

LATE ABSTRACTS*

105. USE OF SHAPE VARIANCE IN UNIFORMITY TRIAL DATA

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The size and shape of the plot plays an important role in the planning of experiments as well as for obtaining the precise estimates of the treatment effects. In the past, to examine the shape of the plot, generally, the contour map was drawn to have the knowledge on directions of the soil heterogeneity of the field. The use of quantitative estimates of the heterogeneity in different directions of the soil for selecting the shape of the plot was attempted only in limited cases in the past. In the present study, the variance law of Fairfield Smith is suitably modified so as to provide the quantitative estimates of the heterogeneity in two perpendicular directions. The data on uniformity trial for banana and jowar are analysed through this modified approach and results are compared with that obtained by fitting the usual Smith law of variance to illustrate its superiority.

106. APPLICATION OF RIDGE REGRESSION ON COLLINEAR DATA IN FORECASTING

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A pilot study was taken up with the aim of investigating whether pre-harvest estimate of jowar yield can be obtained on the basis of observations on biometrical characters taken at various stages of crop growth. The present work deals with the results obtained by using ridge regression of

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the studies made during 1977-78 and 1978-79. A stratified multi-stage random sampling design was adopted for the selection of villages, fields and plots. The observations on biometrical characters have been recorded at fortnightly intervals beginning from one and half month after sowing. The data collected were utilised in obtaining estimates of various biometrical characters, and studying the relationship between yield and the biometrical characters.

Results show that biometrical characters remained more or less constant after period 2, which approximately correspond to 50% flowering stage suggesting that forecast of yield based on biometrical observations may be possible after this period. Correlation study shows that all characters under study are important. By comparing stepwise regression models with Ridge Regression models it was found that R^2 value was more in case of ridge regression. The estimates obtained by ridge regression have been found more precise in most of the periods as well as combination of periods. The forecast of yield of jowar crop for year 1978-79 has been obtained with the help of ridge regression estimates of year 1977-78 and found very close to actual yield for the combination of period 2 and 3 i.e. when crop is 10-12 weeks old. It means that yield forecast is available one month before harvest of the crop.

107. SINGLE "ONE PARAMETER FAMILIES" OF RATIO, PRODUCT AND DUAL TO RATIO TYPE ESTIMATORS IN CASE OF POSITIVE AND NEGATIVE CORRELATIONS

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With the knowledge of the value $V = \rho(C_y/C_x)$ in the population, Ray and Sahai (1980) have generated an efficient two parameter family of ratio and product type estimators separately. Further, Srivenketaramana (1980) proposed a dual type ratio estimator depending upon the choice of sample size. This paper combines the two different one parameter families for ratio and product type estimators. The proposed estimator is efficient for positive and negative values of correlation coefficients and possess on asymptotic property also. Simple expressions have been obtained for optimum choice of the parameters if some guess value of V is known.

108. A STUDY ON SUCCESSIVE SAMPLING

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The paper deals with a typical case of matching and unmatching units

on three occasions. A sample of total 'n' units is drawn on the first occasion and split into four groups of m_1 , m_2 , m_2 and u units ($m_1 + m_2 + m_2 + u = n$). A set of m_1 units are matched on all the three occasions. On the second occasion, besides the m_1 matched units one of the two sets of m_2 units are also matched while the remaining $m_2 + u$ units drawn afresh. On the third occasion besides the m_1 matched units, the first set of m_2 units drawn on the first occasion is retained and further out of the total, $m_2 + u$ units drawn afresh on the second occasion the set of m_2 units is also retained. A linear estimator for the current occasion utilizing the entire information, along with its expression for variance has been obtained. The efficiency of the same in comparison to the third occasion estimator without using prior information has also been compared.

109. PROFITABLE FARM ACTIVITIES ON NORMATIVE CROP LOANS—A CASE STUDY

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Different parameters of crop loans which are most relevant concerning with normative crop production and livestock activities on the small farms in district Allahabad (U. P.) have been examined. A random sample of 100 farms of different sizes (79 farms each less than 1 hect., 15 farms between 1 to 2 hect. and 6 farms between 2 to 3 hect.) in 6 villages in C. D. Block Soroan are taken for the study and the data pertains to the period 1976-79. The results are of the direct relevance for minimising the variation or losses in crop production and livestock activities under the normative rural financing programmes. The rationale for the crop loans at different strata of capital parameters analogous to the level of existing and improved technologies of crop production has been suggested. The study also indicates the magnitude of crop loans for taking up more profitable crop production and livestock activities in small farms.