NOTES

This section is devoted to brief research and expository articles, notes on methodology and other short items.

A NOTE ON SOME SINGLE SAMPLING PLANS REQUIRING THE INSPECTION OF A SMALL NUMBER OF ITEMS

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In the practical application of sampling inspection plans it is often necessary to restrict the number of items (pieces, samples) inspected from each inspection lot to a relatively small number. For example, if many vendors are supplying a manufacturer with small lots of various kinds of material, the manufacturer will usually wish to have some check on his suppliers; however, he cannot afford to inspect large numbers of items from each lot. If sampling plans requiring the inspection of a small number of items are used, it is advantageous to know the characteristics of such plans. The present note offers several single sampling plans with sample size $n \leq 25$, together with their operating characteristic curves (OC curves) and average outgoing quality curves (AOQ curves).[2]

Single sampling plans for large lots may be described by the number n of items to be inspected, and the rejection number r. If r or more of the items inspected fail to meet some predetermined standard the lot is rejected; if less than r items fail to meet the standard the lot is accepted.

The OC curve (see Figures 1, 1A, 3 and 5) shows the relationship between the probability of rejecting a lot and the true quality of the lot. The quality of the lot is often measured by the "percent defective" in the lot; i.e., the proportion of material which does not meet some predetermined standard. It should be noted that the definition of OC curve given here is only one of several in common use. In particular, the vertical axis often gives the probability of "acceptance"; such a treatment would amount to an "inversion" of the curves given here. Another

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[2] The OC and AOQ curves are often adequate to analyze single sampling plans because it is not customary to curtail single sampling even when the outcome of the inspection (acceptance or rejection) is determined before all the items are inspected. In other kinds of sampling plans (double, multiple, and sequential) where curtailing is often used after the first sample, curves for the average amount of sampling are also useful. However, if one is interested in the average amount of inspection, including detailing, as a manufacturer inspecting his own product might be, curves for the average amount of inspection would be useful in connection with any sampling plan.