Abstract

This paper develops an integrated production inventory model with an aim to minimize the cost of production per unit of the product and maximization of profit without compromising the quality of the product. In this model we consider two plants, two secondary warehouses (SWs) and two showrooms (SRs) those are adjacent to the respective plants. For the purpose, we assume to be erected by a firm two plants: Plant-I and Plant-II. Plant-I is situated in an urban area with a lower production capacity in comparison to its product demand where the demand meets through SR-I. On the other hand, Plant-II is situated in a rural area with higher production capacity in comparison to its product demand where the demand meets through SR-II. The excess production in Plant-II meets the current market demand in the area of Plant-I. Here, demand is assumed to be stock dependent in both the showrooms (SR-I and
SR-II). Average profit in the integrated model is calculated and global optimum is obtained through a descriptive-cum-analytical review. The inventory parameters are taken as fuzzy numbers. The fuzzy numbers are first transformed into corresponding interval numbers and then follow the interval mathematics, the objective function for average profit is converted into respective multi-objective functions. Furthermore, the objective functions are being maximized and solved for a Pareto-optimum solution by interactive fuzzy decision-making procedure. The model also illustrates graphically and numerically.

References

An Interactive Method for Two-plants Production Inventory Control with Two-Warehouse Facility under Imprecise Environment.


Hariga, M; "Inventory models for multi-warehouse systems under fixed and flexible space leasing contracts", Computers and Industrial Engineering, Vol. 61, pp. 744-751, 2011.


Hariga, M; "Inventory models for multi-warehouse systems under fixed and flexible space leasing contracts", Computers and Industrial Engineering, Vol. 61, pp. 744-751, 2011.


- Sarma, K. V. S.; A deterministic inventory model with two levels of storage and an optimum release rule, Opsearch, Vol. 20, pp. 175-180, 1983.

Index Terms

Computer Science
Information Sciences

Keywords
Inventory Two-plants Two-warehouse Stock dependent demand Fuzzy inventory cost parameters
Interactive decision making method.