

( )

\*

( // : // : )

, / ± /

/ ± / / ± /

/ ± / / ± / / ± /

/ ± / / ± /

) /

( ) / (

( ) ( ) /

) / ( ) /

(

. ( )

( , )

( )

$$y = Xb + Z_1a + e \quad (M1)$$

$$y = Xb + Z_1a + Wpe + e \quad (M2)$$

$$y = Xb + Z_1a + Z_2m + e \quad Cov_{am} = 0 \quad (M3)$$

$$y = Xb + Z_1a + Z_2m + e \quad Cov_{am} \neq 0 \quad (M4)$$

$$y = Xb + Z_1a + Z_2m + Wpe + e \quad Cov_{am} = 0 \quad (M7)$$

$$y = Xb + Z_1a + Z_2m + Wpe + e \quad Cov_{am} \neq 0 \quad (M8)$$

a

y

m

pe

e

W Z<sub>2</sub> Z<sub>1</sub> X

(

Cov<sub>am</sub>

( )

( )

/ / / / /

/ / / / /

/ ( / ) / ( / ) / ( / ) / ( / ) / ( / ) ( )

/ / / / / ( )





...

:

( )

Log L	$r_{am}$	$h_m^{2*}$	$pe^{2*}$	$h_a^{2*}$	$\sigma_p^2$	$\sigma_e^2$	$\sigma_{am}$	$\sigma_m^2$	$\sigma_{pe}^2$	$\sigma_a^2$
/				/	/	/				/
/			/	/	/	/			/	/
/		/		/	/	/		/		/
/	/	/		/	/	/	/	/		/
/		/	/	/	/	/		/	/	/
/	/	/	/	/	/	/	/	/	/	/

/

\*

( )

( )

( )

/ ± / /

(p> / )

( )

/

( )

( )

( )

(p< / )

)

( )

/

/

$pe^2$   $h_a^2$

$h_m^2$   $pe^2$

( ± /

$h_m^2$   $h_a^2$

/ ± / /

(p> / )

/

)

( ) / ± /

( )

( )

)

(

( , )

( /

/

( )

/

(p> / )

/



## REFERENCES

3. Abegaz, S. E., G. Negussle, X. Duguma, & J. E. O. Rege. 2002. Genetic Parameter estimates for growth traits in Horro Sheep. *Journal of Animal Breeding and Genetics*. 119: 35-45.
4. Assan, N., S. Makuza, F. Mhlanga, & O. Mabuku. 2002. Genetic evaluation and selection response of birth weight and weaning weight in indigenous Sabi sheep. *Asian–Australians Journal of Animal Science*. 15: 1690–1694.
5. Dobson, A. J. 1991. *An Introduction to Generalized Linear Models*. Chapman and Hall, London, UK. PP. 174.
6. Fogarty, N. M. 1995. Genetic parameters for liveweight, fat and muscle measurements, wool production and reproduction in sheep. A review. *Animal Breeding Abstract*. 63: 101-143.
7. Gerstmayer, A. R. 1992. Impact of the data structure on the reliability of the estimated genetic parameters in an animal model with maternal effects. *Journal of Animal Breeding and Genetics*. 109: 321-336.
8. Meyer, K. 2000. DFREML: Program to estimate variance components by restricted maximum likelihood, using a derivative-free algorithm. User Notes. Ver 3. Animal Genetic and Breeding Unit. Armidale. NSW.
9. Naser, F. W. C., G. J. Erasmus, & J. B. van Wyk. 2000. Genetic studies on the South African Mutton Merino growth traits. *South African Journal of Animal Science*. 30: 172–177.
10. Ozcan, M., B. Ekiz, A. Yilmaz, & A. Ceyham. 2005. Genetic parameter estimates for lamb growth traits and greasy fleece weight at first shearing in Turkish Merino sheep. *Small Ruminant Research*. 56: 215-222.
11. Safari, E., N. M. Fogarty, & A. R. Gilmour. 2005. A review of genetic parameter estimates for wool, growth, meat and reproduction traits in sheep. *Livestock Production Science*. 92: 271-289.
12. Swan, A. A. & J. D. Hickson. 1994. Maternal effects in Australian Merinos. *Proceeding 5<sup>th</sup> World Congress on Genetics Applied to Livestock Production*. 18: 143-146.
13. Vaez Torshizi, R., F. W. Nicholas, & H. W. Raadsma. 1996. REML estimates of Variance and Covariance components for production traits in Australian Merino sheep, using an animal model 1. Body weight from birth to 22 month. *Australian Journal of Agriculture Research*. 47: 1235-1249.

