

# Genetic parameters for Lamb Autopsy Traits

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By

Robert M. J. Jones

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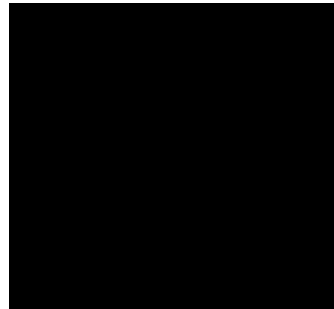
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## DECLARATION

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*I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification.*

*I certify that any help received in preparing this thesis and all sources used have been acknowledged in this thesis.*



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## Abstract

Heritabilities and genetic correlations were estimated between individual and composite autopsy traits for lambs autopsied in the Australian Sheep Cooperative Research Centre information nucleus flocks between 2008 and 2011 (n=3,224). In addition, correlations were estimated between autopsy categories and the production parameters, Greasy-fleece weight and Yearling weight and the potential survival indicator traits: Lamb ease, Thorax circumference and Crown-rump length. All autopsy trait heritability estimates were low (range 0.01 - 0.04). For all traits a higher proportion of the variance was partitioned into the maternal permanent environment when compared to the direct effects (range 0.01-0.12) suggesting that selection based on lamb autopsy results would impart little advantage over the lamb survival trait itself in improving lamb survival. Genetic correlations between Lamb ease and all autopsy traits were positive indicating that birth trauma is related to all causes of lamb deaths and that Lamb ease may be a useful selection criterion in seed-stock flocks to reduce overall mortality. There were also positive genetic correlations between Thorax circumference after adjusting for birth weight and 2 classes of dystocia as well as a positive correlation between Thorax circumference and incidences of Starvation-mismothering implying that Thorax circumference may be a useful indirect field measurement to reduce death from these causes. Of concern was the antagonistic genetic correlations estimated between Greasy-fleece weight and a composite trait of All Dystocia classes plus Starvation-mismothering ( $0.27 \pm 0.15$ ) implying that selection for increased fleece weight could be having a detrimental effect on overall lamb survival.

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