ABSTRACT

Quality becomes an essential part of businesses in a global market. Two essential tools for ensuring quality are the statistical quality control and the acceptance sampling. Acceptance sampling was one of the most important mechanisms of statistical quality control in 1930s and 1940s but in recent years acceptance sampling has become a routine work which deals with suppliers for better performance of their products via statistical process control (SPC).

This study designs a new sampling plan for testing of multi-lots using Weibull distribution. We develop this new acceptance sampling plan for the sake of comparison with the previous lot-by-lot acceptance sampling plan and to reduce sample size. Our proposed plan is the extension of the typical lot-by-lot acceptance sampling plan when $m > 1$, where m shows number of lots. The R software is used for simulation method.

To check the efficiency of proposed plan the values of proposed plan parameters are determined at specified producer's risk and consumer's risk. The results shows that our proposed plan is more efficient because it provides less sample size as compare to the lot-by-lot acceptance sampling plan at each and every level of experiment time and percentiles ratio. Thus, overall it is concluded that our proposed plan is more efficient than the existing sampling plan, in terms of sample size.