Application of Transportation Algorithms in Heritage Foods

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Abstract: The purpose of this research is to obtain the minimized cost for the transportation in Heritage Foods. We use MODI method for the same. We have conducted a research on proper distribution of the food grain supplies using the above mentioned method so that it reaches the destination with minimum cost.

1.Introduction

We have selected Heritage foods which is one of the finest supermarket for food and dairy items in the southern part of India. Heritage fresh is a reimagined neighbourhood food and grocery store that is driven by local communities and serves a modern, personal and Indian shopping experience to its members. It is designed to create an engaging experience for the consumers and to cater to their everyday requirements, while delighting them with great value propositions. Heritage Fresh offers a wide range of fresh fruits and vegetables, besides having an impressive assortment of staples, household items, daily groceries and more. Store sizes range from 1800 sq. ft. to 2800 sq. ft. The stores are well organized, hygienic, with items neatly and conveniently displayed. Our courteous and well-appointed staff are present for a seamless shopping experience and quick check out process. Heritage Fresh became part of Future Group in November 2016.

2. Research

Instantly in the first place, Heritage foods at Vijaywada. There we got various information about the logistics of the different warehouses. The supply of goods are managed with the help of warehouse management system. Ordering from store to warehouse is completely automated and they practice computerized re-ordering of products, depending on sales data from point of sale, seasonal changes, actual inventory levels, receipts and acceptable safety stock levels. In order to do our research we have ordered the goods for a month and calculated its transportation cost.

The transportation of goods from the warehouse situated in Heritage Foods is made in different destinations of the southern part of India.

3. Findings

Since we have selected various products of various categories but only of dairy products. The quantity for which we have looked for let say is 50 packets of one product. Then it doesn't have the same cost for every store. The transportation cost will be higher because there will be longer distance to cover. The same concept

is applied to other goods as well as mentioned in the table. Heritage collects the products from manufacturer and distributed to ware houses.

According to requirement product shift to store.

Retail store: ANKAPALLI

The heritage has ware house (godown) in Vijayawada, Vizag and Vijayanagaram.

The products will reach retail store according to requirement.

Example: Cheese

	AGED Fresh cheese	Soft white cheese	Hard cheese	Semi soft cheese	Supply
vizag	19	30	50	10	7
Vijayawada	70	30	40	60	9
vijayanagaram	40	8	70	20	18
Demand	5	8	7	14	

Excel solver output:

	AGED Fresh cheese	Soft white cheese	Hard cheese	Semi soft cheese		Supply
vizag	5	0	0	2	7	7
Vijayawada	0	2	7	0	9	9
vijayanagaram	0	6	0	12	18	18
	5	8	7	14		
Demand	5	8	7	14		
	743					

Here there are 4 products,

Aged fresh cheese, soft white cheese, hard cheese, semi soft cheese

The ware houses are vizag vijayanagram Vijayawada

The stock will reach time every 3 days.

Supply and demand in kg.

743 is minimization transportation cost.

According to heritage data 1000 is their cost.

By this 257 is decreased.

4. Conclusions

Thus can conclude that excel solver provided the same Total minimum cost and a direct optimal solution in fewer iterations for the transportation problem.

Like in this case the excel solver method takes less time and is very easy to understand and apply.

so here we applied Excel solver method and solved the transportation problem and optimized transportation costs of Heritage Food stores with ease. Decision makers who deal with logistics and supply chain problems can make use of this method to optimize transportation costs.

We tried to analyze the market situation by considering the demand hypothetically and it's supply so that we could optimize the transportation costs as taken in the question by solving it using the excel solver in order to get the most feasible solution.

5. References

1. https://www.heritagefoods.in/
2. https://www.youtube.com/watch?v=8dD9se1cdNE&feature=youtu.be
3. Operations Research (Book by A. K. Malik and S. R. Yadav).