**ESTIMATION OF COMBINING ABILITIES OF PRODUCTION TRAITS IN DIALLEL CROSSES WITH KOREAN NATIVE CHICKEN STRAINS**

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This study was conducted to develop a new synthetic breed of Korean native chicken. The combining ability and reciprocal effects for production traits were estimated on 1,157 hens from a 5 × 5 diallel cross-mating design using grand parent stock (GPS) lines of Korean native chicken. Body weight, viability, age at first egg laying, egg weight, and hen-day egg production were measured and analyzed. The results showed that the general combining ability (GCA) of the body weight at 12 weeks was —209.7 to 162.2, with the highest value obtained in the F strain. The GCA of hen-day egg production was —4.9 to 6.0. In the estimation of specific combining ability, the YW combination showed the highest survival rate, FW showed the highest body weight at 12 weeks, and GW showed the highest hen-day egg production. The reciprocal effects were significantly different among crosses for almost all productivity traits. In identical breeding combinations, differences in ability were observed when the maternal or paternal breeds were switched. It is concluded that the GF and HF combinations are the most desirable paternal parent stock (PS) strains, and the GW and FW combinations are the most desirable maternal PS strains.

**Key Words: : Korean Native Chicken, combining ability, diallel crosses**