

Profit maximization in a paint manufacturing plant using linear programming

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Profit maximization is a very important objective of any organization. In business, profit is used to measure the quality, value and the success of a business. Profit maximization helps to drive a business smoothly, successfully and survive continuously while providing various benefits. Profit is considered as a yardstick for the success of a commercial organization.

In this study, a paint manufacturing company in Sri Lanka was selected to maximize their profit using available resources while maintaining maximum performances. Using this study, management of the entity can decide the number of units from each size of main paint types to be manufactured and to determine which products are profitable. In other words, it is possible to find out the products which should be given more attention to maximize profit under various conditions. Also, in this project, options are checked to reduce wastage resources like money, time and physical resources etc. Their product portfolio includes five main paint product types, which are *Emulsion, Enamel, Anticorrosive, Floor paint and varnish*.

To construct the model, available raw materials, labour hours, demand for each product per month, quantity of raw materials which are used as ingredients for products and their contribution per unit were collected for data analysis. Available resources and demand for products per month were considered as constraints of the model. In data analysis, *a linear programming* model was created and solved using lingo15.0 software as a Lindo model.

As a result of this study, a clear idea can be given to managers to manage the resources for optimal production. Also company can take necessary action to prepare an optimal production schedule.