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Fayoum University

ECONOMIC AND MANAGERIAL STUDY FOR THE MOST IMPORTANT PERFOMANCE INDICATORS OF SUGAR INDUSTRY

By

Sarah Omar MakramSayed

B.S.C In Agricultural Sciences (Agricultural Business and projects Administration)
Faculty of Agriculture, Fayoum University, 2012

A Thesis Submitted in Partial Fulfillment

Of

The Requirements for the Degree of

Master of Sciences

In

AgriculturalSciences

(Agricultural Economics)

Department of Agricultural Economics
Faculty of Agriculture
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2018

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Summary and Conclusion

Food Security is considered a national goal as it's strongly associated with political and economic situations. Sugar is one of the strategic goods as the cheapest source of energy. It's produced from two main crops; sugarcane and sugar beet.

Sugarcane was the main crop at sugar industry sincethe 8th century, by 1981 sugar beet started to be a replacement for producing sugar. Both crops have economic importance within the agriculture sector where there are several industries depend on them, for example; sugarcane can be consumed fresh, used to producemolasses, sued as seeds, and used for sugar production. Also, there are many by-products can be produced out of them including; bagasse which can be burned at the sugar factories to generate electricity and/ or used in the production of papers and wood, molasses which can be used as animal feed and/ or in yeast production & alcohol production, and wastes can be used as fertilizers and biofuel.

Personnel have a great impact on the production efficiency, and there are several ways to improve their skills including training, where training programs have a great impact on the improvement of skills and, in turn, improve production and managerial efficiency of the factories. So training is a strategic goal for such organizations.

This study aims to study the problem of "The reduction of the training programs efficiency for the human factor at the nutritional manufacturing sector for general and at the sugar factories for special".

So this study aims at investigating the effectiveness of the training programs provided by Abu QurkasSugar Factory inMinia Government and determine the managerial and economic efficiency through the performance indicators.

Different sources of data are used within the study including; primary data collected through interviews with the departments' mangers at Abu Qurkas factory using questionnaires designed for this purpose and secondary data collected from published and non-published reports of Ministry of Agriculture, Central Agency for Public Mobilization and Statistics (C.A.P.M.A.S), Industrial Development Authority (I.D.A), and Sugar Crops Council.

Quantitative and Qualitativeanalysis methods are used to analyze data including; Analysis of Variance, ANOVA, regression analysis, performance indicators, and Data Envelop Analysis model.

The study structured of four chapters. Chapter one provides theoreticalbackground aboutsugar production and wastes recycling in addition to human resources management in one section and literature review about sugar production in the other section.

Chapter two highlights the current situation of sugar crops production and food production firms in general and, in particular, sugar production factories. The chapter structured in two sections. In section one, the production of sugar crops is highlighted where it's found that the cultivated area of sugarcane has decreasedfrom 332 thousand feddans in 2014 to 328 thousand feddans in 2015, the total production was 15.5 million tons in 2015. Meanwhile, the cultivated area of sugar beet has increased from 504 thousand feddans in 2014 to 555 feddans in 2015 and the total production was 1.98 million ton in 2015. Section two highlights the situation of the food production firms where the number of firms has decreased from 4982firm in 2009to 4740 firmin 2014 due to the political situation during the period of 2011-2014. However, the production of these firms has gradually increased during the same period.

Chapter three highlights the production situation of sugar in Egypt in two sections. Section one provides overview of sugar production situation and the by-products of sugar industry. Sugar companies in Egypt include; Egyptian Sugar andIntegrated Industries Company, Delta Sugar Company, and National Company of Maize Productions. The quantity of sugar produced from sugarcane has increased from 1.2 million tons in 2012 to 1.3 million tonsin 2014. The quantity of sugar produced from sugar beet, also,has increased from 529thousand tons in 2013 to 743 thousand tonsin 2014. The average production of sugar per capita was 17.7 kg/year in 2014.It was noticed that the contribution of AbouQurkassugar production fluctuated between 2011 and 2016 and wa the lowest between other factories except Gerga factory in 2016 with 4.9% contribution. The quantity of yeast and molasses produced in Egypt through the period of 2004 to 2014 has also been highlighted. Section two highlights the foreign trade of sugar and the position of Egypt regarding production and consumption of sugar and the exports & imports of sugar in Egypt where imports were decreased and exports increased regularly through the period 2009-2012. The value of sugar exports was 1333 thousand EGP and the value of sugar imports was 106 thousand EGPin 2015

Chapter four evaluates the economic and managerial situation of Abu Qurkas factory and structured of two sections.Section one provides overview of the technical and managerial aspects of the factory starting from raw material used in the factory and the range of sugar crops supplied to the criteria of selecting personnel and management methods. Section two included the economic and managerial evaluation of the factory including the factory efficiency and extraction ratios and performance indicators for the factory comparing to other factories.

The study concluded the following; the aggregate manufacturing efficiency for the factory was the lowest comparing with the other sugar factories with 48.5% efficiency for sugarcane production line and 107.7% efficiency for sugar beet production. The extraction ratio of sugar is 10.15% for sugarcane and 12.33% for sugar beet. The low level of efficiency comparing to other sugar factories is due to the human input. The performance indicators are as follows:

- The average labor productivity is 59.7 ton per year with a value of 255.٢ thousand EGP.
- The productivity of the working hour is 61.4 tons per hour with a value of 290 thousand tons.
- The average salary per worker is 6000 EGP per year.
- The productivity of a salary pound is 9.95 kg per pound with a value of 42.5 pound.
- The profit per invested EGP is 0.77 pound.
- The Data Envelopment Analysis model showed that the factoryis inefficient regarding the technical efficiency comparing with the other sugar factories.

Human input is not efficient due to non-sufficient training programs and the training programs are not well-designed.

The study recommends the following:

- Ensure providing the suitable sugar beet seeds that could resist againstdiseases and provide then on time.
- Ensure providing sugarcane seeds with low water consumption.
- Increase the prices of supplied sugar crops to ensure more supply.
- Encourage farmers to use the new technology for cultivation of sugar crops.
- Establish a department to be responsible for training at the factory.

Provide a friendly work environment and encourage the personnelin the different departments at the factory to share knowledge with each other and work as a team in order to increase the performanceand efficiency ofthe factory.