

Resource productivity and resource use efficiency in flood irrigated banana production

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ABSTRACT

Banana is one of the most important fruit crops in the world. Investigation was carried out during the year 2008-09. About 48 flood irrigated banana growers were randomly selected from eight villages of Ardhapur tehsil of Nanded district in Maharashtra. Cross sectional data were collected from the banana growers with the help of pretested schedule by personal interview method. The study was conducted to know the resource productivity, resource use efficiency and optimum resource use in banana production. Cobb-Douglas production function was fitted to the data. The results revealed that marginal productivity with respect to area, machine labour and bullock labour was 40.410, 2.615 and 1.867 quintals respectively. It inferred that if area is increased by one hectare, machine labour increased by one hour and bullock labour increased by one pair, it would lead to increase banana production by 40.410, 2.615 and 1.867 quintals, respectively.

Key words : Banana, Resource productivity, Flood irrigated, Optimum resource, Marginal product

Banana (*Musa paradisiaca* L.) is one of the leading tropical fruit crops. It ranks next to mango in both area and production in India. Nanded district of Maharashtra has favourable climate to grow banana varieties like Basrai and Ardhapuri. The district has medium to heavy black cotton soil. The average rainfall of district is 1533 mm. Nanded is one of the districts where banana has been grown on large scale with Basrai and Ardhapuri varieties. In banana production, water resource is very important and scarce. Similarly land, human labour, bullock labour, manure and fertilizer resources are also equally important in banana cultivation. In production process, some of the resources are either over utilization or under utilization. By keeping in view the above aspect, the present study was undertaken in order to determine in order to determine the optimum utilization of the resources in flood irrigated banana production.

METHODOLOGY

Multistage sampling design was used in selection of district, tehsil, villages and banana gardens. In first stage, Nanded district of Maharashtra was selected purposely because of favourable climate to grow banana crop. In the second stage, Ardhapur tehsil was selected on the

basis of highest area under banana crop. In the third stage, eight villages were selected from the tehsil on the basis of area under flood irrigated banana gardens. The selected villages were namely, Ardhapur, Degaon, Lahan, Loni(Bu), Loni(kh), Malegaon, Panghari and Pardi. In the fourth stage, six flood irrigated banana gardens were randomly selected from each of the selected villages. Thus, from eight villages, forty eight flood irrigated banana gardens were selected for the study. The cross-sectional data were collected from forty eight drip irrigated and forty eight flood irrigated banana growers by personal interview method with the help of pre-tested schedule for the year 2007-08. Use of resources namely area of banana, hired human labour, machine labour, nitrogen, phosphorus, potash and manures on farm were taken into consideration in the study. Cobb-Douglas production function was to be the best fit to data to estimate the resource productivity and resource efficiency and optimum resource use with respect to each of the explanatory variables. The fitted equation was as follows:

$$Y = aX_1^{b_1} \times X_2^{b_2} \times X_3^{b_3} \dots X_n^{b_n} \cdot e^u$$

In this functional form 'Y' is dependent variable, 'X_i' are independent resource variables, 'a' is the constant representing intercept of the production function and 'b_i' are the regression coefficients of the respective resource variables. The regression coefficients obtained from this function directly represent the elasticities of production, which remain constant throughout the relevant ranges of inputs. The sum of coefficients that is 'bi' indicates the nature of returns to scale. This function can easily be

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