Internat. J. agric. Sci. Vol.3 No.1 January 2007 : 43-45

Resource productivity, resource use efficiency and optimum resource use in rainfed JKCH-666 cotton production

D.B. Pawar and B.R. Pawar*

Department of Agricultural Economics, Marathwada Agricultural University, PARBHANI (M.S.) INDIA

ABSTRACT

Cotton (*Gossypium hirsutum* L.) has the important characters of high lint production and long staple length. JKCH-666 cotton is one of the intra-hirsutum hybrids. It is suitable to grow under rainfed condition. Investigation was carried out for the year 2003-04 in order to study the marginal productivity, economic efficiency and optimum resource use in JKCH-666 cotton production in Parbhani district of Maharashtra. Results revealed that regression coefficients of manure (0.141) and hired human labour (0.172) were highly significant at 1 per cent level while regression coefficients of phosphorus (0.062), area of JKCH-666 cotton (0.184) and bullock labour (0.142) were positive and statistically significant at 5 per cent level. Thus, it was inferred that these resources were under utilized and there was scope to increase them in the cotton production. The ratios of MVP to price with respect to above resources were higher than unity. Optimum use of resource, where value of the additional product would be equal to the cost of additional resource. So long as the specific return is more than the added cost, one should go on pushing up production till marginal cost become equal to marginal return.

Key words : JKCH-666 cotton, Rainfed farm, Marginal product, Resource use efficiency, Optimum resource.

INTRODUCTION

Cotton (*Gossypium hirsutum* L.) has the important characters of high lint production and long staple length. *Hirsutum* species is popularly known as American cotton. In the species, many intra-hirusutm hybrids are evolved. JKCH-666 cotton is one of the intra-hirsutum hybrids which has been evolved by Agri-Genetic Limited, Begmpet, Hyderabad. It is suitable to grow under rainfed condition. Plant type is compact, dwarf medium and leaf colour is dull green. Boll size is medium round to oval with boll weight of 5 g. The fibre length is 30 mm and proportionate lint is 36 per cent. In India, hirsutum hybrids are grown on an area of 2.80 million hectares which is 31.11 per cent to total area under cotton crop (Raje 1999). Hirsutum hybrids are mostly cultivated in Punjab, Haryana, Rajstan, Gujrat, Maharashtra, Madhya Pradesh, Tamilnadu and Karnataka. Parbhani district of Maharashtra has favourable climate for cultivation of hirsutum hybrids under rainfed condition. The district comes under assured rainfall zone with annual rainfall of 827 mm. Generally, pickings of seed cotton start in November and end in January. Since, no serious attempts has been made to identify key inputs and their contribution in JKCH-666 cotton production. The present investigation, therefore has been devoted to determine resource productivity, resource use efficiency and optimum resource allocation in JKCH-66 cotton production.

MATERIALS AND METHODS

Multistage sampling technique was used to select district, tehsil, villages and JKCH-666 cotton farms. In the first stage, Parbhani district was selected because of its predominance in area of cotton. The district contributes about 25.90 per cent of cotton area to its net cultivated area of 5.20 lakh hectares. In the second stage, on the basis of highest area under hirsutum hybrid cotton, Parbhani tehsil was selected for the present study. In the third stage, 8 villages were selected from Parbhani tehsil on the basis of the highest area under JKCH-666 cotton. In the fourth stage, from each of the selected villages the list of JKCH-666 cotton growers with area under JKCH-666 cotton was obtained. Obviously, six JKCH-666 cotton farms were selected randomly from each of the villages. Thus, forty-eight JKCH-666 cotton farms were selected for the investigation. Cross sectional data were collected from forty-eight JKCH-666 cotton growers by personal interview method with the help of pretested schedule. Data pertained to production of JKCH-666 cotton on each farm and use of resources namely area under JKCH-666 cotton, seed, hired human labour, family human labour, bullock labour, pesticides, nitrogen, phosphorus, potash and manure for the year 2003-04. With the help of correlation matrix of the above variables, independent variables which were significant with respect to dependant variable were taken into consideration. Thus, these independent variables were included in both the linear and Cobb-Douglas functions. On the basis of goodness of fit (R^2), Cobb-Douglas production function was found to be the best fit to the data to estimate the resource productivity, resource use efficiency and optimum resource allocation (Ahuja, 1995), (Kumaresen *et al*., 2005) and (Singh, 1986). The fitted equation was in the following manner,

$$Y = aX_1^{b1} . X_2^{b2} . X_3^{b3} . X_4^{b4} . X_5^{b5} . X_6^{b6} . X_7^{b7} . X_8^{b8} . e^{u}$$

Where, Y = production of JKCH-666 cotton (kg/farm), a = intercept, b = partial regression coefficient of specific resource (i = 1, 2, ..., 8), X_1 = area of JKCH-666 cotton (ha/farm), X_2 = hired labour (man days/farm), X_3 = family human labour (man days/farm), X_4= bullock labour (pair days/farm), X_5= nitrogen (kg/farm), X_6= phosphorus (kg/

* Author for corrospondence.