ABSTRACT

Statistical Quality Control (SQC) plays a most important role for the failure or success of a company. Acceptance sampling plans are basic instrument in SQC to accept or reject a lot. So, before sending a lot to market the inspection is necessary to finalize the product. The conclusion about the shipment of products is made on the basis of samples taken from it, although there is a chance of rejecting a good lot and accepting a bad lot.

The main object of this study is to develop a new variable acceptance sampling plan based on new sampling technique which known as a successive sampling or rotation sampling in statistical quality control (SQC). This concept that is used for present phenomenon is not considered up till now in SQC for the construction of acceptance sampling plans. In this technique, the population meanis computed by utilizing a Best Linear Unbiased Estimator (BLUE) proposed by Mukhopadhyay (1998) for the current occasion. Moreover, the information from first occasion leads completely to the estimation of population mean at current occasion and the quality characteristics of first & current occasion is same.

In this research, we proposed a new variable acceptance sampling plan (ASP) based on two occasion's successive sampling (SS) technique by using best linear unbiased estimator (BLUE). It is assumed that the underlying characteristic of interest follows normal distribution over the two succeeding occasions. The proposed plan is presented for both the situations when population standard deviation is known or unknown. The plan parameters are determined by using optimization approach for both situations such that the provided consumer's and producer's risks are satisfied for the assigned values of acceptable quality level (AQL) and the lot tolerance percent defective (LTPD) beyond the specifications. The proposed concept includes the single sampling based plan (special case) and it is used for comparison with the presented concept. The presented plan is proved advantageous in terms of sample size over the existing one and real life application is also discussed in detail. The proposed plan tables are exclusively presented for various parametric values to be implemented in industries.

In this study, we proposed a variable repetitive group sampling plan based on a two occasion successive sampling assuming that the quality characteristic follows the normal distribution. An optimization approach is used and the plan parameters are

determine. The plan parameters are determine for both situations when standard deviation is known and unknown. The tables are constructed for both situations.