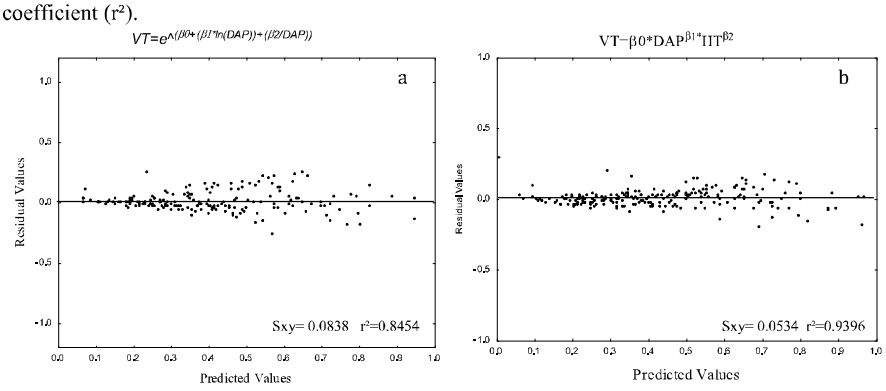
Efficiency of volumetric equations in silvopastoral systems

Marcela V. PYLES[12]*, Marcelo D. MULLER[2], Danillo L. JORGE[3], Gilciano S. NOGUEIRA[3]
[1] Depto. de Eng. Florestal, Univ. Federal de Viçosa, CEP:36570-900, Viçosa, MG, Brazil. [2] Embrapa Gado de Leite, CEP 36038-330, Juiz de Fora, MG, Brazil ; [3] Universidade Federal dos Vales do Jequitinhonha e Mucuri, CEP 39100-000, Diamantina, MG, Brazil
E-mail address of presenting author*: marcelav.pyles@gmail.com

Introduction The main objective of this study was to compare volumetric models of single entry and double entry volumetric models aimed at finding ways that allow making accurate forest inventories and lower costs in silvopastoral systems.

Material and Methods
The data come from five areas studied under silvopastoral systems, deployed between the years 2007 and 2009 in the Farm Triqueda (21 ° 37'37.81 "S 43 ° 17'19.24" W). The data collections were made in the second half of 2013. There have been as tree component two clones of *Eucalyptus ssp* (GG100 and I144) and a hybrid widely planted in the region, the *Eucalyptus urograndis*. We chose to adjust the main volumetric models of simple and double entries used in forestry literature and prove its efficacy from the simultaneous assessment of three criteria: lower standard error, higher coefficient of determination and lower amplitude of residual error.

Results and Conclusions
Fig.1: Residual plots of volume estimates in DAP and Ht function for simple entry model (a) and double entry model (b), with their respective standard error values (Sxy) and determination coefficient (r^2).



Based on Sxy and r^2 parameters, the double entry model was more efficient representation of these data and graphical analysis of the residue can observe that the error amplitude is lower in this model compared with the simple entry model. According to Campos and Leite (2009), double entry model is widely used to estimate forest volumes as it features best setting with unbiased estimates and thus we conclude that based on these results, this model also is precise for use in silvopastoral systems.

References cited
Campos and Leite (2009) Mensuração Florestal: perguntas e respostas.