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**Potential genetic gain of genomic selection in Hanwoo breeding program**

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**ABSTRACT**

**(250자를 초과할 수 없음)**

High density genotype information now act as a powerful source of data for national genetic evaluation of Hanwoo in Korea. In addition to phenotypes and pedigree that were the basis of genetic evaluation for selection over last 30 years in Korea. Rapid developments in high density genotyping tools have lowered the cost of obtaining this genotypic information to just over $150 per animal. Hanwoo breeding program has achieved rapid genetic improvement for carcass traits (carcass weight, eye muscle area, back fat thickness and marbling score) over the last 20 years. Current best linear unbiased prediction (BLUP) selection is working well for the traits but rate of improvement tend to be lower due to some factors such as long generation interval (5.5 years) in progeny testing and wrong pedigree information. On that point, genomic selection can allow to select animal at young age, and estimate more accurate genomic breeding value using a representative reference population. Moreover, genomic information can implement to parentage assignment. Therefore, implementation of genomic information into Livestock breeding program will be a revolutionize achievement in agricultural system. In our simulation study, potential genetic gain with and without genomic information showed quite different results. Potential genetic gain with genomic information was 24% higher than that without genomic information in Hanwoo breeding program. In conclusion, genomic data would be very potential and key driver of genetic improvement in Hanwoo breeding program.

**Key Words: Potential Genetic Gain, Genome information and Hanwoo(Korean cattle)**