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Applications of Quantitative Genetics in Livestock Production

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Message from the Collection Editor

Genetic improvement of livestock in the last 100 years has been remarkable. Most of this genetic change has been due to the use of quantitative genetics principles. The advent of the genomics era in the 1980's opened new avenues of research for quantitative geneticists. The genomes of many livestock species have been sequenced and a large number of evenly spaced genetic markers have been identified. Availability of marker panels of thousands of SNPs, along with new computing technologies, such as a single-step approach to incorporating genomic information into EPDs, has made genomic selection a reality and has greatly increased the accuracy of selection, even for young animals and for difficult to measure traits such as disease resistance, longevity, and feed efficiency. Much has been accomplished, but much work remains for quantitative geneticists who work with livestock. Commercial genotyping of livestock has been performed for millions of animals. Therefore, vast amounts of genomic data remain to be mined. Much remains to be learned concerning the genetic architecture of complex traits and how this knowledge can be applied to livestock production.

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Message from the Editor-in-Chief

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