Fuzzy optimization of units products in mix-product selection problem using fuzzy linear programming approach

Abstract

In this paper, the modified S-curve membership function methodology is used in a real life industrial problem of mix product selection. This problem occurs in the production planning management where by a decision maker plays important role in making decision in an uncertain environment. As analysts, we try to find a good enough solution for the decision maker to make a final decision. An industrial application of fuzzy linear programming (FLP) through the S-curve membership function has been investigated using a set of real life data collected from a Chocolate Manufacturing Company. The problem of fuzzy product mix selection has been defined. The objective of this paper is to find an optimal units of products with higher level of satisfaction with vagueness as a key factor. Since there are several decisions that were to be taken, a table for optimal units of products respect to vagueness and degree of satisfaction has been defined to identify the solution with higher level of units of products and with a higher degree of satisfaction. The fuzzy outcome shows that higher units of products need not lead to higher degree of satisfaction. The findings of this work indicates that the optimal decision is depend on vagueness factor in the fuzzy system of mix product selection problem. Further more the high level of units of products obtained when the vagueness is low.