**HETEROSIS EFFECTS OF KOREAN NATIVE CHICKEN BREED COMBINATIONS BY DIALLEL CROSSING TEST**

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**ABSTRACT**

We performed 5×5 diallel crossings with GPS lines of Korean Native Chicken for the selection of parent stock. The viability, body weight, age at first egg laying, egg weight, hen-day egg production, and hen-housed egg production were measured and analyzed for 25 crosses with 1,157 hens. The heterosis effects were also estimated. The average survival rate during laying periods was 67.7% in the pure lines and 77.1% in the crosses. The 25 cross combinations were shown to be distinctly divided into three groups according to body weight; 1873.8g at 12w weight in nine crosses of the high-weight group, 1595.4g in 12 crosses of the medium-weight group and 1152.7g in four crosses of the light-weight group. The age at first egg laying was 139.7 days in the pure lines and 135.8 days in the crosses. The egg weight was 52.3g in the pure line and 53.0g in the crosses. The hen-housed egg production from 20 to 40 weeks was 58.3 eggs in the pure line and 69.2 eggs in the crosses. The average heterosis effect was 16.9% for survival rate, 5.4% for body weight at 12 weeks, -2.7% for age at first egg laying, 1.3% for egg weight, and 14.3% for hen-day egg production. Generally, the heterosis effect for viability and egg production traits was higher than that for growth trait. Because GF combination had excellent growth performance and GW combination had excellent laying performance, GF and GW are the most desirable as the paternal and maternal strain for PS stock.