Introduction

In recent year, genetic evaluation of rabbits was most often performed using Animal Model which requires good estimates of variance components *(Ferraz et al, 1991&1992; Baselga et al, 1992a; Reverter et al. 1994; Hassan, 1995)*. For obtaining variance component estimates, the preferable estimation methods of variance components have been prohibitively expensive from a computational standpoint for routine application to field data having unequal numbers of observation per subclass, even with assumed homogeneity of genetic and residual variances. With balanced data, there is an evidence that confirm the fact that Restricted Maximum Likelihood (*REML*) produces the same estimators as Analysis of Variance (*ANOVA*) methods *(Corbeil and Searle, 1976; Anderson et al. 1984)*. The *ANOVA* estimators have well known optimal properties in these circumstances. For unbalanced data and for very non-linear equations, REML is preferred to solve these equations iteratively. Other interest in REML, centered around estimation of variances and covariances from records subjected to selection *(Rothschild et al., 1979)*. *Thompson (1979) and Searle (1989)* suggested that REML could be used to remove bias from selection.

Most research in methodology of rabbit breeding and evaluation has been undertaken in developed countries (e.g. in France, USA, Spain, Italy, ...etc.). In these countries, methodology has been applied to large data sets, more or less balanced and connected, and containing full genealogy. However, the situation in many developing countries is really far from such type of data sets. Thus, the efficiency of some methods of estimating variance components should be tested before introducing more expensive techniques which could be unnecessary.

The objectives of the present study were: (1) to estimate variance components and sire heritabilities for some litter traits and reproductive intervals using Henderson's method and Restricted Maximum Likelihood (REML), in New Zealand White (NZW) and Californian (CAL) rabbits raised in Egypt and (2) to compare between the estimators obtained from the two methods.