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**TITLE**
EFFECT OF IGF-1 LEVEL AT WEANING ON SUBSEQUENT LUTEAL DEVELOPMENT AND
PROGESTERONE PRODUCTION IN PRIMIPAROUS SOWS

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**CONTENT**
Insulin-like growth factor-1 (IGF-1) is known to be related to follicle and oocyte development in sows. We
hypothesized that a higher IGF-1 level at weaning may derive better luteal development during early pregnancy
in primiparous sows. We retrospectively assigned 56 primiparous sows into high- (HI, ? 255 ng/ml, n = 14),
medium- (MI, 150 – 255 ng/ml, n = 28) or low- (LI, ? 150 ng/ml, n =14) group based on their plasma IGF-1
level at weaning. Follicle diameter was measured at weaning, three days after and one day after estrus with
transrectal ultrasonography. Blood sampling was performed on the same day as ultrasonography. At 21 day after
insemination, corpus luteum (CL) size and plasma progesterone level were measured. MIXED and GLIMMIX
models (SAS 9.4) were used for analyses. The IGF-1 level at three days after weaning and one day after estrus
remained significantly different between the three groups. Follicle diameter at weaning of HI sows was larger
than that of LI sows (p = 0.02) but similar with that MI sows ($3.5 \pm 0.1$ vs. $3.6 \pm 0.1$ vs. $3.8 \pm 0.1$ mm, for LI,
MI and HI, respectively). However, further follicle development and pregnancy rate (93.3 %) were not different
between the groups. In pregnant sows, LI sows tended to have larger CL at day 21 (p = 0.08) compared to MI
and HI sows ($10.1 \pm 0.2$ vs. $9.9 \pm 0.1$ vs. $9.4 \pm 0.2$ mm, for LI, MI and HI, respectively). In addition,
progesterone level tended to be positively correlated with CL diameter (? = 3.0 (ng/ml)/mm, p = 0.09). Thus,
although post-weaning IGF-1 was not related with follicle development at ovulation, it was negatively related
with subsequent CL development. Subsequent studies focusing on the relationship between post-weaning IGF-1
level and luteinizing hormone will be needed.