ECONOMY, SOCIETY, EDUCATION – SESSION TO BE HELD IN HUNGARIAN

Analysis of dairy farms' efficiency by using data envelopment analysis (DEA)

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In Hungary the dairy sector is in a long-term critical period, the herd has been in constant decline. The comsumption of milk and dairy products in Hungary is slightly rising compared to the world tendency, and it is fallen behind the level in 1990. The milk consumption per capita in 2006 was with 75 litres less than the EU-15 average.

Dairy enterprise is a very risky activity: the profitability of the enterprise is affected by the fluctuation of feed and animal health products prices from the side of inputs, and by the fluctuatuation of end-product prices. Under these circumstances it is vital for the cattle breeders, in order to survive, to harness the reserves in the breeding as effectively as possible.

In my research I made a multi-faceted efficiency analysis of an agricultural holding's three dairy farms. The chosen method for the analysis was Data Envelopment Analysis (DEA). The selection of the method is justified by the fact that there is not such a reliable database by which I could define production functions, and that DEA makes possible to manage several inputs and outputs, i.e. multiple decision problems, simultaneously. By using DEA the sources that causes shortfalls can be identified, analyzed and quantified on farms that does not operate efficiently, thus it can help the corporate decision support successfully.

In the model inputs are the cost data per one litre milk – feed, medicinal product use, logistic costs -, and the main parametres concerning the keeping and rearing. Outputs are indicators concerning milk production, milk quality and others.

I prepared the model in MS Excel, the linear programming model series were programmed by Visual Basic. After solving the model, in light of the shadow prices I can determine why either of the farm is not efficient.

Keywords: DEA analysis, efficiency, dairy sector