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Running head: Performance of artificially-reared lambs

Genetic and non-genetic factors influencing the live weight of artificially-reared lambs

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Highlights

•Breed and heterosis effects contributed to artificially-reared lamb performance

•Heritability of live weight was generally greater than naturally-reared populations

•Maternal genetic effects influenced weaning weight of artificially-reared lambs

ABSTRACT: The Spooner Agricultural Research Station (ARS) of the University of Wisconsin-Madison housed the only dairy sheep research flock in North America from 1993 until its closure in 2016. Multiple experiments conducted at the Spooner ARS determined that raising dairy lambs on milk replacer can be profitable and has since become a common practice in many U.S. dairy flocks. While the genetic basis of early growth traits in naturally-reared lambs has been extensively researched, little is known about the extent to which direct and maternal additive effects influence these traits in artificially-reared animals. The traits analyzed were birth weight (BW_0) and 30 d adjusted weaning weight (BW_{30}). Univariate models first