ 0.05).