

Does Piglet Birth Weight Affect Carcass Composition and Meat Quality?

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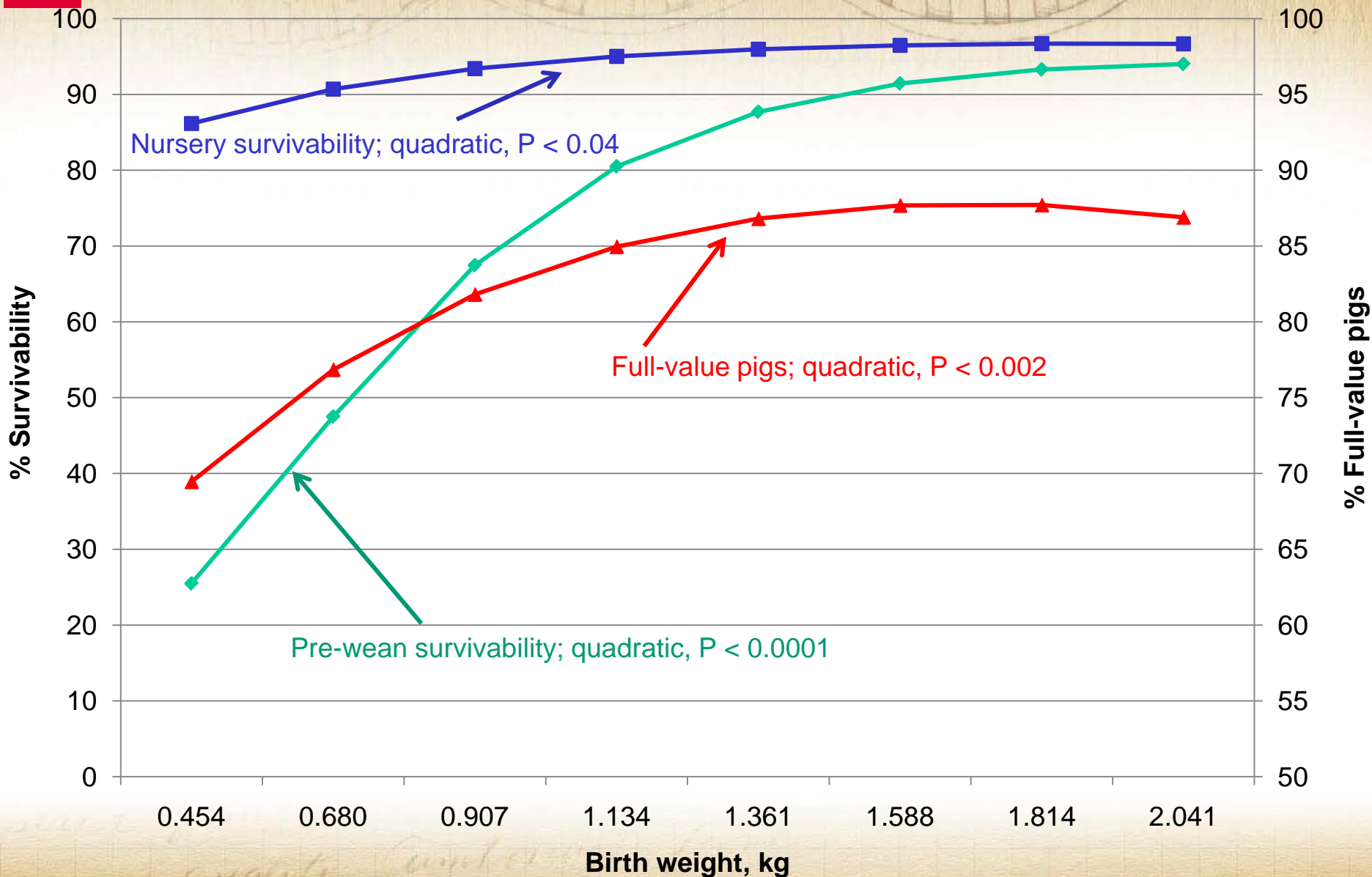
Materials and Methods

- Data from 464 litters (consisting of 3,450 pigs) were used in the analysis.
- All pigs in this trial were sired by boars (n=43) from a synthetic Duroc sire line.
- All litters were derived from 2 dam lines.
- The data were from six farrowing groups of pigs from the same sow farm.
- Piglets were individually weighed within 24-hr of birth and then cross-fostered.
- Cross-fostering was intensive within these farrowing groups.
- Data were collected for determination of growth rates (carcass), carcass composition, and meat quality.

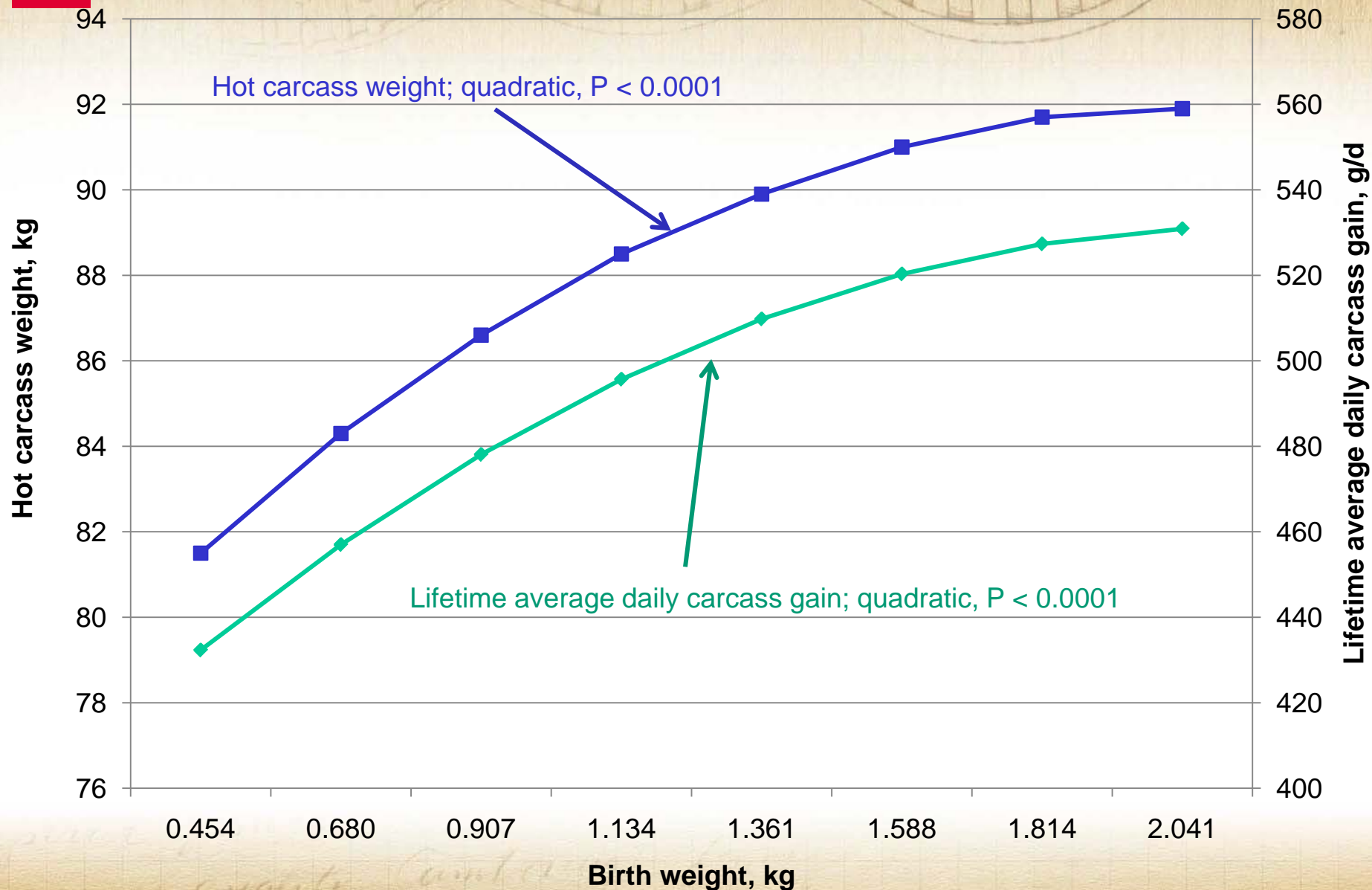
Statistical Analysis

- Data were analyzed using the MIXED procedure of SAS® (SAS Inst., Cary, NC).
- Linear and quadratic functions of birth weight (BW) were used as covariates for all variables. If the quadratic function of BW was not significant ($P > 0.05$) then the quadratic covariate was removed from the model.
- Age was included in the model as a covariate for all traits except LTADCG and hot carcass weight. If the age covariate was not significant ($P > 0.05$), then it was removed from the model. Data were adjusted to 175 days of age.
- Least square means for traits of interest were estimated in 0.23 kg increments from 0.454 to 2.041 kg of BW using the ESTIMATE function of SAS.

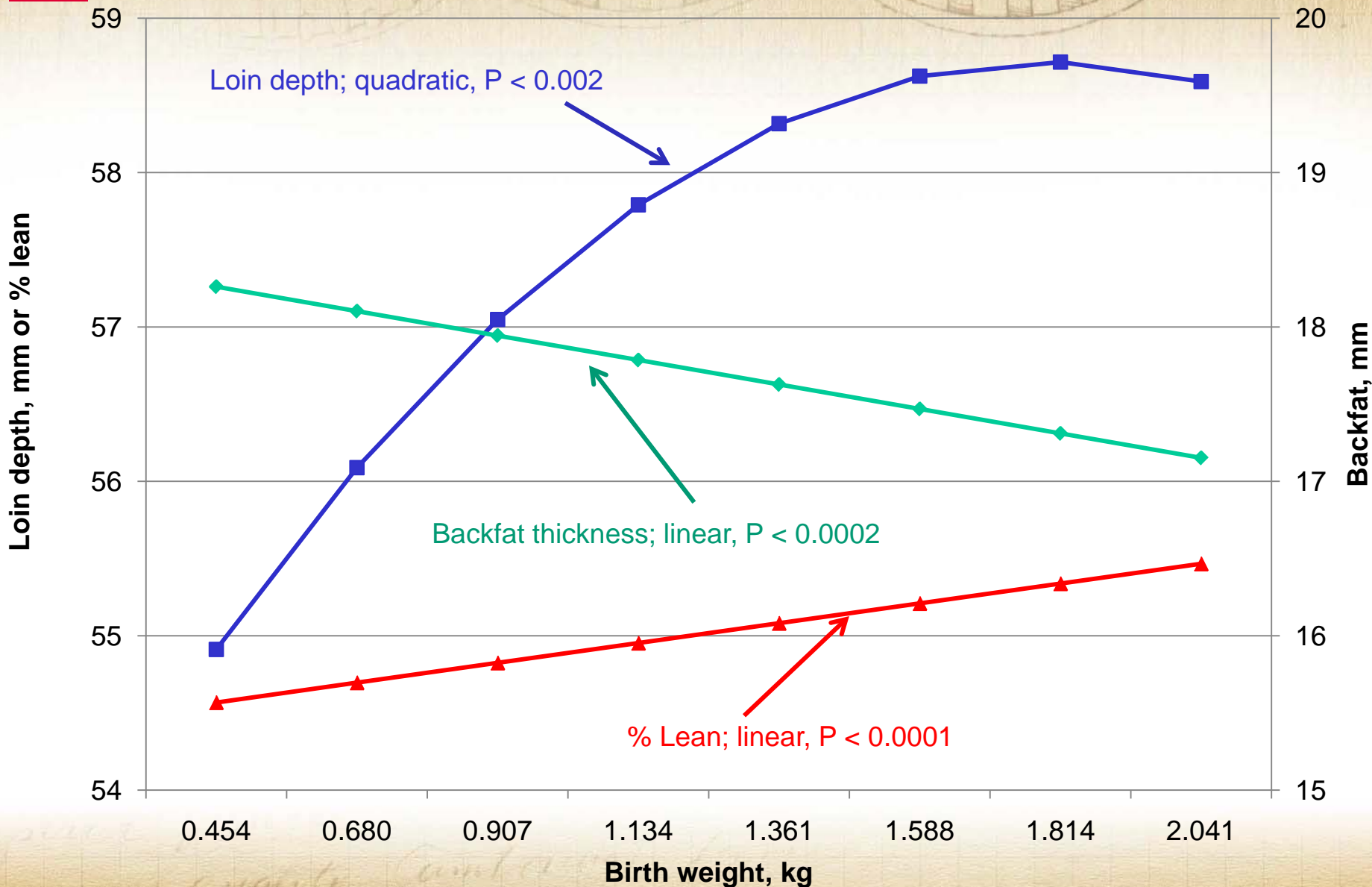
Effect of Birth Weight on Robustness



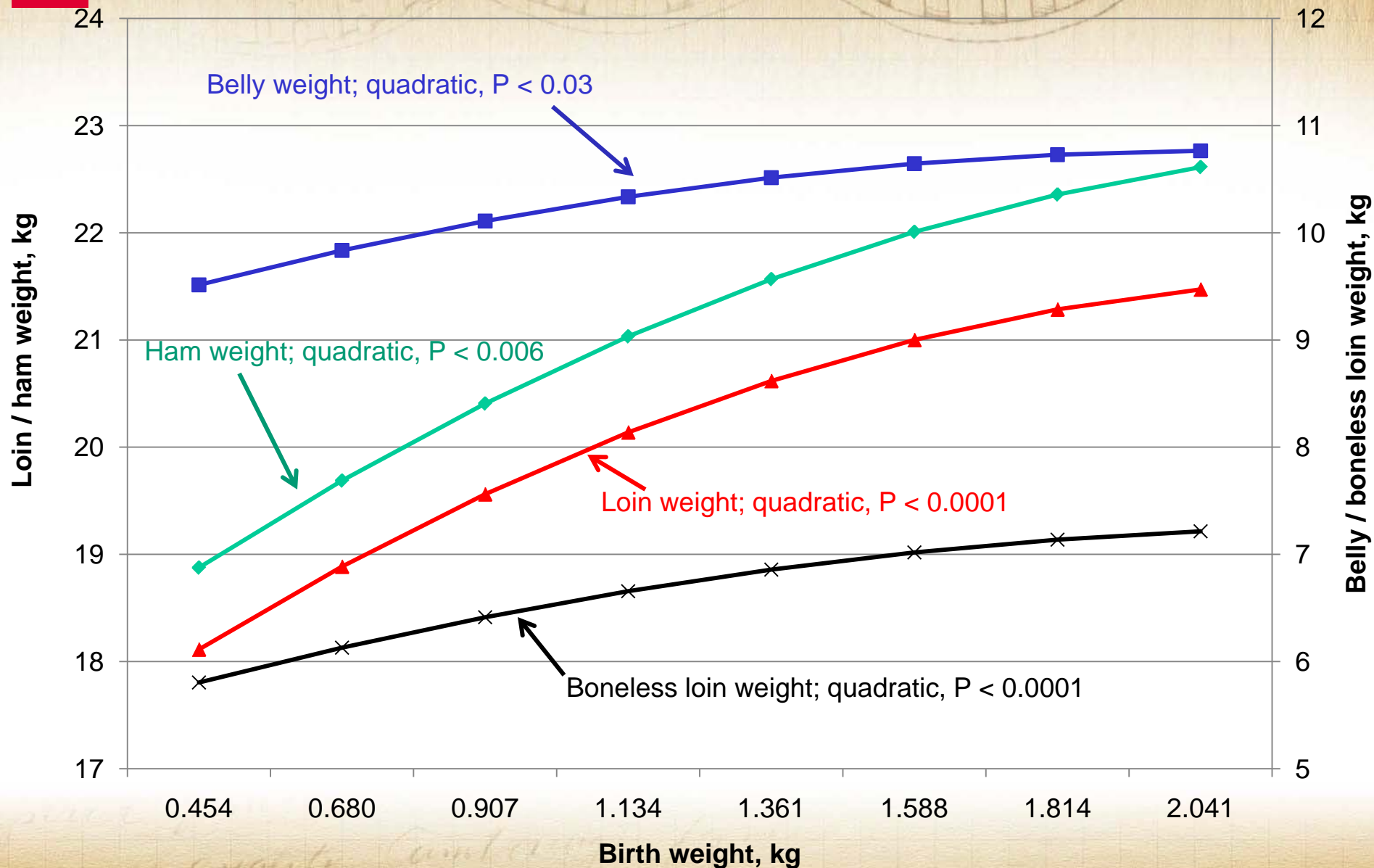
Effect of Birth Weight on Carcass Weight



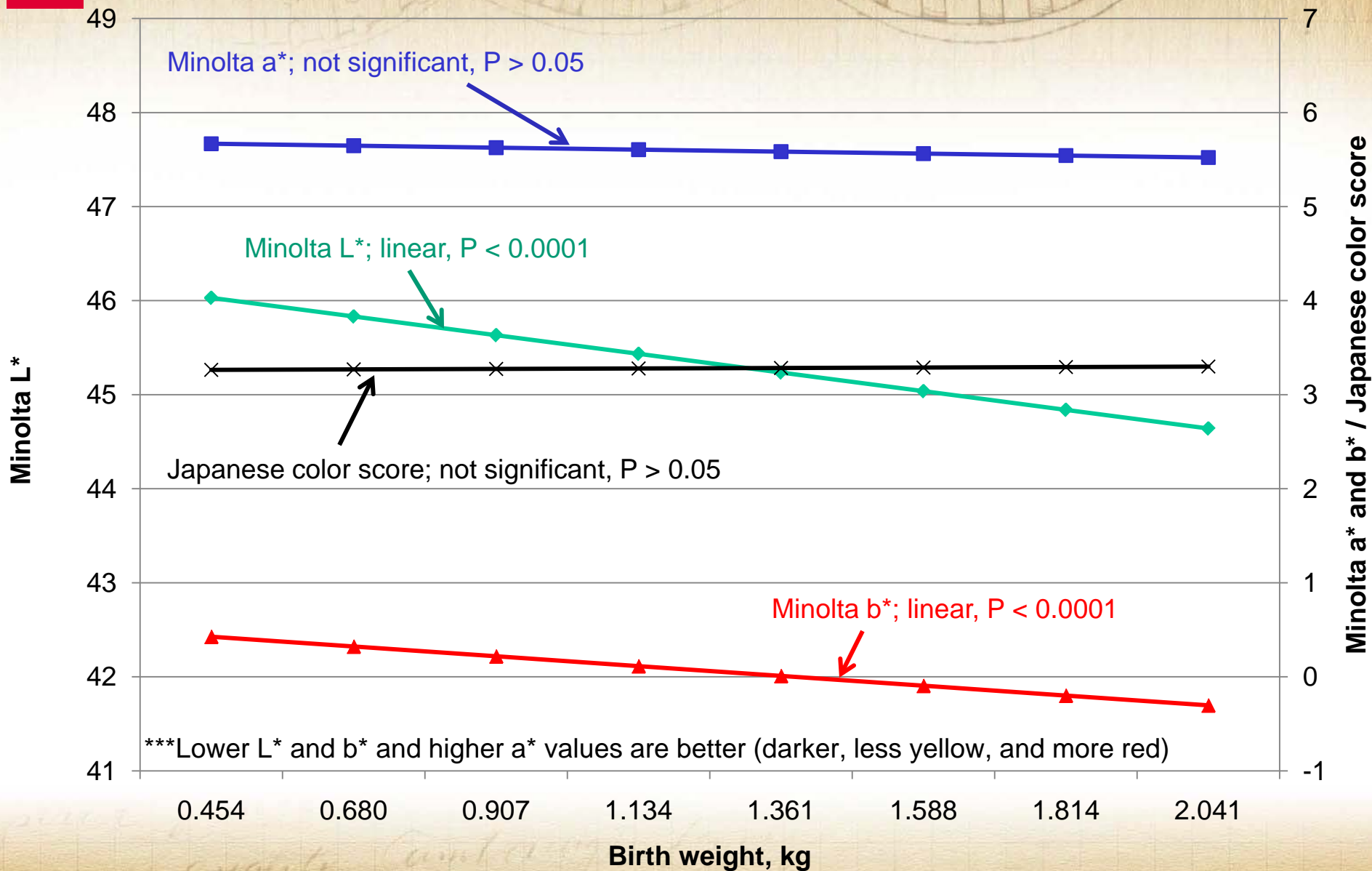
Effect of Birth Weight on Carcass Lean



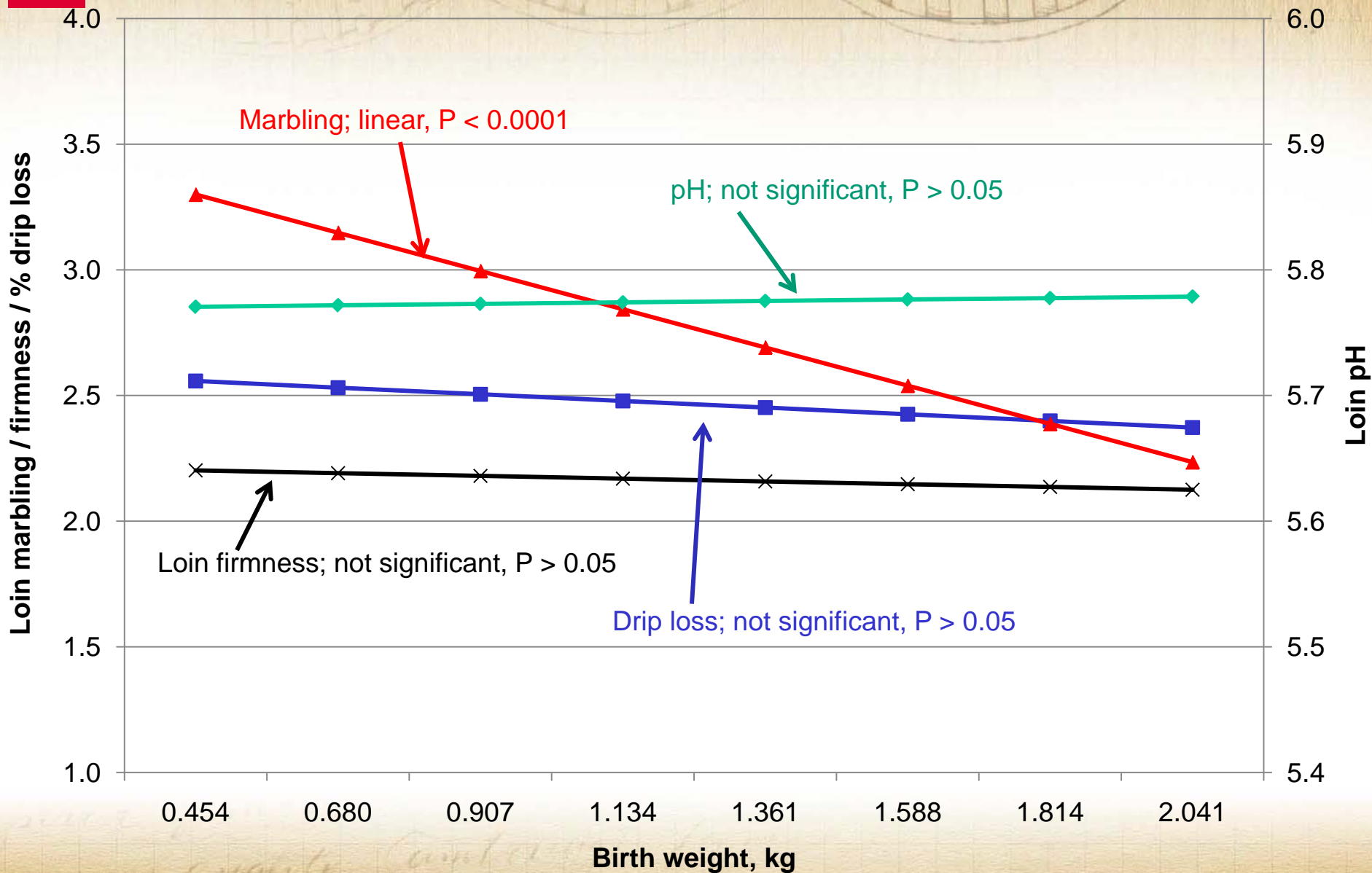
Effect of Birth Weight on Primal Weights



Effect of Birth Weight on Pork Quality - Color



Effect of Birth Weight on Pork Quality - Other



Conclusions

- These data clearly indicate that piglet birth weight has an effect on carcass composition and some aspects of meat quality.
- As the swine industry continues genetic selection for larger litter sizes, we must determine ways to minimize light BW pigs.
- We are in the process of collecting more data to develop economic models that can determine if production throughput of larger litter sizes (with lower BW) is economically more desirable than improved robustness and growth performance observed with smaller litter sizes (with higher BW).