The optimization of production lines is crucial for the industrial market, allowing an increase in quality and quantity of production in less time, producing more with less costs. Method of Problem Analysis and Solving (MASP) is an efficient set of statistical tools that provides a methodology and an improvement in process quality. The study aimed to optimize the production line in a flour mill, turning unproductive into productive hours. Through data collection of stops, at random times, there was an average operation/day value of 60.5% and a best result of 83%, taken as a goal to be achieved. It was found that the problem of excessive stops focused on 4 major causes, representing 87% of all cases. Using Pareto charts, histograms and Brainstorming, it was observed the day of the week and times of the most influential causes and reasons that led to these stops. Using the PDCA cycle, each subject was analyzed, taking up an action plan, verifying its effectiveness and its monitoring. The amount of incoming and outgoing resources referring to the implementation costs of the project was compared for the economic evaluation of the results. Considering the cost of production of each auxiliary depending on their monthly working hours, it was found that increasing the number of productive hours in 22.5%, there was an increase of 270 hours per month, providing a monthly return for the industry in R$ 1551.37, which can be paid in four months of production, proving the viability of the project.