

# The Use of Allometric Relationships to Estimate Gilt Body Weight

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Determination of body weight (BW) at breeding is a vital aspect of modern gilt development programs. In the absence of an on-farm scale, weight can be estimated using other body parameters. Previous studies have shown that both heart girth (HG) and flank to flank (F2F) measurements can be used to estimate BW in swine. This study was carried out to determine the correlation, regression and consistency of these two measurements in the estimation of BW for 1st estrus landrace-large white gilts.

71 pre- and post- pubertal gilts were weighed (range: 86-182kg) and measured for HG and F2F by two operators (O1 and O2). Data were then analyzed for correlation and regression of the total data set (T), as well as for O1 and O2. In all cases, weight was more highly correlated to HG ( $r_t=0.91$ ,  $r_{O1}=0.90$ ,  $r_{O2}=0.91$ ) than F2F ( $r_t=0.83$ ,  $r_{O1}=0.88$ ,  $r_{O2}=0.81$ ). In addition, regression analysis was carried out for both HG ( $BW=2.56HG-162.8$ ) and F2F ( $BW=2.91F2F-128.8$ ), and consistency determined by comparing the sum of residual differences between regressions for O1 and O2. Lower residual differences for HG indicated that HG measurements were more consistent across users. Use of a "weight tape" developed from the regression equation between HG and BW would allow for rapid estimation of weight during observed estrus in gilts. This would facilitate the use of body weight as a critical factor when allocating gilts to breeding groups.

**Implications:** Heart Girth provides a better estimation of body weight for 1<sup>st</sup> estrus gilts, within the measured weight range, when compared to Flank to Flank measurements. This estimation will allow producers to better manage gilt development for improved lifetime performance.