

## Resource productivity and optimum resource allocation in cereal crops on medium farm in Marathwada

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### ABSTRACT

The study of resource productivity; resource use efficiency and optimum resources used with respect to various explanatory variables in cereal crops viz. bajara, *rabi* jowar and wheat was undertaken on medium farm during agriculture year 2005-06 in Marathwada region of Maharashtra. The data was taken from cost of cultivation scheme Marathwada Agricultural University, Parbhani the sample of 100 medium farm size farmers throughout the zone was tabulated and analyzed by appropriate statistical tools. The result revealed that, in case of bajara area was positive and significant at 1 per cent level. Coefficient of multiple determination was ( $R^2$ ) 0.707 which indicate 70.70 per cent variation in independent variable, the sum of elasticity was 0.86 which was indicated that decreasing return to scale. In regard to *rabi* jowar area and bullock were positive and highly significant on 1 and 5 per cent level, respectively, the sum of elasticity was 0.89 per cent which indicate decreasing return to scale coefficient of multiple determination was 0.93 which indicate that 93 per cent variation in explanatory variable. In case of wheat area and nitrogen were positive and significant at 1 and 5 per cent level, respectively the coefficient of multiple determination  $R^2$  was 0.90 which was showed 90 per cent variation in explanatory variable.

**Key words :** Production function, Medium farm, Resource use efficiency, Optimum resources.

### INTRODUCTION

Agriculture has prime as well as pride position in the Indian economy. Agriculture's Share in National income was 17.4 per cent in 2006-07 with agricultural growth of 2.4 per cent in year 2007-08. The sector provides employment to 58.4 per cent of country's workforce which is the single largest private sector occupation. About 38 per cent share in total export of country contributed by agriculture and allied sectors. The geographical area of India is 329 million hectares. The area under medium farm was 83.40 million hectare *i.e.* 23.35 per cent and number of medium farmers in country is 6.14 per cent. Geographical area of Maharashtra State and Marathwada region are 30.8 million hectares and 6.44 million hectares, respectively. Area under medium farm are 32.74 per cent and 27.70 per cent, respectively and number of medium farmers in Maharashtra and Marathwada are, 12.36 per cent and 12.50 per cent, respectively. Farm, means a piece of land where crops and livestock enterprises are taken under a common management. Farm management covers aspects of farm business which have a bearing on economic efficiency of the farm. Now a days farmers doing farming as business point of view. So as to analyze the various concepts of farm business income like return to scale, net worth statement, income statement, farm ratio etc; singly or combinely has discussed. Farm business management means a science which deals with judicious decision or use of scarce farm resources having alternative uses to obtain the maximum profit. Thus the overall profit level of farm depends upon income gained on farm.

Keeping these points in front "Economic analysis of medium farm in Marathwada region of Maharashtra has been undertaken with the objective is resource productivity and resource use efficiency in cereal crops at medium farm.

### MATERIALS AND METHODS

Marathwada region of Maharashtra was purposively selected in order to study the farm business analysis. Multiple stage sampling design was used for selection of zone, tehsils villages and farms. Twenty eight tehsils under the assured rainfall zone were selected from the eight districts of region because of their involvement in cost of cultivation scheme. From each cluster villages the two farmers of medium categories were selected. Thus, total 100 sample farms were selected. Data pertains to the year 2006-07. Technique like tabular analysis, budgeting technique, non-linear and multiple regression analysis, frequency and percentage method were used to analyze the data.

Strong inter-correlations among independent variables were identified for solving problem of collinearity in estimating production function. The variables which had non-significant correlation significant with respect to bajara, *rabi* jowar and wheat production were also dropped in estimating production function. Thus for bajara seven, for *rabi* jowar six and for wheat eight independent variables were included in both linear and Cobb-Douglas production functions. On the basis of goodness of fit ( $R^2$ ), Cobb-Douglas production function was found to be