Project report

QUALITY IMPROVEMENT OF FERTILIZERS BY USING CONTROL CHARTS FOR VARIABLES

A PROJECT REPORT PRESENTED

BY

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ABSTRACT

Title :

Quality Improvement of Fertilizer by Using Control Charts for Variables.

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Summary :

Production and use of fertilizers are very important to Sri Lanka, which is primarily an agricultural country. The fertilizer sector of Sri Lanka provides employment and contributes to the national economy in a considerable manner. As the population of Sri Lanka is expected to increase, a greater demand for food and allied agricultural products will be created. Therefore, it is necessary to increase the agricultural output, to meet the requirements of a growing population.

Fertilizers are a key input, which plays a vital role in increasing the agricultural production. In order to meet these demands, the government sector as well as a high number of private companies is involved in blending and distributing of fertilizers. As demand for fertilizers are very high, there is keen competition between the producers to meet this demand. In such a competitive environment, the products with higher quality will have a higher

demand. Therefore, quality control and improvement is very important for success in the fertilizer market.

There are various statistical techniques of determining whether a process is in statistical control. One such method is the use of control charts to check whether the production process is in statistical control, and if not, to discover the reasons for it. Then, necessary adjustments can be made to bring the process under control.

Most fertilizers consist of Nitrogen (N), Phosphorus (P) and Potassium (K), which are essential elements for plant growth. In this particular experiment, the analytical value of N, P & K, of seven fertilizers were plotted by using control charts for variables. The results were analyzed and various factors that affect the outliers were investigated.

It can be concluded that the number of workers employed and the number of working hours, the methods of blending the fertilizers, the high demand for the fertilizers and repairs on certain parts of the machines may be the factors that affect the outliers.

Finally, methods of experimental designs were proposed to find out whether these factors really affect the quality of the fertilizers.