Resource use efficiency in fig (*Ficus carica* Linn.) production in Maharashtra

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ABSTRACT

Study was carried out in Maharashtra state with an aim to findout resource use efficiency in fig production. For the present study, Pune and Aurangabad districts were selected purposively because these are well known districts of fig cultivation. Analysis of Cobb-Douglas production function for Pune district reflected that sum of regression coefficient found to be 1.497, indicating increasing return to scale. Area under fig, human labour, manures, nitrogen and phosphorous were found significant indicating that there is scope to increase use of these resources. For Aurangabad district, sum of regression coefficient found to be 0.992, indicating constant returns to scale. Area, human labour, manure, nitrogen and phosphorus were found highly significant indicating that there is scope to increase the use of these inputs in fig production.

Key words : Fig, Resource use efficiency, Cobb-Douglas production function, Regression coefficient, MVP

India has made good progress in the horticultural sector. Horticultural crops are grown on about 12 million hectares, which is about 7 per cent of India's total cropped area. It is well known that man cannot live on cereals alone. Nutrition experts advocate the consumption of fruits at least 57 grams per head per day in addition to cereals, pulses, milk, vegetables, eggs, etc. The fig is an important fruit and is consumed fresh or in processed form. The mineral content of fig fruits is 2.4 per cent more than other fruits. Fig is richer in iron and copper contents than most other fresh as well as dry fruits and vegetables (Wasker *et al.,* 2003).

In India fig cultivation is mostly confined to Western part of Maharashtra, Gujarat, Uttar Pradesh (Lucknow and Saharanpur), Karantaka (Bellory, Chitraduraga and Srirangapattnam) and Tamil Nadu. Among these state, Maharashtra is the leading state followed by Karnataka and Uttar Pradesh with an area of 947 hectares and production of 2705 metric tonnes. In fig production, production technique, allocation of resources, minimization of cost and maximization of profit are important aspects. The present investigation, therefore, is devoted to know the resource use efficiency in fig production.

MATERIALS AND METHODS

Multistage sampling technique was adopted. In first stage, Aurangabad district from Marathwada region and Pune district from Western Maharashtra region of Maharashtra state were purposively selected because both districts are important in fig growing. In second stage, Auragabad tahsil from Aurangabad district and Purandar tahsil from Pune district was selected purposively because these are well known pockets of fig. In third stage five villages from each tahsil were purposively selected on the basis of area under fig. In fourth stage, 12 fig growing farmers were selected from each village and made a total sample of 60 from each tahsil, separately.

Cross sectional data were collected from the sample fig growers by personal interview method with the help of pre-tested schedule for the year 2006-2007.

Cobb-Douglas production function was fitted to the data to estimate resource use efficiency in fig production. The equation fitted was as follows -

$$Y = a. x_1^{b1}. x_2^{b2}. x_3^{b3}. x_4^{b4}. x_5^{b5}. x_6^{b6}. x_7^{b7}. x_8^{b8}.e^u$$

where,

Y = Estimated yield of fig in quintal

a = Intercept

b_i = Regression coefficient of the independent variables

x_1 = Area of fig garden in ha

x_2 = Human labour (man days)

x_3 = Bullock labour (pair days)

x_4 = Manures (q/garden)

x_5 = Nitrogen (kg/garden)

x_6 = Phosphorus (kg/garden)

x_7 = Potash (kg/garden)

x_8 = Pesticide (lits)

e = Error term

The function was transformed into log-linear form as follows :

$$Log\ Y = log\ a + b_1 log\ x_1 + b_2 log\ x_2 +........+ b_8 log\ x_8 + u\ log\ e$$

'F' value was tested at n-k-1 degree of freedom. Regression coefficient were tested for significance by applying 't' test of n-k-1 degree of freedom.

In Cobb-Douglas production function the regression