

## **The efficiency of beef cattle production: a case study in the target area of concentration in Johor, Malaysia**

### **ABSTRACT**

Beef production in Malaysia is inadequate to meet the demand following the rapid increase in consumption and relatively slow growth in the industry. The Target Area Concentration (TAC) project is expected to be a major contributor to boost beef cattle production. This study identified the efficiency of resources used in the beef cattle production in the TAC in Johor, Malaysia. It addressed the issues on productivity and technical efficiency of beef cattle operations and their relationship with management inventory, farm performances, animal husbandry practices, as well as socio-economic and demographic factors. The translog and Cobb-Douglas stochastic frontier production functions were used to examine the issues of technical efficiency in the TAC project. The frontier regression model was estimated using the maximum likelihood estimation (MLE) technique. The translog stochastic frontier model was found to be suitable in representing the sample data and provide better estimates than the Cobb-Douglas model. The results indicated that the beef operation in the TAC has an increasing return to scale, and the average computed technical efficiency for individual farm units is 0.683. The technical efficiency of the majority of the farms (51%) was from 40% to 80%. The total loss in production due to inefficiency was estimated to be 3,094 heads of beef cattle in Animal Unit (AU) per year. The study also found that there was a significant difference in average technical efficiency by TAC location. However, the technical efficiency was not significantly different by farm types, ownership, and sizes. The findings of this study suggest that there is room for expansion, through the adoption of best practice technology and optimal resource allocation. The farms' technical efficiency could be improved with better planning and controlling skills by the farmers/managers, longer experience, proper training, advisory services by extension agents, higher calving rate, involvement of Department of Veterinary Services in breeding and health management services and using cross breed cattle.

**Keyword:** Efficiency; Target area of concentration (TAC); Technical efficiency; Beef cattle; Animal unit (AU); Translog frontier production function