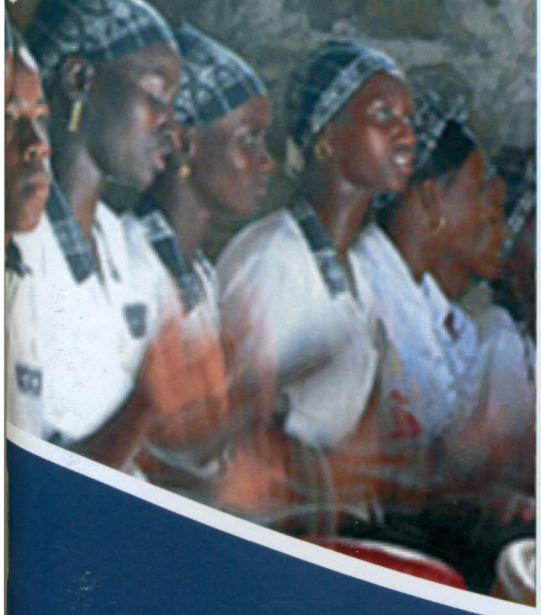

8th WORKSHOP on Statistics, Mathematics and Computation

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ABSTRACTS BOOK

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BOOK OF ABSTRACTS and PROGRAM

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Determination of the optimum sampling for forest inventory in homogeneous plantations of Brazil -nut in Central Amazonia

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Abstract: A widely used technique to make inferences on forest populations, is the " forest inventory ", which is the measurement of the variables: total tree height, diameter at breast height (dbh), and biomass measurements. In an inventory the ideal is the measurement of all individuals in the population with 100% intensity. However, measurement costs are very high thus in this case, we recommend the use of "sampling techniques", where measurements are made on only part of the individuals of this population, with a pre-established margin of error. This study aimed to determine the optimal sampling intensity for conducting forest inventory in homogeneous plantations of Brazil -nut (Bertholletia excelsa, Humboldt and Bonpl.), using the method of simple random sampling (SRS) . Data were obtained in inventory held at Agricultural Arowana S. A. in Itacoatiara -AM - Brazil , with coordinates 03o00'29 " S " and 58o49'53 W of Greenwich. 1.03 and 7.0 hectares , respectively , three plots (15,42 and 23) , planted in an area of 7.5 were studied . People wanted to know how many plots of 225 m2 should be used to achieve the desired accuracy of 20% in the error limit. In the pilot sample, 6 ,5 and 9 plots were measured to estimate the population variance and sampling intensity for the final inventory. Data were analyzed using the program R (R Development Core Team, 2010). The results obtained from the plots 15, 42 and 23 showed optimal sampling intensity of 19, 23 and 10 installments , respectively. The definition of optimal sizing of plots depends on the variability of the population. In the plots studied, the coefficients of variation were 37.8 % , 59.5 % and 29.2 % , for the respective plots . It is observed that the field 42 despite having only 1.03 hectarers area will be necessary to survey over 13 installments, due to the greater variability presented.

Keywords: Sampling intensity , simple random sampling , excels.a Bertholletia.

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