Resource productivity and resource use efficiency in grape wine production

A.D. KAKADE, B.R. PAWAR AND S.S. BANKAR

ABSTRACT

In all 32 grape winery owners were selected from Pune, Nasik and Sangli districts of Maharashtra. Data were collected from 32 grape winery owners by personal interview method for the year 2009-2010. Cobb-Douglas production function was fitted to the data. The results revealed that the regression coefficients of hired human labour, raw grape, potassium metabisulphate, water quantity and KH_2PO_4 were 0.011, 0.494, 0.116, 0.005 and 0.267, respectively which were positive and significant. Marginal productivity with respect to hired human labour, raw grape, potassium metabisulphate, KH_2PO_4 and glycol was 9.321, 3.163, 597.674, 1034.330 and 208.293 litres, respectively. It inferred that if hired human labour increased by one person, raw grape by one quintal, potassium metabisulphate by one kg, KH_2PO_4 by one kg and glycol by one litre that would lead to increase grape wine production by 9.321, 3.163, 597.674, 1034.330 and 208.293 litres, respectively. The sum of the production elasticities (bi) was found to be 0.655 which indicated decreasing return to scale.

Grapewine is a health drink resulting from complete or partial alcoholic fermentation of grape. India has grape wine production about 2.25 crore litres of which Maharashtra has 2.11 crore liters of grape wine production. In present scenario, table-wine accounts for 85 per cent of market and expensive varieties of vintage-wine accounts for 15 per cent. In Maharashtra, at present there are 58 winery units. Out of that about 30 are in Nasik followed by 11 in Pune, 10 in Sangali, 3 in Buldhana and 1 in Osmanabad districts. Grape wine production is the function of variable resources like raw grape, labour and different chemicals. In production process, some resources are under utilization while other resources are over utilization (Julian and Heien, 2001). In this situation, grape wine production business might be in loss. In order to overcome the problem of resource management, the present study of resource productivity and resource use efficiently in grape wine production has been undertaken.

Correspondence to:
B.R. PAWAR, Department of Agricultural Economics and Statistics, College of Agriculture, LATUR (M.S.) INDIA

Authors' affiliations:
A.D. KAKADE AND S.S. BANKAR, Department of Agricultural Economics and Statistics, College of Agriculture, LATUR (M.S.) INDIA

METHODOLOGY

Multistage sampling design was adopted for selection of districts and grape winery owners. In the first stage, Pune, Nasik, and Sangli districts were selected purposely on the basis of availability of winery units. In second stage, eight winery units from Pune district, eight from Northern-Nasik, eight from Southern-Nasik and eight from Sangli districts were selected. Thus, in all 32 grape winery units were selected. Data were collected from the winery owners by personal interview method with the help of pretested schedule. The data pertained to the year 2009-2010. Use of resources namely, human labour, raw grape, yeast and chemicals were taken into consideration. Cobb-Douglas production function was fitted to the data to estimate the resource productivity and resource use efficiency as follows:

$$Y = ax_1b_1 \; x_2b_2... \qquad x_nb_ne^u$$

In this functional form Y is the dependent variable, Xi showed independent resource variables; 'a' as the constant representing intercept of the production function and bi indicated the regression coefficient of the respective resource variable. The regression coefficient was obtained from this function directly representing the elasticity of production which remains constant throughout the relevant range of inputs. The sum of coefficients *i.e.* bi indicates nature of return to scale. This function can easily be