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DECISION SUPPORT SYSTEM TO CONTROL THE INVENTORY OF SUGAR IN SUGAR FACTORY



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ABSTRACT: -

Decision Support System plays an important role in making decision in any industry. Decision Support System is expected to extend the decision makers capacity in processing the mountain of information involved in making a decision. As DSS is been used in the cooperative sugar industry to find out the carrying cost which is attached to the final price of the sugarcane which is given to the farmers, it plays an vital role as the carrying cost is increased the final payment given to the farmers is decreased. The paper revels the study of the inventory of sugar which is having impact on the carrying cost of sugar. The previous five years from 2006-07 to 2011-12 data was collected from one of the cooperative sugar factory and DSS model was implemented to find the results.

KEYWORDS: Decision Support System, MIS, Carrying Cost.

INTRODUCTION :

The sugar industry is the second largest process industry, based on perishable raw materials i.e. sugarcane with by-product like molasses, baggase etc. The stock of sugar is an important issue of the sugar factory as the sugar business is regulated by the

Government. And sugar cycle is playing an important role as in 3-5 years there is more production of sugar cane so the stock of sugar is more as well as there is 2-3 years the sugar production is low so there is less production of sugarcane so sugar stock is less as sugar prices are high during this period. Some of the sugar factories there is no provision of keeping the excess stock of sugar so the sugar has to keep in the open space so the rain can damage the sugar as there is need to regulate the stock so the proper provisions should be taken with the help of such a system that it can give the opening stock and closing stock of sugar of past and future so that we can prevent the losses of sugar during stock of sugar.

Decision Support System is expected to extend the decision makers capacity in processing the mountain of information involved in making a decision. It represents those decisions that make extensive use of analytical models in the form of tools and techniques used in operations research and management science along with quantitative corporate data. The organizations data systems department is just too busy to address all management inquires. The company desires a special analysis of profit and potency. Existing data systems don't support higher cognitive process and organizations data systems department is just too busy to address all management inquires. Decision support systems couple the intellectual resources of individuals with the capabilities of the computer to improve the quality of decisions. It is a computer based support system for management decision makers who deal with semi structured problems. The model developed is using the past data of the sugar factory and using the model the data of five years of sugar

inventory was added and the results were calculated which shows the results that what will be the carrying cost of sugar in sugar industry.

DSS INVENTORY SYSTEM MODEL:

DSS Inventory System is a self-contained system that depends on sugar factory Inventory past data and by using different statistical methods to forecast the key factors like Carrying Cost, Damage Cost, Insurance Cost etc. to avoid risk and increase cost benefit and identify the losses in cost which is occurred during inventory of sugar.

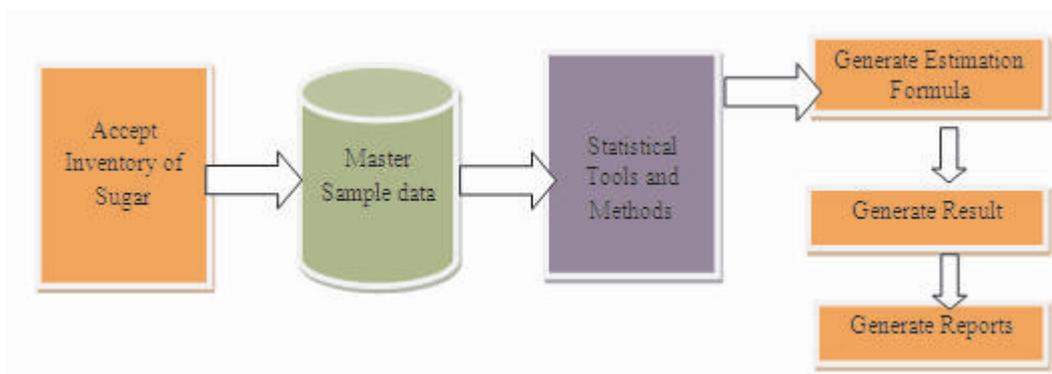
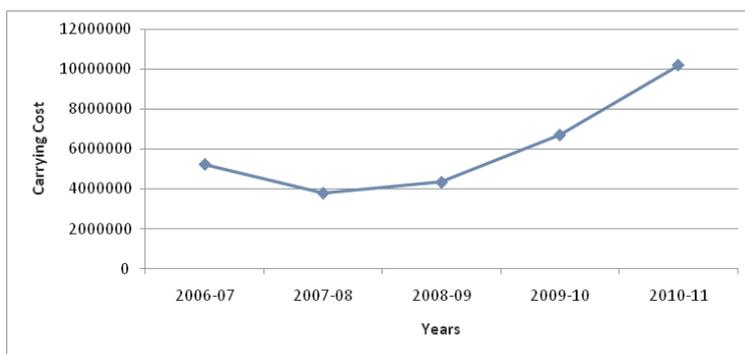


Fig 1.1 Decision Support System Model for Inventory of Sugar

The fig1.1 shows the DSS model which is accepting sugar of the current and previous years it can also give estimated inventory of the sugar and the capacity of warehouse holding of the sugar. The system generates the graphs from the system. The graphs and the result give the data interpretation of the system which compares the results of before the implementation of the system and after implementation. This result gives the observations and conclusion can be drawn if the Inventory is making impact on the process of sugar and what are the different losses and cost occurred during inventory of the sugar. The DSS models helps planning of inventory and what activities should be improved that will reduce the damages that will decrease the carrying cost of sugar. The cost incurred is damage cost, interest from the bank, and insurance cost of sugar bags,

Table 1.1: Year V/S Carrying Cost

Sr.No.	Year	Carrying Cost (Rs.)
1	2006-07	5230035.27
2	2007-08	3775397.21
3	2008-09	4321970.63
4	2009-10	6705147.26
5	2010-11	10219820.42

Graph 1.1: Year V/S Carrying Cost

The above data reveals that the carrying cost occurred in the season 2006-07 was Rs. 5230035.27 and it was decreased in the season 2007-08 up to Rs. 3775397.21 again it was increased in the season 2008-09 Rs. 4321970.63 as in the year 2009-10 it was 6705147.26 and lastly in the year 2010-11 the carrying cost was Rs. 10219820.42. The model clearly shows the graph as it was increasing. The more the stock of sugar more will be the carrying cost. Based on the data we can find what will be the damage quantity of sugar, cost occurred for inventory and the insurance cost for stock of sugar so finally it will calculate the carrying cost of sugar for inventory of the sugar.

CONCLUSION:

The carrying cost is playing a vital role in calculating the final cost of sugar because it is assumed that this cost is incurred during production cost of sugar and the profit is less ultimately the price given to the farmers will be less. This sugar industry is been controlled by Government of India and the release of sugar is on the basis of levy sugar which we cannot directly sale the sugar to the consumer. The main losses of sugar are many but this cost should also be considered as the loss in final price of sugarcane.

The MIS is playing a vital role in supplying information from all levels to the management and now DSS is helping to take decisions in uncertainty as the cost should be decreased in the production cycle and ultimately productivity will be increased. The model helps us to find the damage cost which is occurred during handling of sugar from production unit to warehouse, warehouse cost and insurance cost occurred during stock of sugar and interest cost because the advance is taken from the banks or financial institution for giving the payment to farmers.

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