

# Inheritance of coat color in piglets of Meishan and Duroc crosses in favor of black coat selection <sup>(1)</sup>

Shen-Chang Chang <sup>(2)</sup> Chin-Bin Hsu <sup>(3)</sup> Min-Jung Lin <sup>(4)</sup> Hsien-Jung Huang <sup>(2)</sup>  
 Han-Sheng Wang <sup>(2)</sup> Hsiu-Lan Lee <sup>(2)</sup> Cheng-Yong Lin <sup>(2)</sup> Chih-Hua Wang <sup>(5)</sup>  
 Ming-Che Wu <sup>(6)</sup> and Hsiu-Luan Chang <sup>(7)(8)</sup>

Received: Apr. 12, 2017; Accepted: Aug. 7, 2017

## Abstract

The purpose of this study was to select for black coat from crossbred of Meishan and Duroc. The 66 Duroc pigs and 65 Meishan pigs, boars and sows, respectively, were reciprocally crossed with Meishan breed. The  $F_1$  pigs showing black color in the skin had 98.7% (695/704). Coat color of hybrid piglets recorded at birth from  $F_1$  to  $F_5$  generations included solid black (B), golden longitudinal stripes of black (L), golden longitudinal stripes of red (Q), and solid red (R), which were further classified into two categories, black (B + L) and red (Q + R) series. In favor of black series color selection following by reproduction evaluation was conducted in this study, and then selected animals were mated between themselves within generation. The adjusted chi-square statistic with Yates' correction for continuity was used for testing the goodness-of-fit under genetic hypotheses of single gene difference between Meishan and Duroc breeds. The actual frequency of coat color observed in  $F_1$ ,  $F_2$  and  $F_3$  generations seemed to bear this out, giving credence to the hypotheses. However, it was not the case for data obtained in  $F_2$  and  $F_3$  generations, and thus the hypotheses of one gene segregating two alleles ( $E$  and  $e$  in Meishan and Duroc pigs, respectively, within this study) was rejected. This implied coat color expression in pigs might be partly regulated by other gene (non-*KIT* gene) in which nonepistatic interaction between loci identified seemed to be involved.

Key words: Coat color inheritance, Cross, Duroc pig, Meishan pig.

(1) Contribution No. 2571 from Livestock Research Institute, Council of Agriculture, Executive Yuan.

(2) Kaohsiung Animal Propagation Station, COA-LRI, Pingtung 91247, Taiwan, R.O.C.

(3) Taitung Animal Propagation Station, COA-LRI, Taitung 95405, Taiwan, R.O.C.

(4) Changhua Animal Propagation Station, COA-LRI, Changhua 52149, Taiwan, R.O.C.

(5) Deputy Director Office, COA-LRI, Tainan 71246, Taiwan, R.O.C.

(6) Division of Breeding and Genetics, COA-LRI, Tainan 71246, Taiwan, R.O.C.

(7) Department of Animal Science, National Pingtung University of Science and Technology, Pingtung 91247, Taiwan, R.O.C.

(8) Corresponding author, E-mail: hlachang@mail.npust.edu.tw.